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NWT Diamonds Project

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APPENDIX II-A

Physical Setting

NWT Diamonds Project

Appendix II-A1

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NATURAL RESOURCES CANADA
GEOLOGICAL SURVEY OF CANADA

RESSOURCES NATURELLES CANADA
COMMISSION GEOLOGIQUE DU CANADA

SEISMIC RISK CALCULATION *

CALCUL DE RISQUE SEISMIQUE *

REQUESTED BY/ DEMANDE PAR: P.M. Byrne / U.B.C

SITE: North West Territories (NW of Yellowknife)

LOCATED AT/ SITUE AU: 64.67 NORTH/NORD 110.58 WEST/OUEST

PROBABILITY OF EXCEEDENCE PER ANNUM/ PROBABILITE DE DEPASSEMENT PAR ANNEE	0.010	0.005	0.0021	0.001
PROBABILITY OF EXCEEDENCE IN 50 YEARS/ PROBABILITE DE DEPASSEMENT EN 50 ANS	40 %	22 %	10 %	5 %
PEAK HORIZONTAL GROUND ACCELERATION (G) / ACCELERATION HORIZONTALE MAXIMALE DU SOL (G)	0.009	0.011	0.013	0.016
PEAK HORIZONTAL GROUND VELOCITY (M/SEC) / VITESSE HORIZONTALE MAXIMALE DU SOL (M/SEC)	0.027	0.032	0.039	0 046

* REFERENCES

1. NEW PROBABILISTIC STRONG SEISMIC GROUND MOTION MAPS OF CANADA: A COMPILATION OF EARTHQUAKE SOURCE ZONES, METHODS AND RESULTS. P.W. BASHAM, D.H. WEICHERT, F.M. ANGLIN, AND M.J. BERRY EARTH PHYSICS BRANCH OPEN FILE NUMBER 82-33, OTTAWA, CANADA 1982

2. ENGINEERING APPLICATIONS OF NEW PROBABILISTIC SEISMIC GROUND-MOTION MAPS OF CANADA. A.C HEIDEBRECHT, P.W. BASHAM, J.H. RAINER, AND M J. BERRY CANADIAN JOURNAL OF CIVIL ENGINEERING, VOL. 10, NO 4, P. 670-680, 1983.

3. NEW PROBABILISTIC STRONG GROUND MOTION MAPS OF CANADA. P.W. BASHAM, D.H. WEICHERT, F.M. ANGLIN, AND M.J. BERRY, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, VOL 75, NO. 2, P. 563-595, 1985.

4A. SUPPLEMENT TO THE NATIONAL BUILDING CODE OF CANADA 1985, NRCC NO. 23178. CHAPTER 1: CLIMATIC INFORMATION FOR BUILDING DESIGN IN CANADA. CHAPTER 4: COMMENTARY J: EFFECTS OF EARTHQUAKES.

4B. SUPPLEMENT DU CODE NATIONAL DU BATIMENT DU CANADA 1985, CNRC NO 23178F. CHAPITRE 1: DONNEES CLIMATIQUES POUR LE CALCUL DES BATIMENTS AU CANADA. CHAPITRE 4: COMMENTAIRE J: EFFETS DES SEISMES.

North West Territories (NW of Yellowknife)

ZONING FOR ABOVE SITE/ ZONAGE DU SITE CI-DESSUS

1985 NBCC/CNBC: ZA = 0; ZV = 0; V = 0.00 M/S

ACCELERATION ZONE/ ZONE D'ACCELERATION ZA=0
ZONAL ACCELERATION/ ACCELERATION ZONALE 0.00 G

VELOCITY ZONE/ ZONE DE VITESSE ZV=0
ZONAL VELOCITY/ VITESSE ZONALE 0.00 M/S

1985 NBCC/CNBC **
SEISMIC ZONING MAPS/ CARTES DU ZONAGE SEISMIQUE

PROBABILITY LEVEL: 10% IN 50 YEARS
NIVEAU DE PROBABILITE: 10% EN 50 ANNEES

G OR M/S	ZONE	ZONAL VALUE/ VALEUR ZONALE
0.00		
	0	0.00
0.04		
	1	0.05
0.08		
	2	0.10
0.11		
	3	0.15
0.16		
	4	0.20
0.23		
	5	0.30
0.32		
	6*	0.40

* ZONE 6: NOMINAL VALUE/ VALEUR NOMINALE 0.40;
SITE-SPECIFIC STUDIES SUGGESTED FOR IMPORTANT PROJECTS/
ETUDES COMPLEMENTAIRES SUGGEREES POUR DES PROJETS D'IMPORTANCE.

** FOR NBCC APPLICATIONS, CALCULATED ZONE VALUES AT A SITE SHOULD BE REPLACED BY EFFECTIVE ZONE VALUES [ZA(EFF) OR ZV(EFF)] AS SHOWN BELOW/
POUR APPLICATIONS SELON LE CNBC, ON DOIT REMPLACER LES VALEURS ZONALES CALCULEES POUR UN SITE PAR LES VALEURS EFFECTIVES [ZA(EFF) OU ZV(EFF)] COMME MONTRE CI-DESSOUS:

1. IF/SI (ZA - ZV) > 1, ===> ZA(EFF) = ZV + 1.

OR/OU

2. IF/SI (ZA - ZV) < 1, ===> ZA(EFF) = ZV - 1.

OR/OU

3. IF/SI ZV=0 AND/ET ZA > 0, ===> ZV(EFF) = 1.

(SEE REFERENCE 2 CITED ABOVE, PAGE 677)
(VOIR PAGE 677 DE LA REFERENCE 2 CI-DESSUS)

May 18, 1995

Appendix II-A2

Staff Gauge Readings

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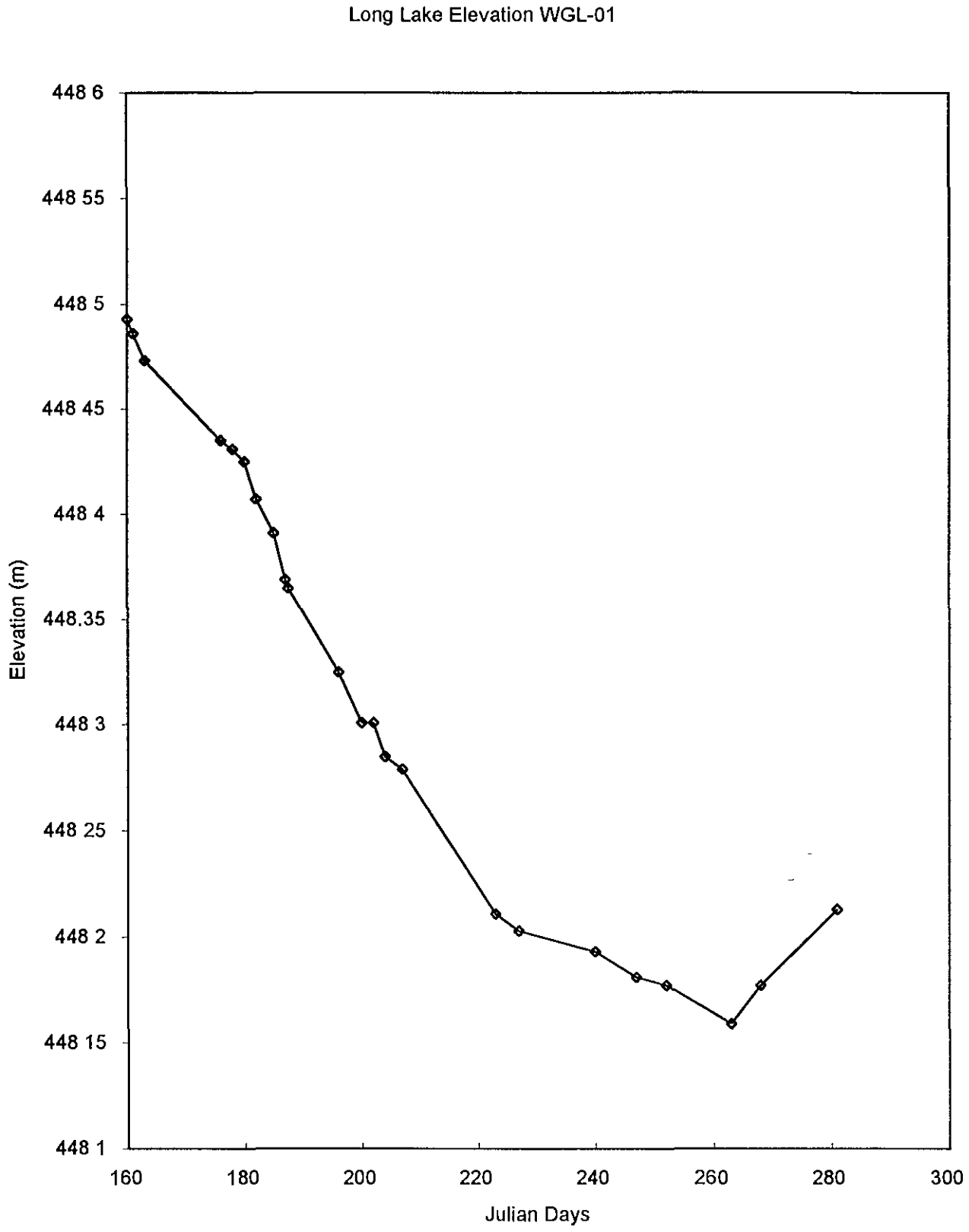
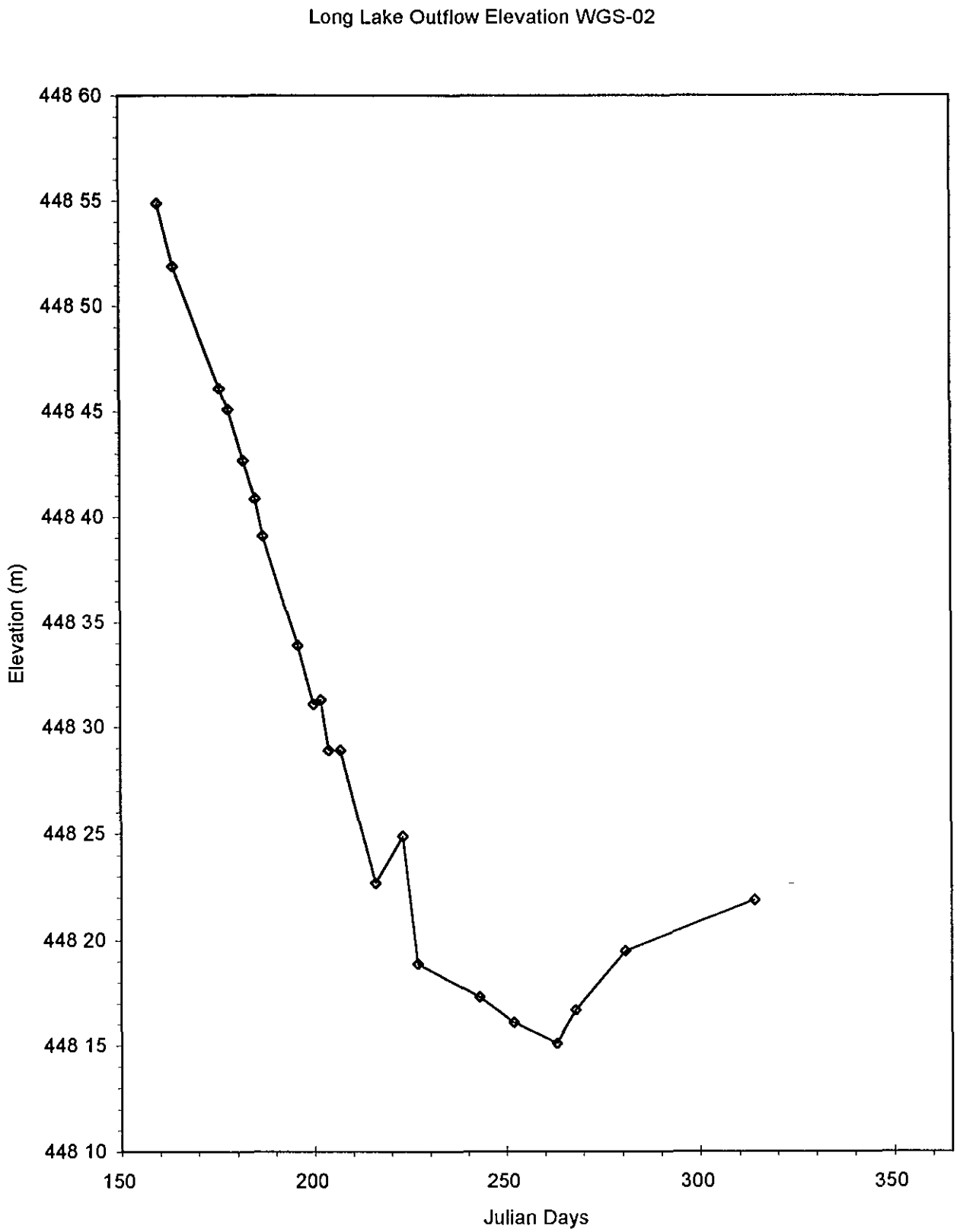
NWT Diamonds Project					
Staff Gauge Readings					
Location Long Lake, 100 m east of outflow stream into Leslie Lake					
Gauge #	WGL-01			Datalogger sn# 305	
Elevation	447 893	m for Staff "0"		Sensor # 416006	
UTM Location		7173235	514241		
Date	Time (MST)	Staff Reading	Elevation (m)	Comments	Initials
June 09	14 45	0 6	448 493	Ice on lake with 10-15 m water lead on east edge	DH + TT
June 11	11 10	0 593	448 486	set datalogger	DH
June 13	11 15	0 58	448 473		DH
June 19				Ice probably all off Long Lake	
June 24	09 30			Flight over Long Lake, No ice on Long Lake	TT
June 25	10 02	0 542	448 435	very light waves	TT
June 27	16 54	0 538	448 431	calm water, very light ripples,	TT
June 29	16 03	0 532	448 425	Download datalogger, take reading, water fairly calm	DH + TT
July 01	20 20	0 514	448 407	calm water , good reading	TT
July 04	09 41	0 498	448 391	calm water, good reading	TT
July 06	10 15	0 476	448 369	Calm, good reading, Stream outflow measurements	TT
July 06	18 12	0 472	448 365	calm water, Isotope sample RET 94004	TT
July 15	07 05	0 432	448 325	calm water, good reading	TT
July 19	18 16	0 408	448 301	slightly wvy, +/- 0 5 cm, ok reading	TT + DJR
July 21	10 21	0 408	448 301	calm, +/- 0 2 cm	TT + AB
July 23	10 09	0 392	448 285	calm, good reading	TT + JF
July 26	16 08	0 386	448 279	calm, good reading	JF
Aug 4	10 28	0 336	448 229	calm	DH
Aug 11	17 43	0 318	448 211	calm, good reading	DH
Aug 15	11 54	0 31	448 203	calm, good reading	TT + BR
Aug 28	17 27	0 3	448 193	dead calm, isotope sample	TT
Sept 04	17 48	0 288	448 181	calm , isotope sample	TT
Sept 09	17 00	0 284	448 177	calm, isotope sample	TT
Sept 20	15 10	0 276	448 169	calm, isotope sample	TT
Sept 21	07 40	0 266	448 159	calm, download datalogger, file L010921 DAT	TT
Sept 25	16 31	0 284	448 177	calm at gauge, isotope sample	TT
Oct 8	16 32	0 32	448 213	ice at gauge, remove datalogger, isotope sample	TT

LONG1


Long Lake Elevation WGL-01
448 6
448 55
448 5
448 45
448 4
448.35
448 3
448 25
448 2
448 15
448 1
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

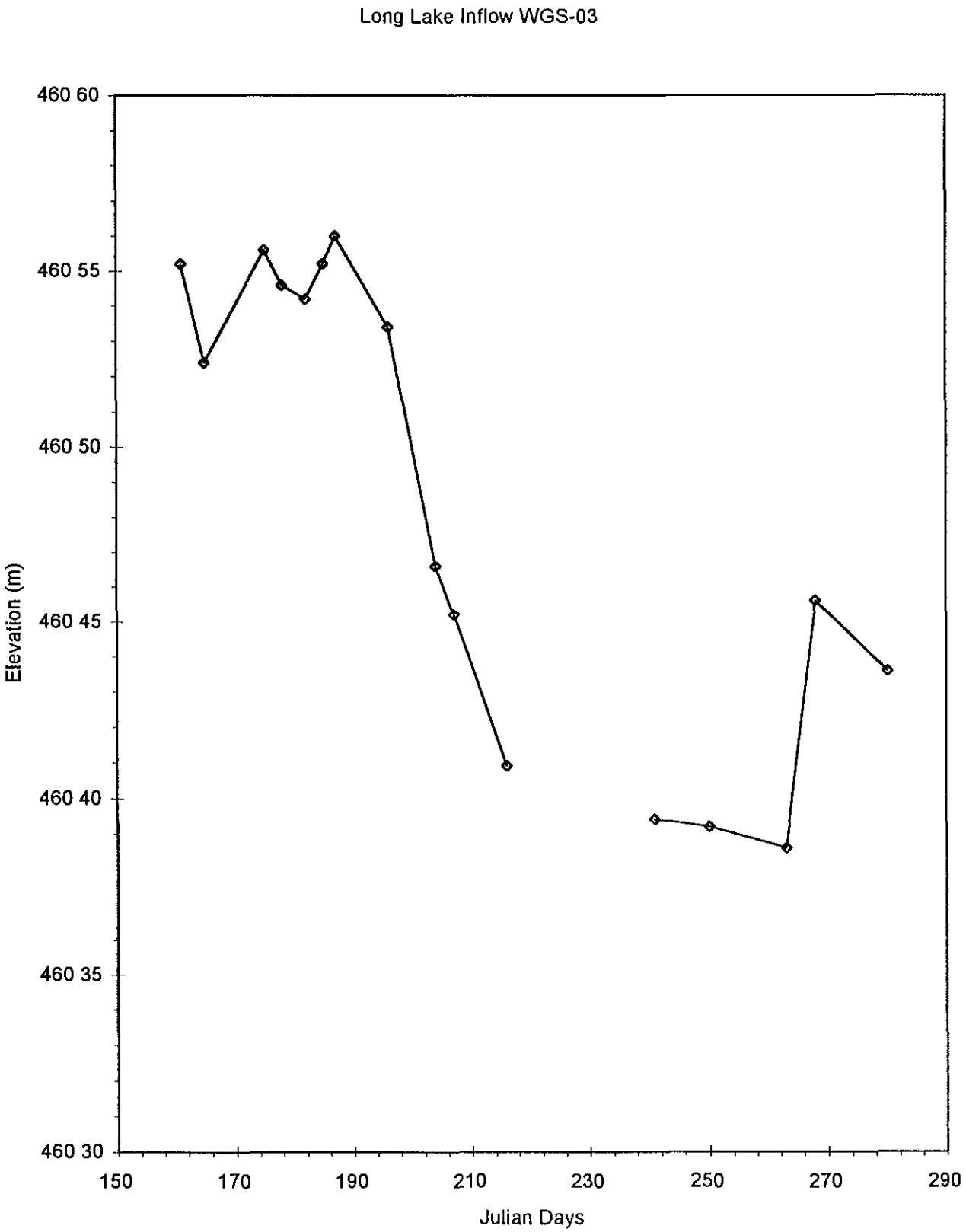
NWT Diamonds Project Staff Gauge Readings					
Location Long Lake outflow stream, east side braced against huge rock					
Gauge #	WGS-02			Datalogger # - none	
Elevation	447 799 m for staff "0"				
UTM Location		7173110N	514253E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 09				Set up station	DH + TT
June 09	16 00	0 75	448 549	Stream is appx 30 m wide, DH did flow	DH + TT
June 13	13 30	0 72	448 519		DH
June 25	11 00	0 662	448 461	calm water	TT
June 27	17 52	0 652	448 451	calm water, good reading	TT
July 01	21 18	0 628	448 427	Calm water, good reading, heli trip	TT
July 04	09 38	0 61	448 409	Calm, good reading	TT
July 06	07 50	0 592	448 391	Calm, good reading	TT + ST
July 15	07 10	0 54	448 339	calm water, good reading	TT + ST
July 19	18 14	0 512	448 311	calm water, good reading	TT + DJR
July 21	11 25	0 514	448 313	ripples, +/- 0 5 cm	TT + AB
July 23	11 07	0 49	448 289	calm, good reading	TT + JF
July 26	16 15	0 49	448 289	slightly wavy,	JF
Aug 4	09 25	0 428	448 227	calm	DH
Aug 11	17 45	0 45	448 249		DH
Aug 15	11 56	0 39	448 189	calm, good reading	TT
Aug 31	07 43	0 374	448 173	calm, good reading	TT
Sept 09	16 59	0 362	448 161	calm	TT
Sept 20	15 08	0 352	448 151	calm	TT
Sept 25	16 28	0 368	448 167	calm	TT
Oct 08	16 54	0 396	448 195	calm, no ice, water for 10 m	TT
Nov 10	12 00	0 42	448 219	gauge in snow, install datalogger 317	TT

OUT2


Long Lake Outflow Elevation WGS-02
448 60
448 55
448 50
448 45
448 40
448 35
448 30
448 25
448 20
448 15
448 10
Elevation (m)
150
200
250
300
350
Julian Days

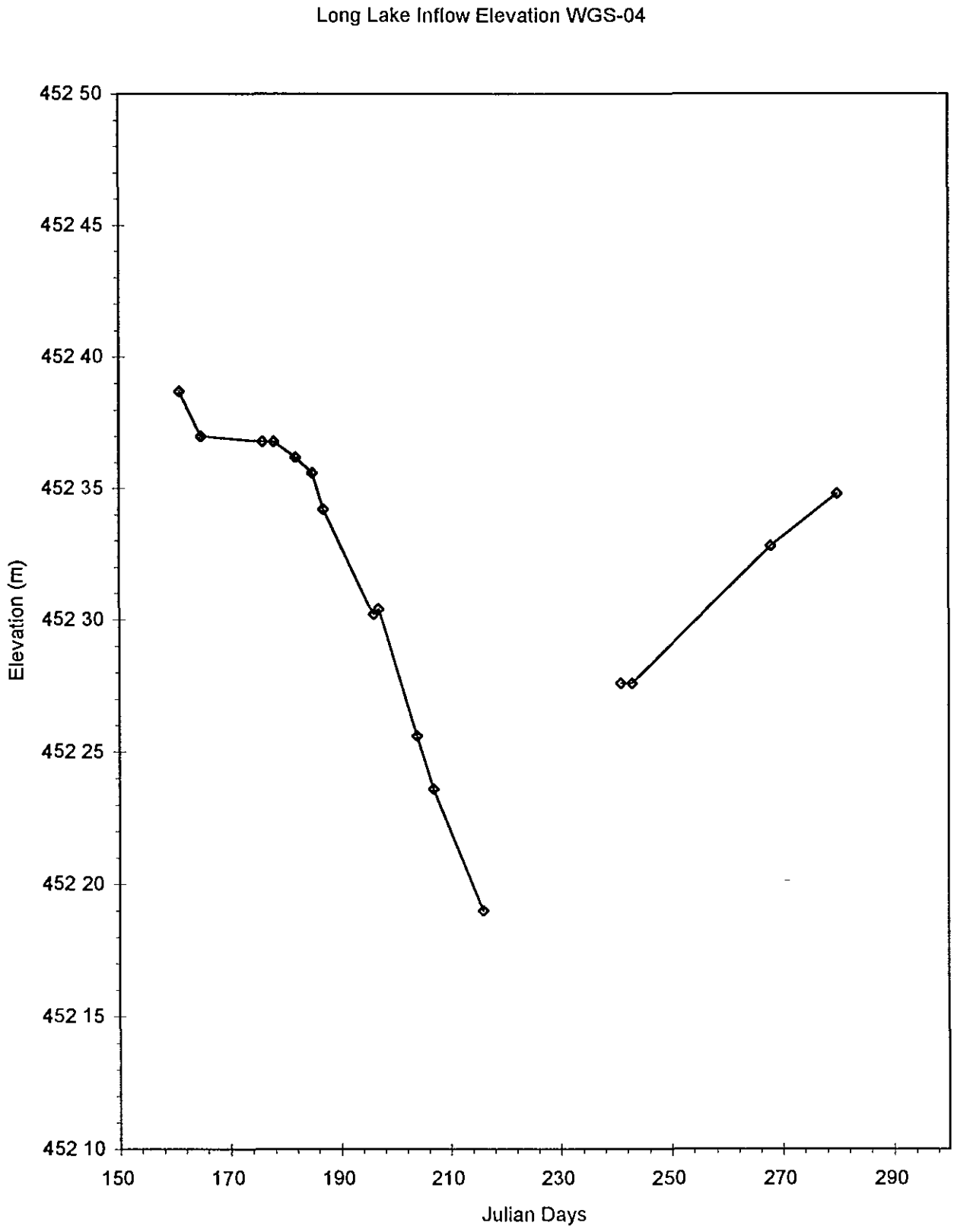
NWT Diamonds Project					
Staff Gauge Readings					
Location: West arm of Long Lake inflow, between the top two lake					
Gauge #	WGS-03			Datalogger # none	
Elevation	460 254	m for staff "0"			
New elevation:	459 886	m for staff "0"		re-set on Oct 7, 1994	
UTM location:		7178757N	512949N		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 10				Set up station	DH + TT
June 10	12 00	0 298	460 552	DH did stream flow, Frost table survey	DH + TT
June 13	10:45	0 27	460 524		DH
June 24	17:20			Water gauge toppled, Re-install water gauge, when gauge put bac	TT
June 24	17:30	0 302	460 556	New reading after re-installation	TT
June 27	17 24	0 292	460 546	calm water	TT
July 01	21:12	0 288	460 542	calm water, good reading	TT
July 04	09:20	0 298	460 552	Calm water, good reading	TT + AB
July 06	09 25	0 306	460 56	Calm water, good reading, flow measurements	TT + ST
July 16	09:55	0 28	460 534	Calm water, good reading	TT + ST
July 23	11 18	0 212	460 466	Calm water, good reading	TT + JF
July 26	16:00	0 198	460 452	calm, gauge slightly crooked	JF
Aug 04	11:15	0 155	460 409	stream flow	DH
Aug 11				No flow	DH
Aug 29	11:42	0 14	460 394	Trace flow in stream center	TT
Sept 07	07:20	0 138	460 392	Trace flow in stream center, flow readings taken	TT
Sept 20	14 55	0 132	460 386	calm, low flow	TT
Sept 25	13 39	0 202	460 456	calm	TT
Oct 07	12:47	0 182	460 436	calm, end of readings at thisstage level	TT
				Reset staff gauge	
Oct 07	13:07	0 55	460 436	New reading, mud at 0 485 m depth	TT
				Hammer in gauge, and re-brace	TT

IN1


Long Lake Inflow WGS-03
460 60
460 55
460 50
460 45
460 40
460 35
460 30
Elevation (m)
150
170
190
210
230
250
270
290
Julian Days

NWT Diamonds Project Staff Gauge Readings					
Location East arm of Long Lake, main (east side) stream					
Gauge #	WGS-04			Datalogger # none	
Elevation	452 032 m for staff "0"				
UTM location		7179249N	515370E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 10	12 30	0 355	452 387	DH + TT did stream survey and TT did frost table surve	DH + TT
June 13		0 338	452 37		DH
June 25	10 19	0 336	452 368	No waves, good reading	TT
June 27	16 28	0 336	452 368	slightly wavy	TT
July 01	20 05	0 33	452 362	slightly wavy, rotor wash	TT
July 04	09 32	0 324	452 356	Calm water, good reading	TT
July 06	12 00	0 31	452 342	Calm Water, flow measurements downstream	TT + ST
July 15	16 50	0 27	452 302	Calm, good reading	TT + ST
July 16	08 23	0 272	452 304	No recorded flow, trace flow in grass marsh to south	TT + ST
July 23	15 29	0 224	452 256	Calm, good reading	TT + JF
July 26	15 30	0 204	452 236	calm, good reading	JF
Aug 04	11 25	0 158	452 19	No flow	DH
Aug 11		No flow		No flow	DH
Aug 29	11 30	0 244	452 276	calm	TT
Aug 31	10 30	0 244	452 276	calm	TT + JS
Sept 25	13 27	0 296	452 328	calm, gauge leaning to east	TT
Oct 07	14 06	0 316	452 348	Ice and snow to 3 2 cm thick	TT
Oct 07	14 31	0 616	452 348	Re-set staff gauge, mud at 0 430 m	TT
				Staff gauge hammered in for winter freeze-up	TT
				Gauge re-braced	

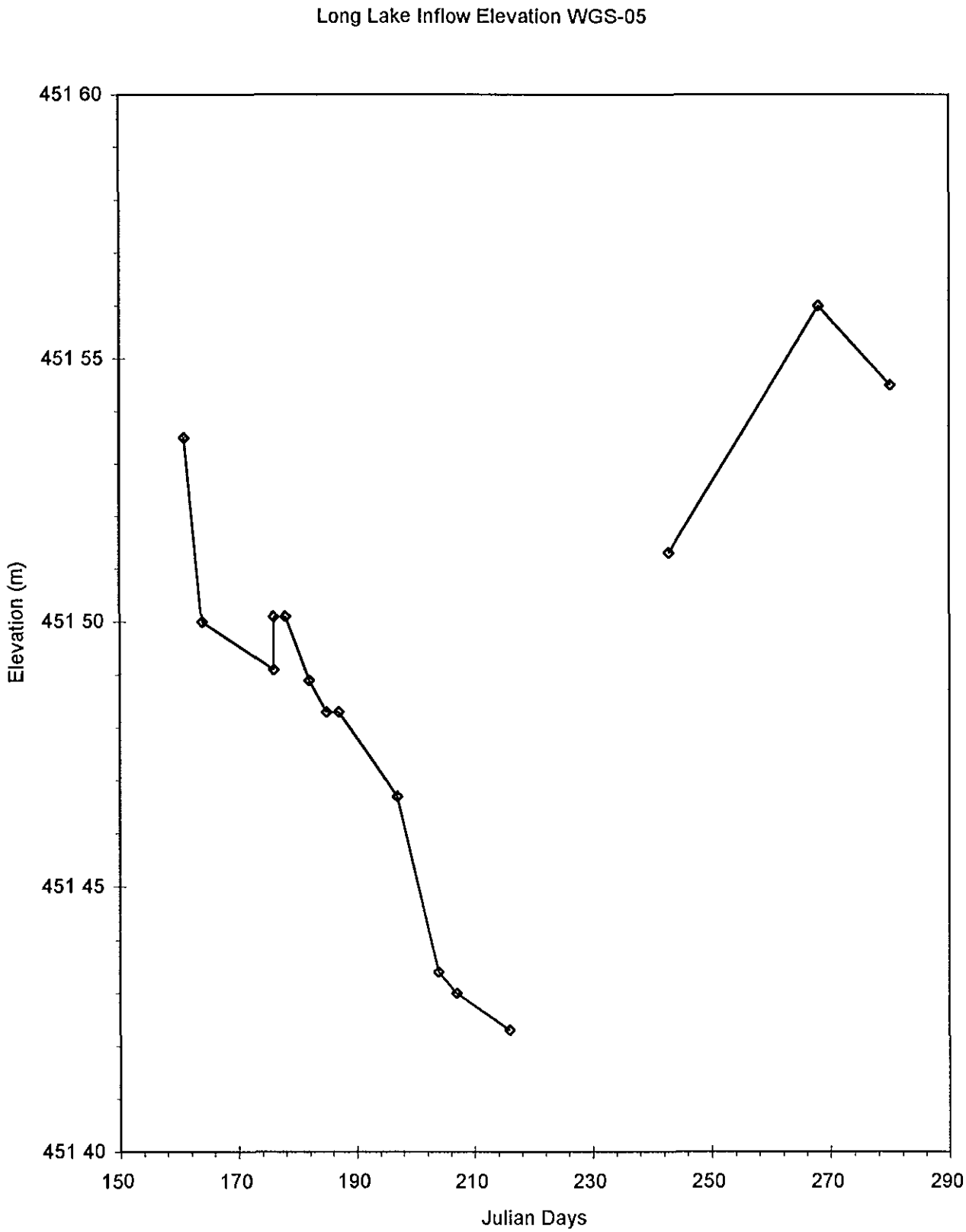
IN1


Long Lake Inflow Elevation WGS-04
452 50
452 45
452 40
452 35
452 30
452 25
452 20
452 15
452 10
Elevation (m)
150
170
190
210
230
250
270
290
Julian Days

◎ **Table of Contents**

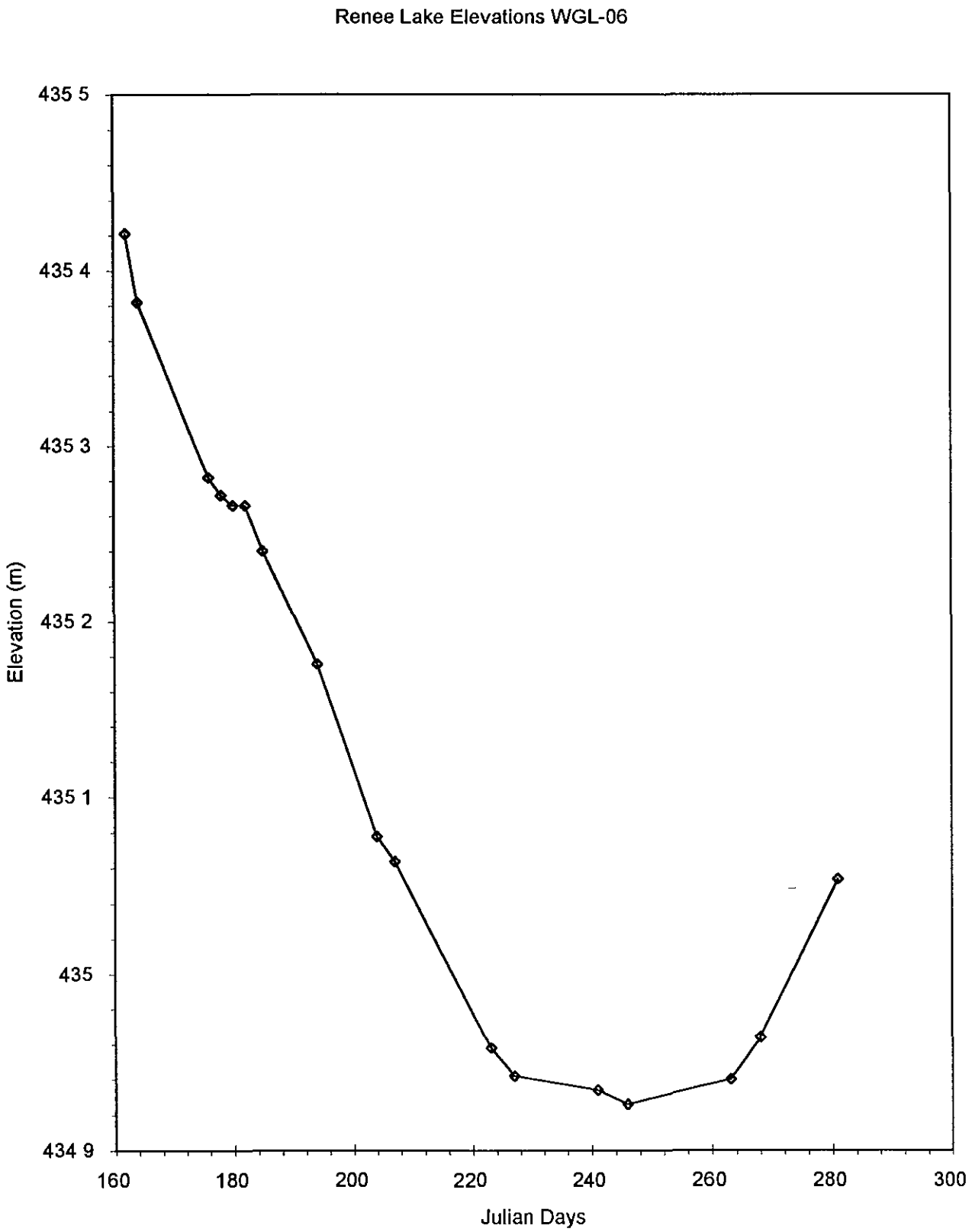
NWT Diamonds Project					
Staff Gauge Readings					
Location	East inflow into Long Lake, west side of 2 stream drainage				
Gauge #	WGS-05			Datalogger #	
Elevation	451 195	m for staff "0"			
New "0"	450 905	m for staff "0"		re-set on Oct 7, 1994	
UTM location		7179162N	515225E	Problem check with SAS	
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 10	14 30	0 34	451 535	Set-up gauge, flow measurements	DH + TT
June 13	10 35	0 305	451 5		DH
June 25	11 19	0 296	451 491	need to re-set staff gauge	TT
June 25	16 00	0 296	451 491	reading before re-set	TT
June 25	16 00	0 306	451 501	Reading after re-setting gauge, No waves	TT
June 27	17 30	0 306	451 501	good reading, minor ripples	TT
July 01	21 02	0 294	451 489	Calm water, good reading	TT
July 04	09 30	0 288	451 483	Calm water , good reading	TT
July 06	11 10	0 288	451 483	Calm water, flow measurements	TT + ST
July 16	09 23	0 272	451 467	No recorded flow, slight flow in grass marsh downstrea	TT + ST
July 23	15 39	0 239	451 434	Calm water, good reading	TT + JF
July 26	15 36	0 235	451 43	Calm, collected samples for oil and grease	JF
Aug 04	11 30	0 228	451 423	No flow	DH
Aug 11		No flow			DH
Aug 31	10 40	0 318	451 513	calm, stream gauge with JS	TT + JS
Sept 25	13 29	0 365	451 56	calm with wind ripples	TT
Oct 07	14 40	0 35	451 545	water level, but ice (1 8 cm) level at 0 372 m	TT
Oct 07	14 54	0 64	451 545	New reading, re-set gauge for winter	TT
				Mud at 0 470 m,	

IN1


Long Lake Inflow Elevation WGS-05
451 60
451 55
451 50
451 45
451 40
Elevation (m)
150
170
190
210
230
250
270
290
Julian Days

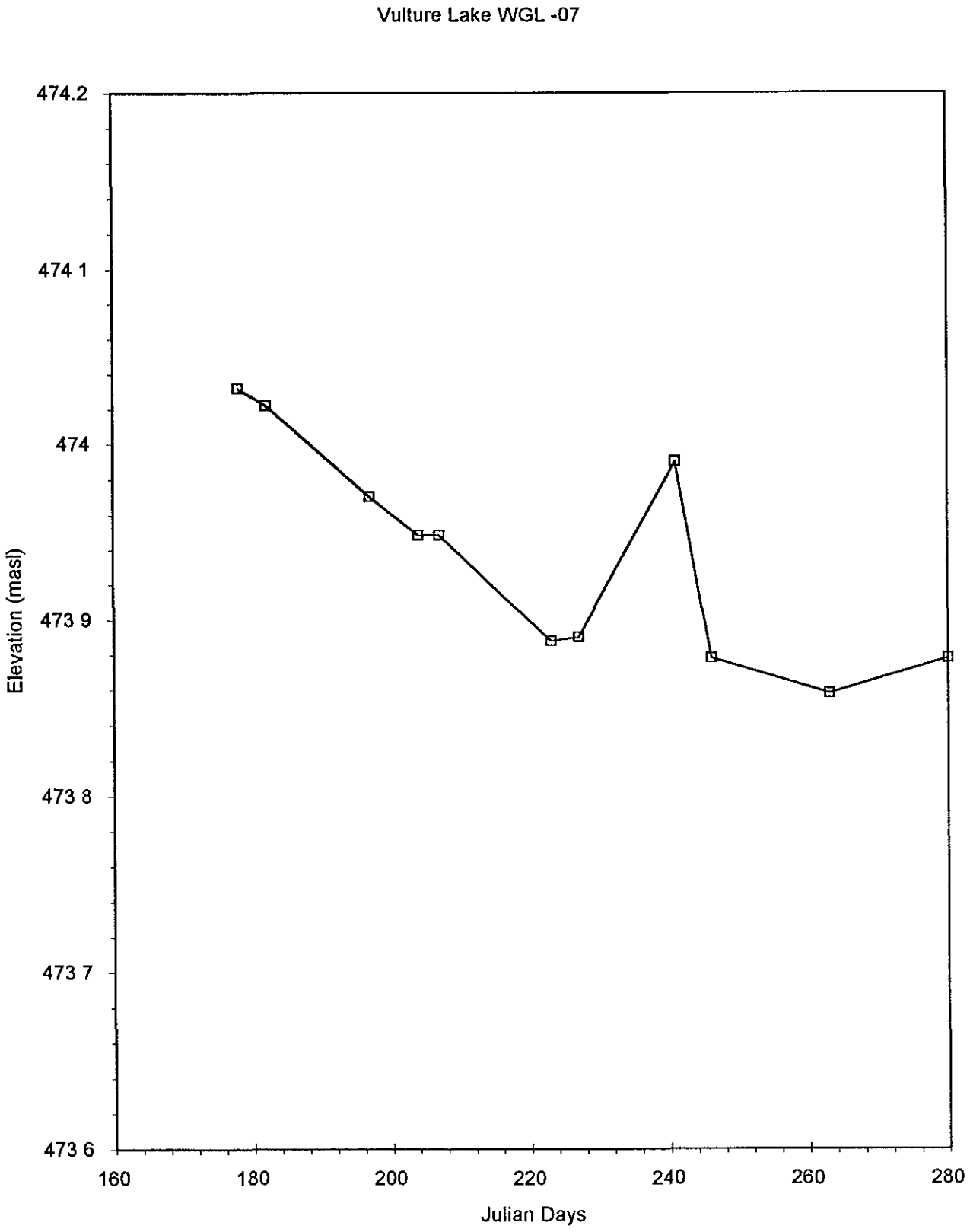
NWT Diamonds Project					
Staff Gauge Readings					
Location Renee Lake, north shore in west bay					
Gauge #	WGL-06			Datalogger #306 till June 29	
Elevation	434 64	m for staff "0"		NB Logger on Mountain Standard Time	
		UTM Location			
		7169606	508822		
Date	Time	Staff	Elevation	Comments	Initials
	(MST)	Reading (m)	(m)		
June 11	10 30	0 539		Installed by large boulder	DH + TT
June 13	11 00	0 5			DH
June 25	11 10	0 4		slightly wavy	TT
June 27	18 07	0 39		wavy conditions, reading suspect	TT
June 29	11 21	0 384		Staff gauge reading, water fairly calm	DH + TT
June 29	11 21			Dismantle datalogger setup to move to Martine Lake	
June 29	11 21	0 401		Data logger elevation	DH + TT
June 29	16 48			Install new staff gauge at same location as previous gau	DH + TT
July 01	21 31	0 626	435 266	slightly wavy, reading 'OK'	TT
July 04	09 55	0 6	435 24	Slightly wavy, +/- 1 cm	TT
July 13	07 30	0 536	435 176	calm , good reading	TT
July 23	14 43	0 438	435 078	calm water, good reading	TT + JF
July 26	16 55	0 424	435 064	slightly wavy +/- 2mm	JF
Aug 11	16 12	0 318	434 958	slightly wavy +/- 1cm	DH
Aug 15	12 13	0 302	434 942	good reading +/- 2mm	TT
Aug 29	10 06	0 294	434 934	calm, good reading	TT
Sept 03	16 01	0 286	434 926	very calm, good reading	TT
Sept 20	14 30	0 3	434 94	wavy, +/- 5cm	TT
Sept 25	12 20	0 324	434 964	very calm	TT + BZ
Oct 8	09 12	0 414	435 054	ice around gauge, broke ice , calm	TT
			434 64		

RENE1


Renee Lake Elevations WGL-06
435 5
435 4
435 3
435 2
435 1
435
434 9
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

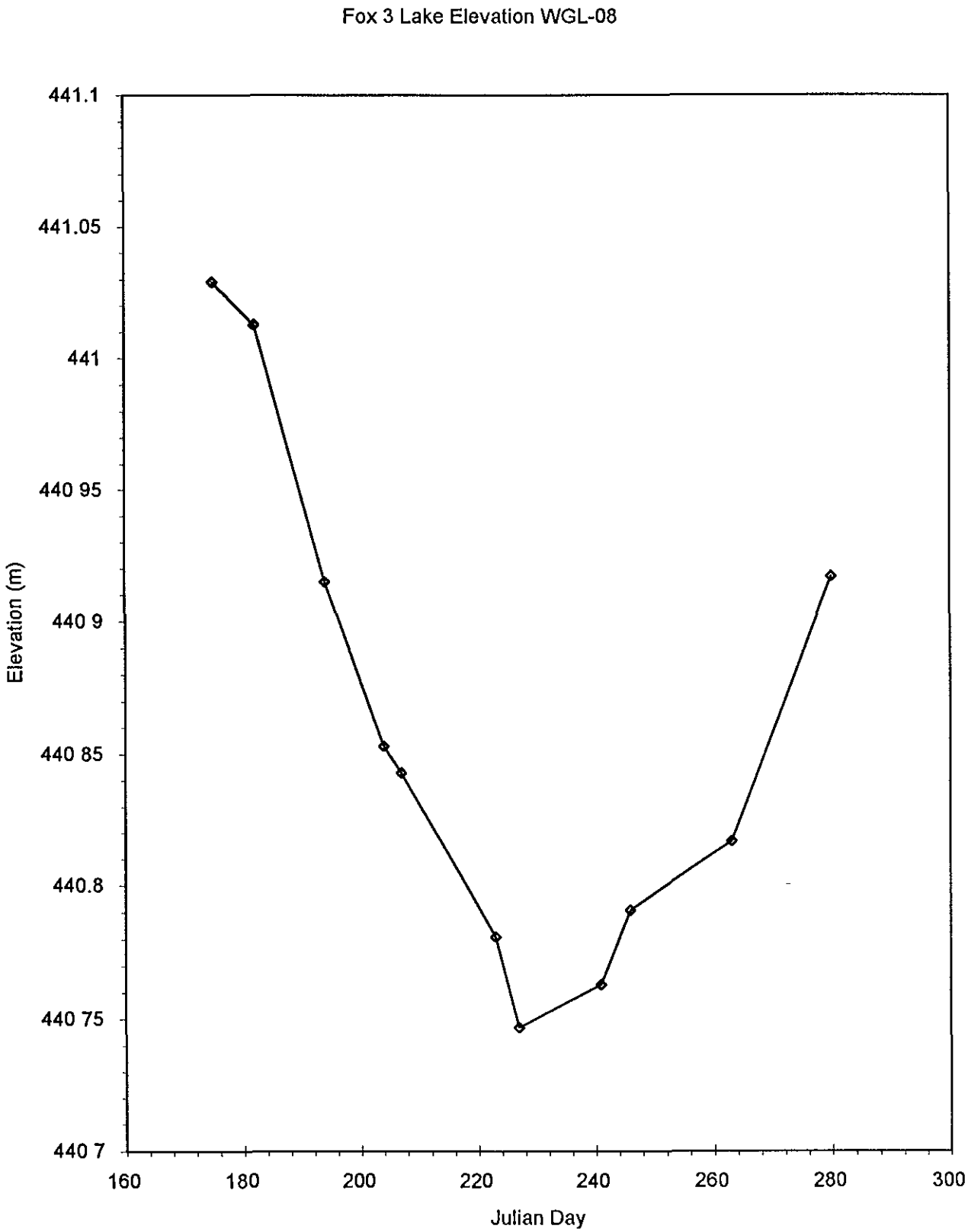
NWT Diamonds Project					
Staff Gauge Readings					
Location Vulture Lake, on 3rd post of dock					
Gauge #	WGL-07			Datalogger # none	
Elevation	473 228	m for staff "0"			
UTM Location		7182305	522078		
Date	Time	Staff	Elevation	Comments	Initials
		Reading (m)	(m)		
June 11	14 30	0 364		Set up station	DH & TT
q		0 352			DH
June 22	15 00	none		water too wavy for good reading	DH + TT
June 25	16 47			Stage toppled by ice, Re-installed	TT + Ted
June 25	16 47	app 80 cm		Re-installed on new dock, too wavy for reading	TT + Ted
June 27	17 36	0 804	474 032	slightly wavy	TT
July 01	20 44	0 794	474 022	slightly wavy, Twin Otter at the dock	TT
July 15	16 44	0 742	473 97	calm, good reading	TT
July 23	15 22	app 0 72		wavy , +/- 2 cm	TT + JF
July 26	15 42	app 0 72		wavy +/- 1 cm	JF
Aug 11	17 37	app 0 66		too wavy	DH
Aug 15	11 40	0 662	473 89	calm, good reading	TT +Bob Reed
Aug 29	11 19	0 762	473 99	slightly wavy, +/- 0 5 cm, Turbo Beaver in	TT
Sept 3	App 09 30	0 65	473 878	calm	Judy
Sept 20	17 35	0 63	473 858	slightly wavy, +/- 2 cm	TT
Oct 07	07 54	0 65	473 878	slightly wavy, +/- 3 cm	TT

VULT1


Vulture Lake WGL -07
474.2
474 1
474
473 9
473 8
473 7
473 6
Elevation (masl)
160
180
200
220
240
260
280
Julian Days

NWT Diamonds Project
Staff Gauge Readings
Location Fox 3 Lake, in bay on nw side near outflow into Martine Lake

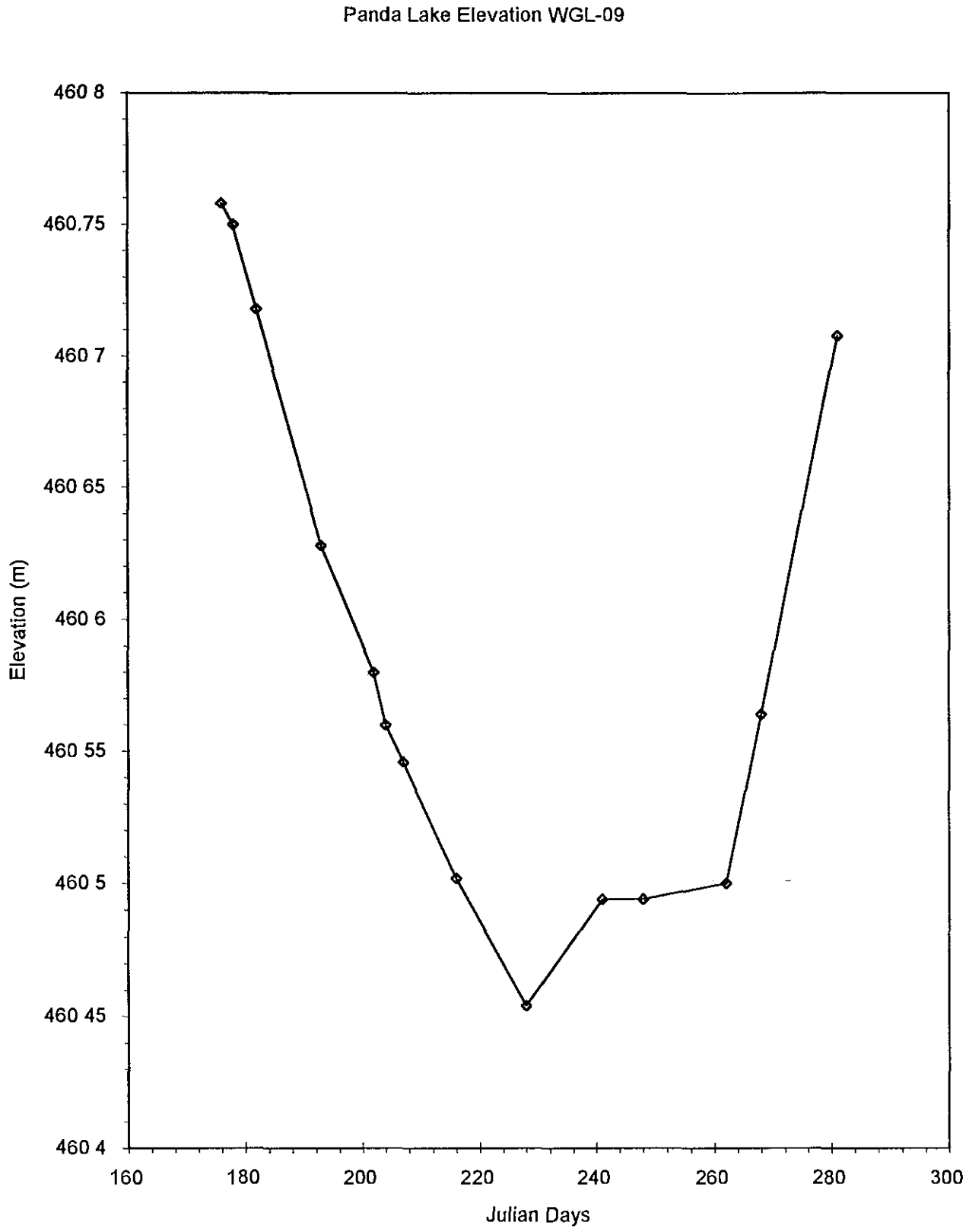
Gauge #	WGL-08			Datalogger # none	
Elevation	440 345	m for staff "0"			
UTM Location		7169163	512497		
Date	Time	Staff	Elevation	Comments	Initials
1994		Reading (m)	(m)		
June 24	15 30			Set up stage	TT + J
June 24	16 00	0 684	441 029	calm water	TT + J
June 27	18 02	none		Too wavy for good reading	TT
July 01	1 48	0 668	441 013	Calm water, good reading	TT
July 13	13 10	0 57	440 915	slightly wavy, OK reading NB Higher tha last reading	TT
July 23	14 31	0 508	440 853	calm water, good reading	TT + JF
July 26	16 40	0 498	440 843	slightly wavy +/- 2mm	JF
Aug 11	16 02	0 436	440 781	slightly wavy +/- 2mm	DH
Aug 15	12 13	0 402	440 747	Calm, excellent reading	TT + BR
Aug 29	11 25	0 418	440 763	good reading	TT
Sept 03	15 57	0 446	440 791	calm, good reading	TT
Sept 20	15 17	0 472	440 817	OK, +/- 2 mm	TT
Oct 08	10 48	0 572	440 917	ice around gauge, broke ice, took reading	TT


Fox 3 Lake Elevation WGL-08
441.1
441.05
441
440 95
440 9
440 85
440.8
440 75
440 7
Elevation (m)
160
180
200
220
240
260
280
300
Julian Day

◎ **Table of Contents**

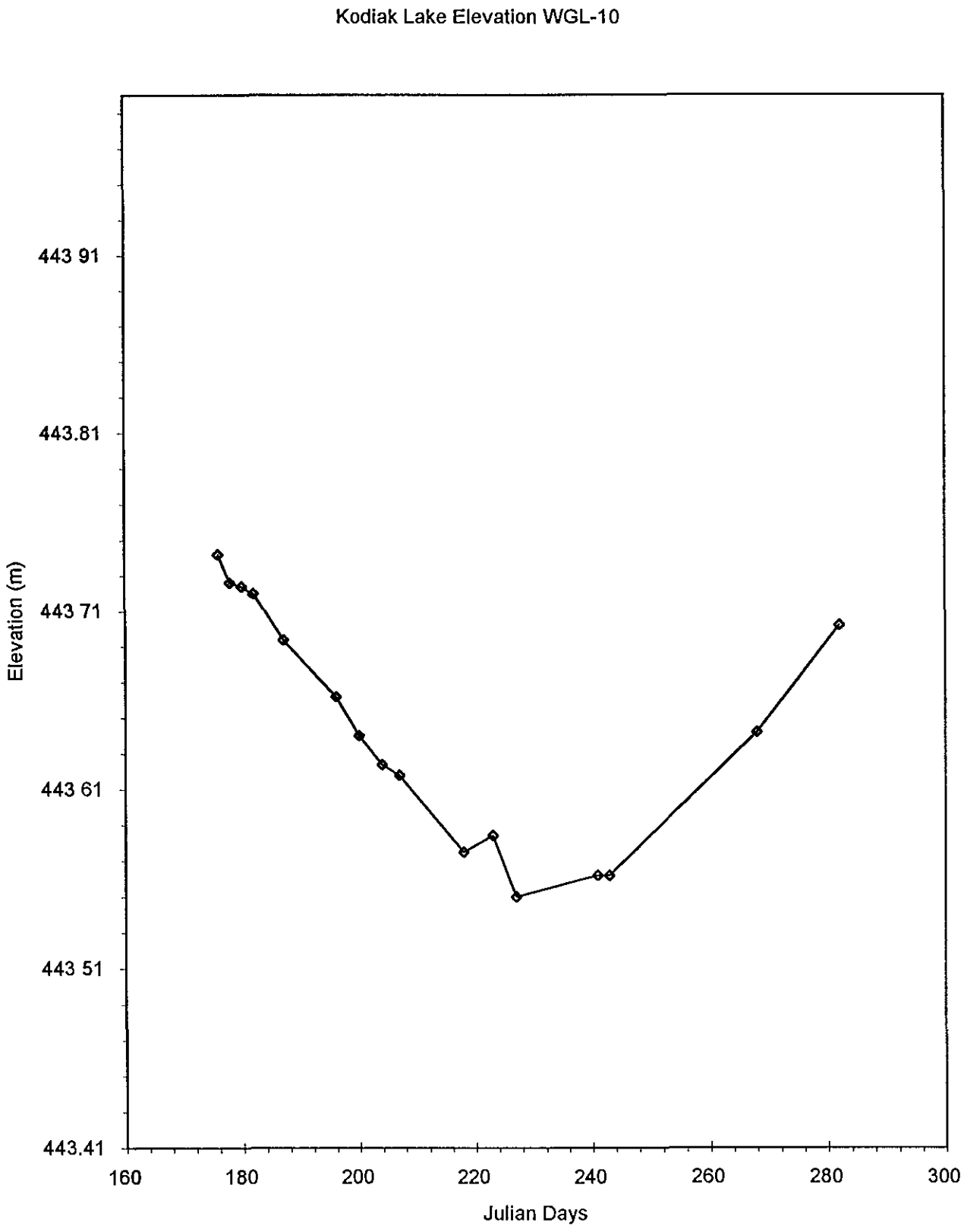
NWT Diamonds Project					
Staff Gauge Readings					
Location Panda Lake south of drainage down from explosives storage area					
Gauge #	WGL-09			Datalogger # 315	
Elevation	460 254	m for staff "0"		Sensor # 426013	
UTM Location		7177580	519720		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 25	09 50			Set up station, Cloudy + cold	TT + MM
June 25	10 00	0 504	460 758	In bay, calm water, good reading	TT + MM
June 27	17 42	0 496	460 75	wavy,	TT
July 01	19 54	0 464	460 718	Calm water, good reading	TT
July 12	19 58	0 374	460 628	slightly wavy OK reading, set up datalogger	TT
July 21	09 10	0 326	460 58	OK reading	TT + AB
July 23	15 12	0 306	460 56	Calm, good reading	TT + JF
July 26	15 20	0 292	460 546	wavy +/- 1 cm	JF
Aug 4	19 16	0 248	460 502	too wavy	DH
Aug 16	01 30	0 2	460 454	by Mike, something fishy	MM
Aug 29	19 19	0 24	460 494	dead calm, excellent reading	TT
Sept 05	07 20	0 24	460 494	gauge sheltered, wavy on lake +/- 2 cm	TT
Sept 19	07 05	0 246	460 5	wavy, +/- 4 cm	TT
Sept 25	15 20	0 31	460 564	calm at gauge, ripples on lake	TT
Oct 09	10 35	0 454	460 708	downloading logger, removed datalogger, some ice on	TT

PAN1


Panda Lake Elevation WGL-09
460 8
460.75
460 7
460 65
460 6
460 55
460 5
460 45
460 4
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

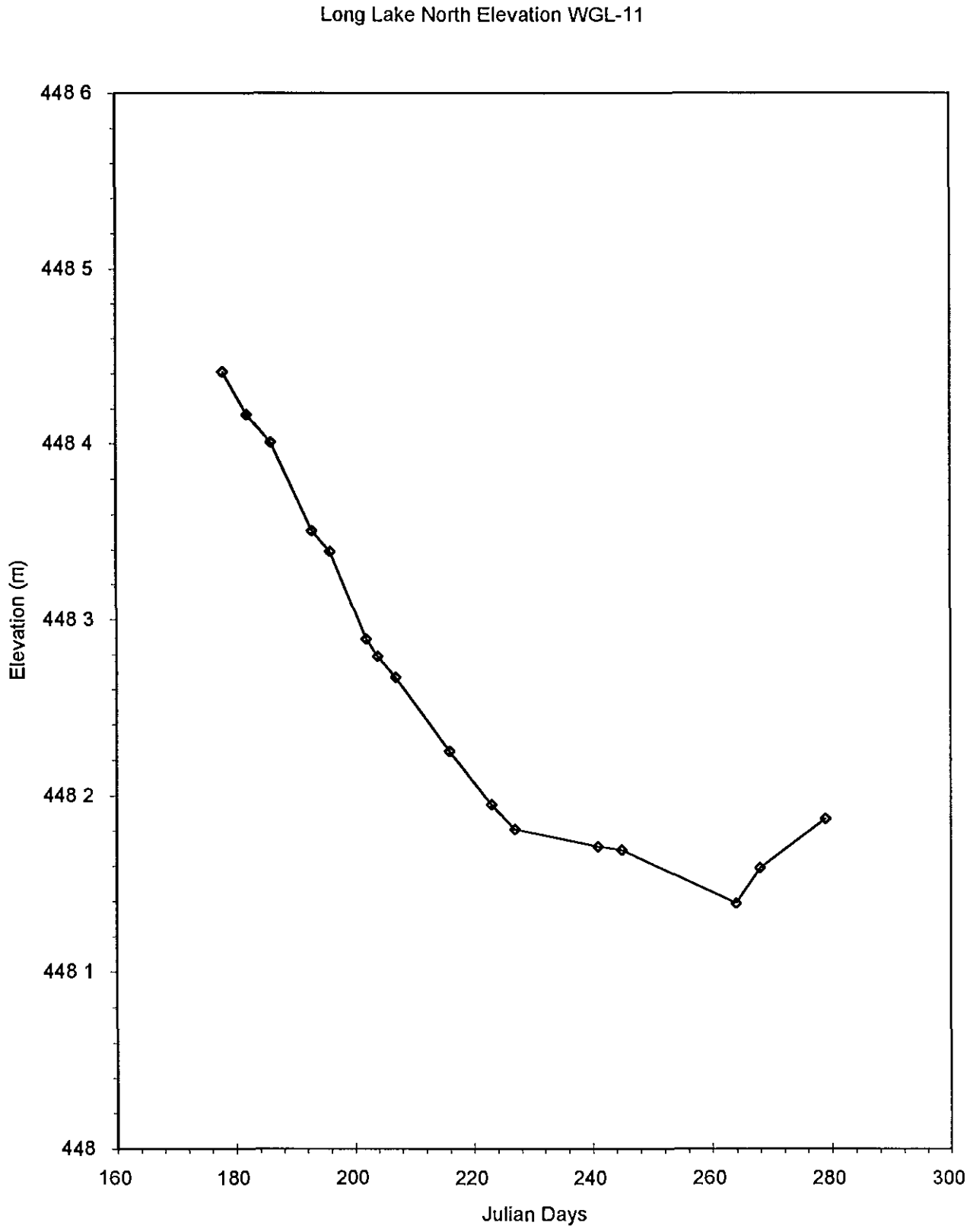
NWT Diamonds Project Staff Gauge Readings					
Location Kodiak Lake, at outflow drainage					
Gauge #	WGL-10			Datalogger #311	
Elevation	443 22	m for staff "0"		Sensor # 422029	
UTM Location		7174849 64	517693 01		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 25	14 00	0 522	443 742	Set up staff gauge, water calm	TT
June 27	16 47	0 506	443 726	Water slightly wavy	TT + NP
June 29	16 50	0 504	443 724	Very wavy, poor reading	DH + TT
June 29	17 00	0 504	443 724	Install datalogger, set elevation at 0 504	DH + TT
July 01	21 06	0 5	443 72	Clam water, good reading	TT
July 06	15 35	0 474	443 694	Calm water, flow reading in stream	TT + ST
July 15	08 58	0 442	443 662	Calm, excellent reading, stream flow	TT + ST
July 19	19 42	0 42	443 64	calm, good reading	TT
July 23	10 34	0 404	443 624	calm, good reading	TT + JF
July 26	10 25	0 398	443 618	sheltered, good reading	JF
Aug 6	07 00	0 355	443 575	calm	AS (SAS)
Aug 11	20 02	0 364	443 584	OK reading, downloading	DH
Aug 15	17 50	0 33	443 55	calm, good reading	TT
Aug 29	19 52	0 342	443 562	dead calm, excellent reading	TT
Aug 31	14 10	0 342	443 562	good reading download datalogger	TT
Sept 25	14 30	0 422	443 642	very calm, good reading	TT
Oct 09	08 05	0 482	443 702	ice around gauge, break, take reading	TT

KODK1


Kodiak Lake Elevation WGL-10
443 91
443.81
443 71
443 61
443 51
443.41
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

◎ **Table of Contents**

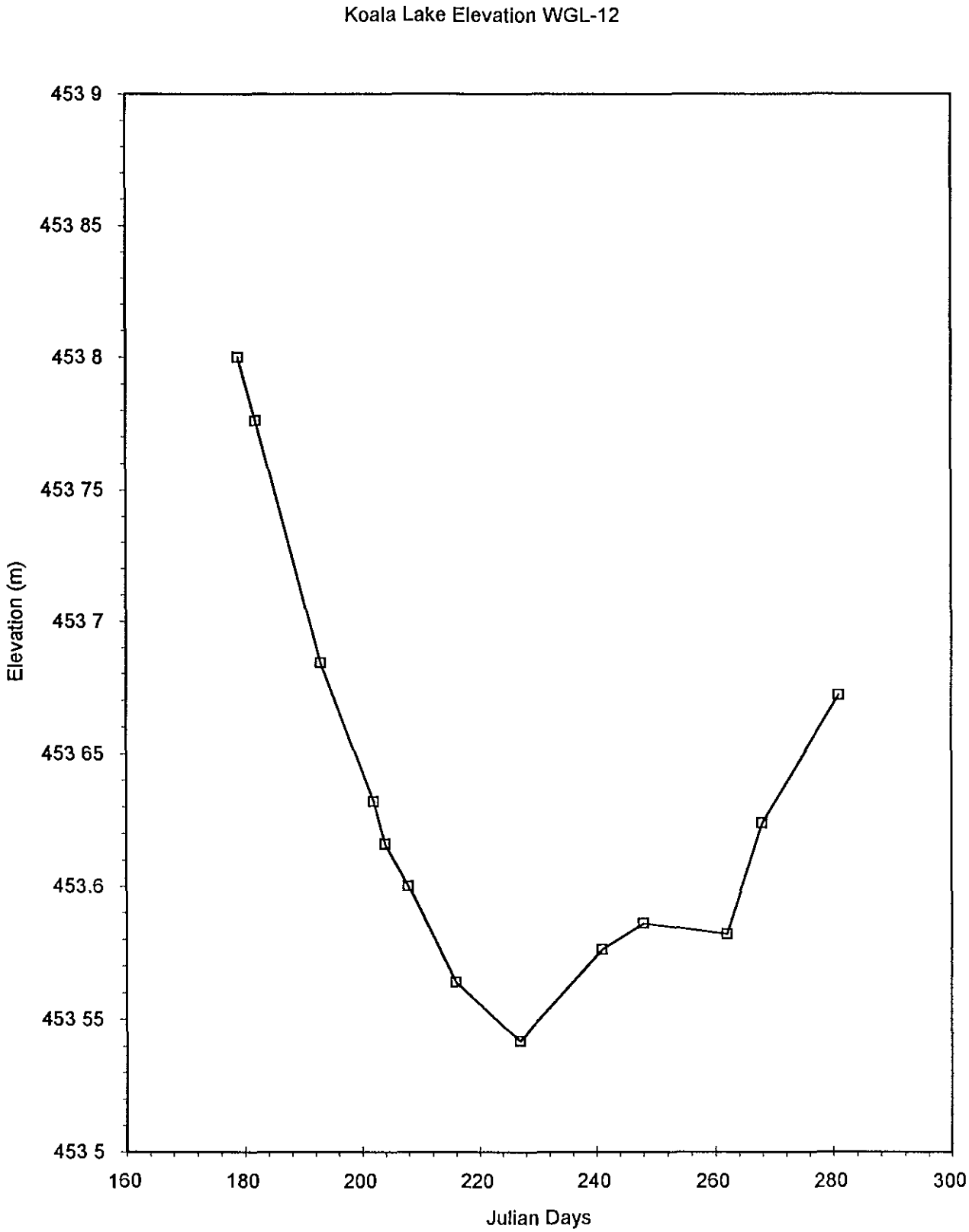
NWT Diamonds Project Staff Gauge Readings					
Location Long Lake (north) between east and west inflows on north shore					
Gauge #	WGL-11			Datalogger # 313	
Elevation	447 939	m for staff "0"		Sensor # 426015	
UTM Location		7177233 28	515455 68		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 27	15 45			Set up station	TT + NP
June 27	15 45	0 502	448 441	Calm water, good reading	TT + NP
July 01	20 08	0 478	448 417	Calm water, good reading	TT
July 04	09 25	0 462	448 401	Slightly wavy, OK reading	TT
July 12	09 40	0 412	448 351	calm water, good reading, set up data logger	DH + TT
July 15	16 56	0 4	448 339	slightly wavy, +/- 0 5 cm approx	TT
July 21	07 40	0 35	448 289	Wavy +/- 2 cm, approx	TT + AB
July 23	10 27	0 34	448 279	Ripples, +/- 1 cm	TT + JF
July 26	15 42	0 328	448 267	calm, good reading	JF
Aug 04	11 55	0 286	448 225	windy, +/- 1 cm	DH
Aug 11	17 32	0 256	448 195	OK	DH
Aug 15	11 48	0 242	448 181	calm, good reading	TT + BR
Aug 29	11 34	0 232	448 171	calm, good reading	TT
Sept 02	07 40	0 23	448 169	wavy on lake, +/- 0 5 cm	TT
Sept 21	07 15	0 2	448 139	wavy, +/- 2 cm, poor reading	TT
Sept 25	13 32	0 22	448 159	slightly wavy, +/- 1 cm	TT
Oct 07	13 16	0 248	448 187	slightly wavy, +/- 0 2 cm	TT
Oct 07				datalogger removed, aluminum box left up	TT


Long Lake North Elevation WGL-11
448 6
448 5
448 4
448 3
448 2
448 1
448
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

◎ **Table of Contents**

NWT Diamonds Project Staff Gauge Readings					
Location Koala Lake north of outflow drainage by 100 m on west shore					
Gauge #	WGL-12			Datalogger # 317	
Elevation	453 398	m for staff "0"		Sensor No 426018	
UTM Location		7176752 54	518622 8		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 28	08 45			Set up station	TT + BD
June 28	9 50	0 402	453 8	calm water, stage in bay, good reading	TT + BD
July 01	19 57	0 378	453 776	Calm water, good reading	TT
July 12	14 45	0 286	453 684	windy but calm , Set up datalogger	TT
July 21	08 35	0 234	453 632	calm, excellent reading	TT + AB
July 23	15 08	0 218	453 616	calm, good reading	TT + JF
July 27	10 31	0 202	453 6	sheltered, good reading	JF
Aug 4	19 34	0 166	453 564	OK	DH
Aug 6	13 40	0 16	453 558	windy +/- 2cm, approx	AS (SAS)
Aug 15	19 00	0 144	453 542	calm, good reading	TT + BR
Aug 29	19 28	0 178	453 576	dead calm, excellent reading	TT
Sept 05	07 32	0 188	453 586	wavy on lake, +/- 4 mm at gauge	TT
Sept 19	08 00	0 184	453 582	wavy on lake, +/- 4 mm at gauge	TT
Sept 25	14 55	0 226	453 624	very calm, ripples on lake	TT
Oct 09	10 00	0 274	453 672	a little ice around gauge	TT
				download and remove datalogger	TT

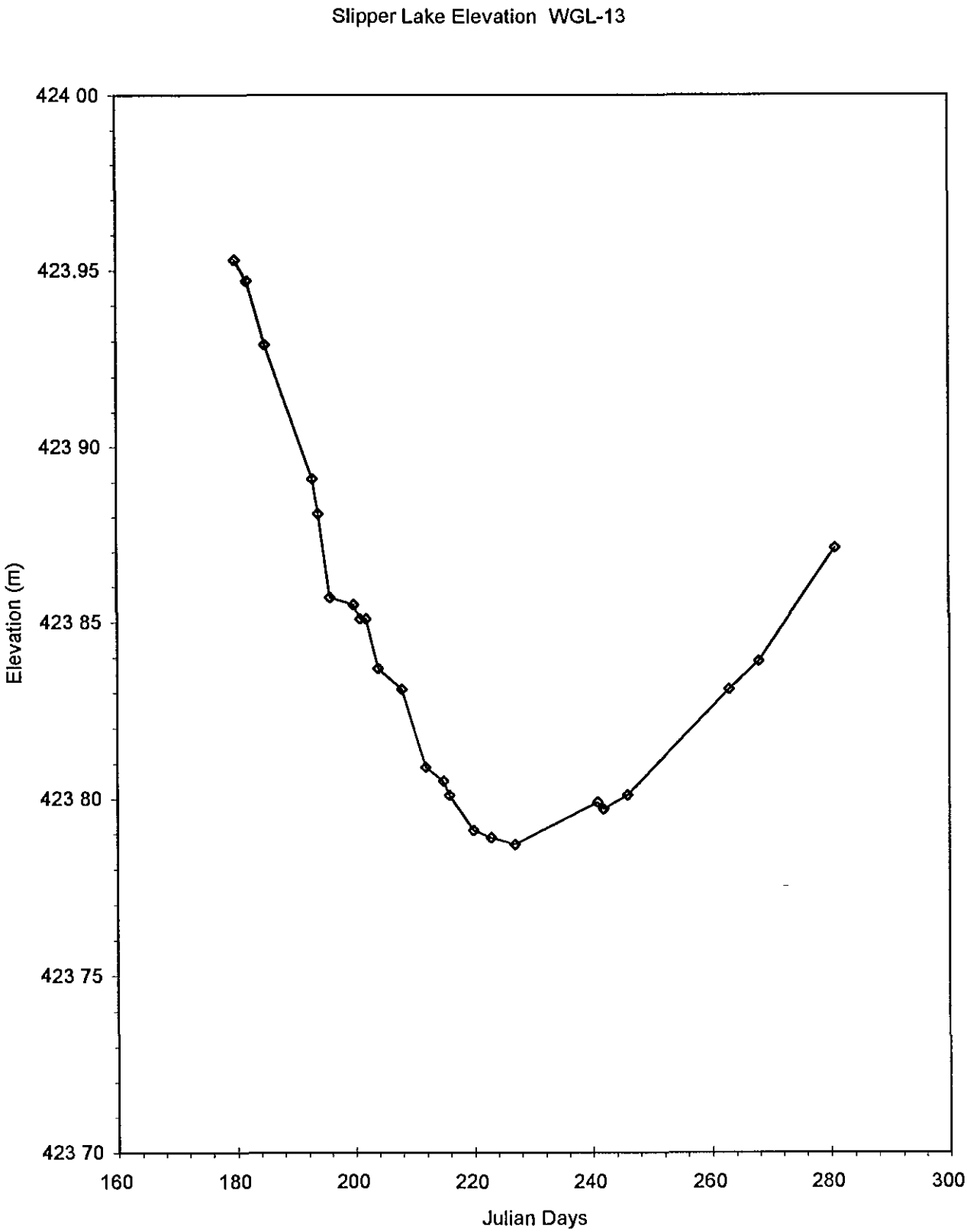
KOALA1


Koala Lake Elevation WGL-12
453 9
453 85
453 8
453 75
453 7
453 65
453.6
453 55
453 5
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

◎ **Table of Contents**

NWT Diamonds Project					
Staff Gauge Readings					
Location Slipper Lake on south shore near outflow drainage					
Gauge #	WGL-13			Datalogger #310	
Elevation	423 651	m for staff "0"		Sensor #: 422043	
UTM Location:		7164987 23	507517 54	NB Problem with transducer, returned to TerraScience?	
				New sensor #: 138004 NB This is Rescan Sensor	
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 28	13:00	approx 0 30		Too wavy for good reading	TT + BD B
June 29	10 00	0 302	423 953	Staff gauge reading, water calm OK reading	DH + TT
June 29	10 20			Datalogger installed @ 0 302 m	DH + TT
July 01	20 36	0 296	423 947	Calm water, good eading	TT
July 04	10:00	0 278	423 929	Slightly wavy, OK reading	TT
July 12	08:50	0 24	423 891	wavy, +/- 2 cm approx	TT
July 13	07:38	0 23	423 881	slightly wavy, +/- 2 cm approx	TT
July 15	11:20	0 206	423 857	calm, good reading	TT + ST
July 19	18:51	0 204	423 855	water calm but wind seems high, +/- 0 2cm	TT + DJR
July 20	16:05	0 2	423 851	too wavy, +/- 1 5 cm, flow approx	TT + DJR
July 21	13:15	0 2	423 851	too wavy, +/- 2 cm	TT + AB
July 23	14:39	0 186	423 837	calm water, good reading	TT + JF
July 27	09:30	0 18	423 831	wavy +/- 1 cm	JF
July 31	10 58	0 158	423 809	re-install datalogger/sensor	DH
Aug 03	15 00	0 154	423 805		DH
Aug 4	11 15	0 15	423 801	very wavy, +/- 1 cm	DH
Aug 08	12 00	0 14	423 791	wavy, +/- 2 cm	AS (SAS)
Aug 11	17 15	0 138	423 789	wavy, +/- 0 004	DH
Aug 16	11 40	0 136	423 787	calm, good reading, +/- 2 mm	TT +BR Bob
Aug 29	10:14	0 148	423 799	slightly wavy, +/- 0 5 cm	TT
Aug 30	09:13	0 146	423 797	good reading	TT
Sept 03	16 11	0 15	423 801	calm, excellent reading	TT
Sept 20	13:35	0 18	423 831	wavy, +/- 2 cm	TT
Sept 25	12 32	0 188	423 839	calm, good reading	TT
Oct 08	09 30	0 22	423 871	slightly wavy, +/- 2 cm	TT
				download to L131008 DAT, remove datalogger	TT

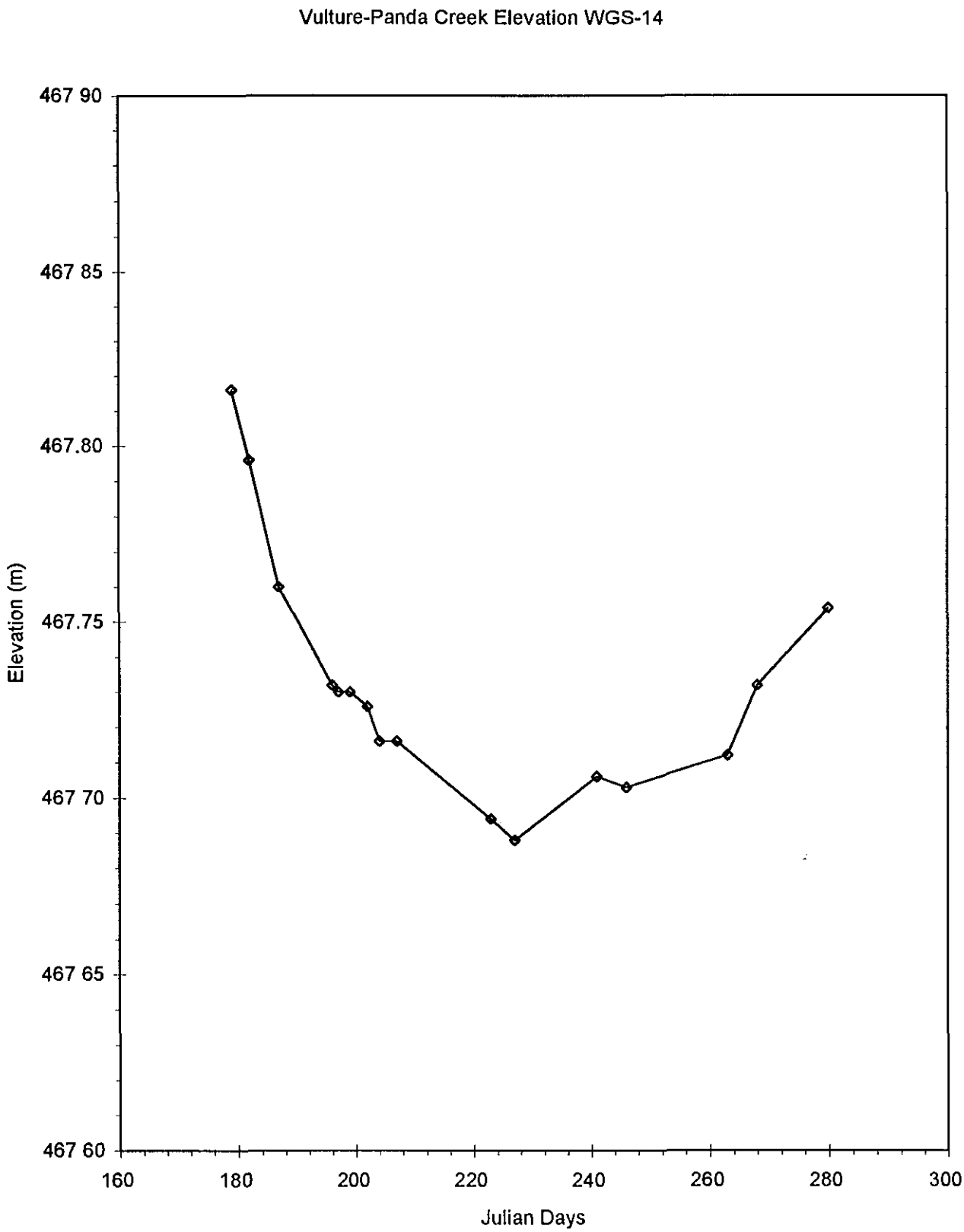
SLIP1


Slipper Lake Elevation WGL-13
424 00
423.95
423 90
423 85
423 80
423 75
423 70
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

◎ **Table of Contents**

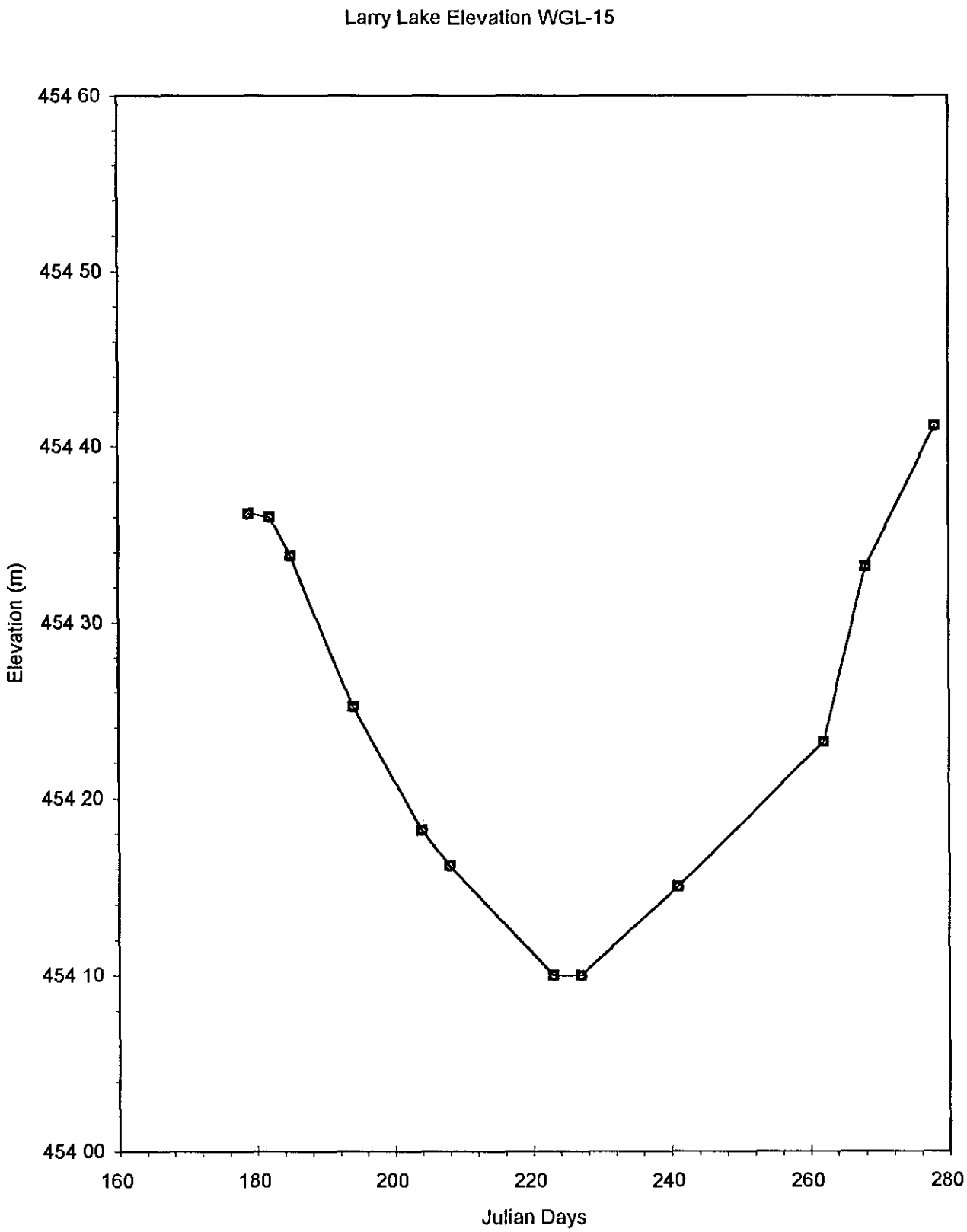
NWT Diamonds Project					
Staff Gauge Readings					
Location Creek between Vulture Lake and Panda Lake 50 m from water quality station					
Gauge #	WGS-14			Datalogger # 304	
Elevation	467 396	m for staff "0"		Sensor # 426011	
UTM Location		7179516N	521481N		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 28	15 00			Set up station	TT + BD
June 28	16 00	0 42	467 816	Calm water, moderate flow	TT + BD
July 01	19 50	0 4	467 796	Calm water, good reading	TT
July 6	13 10	0 364	467 76	calm, good reading, flow readings	TT + ST
July 15	16 38	0 336	467 732	calm, good reading	TT
July 16	13 37	0 334	467 73	calm, good reading, flow readings	TT + ST
July 18	08 15	0 334	467 73	good reading, datalogger download	TT + AB
July 21	07 26	0 33	467 726	smooth water good reading	TT
July 23	15 18	0 32	467 716	calm, smooth, good reading	TT + JF
July 26	15 25	0 32	467 716	calm, good reading	JF
Aug 11	17 26	0 298	467 694	No Flow	DH
Aug 15	11 36	0 292	467 688	calm, good reading	TT + BR
Aug 29	11 14	0 31	467 706	calm, good reading	TT
Sept 03	06 52	0 307	467 703	calm, datalogger download	TT
Sept 06	15 45	0 306	467 702	calm	TT
Sept 20	17 40	0 316	467 712	calm	TT
Sept 25	13 21	0 336	467 732	calm	TT
Oct 8	08 05	0 358	467 754	ice on water, remove datalogger	TT

VPAN1


Vulture-Panda Creek Elevation WGS-14
467 90
467 85
467.80
467.75
467 70
467 65
467 60
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

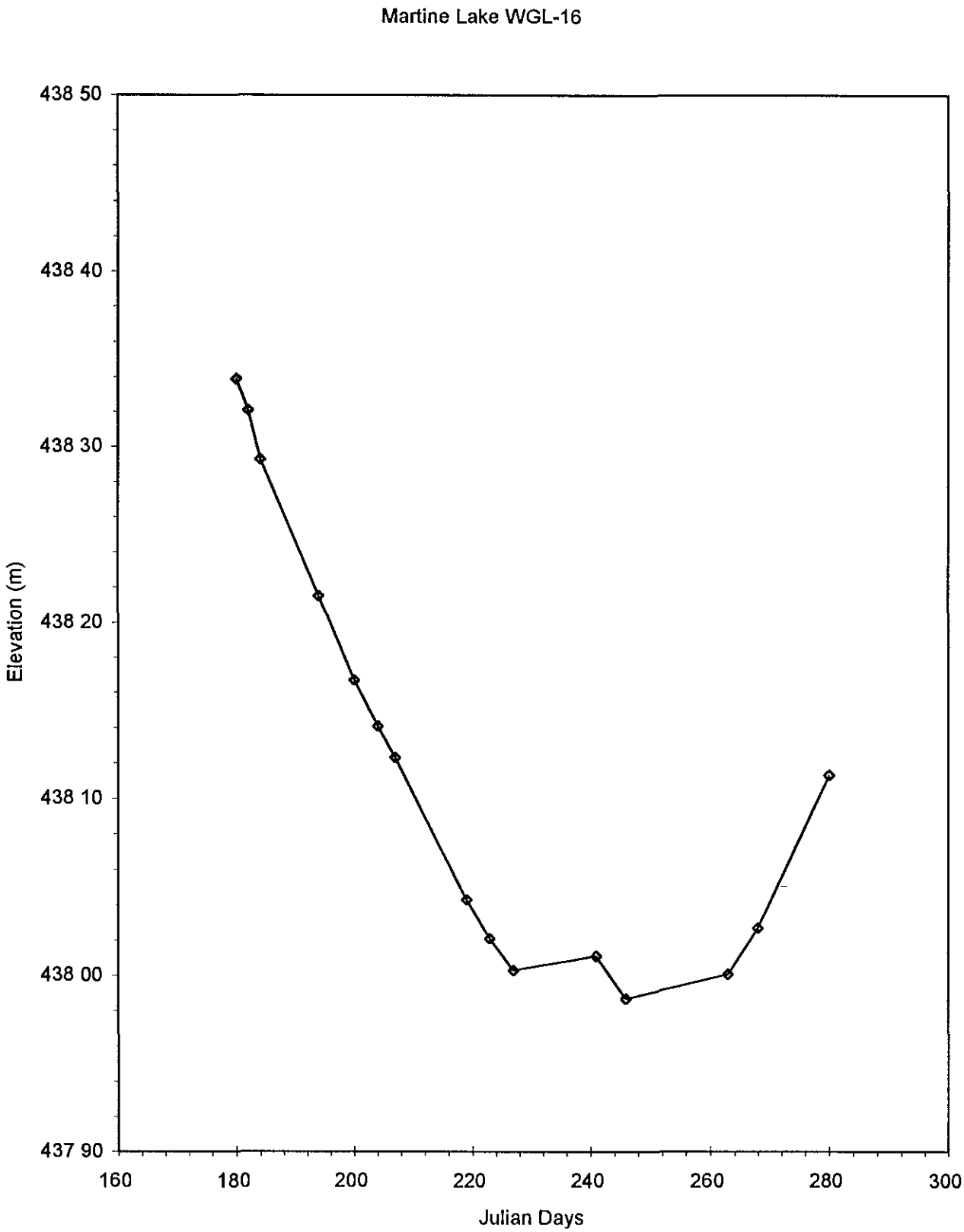
NWT Diamonds Project					
Staff Gauge Readings					
Location Larry Lake near eastern inflow					
Gauge #	WGL-15			Datalogger # none	
Elevation	454 062	m for staff "0"			
UTM Location		7173371 6	518571 58		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(masl)		
June 28	11 00			Set up station	TT + BD
June 28	11 00	0 3	454 362	Too wavy for good reading approx 30 cm	TT + BD
July 01	21 02	0 298	454 36	Calm water, good reading	TT
July 04	10 13	0 276	454 338	Slightly wavy, +/- 1 cm	TT
July 13	12 15	0 19	454 252	slightly wavy +/- 1 cm	TT
Juy 23	15 39	0 12	454 182	wavy +/- 2 cm	TT + JF
July 27	10 21	0 1	454 162	wavy +/- 1 cm, poor reading	JF
Aug 11	16 33	0 038	454 1	too wavy	DH
Aug 15	17 38	0 038	454 1	slightly wavy, +/- 4 mm	TT + BR
Aug 29	19 03	0 088	454 15	dead calm	TT
Sept 19	09 20	0 17	454 232	Fairly calm, +/- 0 2 cm	TT
Sept 25	15 50	0 27	454 332	wavy, +/- 2 cm, water rising	TT
Oct 06	16 15	0 35	454 412	high water level, need boots for good reading	TT
				gauge 5 m from shore with ice at reading level	

B


Larry Lake Elevation WGL-15
454 60
454 50
454 40
454 30
454 20
454 10
454 00
Elevation (m)
160
180
200
220
240
260
280
Julian Days

NWT Diamonds Project					
Staff Gauge Readings					
Location Martine Lake, north shore in west bay					
Gauge #	WGL-16			Datalogger #306 from June 29 to September	
Elevation:	437 713	m for staff "0"		Sensor # 416004 defective + returned	
UTM Coordinates		7169776N	510841E	New sensor #: 2504, This is Rescan's	
				NB Pressure transducer problem	
Date	Time	Staff	Elevation	Comments	Initials
1994		Reading (m)	(masl)		
June 29				Set up gauge and datalogger	DH + TT
June 29	14:00	0 626	438 339	Staff gauge and datalogger set up on Martine Lake	DH + TT
				Datalogger set to 0 626m	
June 29	16 48			Install new staff gauge at same location as previous gauge Slig	DH + TT
July 01	20 27	0 608	438 321	Slightly wavy, rotor wash	
July 04	09 51	0 58	438 293	Slightly wavy, +/- 1 cm	TT
July 13	07 26	0 502	438 215	calm, good reading	TT
July 19	18:32	0 454	438 167	slightly wavy, +/- 1 cm	TT + DJR
July 20	16:50			Remove data logger and transducer	TT + DJR
July 23	14:37	0 428	438 141	slightly wavy, +/- 0 5 cm, OK reading	TT + JF
July 26	16:47	0 41	438 123	calm, good reading	JF
Aug 07	13 30	0 33	438 043	calm, SASurveys may be wrong** Initial reading was 23 m an	AS (SAS)
Aug 11	17 07	0 308	438 021	OK, +/- 0 002	DH
Aug 15	12 09	0 29	438 003	calm, good reading	TT + BR
Aug 29	10 02	0 298	438 011	calm, good reading	TT
Sept 03	06 37	0 274	437 987	calm, good reading	TT
Sept 20	12:40	0 288	438 001	calm, sheltered +/- 2 mm, download	TT
Sept 25	12 13	0 314	438 027	perfectly calm	TT
Oct 08	08 45	0 4	438 113	ice around guage, break + take reading	TT
				download + remove datalogger	TT

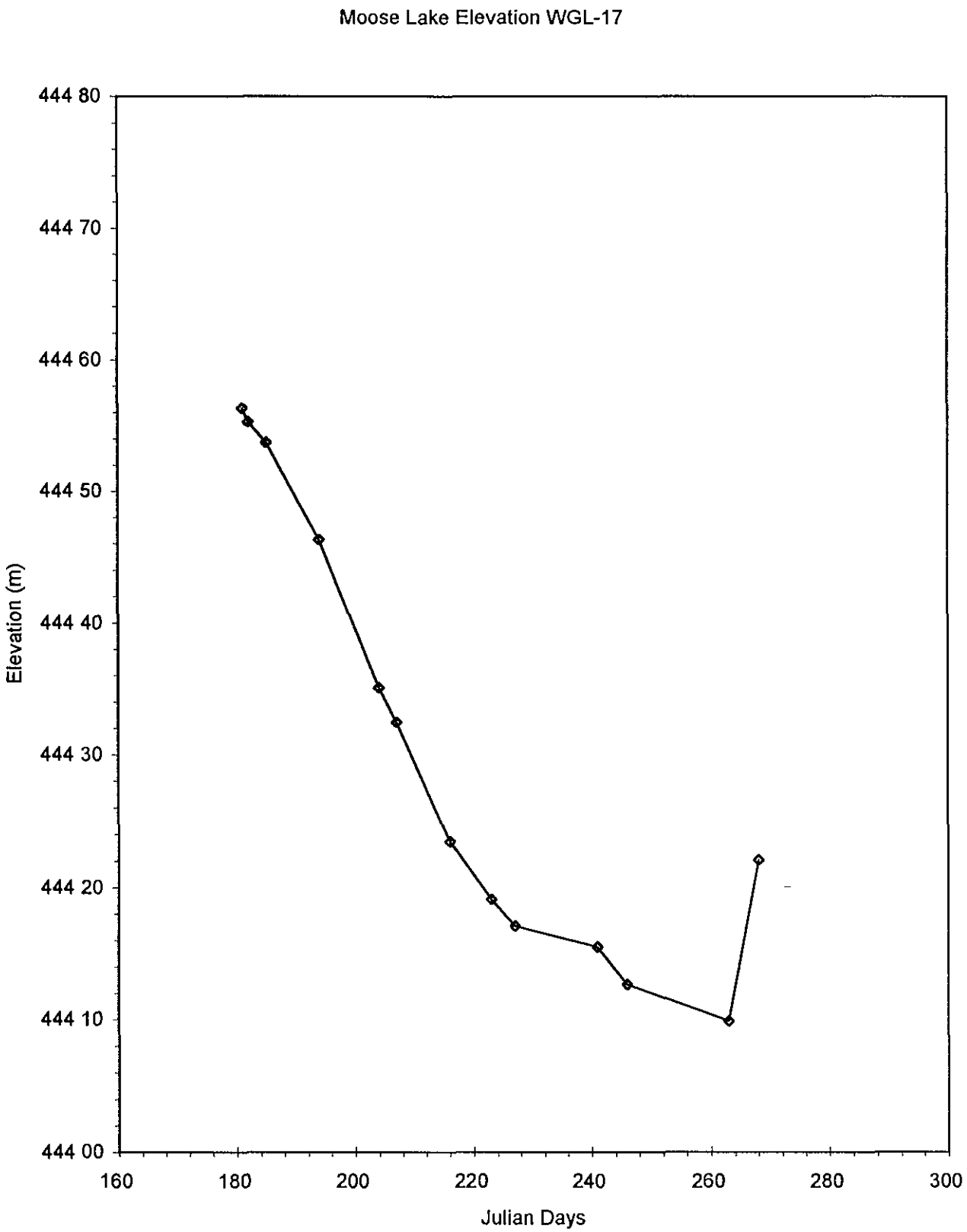
MART1


Martine Lake WGL-16
438 50
438 40
438 30
438 20
438 10
438 00
437 90
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

◎ **Table of Contents**

NWT Diamonds Project					
Staff Gauge Readings					
Location Moose Lake, north shore of lake near inflow from Kodiak Lakes chain					
Gauge #	WGL-17			Datalogger # none	
Elevation	443 755	m for staff "0"			
UTM Coordinates		7173314N	516428E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 30	13:30			Set up stage	TT + JB
June 30	14 20	0 808	444 563	Calm water, good reading	TT + JB
July 01	20 59	0 798	444 553	Calm water, good reading	TT
July 04	09 46	0 782	444 537	Slightly wavy, +/- 1 cm	TT
July 13	07 21	0 708	444 463	calm, good reading	TT + ST
July 23	10 04	0 596	444 351	calm water, good reading	TT + JF
July 26	16 25	0 57	444 325	calm water, good reading	JF
Aug 04	13 30	0 48	444 235		DH
Aug 11	16 30	0 436	444 191	OK reading	DH
Aug 15	12 02	0 416	444 171	calm water, good reading	TT + BR
Aug 29	09 52	0 4	444 155	calm water, good reading	TT
Sept 03	15 48	0 372	444 127	very calm,good reading	TT
Sept 20	15 35	0 344	444 099	ice around gauge	TT
Sept 25	11 56	0 466	444 221	ice around gauge	TT

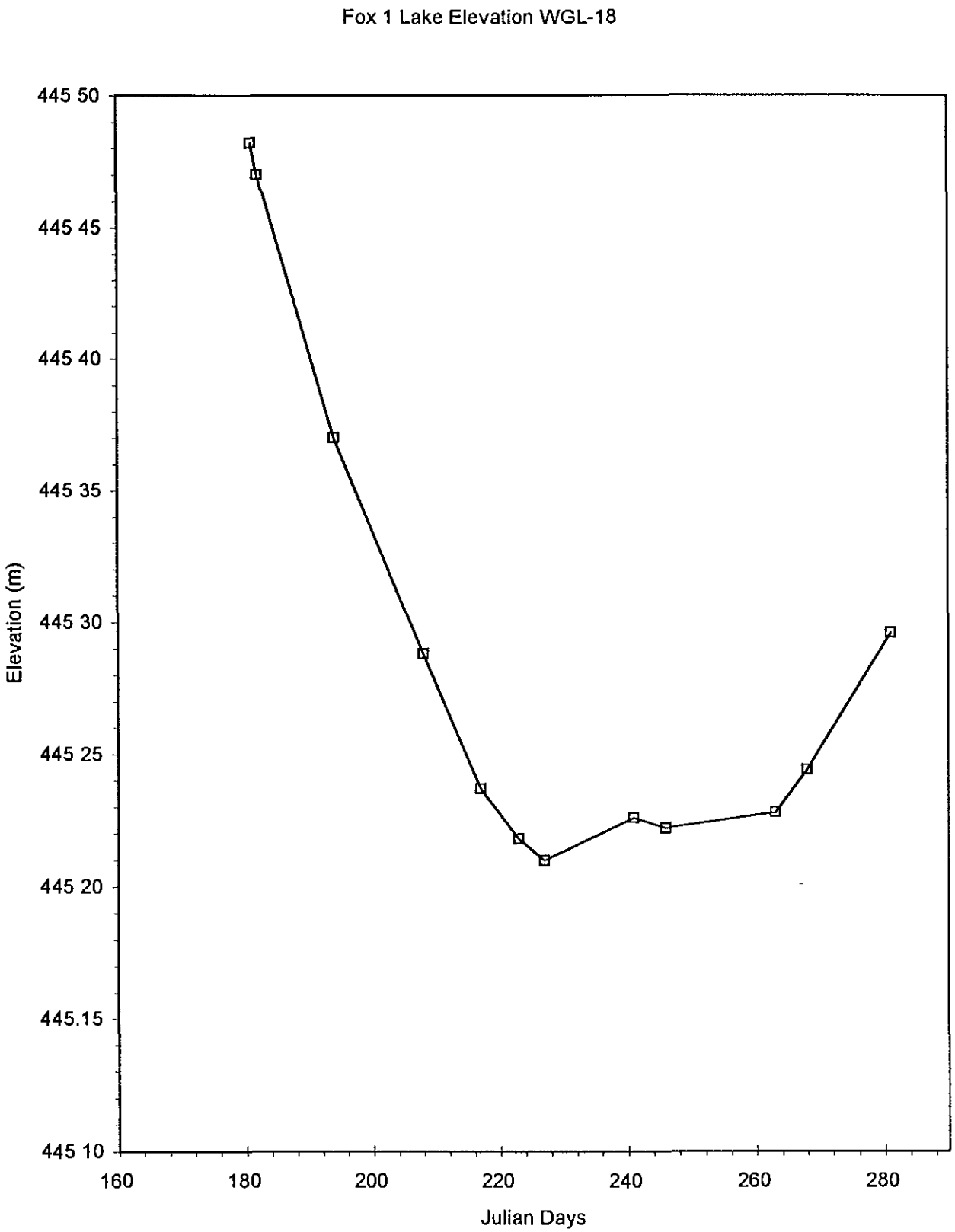
MOOSE1


Moose Lake Elevation WGL-17
444 80
444 70
444 60
444 50
444 40
444 30
444 20
444 10
444 00
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

◎ **Table of Contents**

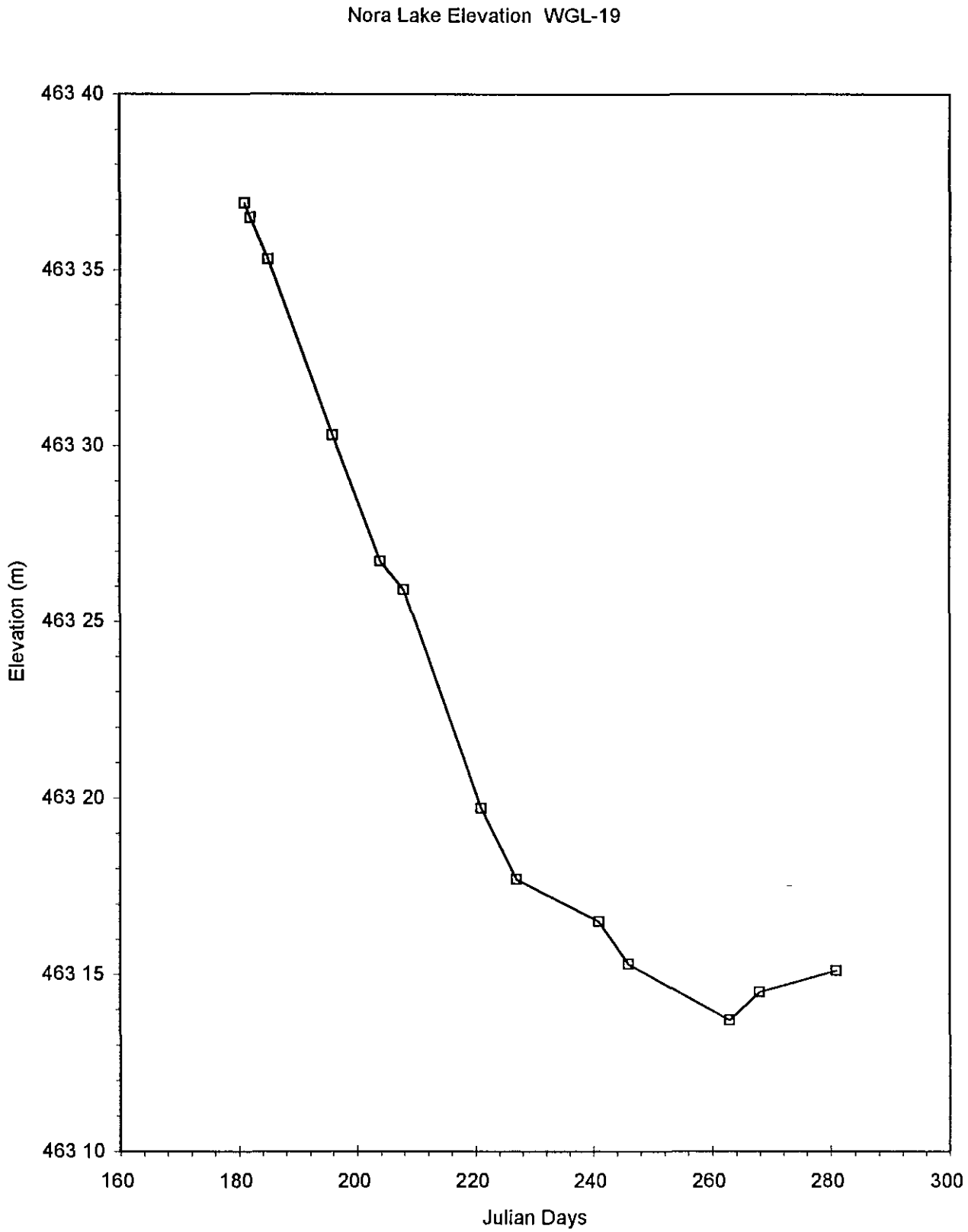
NWT Diamonds Project						
Staff Gauge Readings						
Location Fox 1 Lake on north shore						
Gauge #	WGL-18			Datalogger # none		
Elevation	444 808	m for staff "0"				
UTM Coordinates		7170746N	515429E			
Date	Time	Staff	Elevation	Comments	Initials	
1994		Reading (m)	(m)			
June 30	15 00			Set up station	TT + JB	Jon
June 30	15 50	0 674	445 482	Very calm water, good reading	TT + JB	
July 01	20 54	0 662	445 47	Calm water, good reading	TT	
July 13	13 10	0 562	445 37	calm, good reading	TT	
July 27	16 32	0 48	445 288	calm, good reading	JF	
Aug 05	13 00	0 429	445 237	wavy +/- 2 cm SASurveys	AS (SAS)	
Aug 11	16 258	0 41	445 218	OK	DH	
Aug 15	12 34	0 402	445 21	calm, good reading	TT +BR	Bo
Aug 29	11 25	0 418	445 226	good reading +/- 0 4 cm	TT	
Sept 03	15 52	0 414	445 222	very calm	TT	
Sept 20	15 22	0 42	445 228	calm, sheltered from wind	TT	
Sept 25	12 02	0 436	445 244	slightly wavy, +/- 4 mm	TT	
Oct 08	10 55	0 488	445 296	calm	TT	

FOX1


Fox 1 Lake Elevation WGL-18
445 50
445 45
445 40
445 35
445 30
445 25
445 20
445.15
445 10
Elevation (m)
160
180
200
220
240
260
280
Julian Days

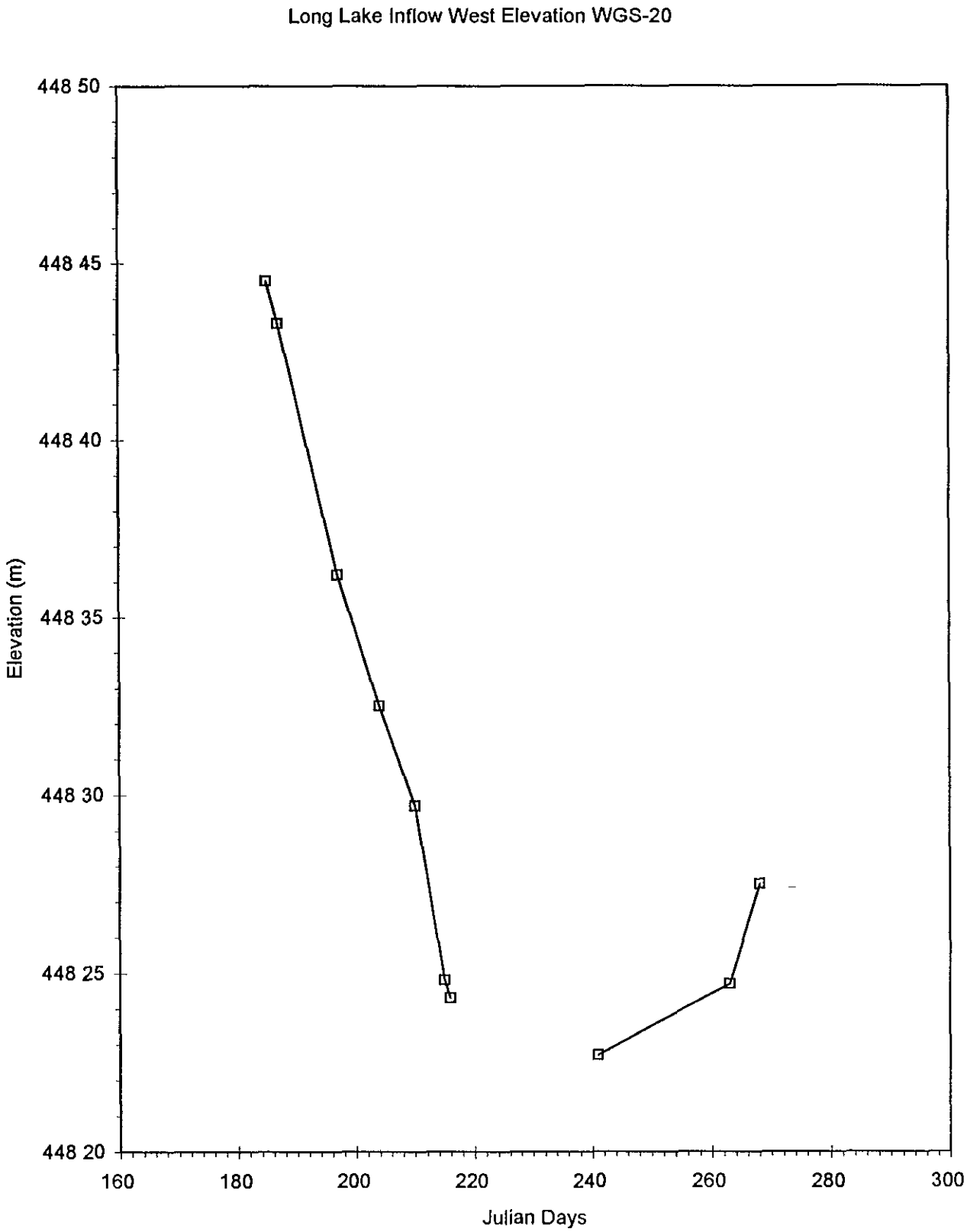
NWT Diamonds Project Staff Gauge Readings					
Location Nora Lake along northeast shore, 200 m south of outflow					
Gauge #	WGL-19			Datalogger # none	
Elevation	462 659	m for staff "0"			
UTM Coordinates		7167788N	514827E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
June 30	16 15			Set up station	TT + JB
June 30	16 55	0 71	463 369	Calm water, good reading	TT + JB
July 01	20 43	0 706	463 365	Calm water, good reading	TT
July 04	10 07	0 694	463 353	Calm water, good reading	TT
July 15	16 30	0 644	463 303	Calm water, good reading	TT
July 23	15 00	0 608	463 267	calm water, good reading	TT + JF
July 27	10 45	0 6	463 259	Calm, good reading +/- 2 mm	JF
Aug 09	11 30	0 538	463 197	wavy, +/- 2 cm SASurveys	AS (SAS)
Aug 15	12 40	0 518	463 177	calm, good reading	TT
Aug 29	10 28	0 506	463 165	calm, good reading	TT
Sept 03	16 18	0 494	463 153	very calm	TT
Sept 20	16 28	0 478	463 137	calm, shltered, good reading	TT
Sept 25	12 42	0 486	463 145	calm	TT
Oct 08	10 37	0 492	463 151	ice at gauge, Break and take reading	TT

NORA1


Nora Lake Elevation WGL-19
463 40
463 35
463 30
463 25
463 20
463 15
463 10
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

NWT Diamonds Project					
Staff Gauge Readings					
Location Long Lake inflow western drainage, 1st lake from LL					
Gauge #	WGS-20			Datalogger # none	
Elevation	448 113	m for staff "0"			
UMT Coordinates		7177434N	514750E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
July 04	08 20			Set up staff gauge	TT + AB
July 04	08 20	0 332	448 445	Poor location, may have to move it	TT + AB
July 06	10 45	0 32	448 433	Stream flow gauging	TT + ST
July 16	07 42	0 249	448 362	Stream flow gauging	TT + ST
July 23	10 23	0 212	448 325	calm water, good reading	TT + JF
July 26	15 47	0 184	448 297	calm, good reading	JF
Aug 3	16 00	0 135	448 248	calm SASurveys	AS (SAS)
Aug 04	12 00	0 13	448 243	appx 12 00, no comments	DH
Aug 11		No flow			DH
Aug 29	11 38	0 114	448 227	calm,	TT
Sept 20	15 00	0 134	448 247	calm	TT
Sept 25	13 36	0 162	448 275	calm	TT
			448 113		

LLSTRM1


Long Lake Inflow West Elevation WGS-20
448 50
448 45
448 40
448 35
448 30
448 25
448 20
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

NWT Diamonds Project
Staff Gauge Readings
Location 425 Lake draining into Lac de Gras near Paul Lake

Gauge #	WGS-21			Datalogger # none	
Elevation	n/a	m for staff "0"			
UTM Coordinates		7170000N	524295E		
Date 1994	Time (MST)	Staff Reading (m)	Elevation (m)	Comments	Initials
July 04	11 00			Set up staff gauge	TT + AB
July 04	11 50	0 638	0 638	Poor location, may have to move it	TT + AB
July 07	07 50	0 5	0 5	Moved stage to new location	TT + ST
July 07	08 00	0 5	0 5	Stream flow gauging	TT + ST
July 16	09 00	0 444	0 444	Stream flow gauging	TT + ST
July 22	14 20	0 412	0 412	Stream flow gauging	TT + AB
July 29	10 05	0 398	0 398	+/- 0 4 cm	JF
Aug 11	17 02	0 358	0 358		DH
Aug 15	13 17	0 356	0 356		TT
Aug 29	11 02	0 378	0 378	ripples +/- 0 2 cm	TT
Sept 06	15 53	0 38	0 38	calm	TT
Sept 07	12 00	0 38	0 38	stream flow	TT + SJ
Sept 09	14 13	0 38	0 38	calm	TT
Sept 21	14 40	0 412	0 412	calm	TT
Sept 25	12 53	0 428	0 428	calm, ground saturated	TT
Oct 08	14 51	0 464	0 464	calm, ice near gauge	TT

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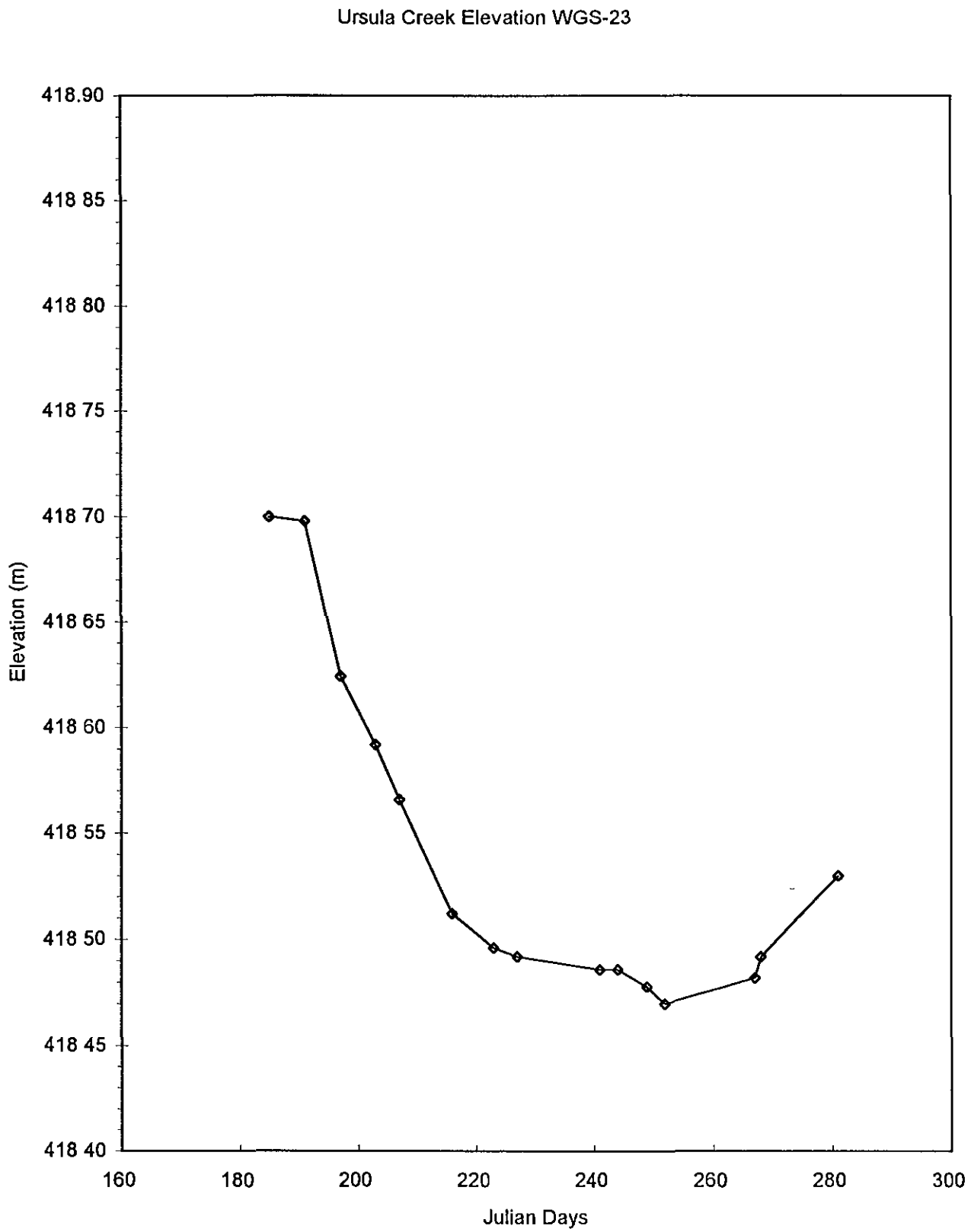
NWT Diamonds Project Staff Gauge Readings					
Location Paul Lake northern inflow on east side of a noname lake draining into west end of Paul Lake					
Gauge #	WGS-22			Datalogger # none	
Elevation		m for staff "0"			
UTM Coordinates		7172746N	525469N		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
July 04	12 00			Set up staff gauge	TT + AB
July 04	13 00	0 4			TT + AB
July 10	09 30	0 36		Stream flow gauging	DH + NP
July 16	10 45	0 318		Stream flow gauging	TT + ST
July 22	12 35	0 28		Stream flow gauging	TT + AB
July 29	10 12	0 26		calm, good reading	JF
Aug 11	17 08	0 222			DH
Aug 15	13 12	0 23			TT
Aug 29	10 57	0 268		calm, good reading	TT
Sept 06	15 49	0 28		calm	TT
Sept 07	13 00	0 282		ca,lm	TT + SJ
Sept 09	15 09	0 282		calm	TT
Sept 21	14 35	0 324		calm	TT
Sept 25	12 57	0 336		calm	TT
Oct 08	14 44	0 356		ice broken and reading taken	TT

◎ **Table of Contents**

NWT Diamonds Project					
Staff Gauge Readings					
Location	Ursula Lake Watershed Drainage into Duchess Lake				
Gauge #	WGS-23			Datalogger # 314	
Elevation	418	assumed from map		Sensor sn# 416004	
UTM Location					
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
July 04	13 40			Set up staff gauge	TT + AB
July 04	14 30	0 7	418 7	along deep water channel	TT + AB
July 10	08 00	0 698	418 698	Install datalogger stream flow gauging	DH + NP
July 16	12 25	0 624	418 624	Stream flow gauging	TT + ST
July 22	07 25	0 592	418 592	Stream flow gauging	TT + AB
July 26	15 10	0 566	418 566	calm, good reading	JF
Aug 04	12 57	0 512	418 512	calm, stream flow	DH + NP
Aug 11	17 15	0 496	418 496	calm	DH
Aug 15	13 05	0 492	418 492	calm	TT
Aug 29	10 49	0 486	418 486	calm	TT
Sept 01	07 40	0 486	418 486	calm, stream flow	TT
Sept 06	15 40	0 478	418 478	calm, Sensor cable destroyed, data lost	TT
Sept 09	13 30	0 47	418 47	Install new sensor, monitor 498	TT
Sept 24	0730	0 482	418 482	datalogger check, monitor 0 526	TT
Sept 25	13 05	0 492	418 492	calm	TT
Oct 08	15 10	0 53	418 53	remove datalogger, monitor 0 567	TT

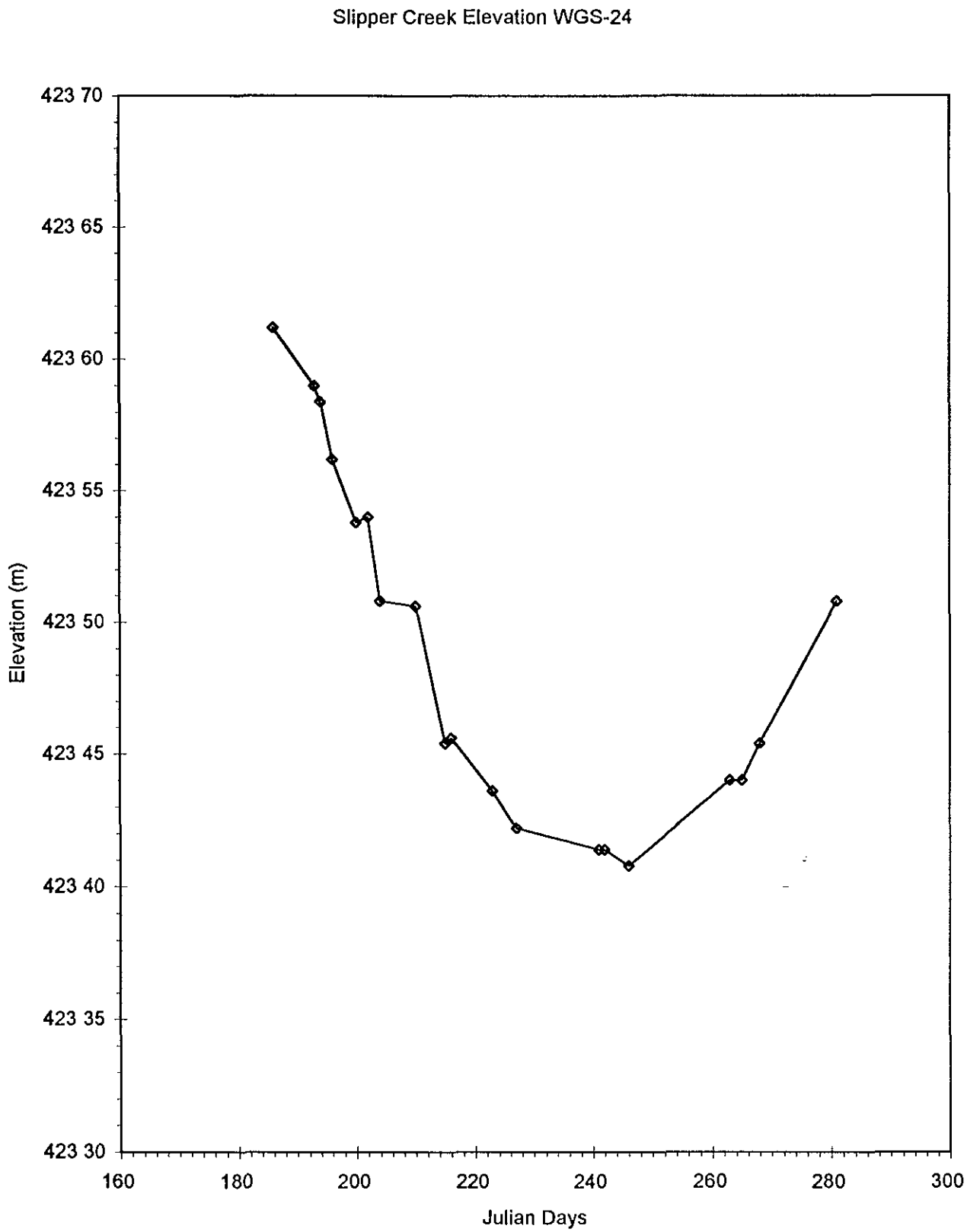
URS1


Ursula Creek Elevation WGS-23
418.90
418 85
418 80
418 75
418 70
418 65
418 60
418 55
418 50
418 45
418 40
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

◎ **Table of Contents**

NWT Diamonds Project					
Staff Gauge Readings					
Location Slipper Lake outflow into Lac de Gras					
Gauge #	WGS-24			Datalogger # 312	
Elevation	422 978	m for staff "0"		Sensor sn# 422036	
UTM Coordinates		7164886N	507599E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
July 05	08 30			Set up staff gauge with Diane	DH + TT
July 05	09 00	0 634	423 612	good reading, take flow measurements	DH + TT
July 05				do 2 flow readings, see Diane's notes	DH + TT
July 12	08 55	0 612	423 59	smooth water , good reading	TT+ DH
July 13	07 43	0 606	423 584	smooth water , good reading	TT + ST
July 15	11 25	0 584	423 562	smooth water, good reading	TT + ST
July 19	19 14	0 56	423 538	smooth water, Good reading Datalogger download	TT + DJR
July 21	13 20	0 562	423 54	smooth water, stream flow gauging	TT + AB
July 23	14 51	0 53	423 508	smooth water, good reading	TT + JF
July 29	09 35	0 528	423 506	good reading, sheltered, +/- 0 2 cm	JF
Aug 03	14 05	0 476	423 454		DH
Aug 04	09 12	0 478	423 456	download datalogger, logger reading = 0 469	DH
Aug 11	16 16	0 458	423 436	OK	DH
Aug 15	12 20	0 444	423 422	calm, good reading	TT
Aug 29	10 12	0 436	423 414	calm, good reading	TT
Aug 30	16 52	0 436	423 414	download datalogger, Reading = 0 424	TT + LW
Sept 03	16 10	0 43	423 408	very calm, good reading	TT
Sept 20	13 05	0 462	423 44	calm flowing, monitor 0 450	TT
Sept 22	13 30	0 462	423 44	calm	TT
Sept 25	12 30	0 476	423 454	calm smooth	TT
Oct 08	10 15	0 53	423 508	calm, flowing water	TT
				Remove datalogger	

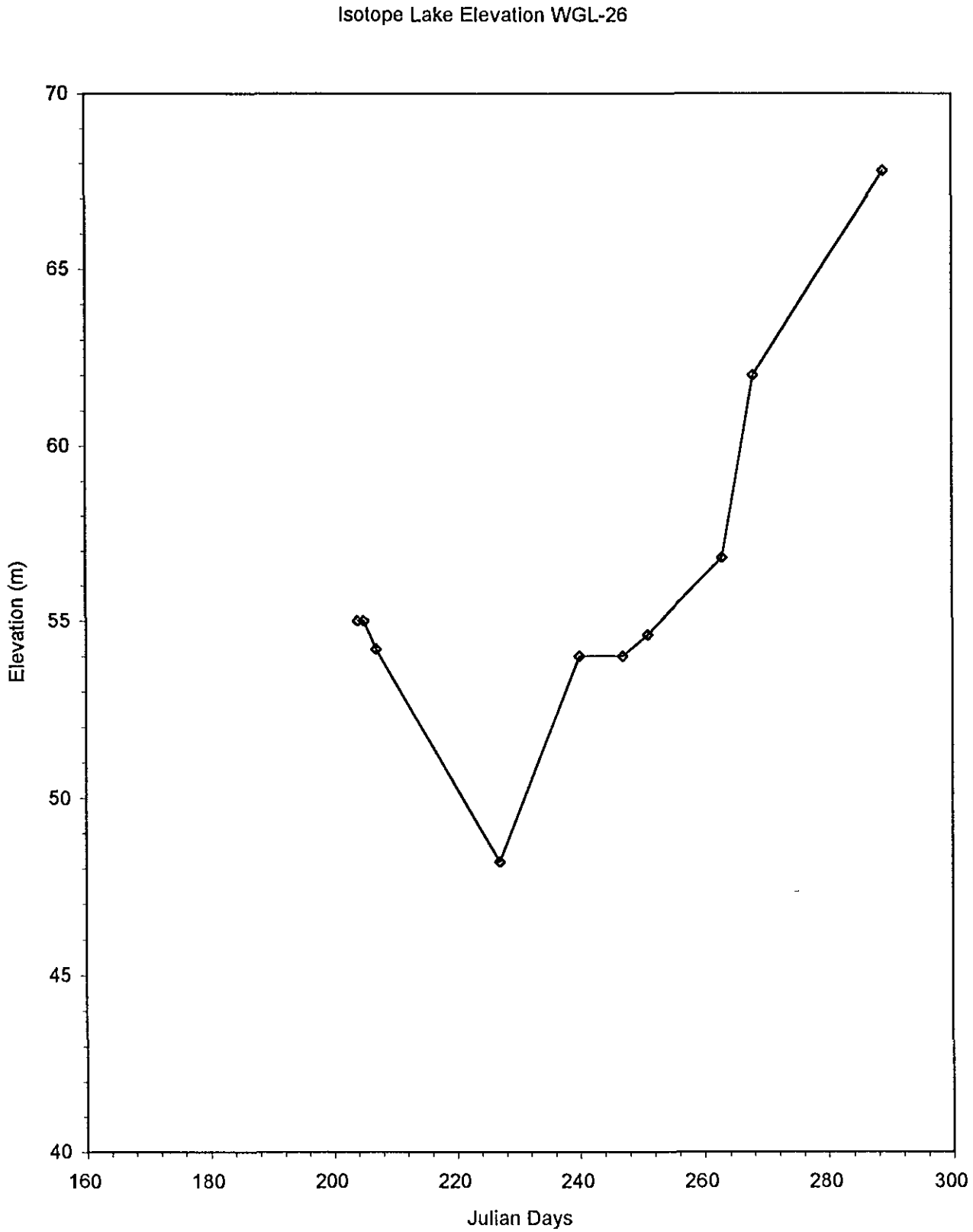
CRK1


Slipper Creek Elevation WGS-24
423 70
423 65
423 60
423 55
423 50
423 45
423 40
423 35
423 30
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

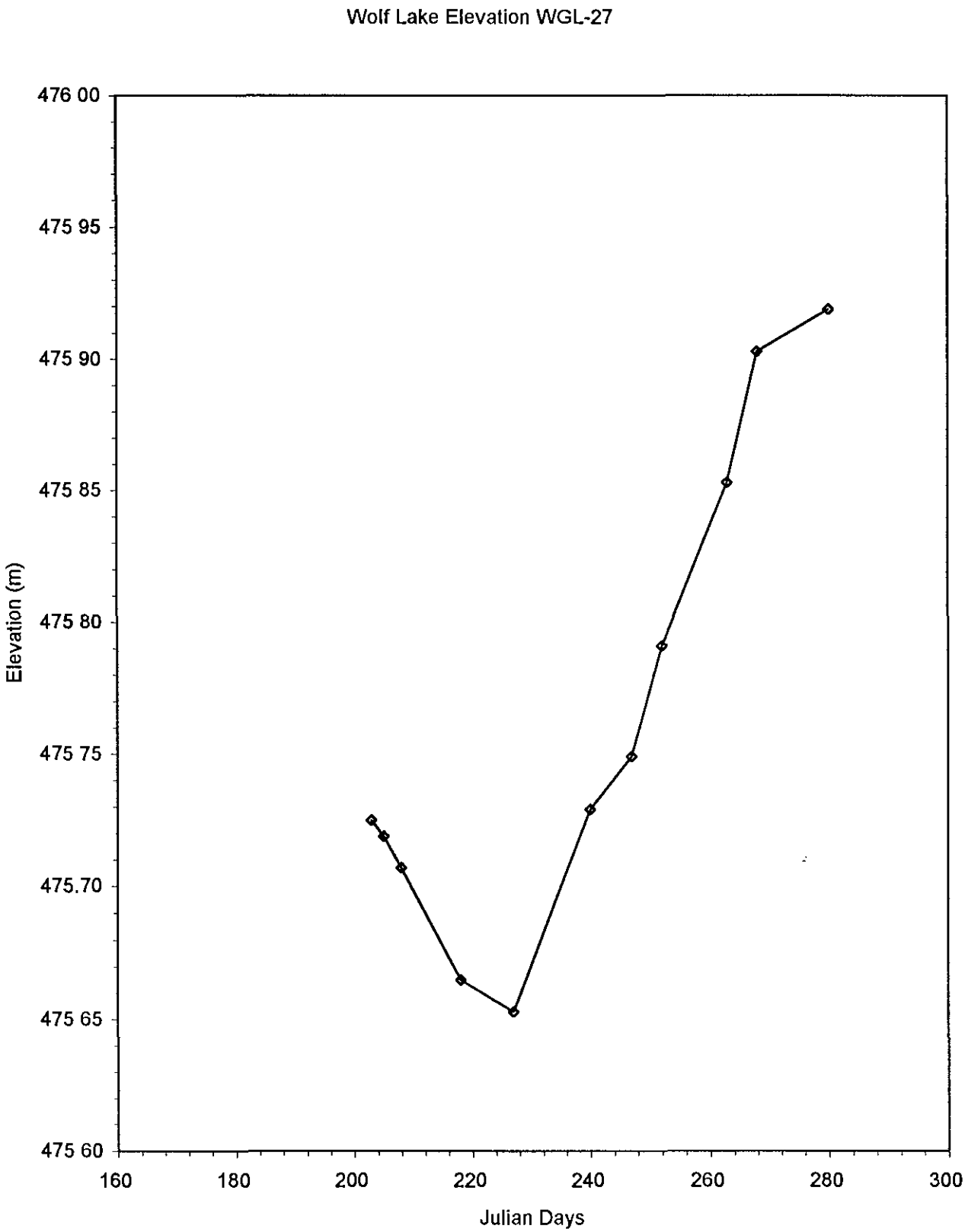
NWT Diamonds Project Staff Gauge Readings					
Location Creek draining into 435 Lake east of esker, near Fish Lakes					
NTS					
Gauge #	WGS-25			Datalogger # none	
Elevation		m for staff "0"			
UTM Coordinates		7169777N	520078E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
July					DH
July 22	16 05	0 206		minor wind ripples, OK Reading	TT
July 27	09 56	0 196		good reading	JF
Aug 11	16 56	0 172			DH
Aug 15	13·21	0 168		calm	TT
Aug 29	11 08	0 168		calm	TT
Sept 06	15 59	0 166		calm	TT
Sept 09	14 18	0 166		calm	TT
Sept 25	12 47	0 172		calm	TT
Oct 08	14 33	0 194		calm, thin ice layer	TT

NWT Diamonds Project Staff Gauge Readings					
Gauge #	WGL-26				
Elevation·				Datalogger none	
UTM Location·					
Date 1994	Time (MST)	Staff Reading (m)	Elevation (m)	Comments	Initials
July 23	10;14	0 55		calm, good reading	TT
July 24	17 09	0 55		slightly wavy, +/- 5mm, isotope sample	TT
July 26	17 00	0 542		calm, good reading	JF
Aug 15	16 39	0 482		Calm, good reading Isotope sample	TT
Aug 28	18 22	0 54		calm, good reading, isotope sample	TT
Sept 04	17 40	0 54		slightly wavy, +/- 4mm, isotope sample	TT
Sept 09	16 54	0 546		calm, good reading, isitope sample	TT
Sept 20	17 25	0 568		very calm, excellent reading, isotope sample	TT
Sept 25	16 23	0 62		calm, good reading, isotope sample	TT
Oct 08	16 20	0 678		ice 5 cm thick, isotope sample	TT

ISO1

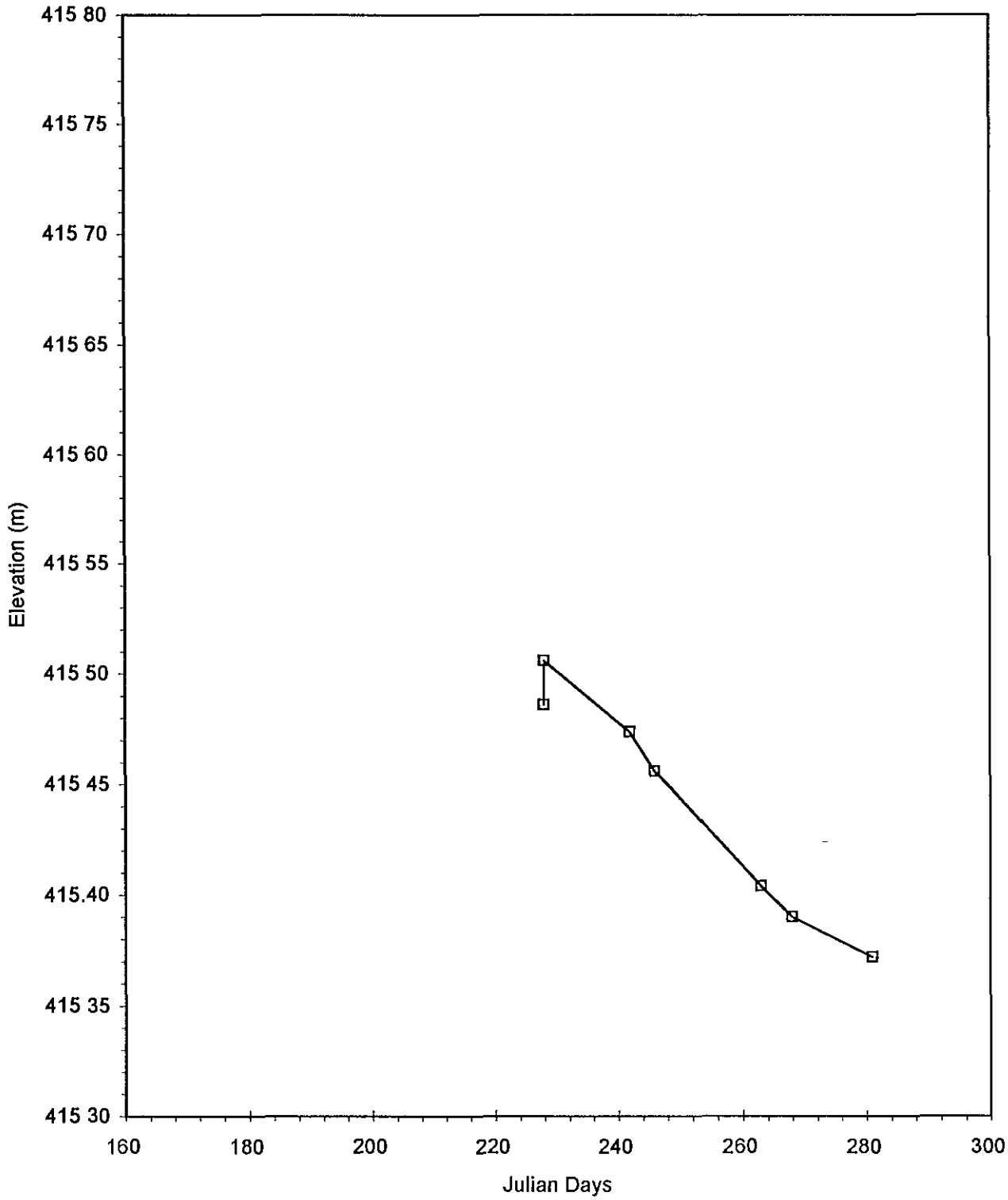

Isotope Lake Elevation WGL-26
70
65
60
55
50
45
40
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

NWT Diamonds Project					
Staff Gauge Readings					
Location Near Koala Camp new dump					
Gauge #	WGL-27			No datalogger	
Elevation	475 313	m for staff '0'			
UTM Coordinates		7173818N	519088E		
Date	Time	Staff	Elevation	Comments	Initials
1994		Reading (m)	(m)		
July 22	22 30	0 412	475 725	Finish Installation of staff gauge	TT
July 24	20 40	0 406	475 719	slighty wavy, +/- 1 cm, isotope sample	TT
July 27	13 53	0 394	475 707	windy, wavy, +/- 6mm	JF
Aug 6	16 45	0 352	475 665	SASurveys reading , calm	AS (SAS)
Aug 15	17 50	0 34	475 653	wavy, +/- 2 cm , poor reading	TT
Aug 28	18 50	0 416	475 729	calm, isotope sample	TT
Sept 04	18 08	0 436	475 749	calm,	TT
Sept 09	17 13	0 478	475 791	slightly wavy, +/- 4mm, isotope sample	TT
Sept 20	19 00	0 54	475 853	slightly wavy, +/- 1 cm, isotope sample	TT
Sept 25	17 32	0 59	475 903	calm, excellent reading	TT
Oct 07	16 00	0 606	475 919	calm, isotope sample	TT


Wolf Lake Elevation WGL-27
476 00
475 95
475 90
475 85
475 80
475 75
475.70
475 65
475 60
Elevation (m)
160
180
200
220
240
260
280
300
Julian Days

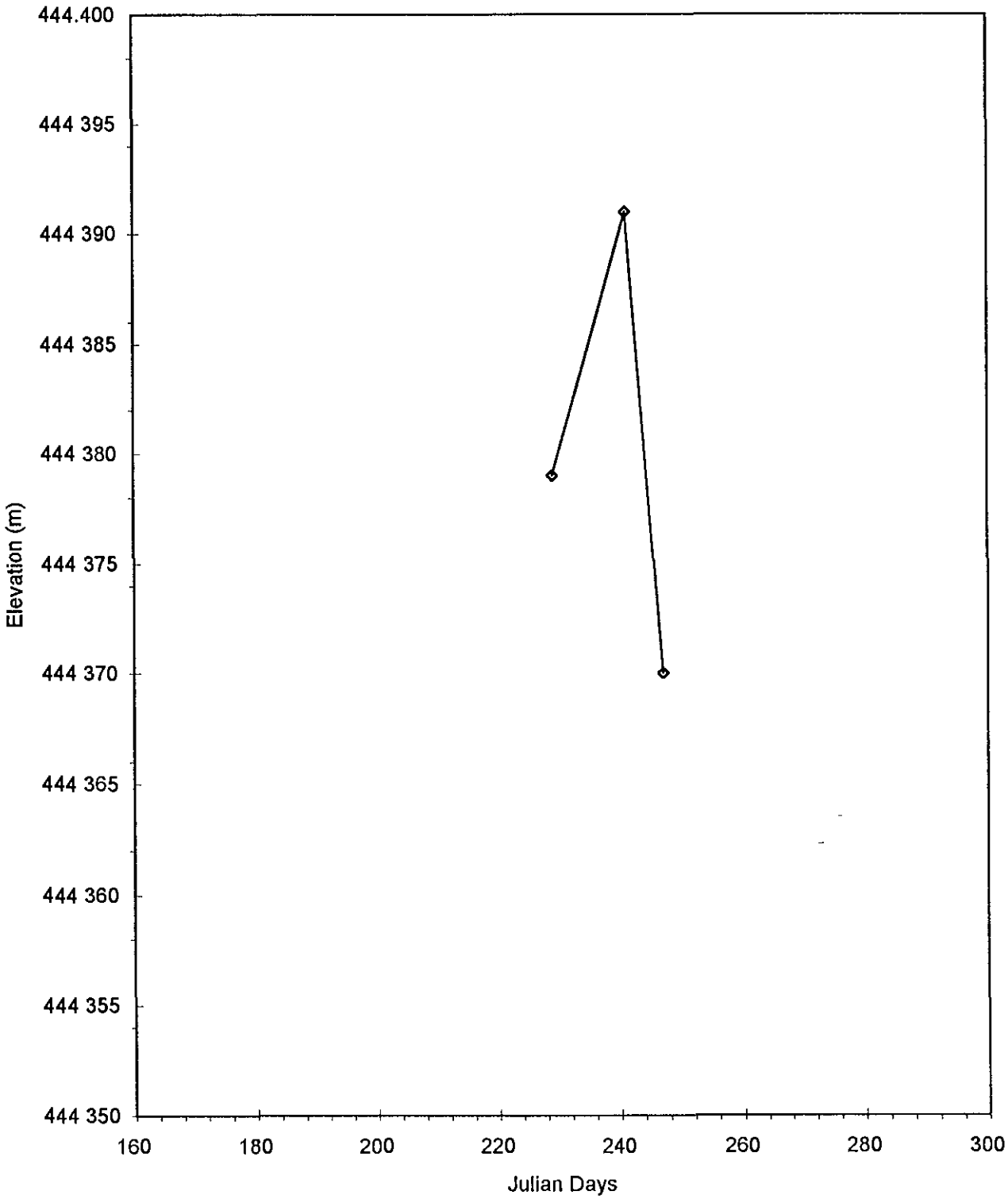
NWT Diamonds Project Staff Gauge Readings					
Location Lac de Gras north shore at Slipper outflow					
Gauge #	WGL-28			No datalogger	
Elevation	415 204	m for staff '0'			
UTM Coordinates		7164691N	507524E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
Aug 16	13 00	0 282	415 486	Install staff gauge with surveyors	TT
Aug 16	15 37	0 302	415 506	Lake level rise due to wind loading?	TT
Aug 29	10 17	0 27	415 474	calm, with Vivian Banci	TT
Sept 03	16 07	0 252	415 456	very calm, no wind	TT
Sept 20	13 25	0 2	415 404	wavy, +/- 1 cm, waves from east	TT
Sept 25	12 27	0 186	415 39	calm at stage, wavy on lake	TT
Oct 08	09 50	0 168	415 372	+/- 4mm at stage, wavy, +/- 5 cm on lake	TT

Lac de Gras Elevation WGL-28



NWT Diamonds Project					
Staff Gauge Readings					
Location: Misery Lake near outflow					
Gauge #	WGL-29			No datalogger	
Elevation:	443 755	m for staff '0'			
UTM Coordinates		7159692N	539589E		
Date	Time	Staff	Elevation	Comments	Initials
1994	(MST)	Reading (m)	(m)		
Aug 17	13:30	0 624	444 379	Install Misery Lake hydrology station	TT
				Surveyors survey in site	
Aug 29	10:40	0 636	444 391	good reading	TT
Sept 4	17 00	0 615	444 37	wavy ?	MM
Sept 21	13 30			moved boat, reading taken but not recorded	TT

Misery Lake WGL-29



Mean Daily Water Levels

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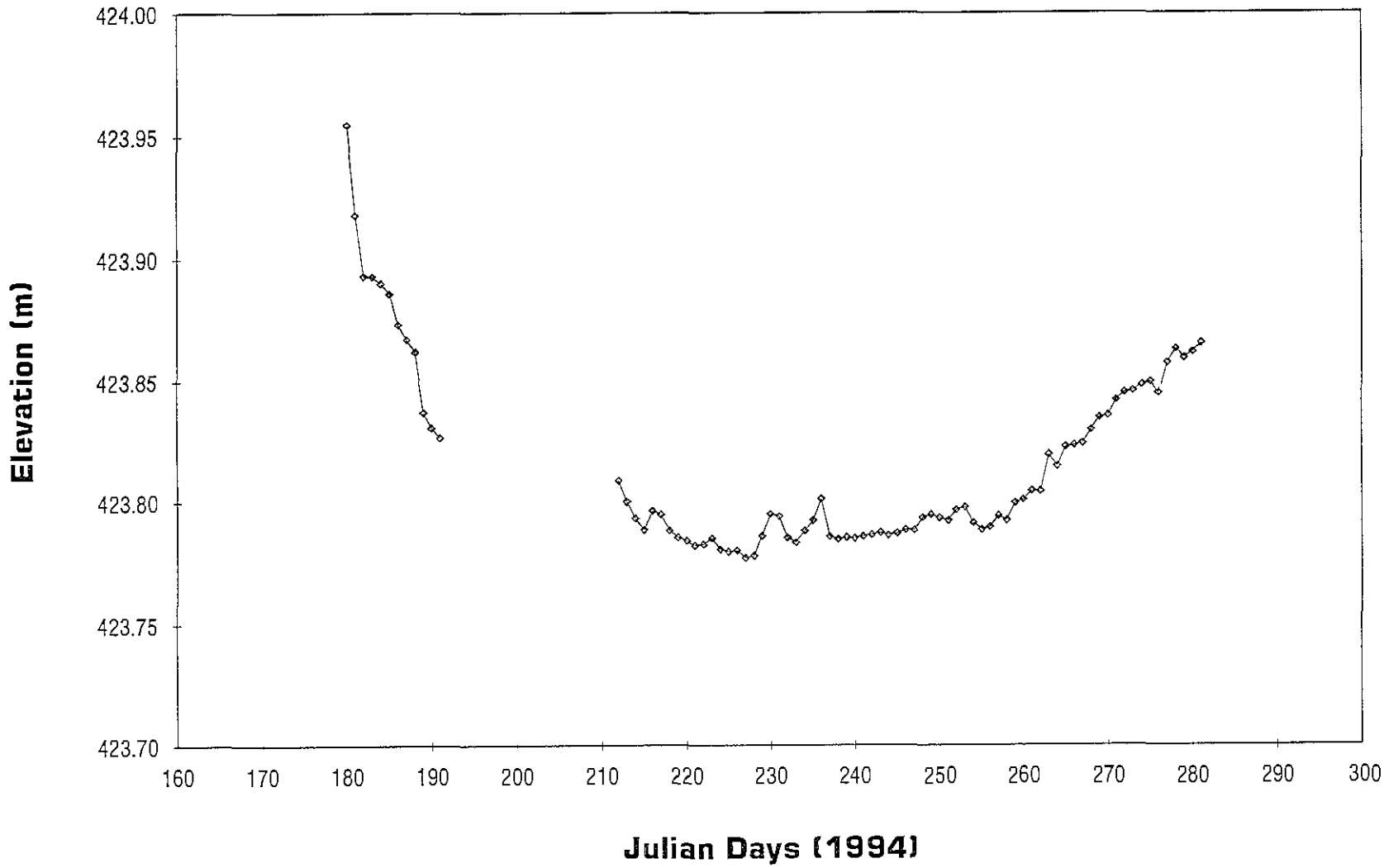

BHP

Mean Daily Water Level - Slipper Lake (WGL-13)

Rescan

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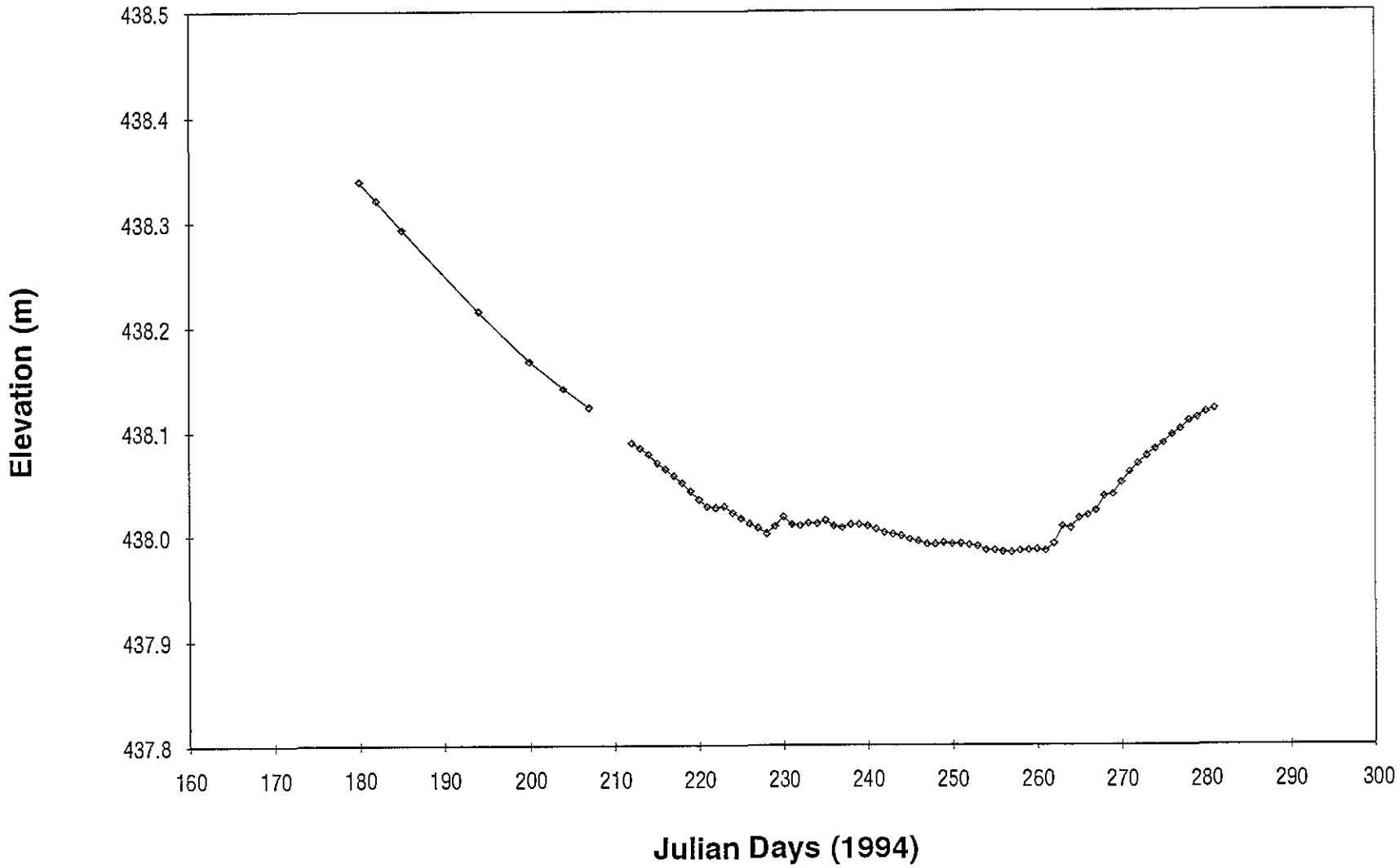

BHP

Mean Daily Water Level - Martine Lake (WGL-16)

Rescan

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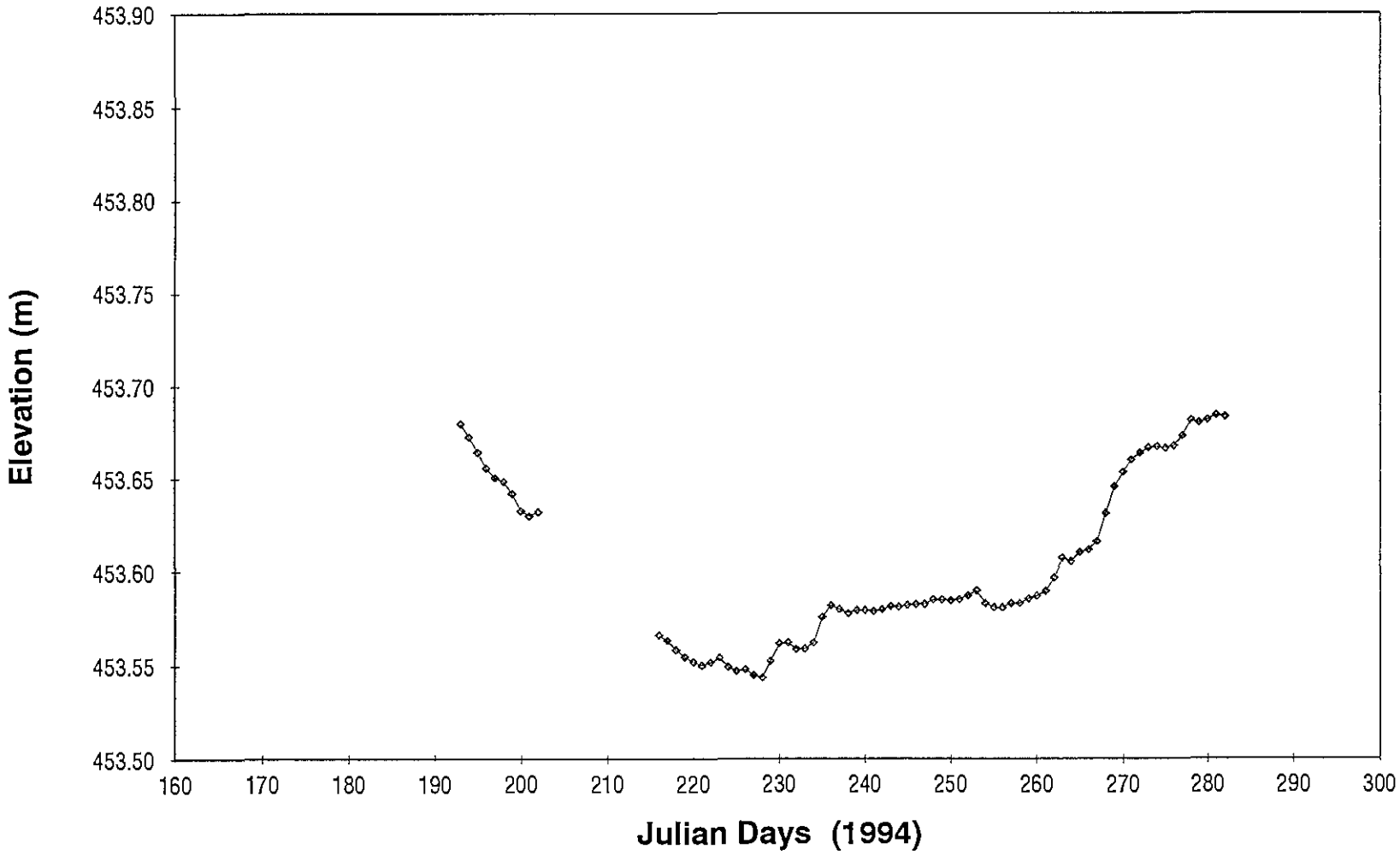

BHP

Mean Daily Water Level - Koala Lake (WGL-12)

Rescan

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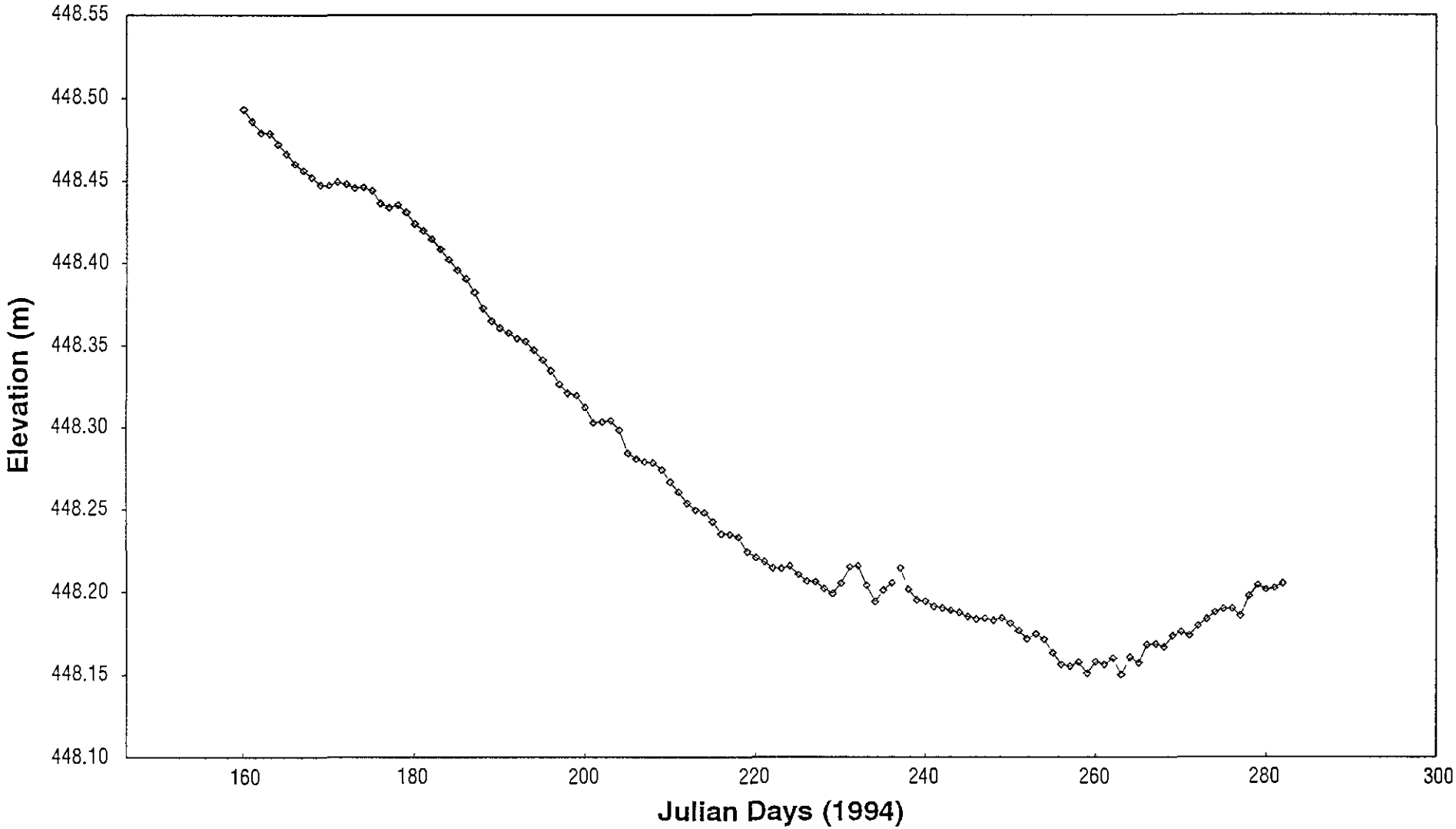

BHP

Mean Daily Water Level - Long Lake (WGL-01)

Rescan

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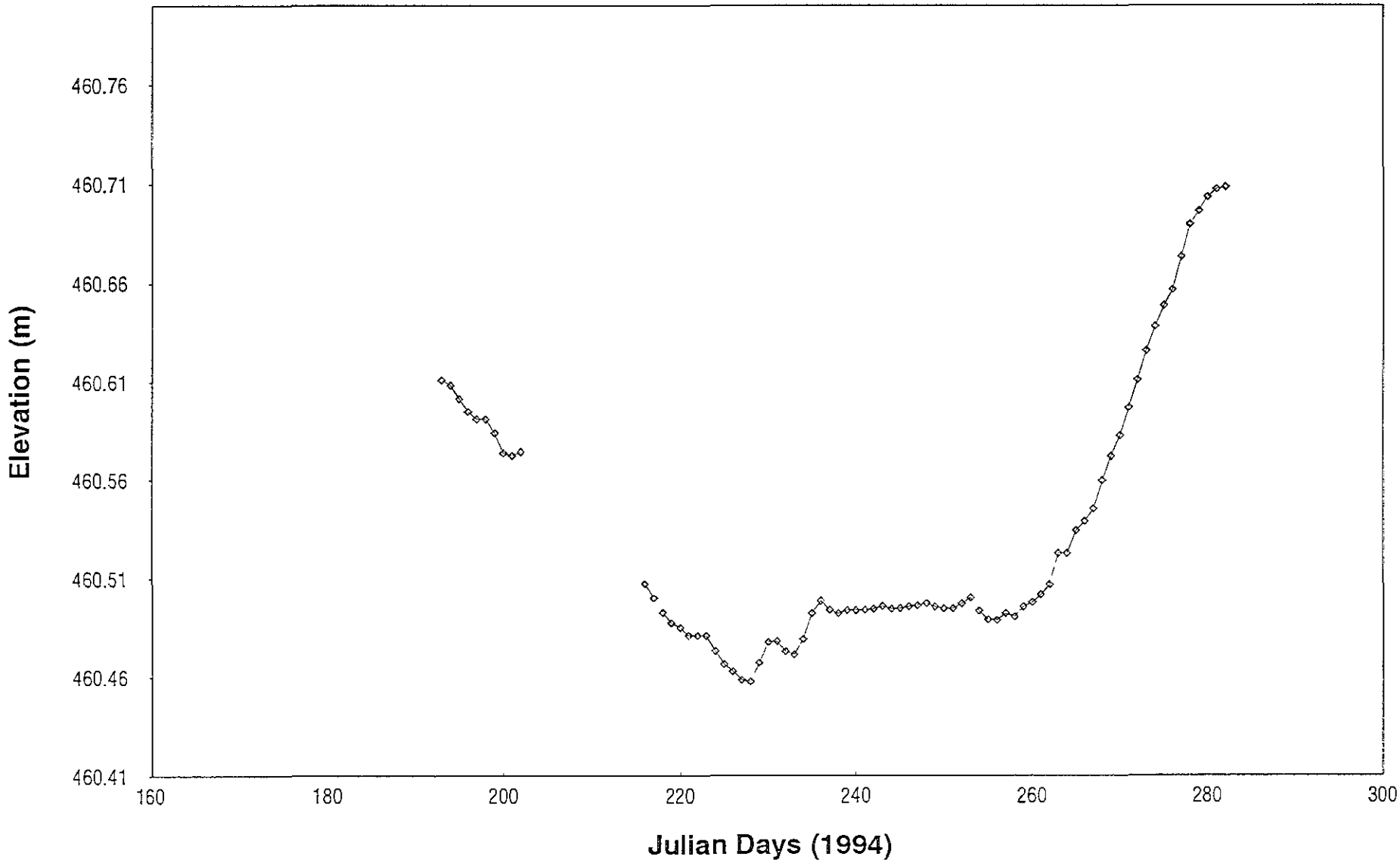

BHP

Mean Daily Water Level - Panda Lake (WGL-09)

Rescan

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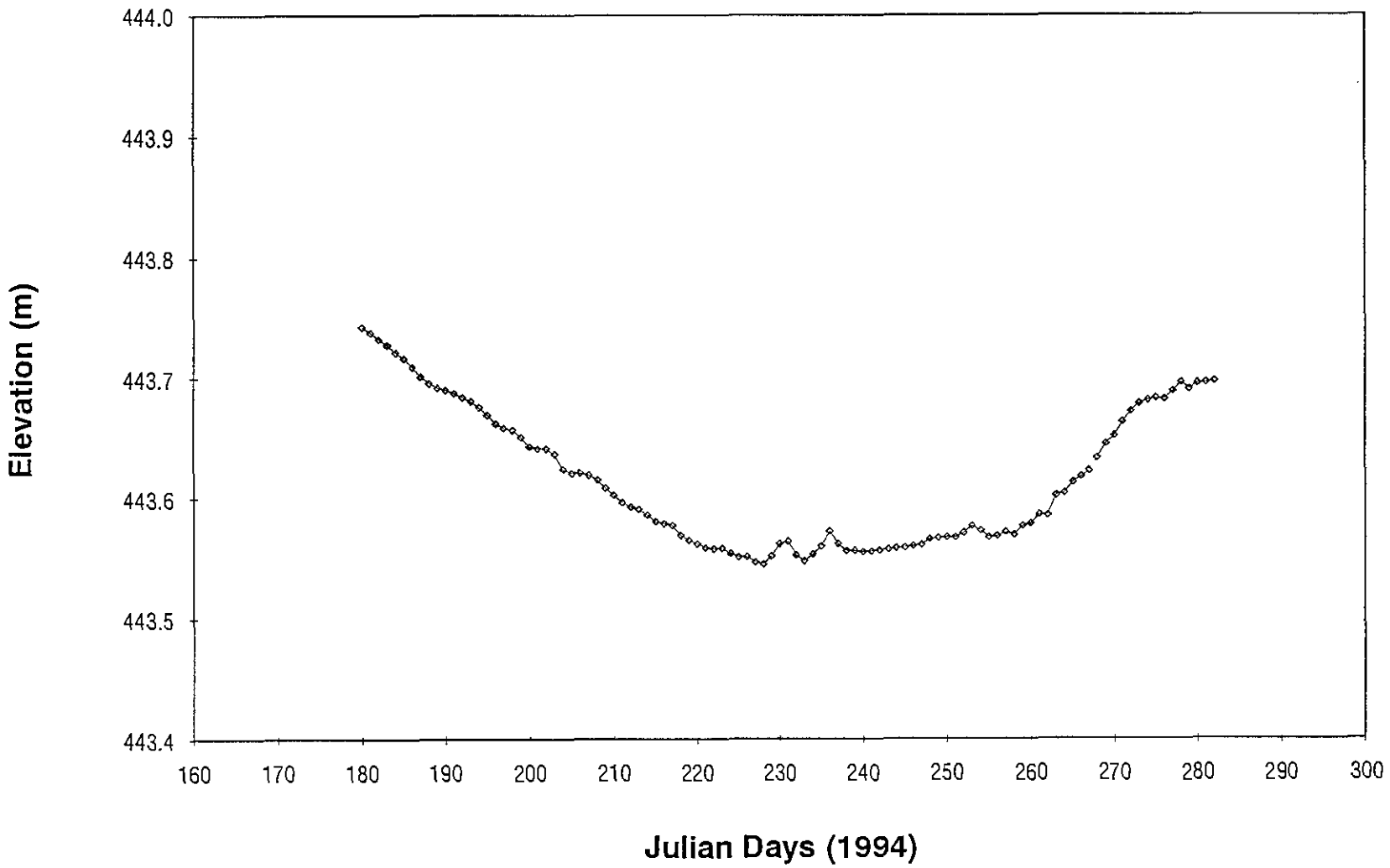
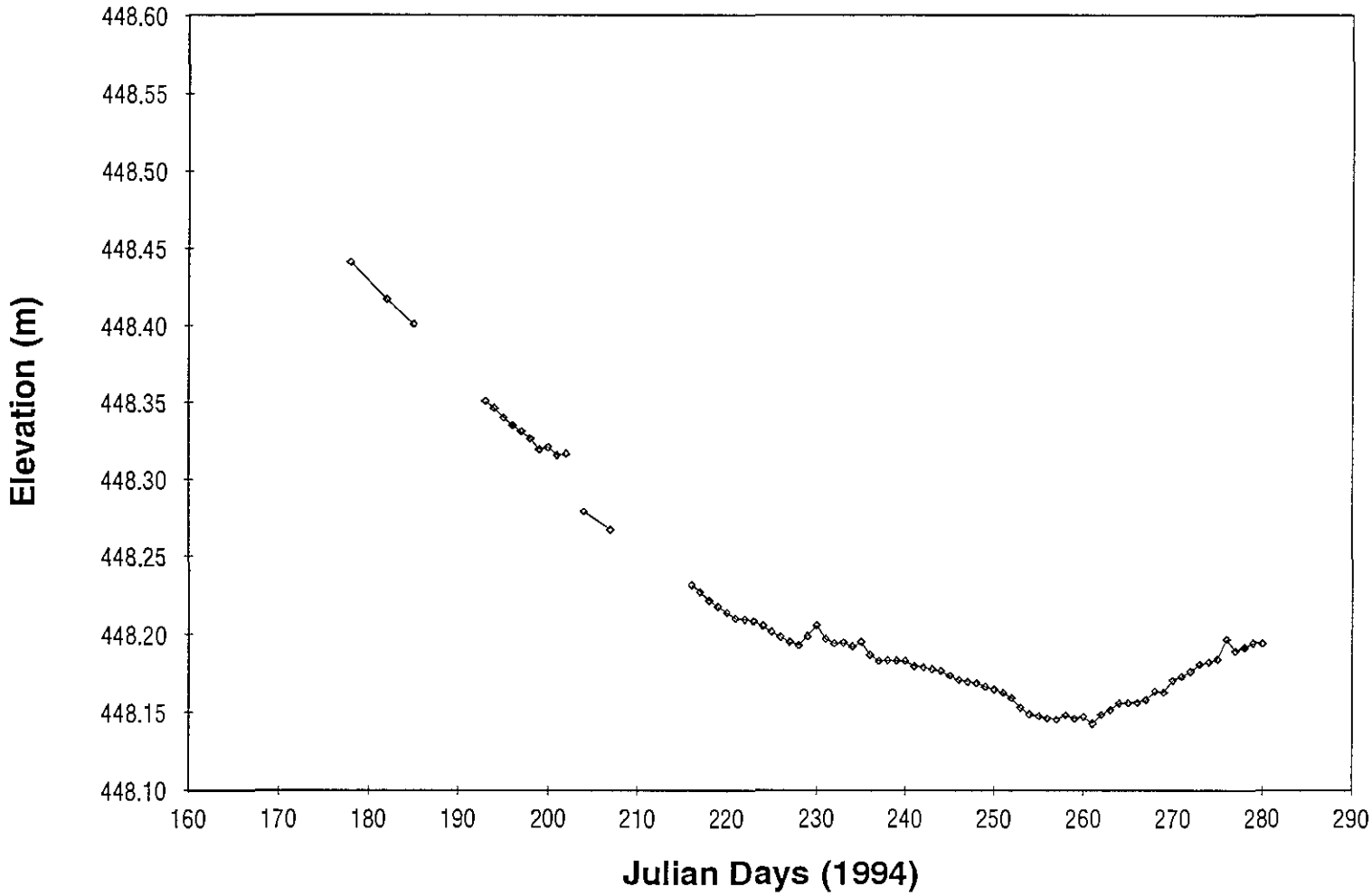


BHP

Mean Daily Water Level - Kodiak Lake (WGL-10)

Rescan



BHP

Mean Daily Water Level - Long Lake (WGL-11)

Rescan

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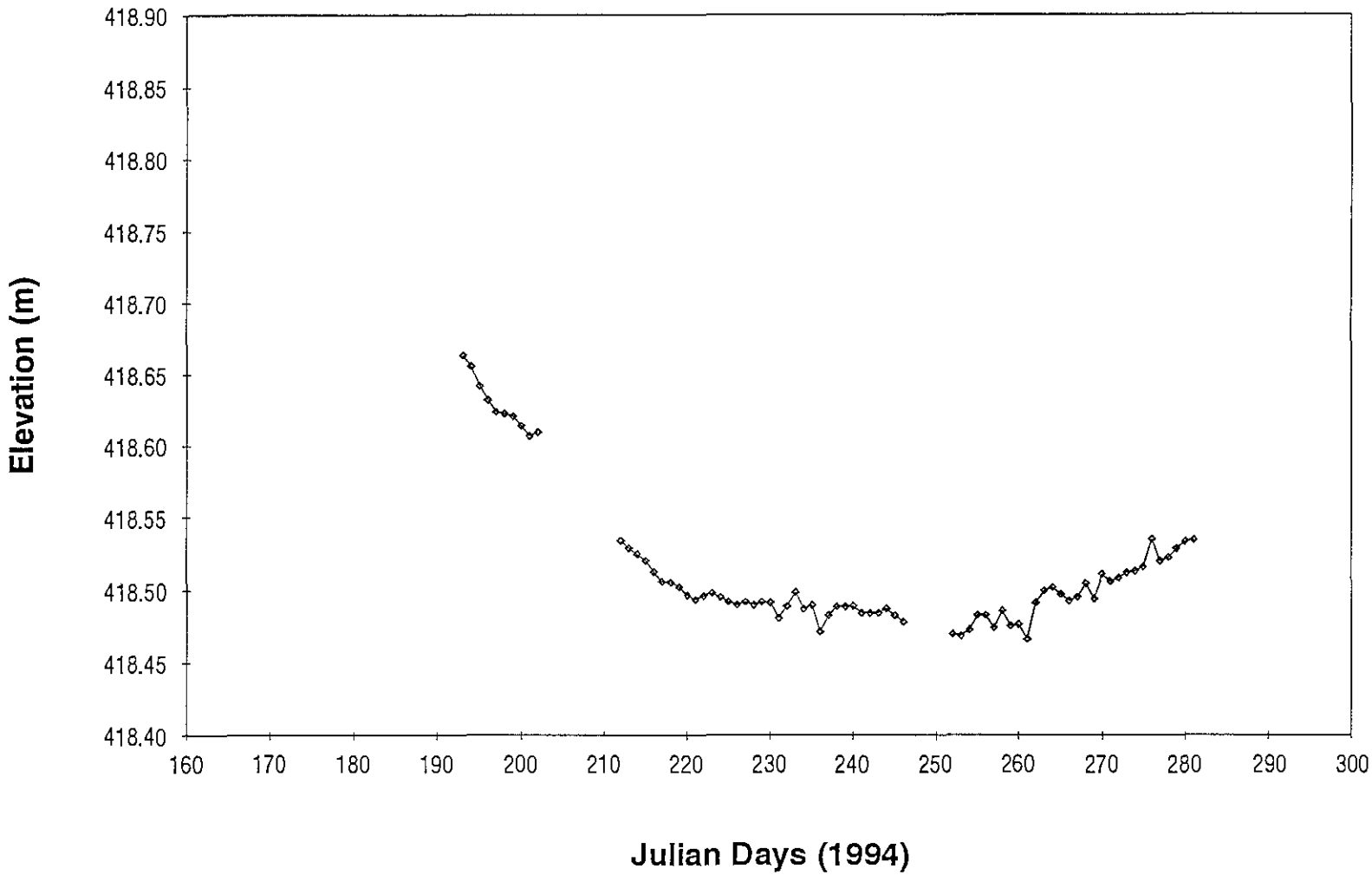

BHP

Mean Daily Water Level - Ursula Creek (WGS-23)

Rescan

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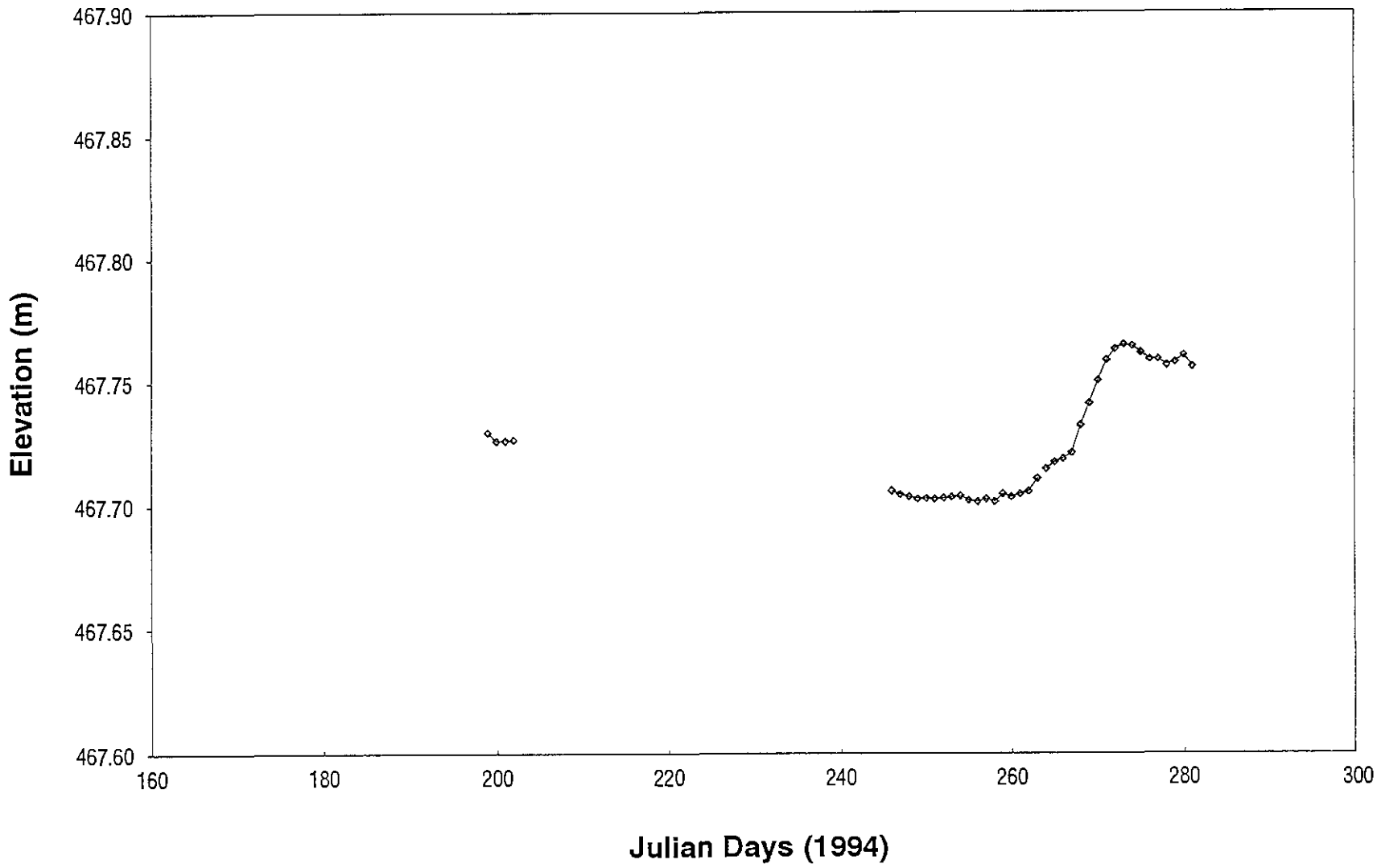

BHP

Mean Daily Water Level - Vulture-Panda Creek (WGS-14)

Rescan

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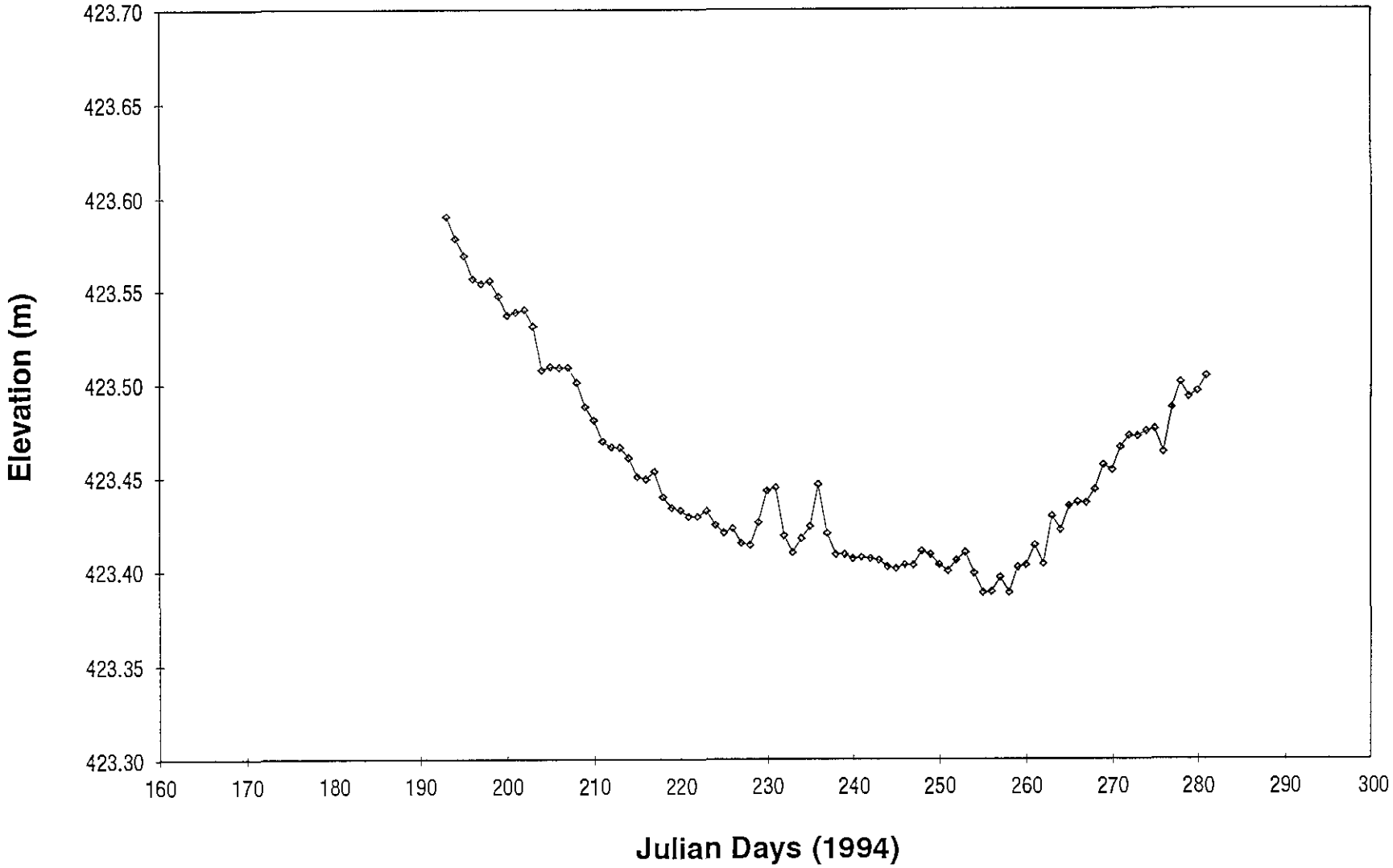

BHP

Mean Daily Water Level - Slipper Creek (WGL-24)

Rescan

Table L011008
Long Lake Station
Mean Daily Water Level (WSL-01)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
09-Jun	n/a	448.493	11-Jul	0.46132	448.35432	13-Aug	0.31748	448.21048	14-Sep	0.26202	448.15502
10-Jun	n/a	448.486	12-Jul	0.45949	448.35249	14-Aug	0.3134	448.2064	15-Sep	0.26458	448.15758
11-Jun	n/a	448.479	13-Jul	0.45435	448.34735	15-Aug	0.31308	448.20608	16-Sep	0.25775	448.15075
12-Jun	0.58575	448.47875	14-Jul	0.44812	448.34112	16-Aug	0.30886	448.20186	17-Sep	0.26467	448.15767
13-Jun	0.57913	448.47213	15-Jul	0.44175	448.33475	17-Aug	0.30602	448.19902	18-Sep	0.26325	448.15625
14-Jun	0.57344	448.46644	16-Jul	0.43341	448.32641	18-Aug	0.31216	448.20516	19-Sep	0.26683	448.15983
15-Jun	0.56712	448.46012	17-Jul	0.42823	448.32123	19-Aug	0.32184	448.21484	20-Sep	0.25702	448.15002
16-Jun	0.56318	448.45618	18-Jul	0.42662	448.31962	20-Aug	0.32284	448.21584	21-Sep	0.26733	448.16033
17-Jun	0.5591	448.4521	19-Jul	0.41933	448.31233	21-Aug	0.31079	448.20379	22-Sep	0.2639	448.1569
18-Jun	0.55437	448.44737	20-Jul	0.40984	448.30284	22-Aug	0.30112	448.19412	23-Sep	0.27513	448.16813
19-Jun	0.55428	448.44728	21-Jul	0.41049	448.30349	23-Aug	0.30785	448.20085	24-Sep	0.27545	448.16845
20-Jun	0.55625	448.44925	22-Jul	0.41104	448.30404	24-Aug	0.31244	448.20544	25-Sep	0.27366	448.16666
21-Jun	0.55474	448.44774	23-Jul	0.40535	448.29835	25-Aug	0.32124	448.21424	26-Sep	0.28067	448.17367
22-Jun	0.55263	448.44563	24-Jul	0.39119	448.28419	26-Aug	0.30836	448.20136	27-Sep	0.28287	448.17587
23-Jun	0.55304	448.44604	25-Jul	0.38789	448.28089	27-Aug	0.30208	448.19508	28-Sep	0.28072	448.17372
24-Jun	0.55107	448.44407	26-Jul	0.38606	448.27906	28-Aug	0.3013	448.1943	29-Sep	0.28668	448.17968
25-Jun	0.54328	448.43628	27-Jul	0.38528	448.27828	29-Aug	0.29823	448.19123	30-Sep	0.29062	448.18362
26-Jun	0.54058	448.43358	28-Jul	0.3811	448.2741	30-Aug	0.29717	448.19017	01-Oct	0.2947	448.1877
27-Jun	0.54236	448.43536	29-Jul	0.37368	448.26668	31-Aug	0.29575	448.18875	02-Oct	0.29672	448.18972
28-Jun	0.53796	448.43096	30-Jul	0.36749	448.26049	01-Sep	0.29447	448.18747	03-Oct	0.29695	448.18995
29-Jun	0.53086	448.42386	31-Jul	0.36066	448.25366	02-Sep	0.29204	448.18504	04-Oct	0.29277	448.18577
30-Jun	0.52664	448.41964	01-Aug	0.35667	448.24967	03-Sep	0.2908	448.1838	05-Oct	0.30455	448.19755
01-Jul	0.52165	448.41465	02-Aug	0.35502	448.24802	04-Sep	0.29108	448.18408	06-Oct	0.31097	448.20397
02-Jul	0.51546	448.40846	03-Aug	0.34952	448.24252	05-Sep	0.28989	448.18289	07-Oct	0.30836	448.20136
03-Jul	0.50899	448.40199	04-Aug	0.34196	448.23496	06-Sep	0.29126	448.18426	08-Oct	0.30941	448.20241
04-Jul	0.50281	448.39581	05-Aug	0.341605	448.2346	07-Sep	0.28824	448.18124	09-Oct	0.31223	448.20523
05-Jul	0.4974	448.3904	06-Aug	0.3399	448.2329	08-Sep	0.28356	448.17656			
06-Jul	0.48928	448.38228	07-Aug	0.33128	448.22428	09-Sep	0.2787	448.1717			
07-Jul	0.47961	448.37261	08-Aug	0.32761	448.22061	10-Sep	0.28168	448.17468			
08-Jul	0.47196	448.36496	09-Aug	0.32514	448.21814	11-Sep	0.27833	448.17133			
09-Jul	0.46769	448.36069	10-Aug	0.32147	448.21447	12-Sep	0.26995	448.16295			
10-Jul	0.46471	448.35771	11-Aug	0.32106	448.21406	13-Sep	0.26325	448.15625			

Table L091009
Panda Lake Station
Mean Daily Water Level (WGL-09)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
12-Jul	.37461	460.61093	25-Aug	.25773	460.49405	26-Sep	.336	460.572
13-Jul	.37196	460.60828	26-Aug	.25594	460.49226	27-Sep	.346	460.583
14-Jul	.36517	460.60149	27-Aug	.25745	460.49377	28-Sep	.360	460.597
15-Jul	.35875	460.59507	28-Aug	.25740	460.49372	29-Sep	.375	460.611
16-Jul	.35481	460.59113	29-Aug	.25768	460.49400	30-Sep	.389	460.626
17-Jul	.35481	460.59113	30-Aug	.25823	460.49455	01-Oct	402	460.638
18-Jul	.34775	460.58407	31-Aug	.25960	460.49592	02-Oct	412	460.648
19-Jul	.33762	460.57394	01-Sep	.258	460.495	03-Oct	420	460.657
20-Jul	.33611	460.57243	02-Sep	.259	460.495	04-Oct	437	460.673
21-Jul	.33809	460.57441	03-Sep	.259	460.496	05-Oct	453	460.689
			04-Sep	.260	460.496	06-Oct	460	460.696
04-Aug	.27093	460.50725	05-Sep	.261	460.497	07-Oct	467	460.703
05-Aug	.26387	460.50019	06-Sep	.259	460.496	08-Oct	471	460.707
06-Aug	.25640	460.49272	07-Sep	.258	460.495	09-Oct	472	460.708
07-Aug	.25126	460.48758	08-Sep	.258	460.495			
08-Aug	.24888	460.48520	09-Sep	.261	460.497			
09-Aug	.24489	460.48121	10-Sep	.264	460.500			
10-Aug	.24484	460.48116	11-Sep	.257	460.493			
11-Aug	.24489	460.48121	12-Sep	.253	460.489			
12-Aug	.23691	460.47323	13-Sep	.253	460.489			
13-Aug	.23027	460.46659	14-Sep	.256	460.492			
14-Aug	.22651	460.46283	15-Sep	.254	460.491			
15-Aug	.22215	460.45847	16-Sep	.259	460.496			
16-Aug	.22133	460.45765	17-Sep	.261	460.498			
17-Aug	.23091	460.46723	18-Sep	.265	460.502			
18-Aug	.24141	460.47773	19-Sep	.270	460.507			
19-Aug	.24177	460.47809	20-Sep	.286	460.523			
20-Aug	.23673	460.47305	21-Sep	.286	460.523			
21-Aug	.23513	460.47145	22-Sep	.298	460.534			
22-Aug	.24297	460.47929	23-Sep	.303	460.539			
23-Aug	.25594	460.49226	24-Sep	.309	460.545			
24-Aug	.26217	460.49849	25-Sep	.323	460.559			

Table L101009
Kodiak Lake Station
Mean Daily Water Level (WGL-10)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
28-Jun	0.50228	443.74244	01-Aug	0.34602	443.58618	04-Sep	0.32594	443.5661
29-Jun	0.49752	443.73768	02-Aug	0.34052	443.58068	05-Sep	0.32668	443.56684
30-Jun	0.49229	443.73245	03-Aug	0.33919	443.57935	06-Sep	0.32709	443.56725
01-Jul	0.48757	443.72773	04-Aug	0.33754	443.5777	07-Sep	0.32704	443.5672
02-Jul	0.48133	443.72149	05-Aug	0.32911	443.56927	08-Sep	0.33103	443.57119
03-Jul	0.47648	443.71664	06-Aug	0.32512	443.56528	09-Sep	0.33667	443.57683
04-Jul	0.46923	443.70939	07-Aug	0.32214	443.5623	10-Sep	0.33296	443.57312
05-Jul	0.46107	443.70123	08-Aug	0.3187	443.55886	11-Sep	0.32745	443.56761
06-Jul	0.45548	443.69564	09-Aug	0.31769	443.55785	12-Sep	0.32851	443.56867
07-Jul	0.45172	443.69188	10-Aug	0.31861	443.55877	13-Sep	0.33181	443.57197
08-Jul	0.45003	443.69019	11-Aug	0.31393	443.55409	14-Sep	0.32956	443.56972
09-Jul	0.44746	443.68762	12-Aug	0.31086	443.55102	15-Sep	0.33704	443.5772
10-Jul	0.44393	443.68409	13-Aug	0.31123	443.55139	16-Sep	0.33878	443.57894
11-Jul	0.44054	443.6807	14-Aug	0.30678	443.54694	17-Sep	0.34616	443.58632
12-Jul	0.43573	443.67589	15-Aug	0.30499	443.54515	18-Sep	0.34552	443.58568
13-Jul	0.42917	443.66933	16-Aug	0.31169	443.55185	19-Sep	0.36197	443.60213
14-Jul	0.42184	443.662	17-Aug	0.32209	443.56225	20-Sep	0.36408	443.60424
15-Jul	0.41849	443.65865	18-Aug	0.32379	443.56395	21-Sep	0.37306	443.61322
16-Jul	0.41675	443.65691	19-Aug	0.31247	443.55263	22-Sep	0.37751	443.61767
17-Jul	0.41088	443.65104	20-Aug	0.30779	443.54795	23-Sep	0.38242	443.62258
18-Jul	0.40309	443.64325	21-Aug	0.31343	443.55359	24-Sep	0.39314	443.6333
19-Jul	0.4013	443.64146	22-Aug	0.31975	443.55991	25-Sep	0.40497	443.64513
20-Jul	0.40148	443.64164	23-Aug	0.3325	443.57266	26-Sep	0.41157	443.65173
21-Jul	0.39644	443.6366	24-Aug	0.32205	443.56221	27-Sep	0.42317	443.66333
22-Jul	0.38443	443.62459	25-Aug	0.31618	443.55634	28-Sep	0.43192	443.67208
23-Jul	0.3809	443.62106	26-Aug	0.31645	443.55661	29-Sep	0.43852	443.67868
24-Jul	0.38113	443.62129	27-Aug	0.31531	443.55547	30-Sep	0.4415	443.68166
25-Jul	0.37916	443.61932	28-Aug	0.31572	443.55588	01-Oct	0.44274	443.6829
26-Jul	0.37536	443.61552	29-Aug	0.31673	443.55689	02-Oct	0.44233	443.68249
27-Jul	0.36839	443.60855	30-Aug	0.31705	443.55721	03-Oct	0.44865	443.68881
28-Jul	0.36243	443.60259	31-Aug	0.31829	443.55845	04-Oct	0.45612	443.69628
29-Jul	0.35638	443.59654	01-Sep	0.31879	443.55895	05-Oct	0.45071	443.69087
30-Jul	0.35257	443.59273	02-Sep	0.32003	443.56019	06-Oct	0.45534	443.6955
31-Jul	0.3507	443.59086	03-Sep	0.32081	443.56097	07-Oct	0.45571	443.69587
						08-Oct	0.45649	443.69665

Table L111007
Long Lake North Station
Mean Daily Water Level (WGL-11)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
12-Jul	40762	448.35100	21-Aug	.25128	448.19466	18-Sep	.19939	448.14277
13-Jul	40273	448.34611	22-Aug	.24880	448.19218	19-Sep	.20503	448.14841
14-Jul	.39672	448.34010	23-Aug	.25174	448.19512	20-Sep	.20833	448.15171
15-Jul	.39145	448.33483	24-Aug	.24344	448.18682	21-Sep	.21227	448.15565
16-Jul	.38774	448.33112	25-Aug	.23968	448.18306	22-Sep	.21286	448.15624
17-Jul	.38297	448.32635	26-Aug	.24000	448.18338	23-Sep	.21273	448.15611
18-Jul	.37577	448.31915	27-Aug	.23986	448.18324	24-Sep	.21465	448.15803
19-Jul	.37733	448.32071	28-Aug	.23959	448.18297	25-Sep	.21997	448.16335
20-Jul	.37220	448.31558	29-Aug	.23638	448.17976	26-Sep	.21942	448.16280
21-Jul	.37298	448.31636	30-Aug	.23551	448.17889	27-Sep	.22712	448.17050
			31-Aug	.23413	448.17751	28-Sep	.22955	448.17293
04-Aug	.28822	448.23160	01-Sep	.23303	448.17641	29-Sep	.23267	448.17605
05-Aug	.28359	448.22697	02-Sep	.23019	448.17357	30-Sep	.23748	448.18086
06-Aug	.27791	448.22129	03-Sep	.22753	448.17091	01-Oct	.23881	448.18219
07-Aug	.27424	448.21762	04-Sep	.22620	448.16958	02-Oct	.24087	448.18425
08-Aug	.27025	448.21363	05-Sep	.22533	448.16871	03-Oct	.25348	448.19686
09-Aug	.26663	448.21001	06-Sep	.22286	448.16624	04-Oct	.24596	448.18934
10-Aug	.26631	448.20969	07-Sep	.22139	448.16477	05-Oct	.24816	448.19154
11-Aug	.26498	448.20836	08-Sep	.21910	448.16248	06-Oct	.25105	448.19443
12-Aug	.26196	448.20534	09-Sep	.21575	448.15913	07-Oct	.25073	448.19411
13-Aug	.25820	448.20158	10-Sep	.20970	448.15308			
14-Aug	.25490	448.19828	11-Sep	.20539	448.14877			
15-Aug	.25187	448.19525	12-Sep	.20434	448.14772			
16-Aug	.24963	448.19301	13-Sep	.20278	448.14616			
17-Aug	.25554	448.19892	14-Sep	.20195	448.14533			
18-Aug	.26223	448.20561	15-Sep	.20461	448.14799			
19-Aug	.25375	448.19713	16-Sep	.20269	448.14607			
20-Aug	.25086	448.19424	17-Sep	.20383	448.14721			

Table L131008
Slipper Lake Station
Mean Daily Water Level (WGL-13)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
29-Jun	.30362	423.95462	11-Aug	.18606	423.78519	13-Sep	.19046	423.78959
30-Jun	.26710	423.91810	12-Aug	.18138	423.78051	14-Sep	.19513	423.79426
01-Jul	.24211	423.89311	13-Aug	.18047	423.77960	15-Sep	.19326	423.79239
02-Jul	.24193	423.89293	14-Aug	.18097	423.78010	16-Sep	.20041	423.79954
03-Jul	.23904	423.89004	15-Aug	.17795	423.77708	17-Sep	.20169	423.80082
04-Jul	.23487	423.88587	16-Aug	.17877	423.77790	18-Sep	.20549	423.80462
05-Jul	.22217	423.87317	17-Aug	.18698	423.78611	19-Sep	.20531	423.80444
06-Jul	.21608	423.86708	18-Aug	.19587	423.79500	20-Sep	.22030	423.81943
07-Jul	.21108	423.86208	19-Aug	.19491	423.79404	21-Sep	.21549	423.81462
08-Jul	.18601	423.83701	20-Aug	.18610	423.78523	22-Sep	.22342	423.82255
09-Jul	.17959	423.83059	21-Aug	.18427	423.78340	23-Sep	.22401	423.82314
10-Jul	.17560	423.82660	22-Aug	.18895	423.78808	24-Sep	.22493	423.82406
11-Jul	.20168	.00000	23-Aug	.19321	423.79234	25-Sep	.23038	423.82951
12-Jul	.24175	.00000	24-Aug	.20219	423.80132	26-Sep	.23552	423.83465
13-Jul	.20315	.00000	25-Aug	.18661	423.78574	27-Sep	.23634	423.83547
14-Jul	.17684	.00000	26-Aug	.18555	423.78468	28-Sep	.24276	423.84189
15-Jul	.15135	.00000	27-Aug	.18629	423.78542	29-Sep	.24602	423.84515
16-Jul	.12481	.00000	28-Aug	.18583	423.78496	30-Sep	.24661	423.84574
17-Jul	.13613	.00000	29-Aug	.18665	423.78578	01-Oct	.24913	423.84826
18-Jul	.23565	.00000	30-Aug	.18743	423 78656	02-Oct	.25046	423.84959
19-Jul	.16423	.00000	31-Aug	.18826	423.78739	03-Oct	.24569	423.84482
			01-Sep	.18707	423.78620	04-Oct	.25816	423.85729
31-Jul	.20987	423.80900	02-Sep	.18789	423.78702	05-Oct	.26403	423.86316
01-Aug	.20100	423.80013	03-Sep	.18936	423.78849	06-Oct	.26041	423.85954
02-Aug	.19412	423.79326	04-Sep	.18913	423.78826	07-Oct	.26265	423.86178
03-Aug	.18936	423.78849	05-Sep	.19445	423.79358	08-Oct	.26634	423.86547
04-Aug	.19729	423.79642	06-Sep	.19568	423.79481			
05-Aug	.19582	423.79495	07-Sep	.19422	423.79335			
06-Aug	.18913	423.78826	08-Sep	.19335	423.79248			
07-Aug	.18629	423.78542	09-Sep	.19761	423.79674			
08-Aug	.18478	423.78391	10-Sep	.19871	423.79784			
09-Aug	.18299	423.78212	11-Sep	.19225	423.79138			
10-Aug	.18349	423.78262	12-Sep	.18945	423.78858			

Table S141008
Vulture - Panda Creek
Mean Daily Water Level (WGS-14)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
18-Jul	0.33151	467.73000	30-Sep	0.36652	467.76501
19-Jul	0.32793	467.72642	01-Oct	0.36602	467.76451
20-Jul	0.32802	467.72651	02-Oct	0.36341	467.76190
21-Jul	0.32843	467.72692	03-Oct	0.36052	467.75901
			04-Oct	0.36047	467.75896
03-Sep	0.30746	467.70595	05-Oct	0.35818	467.75667
04-Sep	0.30597	467.70446	06-Oct	0.35942	467.75791
05-Sep	0.30519	467.70368	07-Oct	0.36208	467.76057
06-Sep	0.30423	467.70272	08-Oct	0.35753	467 75602
07-Sep	0.30437	467.70286			
08-Sep	0.30423	467.70272			
09-Sep	0.30451	467.70300			
10-Sep	0.30483	467.70332			
11-Sep	0.30524	467.70373			
12-Sep	0.30359	467.70208			
13-Sep	0.30304	467 70153			
14-Sep	0.30409	467 70258			
15-Sep	0.30299	467.70148			
16-Sep	0.30629	467.70478			
17-Sep	0.30496	467.70345			
18-Sep	0.30611	467.70460			
19-Sep	0.30721	467.70570			
20-Sep	0.31248	467.71097			
21-Sep	0.31642	467.71491			
22-Sep	0.31913	467.71762			
23-Sep	0.32046	467.71895			
24-Sep	0.32298	467.72147			
25-Sep	0.33407	467 73256			
26-Sep	0.34292	467 74141			
27-Sep	0.35213	467 75062			
28-Sep	0.36034	467.75883			
29-Sep	0.36474	467.76323			

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Table TL161008
Martine Lake Station
Mean Daily Water Level (WGL-16)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
31-Jul	.33977	438.08936	31-Aug	.27150	438.00129	01-Oct	.33311	438.08270
01-Aug	.33480	438.08439	01-Sep	.25010	437.99969	02-Oct	.33866	438.08825
02-Aug	.32866	438.07825	02-Sep	.24675	437.99634	03-Oct	.34659	438.09618
03-Aug	.32055	438.07014	03-Sep	.24464	437.99423	04-Oct	.35222	438.10181
04-Aug	.31459	438.06418	04-Sep	.24180	437.99139	05-Oct	.36020	438.10979
05-Aug	.30813	438.05772	05-Sep	.24198	437.99157	06-Oct	.36355	438.11314
06-Aug	.30107	438.05066	06-Sep	.24299	437.99258	07-Oct	.36808	438.11767
07-Aug	.29341	438.04300	07-Sep	.24203	437.99162	08-Oct	.37123	438.12082
08-Aug	.28525	438.03484	08-Sep	.24239	437.99198			
09-Aug	.27847	438.02806	09-Sep	.24120	437.99079			
10-Aug	.27728	438.02687	10-Sep	.24006	437.98965			
11-Aug	.27833	438.02792	11-Sep	.23630	437.98589			
12-Aug	.27210	438.02169	12-Sep	.23570	437.98529			
13-Aug	.26715	438.01674	13-Sep	.23469	437.98428			
14-Aug	.26174	438.01133	14-Sep	.23382	437.98341			
15-Aug	.25770	438.00729	15-Sep	.23561	437.98520			
16-Aug	.25220	438.00179	16-Sep	.23625	437.98584			
17-Aug	.25949	438.00908	17-Sep	.23671	437.98630			
18-Aug	.26838	438.01797	18-Sep	.23538	437.98497			
19-Aug	.26123	438.01082	19-Sep	.24239	437.99198			
20-Aug	.25977	438.00936	20-Sep	.25899	438.00858			
21-Aug	.26243	438.01202	21-Sep	.25738	438.00697			
22-Aug	.26178	438.01137	22-Sep	.26692	438.01651			
23-Aug	.26486	438.01445	23-Sep	.26976	438.01935			
24-Aug	.25949	438.00908	24-Sep	.27416	438.02375			
25-Aug	.25793	438.00752	25-Sep	.28791	438.03750			
26-Aug	.26073	438.01032	26-Sep	.28942	438.03901			
27-Aug	.26073	438.01032	27-Sep	.30102	438.05061			
28-Aug	.25940	438.00899	28-Sep	.31097	438.06056			
29-Aug	.25628	438.00587	29-Sep	.31890	438.06849			
30-Aug	.25317	438.00276	30-Sep	.32646	438.07605			

Table S231008
Ursula Creek Station
Mean Daily Water Level (WGS-23)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
12-Jul	.67203	418.66397	21-Aug	.50679	418.49873	26-Sep	.52572	418.49406
13-Jul	.66387	418.65581	22-Aug	49538	418.48732	27-Sep	.54282	418.51116
14-Jul	.65007	418.64201	23-Aug	.49794	418.48988	28-Sep	.53782	418.50616
15-Jul	.64022	418.63216	24-Aug	47970	418.47164	29-Sep	.54048	418.50882
16-Jul	.63206	418.62400	25-Aug	49111	418.48305	30-Sep	.54392	418.51226
17-Jul	.63087	418.62281	26-Aug	49707	418.48901	01-Oct	.54497	418.51331
18-Jul	.62862	418.62056	27-Aug	49694	418.48888	02-Oct	.54786	418.51620
19-Jul	.62216	418.61410	28-Aug	.49749	418.48943	03-Oct	.56707	418.53541
20-Jul	.61487	418.60681	29-Aug	49276	418.48470	04-Oct	.55203	418.52037
21-Jul	.61776	418.60970	30-Aug	.49254	418.48448	05-Oct	.55451	418.52285
			31-Aug	49258	418.48452	06-Oct	.56061	418.52895
31-Jul	.54216	418.53410	01-Sep	49570	418.48764	07-Oct	.56542	418.53376
01-Aug	.53709	418.52903	02-Sep	.49079	418.48273	08-Oct	.56643	418.53477
02-Aug	.53287	418.52481	03-Sep	48667	418.47861			
03-Aug	.52861	418.52055						
04-Aug	.52082	418.51276	09-Sep	.50166	418.47000			
05-Aug	.51413	418.50607	10-Sep	.50037	418.46871			
06-Aug	.51335	418.50529	11-Sep	.50445	418.47279			
07-Aug	.51032	418.50226	12-Sep	.51454	418.48288			
08-Aug	.50464	418.49658	13-Sep	.51454	418.48288			
09-Aug	.50179	418.49373	14-Sep	.50615	418.47449			
10-Aug	.50436	418.49630	15-Sep	.51756	418.48590			
11-Aug	.50629	418.49823	16-Sep	.50730	418.47564			
12-Aug	.50335	418.49529	17-Sep	.50840	418.47674			
13-Aug	.50042	418.49236	18-Sep	49813	418.46647			
14-Aug	49836	418.49030	19-Sep	.52293	418.49127			
15-Aug	.50019	418.49213	20-Sep	.53131	418.49965			
16-Aug	49799	418.48993	21-Sep	.53356	418.50190			
17-Aug	.50001	418.49195	22-Sep	.52884	418.49718			
18-Aug	49964	418.49158	23-Sep	.52448	418.49282			
19-Aug	.48910	418.48104	24-Sep	.52701	418.49535			
20-Aug	49712	418.48906	25-Sep	.53631	418.50465			

Table S241008

Slipper Creek Station
Mean Daily Water Level (WGS-24)

Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)	Date 1994	Datalogger Reading (m)	Lake Elevation (m)
12-Jul	0.60925	423.59	13-Aug	0.43943	423.42018	14-Sep	0.41583	423.39658
13-Jul	0.59753	423.57828	14-Aug	0.44168	423.42243	15-Sep	0.40776	423.38851
14-Jul	0.58827	423.56902	15-Aug	0.43384	423.41459	16-Sep	0.42114	423.40189
15-Jul	0.57585	423.5566	16-Aug	0.43288	423.41363	17-Sep	0.42229	423.40304
16-Jul	0.57333	423.55408	17-Aug	0.44498	423.42573	18-Sep	0.43265	423.4134
17-Jul	0.57475	423.5555	18-Aug	0.46212	423.44287	19-Sep	0.42279	423.40354
18-Jul	0.5665	423.54725	19-Aug	0.46387	423.44462	20-Sep	0.4481	423.42885
19-Jul	0.55614	423.53689	20-Aug	0.43788	423.41863	21-Sep	0.44081	423.42156
20-Jul	0.55774	423.53849	21-Aug	0.42889	423.40964	22-Sep	0.45383	423.43458
21-Jul	0.55921	423.53996	22-Aug	0.43627	423.41702	23-Sep	0.4558	423.43655
22-Jul	0.55027	423.53102	23-Aug	0.44269	423.42344	24-Sep	0.45543	423.43618
23-Jul	0.52676	423.50751	24-Aug	0.46552	423.44627	25-Sep	0.46286	423.44361
24-Jul	0.52859	423.50934	25-Aug	0.43888	423.41963	26-Sep	0.47583	423.45658
25-Jul	0.52813	423.50888	26-Aug	0.42797	423.40872	27-Sep	0.47317	423.45392
26-Jul	0.52836	423.50911	27-Aug	0.42793	423.40868	28-Sep	0.48527	423.46602
27-Jul	0.52034	423.50109	28-Aug	0.42577	423.40652	29-Sep	0.49146	423.47221
28-Jul	0.50727	423.48802	29-Aug	0.42623	423 40698	30-Sep	0.49119	423.47194
29-Jul	0.50003	423.48078	30-Aug	0.425737	423.406487	01-Oct	0.49389	423.47464
30-Jul	0.48889	423.46964	31-Aug	0.42481	423.40556	02-Oct	0.49508	423.47583
31-Jul	0.48582	423.46657	01-Sep	0.42146	423.40221	03-Oct	0.48266	423.46341
01-Aug	0.48541	423.46616	02-Sep	0.42055	423 4013	04-Oct	0.50663	423.48738
02-Aug	0.47991	423.46066	03-Sep	0.42243	423.40318	05-Oct	0.51997	423.50072
03-Aug	0.46996	423.45071	04-Sep	0.42224	423.40299	06-Oct	0.51213	423.49288
04-Aug	0.47166	423.44944	05-Sep	0.42953	423.41028	07-Oct	0.51525	423.496
05-Aug	0.47253	423.45328	06-Sep	0.42802	423.40877	08-Oct	0.52326	423.50401
06-Aug	0.45887	423.43962	07-Sep	0.42243	423.40318			
07-Aug	0.45305	423.4338	08-Sep	0.41917	423.39992			
08-Aug	0.45158	423.43233	09-Sep	0.4249	423.40565			
09-Aug	0.4481	423.42885	10-Sep	0.42875	423.4095			
10-Aug	0.44814	423.42889	11-Sep	0.41803	423.39878			
11-Aug	0.45126	423.43201	12-Sep	0.40771	423.38846			
12-Aug	0.4437	423.42445	13-Sep	0.40822	423.38897			

Stage Discharge Calculations
Long Lake

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Long Lake Discharge
WGS-02
Channel 1

Date: July 06, 1994
Stage: 0.592 m
Discharge: 0.43464 m3/s

1 Station (m)	2 Depth (m)	3 Avg Vel (m/s)	4 Width (m)	5 Col 2x3 (m2/s)	6 Second Ave (m2/s)	7 Flow (m^3/s)	8 % Flow
0.9	0.01	0	0	0	0	0	0
1.4	0.11	0	0.5	0	0	0	0
1.5	0	0	0.1	0	0	0	0
1.7	0	0	0.2	0	0	0	0
1.75	0.14	0.26	0.05	0.0364	0.0182	0.00091	0.003899
1.8	0	0	0.05	0	0.0182	0.00091	0.003899
2.8	0	0.03	1	0	0	0	0
2.9	0.45	0.78	0.1	0.351	0.1755	0.01755	0.075204
3.1	0.42	1.01	0.2	0.4242	0.3876	0.07752	0.332183
3.2	0.32	1.11	0.1	0.3552	0.3897	0.03897	0.166992
3.3	0.41	0.62	0.1	0.2542	0.3047	0.03047	0.130568
3.4	0.46	0.52	0.1	0.2392	0.2467	0.02467	0.105714
3.6	0.39	0.21	0.2	0.0819	0.16055	0.03211	0.137596
3.7	0.37	0.13	0.1	0.0481	0.065	0.0065	0.027853
3.8	0.45	0.02	0.1	0.009	0.02855	0.002855	0.012234
4	0.36	0	0.2	0	0.0045	0.0009	0.003857
4.2	0.16	0	0.2	0	0	0	0
4.49	0.4	0	0.29	0	0	0	0
4.5	0	0	0.01	0	0	0	0
4.8	0.06	0	0.3	0	0	0	0
5	0.22	0	0.2	0	0	0	0
5.5	0.19	0	0.5	0	0	0	0
5.6	0.26	0	0.1	0	0	0	0
						0.233365	1

Channel 2

1 Station (m)	2 Depth (m)	3 Avg Vel (m/s)	4 Width (m)	5 Col 2x3 (m2/s)	6 Second Ave (m2/s)	7 Flow (m^3/s)	8 % Flow
21.5	0.19	0	0	0	0	0	0
22	0.24	0.05	0.5	0.012	0.006	0.003	0.014905
22.5	0.18	0.01	0.5	0.0018	0.0069	0.00345	0.017141
23	0.66	0.07	0.5	0.0462	0.024	0.012	0.05962
23.3	0.58	0.06	0.3	0.0348	0.0405	0.01215	0.060365
23.6	0.54	0.02	0.3	0.0108	0.0228	0.00684	0.033983
24	0.53	0.01	0.4	0.0053	0.00805	0.00322	0.015998
24.3	0.07	0.05	0.3	0.0035	0.0044	0.00132	0.006558
24.6	0.78	0.01	0.3	0.0078	0.00565	0.001695	0.008421
24.9	0.64	0.01	0.3	0.0064	0.0071	0.00213	0.010583
25.3	0.76	0.01	0.4	0.0076	0.007	0.0028	0.013911
25.5	0.13	0.12	0.2	0.0156	0.0116	0.00232	0.011527
26	0.12	0.11	0.5	0.0132	0.0144	0.0072	0.035772

26.1	0.42	0.01	0.1	0.0042	0.0087	0.00087	0.004322
26.5	0.32	0.01	0.4	0.0032	0.0037	0.00148	0.007353
26.6	0.28	0	0.1	0	0.0016	0.00016	0.000795
27	0	0	0.4	0	0	0	0
27.1	0.16	0.01	0.1	0.0016	0.0008	8E-05	0.000397
27.6	0.28	0.06	0.5	0.0168	0.0092	0.0046	0.022854
27.9	0.22	0.01	0.3	0.0022	0.0095	0.00285	0.01416
28.3	0	0	0.4	0	0.0011	0.00044	0.002186
28.4	0.54	0.01	0.1	0.0054	0.0027	0.00027	0.001341
28.6	0.29	0.02	0.2	0.0058	0.0056	0.00112	0.005565
28.9	0.54	0.03	0.3	0.0162	0.011	0.0033	0.016395
29.2	0.42	0.04	0.3	0.0168	0.0165	0.00495	0.024593
29.5	0.38	0.12	0.3	0.0456	0.0312	0.00936	0.046504
29.9	0.34	0.03	0.4	0.0102	0.0279	0.01116	0.055447
30.3	0.42	0.04	0.4	0.0168	0.0135	0.0054	0.026829
30.5	0.39	0.29	0.2	0.1131	0.06495	0.01299	0.064539
30.7	0.37	0.24	0.2	0.0888	0.10095	0.02019	0.100311
30.9	0.36	0.14	0.2	0.0504	0.0696	0.01392	0.069159
31.2	0.37	0.02	0.3	0.0074	0.0289	0.00867	0.043075
31.5	0.21	0.16	0.3	0.0336	0.0205	0.00615	0.030555
31.8	0.16	0.03	0.3	0.0048	0.0192	0.00576	0.028618
32.2	0.24	0.08	0.4	0.0192	0.012	0.0048	0.023848
32.8	0.1	0.01	0.6	0.001	0.0101	0.00606	0.030108
32.9	0.1	0	0.1	0	0.0005	5E-05	0.000248
33.1	0.12	0	0.2	0	0	0	0
33.5	0.25	0.01	0.4	0.0025	0.00125	0.0005	0.002484
34.2	0.17	0.01	0.7	0.0017	0.0021	0.00147	0.007303
34.7	0.17	0.01	0.5	0.0017	0.0017	0.00085	0.004223
34.8	0.38	0.04	0.1	0.0152	0.00845	0.000845	0.004198
35.3	0.33	0.01	0.5	0.0033	0.00925	0.004625	0.022979
35.8	0.24	0.01	0.5	0.0024	0.00285	0.001425	0.00708
36.3	0.17	0.06	0.5	0.0102	0.0063	0.00315	0.01565
36.4	0	0	0.1	0	0.0051	0.00051	0.002534
36.5	0	0	0.1	0	0	0	0
36.6	0	0	0.1	0	0	0	0
36.7	0.15	0.05	0.1	0.0075	0.00375	0.000375	0.001863
37.3	0.1	0	0.6	0	0.00375	0.00225	0.011179
37.7	0.07	0	0.4	0	0	0	0
38	0.07	0.16	0.3	0.0112	0.0056	0.00168	0.008347
38.1	0	0	0.1	0	0.0056	0.00056	0.002782
38.2	0	0	0.1	0	0	0	0
39	0	0	0.8	0	0	0	0
39.1	0.05	0	0.1	0	0	0	0
39.3	0.14	0.01	0.2	0.0014	0.0007	0.00014	0.000696
39.5	0.02	0	0.2	0	0.0007	0.00014	0.000696
39.6	0	0	0.1	0	0	0	0
39.8	0	0	0.2	0	0	0	0
39.9	0.11	0	0.1	0	0	0	0
40.5	0	0	0.6	0	0	0	0
						0.201275	1

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Long Lake Outflow
WGS-02
Channel 1

Date: June 09,1994
Stage: 0.75 m
Discharge: 1.149175 m3/s

1 Station (m)	2 Depth (m)	3 Avg Vel (m/s)	4 Width (m)	5 Col 2x3 (m2/s)	6 Second Ave (m2/s)	7 Flow (m^3/s)	8 % Flow
0	0	0	0				0
1	0.03	0	1	0	0	0	0
1.5	0.26	0	0.5	0	0	0	0
2	0.6	0.08	0.5	0.048	0.024	0.012	0.089972
2.5	0.49	0.12	0.5	0.0588	0.0534	0.0267	0.200187
3	0.6	0.12	0.5	0.072	0.0654	0.0327	0.245173
3.5	0.52	0.11	0.5	0.0572	0.0646	0.0323	0.242174
4	0.41	0.15	0.5	0.0615	0.05935	0.029675	0.222493
						0.133375	1

Channel 2

22	0	0	0	0	0	0	0
23	0.25	0.28	1	0.07	0.035	0.035	0.034456
24	0.55	0.25	1	0.1375	0.10375	0.10375	0.102136
25	0.22	0.19	1	0.0418	0.08965	0.08965	0.088256
26	0.3	0.2	1	0.06	0.0509	0.0509	0.050108
27	0.36	0.13	1	0.0468	0.0534	0.0534	0.052569
28	0.42	0.07	1	0.0294	0.0381	0.0381	0.037507
29	0.32	0.09	1	0.0288	0.0291	0.0291	0.028647
30	0.48	0.39	1	0.1872	0.108	0.108	0.10632
31	0.55	0.27	1	0.1485	0.16785	0.16785	0.165239
32	0.54	0.14	1	0.0756	0.11205	0.11205	0.110307
33	0.66	0.19	1	0.1254	0.1005	0.1005	0.098937
34	0.26	0.12	1	0.0312	0.0783	0.0783	0.077082
35	0.1	0	1	0	0.0156	0.0156	0.015357
36	0.36	0.01	1	0.0036	0.0018	0.0018	0.001772
37	0	0	1	0	0.0018	0.0018	0.001772
38	0	0	1	0	0	0	0
39	0.2	0.02	1	0.004	0.002	0.002	0.001969
40	0.2	0.13	1	0.026	0.015	0.015	0.014767
41	0.1	0	1	0	0.013	0.013	0.012798
						1.0158	1

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Long Lake Drainage
WGS-02
Channel 1

Date: July 15,1994
Stage: 0.54 m
Discharge: 0.24335 m3/s

1 Station (m)	2 Depth (m)	3 Avg Vel (m/s)	4 Width (m)	5 Col 2x3 (m2/s)	6 Second Ave (m2/s)	7 Flow (m^3/s)	8 % Flow
3.25	0	0	0	0	0	0	0
3.3	0.3	0	0.05	0	0	0	0
3.4	0.2	0.11	0.1	0.022	0.011	0.0011	0.027663
3.5	0.24	0.06	0.1	0.0144	0.0182	0.00182	0.045769
3.7	0.21	0.02	0.2	0.0042	0.0093	0.00186	0.046775
3.9	0.2	0.1	0.2	0.02	0.0121	0.00242	0.060858
4	0.2	0.3	0.1	0.06	0.04	0.004	0.100591
4.1	0.17	0.29	0.1	0.0493	0.05465	0.005465	0.137432
4.2	0.18	0.35	0.1	0.063	0.05615	0.005615	0.141205
4.3	0.15	0.28	0.1	0.042	0.0525	0.00525	0.132026
4.4	0.1	0.28	0.1	0.028	0.035	0.0035	0.088017
4.5	0.08	0.26	0.1	0.0208	0.0244	0.00244	0.06136
4.6	0.07	0.24	0.1	0.0168	0.0188	0.00188	0.047278
4.7	0.1	0.18	0.1	0.018	0.0174	0.00174	0.043757
4.8	0.11	0.03	0.1	0.0033	0.01065	0.001065	0.026782
5	0.17	0	0.2	0	0.00165	0.00033	0.008299
5.1	0.15	0	0.1	0	0	0	0
5.55	0	0	0.45	0	0	0	0
5.6	0.08	0.16	0.05	0.0128	0.0064	0.00032	0.008047
5.75	0	0	0.15	0	0.0064	0.00096	0.024142
Channel 2						0.039765	1
22	0.28	0	0	0	0	0	0
22.2	0.25	0.01	0.2	0.0025	0.00125	0.00025	0.001228
22.4	0.21	0.15	0.2	0.0315	0.017	0.0034	0.016701
22.6	0.21	0.01	0.2	0.0021	0.0168	0.00336	0.016504
22.8	0.24	0.01	0.2	0.0024	0.00225	0.00045	0.00221
23	0.3	0.09	0.2	0.027	0.0147	0.00294	0.014441
23.2	0.26	0.22	0.2	0.0572	0.0421	0.00842	0.041359
23.3	0.29	0.16	0.1	0.0464	0.0518	0.00518	0.025444
23.4	0.18	0.27	0.1	0.0486	0.0475	0.00475	0.023332
23.5	0.21	0.21	0.1	0.0441	0.04635	0.004635	0.022767
23.6	0.21	0.2	0.1	0.042	0.04305	0.004305	0.021146
23.7	0.21	0.11	0.1	0.0231	0.03255	0.003255	0.015988
23.8	0.36	0.17	0.1	0.0612	0.04215	0.004215	0.020704
23.9	0.3	0.03	0.1	0.009	0.0351	0.00351	0.017241
24.2	0.19	0	0.3	0	0.0045	0.00135	0.006631
24.5	0.17	0	0.3	0	0	0	0
24.8	0.15	0.04	0.3	0.006	0.003	0.0009	0.004421
25	0.15	0.02	0.2	0.003	0.0045	0.0009	0.004421
25.2	0.17	0.03	0.2	0.0051	0.00405	0.00081	0.003979
25.4	0.16	0.07	0.2	0.0112	0.00815	0.00163	0.008006
25.6	0.13	0.13	0.2	0.0169	0.01405	0.00281	0.013803
25.8	0.15	0.09	0.2	0.0135	0.0152	0.00304	0.014932

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26.9	0	0	1.1	0	0.00675	0.007425	0.036471
27.2	0.07	0	0.3	0	0	0	0
27.5	0.49	0.07	0.3	0.0343	0.01715	0.005145	0.025272
27.7	0.09	0.14	0.2	0.0126	0.02345	0.00469	0.023037
28.35	0	0	0.65	0	0.0063	0.004095	0.020114
28.5	0.05	0.1	0.15	0.005	0.0025	0.000375	0.001842
28.7	0.17	0.08	0.2	0.0136	0.0093	0.00186	0.009136
29	0.38	0	0.3	0	0.0068	0.00204	0.01002
29.3	0.05	0	0.3	0	0	0	0
29.4	0.12	0	0.1	0	0	0	0
29.8	0.14	0	0.4	0	0	0	0
30	0.1	0	0.2	0	0	0	0
30.3	0.21	0.02	0.3	0.0042	0.0021	0.00063	0.003095
30.6	0.33	0.05	0.3	0.0165	0.01035	0.003105	0.015252
30.8	0.32	0.04	0.2	0.0128	0.01465	0.00293	0.014392
31	0.37	0.03	0.2	0.0111	0.01195	0.00239	0.01174
31.3	0.41	0.08	0.3	0.0328	0.02195	0.006585	0.032345
31.5	0.42	0.03	0.2	0.0126	0.0227	0.00454	0.0223
31.7	0.38	0.02	0.2	0.0076	0.0101	0.00202	0.009922
31.9	0.31	0.15	0.2	0.0465	0.02705	0.00541	0.026574
32	0.33	0.19	0.1	0.0627	0.0546	0.00546	0.026819
32.1	0.28	0.11	0.1	0.0308	0.04675	0.004675	0.022963
32.2	0.24	0.16	0.1	0.0384	0.0346	0.00346	0.016995
32.3	0.45	0.1	0.1	0.045	0.0417	0.00417	0.020483
32.5	0.33	0.18	0.2	0.0594	0.0522	0.01044	0.051281
32.6	0.4	0.18	0.1	0.072	0.0657	0.00657	0.032272
32.7	0.42	0.07	0.1	0.0294	0.0507	0.00507	0.024904
33.4	0.25	0.03	0.7	0.0075	0.01845	0.012915	0.063438
33.7	0.2	0.03	0.3	0.006	0.00675	0.002025	0.009947
34	0.17	0.06	0.3	0.0102	0.0081	0.00243	0.011936
34.2	0.21	0.02	0.2	0.0042	0.0072	0.00144	0.007073
34.5	0.2	0.09	0.3	0.018	0.0111	0.00333	0.016357
34.7	0.19	0.15	0.2	0.0285	0.02325	0.00465	0.022841
34.9	0.21	0.03	0.2	0.0063	0.0174	0.00348	0.017094
35.2	0.35	0.07	0.3	0.0245	0.0154	0.00462	0.022693
35.5	0.35	0.13	0.3	0.0455	0.035	0.0105	0.051576
35.7	0.35	0	0.2	0	0.02275	0.00455	0.022349
36	0.15	0.01	0.3	0.0015	0.00075	0.000225	0.001105
36.3	0.11	0	0.3	0	0.00075	0.000225	0.001105
36.4	0	0	0.1	0	0	0	0
36.9	0.22	0	0.5	0	0	0	0
37.3	0.16	0	0.4	0	0	0	0
37.7	0.1	0	0.4	0	0	0	0
38.1	0	0	0.4	0	0	0	0
						0.203585	1

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Long Lake Drainage
WGS-02
Channel 1

Date: July 21,1994
Stage: 0.514 m
Discharge 0.132662 m3/s

1 Station (m)	2 Depth (m)	3 Avg Vel (m/s)	4 Width (m)	5 Col 2x3 (m2/s)	6 Second Av (m2/s)	7 Flow (m^3/s)	8 % Flow
3.05	0	0	0	0	0	0	0
3.2	0.18	0.1	0.15	0.018	0.009	0.00135	0.046174
3.3	0.18	0.12	0.1	0.0216	0.0198	0.00198	0.067721
3.45	0	0	0.15	0	0.0108	0.00162	0.055408
3.55	0	0	0.1	0	0	0	0
3.6	0.16	0.31	0.05	0.0496	0.0248	0.00124	0.042411
3.75	0.11	0.11	0.15	0.0121	0.03085	0.004628	0.158273
3.8	0.08	0.36	0.05	0.0288	0.02045	0.001023	0.034972
3.9	0.06	0.45	0.1	0.027	0.0279	0.00279	0.095425
3.95	0.06	0.39	0.05	0.0234	0.0252	0.00126	0.043095
4	0.05	0.43	0.05	0.0215	0.02245	0.001123	0.038392
4.1	0.05	0.26	0.1	0.013	0.01725	0.001725	0.059
4.2	0.12	0.27	0.1	0.0324	0.0227	0.00227	0.07764
4.3	0.12	0.24	0.1	0.0288	0.0306	0.00306	0.10466
4.4	0.13	0.02	0.1	0.0026	0.0157	0.00157	0.053698
4.5	0.14	0.03	0.1	0.0042	0.0034	0.00034	0.011629
4.6	0.16	0.01	0.1	0.0016	0.0029	0.00029	0.009919
4.7	0.17	0.1	0.1	0.017	0.0093	0.00093	0.031808
4.8	0.17	0.14	0.1	0.0238	0.0204	0.00204	0.069773
						0.029238	1

Channel 2

22	0.24	0.02	0	0.0048	0.0024	0	0
22.2	0.45	0.01	0.2	0.0045	0.00465	0.00093	0.008992
22.3	0	0	0.1	0	0.00225	0.000225	0.002176
22.35	0	0	0.05	0	0	0	0
22.8	0.11	0.04	0.45	0.0044	0.0022	0.00099	0.009572
22.9	0.65	0.05	0.1	0.0325	0.01845	0.001845	0.017839
23.2	0.15	0.09	0.3	0.0135	0.023	0.0069	0.066715
23.3	0.17	0.04	0.1	0.0068	0.01015	0.001015	0.009814
23.6	0.28	0.02	0.3	0.0056	0.0062	0.00186	0.017984
23.9	0.16	0.01	0.3	0.0016	0.0036	0.00108	0.010442
24.3	0.12	0.01	0.4	0.0012	0.0014	0.00056	0.005415
24.7	0.09	0	0.4	0	0.0006	0.00024	0.002321
25.1	0.11	0.01	0.4	0.0011	0.00055	0.00022	0.002127
25.5	0.09	0.03	0.4	0.0027	0.0019	0.00076	0.007348
25.8	0.13	0.03	0.3	0.0039	0.0033	0.00099	0.009572
25.81	0	0	0.01	0	0.00195	1.95E-05	0.000189
26.8	0	0	0.99	0	0	0	0
27.1	0.1	0.02	0.3	0.002	0.001	0.0003	0.002901
27.3	0.41	0.08	0.2	0.0328	0.0174	0.00348	0.033648
27.5	0.05	0.01	0.2	0.0005	0.01665	0.00333	0.032197
27.7	0	0	0.2	0	0.00025	5E-05	0.000483
28	0.12	0	0.3	0	0	0	0
28.4	0.21	0.04	0.4	0.0084	0.0042	0.00168	0.016244

28.9	0.39	0	0.5	0	0.0042	0.0021	0.020305
29.3	0.2	0	0.4	0	0	0	0
29.6	0	0	0.3	0	0	0	0
29.85	0.18	0	0.25	0	0	0	0
29.95	0.2	0.01	0.1	0.002	0.001	1E-04	0.000967
30.05	0	0	0.1	0	0.001	0.0001	0.000967
30.4	0	0	0.35	0	0	0	0
30.4	0.16	0.01	0	0.0016	0.0008	0	0
30.7	0.11	0.04	0.3	0.0044	0.003	0.0009	0.008702
30.9	0.28	0.01	0.2	0.0028	0.0036	0.00072	0.006962
31.1	0.26	0.08	0.2	0.0208	0.0118	0.00236	0.022819
31.3	0.31	0.08	0.2	0.0248	0.0228	0.00456	0.04409
31.6	0.57	0.01	0.3	0.0057	0.01525	0.004575	0.044235
32	0.24	0.01	0.4	0.0024	0.00405	0.00162	0.015664
32.2	0.22	0.13	0.2	0.0286	0.0155	0.0031	0.029974
32.4	0.4	0.08	0.2	0.032	0.0303	0.00606	0.058593
32.5	0.28	0.22	0.1	0.0616	0.0468	0.00468	0.04525
32.6	0.27	0.2	0.1	0.054	0.0578	0.00578	0.055886
32.7	0.28	0.1	0.1	0.028	0.041	0.0041	0.039642
32.8	0.27	0.08	0.1	0.0216	0.0248	0.00248	0.023979
32.9	0.27	0.05	0.1	0.0135	0.01755	0.001755	0.016969
33	0.22	0.07	0.1	0.0154	0.01445	0.001445	0.013972
33.1	0.29	0.02	0.1	0.0058	0.0106	0.00106	0.010249
33.15	0	0	0.05	0	0.0029	0.000145	0.001402
33.35	0	0	0.2	0	0	0	0
33.5	0.18	0.09	0.15	0.0162	0.0081	0.001215	0.011748
33.6	0.16	0.2	0.1	0.032	0.0241	0.00241	0.023302
33.7	0.14	0.11	0.1	0.0154	0.0237	0.00237	0.022915
33.8	0.14	0.11	0.1	0.0154	0.0154	0.00154	0.01489
33.9	0.18	0.1	0.1	0.018	0.0167	0.00167	0.016147
34	0.14	0.13	0.1	0.0182	0.0181	0.00181	0.017501
34.1	0.12	0.01	0.1	0.0012	0.0097	0.00097	0.009379
34.3	0.32	0.01	0.2	0.0032	0.0022	0.00044	0.004254
34.6	0.15	0.01	0.3	0.0015	0.00235	0.000705	0.006817
34.8	0.33	0.06	0.2	0.0198	0.01065	0.00213	0.020595
35	0.29	0.08	0.2	0.0232	0.0215	0.0043	0.041576
35.2	0.3	0.06	0.2	0.018	0.0206	0.00412	0.039836
35.4	0.3	0.02	0.2	0.006	0.012	0.0024	0.023205
35.6	0.32	0.01	0.2	0.0032	0.0046	0.00092	0.008895
35.9	0.36	0.01	0.3	0.0036	0.0034	0.00102	0.009862
36.1	0.31	0.01	0.2	0.0031	0.00335	0.00067	0.006478
36.5	0.26	0	0.4	0	0.00155	0.00062	0.005995
36.9	0.15	0	0.4	0	0	0	0
37.5	0	0	0.6	0	0	0	0
						0.103425	1

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Long Lake Drainage
WGS-02
Channel 1

Date: August 04, 1994
Stage: 0.428 m
Discharge: 0.042188 m3/s

1 Station (m)	2 Depth (m)	3 Avg Vel (m/s)	4 Width (m)	5 Col 2x3 (m2/s)	6 Second Ave (m2/s)	7 Flow (m^3/s)	8 % Flow
0.7	0	0	0	0	0	0	0
0.9	0.03	0	0.2	0	0	0	0
1.1	0.14	0	0.2	0	0	0	0
1.3	0.17	0.03	0.2	0.0051	0.00255	0.00051	0.030704
1.5	0.2	0.08	0.2	0.016	0.01055	0.00211	0.127032
1.7	0.21	0.06	0.2	0.0126	0.0143	0.00286	0.172185
1.9	0.17	0.06	0.2	0.0102	0.0114	0.00228	0.137267
2.1	0.22	0.07	0.2	0.0154	0.0128	0.00256	0.154124
2.3	0.25	0.09	0.2	0.0225	0.01895	0.00379	0.228176
2.5	0.25	0.01	0.2	0.0025	0.0125	0.0025	0.150512
Channel 2						0.01661	1
21.2	0.09	0.14	0	0.0126	0.0063	0	0
21.4	0.1	0	0.2	0	0.0063	0.00126	0.049262
21.6	0.1	0.12	0.2	0.012	0.006	0.0012	0.046916
21.8	0.07	0.17	0.2	0.0119	0.01195	0.00239	0.093442
21.9	0	0	0.1	0	0.00595	0.000595	0.023263
22.5	0.16	0	0.6	0	0	0	0
22.7	0.05	0.44	0.2	0.022	0.011	0.0022	0.086013
22.9	0.06	0.36	0.2	0.0216	0.0218	0.00436	0.170462
22.91	0	0	0.01	0	0.0108	0.000108	0.004222
30.69	0	0	7.78	0	0	0	0
30.7	0.18	0	0.01	0	0	0	0
30.9	0.14	0.05	0.2	0.007	0.0035	0.0007	0.027368
31.1	0.26	0.17	0.2	0.0442	0.0256	0.00512	0.200176
31.11	0	0	0.01	0	0.0221	0.000221	0.00864
31.44	0	0	0.33	0	0	0	0
31.45	0.21	0.17	0.01	0.0357	0.01785	0.000178	0.006979
31.65	0.25	0.14	0.2	0.035	0.03535	0.00707	0.276415
31.66	0	0	0.01	0	0.0175	0.000175	0.006842
32.39	0	0	0.73	0	0	0	0
32.4	0.28	0	0.01	0	0	0	0
32.6	0.28	0	0.2	0	0	0	0
32.61	0	0	0.01	0	0	0	0
34.5	0.02	0	1.89	0	0	0	0
34.85	0.12	0.16	0.35	0.0192	0.0096	0.00336	0.131365
34.86	0	0	0.01	0	0.0096	9.6E-05	0.003753
						0.025578	1

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Long Lake Drainage
WGS-02
Channel 1

Date: August 31, 1994
Stage: 0.374 m
Discharge: 0.064485 m3/s

1	2	3	4	5	6	7	8
Station (m)	Depth (m)	Avg Vel (m/s)	Width (m)	Col 2x3 (m2/s)	Second Ave (m2/s)	Flow (m^3/s)	% Flow
2.2	0	0	0	0	0	0	0
2.4	0.18	0.1	0.2	0.018	0.009	0.0018	0.056206
2.6	0.18	0.12	0.2	0.0216	0.0198	0.00396	0.123653
2.8	0	0	0.2	0	0.0108	0.00216	0.067447
3	0	0	0.2	0	0	0	0
3.2	0.16	0.31	0.2	0.0496	0.0248	0.00496	0.154879
3.4	0.11	0.11	0.2	0.0121	0.03085	0.00617	0.192662
3.7	0.08	0.36	0.3	0.0288	0.02045	0.006135	0.191569
3.9	0.06	0.45	0.2	0.027	0.0279	0.00558	0.174239
3.95	0.06	0.39	0.05	0.0234	0.0252	0.00126	0.039344
Channel 2						0.032025	1
2.9	0	0	0	0	0	0	0
3.1	0.12	0.01	0.2	0.0012	0.0006	0.00012	0.01676
3.3	0.15	0.01	0.2	0.0015	0.00135	0.00027	0.037709
3.5	0.27	0.01	0.2	0.0027	0.0021	0.00042	0.058659
3.7	0.29	0.02	0.2	0.0058	0.00425	0.00085	0.118715
3.9	0.05	0.11	0.2	0.0055	0.00565	0.00113	0.157821
4.1	0.07	0.17	0.2	0.0119	0.0087	0.00174	0.243017
4.3	0.08	0.12	0.2	0.0096	0.01075	0.00215	0.300279
4.4	0.14	0	0.1	0	0.0048	0.00048	0.067039
						0.00716	1
Channel 3							
2.4	0.3	0.01	0	0.003	0.0015	0	0
2.6	0.05	0.03	0.2	0.0015	0.00225	0.00045	0.017787
2.8	0.3	0.03	0.2	0.009	0.00525	0.00105	0.041502
3	0.33	0.03	0.2	0.0099	0.00945	0.00189	0.074704
3.2	0.3	0.02	0.2	0.006	0.00795	0.00159	0.062846
3.4	0.14	0.06	0.2	0.0084	0.0072	0.00144	0.056917
3.6	0.14	0.1	0.2	0.014	0.0112	0.00224	0.088538
3.8	0.13	0.05	0.2	0.0065	0.01025	0.00205	0.081028
4	0.13	0.12	0.2	0.0156	0.01105	0.00221	0.087352
4.2	0.12	0.06	0.2	0.0072	0.0114	0.00228	0.090119
4.4	0.13	0.01	0.2	0.0013	0.00425	0.00085	0.033597
4.6	0.13	0.01	0.2	0.0013	0.0013	0.00026	0.010277
4.8	0.12	0.12	0.2	0.0144	0.00785	0.00157	0.062055
5	0.11	0.11	0.2	0.0121	0.01325	0.00265	0.104743
5.2	0.08	0.19	0.2	0.0152	0.01365	0.00273	0.107905
5.4	0.13	0.02	0.2	0.0026	0.0089	0.00178	0.070356
5.6	0.1	0	0.2	0	0.0013	0.00026	0.010277
5.8	0.08	0	0.2	0	0	0	0
5.95	0.08	0	0.15	0	0	0	0
						0.0253	1

Stage Discharge Calculations
Slipper Lake

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Date: July 05,1994
Stage: 0 m
Discharge 1.257005 m3/s

Slipper Lake Drainage
94 WGS-24

Channel 1	2	3	4	5	6	7	8
Station (m)	Depth (m)	Avg Vel (m/s)	Width (m)	Col 2x3 (m2/s)	Second Av (m2/s)	Flow (m^3/s)	% Flow
1.1	0	0	0	0	0	0	0
1.2	0.08	0.25	0.1	0.02	0.01	0.001	0.002743
1.5	0.19	0.24	0.3	0.0456	0.0328	0.00984	0.026988
1.8	0.22	0.19	0.3	0.0418	0.0437	0.01311	0.035957
2.1	0.18	0.52	0.3	0.0936	0.0677	0.02031	0.055705
2.4	0.18	0.53	0.3	0.0954	0.0945	0.02835	0.077756
2.7	0.17	0.78	0.3	0.1326	0.114	0.0342	0.093801
3	0.2	1.01	0.3	0.202	0.1673	0.05019	0.137658
3.3	0.22	1.11	0.3	0.2442	0.2231	0.06693	0.183571
3.6	0.21	0.62	0.3	0.1302	0.1872	0.05616	0.154032
3.9	0.22	0.52	0.3	0.1144	0.1223	0.03669	0.100631
4.2	0.26	0.21	0.3	0.0546	0.0845	0.02535	0.069528
4.5	0.34	0.13	0.3	0.0442	0.0494	0.01482	0.040647
4.8	0.17	0.02	0.3	0.0034	0.0238	0.00714	0.019583
5.1	0.26	0	0.3	0	0.0017	0.00051	0.001399
5.4	0.22	0	0.3	0	0	0	0
5.7	0.22	0	0.3	0	0	0	0
6.1	0.22	0	0.4	0	0	0	0
6.4	0.22	0	0.3	0	0	0	0
						0.3646	1

Channel 2

0.5	0.08	0.11	0	0.0088	0.0044	0	0
0.7	0.14	0.45	0.2	0.063	0.0359	0.00718	0.040625
0.9	0.29	0.58	0.2	0.1682	0.1156	0.02312	0.130814
1.1	0.26	0.48	0.2	0.1248	0.1465	0.0293	0.16578
1.3	0.3	0.43	0.2	0.129	0.1269	0.02538	0.143601
1.5	0.31	0.31	0.2	0.0961	0.11255	0.02251	0.127362
1.7	0.38	0.21	0.2	0.0798	0.08795	0.01759	0.099525
1.9	0.37	0.15	0.2	0.0555	0.06765	0.01353	0.076553
2.1	0.33	0.19	0.2	0.0627	0.0591	0.01182	0.066878
2.3	0.35	0.17	0.2	0.0595	0.0611	0.01222	0.069141
2.5	0.34	0.11	0.2	0.0374	0.04845	0.00969	0.054826
2.7	0.33	0.01	0.2	0.0033	0.02035	0.00407	0.023028
2.9	0.18	0	0.2	0	0.00165	0.00033	0.001867
3.1	0.12	0	0.2	0	0	0	0
3.3	0	0	0.2	0	0	0	0
						0.17674	1

Channel 3

0.5	0.21	0.24	0	0.0504	0.0252	0	0
0.8	0.27	0.6	0.3	0.162	0.1062	0.03186	0.077841
1.1	0.27	0.75	0.3	0.2025	0.18225	0.054675	0.133583
1.4	0.27	0.47	0.3	0.1269	0.1647	0.04941	0.12072
1.7	0.26	0.37	0.3	0.0962	0.11155	0.033465	0.081763
2	0.26	0.36	0.3	0.0936	0.0949	0.02847	0.069559
2.3	0.25	0.62	0.3	0.155	0.1243	0.03729	0.091108
2.6	0.17	0.74	0.3	0.1258	0.1404	0.04212	0.102909
2.9	0.26	0.58	0.3	0.1508	0.1383	0.04149	0.101369
3.2	0.3	0.41	0.3	0.123	0.1369	0.04107	0.100343
3.5	0.23	0.33	0.3	0.0759	0.09945	0.029835	0.072894
3.8	0.22	0.06	0.3	0.0132	0.04455	0.013365	0.032654
4.1	0.01	0	0.3	0	0.0066	0.00198	0.004838
4.5	0	0	0.4	0	0	0	0
4.6	0.07	0.28	0.1	0.0196	0.0098	0.00098	0.002394
4.9	0.23	0.01	0.3	0.0023	0.01095	0.003285	0.008026
						0.409295	1

Channel 4

0.85	0.04	0.09	0	0.0036	0.0018	0	0
1	0.08	0.09	0.15	0.0072	0.0054	0.00081	0.007081
1.2	0.08	0.1	0.2	0.008	0.0076	0.00152	0.013288
1.4	0.07	0.02	0.2	0.0014	0.0047	0.00094	0.008218
1.6	0.06	0.02	0.2	0.0012	0.0013	0.00026	0.002273
1.8	0.2	0.07	0.2	0.014	0.0076	0.00152	0.013288
2	0.16	0.4	0.2	0.064	0.039	0.0078	0.068188
2.1	0.15	0.32	0.1	0.048	0.056	0.0056	0.048955
2.2	0.15	0.41	0.1	0.0615	0.05475	0.005475	0.047863
2.3	0.15	0.35	0.1	0.0525	0.057	0.0057	0.04983
2.4	0.12	0.31	0.1	0.0372	0.04485	0.004485	0.039208
2.5	0.09	0.28	0.1	0.0252	0.0312	0.00312	0.027275
2.6	0.09	0.24	0.1	0.0216	0.0234	0.00234	0.020456
2.7	0.28	0.1	0.1	0.028	0.0248	0.00248	0.02168
2.8	0.26	0.24	0.1	0.0624	0.0452	0.00452	0.039514
2.9	0.26	0.45	0.1	0.117	0.0897	0.00897	0.078416
3	0.22	0.45	0.1	0.099	0.108	0.0108	0.094414
3.1	0.24	0.24	0.1	0.0576	0.0783	0.00783	0.06845
3.2	0.25	0.12	0.1	0.03	0.0438	0.00438	0.03829
3.3	0.23	0.13	0.1	0.0299	0.02995	0.002995	0.026182
3.4	0.2	0.12	0.1	0.024	0.02695	0.002695	0.02356
3.5	0.23	0.09	0.1	0.0207	0.02235	0.002235	0.019538
3.6	0.25	0.11	0.1	0.0275	0.0241	0.00241	0.021068
3.7	0.18	0.18	0.1	0.0324	0.02995	0.002995	0.026182
3.8	0.17	0.27	0.1	0.0459	0.03915	0.003915	0.034225
3.9	0.15	0.26	0.1	0.039	0.04245	0.004245	0.03711
4	0.41	0.2	0.1	0.082	0.0605	0.00605	0.052889
4.1	0.21	0.4	0.1	0.084	0.083	0.0083	0.072559
4.1	0.24	0	0	0	0.042	0	0
						0.11439	1

Channel 5

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9.1	0.06	0.14	0	0.0084	0.0042	0	0
9.3	0.12	0.37	0.2	0.0444	0.0264	0.00528	0.063504
9.4	0.24	0.16	0.1	0.0384	0.0414	0.00414	0.049793
9.5	0.13	0.48	0.1	0.0624	0.0504	0.00504	0.060617
9.6	0.33	0.22	0.1	0.0726	0.0675	0.00675	0.081183
9.7	0.3	0.24	0.1	0.072	0.0723	0.00723	0.086957
9.8	0.33	0.17	0.1	0.0561	0.06405	0.006405	0.077034
9.9	0.61	0.02	0.1	0.0122	0.03415	0.003415	0.041073
10	0.29	0.01	0.1	0.0029	0.00755	0.000755	0.009081
10.2	0.23	0.04	0.2	0.0092	0.00605	0.00121	0.014553
10.5	0.18	0.02	0.3	0.0036	0.0064	0.00192	0.023092
10.6	0.15	0.07	0.1	0.0105	0.00705	0.000705	0.008479
10.7	0.29	0.3	0.1	0.087	0.04875	0.004875	0.058633
10.8	0.24	0.4	0.1	0.096	0.0915	0.00915	0.110049
10.9	0.11	0.31	0.1	0.0341	0.06505	0.006505	0.078237
11	0.11	0.26	0.1	0.0286	0.03135	0.003135	0.037705
11.1	0.1	0.03	0.1	0.003	0.0158	0.00158	0.019003
11.2	0.13	0.14	0.1	0.0182	0.0106	0.00106	0.012749
11.3	0.16	0.1	0.1	0.016	0.0171	0.00171	0.020566
11.4	0.15	0.2	0.1	0.03	0.023	0.0023	0.027663
11.5	0.13	0.23	0.1	0.0299	0.02995	0.002995	0.036021
11.6	0.12	0.13	0.1	0.0156	0.02275	0.002275	0.027362
11.7	0.1	0.12	0.1	0.012	0.0138	0.00138	0.016598
11.8	0.14	0.18	0.1	0.0252	0.0186	0.00186	0.022371
11.85	0.14	0.24	0.05	0.0336	0.0294	0.00147	0.01768
						0.083145	1
Channel 6							
14.1	0.08	0.55	0	0.044	0.022	0	0
14.2	0.17	0.39	0.1	0.0663	0.05515	0.005515	0.109992
14.3	0.18	0.25	0.1	0.045	0.05565	0.005565	0.110989
14.4	0	0	0.1	0	0.0225	0.00225	0.044874
14.6	0.1	0.53	0.2	0.053	0.0265	0.0053	0.105704
14.7	0.08	0.42	0.1	0.0336	0.0433	0.00433	0.086358
14.8	0.05	0.34	0.1	0.017	0.0253	0.00253	0.050459
14.9	0.1	0.61	0.1	0.061	0.039	0.0039	0.077782
15	0.1	0.48	0.1	0.048	0.0545	0.00545	0.108696
15.1	0.1	0.01	0.1	0.001	0.0245	0.00245	0.048863
15.2	0.04	0.48	0.1	0.0192	0.0101	0.00101	0.020144
15.3	0.13	0.56	0.1	0.0728	0.046	0.0046	0.091743
15.4	0.16	0.45	0.1	0.072	0.0724	0.00724	0.144396
							0
						0.05014	1
Channel 7							
1	0.16	0.11	0	0.0176	0.0088	0	0
1.1	0.1	0.23	0.1	0.023	0.0203	0.00203	0.035307
1.2	0.07	0.23	0.1	0.0161	0.01955	0.001955	0.034003
1.3	0.05	0.33	0.1	0.0165	0.0163	0.00163	0.02835
1.4	0.04	0.52	0.1	0.0208	0.01865	0.001865	0.032438

1.5	0.07	0.46	0.1	0.0322	0.0265	0.00265	0.046091
1.6	0.07	0.36	0.1	0.0252	0.0287	0.00287	0.049917
1.7	0.06	0.41	0.1	0.0246	0.0249	0.00249	0.043308
1.8	0.06	0.41	0.1	0.0246	0.0246	0.00246	0.042786
2	0.06	0.4	0.2	0.024	0.0243	0.00486	0.084529
2.2	0.05	0.05	0.2	0.0025	0.01325	0.00265	0.046091
2.5	0.05	0.24	0.3	0.012	0.00725	0.002175	0.037829
2.7	0.06	0.23	0.2	0.0138	0.0129	0.00258	0.044873
2.9	0.06	0.24	0.2	0.0144	0.0141	0.00282	0.049048
3.2	0.12	0.03	0.3	0.0036	0.009	0.0027	0.046961
3.5	0.05	0.06	0.3	0.003	0.0033	0.00099	0.017219
3.8	0.09	0.15	0.3	0.0135	0.00825	0.002475	0.043047
4.1	0.16	0.08	0.3	0.0128	0.01315	0.003945	0.068615
4.3	0.07	0.02	0.2	0.0014	0.0071	0.00142	0.024698
4.6	0.1	0.03	0.3	0.003	0.0022	0.00066	0.011479
4.9	0.04	0.01	0.3	0.0004	0.0017	0.00051	0.00887
5.2	0.14	0.2	0.3	0.028	0.0142	0.00426	0.074093
5.5	0.1	0.22	0.3	0.022	0.025	0.0075	0.130446
						0.057495	1

Channel 8

6.0	0.05	0.16	0	0.008	0.004	0	0
6.3	0	0	0.3	0	0.004	0.0012	1
7.0	0	0	0.7	0	0	0	0
7.2	0	0	0	0	0	0	0
						0.0012	1

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Date: July 15,1994
Stage: 0.584 m
Discharge 0.80027 m3/s

Slipper Lake Drainage
WGS-24

Channel 1

1	2	3	4	5	6	7	8
Station (m)	Depth (m)	Avg Vel (m/s)	Width (m)	Col 2x3 (m2/s)	Second Av (m2/s)	Flow (m^3/s)	% Flow
1.4	0.2	0	0	0	0	0	0
1.6	0.24	0.1	0.2	0.024	0.012	0.0024	0.01132
1.8	0.25	0.04	0.2	0.01	0.017	0.0034	0.01604
2	0.27	0.03	0.2	0.0081	0.00905	0.00181	0.00854
2.2	0.1	0.17	0.2	0.017	0.01255	0.00251	0.01184
2.4	0.18	0.12	0.2	0.0216	0.0193	0.00386	0.01821
2.5	0.15	0.4	0.1	0.06	0.0408	0.00408	0.01925
2.6	0.2	0.44	0.1	0.088	0.074	0.0074	0.03491
2.7	0.12	0.6	0.1	0.072	0.08	0.008	0.03774
2.8	0.13	0.17	0.1	0.0221	0.04705	0.0047	0.0222
2.9	0.17	0.57	0.1	0.0969	0.0595	0.00595	0.02807
3	0.17	0.64	0.1	0.1088	0.10285	0.01029	0.04853
3.1	0.19	0.49	0.1	0.0931	0.10095	0.0101	0.04763
3.2	0.19	0.56	0.1	0.1064	0.09975	0.00998	0.04706
3.3	0.24	0.54	0.1	0.1296	0.118	0.0118	0.05567
3.4	0.25	0.48	0.1	0.12	0.1248	0.01248	0.05888
3.5	0.25	0.36	0.1	0.09	0.105	0.0105	0.04954
3.6	0.27	0.44	0.1	0.1188	0.1044	0.01044	0.04926
3.7	0.27	0.73	0.1	0.1971	0.15795	0.0158	0.07452
3.8	0.3	0.31	0.1	0.093	0.14505	0.01451	0.06844
3.9	0.27	0.41	0.1	0.1107	0.10185	0.01019	0.04805
4	0.26	0.41	0.1	0.1066	0.10865	0.01087	0.05126
4.1	0.39	0.19	0.1	0.0741	0.09035	0.00903	0.04263
4.2	0.41	0.29	0.1	0.1189	0.0965	0.00965	0.04553
4.3	0.39	0.21	0.1	0.0819	0.1004	0.01004	0.04737
4.4	0.46	0.12	0.1	0.0552	0.06855	0.00686	0.03234
4.5	0.44	0.03	0.1	0.0132	0.0342	0.00342	0.01614
4.6	0.5	0.01	0.1	0.005	0.0091	0.00091	0.00429
5	0.15	0	0.4	0	0.0025	0.001	0.00472
5.5	0.13	0	0.5	0	0	0	0
6	0.07	0	0.5	0	0	0	0
6.2	0	0	0.2	0	0	0	0
						0.21195	1

Channel 2

0.6	0	0	0	0	0	0	0
0.7	0.05	0	0.1	0	0	0	0
0.8	1	0.1	0.1	0.1	0.05	0.005	0.05576
0.9	0.14	0.25	0.1	0.035	0.0675	0.00675	0.07527
1	0.35	0.15	0.1	0.0525	0.04375	0.00438	0.04879
1.1	0.34	0.12	0.1	0.0408	0.04665	0.00467	0.05202
1.2	0.27	0.15	0.1	0.0405	0.04065	0.00406	0.04533
1.3	0.29	0.22	0.1	0.0638	0.05215	0.00522	0.05815
1.4	0.29	0.3	0.1	0.087	0.0754	0.00754	0.08408
1.5	0.27	0.28	0.1	0.0756	0.0813	0.00813	0.09066
1.6	0.3	0.24	0.1	0.072	0.0738	0.00738	0.0823

1.7	0.3	0.15	0.1	0.045	0.0585	0.00585	0.06524
1.8	0.28	0.2	0.1	0.056	0.0505	0.00505	0.05631
1.9	0.34	0.14	0.1	0.0476	0.0518	0.00518	0.05776
2	0.31	0.08	0.1	0.0248	0.0362	0.00362	0.04037
2.1	0.27	0.07	0.1	0.0189	0.02185	0.00219	0.02437
2.2	0.31	0.05	0.1	0.0155	0.0172	0.00172	0.01918
2.4	0.3	0.08	0.2	0.024	0.01975	0.00395	0.04405
2.6	0.4	0.06	0.2	0.024	0.024	0.0048	0.05353
2.8	0.25	0.03	0.2	0.0075	0.01575	0.00315	0.03513
3	0.15	0.01	0.2	0.0015	0.0045	0.0009	0.01004
3.2	0.13	0	0.2	0	0.00075	0.00015	0.00167
3.45	0	0	0.25	0	0	0	0
						0.08968	1

Channel 3

0.45	0.18	0	0	0	0	0	0
0.6	0.2	0.32	0.15	0.064	0.032	0.0048	0.02496
0.7	0.19	0.36	0.1	0.0684	0.0662	0.00662	0.03443
0.8	0.21	0.44	0.1	0.0924	0.0804	0.00804	0.04182
0.9	0.21	0.51	0.1	0.1071	0.09975	0.00998	0.05188
1	0.22	0.38	0.1	0.0836	0.09535	0.00954	0.04959
1.1	0.2	0.29	0.1	0.058	0.0708	0.00708	0.03682
1.2	0.25	0.46	0.1	0.115	0.0865	0.00865	0.04499
1.3	0.24	0.29	0.1	0.0696	0.0923	0.00923	0.04801
1.4	0.24	0.21	0.1	0.0504	0.06	0.006	0.03121
1.5	0.23	0.18	0.1	0.0414	0.0459	0.00459	0.02387
1.6	0.22	0.09	0.1	0.0198	0.0306	0.00306	0.01592
1.7	0.24	0.06	0.1	0.0144	0.0171	0.00171	0.00889
1.8	0.24	0.03	0.1	0.0072	0.0108	0.00108	0.00562
2	0.25	0.18	0.2	0.045	0.0261	0.00522	0.02715
2.2	0.25	0.28	0.2	0.07	0.0575	0.0115	0.05981
2.3	0.2	0.25	0.1	0.05	0.06	0.006	0.03121
2.4	0.28	0.23	0.1	0.0644	0.0572	0.00572	0.02975
2.5	0.19	0.37	0.1	0.0703	0.06735	0.00674	0.03503
2.6	0.16	0.39	0.1	0.0624	0.06635	0.00664	0.03451
2.7	0.2	0.42	0.1	0.084	0.0732	0.00732	0.03807
2.8	0.19	0.45	0.1	0.0855	0.08475	0.00847	0.04408
2.9	0.29	0.35	0.1	0.1015	0.0935	0.00935	0.04863
3	0.24	0.28	0.1	0.0672	0.08435	0.00844	0.04387
3.1	0.24	0.22	0.1	0.0528	0.06	0.006	0.03121
3.2	0.32	0.32	0.1	0.1024	0.0776	0.00776	0.04036
3.3	0.4	0.19	0.1	0.076	0.0892	0.00892	0.04639
3.4	0.25	0.27	0.1	0.0675	0.07175	0.00718	0.03732
3.5	0.12	0.13	0.1	0.0156	0.04155	0.00416	0.02161
3.7	0.09	0.02	0.2	0.0018	0.0087	0.00174	0.00905
4	0.14	0.01	0.3	0.0014	0.0016	0.00048	0.0025
4.4	0.06	0	0.4	0	0.0007	0.00028	0.00146
4.4	0	0	0	0	0	0	0
4.6	0.04	0	0.2	0	0	0	0
5	0	0	0.4	0	0	0	0
						0.19227	1

Channel 4

0.85	0.04	0.09	0	0.0036	0.0018	0	0
1	0.08	0.09	0.15	0.0072	0.0054	0.00081	0.00708
1.2	0.08	0.1	0.2	0.008	0.0076	0.00152	0.01329

1.4	0.07	0.02	0.2	0.0014	0.0047	0.00094	0.00822
1.6	0.06	0.02	0.2	0.0012	0.0013	0.00026	0.00227
1.8	0.2	0.07	0.2	0.014	0.0076	0.00152	0.01329
2	0.16	0.4	0.2	0.064	0.039	0.0078	0.06819
2.1	0.15	0.32	0.1	0.048	0.056	0.0056	0.04896
2.2	0.15	0.41	0.1	0.0615	0.05475	0.00548	0.04786
2.3	0.15	0.35	0.1	0.0525	0.057	0.0057	0.04983
2.4	0.12	0.31	0.1	0.0372	0.04485	0.00449	0.03921
2.5	0.09	0.28	0.1	0.0252	0.0312	0.00312	0.02728
2.6	0.09	0.24	0.1	0.0216	0.0234	0.00234	0.02046
2.7	0.28	0.1	0.1	0.028	0.0248	0.00248	0.02168
2.8	0.26	0.24	0.1	0.0624	0.0452	0.00452	0.03951
2.9	0.26	0.45	0.1	0.117	0.0897	0.00897	0.07842
3	0.22	0.45	0.1	0.099	0.108	0.0108	0.09441
3.1	0.24	0.24	0.1	0.0576	0.0783	0.00783	0.06845
3.2	0.25	0.12	0.1	0.03	0.0438	0.00438	0.03829
3.3	0.23	0.13	0.1	0.0299	0.02995	0.00299	0.02618
3.4	0.2	0.12	0.1	0.024	0.02695	0.0027	0.02356
3.5	0.23	0.09	0.1	0.0207	0.02235	0.00224	0.01954
3.6	0.25	0.11	0.1	0.0275	0.0241	0.00241	0.02107
3.7	0.18	0.18	0.1	0.0324	0.02995	0.003	0.02618
3.8	0.17	0.27	0.1	0.0459	0.03915	0.00391	0.03423
3.9	0.15	0.26	0.1	0.039	0.04245	0.00425	0.03711
4	0.41	0.2	0.1	0.082	0.0605	0.00605	0.05289
4.1	0.21	0.4	0.1	0.084	0.083	0.0083	0.07256
4.1	0.24	0	0	0	0.042	0	0
						0.11439	1
Channel 5							
9.1	0.06	0.14	0	0.0084	0.0042	0	0
9.3	0.12	0.37	0.2	0.0444	0.0264	0.00528	0.0635
9.4	0.24	0.16	0.1	0.0384	0.0414	0.00414	0.04979
9.5	0.13	0.48	0.1	0.0624	0.0504	0.00504	0.06062
9.6	0.33	0.22	0.1	0.0726	0.0675	0.00675	0.08118
9.7	0.3	0.24	0.1	0.072	0.0723	0.00723	0.08696
9.8	0.33	0.17	0.1	0.0561	0.06405	0.00641	0.07703
9.9	0.61	0.02	0.1	0.0122	0.03415	0.00341	0.04107
10	0.29	0.01	0.1	0.0029	0.00755	0.00075	0.00908
10.2	0.23	0.04	0.2	0.0092	0.00605	0.00121	0.01455
10.5	0.18	0.02	0.3	0.0036	0.0064	0.00192	0.02309
10.6	0.15	0.07	0.1	0.0105	0.00705	0.0007	0.00848
10.7	0.29	0.3	0.1	0.087	0.04875	0.00487	0.05863
10.8	0.24	0.4	0.1	0.096	0.0915	0.00915	0.11005
10.9	0.11	0.31	0.1	0.0341	0.06505	0.0065	0.07824
11	0.11	0.26	0.1	0.0286	0.03135	0.00313	0.03771
11.1	0.1	0.03	0.1	0.003	0.0158	0.00158	0.019
11.2	0.13	0.14	0.1	0.0182	0.0106	0.00106	0.01275
11.3	0.16	0.1	0.1	0.016	0.0171	0.00171	0.02057
11.4	0.15	0.2	0.1	0.03	0.023	0.0023	0.02766
11.5	0.13	0.23	0.1	0.0299	0.02995	0.00299	0.03602
11.6	0.12	0.13	0.1	0.0156	0.02275	0.00227	0.02736
11.7	0.1	0.12	0.1	0.012	0.0138	0.00138	0.0166
11.8	0.14	0.18	0.1	0.0252	0.0186	0.00186	0.02237
11.85	0.14	0.24	0.05	0.0336	0.0294	0.00147	0.01768
						0.08315	1
Channel 6							

14.1	0.08	0.55	0	0.044	0.022	0	0
14.2	0.17	0.39	0.1	0.0663	0.05515	0.00551	0.10999
14.3	0.18	0.25	0.1	0.045	0.05565	0.00557	0.11099
14.4	0	0	0.1	0	0.0225	0.00225	0.04487
14.6	0.1	0.53	0.2	0.053	0.0265	0.0053	0.1057
14.7	0.08	0.42	0.1	0.0336	0.0433	0.00433	0.08636
14.8	0.05	0.34	0.1	0.017	0.0253	0.00253	0.05046
14.9	0.1	0.61	0.1	0.061	0.039	0.0039	0.07778
15	0.1	0.48	0.1	0.048	0.0545	0.00545	0.1087
15.1	0.1	0.01	0.1	0.001	0.0245	0.00245	0.04886
15.2	0.04	0.48	0.1	0.0192	0.0101	0.00101	0.02014
15.3	0.13	0.56	0.1	0.0728	0.046	0.0046	0.09174
15.4	0.16	0.45	0.1	0.072	0.0724	0.00724	0.1444
15.	0	0	-15.4				0
						0.05014	1
Channel7							
1	0.16	0.11	0	0.0176	0.0088	0	0
1.1	0.1	0.23	0.1	0.023	0.0203	0.00203	0.03531
1.2	0.07	0.23	0.1	0.0161	0.01955	0.00196	0.034
1.3	0.05	0.33	0.1	0.0165	0.0163	0.00163	0.02835
1.4	0.04	0.52	0.1	0.0208	0.01865	0.00187	0.03244
1.5	0.07	0.46	0.1	0.0322	0.0265	0.00265	0.04609
1.6	0.07	0.36	0.1	0.0252	0.0287	0.00287	0.04992
1.7	0.06	0.41	0.1	0.0246	0.0249	0.00249	0.04331
1.8	0.06	0.41	0.1	0.0246	0.0246	0.00246	0.04279
2	0.06	0.4	0.2	0.024	0.0243	0.00486	0.08453
2.2	0.05	0.05	0.2	0.0025	0.01325	0.00265	0.04609
2.5	0.05	0.24	0.3	0.012	0.00725	0.00218	0.03783
2.7	0.06	0.23	0.2	0.0138	0.0129	0.00258	0.04487
2.9	0.06	0.24	0.2	0.0144	0.0141	0.00282	0.04905
3.2	0.12	0.03	0.3	0.0036	0.009	0.0027	0.04696
3.5	0.05	0.06	0.3	0.003	0.0033	0.00099	0.01722
3.8	0.09	0.15	0.3	0.0135	0.00825	0.00248	0.04305
4.1	0.16	0.08	0.3	0.0128	0.01315	0.00395	0.06861
4.3	0.07	0.02	0.2	0.0014	0.0071	0.00142	0.0247
4.6	0.1	0.03	0.3	0.003	0.0022	0.00066	0.01148
4.9	0.04	0.01	0.3	0.0004	0.0017	0.00051	0.00887
5.2	0.14	0.2	0.3	0.028	0.0142	0.00426	0.07409
5.5	0.1	0.22	0.3	0.022	0.025	0.0075	0.13045
						0.0575	1
Channel 8							
6	0.05	0.16	0	0.008	0.004	0	0
6.3	0	0	0.3	0	0.004	0.0012	1
	0	0	-6.3				0
	0	0	0				0
	0	0	0				0
	0	0	0				0
						0.0012	1

Date: July 13,1994
Stage: 0.606 m
Discharge 0.90207 m3/s

Slipper Lake Drainage
94 WGS-24
Channel 1

1	2	3	4	5	6	7	8
Station (m)	Depth (m)	Avg Vel (m/s)	Width (m)	Col 2x3 (m2/s)	Second Av (m2/s)	Flow (m^3/s)	% Flow
Channel 1							
1.4	0.3	0	0	0	0	0	0
1.7	0.37	0.02	0.3	0.0074	0.0037	0.00111	0.004796
1.9	0.32	0.07	0.2	0.0224	0.0149	0.00298	0.012877
2.1	0.31	0.03	0.2	0.0093	0.01585	0.00317	0.013698
2.3	0.12	0.16	0.2	0.0192	0.01425	0.00285	0.012315
2.4	0.13	0.43	0.1	0.0559	0.03755	0.003755	0.016226
2.5	0.15	0.47	0.1	0.0705	0.0632	0.00632	0.02731
2.6	0.15	0.47	0.1	0.0705	0.0705	0.00705	0.030464
2.7	0.15	0.38	0.1	0.057	0.06375	0.006375	0.027547
2.8	0.16	0.31	0.1	0.0496	0.0533	0.00533	0.023032
2.9	0.17	0.62	0.1	0.1054	0.0775	0.00775	0.033489
3	0.17	0.67	0.1	0.1139	0.10965	0.010965	0.047381
3.1	0.18	0.48	0.1	0.0864	0.10015	0.010015	0.043276
3.2	0.2	0.54	0.1	0.108	0.0972	0.00972	0.042002
3.3	0.22	0.65	0.1	0.143	0.1255	0.01255	0.05423
3.4	0.23	0.77	0.1	0.1771	0.16005	0.016005	0.06916
3.5	0.25	0.41	0.1	0.1025	0.1398	0.01398	0.06041
3.6	0.26	0.31	0.1	0.0806	0.09155	0.009155	0.03956
3.7	0.27	0.46	0.1	0.1242	0.1024	0.01024	0.044249
3.8	0.26	0.6	0.1	0.156	0.1401	0.01401	0.060539
3.9	0.27	0.31	0.1	0.0837	0.11985	0.011985	0.051789
4	0.26	0.37	0.1	0.0962	0.08995	0.008995	0.038869
4.1	0.28	0.37	0.1	0.1036	0.0999	0.00999	0.043168
4.2	0.38	0.39	0.1	0.1482	0.1259	0.01259	0.054403
4.3	0.32	0.29	0.1	0.0928	0.1205	0.01205	0.05207
4.4	0.38	0.15	0.1	0.057	0.0749	0.00749	0.032365
4.5	0.46	0.07	0.1	0.0322	0.0446	0.00446	0.019272
4.7	0.57	0.01	0.2	0.0057	0.01895	0.00379	0.016377
4.9	0.46	0.03	0.2	0.0138	0.00975	0.00195	0.008426
5.3	0.37	0.01	0.4	0.0037	0.00875	0.0035	0.015124
5.6	0.21	0.01	0.3	0.0021	0.0029	0.00087	0.003759
6	0.17	0	0.4	0	0.00105	0.00042	0.001815
6.3	0.05	0	0.3	0	0	0	0
						0.23142	1
Channel 2							
0.5	0	0	0	0	0	0	0
0.6	0.04	0.06	0.1	0.0024	0.0012	0.00012	0.001378
0.8	0.15	0.24	0.2	0.036	0.0192	0.00384	0.04409
0.9	0.37	0.16	0.1	0.0592	0.0476	0.00476	0.054653
1	0.36	0.13	0.1	0.0468	0.053	0.0053	0.060853
1.1	0.36	0.16	0.1	0.0576	0.0522	0.00522	0.059935
1.2	0.37	0.24	0.1	0.0888	0.0732	0.00732	0.084046

1.3	0.32	0.25	0.1	0.08	0.0844	0.00844	0.096906
1.4	0.32	0.26	0.1	0.0832	0.0816	0.00816	0.093691
1.5	0.33	0.21	0.1	0.0693	0.07625	0.007625	0.087548
1.6	0.32	0.18	0.1	0.0576	0.06345	0.006345	0.072851
1.7	0.43	0.11	0.1	0.0473	0.05245	0.005245	0.060222
1.8	0.4	0.09	0.1	0.036	0.04165	0.004165	0.047821
1.9	0.44	0.06	0.1	0.0264	0.0312	0.00312	0.035823
2	0.4	0.05	0.1	0.02	0.0232	0.00232	0.026638
2.3	0.45	0.06	0.3	0.027	0.0235	0.00705	0.080946
2.6	0.41	0.06	0.3	0.0246	0.0258	0.00774	0.088868
2.9	0.17	0.01	0.3	0.0017	0.01315	0.003945	0.045295
3.3	0.07	0	0.4	0	0.00085	0.00034	0.003904
						0.087095	1

Channel 3

0.4	0.19	0.25	0.01	0.0475	0.02375	0.000238	0.001069
0.5	0.19	0.25	0.1	0.0475	0.0475	0.00475	0.021385
0.6	0.2	0.33	0.1	0.066	0.05675	0.005675	0.02555
0.7	0.21	0.32	0.1	0.0672	0.0666	0.00666	0.029984
0.8	0.2	0.38	0.1	0.076	0.0716	0.00716	0.032235
0.9	0.24	0.44	0.1	0.1056	0.0908	0.00908	0.040879
1	0.22	0.57	0.1	0.1254	0.1155	0.01155	0.052
1.1	0.23	0.51	0.1	0.1173	0.12135	0.012135	0.054633
1.2	0.23	0.29	0.1	0.0667	0.092	0.0092	0.04142
1.3	0.24	0.41	0.1	0.0984	0.08255	0.008255	0.037165
1.4	0.25	0.24	0.1	0.06	0.0792	0.00792	0.035657
1.6	0.25	0.06	0.2	0.015	0.0375	0.0075	0.033766
1.8	0.21	0.08	0.2	0.0168	0.0159	0.00318	0.014317
2	0.25	0.21	0.2	0.0525	0.03465	0.00693	0.0312
2.2	0.28	0.26	0.2	0.0728	0.06265	0.01253	0.056412
2.4	0.32	0.24	0.2	0.0768	0.0748	0.01496	0.067352
2.5	0.27	0.17	0.1	0.0459	0.06135	0.006135	0.027621
2.6	0.2	0.52	0.1	0.104	0.07495	0.007495	0.033743
2.7	0.2	0.47	0.1	0.094	0.099	0.0099	0.044571
2.8	0.21	0.5	0.1	0.105	0.0995	0.00995	0.044796
2.9	0.28	0.44	0.1	0.1232	0.1141	0.01141	0.051369
3	0.3	0.33	0.1	0.099	0.1111	0.01111	0.050019
3.1	0.43	0.19	0.1	0.0817	0.09035	0.009035	0.040677
3.2	0.36	0.14	0.1	0.0504	0.06605	0.006605	0.029737
3.3	0.41	0.04	0.1	0.0164	0.0334	0.00334	0.015037
3.4	0.35	0.02	0.1	0.007	0.0117	0.00117	0.005267
3.6	0.2	0.18	0.2	0.036	0.0215	0.0043	0.019359
3.8	0.25	0.19	0.2	0.0475	0.04175	0.00835	0.037593
4	0.2	0.01	0.2	0.002	0.02475	0.00495	0.022286
4.4	0.07	0	0.4	0	0.001	0.0004	0.022286
4.6	0	0	0.2	0	0	0	0.022286
4.7	0.06	0.01	0.1	0.0006	0.0003	3E-05	0.022286
5	0.05	0.01	0.3	0.0005	0.00055	0.000165	0.000743
5.2	0	0	0.2	0	0.00025	0.00005	0.000225
						0.222118	1

Channel 4

0.8	0.14	0.06	0	0.0084	0.0042	0	0
1	0.16	0.2	0.2	0.032	0.0202	0.00404	0.022423

1.1	0.27	0.21	0.1	0.0567	0.04435	0.004435	0.024616
1.2	0.26	0.17	0.1	0.0442	0.05045	0.005045	0.028001
1.3	0.24	0.21	0.1	0.0504	0.0473	0.00473	0.026253
1.4	0.26	0.12	0.1	0.0312	0.0408	0.00408	0.022645
1.5	0.34	0.26	0.1	0.0884	0.0598	0.00598	0.033191
1.6	0.35	0.16	0.1	0.056	0.0722	0.00722	0.040073
1.7	0.45	0.34	0.1	0.153	0.1045	0.01045	0.058001
1.8	0.46	0.12	0.1	0.0552	0.1041	0.01041	0.057779
1.9	0.53	0.2	0.1	0.106	0.0806	0.00806	0.044736
2	0.26	0.19	0.1	0.0494	0.0777	0.00777	0.043126
2.1	0.26	0.11	0.1	0.0286	0.039	0.0039	0.021646
2.2	0.25	0.3	0.1	0.075	0.0518	0.00518	0.028751
2.3	0.25	0.4	0.1	0.1	0.0875	0.00875	0.048565
2.4	0.26	0.24	0.1	0.0624	0.0812	0.00812	0.045069
2.5	0.33	0.3	0.1	0.099	0.0807	0.00807	0.044791
2.6	0.32	0.3	0.1	0.096	0.0975	0.00975	0.054116
2.7	0.47	0.4	0.1	0.188	0.142	0.0142	0.078814
2.9	0.29	0.07	0.2	0.0203	0.10415	0.02083	0.115613
3.1	0.24	0.23	0.2	0.0552	0.03775	0.00755	0.041905
3.2	0.12	0.33	0.1	0.0396	0.0474	0.00474	0.026308
3.4	0.12	0.35	0.2	0.042	0.0408	0.00816	0.045291
3.6	0.27	0.05	0.2	0.0135	0.02775	0.00555	0.030804
3.9	0.15	0.03	0.3	0.0045	0.009	0.0027	0.014986
4.1	0	0	0.2	0	0.00225	0.00045	0.002498
						0.18017	1
Channel 5							
0.6	0.03	0	0	0	0	0	0
1.2	0.06	0	0.6	0	0	0	0
1.5	0.06	0.02	0.3	0.0012	0.0006	0.00018	0.002181
1.9	0.08	0	0.4	0	0.0006	0.00024	0.002908
3	0	0	1.1	0	0	0	0
3.1	0.15	0.01	0.1	0.0015	0.00075	0.000075	0.002908
3.3	0.14	0.25	0.2	0.035	0.01825	0.00365	0.044226
3.4	0.31	0.15	0.1	0.0465	0.04075	0.004075	0.049376
3.5	0.37	0.24	0.1	0.0888	0.06765	0.006765	0.08197
3.6	0.53	0.04	0.1	0.0212	0.055	0.0055	0.066642
3.7	0.34	0.13	0.1	0.0442	0.0327	0.00327	0.039622
3.9	0.41	0.05	0.2	0.0205	0.03235	0.00647	0.078396
4.1	0.23	0.05	0.2	0.0115	0.016	0.0032	0.038774
4.3	0.19	0.18	0.2	0.0342	0.02285	0.00457	0.055374
4.5	0.23	0.07	0.2	0.0161	0.02515	0.00503	0.060948
4.6	0.2	0.32	0.1	0.064	0.04005	0.004005	0.048528
4.7	0.34	0.1	0.1	0.034	0.049	0.0049	0.059372
5	0.14	0.13	0.3	0.0182	0.0261	0.00783	0.094875
5.2	0.18	0.12	0.2	0.0216	0.0199	0.00398	0.048225
5.4	0.14	0.14	0.2	0.0196	0.0206	0.00412	0.049921
5.7	0.09	0.28	0.3	0.0252	0.0224	0.00672	0.081425
5.8	0.2	0.18	0.1	0.036	0.0306	0.00306	0.037077
5.9	0.08	0.21	0.1	0.0168	0.0264	0.00264	0.031988
						0.08028	1
Channel 6							
0.45	0	0	0.45	0	0	0	0
0.6	0.09	0.03	0.15	0.0027	0.00135	0.000203	0.008971

0.9	0.11	0.01	0.3	0.0011	0.0019	0.00057	0.025252
1.1	0.24	0.11	0.2	0.0264	0.01375	0.00275	0.12183
1.3	0.15	0.02	0.2	0.003	0.0147	0.00294	0.130247
1.6	0.14	0.1	0.3	0.014	0.0085	0.00255	0.112969
1.8	0.03	0.05	0.2	0.0015	0.00775	0.00155	0.068668
1.9	0.03	0.05	0.1	0.0015	0.0015	0.00015	0.006645
2	0.09	0.12	0.1	0.0108	0.00615	0.000615	0.027246
2.1	0.21	0.17	0.1	0.0357	0.02325	0.002325	0.103001
2.3	0.22	0.03	0.2	0.0066	0.02115	0.00423	0.187396
2.6	0.06	0	0.3	0	0.0033	0.00099	0.043859
2.9	0.14	0	0.3	0	0	0	0
3.2	0.37	0.05	0.3	0.0185	0.00925	0.002775	0.122937
3.3	0	0	0.1	0	0.00925	0.000925	0.040979
						0.022573	1
Channel 7							
1.25	0	0	1.25	0	0	0	0
1.4	0.09	0.06	0.15	0.0054	0.0027	0.000405	0.005317
1.6	0.06	0.25	0.2	0.015	0.0102	0.00204	0.026784
1.7	0.09	0.48	0.1	0.0432	0.0291	0.00291	0.038207
1.8	0.09	0.4	0.1	0.036	0.0396	0.00396	0.051992
1.9	0.09	0.41	0.1	0.0369	0.03645	0.003645	0.047857
2	0.09	0.56	0.1	0.0504	0.04365	0.004365	0.05731
2.1	0.09	0.51	0.1	0.0459	0.04815	0.004815	0.063218
2.2	0.09	0.47	0.1	0.0423	0.0441	0.00441	0.057901
2.3	0.07	0.28	0.1	0.0196	0.03095	0.003095	0.040635
2.5	0.06	0.1	0.2	0.006	0.0128	0.00256	0.033611
3	0.08	0.24	0.5	0.0192	0.0126	0.0063	0.082715
3.3	0.09	0.12	0.3	0.0108	0.015	0.0045	0.059082
3.6	0.14	0.04	0.3	0.0056	0.0082	0.00246	0.032298
3.9	0.07	0.05	0.3	0.0035	0.00455	0.001365	0.017922
4.3	0.08	0.17	0.4	0.0136	0.00855	0.00342	0.044903
4.6	0.17	0.02	0.3	0.0034	0.0085	0.00255	0.03348
4.7	0	0	0.1	0	0.0017	0.00017	0.002232
4.9	0.07	0.01	0.2	0.0007	0.00035	0.00007	0.002232
5.2	0.06	0.01	0.3	0.0006	0.00065	0.000195	0.002232
5.5	0.15	0.16	0.3	0.024	0.0123	0.00369	0.048447
5.9	0.1	0.15	0.4	0.015	0.0195	0.0078	0.102409
6.3	0.05	0.17	0.4	0.0085	0.01175	0.0047	0.061708
6.8	0.02	0.05	0.5	0.001	0.00475	0.002375	0.031182
7.2	0.03	0.09	0.4	0.0027	0.00185	0.00074	0.009716
7.4	0	0	0.2	0	0.00135	0.00027	0.003545
7.6	0	0	0.2	0	0	0	0.003545
7.8	0	0	0.2	0	0	0	0.003545
7.9	0.05	0.2	0.1	0.01	0.005	0.0005	0.006565
8.1	0.03	0.07	0.2	0.0021	0.00605	0.00121	0.015887
						0.076165	1

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Date: July 21,1994
Stage: 0.562 m
Discharge 0.68726 m3/s

Slipper Lake Drainage
WGS-24
Channel 1

1 Station (m)	2 Depth (m)	3 Avg Vel (m/s)	4 Width (m)	5 Col 2x3 (m2/s)	6 Second Av (m2/s)	7 Flow (m^3/s)	8 % Flow
1.1	0.16	0	0	0	0	0	0
1.3	0.24	0.01	0.2	0.0024	0.0012	0.00024	0.00126
1.6	0.23	0.07	0.3	0.0161	0.00925	0.00278	0.01455
1.8	0.11	0.1	0.2	0.011	0.01355	0.00271	0.01421
2	0.09	0.15	0.2	0.0135	0.01225	0.00245	0.01284
2.2	0.1	0.17	0.2	0.017	0.01525	0.00305	0.01599
2.4	0.11	0.27	0.2	0.0297	0.02335	0.00467	0.02448
2.6	0.12	0.56	0.2	0.0672	0.04845	0.00969	0.05079
2.7	0.1	0.71	0.1	0.071	0.0691	0.00691	0.03622
2.8	0.12	0.78	0.1	0.0936	0.0823	0.00823	0.04314
2.9	0.14	0.58	0.1	0.0812	0.0874	0.00874	0.04581
3	0.12	1.06	0.1	0.1272	0.1042	0.01042	0.05462
3.1	0.15	0.69	0.1	0.1035	0.11535	0.01154	0.06046
3.2	0.17	0.75	0.1	0.1275	0.1155	0.01155	0.06054
3.3	0.14	0.84	0.1	0.1176	0.12255	0.01226	0.06424
3.4	0.13	0.96	0.1	0.1248	0.1212	0.01212	0.06353
3.5	0.14	0.91	0.1	0.1274	0.1261	0.01261	0.0661
3.6	0.13	0.64	0.1	0.0832	0.1053	0.01053	0.0552
3.7	0.17	0.48	0.1	0.0816	0.0824	0.00824	0.04319
3.8	0.15	0.62	0.1	0.093	0.0873	0.00873	0.04576
3.9	0.17	0.54	0.1	0.0918	0.0924	0.00924	0.04843
4	0.19	0.33	0.1	0.0627	0.07725	0.00773	0.04049
4.1	0.15	0.31	0.1	0.0465	0.0546	0.00546	0.02862
4.2	0.21	0.17	0.1	0.0357	0.0411	0.00411	0.02154
4.3	0.25	0.27	0.1	0.0675	0.0516	0.00516	0.02705
4.4	0.27	0.24	0.1	0.0648	0.06615	0.00662	0.03467
4.5	0.42	0.01	0.1	0.0042	0.0345	0.00345	0.01808
4.6	0.12	0.02	0.1	0.0024	0.0033	0.00033	0.00173
4.8	0.21	0.01	0.2	0.0021	0.00225	0.00045	0.00236
5	0.19	0.01	0.2	0.0019	0.002	0.0004	0.0021
5.4	0.07	0	0.4	0	0.00095	0.00038	0.00199
6	0	0	0.6	0	0	0	0
						0.19078	1

Channel 2

0.7	0	0	0	0	0	0	0
0.8	0.9	0.08	0.1	0.072	0.036	0.0036	0.06265
1	0.31	0.03	0.2	0.0093	0.04065	0.00813	0.14149
1.2	0.29	0.11	0.2	0.0319	0.0206	0.00412	0.0717
1.3	0.29	0.14	0.1	0.0406	0.03625	0.00363	0.06309
1.4	0.26	0.24	0.1	0.0624	0.0515	0.00515	0.08963
1.5	0.29	0.23	0.1	0.0667	0.06455	0.00646	0.11234
1.6	0.29	0.17	0.1	0.0493	0.058	0.0058	0.10094
1.7	0.28	0.12	0.1	0.0336	0.04145	0.00414	0.07214
1.8	0.28	0.09	0.1	0.0252	0.0294	0.00294	0.05117
1.9	0.33	0.05	0.1	0.0165	0.02085	0.00209	0.03629

2	0.3	0.06	0.1	0.018	0.01725	0.00173	0.03002
2.1	0.27	0.05	0.1	0.0135	0.01575	0.00158	0.02741
2.2	0.28	0.06	0.1	0.0168	0.01515	0.00152	0.02637
2.3	0.3	0.09	0.1	0.027	0.0219	0.00219	0.03811
2.4	0.34	0.04	0.1	0.0136	0.0203	0.00203	0.03533
2.5	0.26	0.03	0.1	0.0078	0.0107	0.00107	0.01862
2.7	0.35	0.01	0.2	0.0035	0.00565	0.00113	0.01967
2.8	0.29	0	0.1	0	0.00175	0.00017	0.00305
3	0.13	0	0.2	0	0	0	0
3.2	0.14	0	0.2	0	0	0	0
3.4	0	0	0.2	0	0	0	0
						0.05746	1
Channel 3							
1	0.23	0.18	0	0.0414	0.0207	0	0
1.1	0.24	0.2	0.1	0.048	0.0447	0.00447	0.03254
1.2	0.24	0.23	0.1	0.0552	0.0516	0.00516	0.03757
1.3	0.18	0.34	0.1	0.0612	0.0582	0.00582	0.04237
1.4	0.23	0.36	0.1	0.0828	0.072	0.0072	0.05242
1.5	0.23	0.27	0.1	0.0621	0.07245	0.00725	0.05274
1.6	0.22	0.17	0.1	0.0374	0.04975	0.00498	0.03622
1.7	0.24	0.23	0.1	0.0552	0.0463	0.00463	0.03371
1.8	0.24	0.16	0.1	0.0384	0.0468	0.00468	0.03407
1.9	0.24	0.14	0.1	0.0336	0.036	0.0036	0.02621
2	0.22	0.11	0.1	0.0242	0.0289	0.00289	0.02104
2.2	0.25	0.02	0.2	0.005	0.0146	0.00292	0.02126
2.4	0.24	0.11	0.2	0.0264	0.0157	0.00314	0.02286
2.6	0.23	0.24	0.2	0.0552	0.0408	0.00816	0.05941
2.8	0.31	0.1	0.2	0.031	0.0431	0.00862	0.06275
3	0.18	0.28	0.2	0.0504	0.0407	0.00814	0.05926
3.2	0.18	0.37	0.2	0.0666	0.0585	0.0117	0.08518
3.3	0.19	0.45	0.1	0.0855	0.07605	0.0076	0.05537
3.4	0.26	0.33	0.1	0.0858	0.08565	0.00857	0.06235
3.5	0.24	0.24	0.1	0.0576	0.0717	0.00717	0.0522
3.6	0.3	0.16	0.1	0.048	0.0528	0.00528	0.03844
3.7	0.37	0.15	0.1	0.0555	0.05175	0.00518	0.03767
3.8	0.33	0.08	0.1	0.0264	0.04095	0.00409	0.02981
3.9	0.31	0	0.1	0	0.0132	0.00132	0.00961
4	0.15	0.2	0.1	0.03	0.015	0.0015	0.01092
4.2	0.1	0.01	0.2	0.001	0.0155	0.0031	0.02257
4.5	0.1	0	0.3	0	0.0005	0.00015	0.00109
4.9	0.05	0	0.4	0	0	0	0
							0
5.1	0	0	0.2	0	0	0	0
5.1	0.05	0.02	0	0.001	0.0005	0	0
5.2	0	0	0.1	0	0.0005	5E-05	0.00036
						0.13736	1
Channel 4							
0.9	0.14	0.01	0	0.0014	0.0007	0	0
1.3	0.22	0.01	0.4	0.0022	0.0018	0.00072	0.00609
1.6	0.31	0.01	0.3	0.0031	0.00265	0.0008	0.00672
1.9	0.28	0.02	0.3	0.0056	0.00435	0.00131	0.01103
2.1	0.28	0.28	0.2	0.0784	0.042	0.0084	0.07101
2.2	0.38	0.07	0.1	0.0266	0.0525	0.00525	0.04438
2.3	0.33	0.14	0.1	0.0462	0.0364	0.00364	0.03077

2.4	0.35	0.11	0.1	0.0385	0.04235	0.00424	0.0358
2.5	0.36	0.14	0.1	0.0504	0.04445	0.00445	0.03757
2.6	0.38	0.08	0.1	0.0304	0.0404	0.00404	0.03415
2.7	0.38	0.09	0.1	0.0342	0.0323	0.00323	0.0273
2.8	0.26	0.09	0.1	0.0234	0.0288	0.00288	0.02434
2.9	0.26	0.38	0.1	0.0988	0.0611	0.00611	0.05165
3	0.32	0.35	0.1	0.112	0.1054	0.01054	0.0891
3.1	0.36	0.31	0.1	0.1116	0.1118	0.01118	0.09451
3.2	0.42	0.12	0.1	0.0504	0.081	0.0081	0.06847
3.3	0.25	0.18	0.1	0.045	0.0477	0.00477	0.04032
3.4	0.22	0.13	0.1	0.0286	0.0368	0.00368	0.03111
3.5	0.48	0.03	0.1	0.0144	0.0215	0.00215	0.01817
3.6	0.33	0.01	0.1	0.0033	0.00885	0.00089	0.00748
3.8	0.54	0.04	0.2	0.0216	0.01245	0.00249	0.02105
3.9	0.35	0.16	0.1	0.056	0.0388	0.00388	0.0328
4	0.27	0.3	0.1	0.081	0.0685	0.00685	0.0579
4.1	0.24	0.35	0.1	0.084	0.0825	0.00825	0.06974
4.2	0.24	0.1	0.1	0.024	0.054	0.0054	0.04565
							0
5.5	0.1	0.01	5.5	0.001	0.0005	0.00275	0.02325
5.7	0.07	0.05	0.2	0.0035	0.00225	0.00045	0.0038
5.8	0.03	0	0.1	0	0.00175	0.00017	0.00148
							0
7	0	0	7	0	0	0	0
7.2	0.07	0	0.2	0	0	0	0
7.4	0.1	0.02	0.2	0.002	0.001	0.0002	0.00169
7.7	0.07	0.04	0.3	0.0028	0.0024	0.00072	0.00609
7.9	0.05	0.05	0.2	0.0025	0.00265	0.00053	0.00448
8	0.05	0.05	0.1	0.0025	0.0025	0.00025	0.00211
						0.1183	1

Channel 5

9.1	0.13	0.03	0	0.0039	0.00195	0	0
9.2	0.1	0.25	0.1	0.025	0.01445	0.00144	0.01002
9.3	0.14	0.24	0.1	0.0336	0.0293	0.00293	0.02032
9.4	0.29	0.15	0.1	0.0435	0.03855	0.00385	0.02673
9.5	0.42	0.12	0.1	0.0504	0.04695	0.00469	0.03256
9.6	0.3	0.19	0.1	0.057	0.0537	0.00537	0.03724
9.7	0.31	0.24	0.1	0.0744	0.0657	0.00657	0.04556
9.8	0.32	0.11	0.1	0.0352	0.0548	0.00548	0.038
9.9	0.35	0.03	0.1	0.0105	0.02285	0.00228	0.01585
10	0.44	0.02	0.1	0.0088	0.00965	0.00096	0.00669
10.1	0.74	0.01	0.1	0.0074	0.0081	0.00081	0.00562
10.2	0.24	0.03	0.1	0.0072	0.0073	0.00073	0.00506
10.3	0	0	0.1	0	0.0036	0.00036	0.0025
10.5	0.06	0.48	0.2	0.0288	0.0144	0.00288	0.01997
10.6	0.09	0.23	0.1	0.0207	0.02475	0.00247	0.01716
10.7	0.2	0.29	0.1	0.058	0.03935	0.00393	0.02729
10.8	0.22	0.23	0.1	0.0506	0.0543	0.00543	0.03766
10.9	0.13	0.39	0.1	0.0507	0.05065	0.00506	0.03513
11	0.11	0.22	0.1	0.0242	0.03745	0.00374	0.02597
11.2	0.19	0.07	0.2	0.0133	0.01875	0.00375	0.02601
11.4	0.16	0.11	0.2	0.0176	0.01545	0.00309	0.02143
11.6	0.14	0.07	0.2	0.0098	0.0137	0.00274	0.019
11.7	0.21	0.07	0.1	0.0147	0.01225	0.00123	0.0085

11.8	0.13	0.32	0.1	0.0416	0.02815	0.00282	0.01952
11.9	0.14	0.29	0.1	0.0406	0.0411	0.00411	0.0285
11.95	0	0	0.05	0	0.0203	0.00101	0.00704
13.99	0	0	2.04	0	0	0	0
14.1	0.23	0.19	0.11	0.0437	0.02185	0.0024	0.01667
14.4	0.24	0.28	0.3	0.0672	0.05545	0.01664	0.11537
14.7	0.21	0.25	0.3	0.0525	0.05985	0.01795	0.12452
14.9	0.23	0.15	0.2	0.0345	0.0435	0.0087	0.06034
15.1	0.24	0.03	0.2	0.0072	0.02085	0.00417	0.02892
15.2	0.18	0.28	0.1	0.0504	0.0288	0.00288	0.01997
15.3	0.18	0.21	0.1	0.0378	0.0441	0.00441	0.03058
15.6	0.16	0.03	0.3	0.0048	0.0213	0.00639	0.04432
15.65	0	0	0.05	0	0.0024	0.00012	0.00083
16.5	0.22	0.01	0.85	0.0022	0.0011	0.00094	0.00648
16.7	0.19	0.03	0.2	0.0057	0.00395	0.00079	0.00548
16.8	0.1	0.15	0.1	0.015	0.01035	0.00104	0.00718
						0.14419	1

Channel 6

0.35	0.13	0	0	0	0	0	0
0.6	0.07	0.06	0.25	0.0042	0.0021	0.00053	0.0134
0.8	0.06	0.19	0.2	0.0114	0.0078	0.00156	0.03983
0.9	0.06	0.35	0.1	0.021	0.0162	0.00162	0.04136
1	0.09	0.23	0.1	0.0207	0.02085	0.00209	0.05323
1.1	0.08	0.31	0.1	0.0248	0.02275	0.00228	0.05808
1.2	0.06	0.39	0.1	0.0234	0.0241	0.00241	0.06153
1.3	0.07	0.28	0.1	0.0196	0.0215	0.00215	0.05489
1.4	0.07	0.26	0.1	0.0182	0.0189	0.00189	0.04825
1.5	0.07	0.29	0.1	0.0203	0.01925	0.00193	0.04914
1.6	0.05	0.28	0.1	0.014	0.01715	0.00172	0.04378
1.7	0.06	0.14	0.1	0.0084	0.0112	0.00112	0.02859
1.8	0.05	0.17	0.1	0.0085	0.00845	0.00085	0.02157
2.3	0.07	0.04	0.5	0.0028	0.00565	0.00283	0.07212
2.6	0.06	0.27	0.3	0.0162	0.0095	0.00285	0.07276
2.7	0.06	0.1	0.1	0.006	0.0111	0.00111	0.02834
2.9	0.06	0.01	0.2	0.0006	0.0033	0.00066	0.01685
3.2	0.11	0.11	0.3	0.0121	0.00635	0.00191	0.04863
3.4	0.09	0.06	0.2	0.0054	0.00875	0.00175	0.04468
3.7	0.08	0.1	0.3	0.008	0.0067	0.00201	0.05131
3.9	0.09	0.01	0.2	0.0009	0.00445	0.00089	0.02272
4.2	0.08	0.1	0.3	0.008	0.00445	0.00134	0.03408
4.5	0.09	0.01	0.3	0.0009	0.00445	0.00134	0.03408
4.8	0.07	0.01	0.3	0.0007	0.0008	0.00024	0.00613
							0
5.4	0.09	0	0.6	0	0	0	0
5.6	0.07	0.05	0.2	0.0035	0.00175	0.00035	0.00894
5.8	0.06	0.16	0.2	0.0096	0.00655	0.00131	0.03344
5.9	0	0	0.1	0	0.0048	0.00048	0.01225
						0.03917	1

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Date: August 04, 1994
Stage: 0.478 m
Discharge 0.20003 m3/s

Slipper Lake Drainage
WGS-24

Channel 1

1 Station (m)	2 Depth (m)	3 Avg Vel (m/s)	4 Width (m)	5 Col 2x3 (m2/s)	6 Second Av (m2/s)	7 Flow (m^3/s)	8 % Flow
1.6	0.3	0	0	0	0	0	0
1.8	0.37	0	0.2	0	0	0	0
2	0.4	0	0.2	0	0	0	0
2.2	0.38	0	0.2	0	0	0	0
2.4	0.39	0	0.2	0	0	0	0
2.6	0.36	0	0.2	0	0	0	0
2.8	0.34	0	0.2	0	0	0	0
3	0.37	0.01	0.2	0.0037	0.00185	0.00037	0.007026
3.2	0.32	0.01	0.2	0.0032	0.00345	0.00069	0.013103
3.4	0.38	0.05	0.2	0.019	0.0111	0.00222	0.042157
3.6	0.37	0.09	0.2	0.0333	0.02615	0.00523	0.099316
3.8	0.45	0.01	0.2	0.0045	0.0189	0.00378	0.071781
4	0.48	0.03	0.2	0.0144	0.00945	0.00189	0.035891
4.2	0.45	0.02	0.2	0.009	0.0117	0.00234	0.044436
4.4	0.32	0.11	0.2	0.0352	0.0221	0.00442	0.083935
4.6	0.22	0.23	0.2	0.0506	0.0429	0.00858	0.162932
4.8	0.2	0.26	0.2	0.052	0.0513	0.01026	0.194835
5	0.08	0.37	0.2	0.0296	0.0408	0.00816	0.154956
5.2	0.22	0.04	0.2	0.0088	0.0192	0.00384	0.072921
5.4	0.25	0	0.2	0	0.0044	0.00088	0.016711
5.6	0.02	0	0.2	0	0	0	0

Channel 2

0.9	0.2	0	0	0	0	0	0
1.1	0.2	0	0.2	0	0	0	0
1.3	0.25	0	0.2	0	0	0	0
1.5	0.21	0.03	0.2	0.0063	0.00315	0.00063	0.42
1.7	0.24	0.01	0.2	0.0024	0.00435	0.00087	0.58
						0.0015	1

Channel 3

0.5	0.12	0.15	0	0.018	0.009	0	0
0.7	0.09	0.2	0.2	0.018	0.018	0.0036	0.067644
0.9	0.1	0.33	0.2	0.033	0.0255	0.0051	0.095829
1.1	0.07	0.24	0.2	0.0168	0.0249	0.00498	0.093574
1.3	0.11	0.15	0.2	0.0165	0.01665	0.00333	0.06257
1.5	0.14	0	0.2	0	0.00825	0.00165	0.031003
1.7	0.1	0	0.2	0	0	0	0
1.9	0.11	0	0.2	0	0	0	0

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2.1	0.1	0	0.2	0	0	0	0
2.3	0.1	0.05	0.2	0.005	0.0025	0.0005	0.009395
2.5	0.14	0.24	0.2	0.0336	0.0193	0.00386	0.072529
2.7	0.14	0.28	0.2	0.0392	0.0364	0.00728	0.136791
2.9	0.2	0.34	0.2	0.068	0.0536	0.01072	0.201428
3.1	0.2	0	0.2	0	0.034	0.0068	0.127772
3.3	0.4	0	0.2	0	0	0	0
3.5	0.1	0.27	0.2	0.027	0.0135	0.0027	0.050733
3.7	0.05	0	0.2	0	0.0135	0.0027	0.050733
Channel 4						0.05322	1
0.4	0.02	0	0	0	0	0	0
3.2	0.22	0.04	2.8	0.0088	0.0044	0.01232	0.657417
3.4	0.45	0.05	0.2	0.0225	0.01565	0.00313	0.167022
3.6	0.26	0.04	0.2	0.0104	0.01645	0.00329	0.17556
						0.01874	1
Channel 5							
0.8	0.13	0.03	0	0.0039	0.00195	0	0
1	0.14	0.24	0.2	0.0336	0.01875	0.00375	0.050765
1.2	0.1	0.25	0.2	0.025	0.0293	0.00586	0.079329
1.4	0.29	0.15	0.2	0.0435	0.03425	0.00685	0.09273
1.6	0.42	0.12	0.2	0.0504	0.04695	0.00939	0.127115
1.8	0.3	0.19	0.2	0.057	0.0537	0.01074	0.145391
2	0.31	0.24	0.2	0.0744	0.0657	0.01314	0.17788
2.2	0.32	0.11	0.2	0.0352	0.0548	0.01096	0.148369
2.4	0.35	0.03	0.2	0.0105	0.02285	0.00457	0.061865
2.6	0.44	0.02	0.2	0.0088	0.00965	0.00193	0.026127
2.8	0.74	0.01	0.2	0.0074	0.0081	0.00162	0.02193
3	0.24	0.03	0.2	0.0072	0.0073	0.00146	0.019764
3.2	0	0	0.2	0	0.0036	0.00072	0.009747
3.4	0.06	0.48	0.2	0.0288	0.0144	0.00288	0.038987
						0.07387	1
Channel 6							
0.6	0.02	0.02	0	0.0004	0.0002	0	0
0.5	0.02	0.02	0.1	0.0004	0.0004	0.00004	1
						0.00004	1

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Date: August 30, 1994
Stage: 0.432 m
Dischar 0.1778 m3/s

Slipper Lake Drainage
WGS-24

Channel 1

1	2	3	4	5	6	7	8
Station (m)	Depth (m)	Avg Vel (m/s)	Width (m)	Col 2x3 (m2/s)	Second (m2/s)	Flow (m^3/s)	% Flow
1.3	0	0	0	0	0	0	0
1.6	0.06	0	0.3	0	0	0	0
1.9	0.05	0.01	0.3	0.0005	0.0003	8E-05	0.0018
2.1	0	0	0.2	0	0.0003	5E-05	0.0012
2.5	0	0	0.4	0	0	0	0
2.6	0.03	0.09	0.1	0.0027	0.0014	0.0001	0.0033
2.8	0.03	0.19	0.2	0.0057	0.0042	0.0008	0.0205
3	0.08	0.26	0.2	0.0208	0.0133	0.0027	0.0648
3.2	0.1	0.15	0.2	0.015	0.0179	0.0036	0.0876
3.4	0.11	0.4	0.2	0.044	0.0295	0.0059	0.1443
3.6	0.08	0.21	0.2	0.0168	0.0304	0.0061	0.1487
3.8	0.1	0.29	0.2	0.029	0.0229	0.0046	0.112
4	0.1	0.3	0.2	0.03	0.0295	0.0059	0.1443
4.2	0.09	0.11	0.2	0.0099	0.02	0.004	0.0976
4.4	0.1	0.07	0.2	0.007	0.0085	0.0017	0.0413
4.6	0.13	0.02	0.2	0.0026	0.0048	0.001	0.0235
4.8	0.08	0.3	0.2	0.024	0.0133	0.0027	0.0651
4.95	0	0	0.15	0	0.012	0.0018	0.044
						0.0409	1

Channel 2

1.8	0	0	0	0	0	0	0
2	0.11	0	0.2	0	0	0	0
2.2	0.05	0.08	0.2	0.004	0.002	0.0004	0.1307
2.4	0.15	0.01	0.2	0.0015	0.0028	0.0005	0.1797
2.6	0.11	0.01	0.2	0.0011	0.0013	0.0003	0.085
2.8	0.06	0.07	0.2	0.0042	0.0027	0.0005	0.1732
3	0.1	0.09	0.2	0.009	0.0066	0.0013	0.4314
						0.0031	1

Channel 3

1.2	0.18	0.04	0	0.0072	0.0036	0	0
1.4	0.14	0.2	0.2	0.028	0.0176	0.0035	0.1322
1.6	0.1	0.09	0.2	0.009	0.0185	0.0037	0.139
1.8	0.13	0.05	0.2	0.0065	0.0078	0.0016	0.0582
2	0.15	0.01	0.2	0.0015	0.004	0.0008	0.0301
2.2	0.12	0.03	0.2	0.0036	0.0026	0.0005	0.0192
2.4	0.15	0.01	0.2	0.0015	0.0026	0.0005	0.0192
2.6	0.15	0.01	0.2	0.0015	0.0015	0.0003	0.0113
2.8	0.15	0.02	0.2	0.003	0.0023	0.0004	0.0169
3	0.13	0.03	0.2	0.0039	0.0035	0.0007	0.0259
3.2	0.21	0.06	0.2	0.0126	0.0083	0.0017	0.062
3.4	0.08	0.31	0.2	0.0248	0.0187	0.0037	0.1405
3.6	0.1	0.2	0.2	0.02	0.0224	0.0045	0.1683
3.8	0.26	0.01	0.2	0.0026	0.0113	0.0023	0.0849
4	0.4	0.01	0.2	0.004	0.0033	0.0007	0.0248
4.2	0.1	0.07	0.2	0.007	0.0055	0.0011	0.0413
4.4	0.1	0	0.2	0	0.0035	0.0007	0.0263
4.6	0	0	0.2	0	0	0	0
4.8	0	0	0.2	0	0	0	0
5	0	0	0.2	0	0	0	0
						0.0266	1

Channel 4

2.5	0.02	0	0	0	0	0	0
2.7	0.06	0	0.2	0	0	0	0
2.9	0.15	0	0.2	0	0	0	0
3.1	0.21	0	0.2	0	0	0	0
3.3	0.19	0	0.2	0	0	0	0
3.5	0.18	0	0.2	0	0	0	0
3.7	0.2	0.06	0.2	0.012	0.006	0.0012	0.0455
3.9	0.23	0.16	0.2	0.0368	0.0244	0.0049	0.1852
4.1	0.28	0.04	0.2	0.0112	0.024	0.0048	0.1821
4.3	0.31	0.02	0.2	0.0062	0.0087	0.0017	0.066
4.5	0.16	0.11	0.2	0.0176	0.0119	0.0024	0.0903
4.7	0.39	0.02	0.2	0.0078	0.0127	0.0025	0.0964
4.9	0.15	0.11	0.2	0.0165	0.0122	0.0024	0.0922
5.1	0.05	0.01	0.2	0.0005	0.0085	0.0017	0.0645
5.3	0.22	0.07	0.2	0.0154	0.008	0.0016	0.0603
5.5	0.18	0.03	0.2	0.0054	0.0104	0.0021	0.0789
5.7	0.21	0.01	0.2	0.0021	0.0038	0.0008	0.0285
5.95	0.25	0	0.25	0	0.0011	0.0003	0.01
						0.0264	1

Channel 5

1.1	0.35	0.02	0	0.007	0.0035	0	0
1.3	0.48	0.06	0.2	0.0288	0.0179	0.0036	0.0684
1.5	0.46	0.06	0.2	0.0276	0.0282	0.0056	0.1078
1.7	0.67	0.05	0.2	0.0335	0.0306	0.0061	0.1167
1.9	0.62	0.06	0.2	0.0372	0.0354	0.0071	0.1351
2.1	0.72	0.07	0.2	0.0504	0.0438	0.0088	0.1674
2.3	0.51	0.08	0.2	0.0408	0.0456	0.0091	0.1742
2.5	0.3	0.02	0.2	0.006	0.0234	0.0047	0.0894
2.7	0.51	0.03	0.2	0.0153	0.0107	0.0021	0.0407
2.9	0.49	0.01	0.2	0.0049	0.0101	0.002	0.0386
3.1	0.22	0.06	0.2	0.0132	0.0091	0.0018	0.0346
3.3	0.05	0.01	0.2	0.0005	0.0069	0.0014	0.0262
3.5	0.2	0	0.2	0	0.0003	5E-05	0.001
3.7	0.1	0	0.2	0	0	0	0
3.9	0	0	0.2	0	0	0	0
						0.0523	1

Channel 6

6.3	0.21	0.02	0	0.0042	0.0021	0	0
6.5	0.18	0.1	0.2	0.018	0.0111	0.0022	0.1048
6.7	0.18	0.1	0.2	0.018	0.018	0.0036	0.17
6.9	0.15	0.12	0.2	0.018	0.018	0.0036	0.17
7.1	0.19	0.17	0.2	0.0323	0.0252	0.005	0.2375
7.3	0.05	0.2	0.2	0.01	0.0212	0.0042	0.1997
7.8	0.1	0	0.5	0	0.005	0.0025	0.118
						0.0212	1

Channel 7

1.9	0.04	0	0	0	0	0	0
2.1	0.07	0.03	0.2	0.0021	0.0011	0.0002	0.0286
2.3	0.08	0.1	0.2	0.008	0.0051	0.001	0.1378
2.5	0.08	0.12	0.2	0.0096	0.0088	0.0018	0.2401
2.7	0.07	0.18	0.2	0.0126	0.0111	0.0022	0.3029
2.9	0.06	0.06	0.2	0.0036	0.0081	0.0016	0.221
3.1	0.05	0.02	0.2	0.001	0.0023	0.0005	0.0628
3.2	0	0	0.1	0	0.0005	5E-05	0.0068
						0.0073	1

Daily Discharge
Slipper Creek and Long Lake

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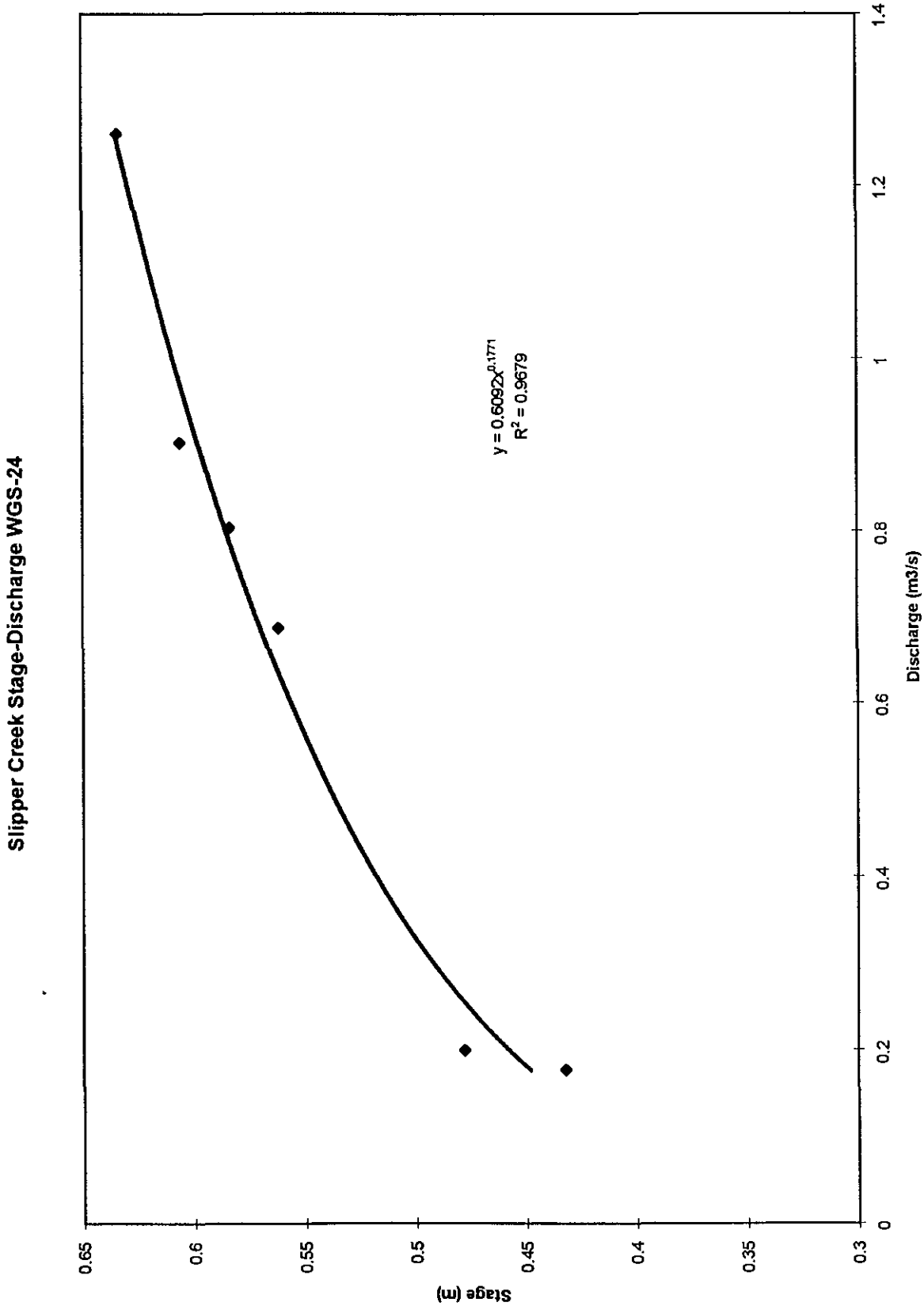
Slipper Creek Daily Discharge
WGS-24

Date	Julian Days	Staff Gauge (m)	Elevation (m)	Daily Discharge (m3)
12-Jul	193	0.612	423.590	88666
13-Jul	194	0.60028	423.578	79495
14-Jul	195	0.59102	423.569	72815
15-Jul	196	0.5786	423.557	64586
16-Jul	197	0.57608	423.554	63013
17-Jul	198	0.5775	423.556	63895
18-Jul	199	0.56925	423.547	58909
19-Jul	200	0.55889	423.537	53106
20-Jul	201	0.56049	423.538	53970
21-Jul	202	0.56196	423.540	54774
22-Jul	203	0.55302	423.531	50032
23-Jul	204	0.52951	423.508	39149
24-Jul	205	0.53134	423.509	39919
25-Jul	206	0.53088	423.509	39724
26-Jul	207	0.53111	423.509	39822
27-Jul	208	0.52309	423.501	36543
28-Jul	209	0.51002	423.488	31678
29-Jul	210	0.50278	423.481	29221
30-Jul	211	0.49164	423.470	25748
31-Jul	212	0.48857	423.467	24854
01-Aug	213	0.48816	423.466	24736
02-Aug	214	0.48266	423.461	23203
03-Aug	215	0.47271	423.451	20628
04-Aug	216	0.47441	423.452	21051
05-Aug	217	0.47528	423.453	21270
06-Aug	218	0.46162	423.440	18040
07-Aug	219	0.4558	423.434	16793
08-Aug	220	0.45433	423.432	16490
09-Aug	221	0.45085	423.429	15789
10-Aug	222	0.45089	423.429	15797
11-Aug	223	0.45401	423.432	16424
12-Aug	224	0.44645	423.424	14938
13-Aug	225	0.44218	423.420	14149
14-Aug	226	0.44443	423.422	14561
15-Aug	227	0.43659	423.415	13169
16-Aug	228	0.43563	423.414	13006
17-Aug	229	0.44773	423.426	15182
18-Aug	230	0.46487	423.443	18769
19-Aug	231	0.46662	423.445	19172
20-Aug	232	0.44063	423.419	13872
21-Aug	233	0.43164	423.410	12347
22-Aug	234	0.43902	423.417	13588

23-Aug	235	0.44544	423.423	14749
24-Aug	236	0.46827	423.446	19558
25-Aug	237	0.44163	423.420	14050
26-Aug	238	0.43072	423.409	12200
27-Aug	239	0.43068	423.409	12193
28-Aug	240	0.42852	423.407	11852
29-Aug	241	0.42898	423.407	11924
30-Aug	242	0.42849	423.406	11847
31-Aug	243	0.42756	423.406	11703
01-Sep	244	0.42421	423.402	11194
02-Sep	245	0.4233	423.401	11059
03-Sep	246	0.42518	423.403	11340
04-Sep	247	0.42499	423.403	11311
05-Sep	248	0.43228	423.410	12451
06-Sep	249	0.43077	423.409	12208
07-Sep	250	0.42518	423.403	11340
08-Sep	251	0.42192	423.400	10857
09-Sep	252	0.42765	423.406	11717
10-Sep	253	0.4315	423.410	12325
11-Sep	254	0.42078	423.399	10693
12-Sep	255	0.41046	423.388	9294
13-Sep	256	0.41097	423.389	9359
14-Sep	257	0.41858	423.397	10381
15-Sep	258	0.41051	423.389	9300
16-Sep	259	0.42389	423.402	11147
17-Sep	260	0.42504	423.403	11319
18-Sep	261	0.4354	423.413	12967
19-Sep	262	0.42554	423.404	11394
20-Sep	263	0.45085	423.429	15789
21-Sep	264	0.44356	423.422	14401
22-Sep	265	0.45658	423.435	16956
23-Sep	266	0.45855	423.437	17373
24-Sep	267	0.45818	423.436	17294
25-Sep	268	0.46561	423.444	18939
26-Sep	269	0.47858	423.457	22117
27-Sep	270	0.47592	423.454	21432
28-Sep	271	0.48802	423.466	24696
29-Sep	272	0.49421	423.472	26518
30-Sep	273	0.49394	423.472	26436
01-Oct	274	0.49664	423.475	27262
02-Oct	275	0.49783	423.476	27633
03-Oct	276	0.48541	423.463	23959
04-Oct	277	0.50938	423.487	31454
05-Oct	278	0.52272	423.501	36398
06-Oct	279	0.51488	423.493	33421
07-Oct	280	0.518	423.496	34580
08-Oct	281	0.52601	423.504	37710
				2188995


Slipper Creek Stage-Discharge WGS-24
y = 0.6092x^0.1771
R² = 0.9679
Stage (m)
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0
0.2
0.4
0.6
0.8
1
1.2
1.4
Discharge (m3/s)

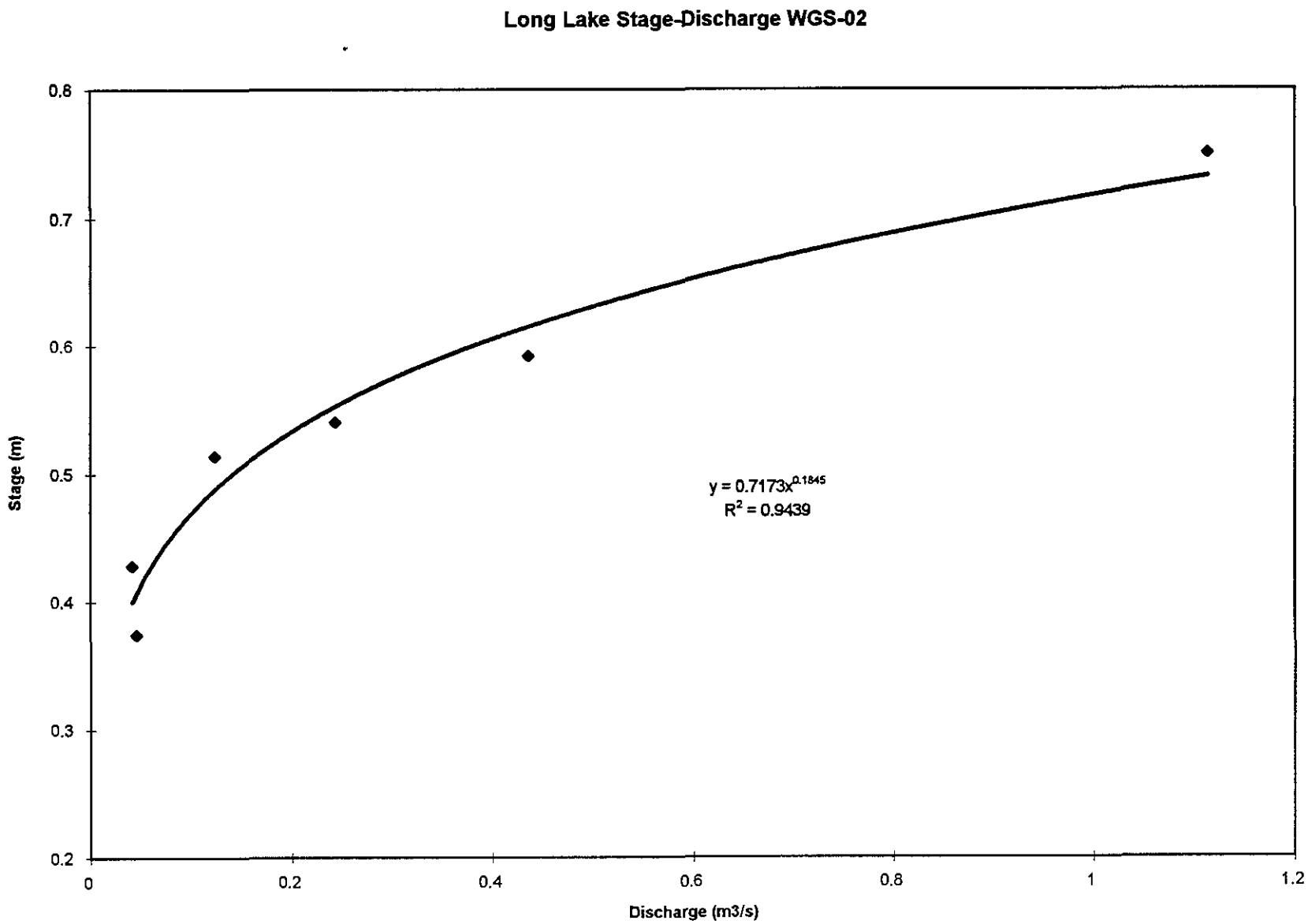
Long Lake Discharge
Calculated from staff gauge levels
Staff gauge levels estimated from lake level (WGL-01)
daily averages Equation: y = 0.7173*x^0.1845

Date	Julian Days	Stage Calculate Level (m)	Calculate Discharge (m3/s)	Elevation (m)	Calculated Daily Discharge (m3)
12-Jun	163	0.7266	1.07248	448.526	92662
13-Jun	164	0.7200	1.02057	448.519	88177
14-Jun	165	0.7143	0.97761	448.513	84466
15-Jun	166	0.7080	0.93164	448.507	80494
16-Jun	167	0.7040	0.90388	448.503	78095
17-Jun	168	0.7000	0.87585	448.499	75674
18-Jun	169	0.6952	0.84425	448.494	72943
19-Jun	170	0.6951	0.84366	448.494	72892
20-Jun	171	0.6971	0.8567	448.496	74019
21-Jun	172	0.6956	0.84669	448.495	73154
22-Jun	173	0.6935	0.83286	448.493	71959
23-Jun	174	0.6939	0.83553	448.493	72190
24-Jun	175	0.6919	0.82276	448.491	71086
25-Jun	176	0.6841	0.77379	448.483	66855
26-Jun	177	0.6814	0.75738	448.480	65437
27-Jun	178	0.6832	0.76816	448.482	66369
28-Jun	179	0.6788	0.74173	448.478	64085
29-Jun	180	0.6717	0.70064	448.471	60535
30-Jun	181	0.6675	0.67711	448.467	58503
01-Jul	182	0.6625	0.65013	448.462	56171
02-Jul	183	0.6563	0.61788	448.455	53385
03-Jul	184	0.6499	0.58557	448.449	50594
04-Jul	185	0.6437	0.55602	448.443	48040
05-Jul	186	0.6383	0.53116	448.437	45892
06-Jul	187	0.6301	0.49555	448.429	42815
07-Jul	188	0.6205	0.4557	448.419	39373
08-Jul	189	0.6128	0.42607	448.412	36812
09-Jul	190	0.6086	0.41022	448.408	35443
10-Jul	191	0.6056	0.39945	448.405	34513
11-Jul	192	0.6022	0.38748	448.401	33479
12-Jul	193	0.6004	0.38114	448.399	32931
13-Jul	194	0.5952	0.36379	448.394	31431
14-Jul	195	0.5890	0.34362	448.388	29689
15-Jul	196	0.5826	0.32396	448.382	27990
16-Jul	197	0.5743	0.2996	448.373	25886
17-Jul	198	0.5691	0.28525	448.368	24645
18-Jul	199	0.5675	0.2809	448.366	24270
19-Jul	200	0.5602	0.26189	448.359	22627
20-Jul	201	0.5507	0.23872	448.350	20626

21-Jul	202	0.5514	0.24026	448.350	20758
22-Jul	203	0.5519	0.24156	448.351	20871
23-Jul	204	0.5462	0.22836	448.345	19731
24-Jul	205	0.5321	0.19806	448.331	17113
25-Jul	206	0.5288	0.19149	448.328	16545
26-Jul	207	0.5269	0.18793	448.326	16237
27-Jul	208	0.5262	0.18643	448.325	16107
28-Jul	209	0.5220	0.17854	448.321	15426
29-Jul	210	0.5145	0.16521	448.314	14274
30-Jul	211	0.5084	0.15472	448.307	13368
31-Jul	212	0.5015	0.14378	448.301	12423
01-Aug	213	0.4975	0.13769	448.297	11896
02-Aug	214	0.4959	0.13523	448.295	11684
03-Aug	215	0.4904	0.1273	448.289	10999
04-Aug	216	0.4828	0.11702	448.282	10110
05-Aug	217	0.4825	0.11655	448.281	10070
06-Aug	218	0.4808	0.11434	448.280	9879
07-Aug	219	0.4721	0.10366	448.271	8956
08-Aug	220	0.4685	0.09937	448.267	8585
09-Aug	221	0.4660	0.09656	448.265	8343
10-Aug	222	0.4623	0.09251	448.261	7993
11-Aug	223	0.4619	0.09206	448.261	7954
12-Aug	224	0.4633	0.09361	448.262	8088
13-Aug	225	0.4583	0.08826	448.257	7626
14-Aug	226	0.4543	0.08409	448.253	7265
15-Aug	227	0.4539	0.08377	448.253	7237
16-Aug	228	0.4497	0.07963	448.249	6880
17-Aug	229	0.4469	0.07694	448.246	6648
18-Aug	230	0.4530	0.08285	448.252	7158
19-Aug	231	0.4627	0.09291	448.262	8027
20-Aug	232	0.4637	0.094	448.263	8122
21-Aug	233	0.4517	0.0815	448.251	7042
22-Aug	234	0.4420	0.07248	448.241	6262
23-Aug	235	0.4487	0.07867	448.248	6797
24-Aug	236	0.4533	0.08313	448.252	7182
25-Aug	237	0.4621	0.09226	448.261	7971
26-Aug	238	0.4492	0.07915	448.248	6839
27-Aug	239	0.4429	0.07334	448.242	6336
28-Aug	240	0.4422	0.07264	448.241	6276
29-Aug	241	0.4391	0.06995	448.238	6044
30-Aug	242	0.4380	0.06904	448.237	5965
31-Aug	243	0.4366	0.06783	448.236	5861
01-Sep	244	0.4353	0.06676	448.234	5768
02-Sep	245	0.4329	0.06477	448.232	5596
03-Sep	246	0.4317	0.06377	448.231	5510
04-Sep	247	0.4320	0.06399	448.231	5529
05-Sep	248	0.4308	0.06304	448.230	5447
06-Sep	249	0.4321	0.06414	448.231	5542

07-Sep	250	0.4291	0.06175	448.228	5335
08-Sep	251	0.4244	0.05818	448.223	5027
09-Sep	252	0.4196	0.05466	448.219	4723
10-Sep	253	0.4225	0.0568	448.222	4908
11-Sep	254	0.4192	0.0544	448.218	4700
12-Sep	255	0.4108	0.04876	448.210	4213
13-Sep	256	0.4041	0.0446	448.203	3854
14-Sep	257	0.4029	0.04387	448.202	3791
15-Sep	258	0.4055	0.04541	448.204	3923
16-Sep	259	0.3986	0.04141	448.198	3578
17-Sep	260	0.4055	0.04546	448.205	3928
18-Sep	261	0.4041	0.0446	448.203	3854
19-Sep	262	0.4077	0.04679	448.207	4042
20-Sep	263	0.3979	0.041	448.197	3543
21-Sep	264	0.4082	0.0471	448.207	4069
22-Sep	265	0.4048	0.04499	448.204	3888
23-Sep	266	0.4160	0.05219	448.215	4509
24-Sep	267	0.4163	0.05241	448.215	4528
25-Sep	268	0.4145	0.0512	448.214	4423
26-Sep	269	0.4215	0.05607	448.221	4844
27-Sep	270	0.4237	0.05767	448.223	4983
28-Sep	271	0.4216	0.0561	448.221	4847
29-Sep	272	0.4275	0.06054	448.227	5231
30-Sep	273	0.4315	0.06363	448.230	5497
01-Oct	274	0.4356	0.06696	448.235	5785
02-Oct	275	0.4376	0.06866	448.237	5932
03-Oct	276	0.4378	0.06885	448.237	5949
04-Oct	277	0.4336	0.06536	448.233	5647
05-Oct	278	0.4454	0.07558	448.244	6530
06-Oct	279	0.4518	0.08168	448.251	7057
07-Oct	280	0.4492	0.07915	448.248	6839
08-Oct	281	0.4503	0.08016	448.249	6926

2725451


Long Lake Stage-Discharge WGS-02
Stage (m)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0
0.2
0.4
0.6
0.8
1
1.2
Discharge (m3/s)
y = 0.7173x^0.1845
R^2 = 0.9439

Mean Monthly Discharge

Coppermine River at Point Lake
and
Indin River above Chalco Station

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Coppermine River at Point Lake
Mean Monthly Discharge (m3/s)

	1965	1966	1967	1968	1969	1970	1971	1972
Jan	0.00	62.36	1.87	74.33	70.66	93.89	81.94	82.16
Feb	0.00	51.88	4.94	65.69	49.31	63.98	63.94	62.42
Mar	0.00	44.01	40.99	56.74	43.69	47.40	53.18	45.80
Apr	0.00	39.96	34.78	45.16	39.33	46.11	45.99	0.00
May	0.00	51.20	34.34	38.66	41.07	40.50	58.83	0.00
Jun	0.00	197.00	95.50	94.50	75.80	102.98	194.40	0.00
Jul	182.45	250.26	236.55	223.90	165.90	178.84	232.84	218.19
Aug	252.35	214.94	262.13	206.68	206.42	173.48	186.48	224.55
Sep	187.57	168.10	219.60	169.00	227.13	167.77	156.30	175.53
Oct	131.68	45.13	203.13	150.84	202.77	154.42	150.77	132.42
Nov	95.11	0.00	177.63	140.30	160.57	124.77	122.87	101.36
Dec	74.48	0.00	105.84	108.97	124.65	101.35	111.05	75.53
Mean	76.97	lost dat	118.11	114.56	117.28	107.96	121.55	Lost dat

	1973	1974	1975	1976	1977	1978	1979	1980
Jan	57.74	64.90	72.28	54.36	46.73	54.47	51.10	50.10
Feb	46.64	51.71	57.46	44.25	40.01	45.45	42.65	39.07
Mar	40.65	43.86	46.46	35.13	35.30	36.77	34.95	33.13
Apr	35.85	38.65	37.82	30.37	32.05	30.29	32.56	32.56
May	50.48	44.46	57.20	41.01	42.39	30.58	38.74	51.16
Jun	144.57	102.46	185.49	107.85	165.55	65.29	109.65	101.38
Jul	180.65	173.61	254.68	169.13	210.68	137.22	199.48	117.65
Aug	161.13	186.00	197.16	150.00	172.32	161.87	184.39	102.15
Sep	154.40	166.27	140.97	105.50	129.33	137.00	133.30	80.25
Oct	129.77	130.87	107.05	79.15	98.11	107.30	93.88	65.90
Nov	105.57	106.32	85.56	65.12	78.72	86.43	75.91	56.89
Dec	84.33	87.73	69.44	55.39	65.34	65.59	63.70	46.28
Mean	99.32	99.74	109.30	78.10	93.04	79.86	88.36	64.71

	1981	1982	1983	1984	1985	1986	1987	1988
Jan	35.86	50.48	51.49	87.49	71.42	77.17	67.31	71.24
Feb	29.84	38.08	41.65	73.08	56.30	61.71	55.49	53.88
Mar	25.67	31.01	34.15	61.62	48.86	51.17	47.21	43.25
Apr	23.22	28.49	31.14	49.75	41.26	44.00	41.28	38.10
May	29.68	31.83	28.30	44.07	52.15	45.74	39.71	35.93
Jun	90.88	116.45	78.66	207.06	161.43	186.84	120.61	148.14
Jul	159.74	209.55	213.81	475.90	254.48	340.19	236.32	319.16
Aug	158.77	193.35	256.32	321.06	271.71	252.39	199.68	242.32
Sep	130.43	149.67	225.03	240.70	211.57	185.87	156.07	174.13
Oct	110.97	116.29	190.94	177.42	174.13	142.77	130.10	136.77
Nov	86.86	89.33	156.07	132.00	138.97	106.23	108.76	110.14
Dec	67.16	66.52	118.75	101.68	102.62	83.70	89.05	89.05
Mean	79.09	93.42	118.86	164.32	132.07	131.48	107.63	121.84

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	1989	1990	1991	1992	1993
Jan	71.35	61.05	59.40	61.63	52.65
Feb	59.02	48.50	49.57	48.95	43.44
Mar	48.96	39.85	42.19	42.07	37.86
Apr	42.19	35.42	37.83	37.91	34.43
May	40.61	33.81	48.72	38.26	33.44
Jun	109.18	79.55	135.43	134.17	110.85
Jul	192.81	177.90	206.65	275.42	341.16
Aug	177.42	179.03	193.16	210.68	365.23
Sep	136.90	153.27	160.80	146.27	218.30
Oct	112.23	124.52	132.81	104.12	141.39
Nov	90.12	99.18	104.07	82.34	99.67
Dec	73.84	77.26	79.08	67.12	75.08
Mean	96.22	92.44	104.14	104.08	129.46

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Indin River above Chalco Station no: 07SA004
Monthly Mean Discharges (m3/s)

	1977	1978	1979	1980	1981	1982	1983	1984
Jan	0.00	1.08	1.33	1.06	1.10	2.22	1.76	3.22
Feb	0.00	0.76	1.03	0.80	0.83	1.25	1.30	2.05
Mar	0.00	0.49	0.80	0.59	0.66	0.75	0.84	1.34
Apr	0.00	0.35	0.62	0.47	0.63	0.53	0.43	1.09
May	0.00	1.15	6.75	8.81	1.89	2.94	0.39	12.81
Jun	0.00	14.26	34.91	16.32	8.66	25.80	17.61	56.74
Jul	0.00	14.45	14.95	7.92	15.62	15.42	21.71	33.12
Aug	0.54	6.54	5.57	3.31	7.54	7.65	12.28	15.55
Sep	2.57	3.44	3.17	1.98	3.72	4.79	9.41	9.82
Oct	2.32	3.12	2.41	2.21	3.53	3.70	9.62	7.87
Nov	2.12	2.67	1.99	2.33	3.91	3.18	8.76	4.77
Dec	1.51	1.88	1.42	1.71	3.77	2.33	5.62	2.64
	2.27	4.18	6.24	3.96	4.32	5.88	7.48	12.58

	1985	1986	1987	1988	1989	1990	1991	1992	1993
Jan	1.77	2.12	1.90	2.74	2.64	3.12	1.08	1.42	1.60
Feb	1.42	1.54	1.40	2.29	1.99	2.15	0.89	1.15	1.22
Mar	1.15	1.12	1.26	1.35	1.34	1.43	0.59	0.91	1.02
Apr	0.98	0.77	0.77	1.01	1.04	1.07	0.46	0.72	0.82
May	15.98	6.21	2.35	0.86	2.89	1.86	16.26	1.86	1.59
Jun	37.91	55.66	41.14	31.35	23.75	41.69	59.10	34.96	44.98
Jul	18.63	21.34	20.49	24.88	18.21	22.15	21.09	20.79	32.97
Aug	14.20	9.36	7.53	14.18	13.75	8.00	5.58	7.03	19.85
Sep	8.85	6.37	4.88	10.56	8.59	5.69	3.15	3.57	9.66
Oct	6.34	5.03	5.26	10.13	10.35	5.01	3.35	2.73	6.32
Nov	4.68	4.81	5.70	8.71	10.62	4.54	2.91	2.54	5.58
Dec	3.46	3.26	3.51	5.35	8.74	2.98	2.60	2.30	6.03
	9.61	9.80	8.02	9.45	8.66	8.31	9.75	6.67	10.97

Flood Frequency Analysis

Indin River at mouth of Chalco Lake
and
Coppermine River at Outlet of Point Lake

(Program Source B C Ministry of Environment, Lands and Parks)

British Columbia Ministry of Environment, Lands and Parks Flood Frequence Analysis Program

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Indin River at mouth of Chalco Lake
Maximum discharge from 1978 to 1993
WSC Station: 07SA004

W Frequency Analysis July 14, 1995 Page 1

Analysis type	Flood
Sample Size	16
Maximum	74.700
Minimum	17.700
Range	57.000
Median	48.700
Mean	46.631
Variance	369.94
Standard Deviation	19.234
Coeff. of Variation	0.41247
Coeff. of Skew	-0.20611E-01

Data to analyze:

1978	20.2
1979	43.8
1980	17.7
1981	18.8
1982	33.1
1983	36.2
1984	74
1985	49.3
1986	68
1987	51.2
1988	50.1
1989	32.8
1990	56.8
1991	74.7
1992	48.1
1993	71.3

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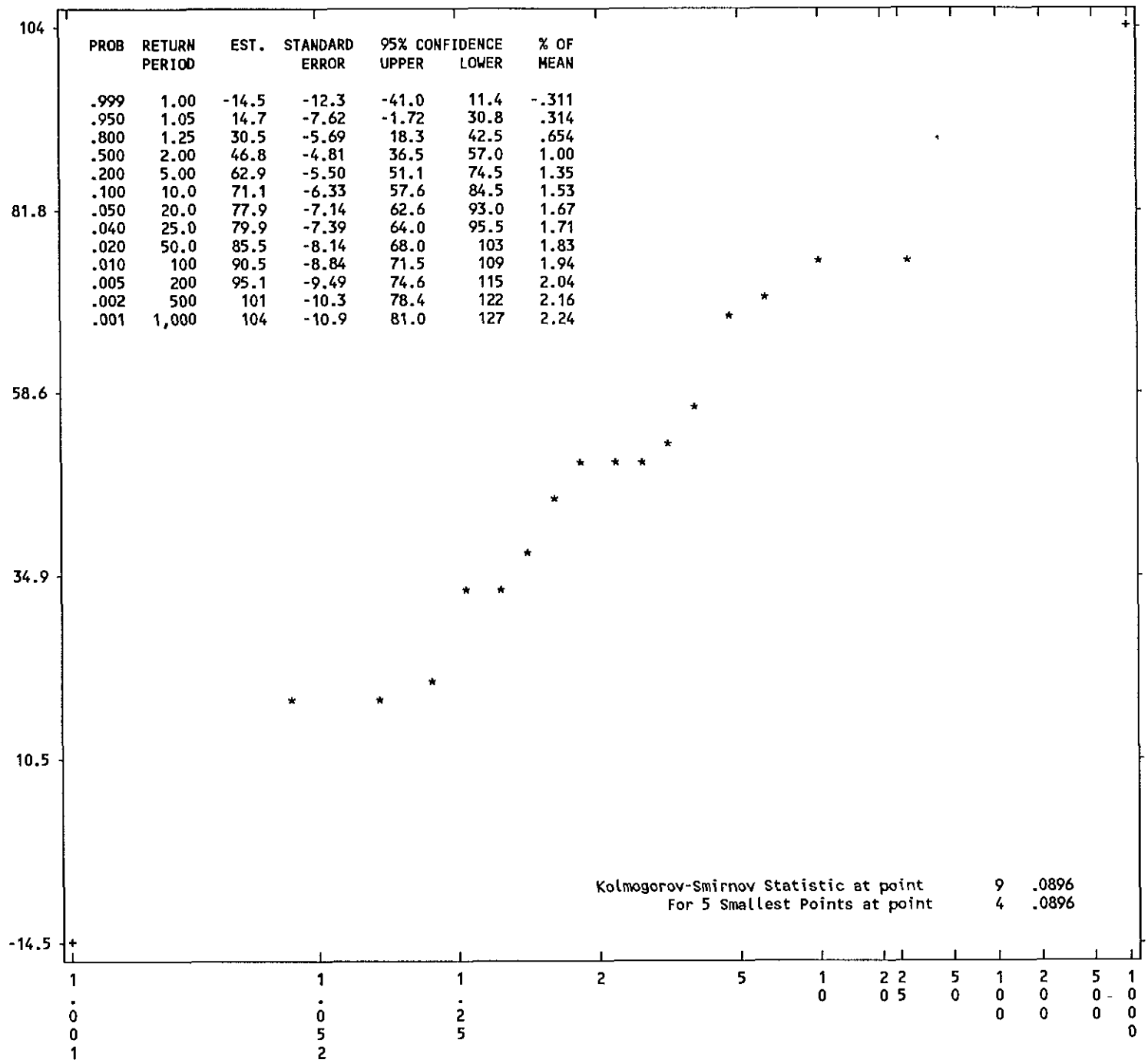
Indin River at mouth of Chalco Lake
Maximum discharge from 1978 to 1993
THREE PARAMETER LOG-NORMAL distribution

Upper bound by Moments	2846.22
Upper bound by Maximum Likelihood	1013.51
Log Statistics: Mean	6.8739
Standard Dev.	0.19895E-01
Skew Coef.	-0.78858E-02

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	-14.5	-12.3	-41.0	11.4	-.311
.950	1.05	14.7	-7.62	-1.72	30.8	.314
.800	1.25	30.5	-5.69	18.3	42.5	.654
.500	2.00	46.8	-4.81	36.5	57.0	1.00
.200	5.00	62.9	-5.50	51.1	74.5	1.35
.100	10.0	71.1	-6.33	57.6	84.5	1.53
.050	20.0	77.9	-7.14	62.6	93.0	1.67
.040	25.0	79.9	-7.39	64.0	95.5	1.71
.020	50.0	85.5	-8.14	68.0	103	1.83
.010	100	90.5	-8.84	71.5	109	1.94
.005	200	95.1	-9.49	74.6	115	2.04
.002	500	101	-10.3	78.4	122	2.16
.001	1,000	104	-10.9	81.0	127	2.24



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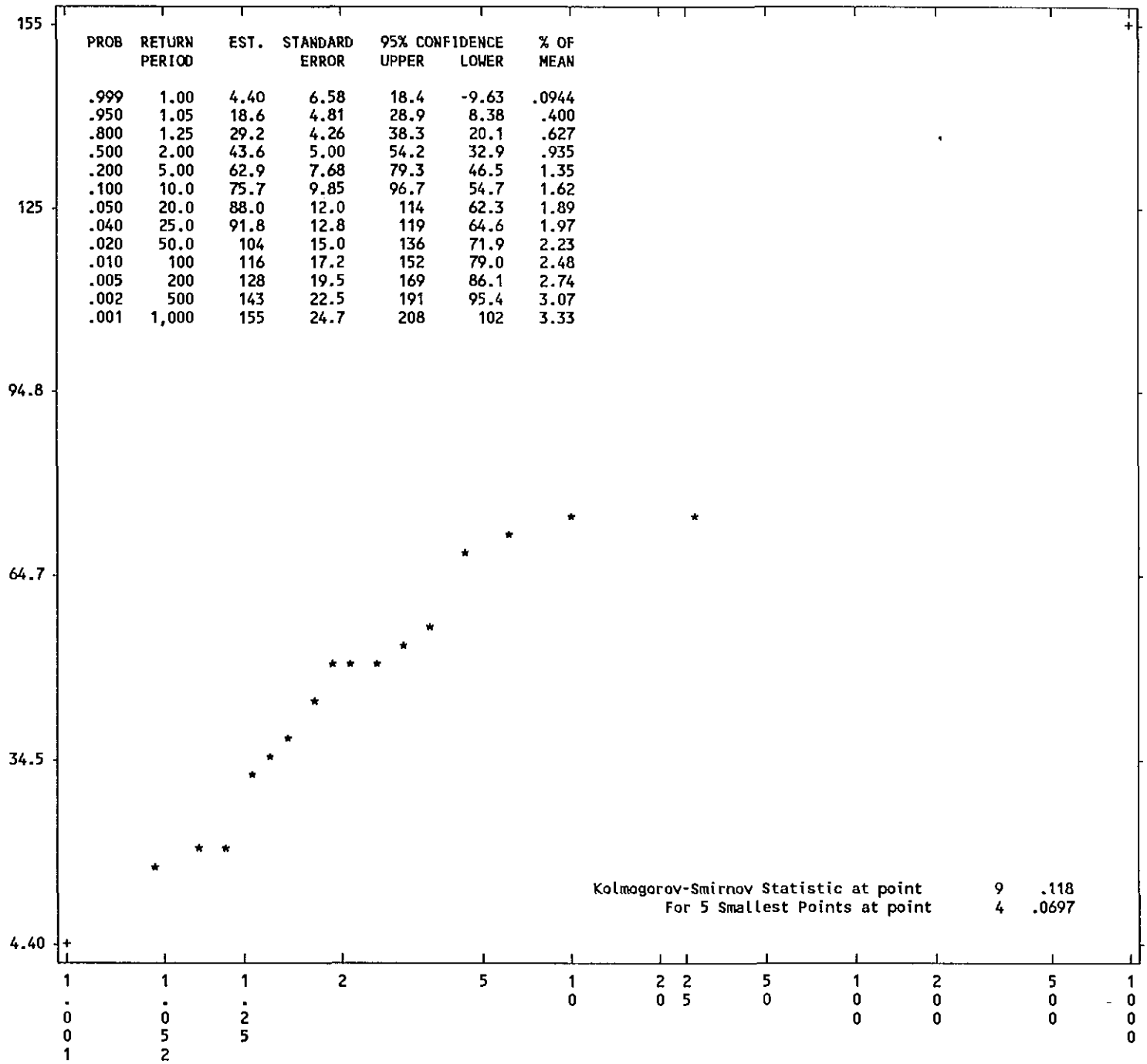
Indin River at mouth of Chalco Lake
Maximum discharge from 1978 to 1993
GUMBEL distribution - method of maximum likelihood

Scale and location parameters estimated by the method of moments
a = 0.666820E-01
u = 37.9750

Scale and location parameters estimated by the method of maximum likelihood
a = 0.586768E-01
u = 37.3378

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	4.40	6.58	18.4	-9.63	.0944
.950	1.05	18.6	4.81	28.9	8.38	.400
.800	1.25	29.2	4.26	38.3	20.1	.627
.500	2.00	43.6	5.00	54.2	32.9	.935
.200	5.00	62.9	7.68	79.3	46.5	1.35
.100	10.0	75.7	9.85	96.7	54.7	1.62
.050	20.0	88.0	12.0	114	62.3	1.89
.040	25.0	91.8	12.8	119	64.6	1.97
.020	50.0	104	15.0	136	71.9	2.23
.010	100	116	17.2	152	79.0	2.48
.005	200	128	19.5	169	86.1	2.74
.002	500	143	22.5	191	95.4	3.07
.001	1,000	155	24.7	208	102	3.33



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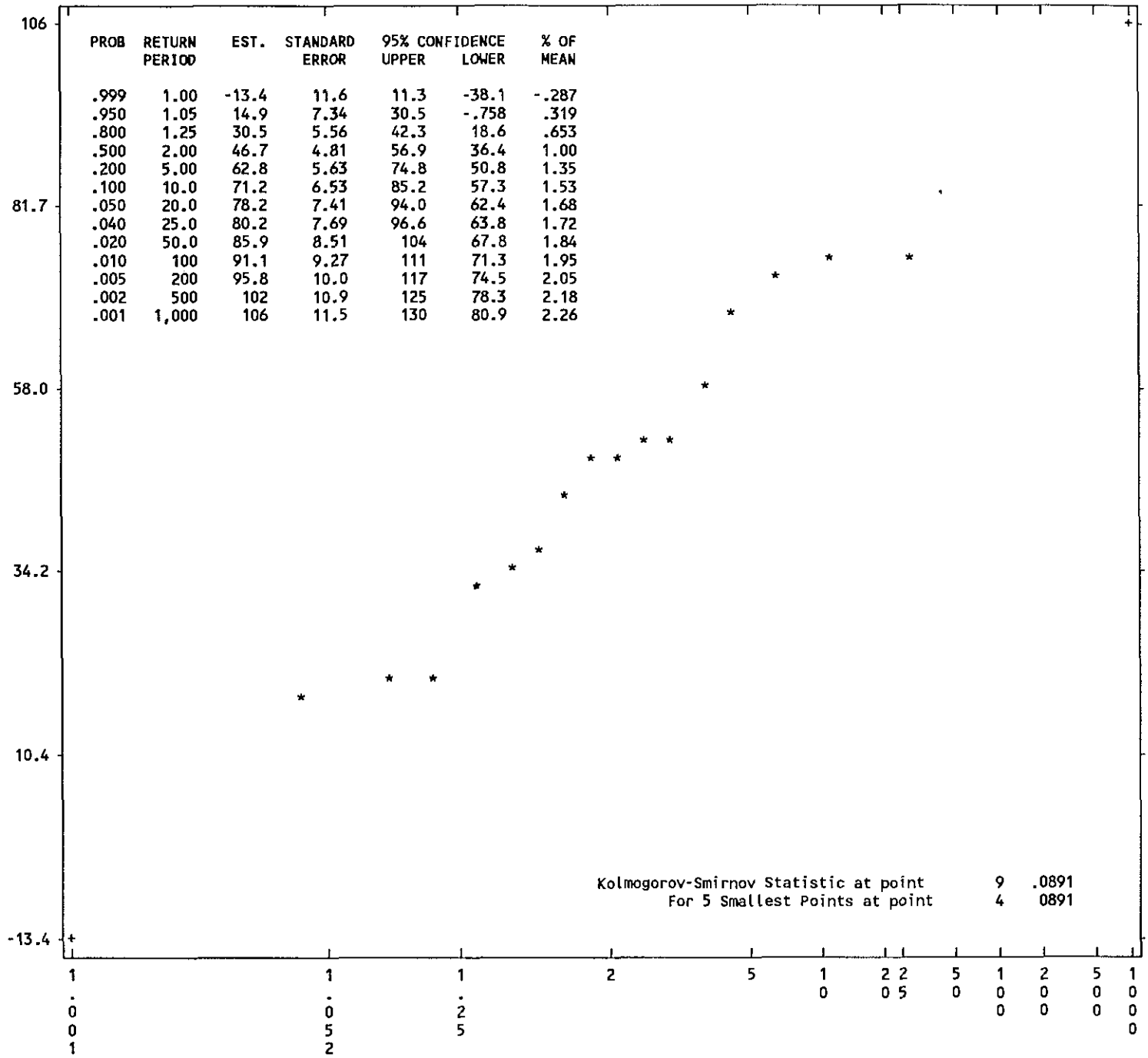
Indin River at mouth of Chalco Lake
Maximum discharge from 1978 to 1993
PEARSON TYPE III distribution

Upper bound	1912.9920
Scale factor	-0.19821
Shape factor	9414.87200

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	-13.4	11.6	11.3	-38.1	-.287
.950	1.05	14.9	7.34	30.5	-.758	.319
.800	1.25	30.5	5.56	42.3	18.6	.653
.500	2.00	46.7	4.81	56.9	36.4	1.00
.200	5.00	62.8	5.63	74.8	50.8	1.35
.100	10.0	71.2	6.53	85.2	57.3	1.53
.050	20.0	78.2	7.41	94.0	62.4	1.68
.040	25.0	80.2	7.69	96.6	63.8	1.72
.020	50.0	85.9	8.51	104	67.8	1.84
.010	100	91.1	9.27	111	71.3	1.95
.005	200	95.8	10.0	117	74.5	2.05
.002	500	102	10.9	125	78.3	2.18
.001	1,000	106	11.5	130	80.9	2.26



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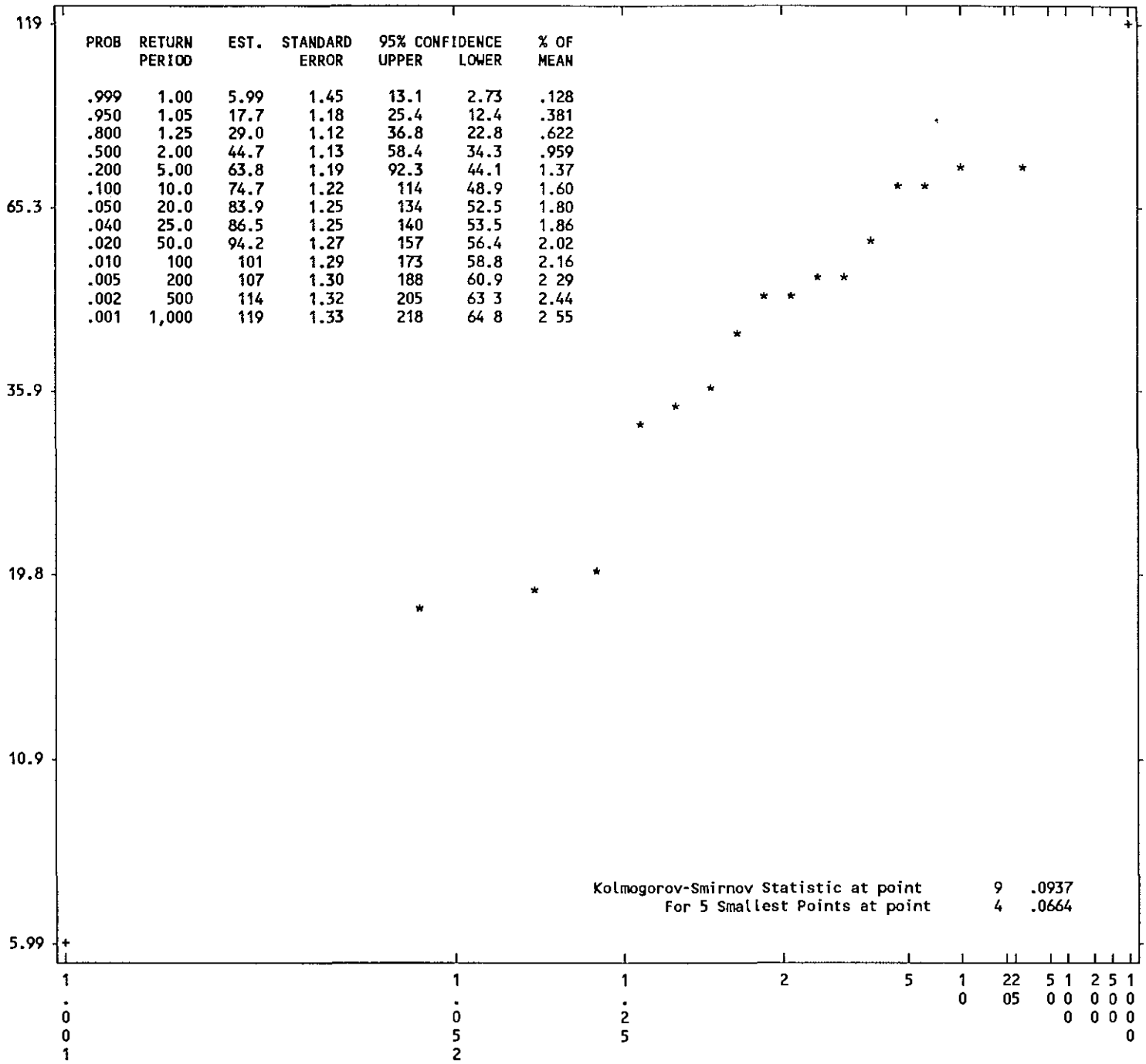
Indin River at mouth of Chalco Lake
Maximum discharge from 1978 to 1993
LOG PEARSON TYPE III distribution

Log Statistics:	Mean	3.7460
	Standard Dev.	0.47884
	Skew Coeff.	-0.69021

Lower bound	169.6138
Scale factor	-0.16525
Shape factor	7.39641

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	5.99	1.45	13.1	2.73	.128
.950	1.05	17.7	1.18	25.4	12.4	.381
.800	1.25	29.0	1.12	36.8	22.8	.622
.500	2.00	44.7	1.13	58.4	34.3	.959
.200	5.00	63.8	1.19	92.3	44.1	1.37
.100	10.0	74.7	1.22	114	48.9	1.60
.050	20.0	83.9	1.25	134	52.5	1.80
.040	25.0	86.5	1.25	140	53.5	1.86
.020	50.0	94.2	1.27	157	56.4	2.02
.010	100	101	1.29	173	58.8	2.16
.005	200	107	1.30	188	60.9	2 29
.002	500	114	1.32	205	63 3	2.44
.001	1,000	119	1.33	218	64 8	2 55



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10 year return period vs. number of years.

Years	Log Norm	Gumbel	P3	Log P3	KS Statistics			
3	46.8	39.8	46.3	48.0	0.169	0.210	0.112	0.089
4	40.1	34.6	41.4	40.6	0.251	0.273	0.190	0.155
5	41.7	38.1	42.0	42.6	0.203	0.228	0.178	0.169
6	43.7	41.3	42.7	44.0	0.180	0.201	0.182	0.175
7	60.3	54.9	61.5	61.8	0.150	0.177	0.111	0.142
8	63.0	58.5	62.3	63.6	0.142	0.162	0.120	0.141
9	70.7	65.7	67.7	70.5	0.134	0.147	0.116	0.134
10	72.7	67.4	67.4	70.5	0.130	0.138	0.114	0.127
11	68.1	68.5	66.9	70.1	0.119	0.130	0.110	0.121
12	67.0	66.2	65.4	67.8	0.107	0.116	0.094	0.107
13	66.6	68.3	66.0	68.8	0.098	0.118	0.091	0.102
14	70.5	72.7	69.9	73.2	0.089	0.112	0.083	0.095
15	69.4	72.7	69.1	72.2	0.084	0.121	0.081	0.098
16	71.1	75.7	71.2	74.7	0.090	0.118	0.089	0.094

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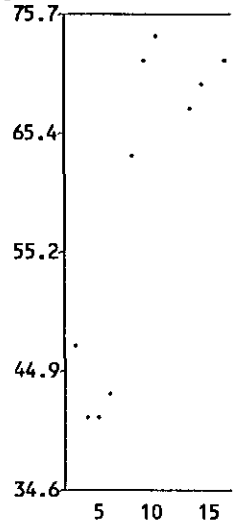
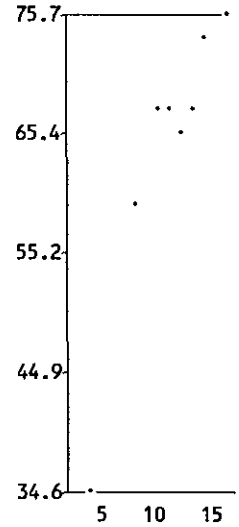
10 year return period vs. number of years. "o" indicates lowest KS statistic.

Log Normal



Gumbel



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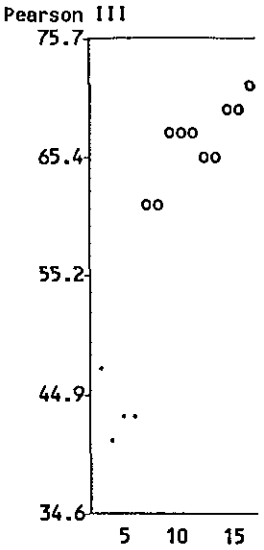

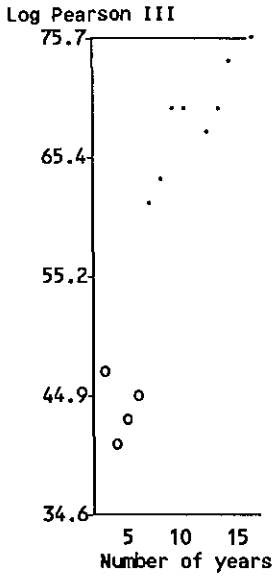

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British Columbia Ministry of Environment, Lands and Parks Flood Frequence Analysis Program

This program is available for private use on the condition that the B.C Ministry of Environment, Lands and Parks makes no warranties concerning the accuracy, completeness, reliability or suitability of the program for any particular purpose. Interpretation of the output is the sole responsibility of the user.

Documents and reports conveying information as a result of the use of the program should acknowledge the B.C. Ministry of Environment, Lands and Parks as the origin of the program

Coppermine River at Outlet of Point Lake
WSC Station No: 10PB001 Maximum daily flows
Data from 1978 to 1993
Unit yield

Analysis type	Flood
Sample Size	16
Maximum	533.00
Minimum	122.00
Range	411.00
Median	234.00
Mean	269.38
Variance	11872.
Standard Deviation	108.96
Coeff. of Variation	0.40448
Coeff. of Skew	1.0935

Data to analyze:

1978	170
1979	210
1980	122
1981	172
1982	219
1983	270
1984	533
1985	302
1986	366
1987	249
1988	350
1989	200
1990	194
1991	214
1992	297
1993	442

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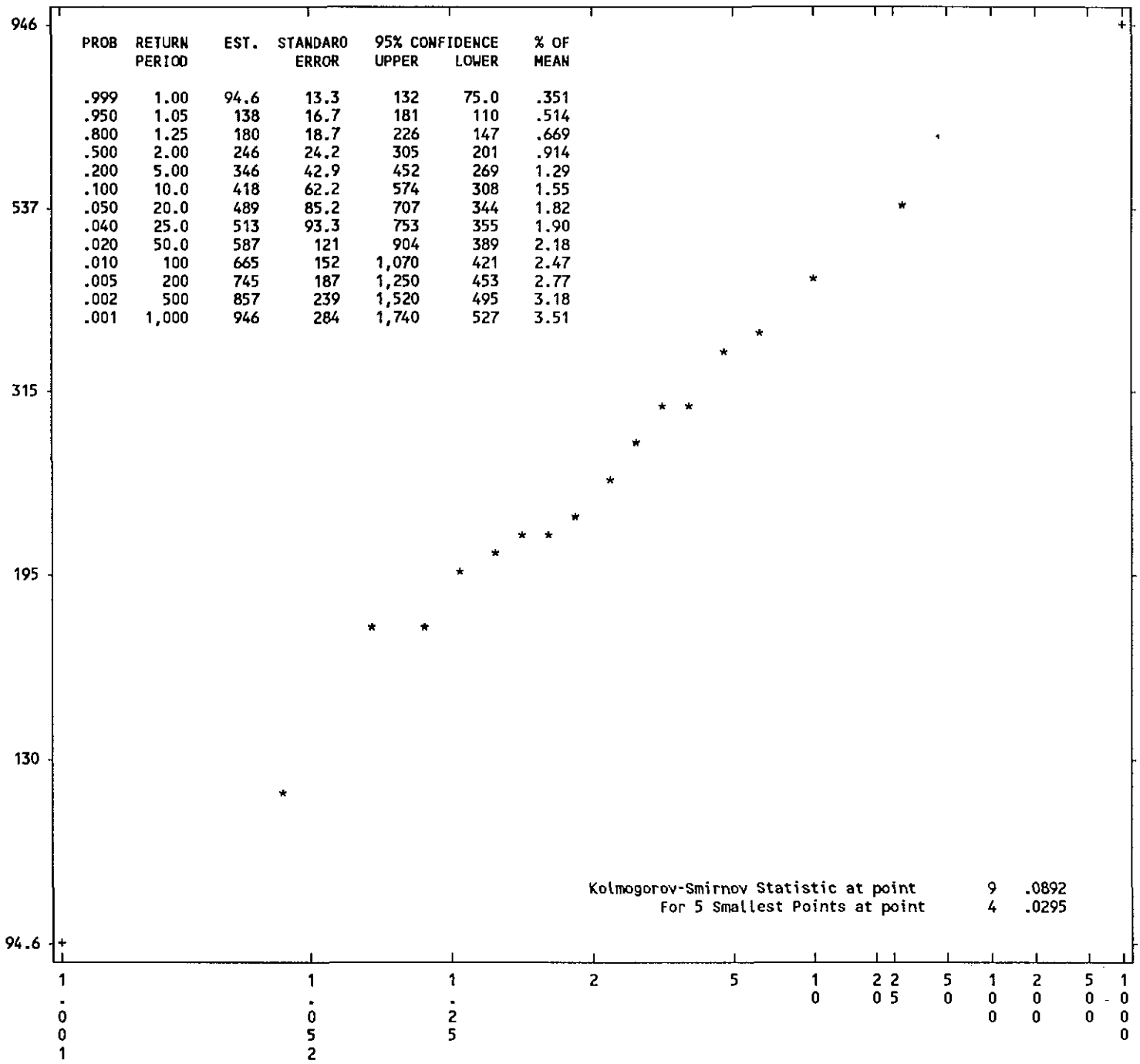
Lower bound by Moments -41.7770
Lower bound by Maximum Likelihood 52.7710
Log Statistics: Mean 5.2647
Standard Dev. 0.49519
Skew Coef. -0.47470E-01

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	94.6	13.3	132	75.0	.351
.950	1.05	138	16.7	181	110	.514
.800	1.25	180	18.7	226	147	.669
.500	2.00	246	24.2	305	201	.914
.200	5.00	346	42.9	452	269	1.29
.100	10.0	418	62.2	574	308	1.55
.050	20.0	489	85.2	707	344	1.82
.040	25.0	513	93.3	753	355	1.90
.020	50.0	587	121	904	389	2.18
.010	100	665	152	1,070	421	2.47
.005	200	745	187	1,250	453	2.77
.002	500	857	239	1,520	495	3.18
.001	1,000	946	284	1,740	527	3.51



Kolmogorov-Smirnov Statistic at point 9 .0892
For 5 Smallest Points at point 4 .0295

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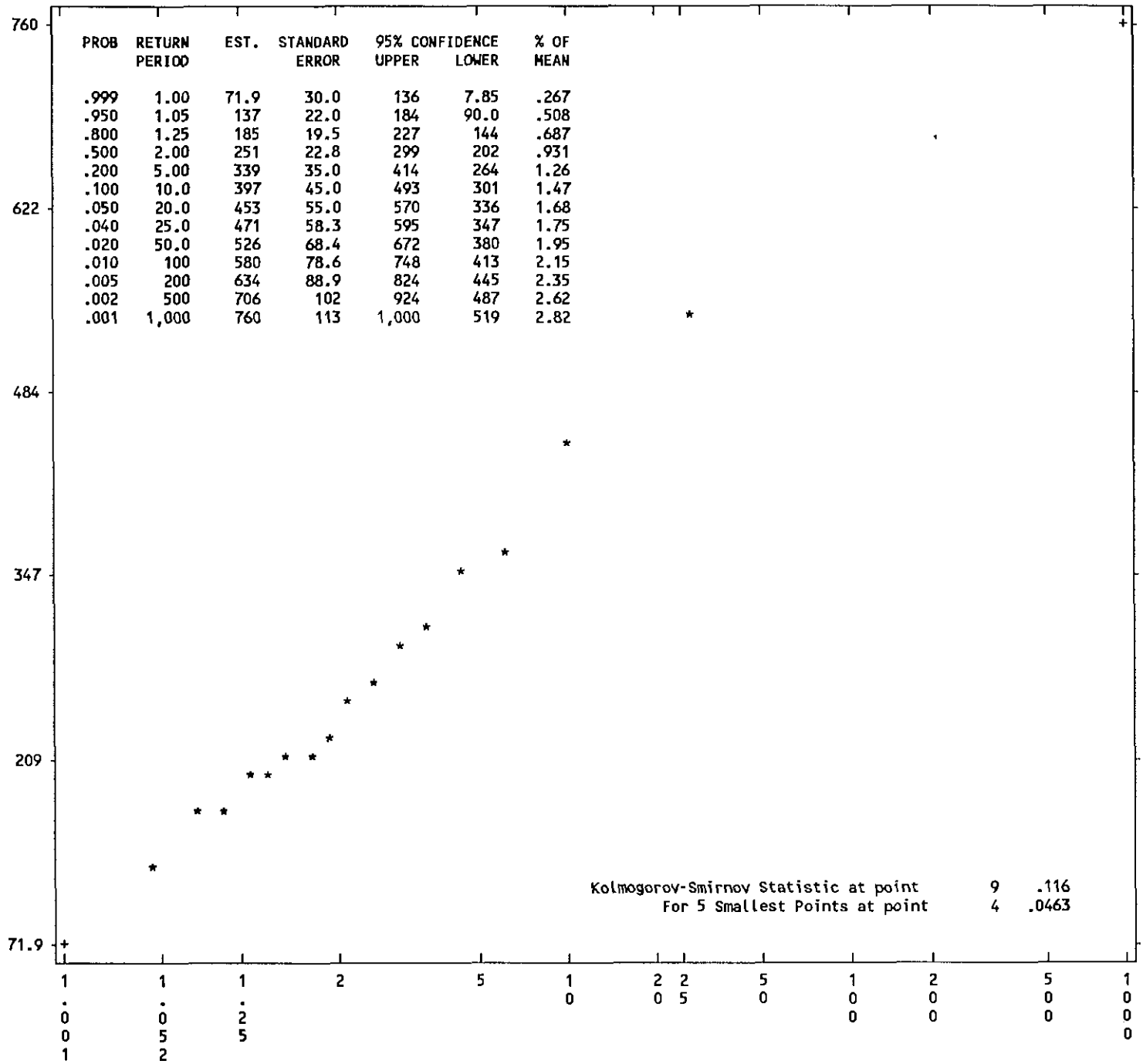
Scale and location parameters estimated by the method of moments
a = 0.117710E-01
u = 220.338

Scale and location parameters estimated by the method of maximum likelihood
a = 0.128553E-01
u = 222.211

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	71.9	30.0	136	7.85	.267
.950	1.05	137	22.0	184	90.0	.508
.800	1.25	185	19.5	227	144	.687
.500	2.00	251	22.8	299	202	.931
.200	5.00	339	35.0	414	264	1.26
.100	10.0	397	45.0	493	301	1.47
.050	20.0	453	55.0	570	336	1.68
.040	25.0	471	58.3	595	347	1.75
.020	50.0	526	68.4	672	380	1.95
.010	100	580	78.6	748	413	2.15
.005	200	634	88.9	824	445	2.35
.002	500	706	102	924	487	2.62
.001	1,000	760	113	1,000	519	2.82



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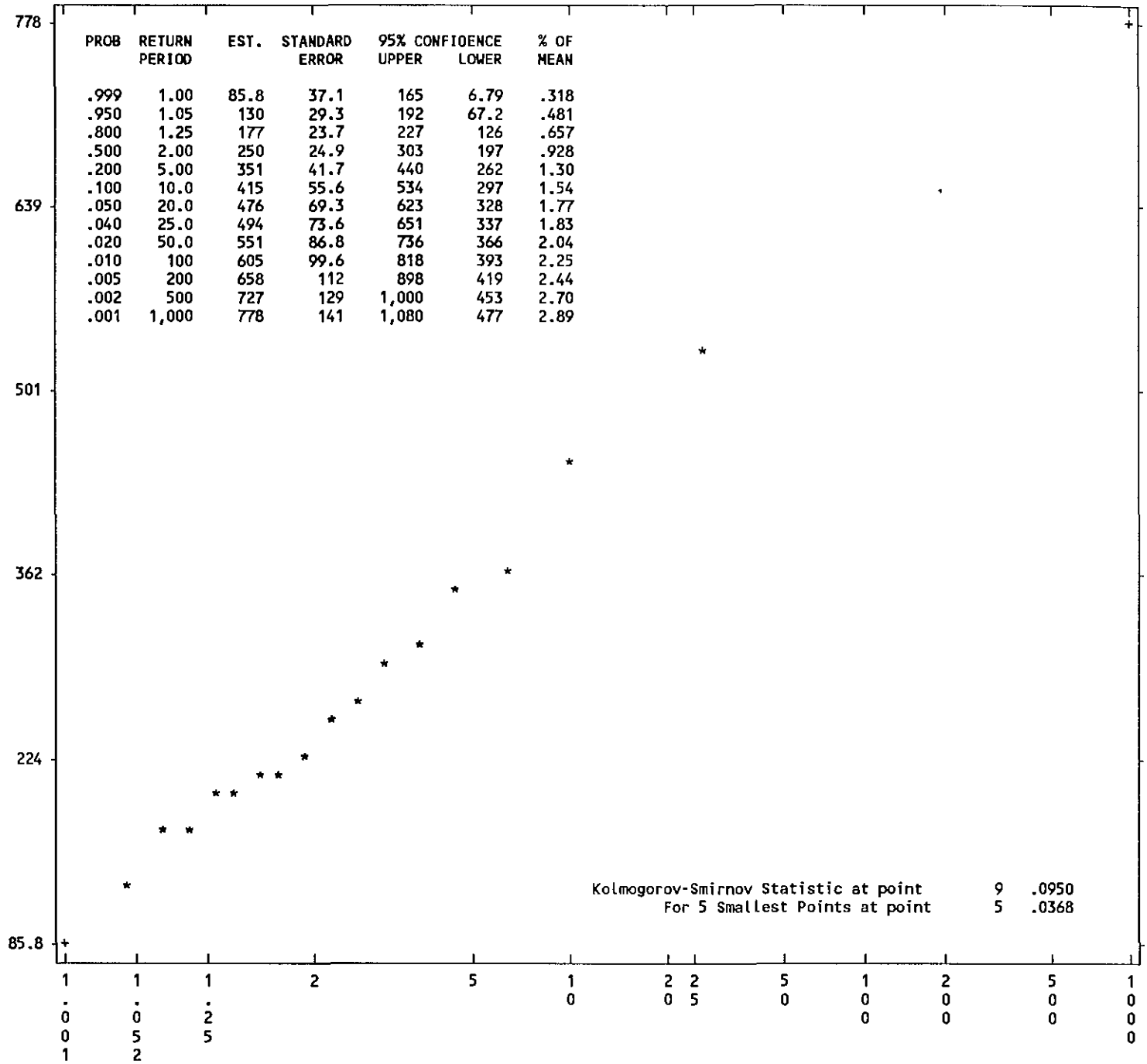
Lower bound 70.0861
Scale factor 59.57107
Shape factor 2.34540

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	85.8	37.1	165	6.79	.318
.950	1.05	130	29.3	192	67.2	.481
.800	1.25	177	23.7	227	126	.657
.500	2.00	250	24.9	303	197	.928
.200	5.00	351	41.7	440	262	1.30
.100	10.0	415	55.6	534	297	1.54
.050	20.0	476	69.3	623	328	1.77
.040	25.0	494	73.6	651	337	1.83
.020	50.0	551	86.8	736	366	2.04
.010	100	605	99.6	818	393	2.25
.005	200	658	112	898	419	2.44
.002	500	727	129	1,000	453	2.70
.001	1,000	778	141	1,080	477	2.89



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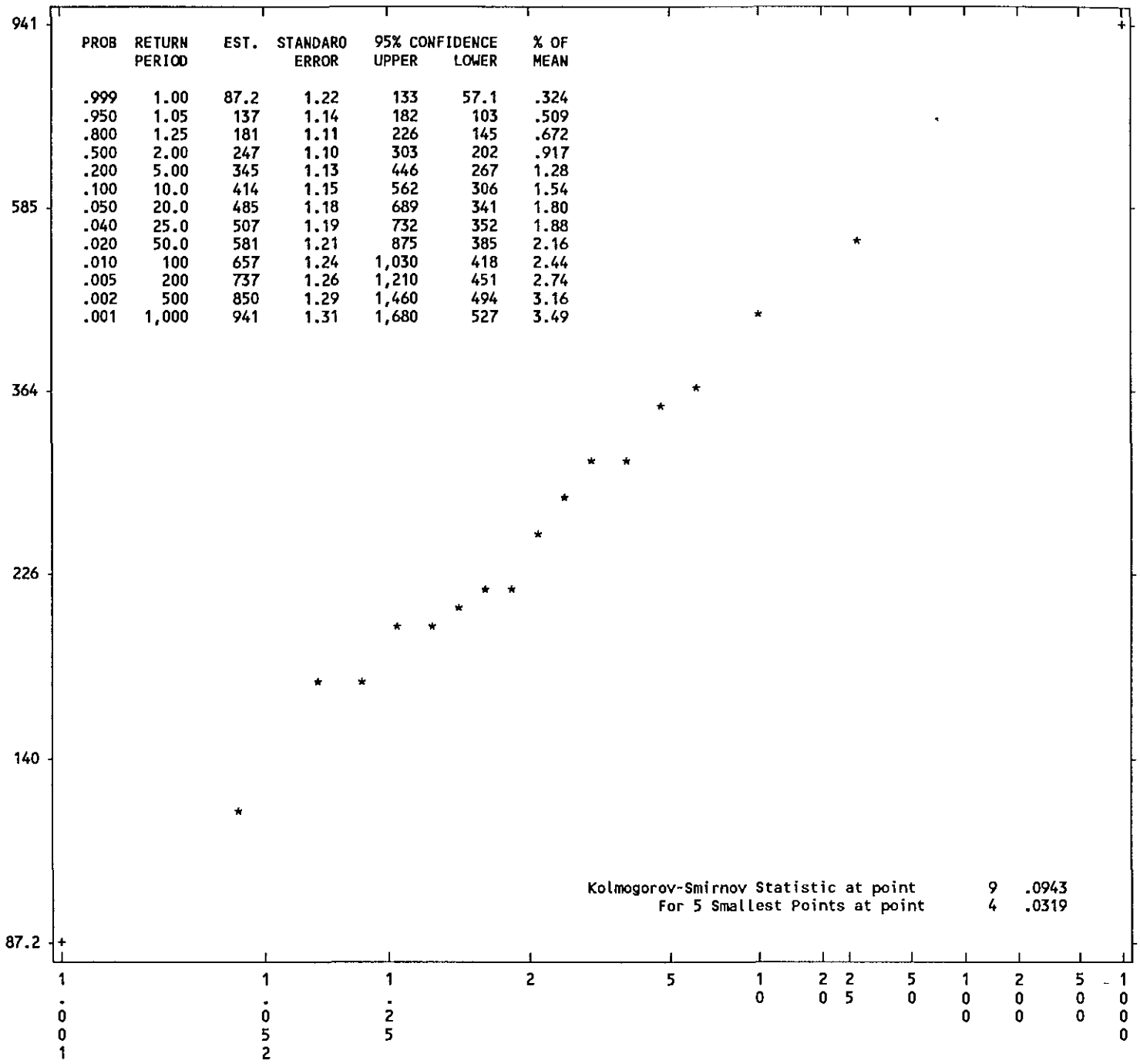
Log Statistics: Mean 5.5254
Standard Dev. 0.38444
Skew Coeff. 0.24261

Lower bound 10.5503
Scale factor 0.04664
Shape factor 66.95757

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	87.2	1.22	133	57.1	.324
.950	1.05	137	1.14	182	103	.509
.800	1.25	181	1.11	226	145	.672
.500	2.00	247	1.10	303	202	.917
.200	5.00	345	1.13	446	267	1.28
.100	10.0	414	1.15	562	306	1.54
.050	20.0	485	1.18	689	341	1.80
.040	25.0	507	1.19	732	352	1.88
.020	50.0	581	1.21	875	385	2.16
.010	100	657	1.24	1,030	418	2.44
.005	200	737	1.26	1,210	451	2.74
.002	500	850	1.29	1,460	494	3.16
.001	1,000	941	1.31	1,680	527	3.49



Kolmogorov-Smirnov Statistic at point 9 .0943
For 5 Smallest Points at point 4 .0319

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10 year return period vs. number of years.

Years	Log Norm	Gumbel	P3	Log P3	KS Statistics			
3	232	222	222	226	0.058	0.090	0.036	0.045
4	211	220	213	215	0.116	0.191	0.108	0.111
5	235	238	225	227	0.143	0.158	0.107	0.094
6	261	266	260	263	0.076	0.102	0.078	0.073
7	426	359	419	408	0.123	0.138	0.154	0.120
8	425	373	418	413	0.091	0.102	0.118	0.085
9	443	399	431	431	0.063	0.095	0.075	0.056
10	425	391	420	418	0.057	0.064	0.075	0.053
11	430	406	425	426	0.042	0.063	0.052	0.044
12	417	392	414	413	0.056	0.077	0.072	0.053
13	404	379	404	401	0.071	0.100	0.091	0.069
14	393	370	396	391	0.097	0.128	0.097	0.093
15	392	374	394	391	0.086	0.111	0.080	0.085
16	418	397	415	414	0.089	0.116	0.095	0.094

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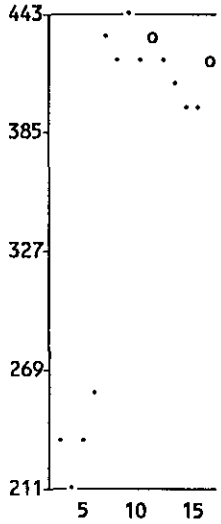
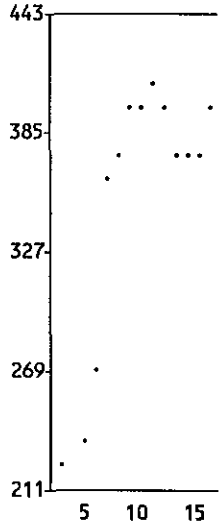
10 year return period vs. number of years. "o" indicates lowest KS statistic.

Log Normal



Gumbel



Pearson III

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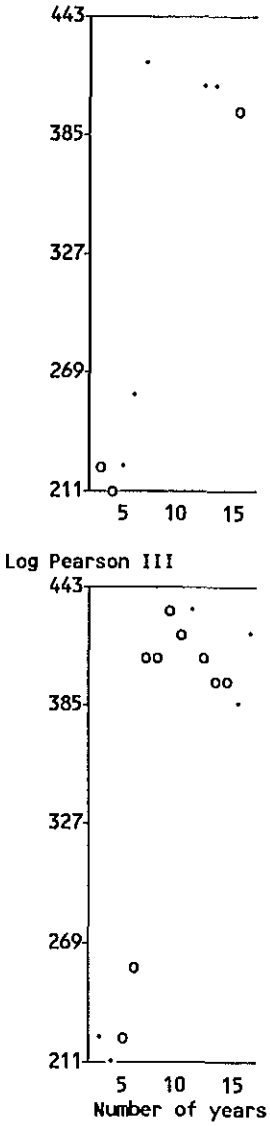

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1.0 INTRODUCTION

1.1 Background

On December 9, 1994, the Federal Environmental Assessment Review Panel (EARP) Office announced a public review of the proposed BHP diamond mines at Lac de Gras, NWT Scoping meetings are being held to identify issues that need to be addressed by the Environmental Impact Statement (EIS) The EIS will be the EARP focal point for its own review and for the Panel's public hearings

Environment Canada suggested a number of issues for inclusion in the EIS (Environment Canada, 1995) In particular
Permafrost: *The EIS should present a complete description of the underlying permafrost, including permafrost depth, temperature gradients, ice content, ice segregation, active layer depth and annual permafrost dynamics*
Groundwater: *The EIS should present sufficient baseline data including permeability information, geotechnical studies, hydraulic gradients, chemical composition of groundwater, and other information needed to establish groundwater flow regimes and develop accurate groundwater modeling*

Some base-line data on permafrost and groundwater were available but these were considered inadequate to fully address the issues identified by Environment Canada Bruce Geotechnical Consultants Inc (BGC) and Hemmera Resource Consultants Ltd (Hemmera) were retained to undertake preliminary permafrost and groundwater modeling studies The objective was to use the models to address the Environment Canada issues The limited site data together with published reference material would be used to calibrate the model predictions to the greatest extent possible until additional in situ base-line data are obtained

The requirements were outlined in a meeting with Mr Clem Pelletier of Rescan Environmental Services Ltd (Rescan) on April 21, 1995 A second meeting with Mr Pelletier, which included Mr Dan Johnson of BHP Diamonds Inc (BHP) and Dr James I Mathis of Steffen Robertson & Kirsten (Canada) Inc (SRK) was held on April 26, 1995, at which time unpublished reference material was provided by Rescan and BHP, site details were related by Dr Mathis, and the scope of work agreed upon A draft report was submitted on May 10, 1995 Additional work was requested by Recan and BHP on several occassions during May and June This final report includes the results of the additional studies completed since submission of the draft report and pertaining to geothermal and groundwater modeling

1.2 Scope of Work

The agreed upon scope involved preliminary geothermal and groundwater modeling The preliminary nature was selected as appropriate in view of the limited range of in situ data available for calibrating the numerical models It was agreed in the meeting of 26 April that the study effort would focus on developing a conservative response to the issues raised by Environment Canada (1995) with the possible need for additional studies being a product of this preliminary work It is understood that more comprehensive studies will be carried out as required in the future when additional site data justify the use of more sophisticated numerical models The following tasks were identified for the present studies

- One-dimensional geothermal modeling for the purpose of predicting the following base-line permafrost conditions
  - ♦ permafrost depth, and the temperature gradient through permafrost,
  - ♦ active layer thickness and seasonal variations in the position of the phase boundary within the active layer, and
  - ♦ depth of zero mean annual temperature fluctuation
- Review of available permafrost and ground temperature data for the purpose of calibrating, to the greatest extent possible, the foregoing predicted permafrost and ground temperature conditions
- Use the foregoing to predict the two-dimensional configuration of permafrost, hence thermal boundary conditions for two-dimensional groundwater flow modeling
- Review of available data on the permeability of granite and kimberlite, and of fault zones in these rock units
- Establish through two-dimensional groundwater flow modeling
  - ♦ hydraulic gradients into the fully developed pits,
  - ♦ total flow into the fully developed pits; and
  - ♦ loss of water from nearby lakes as a result of increased flux effected by the fully developed pits

It was recognized that matters related to groundwater chemistry and surface hydrology were embodied in the Environment Canada issues These were not part of the BGC-Hemmera scope of work at this time

The initial scope of work involved groundwater modeling of the pre-mine and maximum pit developments at Fox, Panda and Koala pits Later, modeling of the maximum pit developments at Misery and Leslie pits was also requested

2.0 GEOLOGICAL SETTING

2.1 Location

The proposed BHP mine site is situated approximately 300 km northeast of Yellowknife The nearest access is the winter road to Contwoyto Lake which passes 30 km east of the main Koala base camp The camp is connected to the winter road by a lateral winter road

2.2 Physiography and Bedrock Geology

The site is in the Canadian Shield and terrain in the area is characteristic of this physiographic region The average elevation is approximately 450 m with regional relief limited to approximately 50m The topography is rolling and entirely bedrock-controlled Numerous lakes occupy topographically low areas which are interconnected by shallow commonly ephemeral streams

Bedrock consists mainly of medium to finely crystalline granite It is generally medium grey but occasionally dark grey, pink or green. Fracture frequency is reported to be less than 5 per metre in most boreholes and RQD is generally greater than 80% (SRK 1994b, and Dr James Mathis of SRK personal communication in May 1995) The granite is locally intruded by kimberlite pipes, the source rock for diamonds The rocks are cut by faults, many of which express themselves as pervasive lineaments visible on air photos and satellite images

2.3 Surficial Geology

The area was inundated by glaciers several times during the Pleistocene Late Wisconsinan de-glaciation of the area occurred approximately 9500 years ago, leaving a discontinuous veneer of glacial materials including boulder fields, coarse till and glaciofluvial sands and gravels Finer grained glaciolacustrine sands and silts are also present in some areas

Over the last 9500 years, periglacial processes have caused mechanical breakdown of near-surface rock Organic soils have developed in some poorly drained low-lying areas

2.4 Permafrost

A major feature of northern circumpolar regions, and one of considerable ecological and engineering importance, is permafrost Permafrost underlies approximately 50% of Canada, mostly at higher latitudes but including polar glaciers, portions of the continental shelf in the Arctic Ocean, and at high elevations at least as far south as the 49th parallel Permafrost is defined as soil or rock whose temperature has been below 0°C for at least two years It is generally broken down into continuous and discontinuous zones (Boyd et al 1981, Brown et al 1981).

The Lac de Gras region lies within the continuous permafrost region (Brown 1967, Brown et al 1981) Permafrost is everywhere present except beneath lakes and rivers The mean annual air temperature is variously reported between -8 3°C (Brown 1963) to -10 4°C (EBA 1995) for the region The mean annual ground surface temperature (MAST) is estimated to range from -4 4 to -6 5°C based on the work of Brown (1963)

A thin zone at the ground surface in permafrost areas known as the active layer thaws and re-freezes annually The active layer thickness depends upon the nature of the ground surface, whether it is bedrock, mineral or organic soil The active layer in the Lac de Gras region ranges from less than one metre thick where an organic soil veneer is present to several metres thick in areas of exposed rock

2.5 Groundwater

Groundwater may be present above permafrost (suprapermafrost), within (intrapermafrosts) and below (subpermafrost) The suprapermafrost aquifer in the Lac de Gras region is limited to the active layer Recharge and flow occur during the period May through November when all or a portion of the active layer is thawed Groundwater quantities are limited Intrapermafrost groundwater, where present, is trapped in layers or in thawed bulbs in the permafrost It rarely has a dependable recharge Subpermafrost water may be found immediately below or at considerable depth beneath the bottom of permafrost (Johnston 1981)

Information obtained from observations of springs and from chemical analysis of river water in discontinuous permafrost of the Mackenzie Valley indicates that groundwater moves toward rivers and lakes Springs have been reported from a few places in the continuous permafrost zone but field evidence indicates that flow is limited and irregular Surface mines that extend through permafrost in the continuous zone can encounter groundwater discharge Flow can be high (Brugmans 1989), and, as might be expected, flow increases with depth (Anistratov and Anistratov 1992)

3.0 GEOTHERMAL MODELING

3.1 One-Dimensional Geothermal Analysis

THERM1, written by Dr. J Derick Nixon, P Eng , of Nixon Geotech Ltd , and licensed to BGC, was used for geothermal analysis The program solves one-dimensional heat transfer problems involving freezing and thawing An alternating direction explicit finite difference method is used to solve for temperatures at each time step A power law function represents the relationship between unfrozen water content and temperature in each soil unit The program requires a variety of standard physical properties as input, but it is versatile in accommodating several alternative combinations of meteoric input In the analyses reported here, mean monthly air temperatures, solar radiation, wind speed and snow pack thickness were specified and a surface energy balance routine was used to calculate the ground and snow surface temperatures

3.2 Input Parameters

The majority of THERM1 input can be categorized as either meteoric or physical properties The sources of these data and the values used are described in the following subsections

3.2.1 Meteoric Input

Meteorological data from Contwoyto Lake, approximately 100 km north of the site, and Fort Reliance, 220 km south of the site were used to interpolate the site meteoric conditions This interpolation was taken from the Koala Tailings Dam Report (EBA, 1995) The data are shown in Table 3 1

Table 3.1
Meteorological data (mean monthly) used in one-dimensional geothermal analysis.

Month	T_{Air}	Wind (kph)	Snow (cm)	Solar (W/m^2)
January	-30.7	17 7	39 0	9 1
February	-29 5	12 2	47 0	38 7
March	-25 6	12 9	54 0	119 5
April	-15 0	13 5	56 0	206 4
May	-3 2	15 2	38 0	259 7
June	6 2	13 6	0 0	252 0
July	11 1	15 1	0 0	226 4
August	10 1	17 0	0 0	160 8
September	3 2	20 8	0 0	124 9
October	-5 8	19 0	7 0	41 3
November	-18 5	16 3	19 0	14 4
December	-26 5	15 0	31 0	3 7

The duration of snow cover was obtained from Canada Department of Transport (1968) The data used in the analysis includes, October 19 and May 25, the dates of the first seasonal snow accumulation and of seasonal melting, respectively

3.2.2 Typical Profiles Analyzed

Three typical profiles were analyzed in order to be representative of the variety of terrain conditions present in the vicinity of the pits (Ward 1993) These are

1 1 5m of till over rock
2 0 4m organics over 1 5m till over rock
3 rock exposed at the ground surface

3.2.3 Physical Properties

The physical properties used in the analysis of the typical profiles are shown in Table 3 2 These data are based on data reported by Brown (1970), EBA (1995), Johnston (1981), Nixon Geotech Ltd (1992), and SRK (1994a and 1994b), and personal communication with Dr James Mathis of SRK In some cases the values are modified to suit actual conditions reported at the site For example, it was reported that the granite had 0% moisture content This was raised to 1% to account for the water present in discontinuity patterns in the rock mass

Table 3.2
Physical properties of bedrock used in one-dimensional geothermal analysis.

Parameter	Organics	Till	Bedrock
Unfrozen Thermal Conductivity W/m°C	0 58	1 82	2 95
Frozen Thermal Conductivity W/m°C	1 36	2 23	3 00
Water Content %	200	10	1
Dry Unit Weight gm/cm^3	0 42	2 20	2 65

3.3 Base-Line Ground Temperature Conditions

3.3.1 Thermal Regime

The ground thermal regime determined from the geothermal analysis for each of the typical profiles is illustrated in Figure 3 1. The predicted depth of permafrost is approximately 250m

Calibration of the predicted depth of permafrost was based upon BHP (1995a) where a 'water table' was reported in the only two drill holes that exceeded a depth of 240m, PG2 - 456 4m deep and PG3 - 354 1m deep The 'water tables' are reported at depths of 230m and 240m, respectively Details regarding how these 'water tables' were measured were not available, hence the conservative calibration interpretations adopted here are

- The depths represent a minimum depth to the bottom of permafrost and are indirect evidence that the predicted depth of 250m is reasonable, and,
- they do not reflect the actual subpermafrost water table, which is expected to be within a few metres of the ground surface

The geothermal gradient calculated from these data is approximately 1 87°C/100m, which is in close agreement with a value of 1 96°C/100m reported by Brown (1966) for dense crystalline rock

In Figure 3 2, the predicted ground thermal regime is compared to temperatures interpreted by BGC from thermistor readings in the Fox decline (BHP 1995a and 1995b) The measured temperatures show some variation from the predicted geothermal gradient Although natural variability is to be expected, reflecting climate perturbations over the last few centuries, the indicated variability more likely arises from some combination of the following factors

- inconsistencies in the time of thermistor installation vs the time of drift opening,
- drilling and installation disturbance,
- the influence of ground warming in response to warm air circulation through the decline, and,
- the upper thermistor in the decline, at a depth of 17m, is both within the zone of mean annual temperature change and within close proximity to the decline portal The net result may account for the discrepancy between the predicted temperature of -4°C and the measured value of -6°C

Despite these factors, there is reasonable agreement between the predicted and measured ground thermal regime

3.3.2 Depth of Active Layer and Seasonal Variations in the Position of the Phase Boundary

As indicated in Figure 3 3, the predicted depth of the active layer for the typical profiles analyzed ranges from a low of 1 0m where an organic veneer is present to a high of 4 8m where granite is exposed at the ground surface Figure 3 3 also illustrates that the maximum depth of the active layer is not reached until late September or early October Groundwater can continue to circulate in any active layer aquifer for between one and two months after the seasonal freezing front begins to propogate into the ground each autumn The sudden advance in the penetrating seasonal freezing front at the right side of the top and bottom illustrations in Figure 3 3 is a numerical product of the selected time step The in situ advance would be somewhat more gradual with the effect being that freeze-back is delayed a few days relative to what is shown Figure 3 3 assumes a phase boundary of -0 05 °C

3.3.3 Depth of Zero Mean Annual Temperature Change

The predicted depth of zero mean annual temperature change is between 15 and 19m as illustrated in Figure 3 1 Ice content in the near-surface rock/soil profile and the presence of an insulating organic soil veneer combine to cause the depth of zero mean annual change to be relatively shallower

3.3.4 Temperature Distribution Beneath Lakes

Experience related by Dr James Mathis of SRK from the Fox decline confirmed the absence of permafrost beneath Fox Lake This is consistent with experience reported by Brown et al (1964) The actual temperature at shallow depths beneath lakes is expected to be within 1 to 2°C above freezing, decreasing slightly with depth to temperatures only marginally above 0°C, before beginning to rise again at depths of 200 to 250m The lateral permafrost contact can be expected to fall almost vertically below the point along the lake shore where winter ice regularly freezes to the bottom Permafrost can be expected to be generally shallower and quite variable in thickness beneath shallow lakes which freeze to the lake bottom some years and not others

3.4 Estimated Two-Dimensional Configuration of Permafrost

Predicted two-dimensional cross-sections showing the permafrost configuration at Fox, Panda and Koala are shown in Appendix A These are based on the one-dimensional geothermal modeling and experience reported by Dr James Mathis of SRK and in Brown et al (1964) In each case, the cross-sectional view illustrated extends from the approximate centre of the proposed pit to the nearest lake illustrated on maps provided by BHP These cross-sections form the basis of the two-dimensional groundwater modeling reported in Section 4

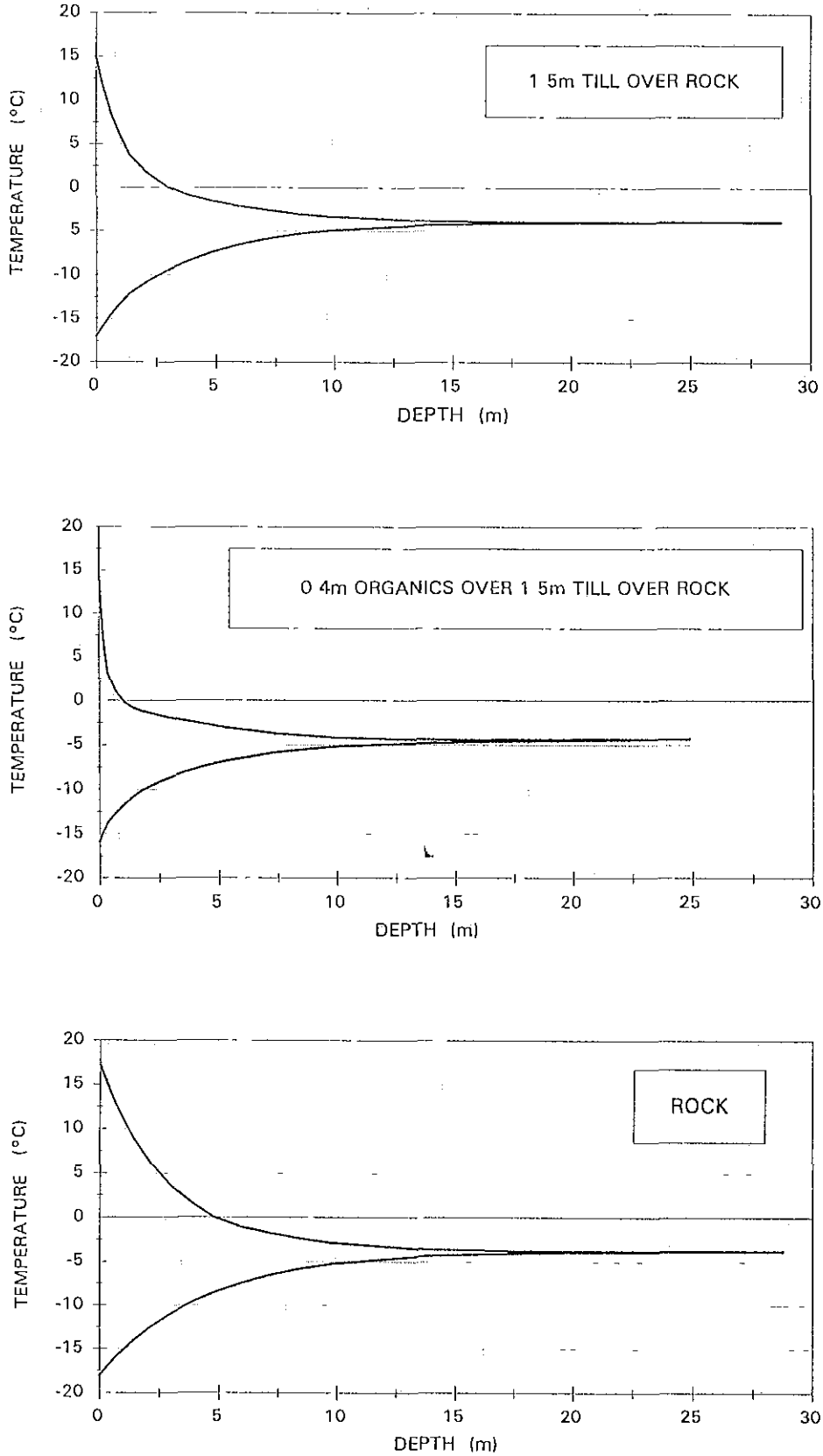

Figure 3 1 Predicted thermal regime for typical terrain types

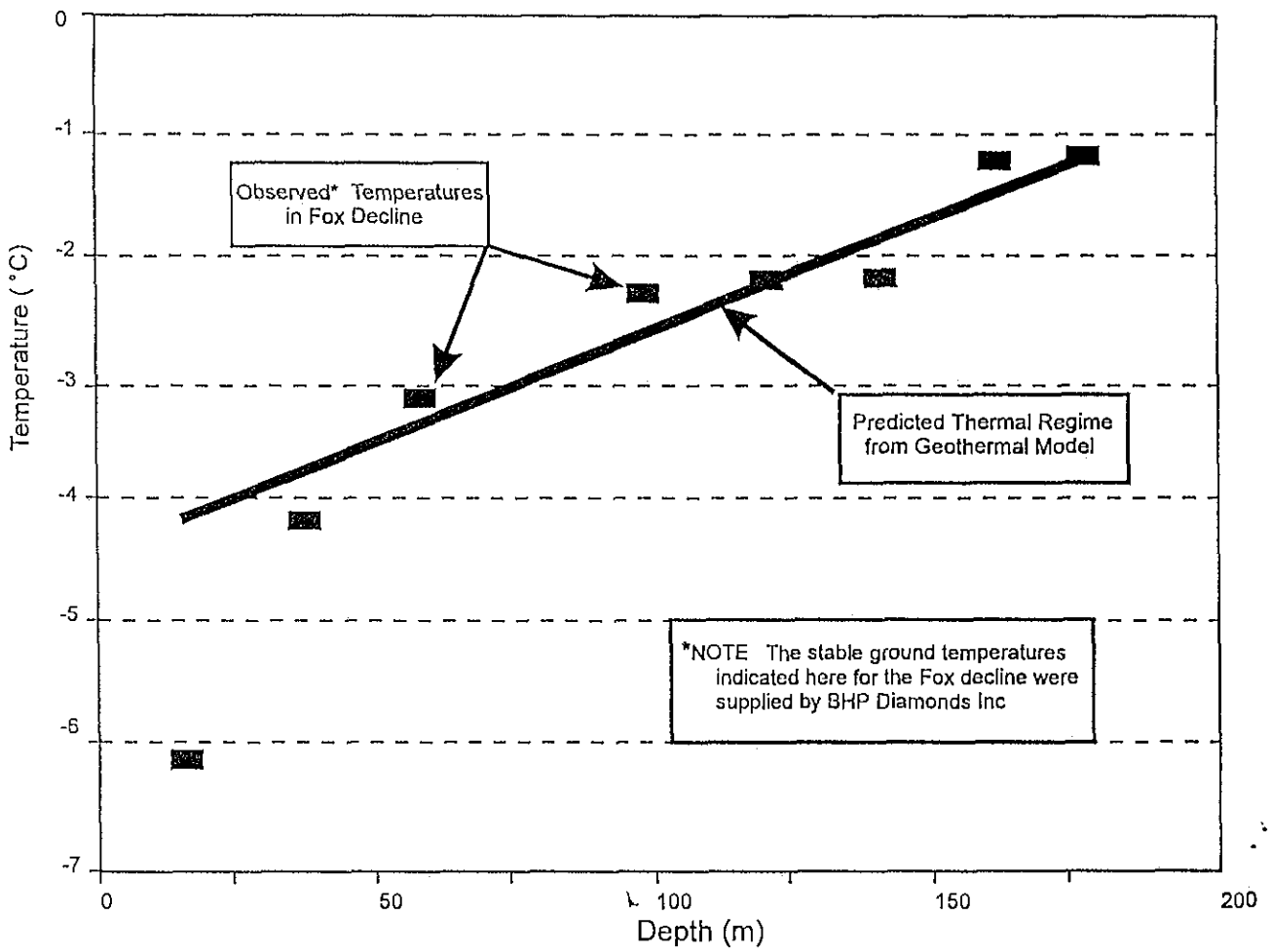

Figure 3 2 Predicted thermal regime vs. observed ground temperatures from thermistor readings taken in the Fox decline

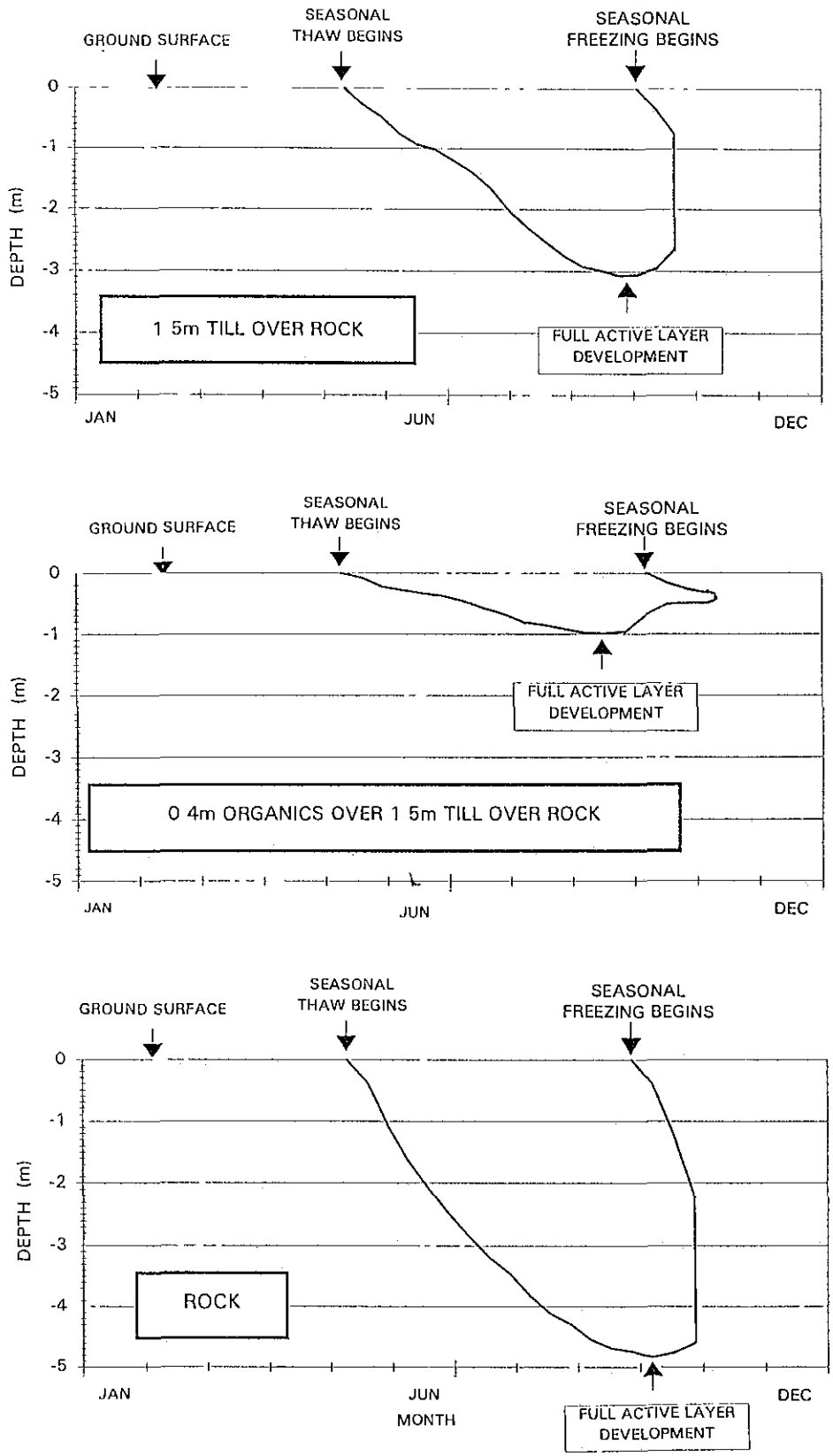

Figure 3.3 Predicted position of the seasonal phase boundary showing development and freeze-back of the active layer for typical terrain types

4.0 GROUNDWATER MODELING

Environment Canada have concerns with the potential for groundwater inflows into the proposed BHP open pit mines In comments provided to Rescan, Environment Canada stated that the groundwater inflows to the mines should be predicted in order to design dewatering systems and to forecast the drawdown and eventual recovery of nearby lakes Other concerns pertaining to groundwater issues listed in the Environment Canada comments included the segregation of contaminated and uncontaminated mine waters, potential generation of larger volumes of contaminated groundwater, seepage calculations from the tailings area, and potential length of time required to flood the open pits

The studies reported here focus on conservative (i c high) estimates of the potential volumes of groundwater seeping into the proposed pits at the point of maximum development (maximum depth) No attempt to model the groundwater seepage at various stages of pit development was made Our discussion, comments and conclusions pertain only to the potential volume of groundwater seepage and potential for drawdown of the neighbouring lakes

The following sections detail the groundwater model used and assumptions made during the calculation of seepage into the proposed Fox, Koala, Panda, Leslie and Misery Pits

4.1 Seep-W Analysis

Bruce Geotechnical Consultants Inc used a commercially available finite element 2-dimensional groundwater analysis model (SEEP/W3) to model and calculate groundwater seepage volumes This software is developed and distributed by Geo-Slope International and licensed to BGC

4.2 Geologic and Geographic Assumptions

Several assumptions were made regarding the physical setting (geologic and geographical) for each pit

- Hydraulic conductivities for the granite and fault zones were estimated based on a review of the groundwater and arctic mining literature (Anistratov and Anistratov 1992, Raven et al 1992, Brugmans 1989, Wilbur 1989, Freeze and Cherry 1979)
- Hydraulic conductivities for the kimberlite were based on limited available information pertaining to the Panda and Fox kimberlite pipes
- Lakes above the proposed pits are completely drained
- Rock types are homogeneous (viz competent granite, granite with fault zones and kimberlite)
- No kimberlite pipes outcrop below the neighbouring lakes.
- Faults outcropping on pit walls occur at the same percentage of outcrop at the pit wall top as at depth (7% for Fox pit, 6% for Panda pit, 5% for Koala pit, 5% for Misery pit and 6% for Leslie pit)
- Fault zone width was assumed to be 20 m
- The pit bottom is the same diameter as the kimberlite pipe

Based on these assumptions, we are of the opinion that the resulting estimated inflows into the proposed pits are probably conservative

4.3 Input Parameters (Model Assumptions)

As described in Section 3 3 1, the approximate bottom of permafrost was predicted from geothermal modeling and calibrated against an observed 'water table' in the two deep drill logs that penetrated the predicted depth of 250m The boreholes were considered to be within permafrost provided the logs indicated no 'water table' This approach was used in Svalbard (Norway) to indicate the permafrost boundary during exploratory drilling for coal mining operations (Brugmans 1989)

A phase boundary of -0 05 °C was used during the geothermal modeling. This value assumes that the groundwater chemistry does not contain a high concentration of dissolved salts The presence of significant dissolved salts would mean less extensive permafrost, thus increased seepage Diamond mining operations in Siberia have encountered heavily mineralized (sodium chloride and calcium chloride) pore fluids with freezing temperatures in the range of -0 5 to -2 0°C (Anistratov and Anistratov 1992) However, based on information provided by BHP and SRK, there is no reason to believe pore fluid found in this region is high in dissolved salts

The cross-sections (Appendices A and B) were oriented such that they represented the shortest flow paths (hence the highest hydraulic gradients) between the nearest undrained lakes and each of the proposed pits The cross-sections for Panda and Misery pits were input into the model as a 10 metre mesh grid and for Koala, Fox and Leslie pits as a 20 metre mesh grid

For each pit, four models were developed in order to test the present condition in relation to the fully developed pits, and the possible range of rock types and attendant hydraulic conductivities Each was simulated through a two-dimensional, steady-state analysis with no flow boundaries located along the centreline of the kimberlite pipe and the centreline of the nearest undrained lake, and with an infinite no flow boundary at the section base. Constant head boundaries were located beneath the lake Figure 4 1 illustrates the boundary conditions used The four seepage models and the parameters used for modeling the five pits are described below

4.3.1 Model 1 - Pre-Mining Steady-State Flow Conditions Through Fault Zones

Model 1 for each pit is based on pre-mining conditions This model was run for the proposed Fox, Koala and Panda pits in order to calibrate the model and ensure that the parameters chosen for modeling were reasonable Kimberlite pipes and lakes were assumed to be the same size at surface. The kimberlite was assigned a hydraulic conductivity value of 10^{-7} m/s and the other rock, assumed to be the fault zones, were assigned hydraulic conductivity values of 10^{-6} m/s Permafrost was assigned a hydraulic conductivity value of 0 Flux sections for Model 1 for each pit were set across the kimberlite pipe at surface

4.3.2 Model 2 - Pre-Mining Steady State Flow Conditions Through Unfractured Granite

Model 2 maintained the same parameters as Model 1 for each proposed pit except granite, with a hydraulic conductivity value of 10^{-11} m/s, replaced the fault zone This model was run for the proposed Fox, Koala and Panda pits in order to calibrate the model

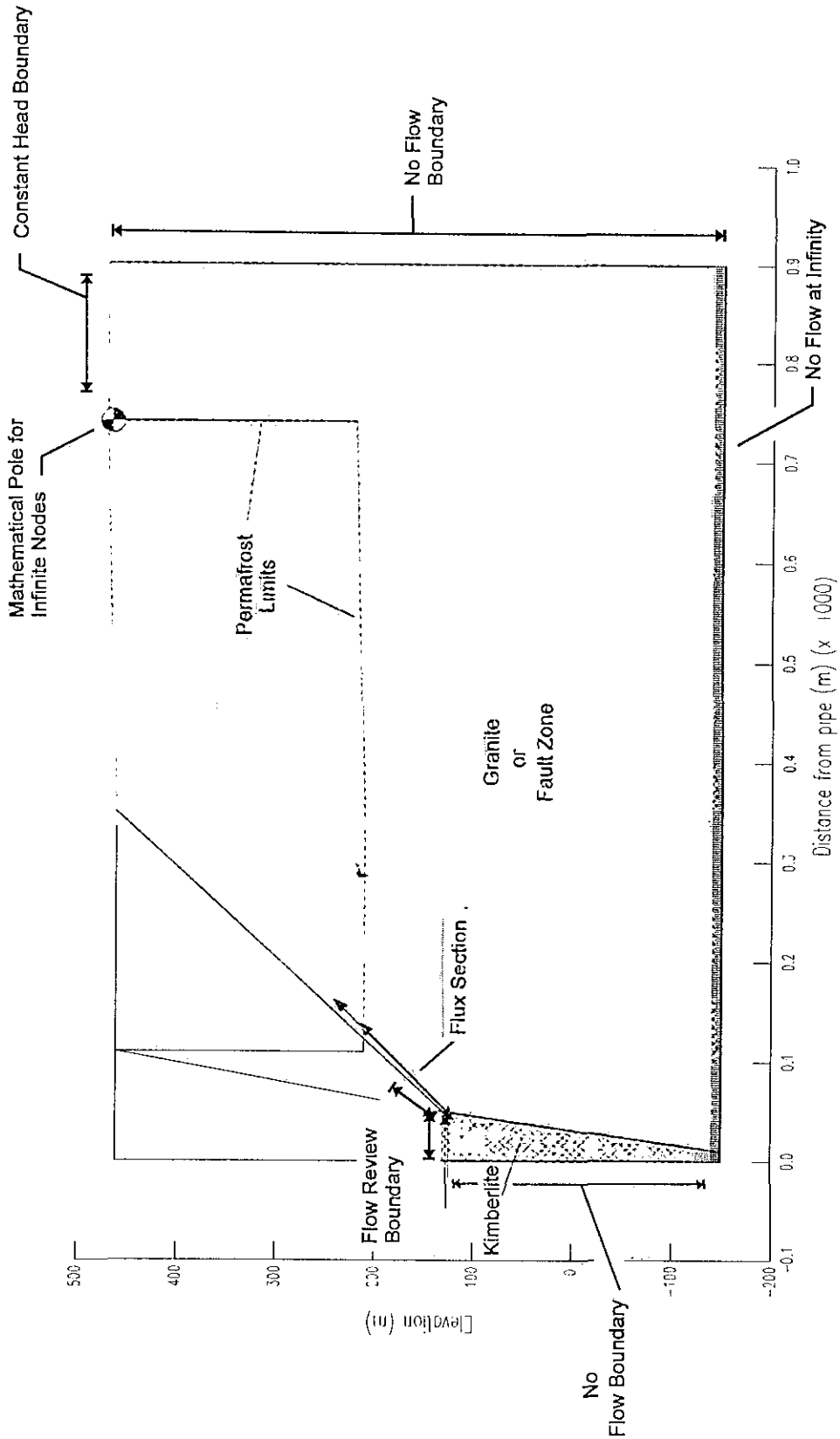

Figure 4 1 Generalized cross-section illustrating the boundary conditions used for groundwater modeling

4.3.3 Model 3 - Post-Mining Steady-State Flow Through Fault Zones

Model 3 used the same model parameters as Model 1 including the maximum pit profiles. Seepage from the unfrozen pit walls was solved by the model No thaw was assumed along pit walls where they intersected permafrost. Flux sections in the model were set as

- across the pit floor and
- parallel to the pit wall, extending from the limit of permafrost to the pit floor

4.3.4 Model 4 - Post-Mining Steady-State Flow Through Unfractured Granite

Model 4 used the same model parameters as Model 2 including the maximum pit profiles

4.3.5 Model Refinements

Flow vectors and head contours were plotted on each model cross-section (Appendix B) Note that flow vectors are not to the same scale in all drawings A vector magnification factor, noted on each figure, was used in order to indicate the flow vectors as the indicated flows were very low

A fifth model was generated for the Fox pit in order to evaluate the sensitivity of seepage model 3 to hydraulic conductivity changes for the kimberlite (Fig B 5, Appendix B) The hydraulic conductivity of the kimberlite was increased to 10^{-6} m/s, in order to ascertain the potential change to seepage volumes It was assumed that the hydraulic conductivity of the kimberlite was the most highly variable factor in the flow modeling

The initial Panda pit model (Figs B 6 through B 9, Appendix B) did not account for the possibility that a permafrost window may extend laterally from the pit through to the nearest lake This possibility arises from the fact that the wet area along this line of cross-section only intermittently freezes to the bottom in winter A follow-up Panda pit model (Figs B 10 and B 11, Appendix B) considers a very limited distribution of permafrost centred approximately beneath a proposed earth structure which is planned to contain the lake 100 m northeast of the pit This follow-up model extended the constant head boundary from 100 m east of the pit margin to the centreline of Panda Lake All other boundary conditions remained the same as the initial models The additional seepage through the open talik associated with Panda Lake was calculated and added to the initial estimates of seepage

The analyses assume steady-state conditions The calculated flux to the pit does not include flow of stored water from unfrozen ground as the water table is lowered The steady-state may take substantial time to become established, especially for the models of groundwater flow through unfractured granite Flux values are given in m^3/linear metre

4.4 Groundwater Derived From Storage

In areas where unfrozen ground is laterally extensive around the pits and, later, when the pits have penetrated below the maximum extent of permafrost, saturated rock will be present in the walls As the pits are developed, static water levels will give way to steady-state conditions (indicated by the model) During this period stored water will contribute seepage into the pit.

In the cases studied, it was assumed that the aquifer conditions are unconfined Therefore, the potential for seepage due to storage in the wall rock will be related to the specific yield of the aquifer The specific yield is defined as the ratio of the volume of water that drains by gravity to the volume of rock Generally, the coarser grained the material, the closer the specific yield will approach the total porosity (Domenico and Schwartz 1990) Based on the assumption that the granite is of a dense crystalline nature with widely spaced, generally tight discontinuities, an assumption can be made that the maximum total porosity of the non-fractured granite may be approximately 5% and the fault zones may be as high as 10% of the volume (Freeze and Cherry 1979) Following Domenico and Schwartz, it was assumed that the reduced percentage of rock volume that is water yielding pore space is 2% or less for the granite and 5% for the faulted zone Therefore, the total potential seepage water derived from storage can be calculated if an estimate of the total volume of unfrozen, drained bedrock is known [For the purposes of this exercise only the storage within secondary porosity (fault zones) has been considered]

The volume of potentially drained wall rock was estimated for all proposed pits assuming all rock above the static water level and below permafrost and including rock above the static water level contained in unfrozen ground were sources of groundwater from storage for each pit The maximum volume of water that could be derived from storage within the fault zones was calculated based on the percentage of fault rock material in the pit wall for each pit (stated in the geologic assumptions) and multiplied by 5% (the potential percentage of the rock volume that is considered water yielding pore space) A summary of the potential storage volumes for each pit is provided in Table 4 1 The resultant volumes are considered to be conservative estimates of the volume of rock yielding groundwater from storage No estimate of the length of time for this water to drain has been made.

Table 4.1
Potential stored water volume from fault zones.

Pit	Volume of Drained Fault Rock (m^3)	Volume of Groundwater in Storage (m^3)
Fox	$2\ 5 \times 10^7$	$1\ 3 \times 10^6$
Panda	$2\ 0 \times 10^5$	$1\ 1 \times 10^4$
Koala	$2\ 0 \times 10^6$	$1\ 0 \times 10^5$
Misery	$2\ 0 \times 10^5$	$1\ 0 \times 10^4$
Leslie	$9\ 6 \times 10^5$	$5\ 0 \times 10^4$

4.5 Steady-State Flux Estimates

The results for each proposed pit are discussed in a general sense in the following sections The results are illustrated in cross-sectional views in Appendix B Seepage volumes were calculated by multiplying the pit wall flux values indicated by the models by the circumference of each pit at the highest point of seepage as measured from the cross-sections, and by multiplying the pit floor flux value as indicated by the models by each pit floor diameter Where unfrozen ground was encountered in the proposed Panda and Leslie pits, the flux values for the wall and floor were multiplied by the width of the unfrozen zone as measured from topographic maps This was done to obtain seepage volumes from the

unfrozen ground Calculations of total seepage for the proposed Panda and Leslie pits were adjusted to account for this seepage by subtracting the width of unfrozen ground from the seepage face circumference

4.5.1 Fox Pit

Prior to pit development, the hydraulic gradient from both the neighbouring lake and the lake above Fox pit is downwards, recharging the regional groundwater flow system for both the fractured and non-fractured granite (Appendix B)

Seepage modeling indicates that once steady-state conditions within the faulted granite are established after the Fox pit has reached its maximum depth, seepage will develop along the bottom 100 m of the pit wall Estimated seepage from the granite and kimberlite in non-fractured regions is very small (Appendix B)

A summary of the anticipated water volumes due to seepage (exclusive of precipitation) is presented in Table 4 2

Varying the hydraulic conductivity of the underlying kimberlite (pit floor) in the seepage model from 10^{-7} m/s to 10^{-6} m/s has a negative net effect on total seepage into Fox pit

As indicated in the summary of pit seepage (Table 4 2 and Table 4 3), the estimated total volume of seepage into the proposed pit is approximately 20 m^3/h Most of this water will be derived from the fault zones

Table 4.2
Anticipated seepage into Fox pit.

Flux ($m^3/s/m$)	Seepage (m^3/h)
1 1x10^{-5} (floor - fault zone 7% of pit floor)	1
7 0x10^{-5} (wall -fault zone 7% of pit wall)	20
4 4x10^{-9} (floor - kimberlite 93% of pit floor)	0
4 9x10^{-10} (wall - granite 93% of pit wall)	0
Total	**21**

4.5.2 Panda Pit

As with the Fox pit model, the steady state conditions as they exist today indicate that recharge to the groundwater flow system is occurring from both Panda Lake and its nearest neighbour (Appendix B)

Seepage modeling suggests that a seepage face will develop along the bottom 80 m of the Panda pit wall and the pit base once the steady-state conditions are established within the fault zones. Seepage derived from the non-fractured granite will be negligible (Appendix B)

Table 4.3
Anticipated seepage into Fox pit
(increased hydraulic conductivity of kimberlite).

Flux ($m^3/s/m$)	Seepage (m^3/h)
5 9x10^{-5} (wall - fault zone 7% of pit wall)	3
5 5x10^{-5} (floor - fault zone 7% of pit floor)	15
Total	**18**

Panda Lake, however, will not be drained to the northeast of the proposed pit Future BHP plans include a dam constructed approximately 100 m northeast of the pit margin where Panda Lake narrows Field measurements have indicated that permafrost is present below the proposed dam site The revised model for seepage from Panda Lake includes permafrost to a depth of 120 metres below the proposed dam (Appendix B) Assuming that seepage from Panda Lake will be limited to the pit wall beneath the former Panda Lake, the percentage of the entire pit circumference encompassed by the unfrozen ground was measured from topographic maps provided by BHP One fault intersects the pit wall within the 100 m section The volume of seepage was calculated assuming this fault zone was 20m in width Seepage modeling suggests that once steady-state conditions within the fault zone and granite rock types are established at the point of maximum pit development, the majority of seepage into the proposed pit will be associated with this section of pit wall and, in particular, any faults providing hydraulic connection between the pit wall and remaining portion of Panda Lake The total seepage into Panda pit indicated by the initial model was refined to account for the increased seepage on the northeast pit wall Estimates of seepage are summarized in Table 4 4

As indicated in Table 4 4 the total estimated volume of seepage into the proposed pit will be 17 m^3/h The net effect on seepage volumes into Panda pit as a result of not draining Panda Lake entirely is an increase of the seepage volume from 7 m^3/h to 17 m^3/h

Based on the assumptions made, the seepage analysis indicates that there is a potential for hydraulic gradients along the fault zones that are sufficient to cause zero effective stress conditions and therefore result in possible piping of the fault gouge material before the pit reaches its design depth and before any underground mine development takes place This is viewed as a geotechnical/hydrogeology issue that will require detailed investigation, and monitoring during pit development Should high pore pressure be detected in the pit walls, pressure relief wells could be installed to improve internal drainage and slope stability

4.5.3 Koala Pit

Seepage modeling of the steady state conditions prior to the development of the proposed Koala pit suggest regional groundwater flow discharges to Koala Lake through the faulted zones and non faulted granite (Appendix B)

Once the proposed Koala pit is established at its maximum depth and steady-state conditions have prevailed, seepage from the fault zones will occur along the base of the excavation

However, seepage derived from the non-fractured granite wall rock will be negligible (Appendix B)

As indicated in Table 4 5 the total estimated volume of seepage into the proposed pit is 7 m^3/h

Table 4.4
Anticipated seepage into Panda pit.

Flux ($m^3/s/m$)	Seepage (m^3/h)
4 7x10^{-5} (wall - fault zone 6% of pit wall)	7
6 5x10^{-5} (floor - fault zone 6% of pit floor)	0 2
5 6x10^{-11} (floor - kimberlite 94% of pit floor)	0
2 8x10^{-11} (wall - granite 94% of pit wall)	0
1 3x10^{-4} (wall - fault zone in unfrozen ground)	9
9 4x10^{-6} (floor - fault zone in unfrozen ground)	1
1 1x10^{-10} (wall - granite in unfrozen ground)	0
2 1x10^{-10} (floor - kimberlite in unfrozen ground)	0
Total	**17**

Table 4.5
Anticipated seepage into Koala pit.

Flux ($m^3/s/m$)	Seepage (m^3/h)
5 2x10^{-5} (wall - fault zone 5% of pit wall)	7
8 9x10^{-6} (floor - fault - fault zone 5% of pit floor)	0 3
4 5x10^{-11} (wall - granite 95% of pit wall)	0
7 2x10^{-11} (floor - kimberlite 95% of pit floor)	0
Total	7

4.5.4 Misery Pit

As with the other pits, seepage modeling indicates the majority of seepage will be associated with the faulted wall rock and will be limited to the areas beneath permafrost (Appendix B) Table 4 6 summarizes the total estimated volume of seepage into the pit

4.5.5 Leslie Pit

Leslie pit will be similar to Panda pit in that unfrozen ground will outcrop on the proposed Leslie pit walls Moose Lake is located on the eastern pit margin of the proposed Leslie pit and an undrained section of Leslie Lake extends west from the western margin of the proposed pit Therefore, unfrozen ground will be associated with the eastern and western pit walls As in the case of Panda Lake, seepage from the unfrozen pit walls and from the unfrozen ground associated with Moose Lake and Leslie Lake was modeled As in the Panda pit model, it was assumed that one 20 m wide fault intersected the pit wall through the unfrozen section The combined seepage is presented in Table 4 7

Table 4.6
Anticipated seepage into Misery pit.

Flux ($m^3/s/m$)	Seepage (m^3/h)
3 3x10^{-5} (wall - fault zone 5% of pit wall)	3
2 7x10^{-6} (floor - fault zone 5% of pit floor)	0 1
3 2x10^{-11} (wall - granite 95% of pit wall)	0
1 7x10^{-11} (floor - kimberlite 95% of pit floor)	0
Total	**3**

Table 4.7
Anticipated seepage into Leslie pit.

Flux ($m^3/s/m$)	Seepage (m^3/h)
5 2x10^{-5} (wall - fault zone 6% of pit wall)	8 3
9 7x10^{-6} (floor - fault zone 6% of pit floor)	0 4
4 4x10^{-11} (wall - granite 94% of pit wall)	0
7 0x10^{-11} (floor - kimberlite 94% of pit floor)	0
1 5x10^{-4} (wall - fault zone in unfrozen ground)	22
1 5x10^{-5} (floor - fault zone in unfrozen ground)	0 9
9 3x10^{-10} (wall - granite in unfrozen ground)	0
3 9x10^{-10} (floor - kimberlite in unfrozen ground)	0
Total	**32**

4.6 Recharge from Neighbouring Lakes

The calculation of infiltration from each of the nearest lakes to the open pits was not completed as part of this study However, assuming that the entire volume of groundwater seepage into each of the proposed pits is derived from the surrounding lakes, and based on the anticipated length of time for the granite and faulted rock to yield water from storage, the net affect on water levels in neighbouring lakes (excluding Panda and Moose Lake) is anticipated to be small, particularly for the larger lakes such as Lac de Gras An additional factor that

will affect the net infiltration from the surrounding lakes will be the thickness of accumulated silt and sediment on each of the lake bottoms Large accumulations of silt will significantly reduce net infiltration

The close proximity of both Panda and Moose Lake to the proposed Panda and Leslie pits, and the potential for hydraulic connection of the lakes with the pits through the lateral unfrozen ground, may result in an increase in infiltration volumes from these two lakes As with the Panda pit seepage analyses, the net affect on infiltration rates in Panda Lake and Moose Lake will require detailed investigation, geologic and hydrogeologic testing, as well as follow-up monitoring as part of the next phase of study

4.7 Summary

Seepage will occur in all proposed pits due to water contained in the bedrock and the resultant hydraulic gradient established during the development of the open pits The predicted seepage values derived from the model are considered to be a conservative estimate of the total seepage into the pits once steady-state conditions have been established It is likely that the actual volume of water derived from seepage will be less than the calculated values An estimate of transient flows as the pits develop and the static water tables drop would be a more accurate refinement of the calculation of total seepage volumes Based on the regional geology, it is unlikely that the static condition, as indicated in the seepage models, will be achieved prior to pit abandonment

Pit development and the resultant lowering of the static water levels in the area surrounding each pit is not expected to affect the nearest lakes to each pit significantly except the proposed undrained portions of Panda Lake and Leslie Lake and, possibly, Moose Lake Seepage due to storage from pit walls is expected to be small, based on the specific yield of granite and faulted granite

5.0 CONCLUSIONS

Some groundwater seepage will occur in all proposed pits due to storage in the bedrock and the resultant hydraulic gradient established during the development of the open pits The calculated seepage values derived from our models are considered to be a conservative estimate of the total seepage into the pits once steady state conditions have been established It is likely that the actual volume of water derived from seepage will be much less than the calculated values However, it should be noted that BGC has only considered the steady state condition An estimate of transient flows as the pit develops and the static water table drops would be a more accurate but more time consuming refinement of the calculation of total groundwater seepage volumes Potential future studies should estimate the length of time required to achieve the static state Based on our understanding of the regional geology, we believe it is unlikely that the static condition, as indicated by our model, will be achieved prior to pit abandonment

Pit development and the resultant lowering of the static water levels in the area surrounding each pit is not expected to affect the nearest lakes to each pit significantly However, the potential seepage from each lake bottom, as indicated earlier in this report, should be incorporated into a water balance study in order to ascertain the effects, if any Once again,

consideration should be given to the length of time that will be required to achieve the static state and the resultant effect on drawdown of the neighbouring lakes

Seepage due to storage from pit walls is expected to be small, based on the specific yield of granite and faulted granite. Freezing of the pit walls is expected to further reduce the amount of seepage into the proposed pits due to storage

Due to the small seepage flows, it is expected that the length of time required to backfill the pits will be primarily controlled by the total precipitation Therefore, a calculation based on the seepage into the pit plus total annual precipitation should be completed in order to estimate the time required for backfilling the proposed pits

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Steffen Robertson & Kirsten (Canada) Inc 1994b Field notes on the "Decline Project" prepared by Dr James I Mathis of Steffen Robertson & Kirsten (Canada) Inc , July 28, 1995. The subject matter involves installation details for Fox decline thermistors

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Wilbur, Stephen 1989 Predicting sediment concentrations for small subarctic creeks in the Hoseanna Creek basin 1st International Symposium on Mining in the Arctic, Fairbanks, 17-19 July 1989, Edited by Sukumar Bandopadhyay and Frank J , Skudrzyk, Published by A A Balkema, pp 145-156

APPENDIX A

PREDICTED 2-D PERMAFROST CONFIGURATIONS

APPENDIX A

PREDICTED 2-D PERMAFROST CONFIGURATIONS

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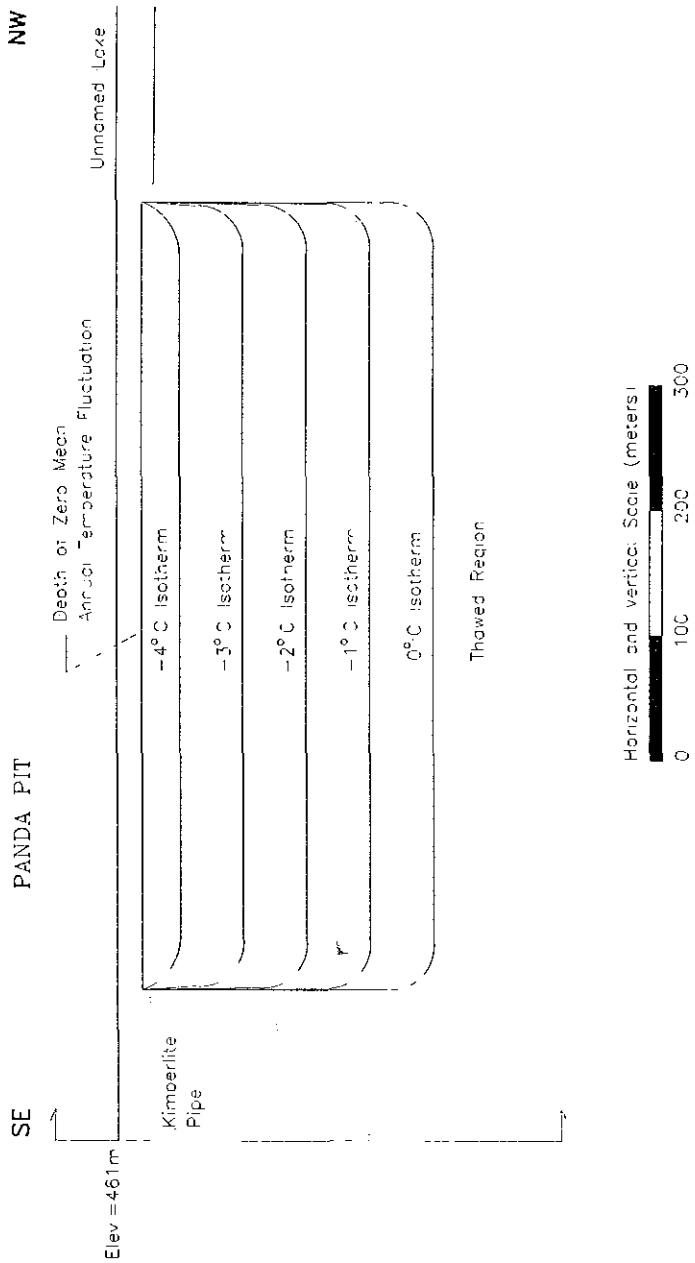

Figure A.2 Predicted 2-D configuration of permafrost - Panda Pit

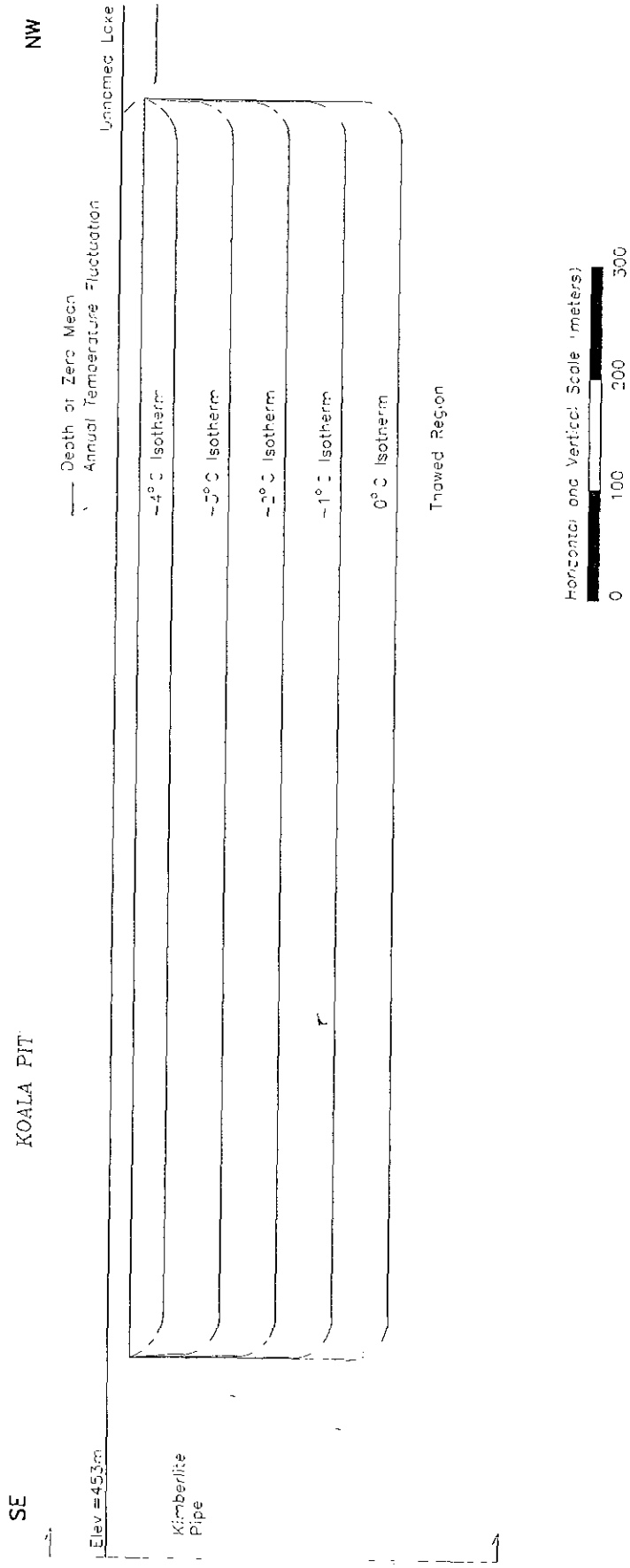

Figure A.3: Predicted 2-D configuration of permafrost - Koala Pit

APPENDIX B

ILLUSTRATED RESULTS OF GROUNDWATER MODELLING

APPENDIX B

ILLUSTRATED RESULTS OF GROUNDWATER MODELING

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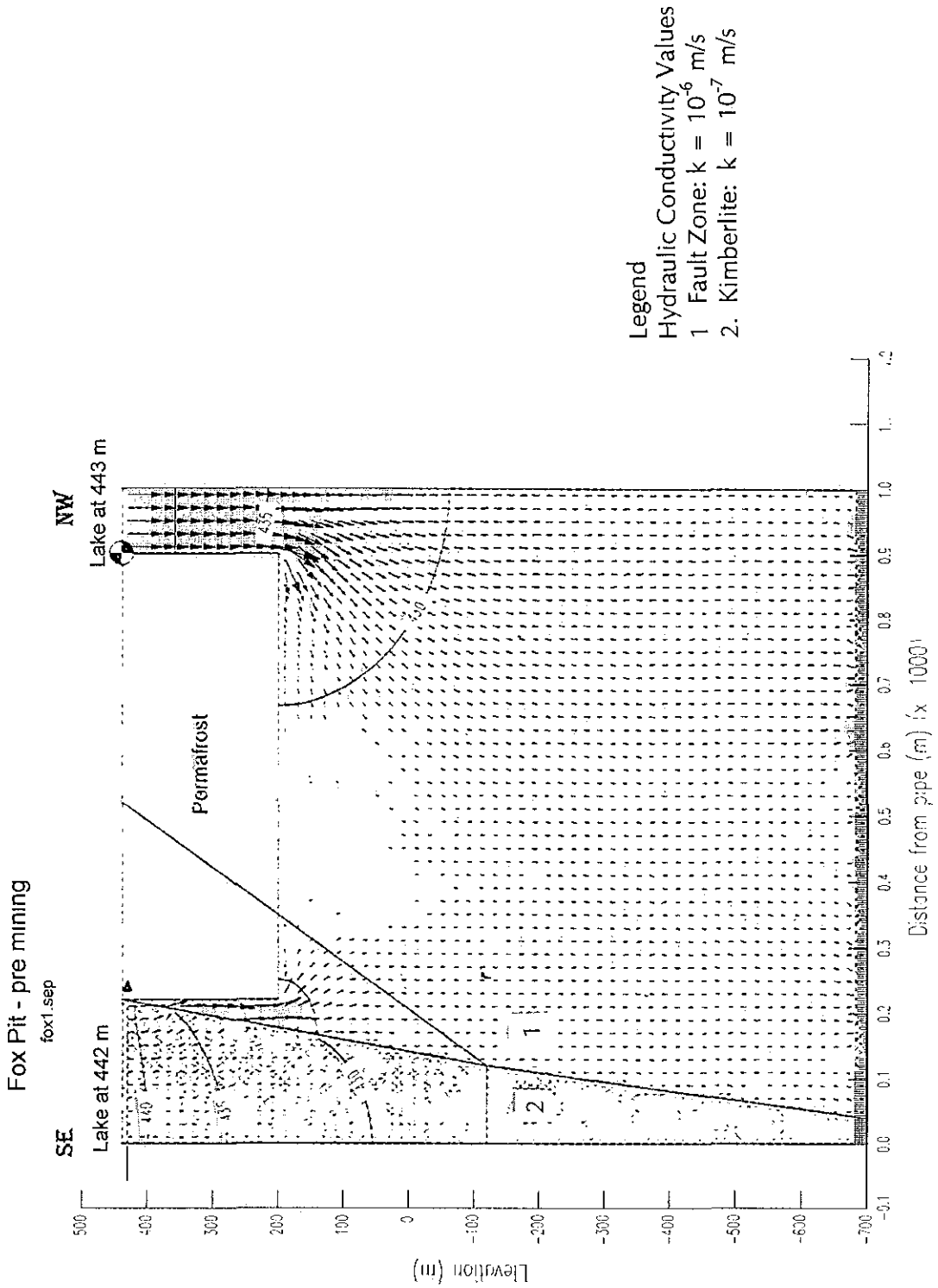

Figure B 1 Fox pit, pre-mining - fault zone and kimberlite

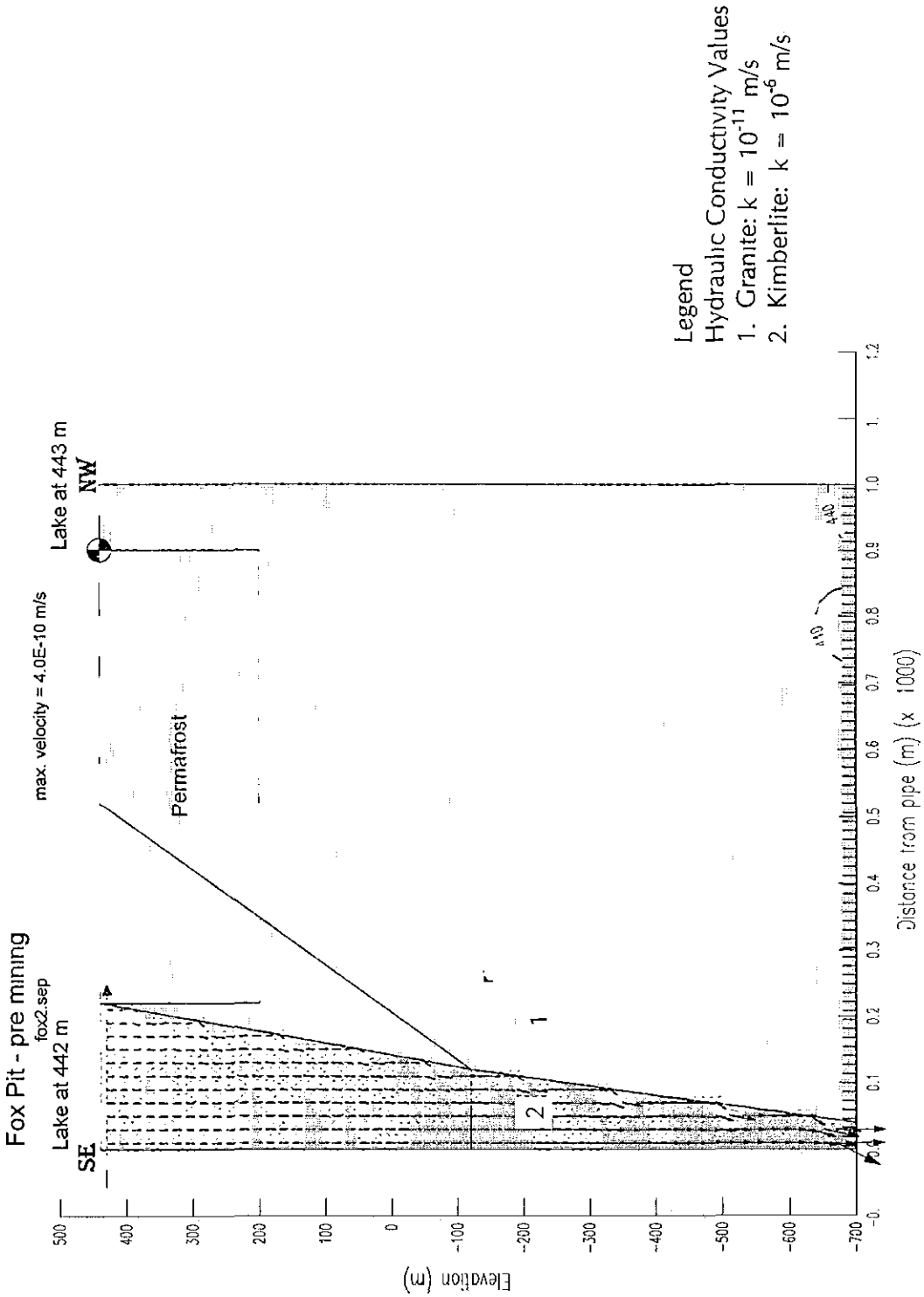

Figure B.2 Fox pit, pre-mining - granite and kimberlite

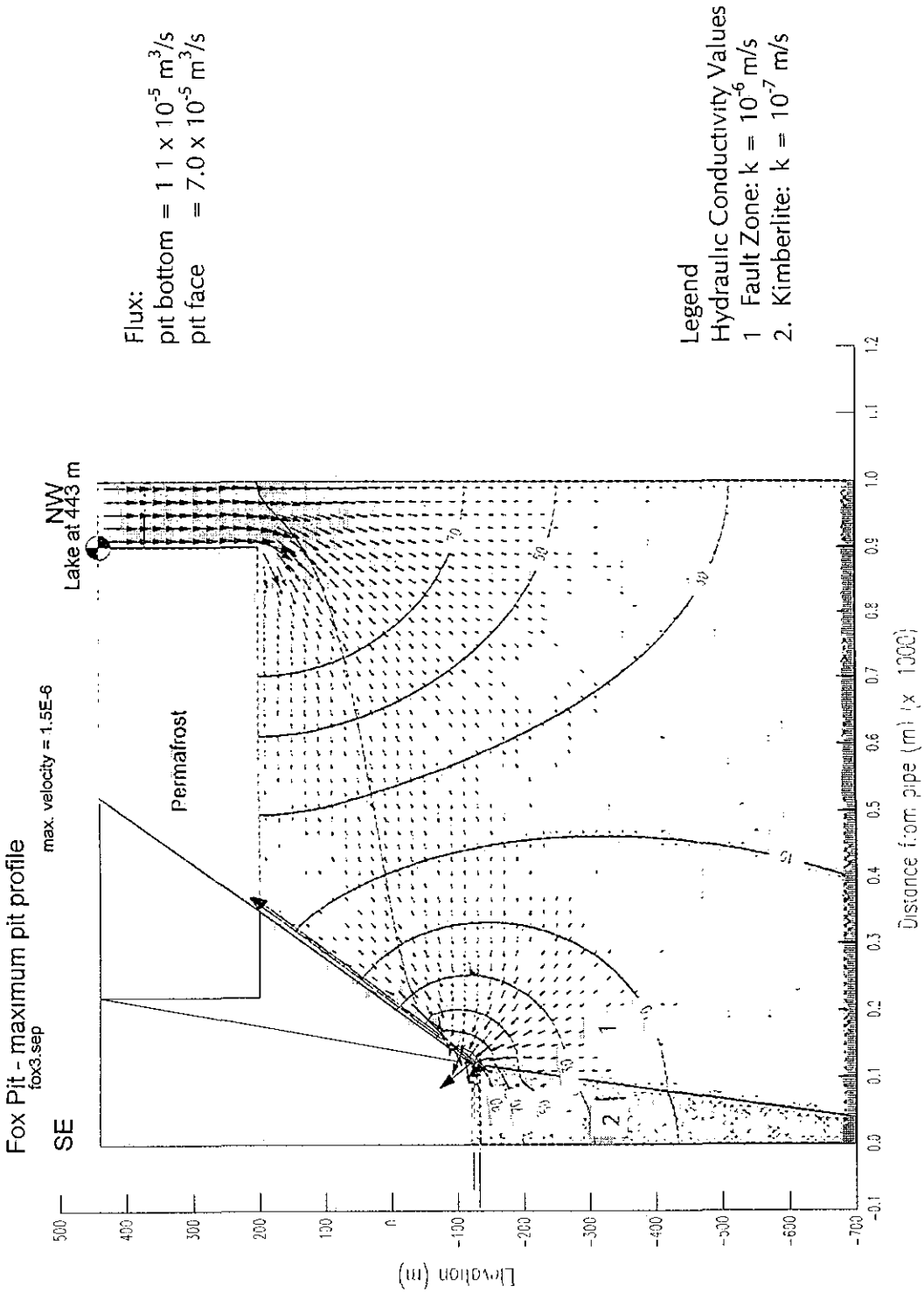

Figure B.3 Fox pit, maximum pit profile - fault zone and kimberlite

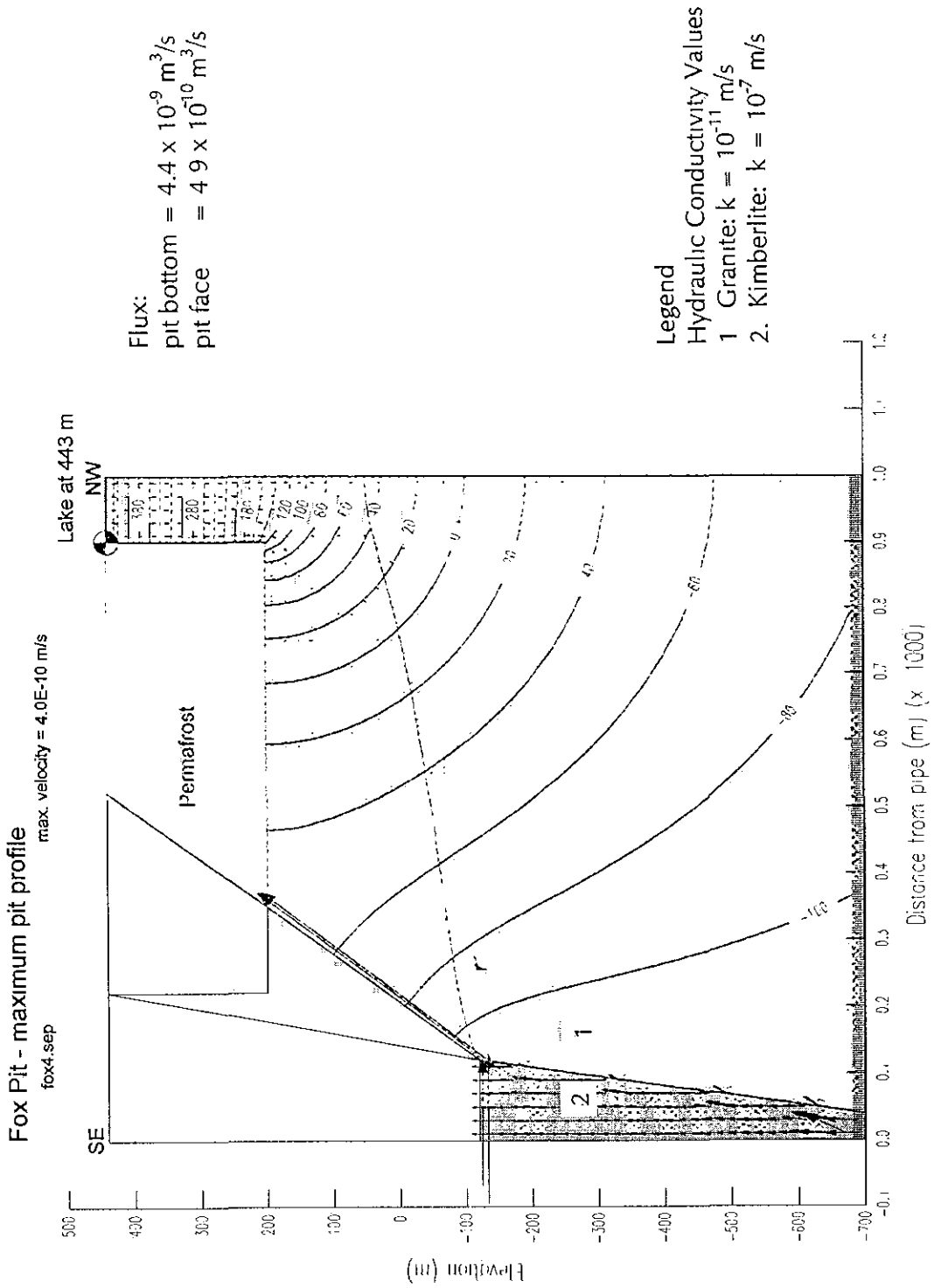

Figure B 4 Fox pit, maximum pit profile - granite and kimberlite

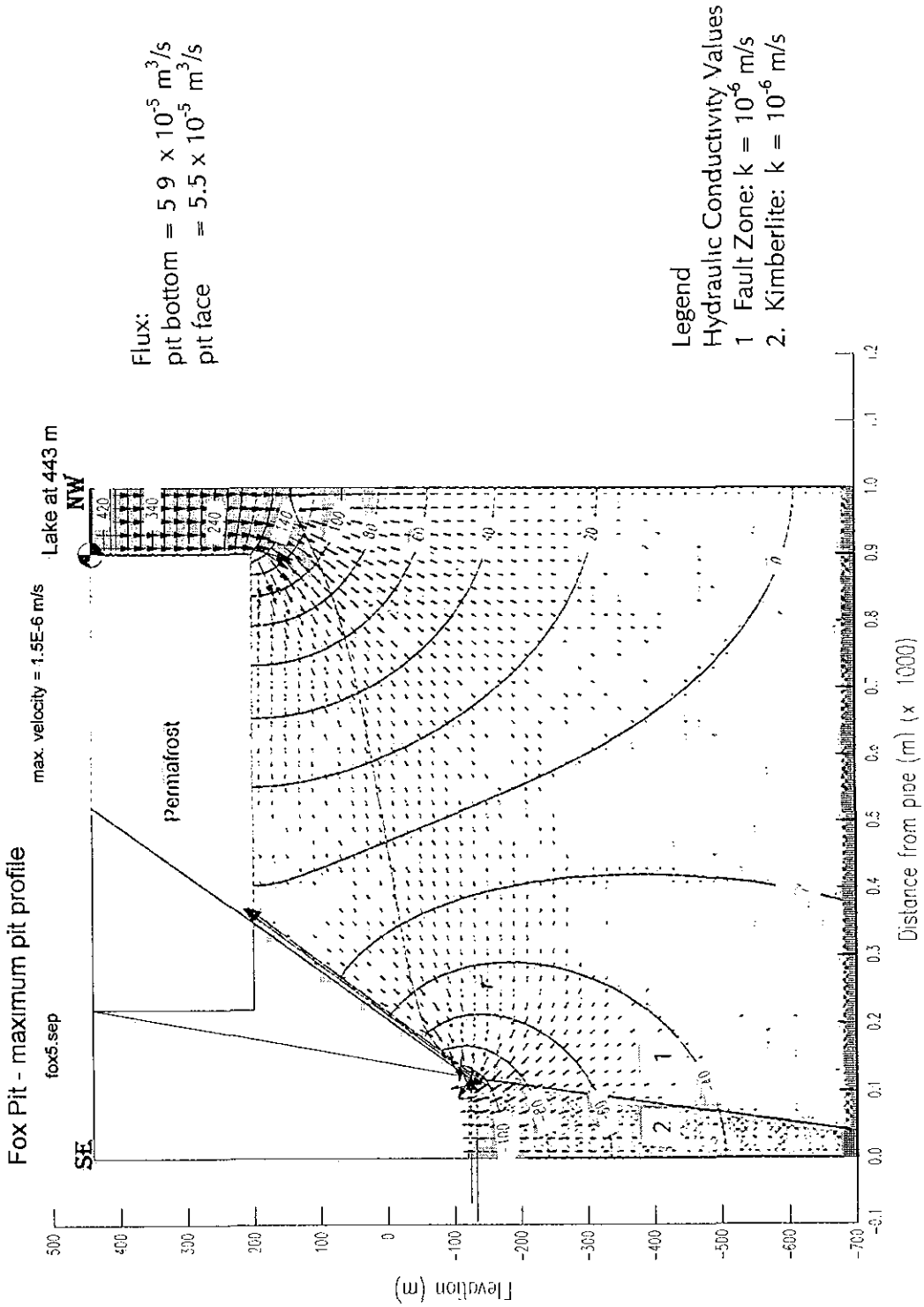

Figure B 5 Fox pit, maximum pit profile - fault zone and kimberlite ($k = 10^{-6}$ m/s)

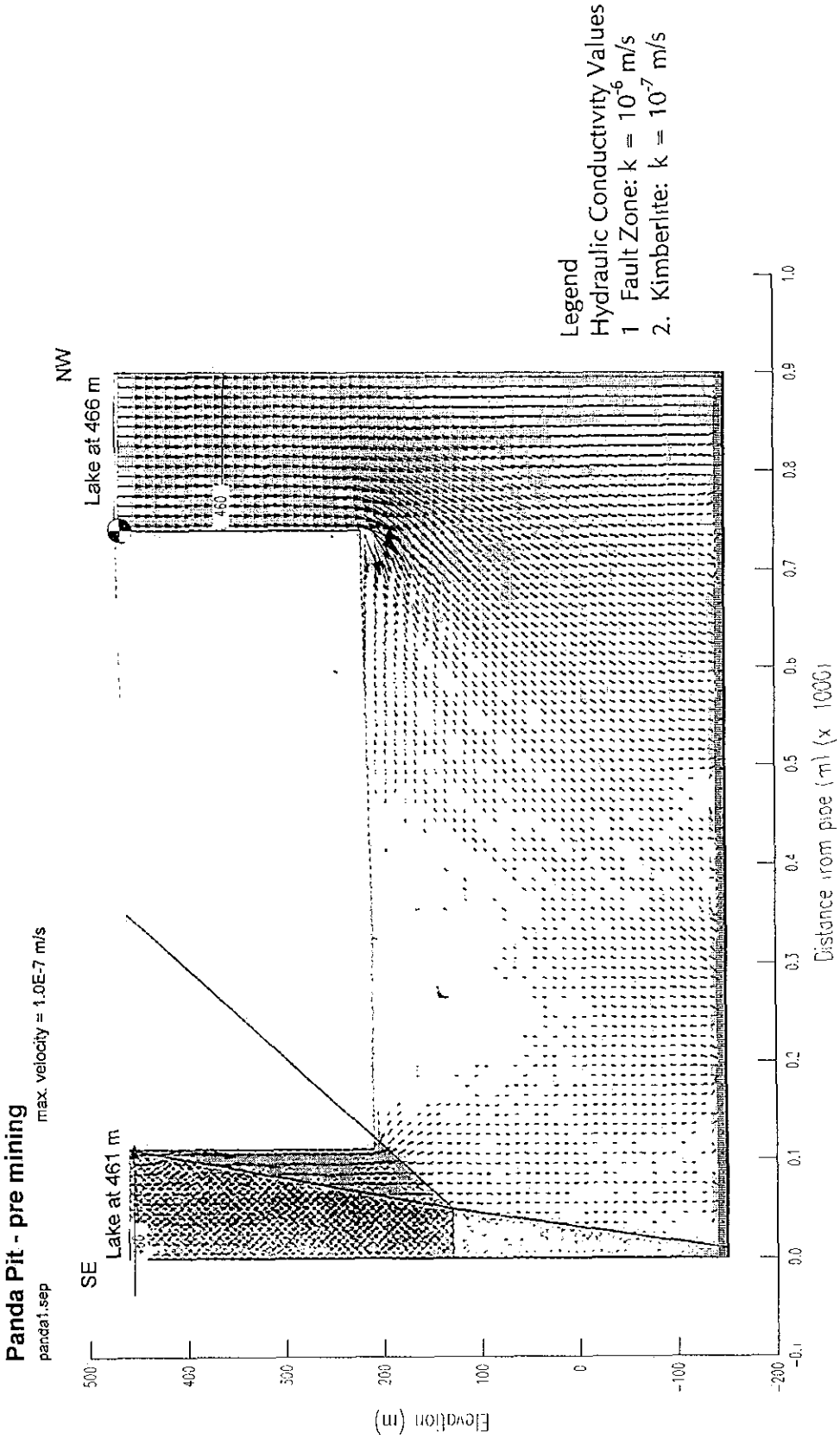

Figure B 6 Panda pit, pre-mining - fault zone and kimberlite

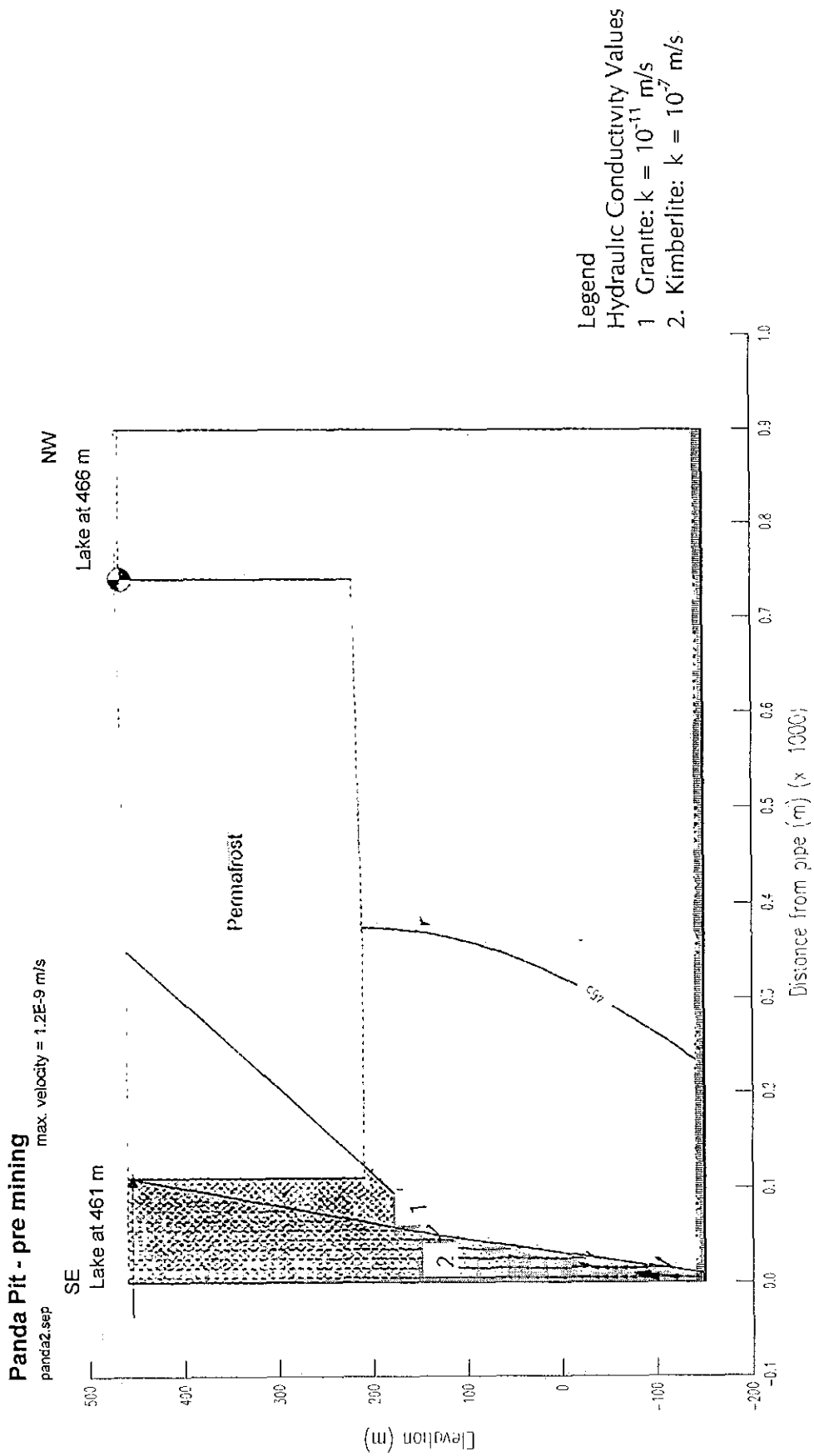

Figure B 7 Panda pit, pre-mining - granite and kimberlite

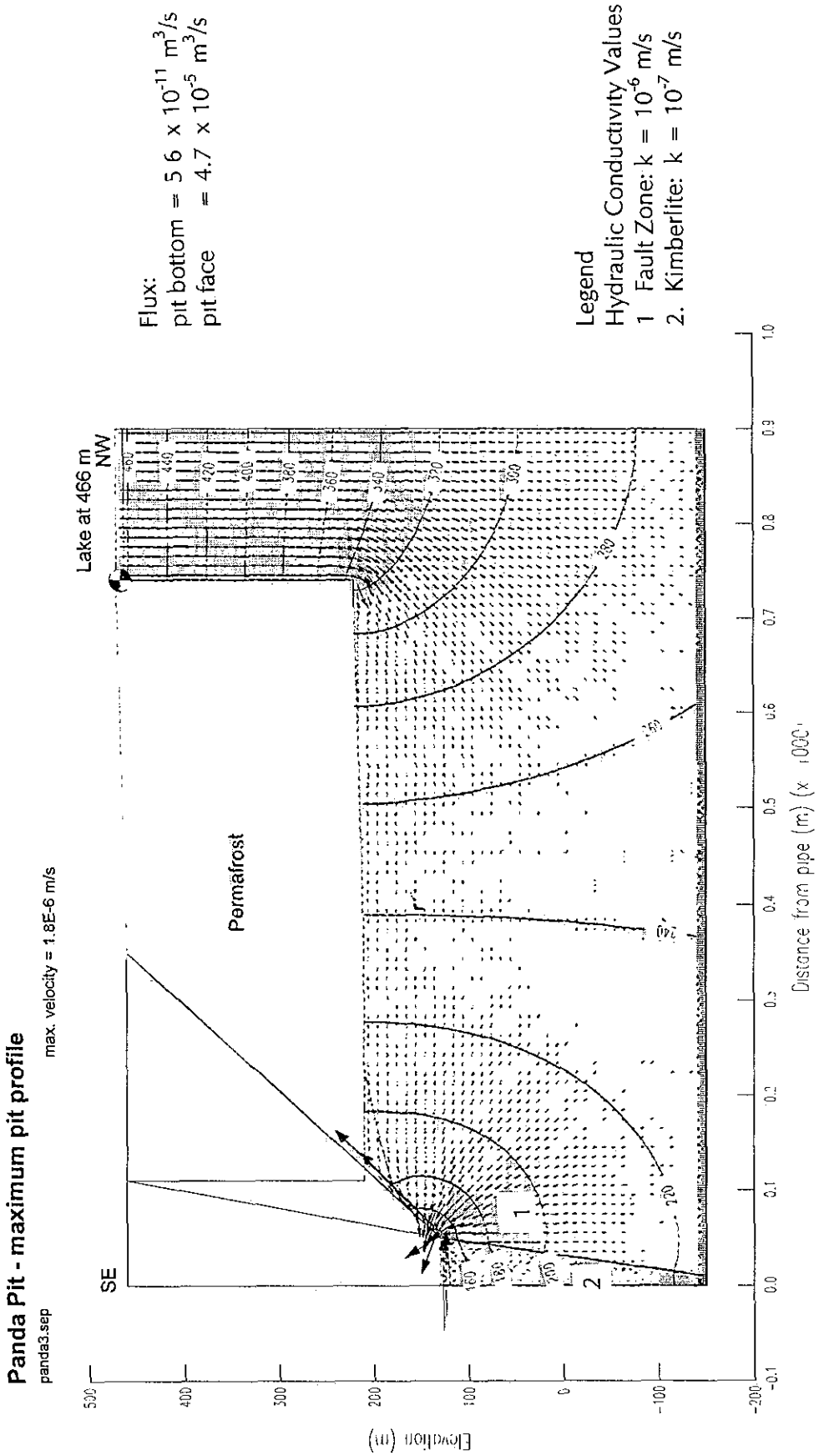

Figure B 8 Panda pit, maximum pit profile - fault zone and kimberlite

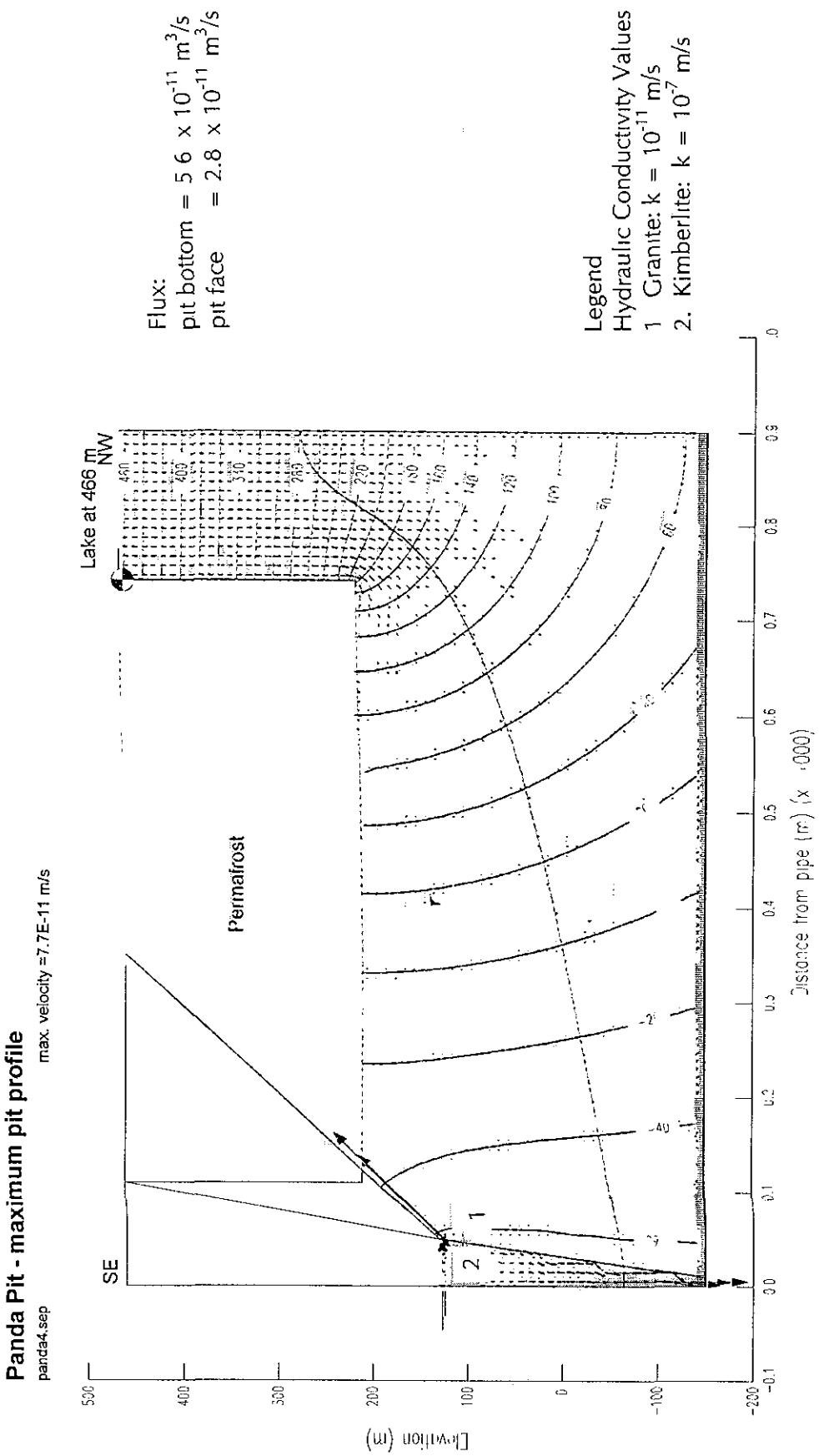

Figure B.9. Panda pit, maximum pit profile - granite and kimberlite

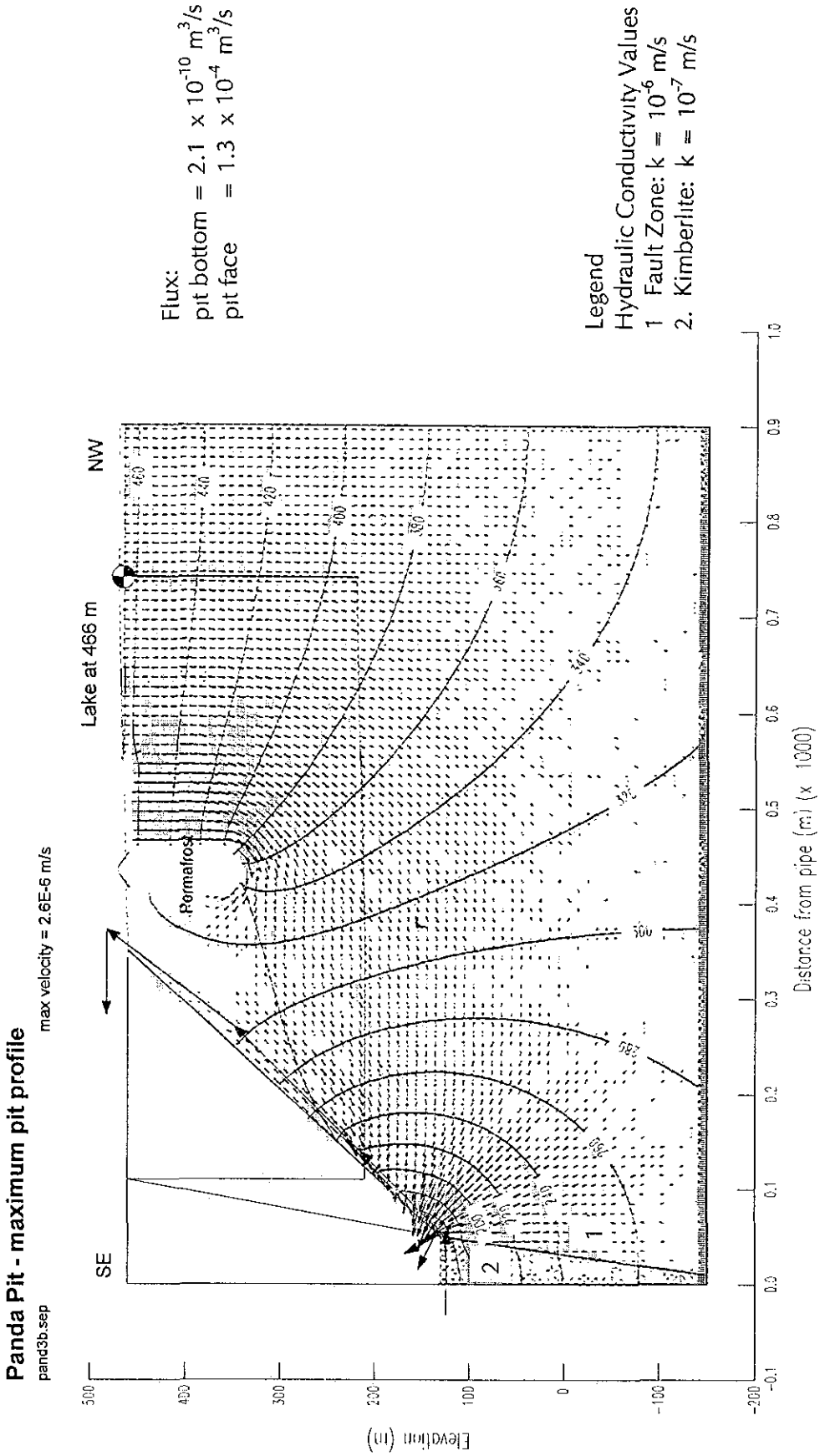

Figure B 10 Panda pit, maximum pit profile - fault zone and kimberlite with limited permafrost

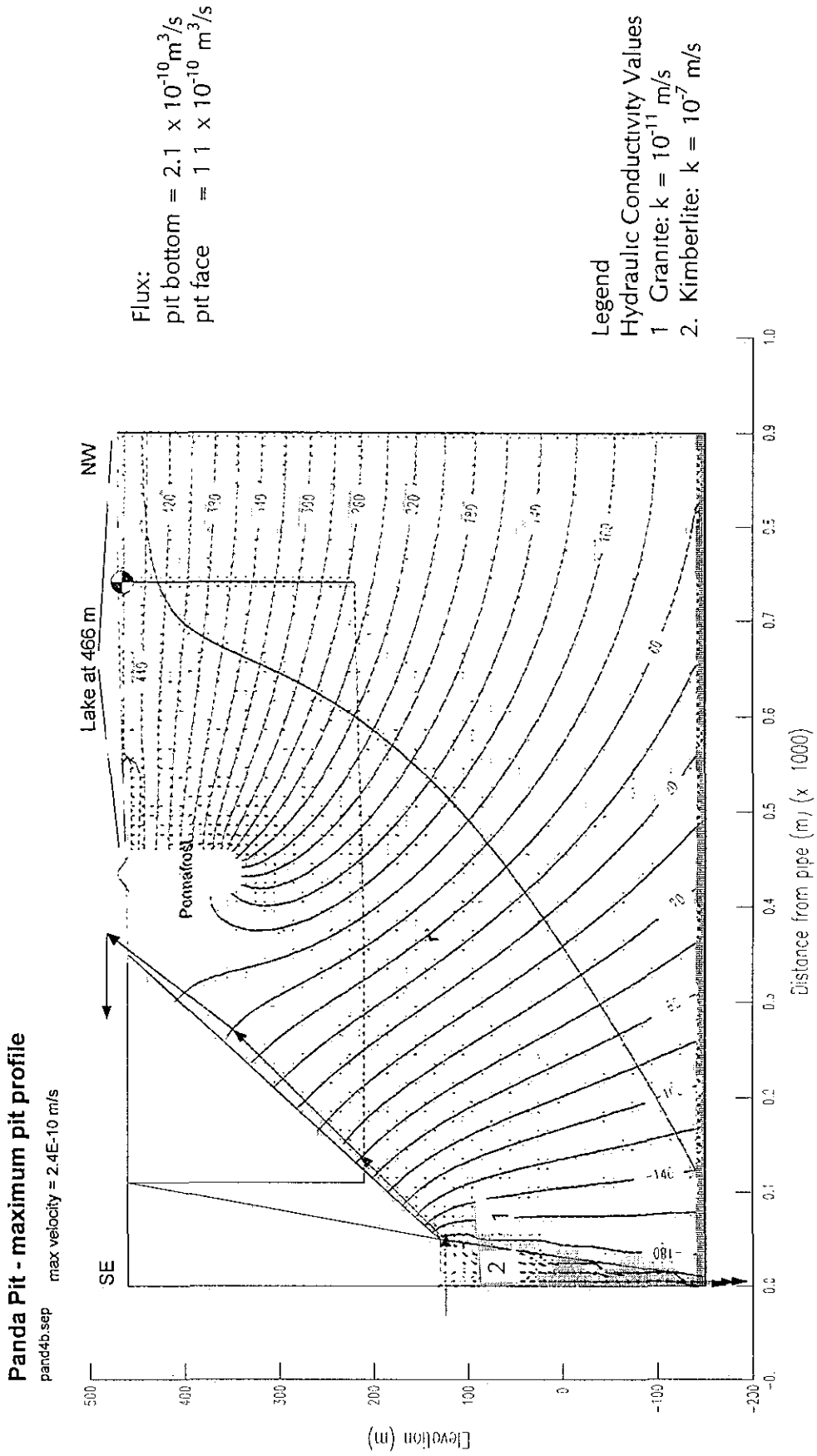

Figure B.11 Panda pit, maximum pit profile - granite and kimberlite with limited permafrost

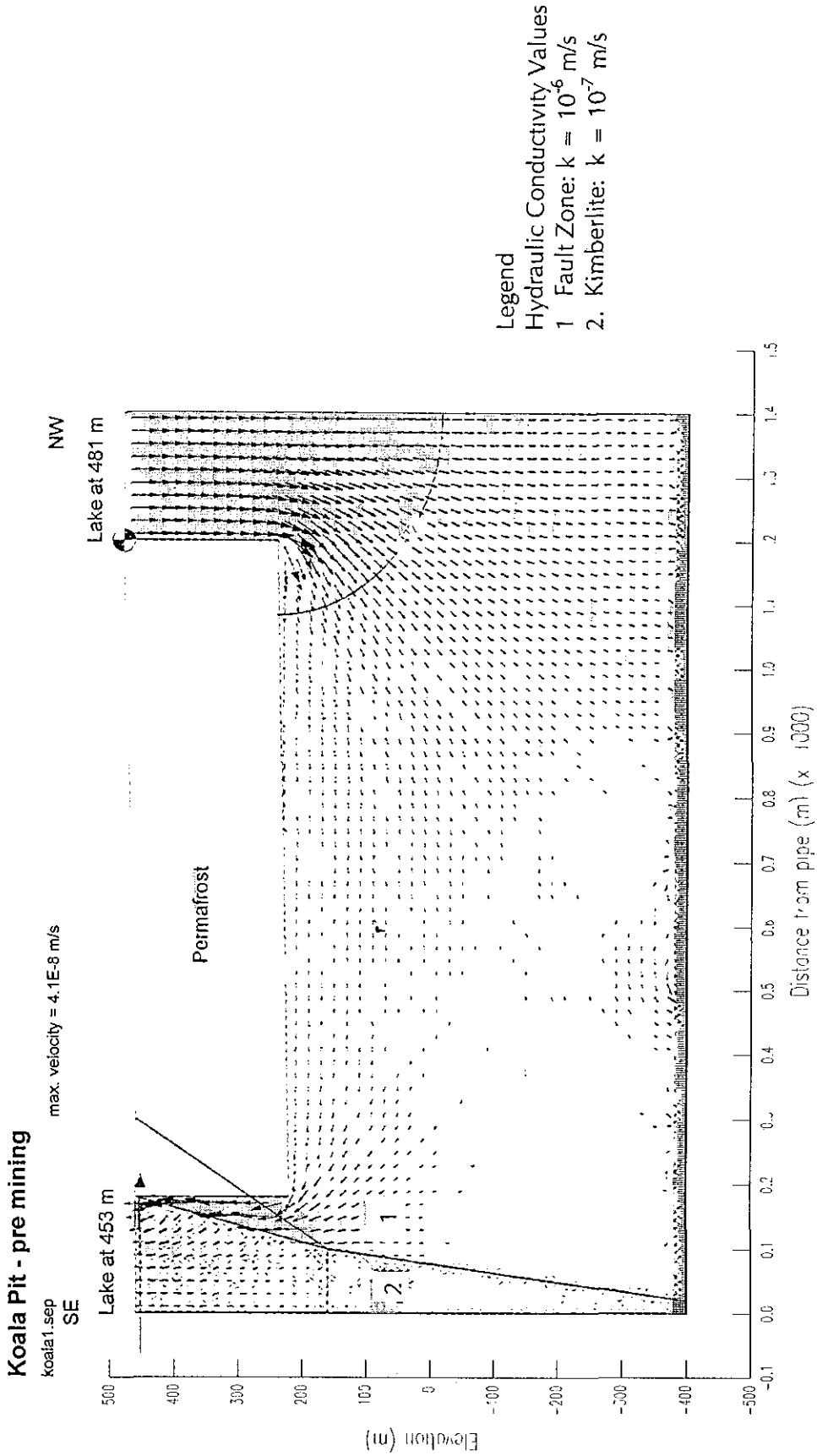

Figure B 12 Koala pit, pre-mining - fault zone and kimberlite

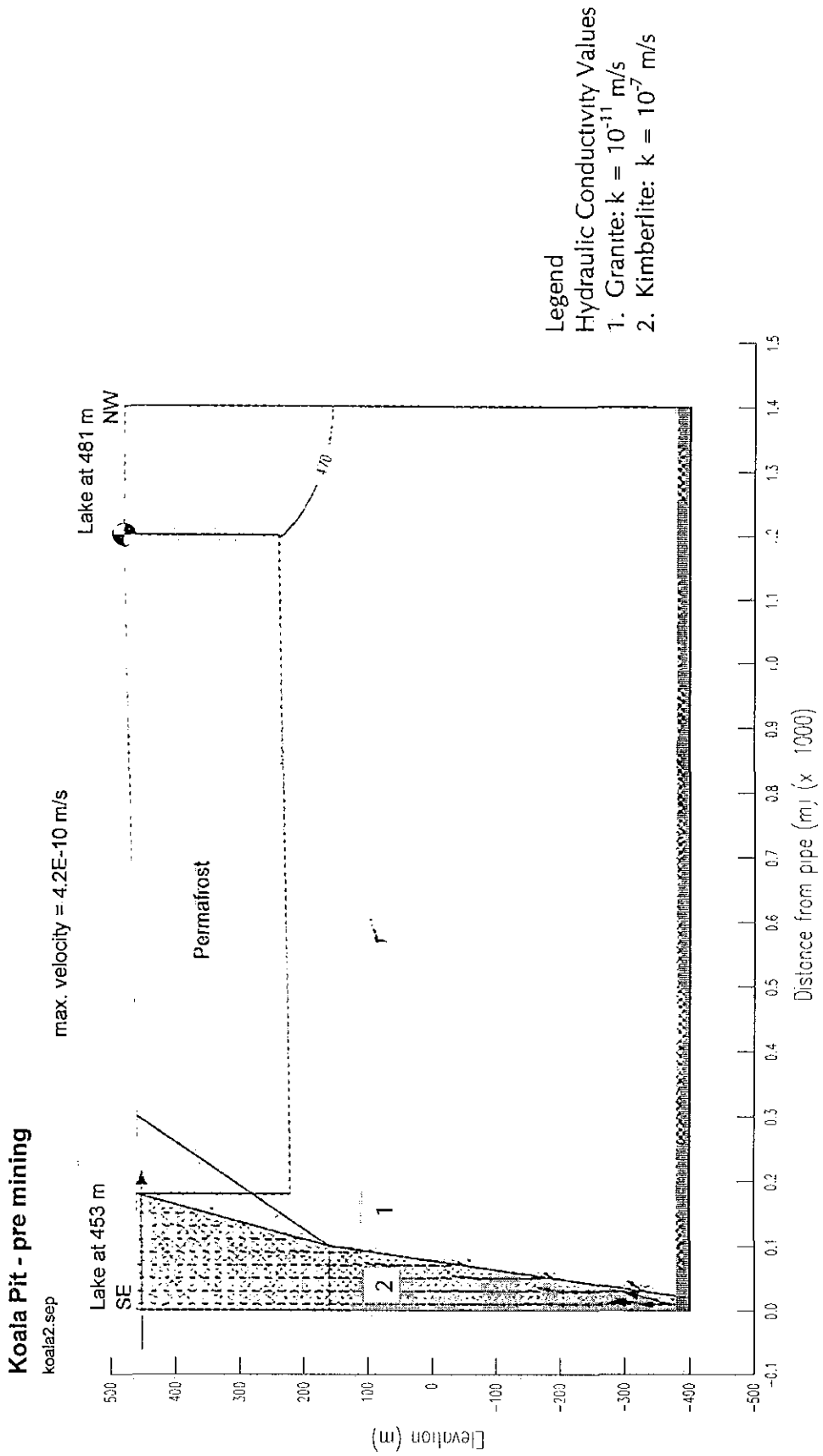

Figure B.13 Koala pit, pre-mining - granite and kimberlite

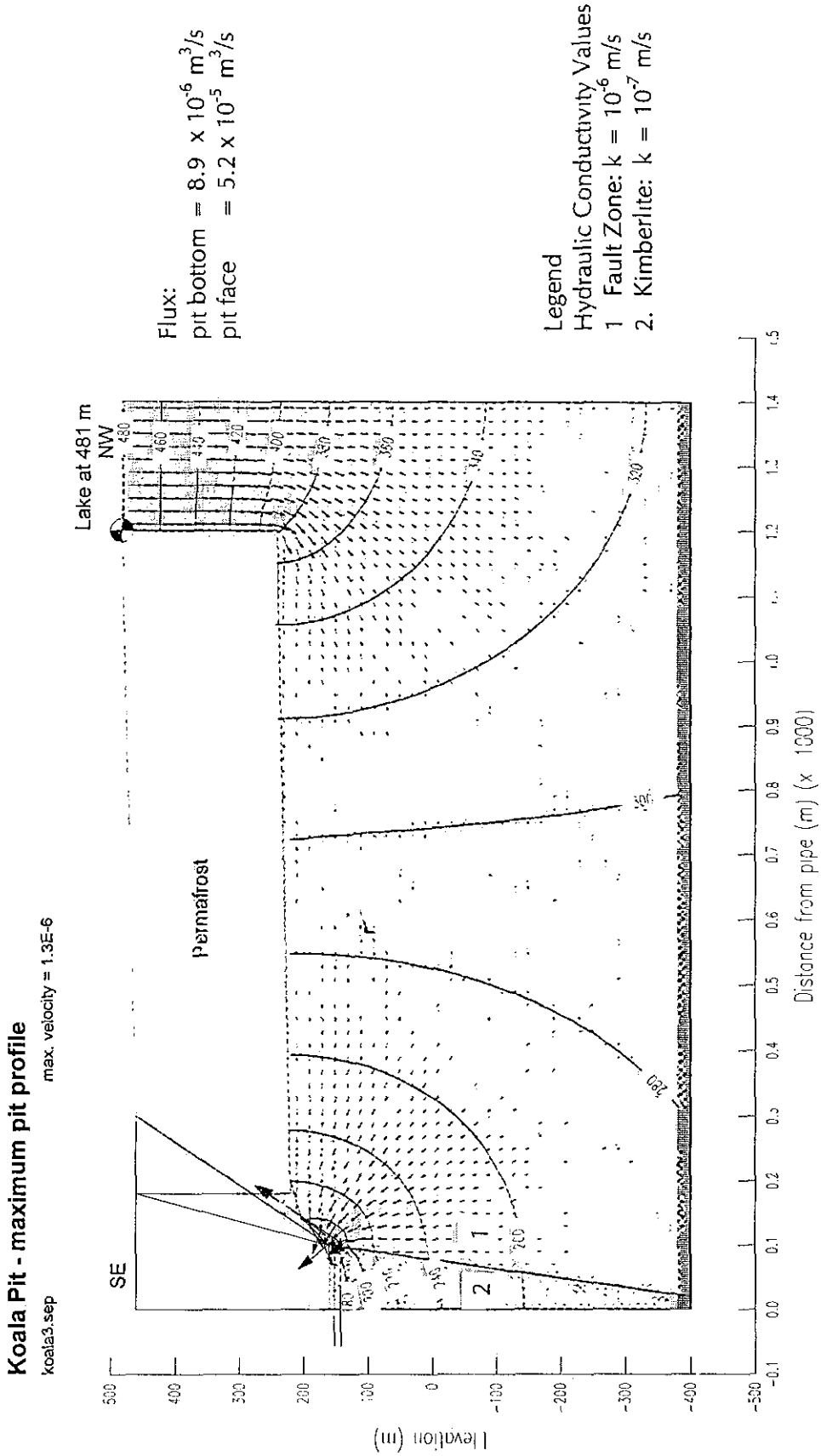

Figure B.14. Koala pit, maximum pit profile - fault zone and kimberlite

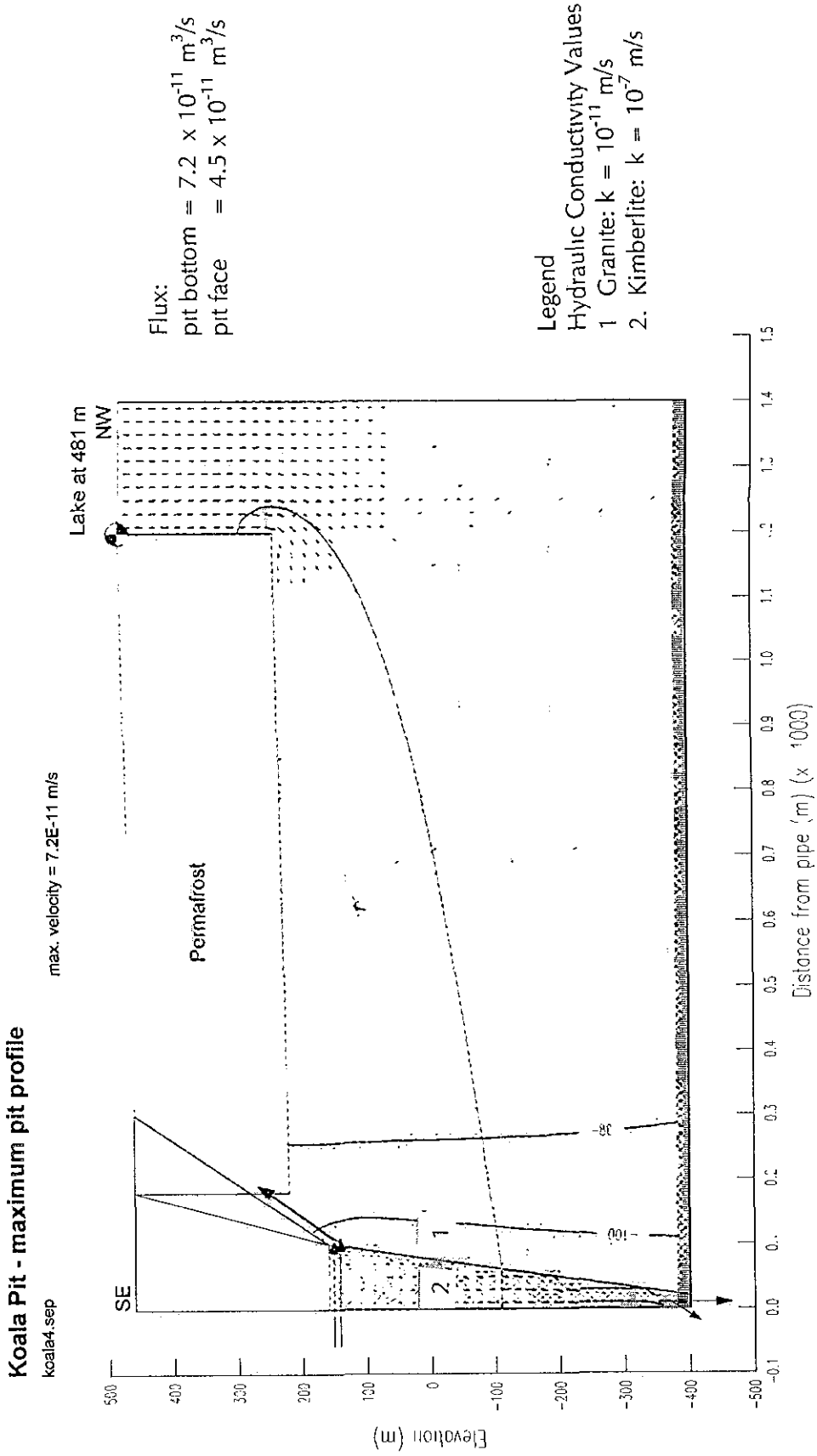

Figure B 15 Koala pit, maximum pit profile - granite and kimberlite

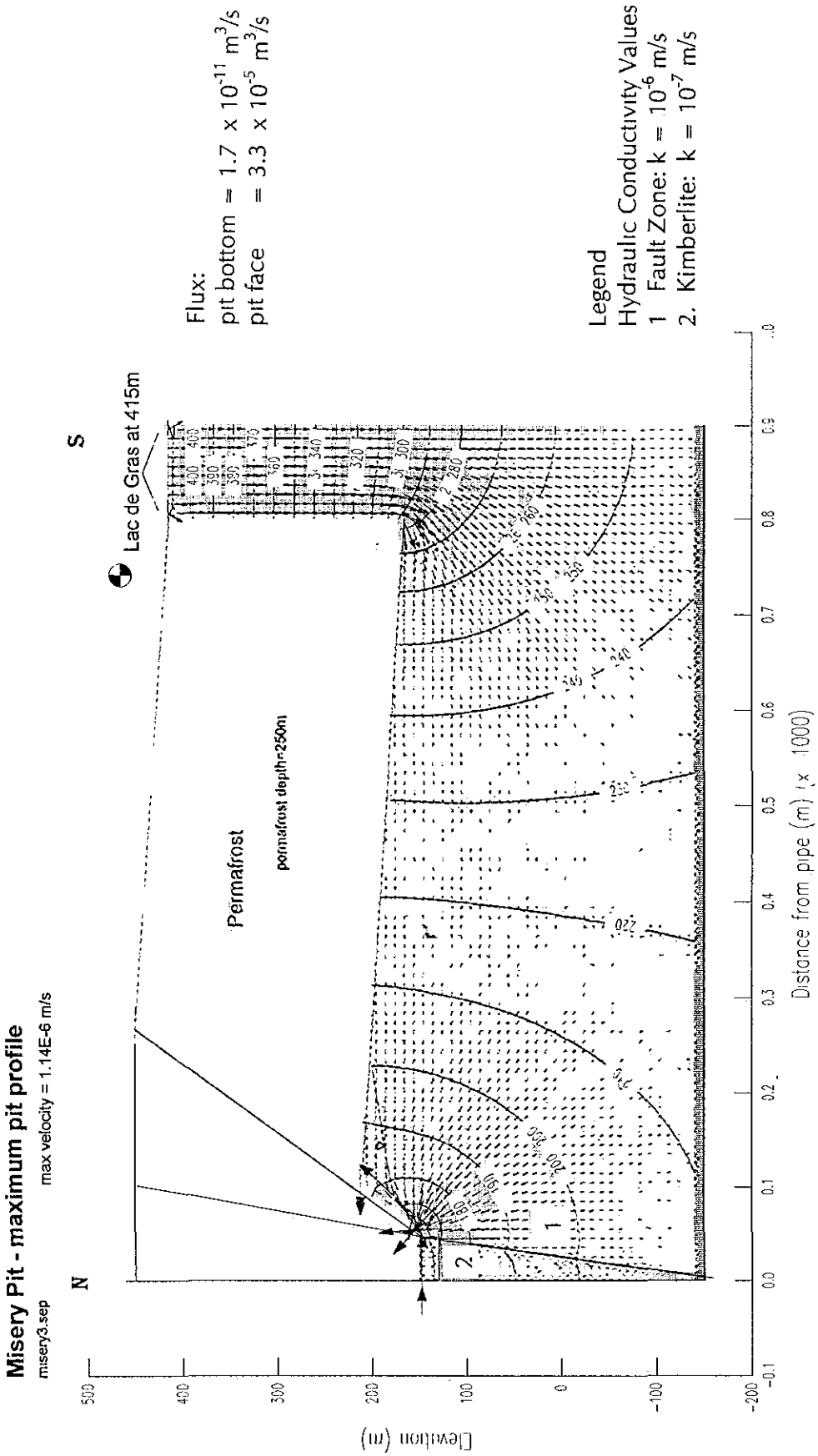

Figure B 16 Misery pit, maximum pit profile - fault zone and kimberlite

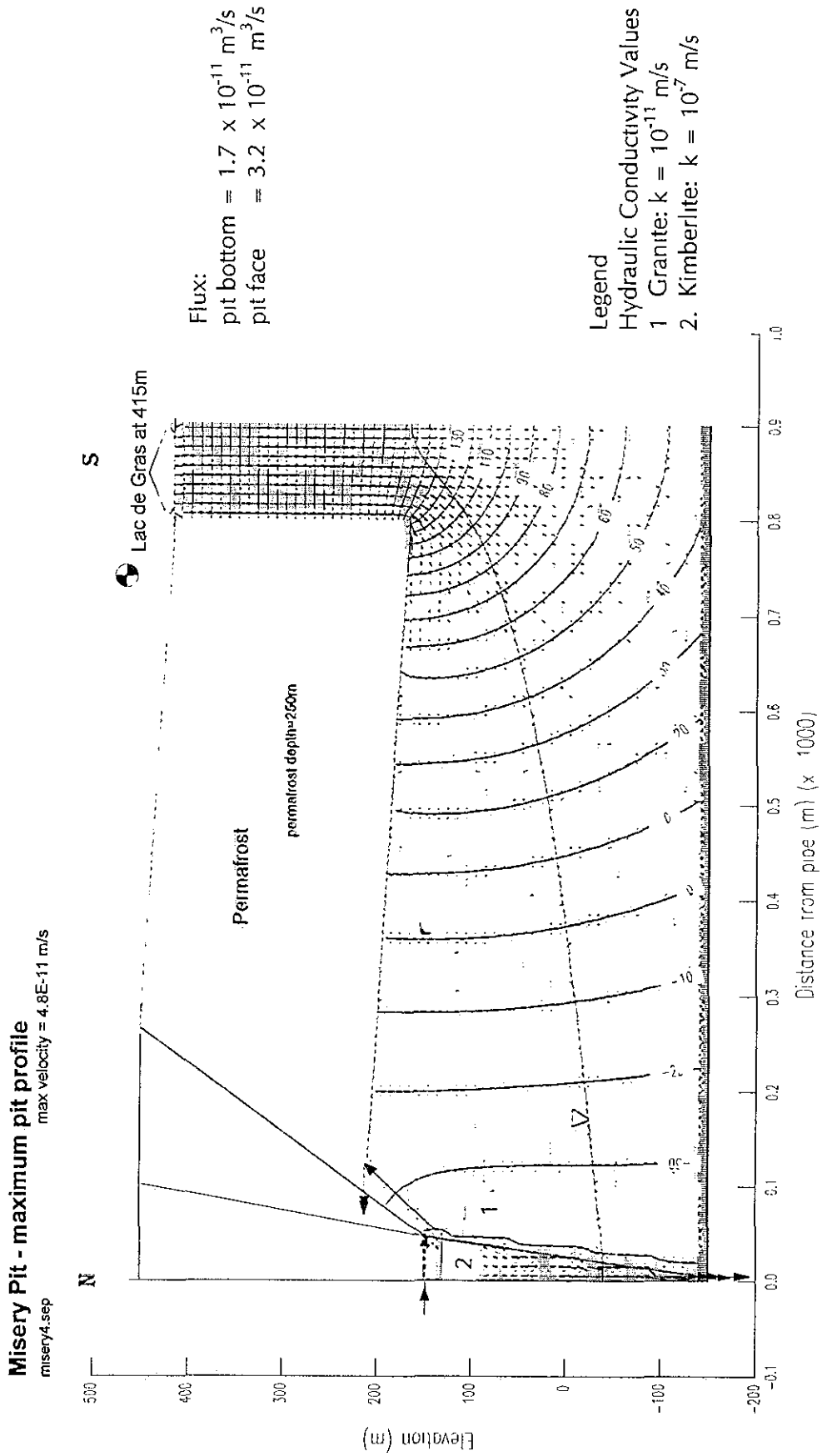

Figure B 17 Misery pit, maximum pit profile - granite and kimberlite

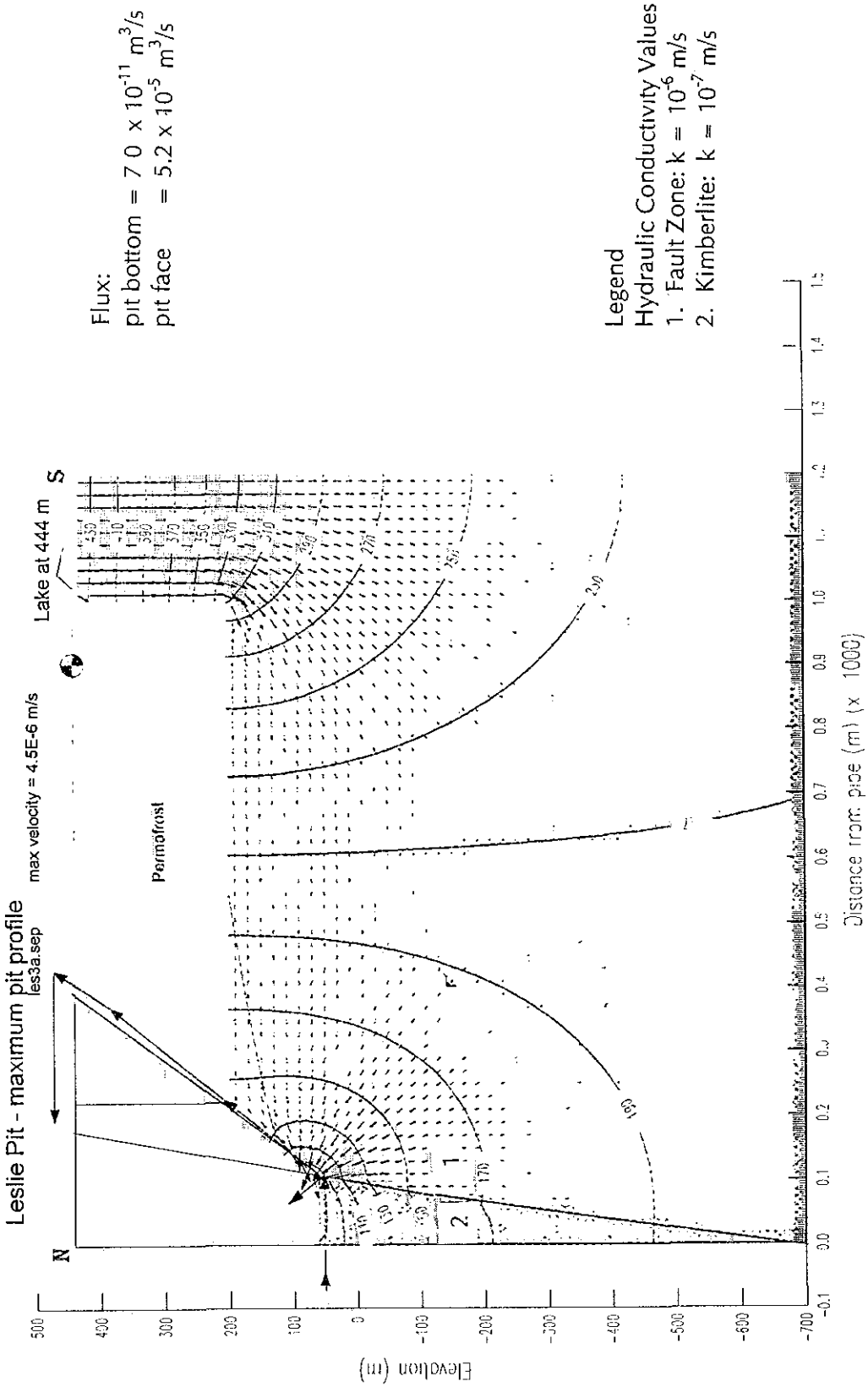

Figure B.18 Leslie pit, maximum pit profile - fault zone and kimberlite

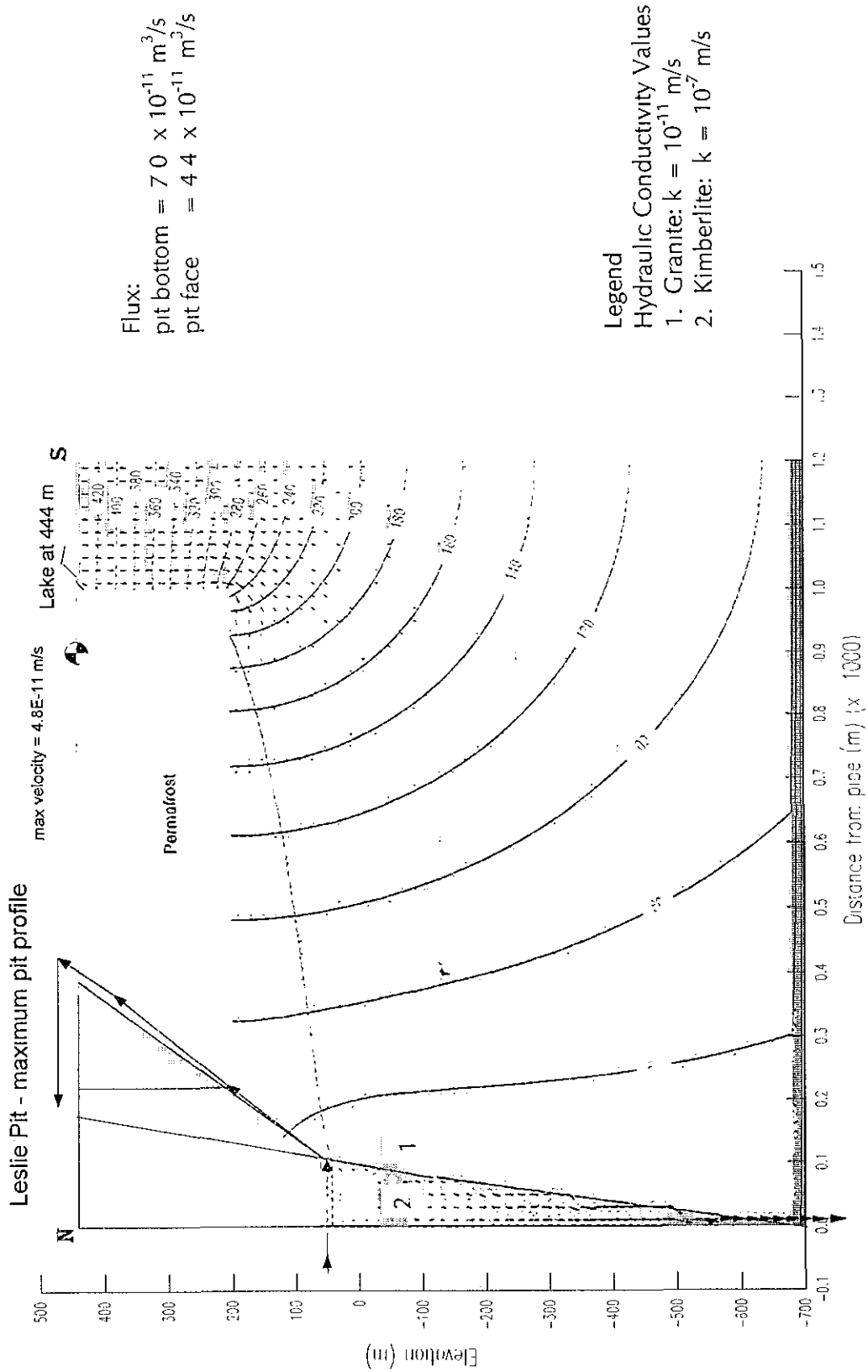

Figure B 19. Leslie pit, maximum pit profile - granite and kimberlite

Appendix II-A4

of Co

Lake Sediments For Koala and Adjacent Watersheds

	Site 32 Vulture L. 2m 94 07 01	Site 32 Vulture L. 5m 94 07 01	Site 32 Vulture L. 35m 94 07 01	Site 32 Vulture L. 4m 94 08 13	Site 32 Vulture L. 6m 94 08 13	Site 32 Vulture L. 36m 94 08 13	Site 31 Vulture-Polar 94 08 04	Site 14 Grizzly L. 1m 94 06 30	Site 14 Grizzly L. 5m 94 06 30
Moisture %	26.7	65.1	75.2	56.4	64.3	84.5	24.4	28.1	66.8
Total Kjeldahl Nitrogen							0.16		
Total Metals (µg/g)									
Arsenic	1.23	34.6	69	6.12	37.2	7 77	2.03	1.65	9.04
Cadmium	<0.10	<0.10	0.18	0.23	0.19	0.44	<0.10	<0.10	<0.10
Chromium	14 1	54.6	47.3	30.3	51 7	71.5	35.1	25.2	46.6
Cobalt	3.3	16.4	32.6	6.1	14.5	15.9	9 4	5.5	20.7
Copper	4	81.6	43.6	23.1	80.9	64.6	15.4	10.4	45.9
Iron	7170	30000	46500	14100	29500	24800	11200	8440	18800
Lead	1.8	6.8	6.7	2.8	6.3	5	2.2	1.8	3.4
Manganese	79.3	434	1330	176	405	299	145	122	874
Mercury	<0.005	0.006	0.013	<0.005	0.01	0.022	0.006	<0.005	0.009
Nickel	9.8	63.2	37 7	21 4	64 4	49.8	22	16	37.2
Selenium	<0.10	<0.10	0 41	<0.50	<0.50	0.9	<0.10	<0.10	<0.10
Silver	<0.10	<0.10	0.18	<0.10	<0.10	0.22	<0.10	<0.10	<0.10
Zinc	23.4	105	74	52.6	101	103	35.2	29.6	78.9
Total Organic Carbon %							1.35		
Gravel (>2.00mm) %							39.8		
Sand (2.0mm - 0.063mm) %							40.4		
Silt (0.063mm - 4um) %							15.3		
Clay (<4um) %							4 47		

Lake Sediments For Koala and Adjacent Watersheds

	Site 14 Grizzly L. 43m 94 06 30	Site 14 Grizzly L. 1m 94 08 13	Site 14 Grizzly L. 6m 94 08 13	Site 14 Grizzly L. 37m 94 08 13	Site 30 Grizzly-Panda 94 08 04	Site 29 Panda L. 1.5m 94 06 29	Site 29 Panda L. 4m 94 08 12	Site 29 Panda L. 8m 94 08 12	Site 29 Panda L. 10m 94 06 28
Moisture %	92.3	30.6	63.1	88.2	25.2	26.2	80.5	80.4	79
Total Kjeldahl Nitrogen					0.12				
Total Metals (µg/g)									
Arsenic	26.6	2.42	2.93	21.9	0.52	1.06	6.48	37 1	20.5
Cadmium	0.51	0.15	0.29	0.97	<0.10	<0.10	0.68	0.23	0.32
Chromium	121	14.5	35.5	76	16.6	17.9	63.3	52.7	76.6
Cobalt	23.7	3.5	24 7	28	4.6	3.9	24	77.8	60.9
Copper	234	4.5	26	168	6.5	4.5	51	47 7	63.2
Iron	57300	6920	15600	60700	6250	7100	25700	91900	60600
Lead	6.4	1.2	2.9	6.9	1.5	1.6	3.4	3.6	6.6
Manganese	546	60.8	258	544	94.3	81.6	364	2740	2390
Mercury	0.087	<0.005	0.012	0.097	<0.005	<0.005	0.029	0.05	0.037
Nickel	75.8	9 7	20	56	10.4	10.8	48.4	52.8	89.9
Selenium	1.29	<0.50	<0.50	1.98	<0.10	<0.10	<0.50	0.63	0.53
Silver	0.46	<0.10	<0.10	0.21	<0.10	<0 10	0.24	0.27	<0.10
Zinc	145	21 1	52.3	144	19.9	23.3	106	88.4	97.3
Total Organic Carbon %					1.85				
Gravel (>2.00mm) %					48.1				
Sand (2.0mm - 0.063mm) %					see below				
Silt (0.063mm - 4um) %					see below				
Clay (<4um) %					see below				

Lake Sediments For Koala and Adjacent Watersheds

	Site 29 Panda L. 14m 93 08 09	Site 29 Panda L. 17m 94 08 12	Site 29 Panda L. 18m 94 06 28	Site 29 Panda L. 18m 94 06 28
Moisture %	82.30	82.9	84.3	-
Total Kjeldahl Nitrogen				
Total Metals (µg/g)				
Arsenic	7.82	4.37	17.6	12.2
Cadmium	<.20	0.81	0.22	0.28
Chromium	78.20	116	253	217
Cobalt	16.70	23.9	64.2	57
Copper	93.60	64.9	77 7	57 7
Iron	24000	33700	64000	53200
Lead	5.60	6.3	12.8	14.8
Manganese	370	414	838	691
Mercury	0.048	0.086	0.066	0.056
Nickel	43.50	140	916	824
Selenium	0.46	0.73	0.73	0.62
Silver	0.23	0.46	<0.10	<0.10
Zinc	89.00	116	119	97.7
Total Organic Carbon %	5.69			
Gravel (>2.00mm) %	0.00			
Sand (2.0mm - 0.063mm) %	28.70			
Silt (0.063mm - 4um) %	65 10			
Clay (<4um) %	6.20			

Lake Sediments From Koala and Adjacent Watersheds

	Site 28 Panda-Koala 94 08 02	Site 27 Koala L. 6m 93 08 09	Site 27 Koala L. 6m 93 08 09	Site 27 Koala L. 2m 94 07 03	Site 27 Koala L. 2m 94 07 03	Site 27 Koala L. 9m 94 07 03	Site 27 Koala L. 18m 94 07 03	Site 27 Koala L. 2.5m 94 08 15
Moisture %	4 94	92.20		64.5	-	88.1	75.5	46.8
Total Kjeldahl Nitrogen								0.07
Total Metals (µg/g)								
Arsenic	3.31	106.00	111.00	7.96	8.67	4.52	5.93	4.47
Cadmium	<0.10	0.65	0.72	<0.10	<0.10	0.58	0.21	0.15
Chromium	23.2	78.80	73.60	34 4	35.6	69.2	136	43.1
Cobalt	16.4	68.70	76.10	11.2	11.9	17.2	24 1	15.1
Copper	6.1	109.00	111.00	21.8	22.1	109	48.5	15.6
Iron	11500	73300	66600	14200	14700	21000	29400	12400
Lead	1.2	9.80	10.60	3.4	3.5	6.9	8.9	8.5
Manganese	514	4940	4400	219	235	286	398	538
Mercury	<0.005	0.056	0.060	0.01	0.012	0.061	0.032	0.011
Nickel	16.5	105.00	111.00	24.5	24.9	47.5	136	50.2
Selenium	<0.10	0.70	0.68	<0.10	0.1	0.61	0.25	<0.50
Silver	<0.10	<.25	<.25	<0.10	<0.10	0.19	<0.10	<0.10
Zinc	41	202.00	212.00	60.3	62	104	86.8	42.5
Total Organic Carbon %	0.1	6.47						0.65
Gravel (>2.00mm) %	100	not						0.35
Sand (2.0mm - 0.063mm) %	see below	enough						86.5
Silt (0.063mm - 4um) %	see below	sample						10.3
Clay (<4um) %	see below							3.25

Lake Sediments From Koala and Adjacent Watersheds

	Site 27 Koala L. A 10m 94 08 15	Site 27 Koala L. B 10m 94 08 15	Site 27 Koala L. 18m 94 08 15	Site 26 Koala-Kodiak 94 08 02	Site 25 Kodiak L. 7m 93 08 09	Site 25 Kodiak L. 3m 94 07 02	Site 25 Kodiak L. 6m 94 07 02	Site 25 Kodiak L. 14m 94 07 02
Moisture %	60.6	50.9	75.3	81.9	79.90	91 4	87.8	71.3
Total Kjeldahl Nitrogen	0.07	0.06	-	0.6				
Total Metals (µg/g)								
Arsenic	12.2	11 1	15.8	6.29	4.58	3.22	3.91	13.5
Cadmium	<0.10	0.18	<0.50	<0.10	<.20	0.89	0.41	0.5
Chromium	34 4	34.3	131	38.7	73.80	61.5	52.8	65.4
Cobalt	36.2	39.2	25	12.4	12.20	12.5	11.5	19.1
Copper	27	25.5	50	31.8	55.90	72.5	66.3	64.4
Iron	20900	18100	40900	14800	23700	19500	17400	29800
Lead	2.7	2.8	6.4	5.2	5.10	7.2	6.3	6.5
Manganese	2420	2650	594	226	269	244	185	253
Mercury	0.014	0.013	0.041	0.031	0.022	0.038	0.046	0.022
Nickel	28.1	39	144	27.8	32.80	44.5	38.7	52.5
Selenium	<0.50	<0.50	<0.50	0.21	0.37	0.42	0.35	0.3
Silver	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	<0.10	<0.10
Zinc	52.2	52.2	82.6	66.3	87.80	102	83.3	132
Total Organic Carbon %	0.65	0.65	-	10.1	4.65			
Gravel (>2.00mm) %	0	0	-	3.02	0.00			
Sand (2.0mm - 0.063mm) %	77	76.7	-	see below	19.70			
Silt (0.063mm - 4um) %	16.6	18	-	see below	52.30			
Clay (<4um) %	6.32	5.35	-	see below	28.00			

Lake Sediments From Koala and Adjacent Watersheds

	Site 25 Kodiak L. 2m 94 08 19	Site 25 Kodiak L. A 9m 94 08 19	Site 25 Kodiak L. B 9m 94 08 19	Site 25 Kodiak L. 11m 94 08 19	Site 24 Kodiak-Little 94 08 03	Site 23 Little L. 2m 94 07 04	Site 23 Little L. 8m 94 07 04	Site 23 Little L. 8m 94 07 04
Moisture %	53.3	77.8	85.8	77.2	19	58.5	75.5	-
Total Kjeldahl Nitrogen	0.1	0.32	0.33	0.26	0.04			
Total Metals (µg/g)								
Arsenic	3.44	5.05	5.11	4.56	1 15	6.59	6.3	6.06
Cadmium	<0.10	0.13	0.12	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	23.3	56.9	58	64 4	21.9	29 1	54.3	52.1
Cobalt	6.5	11 1	14.6	12.9	6.8	8.8	34 4	31 4
Copper	7	50.2	55.9	63.3	2.6	23.5	73.1	68.2
Iron	10200	21800	20900	23100	8460	13400	48200	47000
Lead	2.1	4.8	5.5	5.4	1.6	1.9	4.8	4.6
Manganese	161	192	208	223	187	135	1700	1620
Mercury	0.005	0.029	0.035	0.037	<0.005	0.006	0.021	0.019
Nickel	14.6	33.6	33.8	38.8	13.4	28.3	35.1	35
Selenium	<0.50	<0.50	<0.50	<0.50	<0.10	<0.10	0.19	0.18
Silver	<0.10	0.13	0.12	0.14	<0.10	<0.10	<0.10	<0.10
Zinc	30.4	84.3	83.1	83.8	25.8	62.6	94.9	90.7
Total Organic Carbon %	0.75	4	4.7	2.9	0.35			
Gravel (>2.00mm) %	1.21	0	0	0	71 1			
Sand (2.0mm - 0.063mm) %	92.1	-	-	-	see below			
Silt (0.063mm - 4um) %	5.42	-	-	-	see below			
Clay (<4um) %	2.49	-	-	-	see below			

Lake Sediments From Koala and Adjacent Watersheds

	Site 23 Little L. 20m 94 07 04	Site 23 Little L. 17m 94 08 20	Site 23 Little L. 2m 94 08 21	Site 23 Little L. A 5m 94 08 21	Site 23 Little L. B 5m 94 08 21	Site 22 Little-Moose 94 08 04	Moose L. 93 08 09
Moisture %	87.2	88.9	85.1	85.1	84.6	73.9	19 10
Total Kjeldahl Nitrogen		0.54	0.41	0.41	0.38	0.67	
Total Metals (µg/g)							
Arsenic	4.88	11 4	9.03	80.4	52.4	20.2	0.62
Cadmium	0.41	0.37	<0.10	<0.10	<0.10	0.59	<.20
Chromium	64.5	68	45.4	53.1	60.8	61.6	20.50
Cobalt	19.9	21	19.5	37.3	28.4	36.5	4 40
Copper	102	99.6	47.9	96.8	103	50.5	3.00
Iron	27000	27900	24800	81100	71000	38600	7710
Lead	6.2	7.5	5.6	8.6	8.9	8	<2.0
Manganese	332	317	420	1300	556	559	151
Mercury	0.044	0.075	0.03	0.048	0.053	0.05	<.005
Nickel	49.4	49	46.4	43.1	48	44	11.80
Selenium	0.59	0.9	0.16	0.82	0.62	0.33	< 10
Silver	0.25	0.22	<0.10	<0.10	<0.10	<0.10	<.10
Zinc	128	115	105	112	133	104	26.90
Total Organic Carbon %		7.95	4 1	4.95	4.9	10.8	0.12
Gravel (>2.00mm) %		0	0	0	0	see below	70.90
Sand (2.0mm - 0.063mm) %		-	-	-	-	see below	28.70
Silt (0.063mm - 4um) %		-	-	-	-	see below	0.10
Clay (<4um) %		-	-	-	-	see below	0.30

Lake Sediments From Koala and Adjacent Watersheds

	Site 21 Nancy-Long 94 06 13	Site 21 Nancy-Long 94 06 13	Long L. 5m 93 08 09	Site 20 Long (N) L. 3m 94 07 15	Site 20 Long (N) L. 3m 94 07 16	Site 20 Long (N) L. 5m 94 07 15	Site 20 Long (N) L. 22m 94 07 15	Site 19 Long (S) L. 3m 94 07 14
Moisture %	82.3	-	76.30	85.2	-	83.3	83.5	70.9
Total Kjeldahl Nitrogen								
Total Metals (µg/g)								
Arsenic	2.89	2.75	11.60	4 76	3.95	4.25	248	6.45
Cadmium	0.18	0.19	<.20	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	44.3	44 4	103.00	78.3	71.5	79.7	77.2	86.5
Cobalt	8.6	8.6	14.20	18	17.2	14.6	106	17 7
Copper	42.2	41.2	87.90	45.4	40.8	57.9	110	70.9
Iron	13800	13800	30100	28400	25500	25600	124000	30100
Lead	2.9	3.4	6 70	5.8	5.1	5	4.9	5.1
Manganese	172	170	421	400	342	288	9310	364
Mercury	0.033	0.036	0.013	0.012	0.01	0.013	0.031	0.012
Nickel	31.5	31.2	66.50	64.5	56.7	46.9	45.2	80.2
Selenium	0.2	0.21	0.21	0.12	<0.10	<0.10	0.31	<0.10
Silver	<0.10	<0.10	<.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc	46.7	46.6	123.00	139	121	114	122	144
Total Organic Carbon %			2.41					
Gravel (>2.00mm) %			0.00					
Sand (2.0mm - 0.063mm) %			1 40					
Silt (0.063mm - 4um) %			64.50					
Clay (<4um) %			34 10					

Lake Sediments From Koala and Adjacent Watersheds

	Site 19 Long (S) L. 6m 94 07 14	Site 19 Long (S) L. 32m 94 07 14	Site 18 Long-Leslie 94 08 08	Site 17 Leslie L. 3m 94 07 14	Site 17 Leslie L. 6m 94 07 14	Site 17 Leslie L. 11m 94 07 14	Site 17 Leslie L. 11m 94 07 14	Site 17 Leslie L. 3m 94 08 22
Moisture %	71 4	86	11.8	60.4	85.9	86.3	-	59.8
Total Kjeldahl Nitrogen			0.01					0.12
Total Metals (µg/g)								
Arsenic	6.07	34	0.76	3.72	2.32	2.81	2.71	2.5
Cadmium	0.22	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	74 7	80	23.6	48.8	61.6	69.6	66.3	58
Cobalt	17 4	69.3	5.3	11.6	11 1	14 4	13.8	11.5
Copper	68.1	106	9.7	18.4	53.9	53	50	15
Iron	26400	85400	9770	21300	21300	22700	21700	20800
Lead	4.7	4 7	2.2	4.3	6.3	6.4	6.2	5.2
Manganese	278	3220	111	397	215	269	257	249
Mercury	0.013	0.051	<0.005	0.007	0.018	0.028	0.028	0.01
Nickel	53	68.9	16.8	28.6	37 7	42.4	38.9	26
Selenium	0.1	0.99	<0.10	<0.10	0.25	0.32	0.31	<0.50
Silver	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc	121	157	24.6	59 4	88.9	96	92.1	56.9
Total Organic Carbon %			0.05					2.35
Gravel (>2.00mm) %			65.2					0.12
Sand (2.0mm - 0.063mm) %			32					13.5
Silt (0.063mm - 4um) %			2.18					77.5
Clay (<4um) %			0.54					8.88

Lake Sediments From Koala and Adjacent Watersheds

	Site 17 Leslie L. A 5m 94 08 22	Site 17 Leslie L. B 5m 94 08 22	Site 17 Leslie L. 11m 94 08 22	Site 17 Leslie L. 3m 94 08 22	Site 17 Leslie L. A 5m 94 08 22	Site 17 Leslie L. B 5m 94 08 22	Site 17 Leslie L. 11m 94 08 22	Site 16 Leslie-Moose 94 06 10
Moisture %	60.5	61.2	82.9	59.8	60.5	61.2	82.9	29.9
Total Kjeldahl Nitrogen	0.14	0.14	0.53	0.12	0.14	0.14	0.53	
Total Metals (µg/g)								
Arsenic	3.32	3.18	3.22	2.5	3.32	3.18	3.22	1 15
Cadmium	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	57.3	56.3	65.6	58	57.3	56.3	65.6	21.6
Cobalt	12.5	11	14.5	11.5	12.5	11	14.5	3.4
Copper	16.4	15.9	44 4	15	16.4	15.9	44 4	6.5
Iron	22400	21300	22400	20800	22400	21300	22400	6890
Lead	4 4	4.2	6.2	5.2	4.4	4.2	6.2	2.4
Manganese	271	275	263	249	271	275	263	89 4
Mercury	0.012	0.012	0.038	0.01	0.012	0.012	0.038	0.008
Nickel	26.7	25.2	39.8	26	26.7	25.2	39.8	10.8
Selenium	<0.50	<0.50	0.52	<0.50	<0.50	<0.50	0.52	<0.10
Silver	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc	56.2	57 7	88.2	56.9	56.2	57 7	88.2	19.8
Total Organic Carbon %	2.6	2.05	5.9	2.35	2.6	2.05	5.9	
Gravel (>2.00mm) %	0	0	0	0.12	0	0	0	
Sand (2.0mm - 0.063mm) %	13.5	-	-	13.5	13.5	-	-	
Silt (0.063mm - 4um) %	77 4	-	-	77.5	77 4	-	-	
Clay (<4um) %	9 13	-	-	8.88	9 13	-	-	

Lake Sediments From Koala and Adjacent Watersheds

	Site 16 Leslie-Moose 94 08 08	Site 15 Moose L. 2m 94 07 06	Site 15 Moose L. 2m 94 07 06	Site 15 Moose L. 9m 94 07 06	Site 15 Moose L. 1.5m 94 08 22	Site 15 Moose L. A 9m 94 08 22	Site 15 Moose L. B 9m 94 08 22	Site 15 Moose L. 1.5m 94 08 22
Moisture %	89	73.8	-	83.5	69.4	83.9	84.5	69.4
Total Kjeldahl Nitrogen	1.62				0.25	0.54	0.61	0.25
Total Metals (µg/g)								
Arsenic	1 79	4.39	4.08	2.06	1.92	2.63	2.94	1.92
Cadmium	0.71	<0.10	<0.10	<0.10	0.18	0.33	<0.10	0.18
Chromium	37	57 1	54.5	64.1	45.8	52.3	56.9	45.8
Cobalt	5.9	12.8	13.2	11 7	10	10.1	13	10
Copper	56.4	33	31.6	56.9	28	48	50.1	28
Iron	10500	26300	26200	19100	15600	16500	19100	15600
Lead	4 7	5.7	6.2	4.8	4 1	5.6	7.5	4.1
Manganese	101	305	297	233	187	213	253	187
Mercury	0.038	0.02	0.018	0.036	0.012	0.033	0.047	0.012
Nickel	26.3	32.9	32.5	36.1	30.7	32.8	34 4	30.7
Selenium	0.52	0.22	0.2	0.42	<0.50	0.62	0.62	<0.50
Silver	<0 10	<0.10	<0.10	<0.10	<0.10	0.19	0.19	<0.10
Zinc	37 7	81.3	78.5	73.5	74	67 4	73.2	74
Total Organic Carbon %	26.8				2.65	8.2	7.3	2.65
Gravel (>2.00mm) %	1.28				0	0	0	0
Sand (2.0mm - 0.063mm) %	see below				-	-	-	-
Silt (0.063mm - 4um) %	see below				-	-	-	-
Clay (<4um) %	see below				-	-	-	-

Lake Sediments From Koala and Adjacent Watersheds

	Site 15 Moose L. A 9m 94 08 22	Site 15 Moose L. B 9m 94 08 22
Moisture %	83.9	84.5
Total Kjeldahl Nitrogen	0.54	0.61
Total Metals (µg/g)		
Arsenic	2.63	2.94
Cadmium	0.33	<0.10
Chromium	52.3	56.9
Cobalt	10.1	13
Copper	48	50.1
Iron	16500	19100
Lead	5.6	7.5
Manganese	213	253
Mercury	0.033	0.047
Nickel	32.8	34.4
Selenium	0.62	0.62
Silver	0.19	0.19
Zinc	67 4	73.2
Total Organic Carbon %	8.2	7.3
Gravel (>2.00mm) %	0	0
Sand (2.0mm - 0.063mm) %	-	-
Silt (0.063mm - 4um) %	-	-
Clay (<4um) %	-	-

Lake Sediments From Koala and Adjacent Watersheds

	Airstrip 93 08 09	Site 13 Airstrip-Larry 94 06 09	Site 13 Airstrip-Larry 94 08 03	Site 12 Larry L. 2m 94 07 06	Site 12 Larry L. 1m 94 08 22	Site 12 Larry L. A 7m 94 08 22	Site 12 Larry L. B 7m 94 08 22	Site 11 Larry-Nero 94 06 11
Moisture %	70.80	9.29	16.2	83.2	29.2	83.6	82.4	81
Total Kjeldahl Nitrogen			0.01		0.07	0.54	0.6	
Total Metals (µg/g)								
Arsenic	2.19	1.28	0.83	7.58	1.69	3.77	3.35	2.12
Cadmium	<.20	<0.10	<0.10	0.44	<0.10	0.18	0.12	<0.10
Chromium	20 40	16.8	19 7	61 1	26.9	51.8	52	22.9
Cobalt	4.50	3	3.2	15.4	6.6	10.4	11 1	4
Copper	20.50	5.7	5.4	61.6	6.2	47	47.2	14
Iron	9760	7550	8110	32900	9960	19800	18700	9370
Lead	4.20	1.9	1.8	4.9	2.1	6.4	6.8	3.2
Manganese	148	99 1	97.2	232	122	198	191	97 4
Mercury	0.020	<0.005	<0.005	0.027	<0.005	0.059	0.056	0.015
Nickel	12.90	9.8	9.2	37.2	13.4	32	33	13.2
Selenium	0 19	<0.10	<0.10	0.42	<0.50	0.61	0.53	<0.10
Silver	< 10	<0.10	<0.10	<0.10	<0.10	0.18	0.28	<0.10
Zinc	30.60	19.5	20.1	124	34.8	72.3	75.8	29.5
Total Organic Carbon %	6.82		0.1		0.7	7 4	7.25	
Gravel (>2.00mm) %	0.10		64 7		0.37	0.31	0	
Sand (2.0mm - 0.063mm) %	82.60		34		89.1	-	-	
Silt (0.063mm - 4um) %	6 70		1.05		7.99	-	-	
Clay (<4um) %	10.70		0.2		2.54	-	-	

Lake Sediments From Koala and Adjacent Watersheds

	Site 8 Nora L. 4m 94 07 12	Site 8 Nora L. 8m 94 07 12	Site 8 Nora L. 17m 94 07 12	Site 8 Nora L. 4m 94 08 26	Site 8 Nora L. A 5m 94 08 26	Site 8 Nora L. B 5m 94 08 26	Site 8 Nora L. 14.5m 94 08 26	Site 10 Nero L. 1.5m 94 07 13
Moisture %	91.8	76.3	88.7	91.6	91.8	80.3	92.4	58
Total Kjeldahl Nitrogen				0.83	0.71	0.13	0.41	
Total Metals (µg/g)								
Arsenic	62.1	4.83	41 4	34.5	23.9	34.2	87.5	1.97
Cadmium	<0.10	<0.10	<0.10	1.04	0.57	0.15	0.25	<0.10
Chromium	62	55.2	85.8	74	81	110	73	37 1
Cobalt	32	12.1	20.5	25	27	32.7	33	9.2
Copper	146	40.8	116	121	131	93	99 4	18.2
Iron	40100	19000	51000	33000	29700	39700	67600	13400
Lead	8.7	5.3	9.4	8.1	7 4	9.9	12.6	4.5
Manganese	362	285	396	414	322	431	653	144
Mercury	0.037	0.01	0.034	0.035	0.016	0.008	0.051	0.009
Nickel	116	43.4	67.2	125	153	170	63	24.9
Selenium	0.75	0.24	0.9	1 19	0.99	0.58	1.2	<0.10
Silver	<0.10	<0.10	0.21	0.46	0.57	0.11	0.25	<0.10
Zinc	199	66.1	130	204	199	193	108	50.9
Total Organic Carbon %				11.2	11	1 4	7 45	
Gravel (>2.00mm) %				23.9	0	0.29	0.68	
Sand (2.0mm - 0.063mm) %				-	-	-	-	
Silt (0.063mm - 4um) %				-	-	-	-	
Clay (<4um) %				-	-	-	-	

Lake Sediments From Koala and Adjacent Watersheds

	Site 10 Nero L. A 8m 94 07 13	Site 10 Nero L. B 8m 94 07 13	Site 10 Nero L. 14m 94 07 13	Site 10 Nero L. 4m 94 08 23	Site 10 Nero L. A 5m 94 08 23	Site 10 Nero L. B 5m 94 08 23	Site 10 Nero L. 13m 94 08 23	Site 7 Fox 1 L. 12m 93 08 08
Moisture %	78.7	82.2	89.5	82.7	83.9	84.1	87 4	79.70
Total Kjeldahl Nitrogen				0.41	0.36	0.34	0.39	
Total Metals (µg/g)								
Arsenic	38.6	79.5	17.3	5.14	13.6	11.5	99.5	44.30
Cadmium	0.19	<0.10	<0.10	0.22	0.24	0.32	0.2	<0.02
Chromium	64.8	64.8	95.8	69.7	76.4	74 7	76.1	58.50
Cobalt	34.6	56	19.7	17.5	26.1	24 1	48.1	20.70
Copper	50.4	52.6	101	56	64.3	66	79.6	47.50
Iron	55700	96000	51100	28400	41400	38300	109000	46900
Lead	4.8	6.1	10.6	4.3	6.8	6.5	8.5	5.40
Manganese	950	2460	403	327	740	456	3930	546
Mercury	0.019	0.027	0.068	0.032	0.034	0.028	0.07	0.016
Nickel	42.4	43.6	51.5	44.6	57.9	55.1	53.7	29.20
Selenium	0.43	0.49	0.82	<0.50	0.59	0.61	<0.50	0.34
Silver	<0.10	<0.10	<0.10	0.11	<0.10	0.14	0.25	0.16
Zinc	79.6	96.7	131	110	132	137	105	71.40
Total Organic Carbon %				4.85	4.35	4.85	5.05	2.84
Gravel (>2.00mm) %				0	0	0	0	0.00
Sand (2.0mm - 0.063mm) %				-	-	-	-	27.20
Silt (0.063mm - 4um) %				-	-	-	-	53.10
Clay (<4um) %				-	-	-	-	19.70

Lake Sediments From Koala and Adjacent Watersheds

	Site 7 Fox 1 L. 2.5m 94 07 11	Site 7 Fox 1 L. 2.6m 94 07 11	Site 7 Fox 1 L. 7m 94 07 11	Site 7 Fox 1 L. 7m 94 07 06	Site 7 Fox 1 L. 2m 94 08 28	Site 7 Fox 1 L. A 6m 94 08 28	Site 7 Fox 1 L. B 6m 94 08 28	Site 7 Fox 1 L. 21m 94 08 28
Moisture %	69.9	83.6	84.2	-	69	80.4	76.8	86.1
Total Kjeldahl Nitrogen					0.15	0.22	0.21	0.44
Total Metals (µg/g)								
Arsenic	1.89	22.9	17.6	13.1	1.84	20.7	9.99	127
Cadmium	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Chromium	45.9	73.1	60.9	57	47.8	49.4	51.5	59.8
Cobalt	8.7	15.1	14.9	14.5	7.6	12.1	10.1	87
Copper	30.5	93.8	88.8	82.9	27 1	57 7	54.1	92.7
Iron	15100	38700	34000	28100	16000	33500	23700	126000
Lead	3.5	38.9	3.5	5.6	3.3	2.9	4 1	6.5
Manganese	164	329	313	291	196	382	296	15500
Mercury	0.008	0.059	0.018	0.019	0.02	0.018	0.015	0.068
Nickel	24 9	69.3	38.3	36.1	24.6	29	28.4	60.6
Selenium	0.13	0.78	0.55	0.46	<0.50	<0.50	<0.50	0.82
Silver	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc	63.3	95.3	102	88.9	66.2	75.6	72.9	99.9
Total Organic Carbon %					1.65	3.1	3	5.85
Gravel (>2.00mm) %					0	0	0	0
Sand (2.0mm - 0.063mm) %					-	-	-	-
Silt (0.063mm - 4um) %					-	-	-	-
Clay (<4um) %					-	-	-	-

Lake Sediments From Koala and Adjacent Watersheds

	Fox 2 8m 93 08 09	Site 5 Fox 3 L. 4m 93 08 09	Site 5 Fox 3 L. 2m 94 07 11	Site 5 Fox 3 L. 2m 94 07 06	Site 5 Fox 3 L. 6m A 94 07 11	Site 5 Fox 3 L. 6m B 94 07 11	Site 5 Fox 3 L. 4m 94 08 27	Site 5 Fox 3 L. A 7m 94 08 27
Moisture %	89.60	89.30	89 1	-	88.9	88.4	89.7	90.4
Total Kjeldahl Nitrogen							0.69	0.75
Total Metals (µg/g)								
Arsenic	13.80	38.10	17.8	17 4	18.5	15.5	19.2	14.9
Cadmium	<.30	0.28	0.71	0.64	<0.10	0.28	0.4	0.76
Chromium	79.20	86.80	68.9	72.2	81 4	83.2	68	77
Cobalt	18.50	21 40	17.2	18.5	20.2	19.6	16	17
Copper	116.00	151.00	143	139	166	159	130	144
Iron	34900	68700	37900	35900	42000	40500	35100	29100
Lead	11 70	12.50	9.2	9.5	11.5	10	6.4	7.6
Manganese	239	272	217	202	243	245	218	217
Mercury	0.081	0.074	0.059	0.06	0.077	0.069	0.088	0.114
Nickel	76.80	110.00	95.5	94.2	96.3	94.8	87	94
Selenium	0.58	0.69	0.69	0.66	0.77	0.79	0.86	1.01
Silver	0.27	0.42	<0.10	<0.10	<0.10	<0.10	0.64	0.67
Zinc	150.00	244.00	206	195	201	193	182	158
Total Organic Carbon %	13.00	10.10					8.95	10.4
Gravel (>2.00mm) %	2.50	0.00					0	0
Sand (2.0mm - 0.063mm) %	7.30	10.70					-	-
Silt (0.063mm - 4um) %	17 10	18.60					-	-
Clay (<4um) %	73.10	70.70					-	-

Lake Sediments From Koala and Adjacent Watersheds

	Site 5 Fox 3 L. B 7m 94 08 27	Site 4 Martine L. 3m 94 07 09	Site 4 Martine L. 4.5m A 94 07 09	Site 4 Martine L. 4.5m B 94 07 09	Site 4 Martine L. 2.5m 94 08 15	Site 4 Martine L. 6.5m 94 08 15	Site 3 Martine-West 94 08 08
Moisture %	89.6	79.9	84.6	84.6	89.9	86.1	16.9
Total Kjeldahl Nitrogen	0.75				0.7	0.45	0.04
Total Metals (µg/g)							
Arsenic	18.1	3.75	2.56	3	4.44	8.69	0.36
Cadmium	0.51	0.3	0.32	0.5	<1.0	<1.0	<0.10
Chromium	64	95.3	78	71 1	70.3	91 7	19.3
Cobalt	16	25.3	13.8	14.1	13.8	22.7	4
Copper	149	52.5	50.5	54.2	77 7	84.9	5.6
Iron	34500	32800	21800	22600	22000	33200	8720
Lead	12	4.4	3.9	2.7	3.3	5.8	1.8
Manganese	211	352	250	263	315	330	126
Mercury	0.094	0.022	0.023	0.023	0.041	0.058	<0.005
Nickel	85	63	42.5	46.5	57 7	59.6	13.1
Selenium	0.9	0.33	0.32	0.29	<0.50	0.51	<0.10
Silver	0.6	<0.10	<0.10	<0.10	<0.50	<0.50	<0.10
Zinc	187	173	116	102	186	147	25.2
Total Organic Carbon %	9.5				9.05	6.7	0.35
Gravel (>2.00mm) %	0				0	0	57.3
Sand (2.0mm - 0.063mm) %	-				-	-	39 1
Silt (0.063mm - 4um) %	-				-	-	2.6
Clay (<4um) %	-				-	-	0.97

Lake Sediments From Koala and Adjacent Watersheds

	Site 2 Mike L. 2m 94 07 08	Site 2 Mike L. 2m 94 07 06	Site 2 Mike L. 9m A 94 07 08	Site 2 Mike L. 9m B 94 07 08	Site 2 Mike L. 16m 94 07 08	Site 9 Slipper L. 2m 94 07 07	Site 9 Slipper L. 6m 94 07 07	Site 9 Slipper L. 16m 94 07 07
Moisture %	83.3	-	85.5	85.5	97 4	89	80.8	83.9
Total Kjeldahl Nitrogen								
Total Metals (µg/g)								
Arsenic	3.73	3.67	189	61.6	172	18	6.73	11 4
Cadmium	<0.10	<0.10	<0.10	<0.10	<0.10	0.37	0.32	<0.10
Chromium	99	101	83.1	76.2	219	81 4	65.5	127
Cobalt	19 7	22.3	45.2	39.9	103	18.9	14.3	25.8
Copper	54.3	59.4	74	66.2	198	84.2	57 7	139
Iron	29600	32800	92800	125000	246000	39700	23100	46200
Lead	7	5.4	6.2	3.8	12	5.7	6.4	10.6
Manganese	421	434	969	11800	11400	281	218	451
Mercury	0.032	0.026	0.041	0.045	0.173	0.053	0.036	0.058
Nickel	55.5	62.5	55.3	60.4	130	66.3	44.8	92.2
Selenium	0.31	0.32	0.55	0.57	1 76	0.45	0.29	0.92
Silver	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.16
Zinc	152	155	127	145	288	150	82.6	171
Total Organic Carbon %								
Gravel (>2.00mm) %								
Sand (2.0mm - 0.063mm) %								
Silt (0.063mm - 4um) %								
Clay (<4um) %								

Lake Sediments From Koala and Adjacent Watersheds

	Site 1 Lac de Gras 3m 94 07 08	Site 1 Lac de Gras 8m A 94 07 08	Site 1 Lac de Gras 8m B 94 07 08	Site 1 Lac de Gras 16m 94 07 08
Moisture %	70.5	79.7	80.6	89.8
Total Kjeldahl Nitrogen				
Total Metals (µg/g)				
Arsenic	12.6	20.6	70.4	250
Cadmium	0.4	0.26	0.4	<0.10
Chromium	74 1	70.8	59.2	90.5
Cobalt	27.8	41 7	82.3	377
Copper	51 4	60.7	61 7	107
Iron	30500	32200	61800	202000
Lead	4.6	6.5	5.9	5.9
Manganese	418	3050	2200	20200
Mercury	0.012	0.02	0.027	0.036
Nickel	76.5	105	138	116
Selenium	0.26	0.4	0.48	1 11
Silver	<0 10	<0.10	<0.10	<0.10
Zinc	138	130	137	169
Total Organic Carbon %				
Gravel (>2.00mm) %				
Sand (2.0mm - 0.063mm) %				
Silt (0.063mm - 4um) %				
Clay (<4um) %				

Lake Sediments From Koala and Adjacent Watersheds

	Site 38 Sieve L. 3m 94 07 16	Site 38 Sieve L. 9.5m 94 07 16	Site 38 Sieve L. 9.5m 94 07 16	Site 38 Sieve L. 2m 94 08 28	Site 38 Sieve L. A 7.5m 94 08 28	Site 38 Sieve L. B 7.5m 94 08 28	Site 51 Bat L. 4m 94 07 31	Site 51 Bat L. 3m 94 09 03	Site 46 Mark L. 2m 94 07 29
Moisture %	97.2	90.9	-	67 7	48.8	49.9	86.2	81 4	86.4
Total Kjeldahl Nitrogen				0.06	0.06	-		0.52	
Total Metals (µg/g)									
Arsenic	10.1	5 7	5.62	4.07	6.05	22.2	13.6	11.2	57.5
Cadmium	<0.10	<0.10	<0.10	<0.10	0.12	<0 10	0.66	<0.10	1.25
Chromium	87	53.8	57.9	31 4	68.3	53.9	65	63.6	99.6
Cobalt	23	12.6	14.1	8.7	19 1	18.9	17.3	12.1	44.7
Copper	243	129	129	8.8	51 4	46	49.3	41 7	239
Iron	37900	23400	22100	19000	34700	39500	26300	25700	34300
Lead	12	4.5	5.3	2.7	9 7	7	9	4 7	11.3
Manganese	296	201	201	353	263	238	229	243	304
Mercury	0.12	0.055	0.058	<0.005	0.006	0.007	0.042	0.031	0.053
Nickel	87	47.8	45.9	21.6	70.3	55.1	45.3	43.5	222
Selenium	0.86	0.66	0.64	<0.50	<0.50	<0.50	0.46	0.28	0.98
Silver	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	<0.10	0.24
Zinc	153	110	106	47	94.1	89.1	86.1	79	366
Total Organic Carbon %				-	0.6	-		6.8	
Gravel (>2.00mm) %				-	2.56	-		0	
Sand (2.0mm - 0.063mm) %				-	6.58	-		-	
Silt (0.063mm - 4um) %				-	61 7	-		-	
Clay (<4um) %				-	29.2	-		-	

Lake Sediments From Koala and Adjacent Watersheds

	Site 46 Mark L. 7m 94 07 29	Site 46 Mark L. 3m 94 09 04	Site 46 Mark L. A 8m 94 09 04	Site 46 Mark L. B 8m 94 09 04	Site 53 Paul (W) L. 3m 94 08 01	Site 53 Paul (W) L. 8m 94 08 01	Site 53 Paul (W) L. 12m 94 08 01	Site 53 Paul (W) L. 3m 94 09 07
Moisture %	88.2	89.3	62.7	82.3	59.6	57 7	55.6	74.6
Total Kjeldahl Nitrogen		0.95	0.06	0.06				0.26
Total Metals (µg/g)								
Arsenic	21.9	50.7	40.3	45.4	11 7	26.3	8.04	22.5
Cadmium	1.37	<0.50	<0.10	<0.10	<0.10	0.28	0.16	<0.10
Chromium	78.7	63	70.1	68.5	114	102	98.6	77
Cobalt	41 4	41	34.2	33.6	24	28.8	19.8	17.6
Copper	147	152	42.5	41.9	37.3	37.9	33.5	42.6
Iron	28400	55600	76100	81700	38900	45000	33900	35600
Lead	8.4	7.2	3.4	3.7	5.2	4.6	4.8	4.8
Manganese	252	757	368	370	607	1040	426	561
Mercury	0.092	0.08	0.01	0.014	0.014	0.012	0.013	0.025
Nickel	141	146	79	72.3	63.4	61 4	48.9	55.1
Selenium	0.84	0.59	0.14	0.14	0.18	0.15	0.12	0.14
Silver	0.38	<0.50	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc	186	193	96.7	93.6	121	105	99.8	107
Total Organic Carbon %		11.8	0.65	0.6				2.4
Gravel (>2.00mm) %		0	0	0				0.49
Sand (2.0mm - 0.063mm) %		-	0.28	0.94				-
Silt (0.063mm - 4um) %		-	46.6	50.2				-
Clay (<4um) %		-	53.1	48.9				-

Lake Sediments From Koala and Adjacent Watersheds

	Site 53 Paul (W) L. 3m 94 09 07	Site 53 Paul (W) L. A 5.5m 94 09 07	Site 53 Paul (W) L. B 5.5m 94 09 07	Site 53 Paul (W) L. 10m 94 09 07
Moisture %	-	70.6	68.7	68.4
Total Kjeldahl Nitrogen	-	0.22	0.21	0.22
Total Metals (µg/g)				
Arsenic	15.8	47.6	19 4	11.9
Cadmium	<0.10	<0.10	<0.10	<0.10
Chromium	81 1	81.9	91.5	85.8
Cobalt	18.5	26.7	27	16.3
Copper	43.7	47 7	50.2	48.3
Iron	34200	53400	41300	32800
Lead	5.1	5.4	5.8	5.9
Manganese	472	667	537	381
Mercury	0.025	0.021	0.017	0.025
Nickel	56.3	60.6	62.5	50.2
Selenium	0.2	0.23	0.26	0.23
Silver	<0.10	<0.10	<0.10	<0.10
Zinc	113	114	124	105
Total Organic Carbon %	-	2.2	1.95	2.35
Gravel (>2.00mm) %	-	0	0	0
Sand (2.0mm - 0.063mm) %	-	-	-	-
Silt (0.063mm - 4um) %	-	-	-	-
Clay (<4um) %	-	-	-	-

Lake Sediments From Koala and Adjacent Watersheds

	Site 44 Arnie L. 3m 94 07 29	Site 44 Arnie L. 9m 94 07 29	Site 44 Arnie L. 94 08 05	Site 44 Arnie L. LRep 94 08 05	Site 44 Arnie L. 4m 94 09 06	Site 52 Paul (E) L. 3m 94 08 01	Site 52 Paul (E) L. 3m 94 08 01	Site 52 Paul (E) L. 5m 94 08 01
Moisture %	-	-	75.7	-	75.7	64.8	-	73.1
Total Kjeldahl Nitrogen			0.29	-	0.29			
Total Metals (µg/g)								
Arsenic	-	-	5.44	5.58	5.34	8.43	8.51	21
Cadmium	-	-	0.24	0.17	<0.10	0.16	0.29	<0.10
Chromium	-	-	112	110	93.1	106	102	113
Cobalt	-	-	24.5	24.1	16.5	26	22.6	36.8
Copper	-	-	42.9	43.1	42.8	40.6	40.6	55.2
Iron	-	-	37000	36600	31400	36900	35400	52700
Lead	-	-	5.3	5.4	4.6	5.6	5.7	7.5
Manganese	-	-	400	389	347	490	474	774
Mercury	-	-	0.029	0.03	0.034	0.012	0.01	0.017
Nickel	-	-	71.5	70.7	60.9	69	65.9	79.6
Selenium	-	-	0.16	0.15	0.23	0.18	0.16	0.31
Silver	-	-	<0.10	<0.10	<0.10	0.12	<0.10	<0.10
Zinc	-	-	128	130	116	128	120	140
Total Organic Carbon %			3.75	-	3.4			
Gravel (>2.00mm) %			0.9	-	0			
Sand (2.0mm - 0.063mm) %			2.1	-	-			
Silt (0.063mm - 4um) %			38.3	-	-			
Clay (<4um) %			58.8	-	-			

Lake Sediments From Koala and Adjacent Watersheds

	Site 48 Misery L. 3m 94 07 30	Site 48 Misery L. 6m 94 07 30	Site 48 Misery L. 28m 94 07 30	Site 48 Misery L. 4m 94 09 07	Site 48 Misery L. 5m 94 09 07	Site 48 Misery L. 4m 94 09 07	Site 48 Misery L. 5m 94 09 07	Site 48 Misery L. 22m 94 09 07
Moisture %	66.4	89.5	81 7	99.4	79.2	65.1	78.7	85.2
Total Kjeldahl Nitrogen				-	0.19	0.11	0.19	0.36
Total Metals (µg/g)								
Arsenic	9.88	16.9	19.8	78	40.8	46.7	36.1	274
Cadmium	0.4	<0.10	<0.10	<2	<0.10	<0.10	<0.10	<0.10
Chromium	77 4	88.2	98	122	84.5	76.7	76.9	72.9
Cobalt	24.5	17 1	25.5	60	30.4	23.2	24 1	69.8
Copper	94.3	186	112	128	158	93.9	141	102
Iron	26600	36800	36000	68100	40200	33100	36500	104000
Lead	6.3	9.2	9.3	<25	6.9	6.8	7.3	9
Manganese	292	330	338	4460	581	429	470	3970
Mercury	0.009	0.023	0.042	0.105	0.018	0.008	0.014	0.045
Nickel	167	172	124	310	219	154	195	75.2
Selenium	0.2	0.84	0.91	<2	0.41	0.14	0.34	0.83
Silver	<0.10	0.23	0.33	<2	<0.10	<0.10	<0.10	<0.10
Zinc	158	150	111	267	195	137	174	109
Total Organic Carbon %				-	2.45	1.2	2.45	3.7
Gravel (>2.00mm) %				-	0	35.2	0	0
Sand (2.0mm - 0.063mm) %				-	-	25.5	-	-
Silt (0.063mm - 4um) %				-	-	25.2	-	-
Clay (<4um) %				-	-	14.1	-	-

Lake Sediments From Koala and Adjacent Watersheds

	Site 54 Lac de Gras-Mis. 3m 94 07 31	Site 54 Lac de Gras-Mis. 6m 94 07 31	Site 54 Lac de Gras-Mis. 31m 94 07 31	Site 54 Lac de Gras-Mis. 2m 94 09 08	Site 54 Lac de Gras-Mis. 5m 94 09 08	Site 54 Lac de Gras-Mis. 22m 94 09 08
Moisture %	53.2	69.5	68.2	68.6	51 4	71.9
Total Kjeldahl Nitrogen				0.12	0.06	0.16
Total Metals (µg/g)						
Arsenic	12	8.53	19 4	6.38	6.94	23.5
Cadmium	0.16	<0.10	<0.10	<0.10	<0.10	0.18
Chromium	97.6	80.2	85.6	37.5	40.1	81 4
Cobalt	21.3	15.2	32.1	6.4	10.9	33.2
Copper	45.8	36.1	56.8	12.8	19.9	50.2
Iron	32200	28500	34900	14500	16100	34000
Lead	5.6	4.6	5.3	2.3	2.7	7 7
Manganese	392	379	1930	170	532	16400
Mercury	<0.005	0.005	0.016	<0.005	<0.005	0.018
Nickel	56	47 1	46.6	19.2	24	75.5
Selenium	0.22	0.18	0.21	<0 10	<0.10	0.36
Silver	<0.10	<0.10	0.13	<0.10	<0.10	<0.10
Zinc	98.5	85.2	83.5	36.2	45.2	93.6
Total Organic Carbon %				1.2	0.6	1 75
Gravel (>2.00mm) %				0	0	0
Sand (2.0mm - 0.063mm) %				-	63.4	-
Silt (0.063mm - 4um) %				-	21.2	-
Clay (<4um) %				-	13.4	-

Lake Sediments From Koala and Adjacent Watersheds

	Site 35 Ursula (E) L. 3m 94 07 16	Site 35 Ursula (E) L. 5m 94 07 16	Site 35 Ursula (E) L. 17m 94 07 16	Site 35 Ursula (E) L. 3m 94 08 28	Site 35 Ursula (E) L. A 7m 94 08 28	Site 35 Ursula (E) L. B 7m 94 08 28	Site 35 Ursula (E) L. 17.5m 94 08 28	Site 36 Ursula stream 94 08 10
Moisture %	63.9	88.3	89.4	68.9	89.8	89.1	89.8	94.9
Total Kjeldahl Nitrogen				-	0.55	0.59	0.65	1 46
Total Metals (µg/g)								
Arsenic	2.95	4 16	6.83	10.9	3.53	3.54	4.66	3.45
Cadmium	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	1.64
Chromium	25.2	55.3	57.9	22	60	56.7	60	28.2
Cobalt	5.8	11 7	16.5	8.8	12	12.8	15	8.2
Copper	15.5	60.4	56.4	13.6	58.9	61	60.3	59.4
Iron	12400	22700	29000	18700	24800	24100	27000	11200
Lead	1.8	4.9	6	3.3	6	4.2	7.4	6.4
Manganese	129	217	251	317	250	258	272	175
Mercury	<0.005	0.012	0.017	<0.005	0.01	0.01	0.017	0.045
Nickel	14.7	44 1	42.1	28.7	48	51.2	48	25.9
Selenium	0.11	0.49	0.6	<0.50	0.6	0.62	0.88	0.46
Silver	<0 10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Zinc	41 9	98.3	116	45.9	115	122	146	23.6
Total Organic Carbon %				-	8	8.05	8.55	31
Gravel (>2.00mm) %				-	0	0	0	22.1
Sand (2.0mm - 0.063mm) %				-	-	-	-	see below
Silt (0.063mm - 4um) %				-	-	-	-	see below
Clay (<4um) %				-	-	-	-	see below

Appendix II-A5

Koala Meteorological Data

Meteorological Data - Daily Data Summaries

Julian Day	1 Minute Maximum Temp. (C)	1 Minute Minumum Temp. (C)	Daily Max Wind Spd (m/s)	Time of Maximum Wind Spd	Direction @ time of Max. Win	Maximum 2-Minute Wind Spd	Maximum 10-Minute Wind Spd	Daily Rainfall
19-Jul	22.92	0	11 19	1535	248.3	9.65	8.94	0
20-Jul	20.26	10.98	15.6	2206	1 158	12.75	11.64	0
21-Jul	16.84	7.83	14 45	1338	321.6	12.06	11 49	0
22-Jul	20.98	6.099	10.17	1702	222.2	9.25	8.11	0
23-Jul	22.56	13.36	10.76	750	238.3	8.93	8.58	0.508
24-Jul	25.36	14 44	11.37	1323	229.3	9.86	9.26	1.524
25-Jul	20.32	10.52	16.05	32	231.9	13.21	12.02	0
26-Jul	21 42	8.73	12.82	1631	323	11.25	9.95	0
27-Jul	22.22	10.25	13.82	1314	275	11 45	10.79	0
28-Jul	12.54	5.498	9.06	342	1 448	8	7.38	0
29-Jul	16.23	4.565	6.605	1651	314.5	5.233	4.989	0
30-Jul	21.62	8.54	9.39	1715	268.3	8.02	7.63	0
31-Jul	22.05	7 49	12.52	1744	28.7	10.95	10.15	0.254
1-Aug	14.01	4 155	10.13	1235	341.3	7.64	7.03	0
2-Aug	20.78	6.9	8.55	1415	276.1	7.03	6.28	0
3-Aug	23.27	11 76	12.86	2152	31.32	10.86	10.01	0
4-Aug	12.71	5.473	11.6	33	25.18	9.66	9.11	0
5-Aug	13.93	2.215	9.86	1046	3.572	7 42	6.881	0
6-Aug	19	8.22	8.49	1210	280.6	6.26	5.939	0
7-Aug	18.07	10.26	8.9	950	11.28	7.22	6.707	0
8-Aug	19.93	9 77	10.43	1402	315.6	8.93	7.84	0
9-Aug	19.34	10.2	11.09	2143	67.24	9.6	9.22	5.588
10-Aug	13.84	8.21	10.78	410	68.07	9.02	8.42	0
11-Aug	18.36	7 71	9.25	1234	277.3	7.83	7.09	0
12-Aug	21.92	11.96	7.66	1356	256.9	6.138	5.604	0

(continued)

Meteorological Data - Daily Data Summaries

Julian Day	1 Minute Maximum Temp. (C)	1 Minute Minumum Temp. (C)	Daily Max Wind Spd (m/s)	Time of Maximum Wind Spd	Direction @ time of Max. Win	Maximum 2-Minute Wind Spd	Maximum 10-Minute Wind Spd	Daily Rainfall
13-Aug	16 41	8.01	14.13	2025	49.23	11.88	11.09	1.524
14-Aug	16.54	7.27	11.03	12	50.61	8.68	8.89	0
15-Aug	15.54	8.07	9.39	1326	266.4	7.29	6.641	10.92
16-Aug	14.32	8.1	10.82	2318	265.7	9.26	8.34	6.35
17-Aug	20.99	12.51	11.37	1722	267	9.61	8.8	4.064
18-Aug	17.37	4 73	17 11	1215	320.7	14.61	13.86	0.508
19-Aug	14.56	3.852	8.78	1915	197 4	7 77	7 18	0
20-Aug	11 16	8.54	14.52	1608	140	12.06	11 19	0.762
21-Aug	19.97	10.13	11.27	1709	171 1	9.74	8.45	9.14
22-Aug	15.29	11 14	8.7	2348	19 78	7.67	7.07	4.318
23-Aug	11 75	3.342	17 78	1650	332.9	14 19	13.47	3.302
24-Aug	9.79	1.573	13.54	401	337.3	11 43	10.93	0
25-Aug	15.03	5.039	5.214	1242	308.5	4.371	3.829	0
26-Aug	16.67	8.05	6.488	2319	108.5	5.588	5.117	0
27-Aug	14 15	5.717	7.53	1212	161 4	6.302	5.69	0
28-Aug	16.85	5.898	5.566	850	246.9	4.634	4 486	0
29-Aug	17.39	7.27	9.29	1508	223.4	7.85	6.822	0
30-Aug	14 77	7.5	10.45	1724	88.4	9.07	8.5	0
31-Aug	18.28	7.08	12.27	1312	201.3	9.87	9	0
1-Sep	18.98	7.94	10.86	1226	194.2	9.11	8.69	0
2-Sep	19 75	9.12	5.88	1005	232	4.852	4.67	0
3-Sep	16.1	8.64	8.47	1636	266.6	7.59	6.812	0
4-Sep	8.64	2.797	11.02	1123	22.81	10.1	9.16	12.19
5-Sep	6.525	1 487	9.31	805	14.31	7 4	6.956	0
6-Sep	8.67	0.146	5.821	1721	100.4	4.966	4.611	0

(continued)

Meteorological Data - Daily Data Summaries

Julian Day	1 Minute Maximum Temp. (C)	1 Minute Minumum Temp. (C)	Daily Max Wind Spd (m/s)	Time of Maximum Wind Spd	Direction @ time of Max. Win	Maximum 2-Minute Wind Spd	Maximum 10-Minute Wind Spd	Daily Rainfall
7-Sep	6.08	2.572	8.45	1047	138.1	7.41	6.446	0.508
8-Sep	9.69	2.846	10.88	1858	21.25	9.34	8.34	0.254
9-Sep	4 702	0.247	14 13	1627	31.91	11.91	11 11	0
10-Sep	1.834	-3.17	13.27	33	21 77	11.82	11.07	0
11-Sep	2.91	-3.78	6.84	2302	135.3	5.754	5.351	0
12-Sep	9.41	-0.258	9.82	1317	191	7.56	6.49	1 778
13-Sep	5.866	-0.511	8.19	808	30.85	7.36	6.909	0.508
14-Sep	9.08	-0.45	13.03	1948	150.1	11.38	10.48	0.762
15-Sep	11.35	4.547	9.92	1355	292.5	8.06	7 4	3.048
16-Sep	11.25	3.168	11.84	2346	165.8	9.02	8.23	0
17-Sep	10.77	-0.402	13.97	1319	312.6	12.56	11.11	0.508
18-Sep	-0.011	-1.975	15.99	1630	97.9	14.05	12.85	0
19-Sep	-1 482	-3.929	15.15	215	93.8	13.3	12.41	0
20-Sep	1 788	-3.203	13.21	1226	181 4	11 49	10.83	10.92
21-Sep	2.228	0.067	7.21	1853	36.75	6.599	6.04	0.254
22-Sep	1.656	-0.466	7 7	439	19.06	6.688	6.343	0
23-Sep	5.998	0.213	11 76	2335	153.6	9.95	9.54	0.508
24-Sep	11 13	3.495	14.46	2339	329.1	12.54	11 12	1 778
25-Sep	3.495	-0.783	14.37	12	330.8	11.56	10.91	0
26-Sep	3.212	-1.253	9.68	1216	174	8.72	8.14	2.032
27-Sep	3.724	-0.064	5.939	2045	81	4 759	4.335	0
28-Sep	2.667	-2.533	6.938	1644	349.2	6.178	5.663	2.794
29-Sep	3.377	-3.665	7.57	1241	227.6	6.299	5.816	0
30-Sep	4.367	-3.112	7 17	1151	180.4	5.371	5.227	0

(continued)

Meteorological Data - Daily Data Summaries

Julian Day	1 Minute Maximum Temp. (C)	1 Minute Minumum Temp. (C)	Daily Max Wind Spd (m/s)	Time of Maximum Wind Spd	Direction @ time of Max. Win	Maximum 2-Minute Wind Spd	Maximum 10-Minute Wind Spd	Daily Rainfall
1-Oct	5.462	-0.897	9.86	2359	169.1	8.44	7 78	0
2-Oct	2.786	0.263	19.17	1120	189.8	16.83	15.42	0.254
3-Oct	3.966	0.026	7.68	1206	164.2	6.652	6.171	4.318
4-Oct	1 793	-4.252	11.03	840	23.8	9.3	8.69	0
5-Oct	-1.838	-6.63	7.98	1928	163.4	6.69	5.949	0
6-Oct	-0.605	-2.866	8.23	124	181	7.05	6.36	0.254
7-Oct	-2.642	-6.102	10.07	1614	82.2	8.32	7.81	0
8-Oct	0	-4.951	7.33	1831	114	6.413	5.957	0
9-Oct	-4.951	-6.03	6.625	17	94.5	5.889	5.604	0
10-Oct	-2.089	-10.23	3.979	106	353.1	3.481	3.215	0
11-Oct	1.307	-3.041	10.23	1826	157	8.36	7.61	0.508
12-Oct	0.857	-3.33	9.94	1425	246.5	8.14	7.51	0.254
13-Oct	-1.289	-5.361	9.21	1825	94.2	8.22	7.86	0
14-Oct	-2.472	-6.76	5.625	208	72.4	5.104	4.619	0
15-Oct	-0 441	-6.384	12.27	1730	124.2	10.55	9.88	0
16-Oct	0.287	-0.459	12.64	229	121.6	10.26	9.55	2.54
17-Oct	0.115	-1.953	14 45	1835	277.2	11.62	10.81	1.016
18-Oct	-1.953	-10.05	12.99	159	273.4	10.79	10.14	0
19-Oct	-6.757	-11.62	6.35	1326	67.64	5.645	5.296	0
20-Oct	-7.38	-9.88	9.51	1611	346.8	7.85	7.34	0
21-Oct	-6.502	-8.53	9.25	2310	166.8	7 74	6.952	0
22-Oct	-3.327	-7 73	10.64	940	149.1	9.27	8.75	0
23-Oct	-0.952	-3.803	11.37	2138	128.4	10.33	9.62	0.762
24-Oct	0	-3.329	10.8	327	123.7	9.52	8.89	0.254
25-Oct	0.116	-3.977	4.841	711	156.8	4.132	3.969	1.016

(continued)

Meteorological Data - Daily Data Summaries

Julian Day	1 Minute Maximum Temp. (C)	1 Minute Minumum Temp. (C)	Daily Max Wind Spd (m/s)	Time of Maximum Wind Spd	Direction @ time of Max. Win	Maximum 2-Minute Wind Spd	Maximum 10-Minute Wind Spd	Daily Rainfall
26-Oct	0.012	-4 764	0	0	139.8	0	0	0
27-Oct	-4 755	-8.01	0	0	138.3	0	0	0
28-Oct	-7.6	-11.9	0	0	137	0	0	0
29-Oct	-9.76	-13.83	0	0	136.8	0	0	0
30-Oct	-10.07	-14 71	0	0	136.9	0	0	0
31-Oct	-11.59	-15.5	0	0	136.9	0	0	0
1-Nov	-8.23	-13.64	0	0	136.9	0	0	0
2-Nov	-6.681	-12.07	0.137	1321	192.6	0.006	0.001	0
3-Nov	-4.35	-8.81	11 49	1255	148.8	10.24	9.79	0
4-Nov	-3.363	-16.03	14.03	1944	317 7	12.62	12	0
5-Nov	-16.03	-24.52	12.27	12	324.6	11.02	10.24	0
6-Nov	-11 12	-18.55	8.7	1202	156.7	7.68	7 19	0
7-Nov	-6.246	-11 17	5.704	2044	176.3	5.076	4.623	0
8-Nov	-6.605	-17.27	10.72	2049	108.5	9.86	9.6	0
9-Nov	-6.217	-15.01	10.19	2352	168.2	8.82	8.51	0
10-Nov	-2.329	-8.31	16.37	539	149.9	14.2	12.8	0
11-Nov	-2.125	-14.24	11 41	959	239.2	10.34	9.33	0
12-Nov	-10.21	-18.66	4 449	1407	275.7	3.57	3.324	0
13-Nov	-11 77	-23.04	10.02	807	322.1	8.66	8.19	0
14-Nov	-16 44	-20.62	7.39	17	323.7	6.405	6.003	0
15-Nov	-13.56	-17.34	7.27	329	135.1	6.808	6.633	0
16-Nov	-11 18	-20.42	6.194	1341	238.6	5.695	5.234	0
17-Nov	-10.69	-20.74	13.82	1117	169.7	11.81	11.07	0
18-Nov	-10.64	-23.63	18.86	1310	312.2	16.69	15.55	0
19-Nov	-23.26	-24.84	14.74	1648	323.3	13.08	12.51	0

(continued)

Meteorological Data - Daily Data Summaries

Julian Day	1 Minute Maximum Temp. (C)	1 Minute Minumum Temp. (C)	Daily Max Wind Spd (m/s)	Time of Maximum Wind Spd	Direction @ time of Max. Win	Maximum 2-Minute Wind Spd	Maximum 10-Minute Wind Spd	Daily Rainfall
20-Nov	-24 75	-29.56	9.47	7	325.5	8.25	7.85	0
21-Nov	-26.15	-29.88	7.66	2357	93.3	7 1	6.861	0
22-Nov	-26.26	-29.01	17 17	740	79	15.58	14.85	0
23-Nov	-28.87	-32.47	9.15	228	27 45	8.72	8.21	0
24-Nov	-29.79	-32.29	9.43	412	298.1	7.97	7.59	0
25-Nov	-23.22	-33.3	11.82	2218	100.7	10.9	10.31	0
26-Nov	-22.43	-28.54	14.43	324	97.7	12.97	12.38	0
27-Nov	-21.61	-28.92	13.27	527	84 4	11.66	11.26	0
28-Nov	-18.32	-21.61	10.13	44	104 7	9.39	8.66	0
29-Nov	-20.44	-25.04	12.39	2344	115	10.91	10.66	0
30-Nov	-20.9	-23.99	14.62	1936	76.6	13.03	12.79	0
1-Dec	-22.51	-29 14	13.68	217	73.8	12.12	11.65	0
2-Dec	-23.64	-30.06	9.13	2329	201.8	8.34	7.81	0
3-Dec	-16.39	-24.72	16.78	1848	195	15.21	14.28	0
4-Dec	-16.19	-20.37	12.9	0	217.5	11.56	11.21	0
5-Dec	-16.3	-21 47	5.018	848	152	4.68	4.156	0
6-Dec	-16.82	-26.59	11.37	1512	6.219	10.17	9.97	0
7-Dec	-26.59	-35.4	8.45	213	354.1	7 77	7 49	0
8-Dec	-29.25	-35.18	8.41	1142	326.6	7.49	6.946	0
9-Dec	-30.71	-36.67	3.881	1507	162.2	3.603	3.476	0
10-Dec	-31 41	-34.82	2.822	11	124.8	2.625	2.515	0
11-Dec	-21.83	-34.08	6.252	1742	154.3	5.888	5.527	0
12-Dec	-19.51	-21.83	6.586	1933	122	6.006	5.428	0
13-Dec	-11.81	-19.84	12.17	1338	157 4	10.76	10.53	0
14-Dec	-11.37	-24.82	7 41	31	210.4	6.467	5.89	0

(continued)

Meteorological Data - Daily Data Summaries

Julian Day	1 Minute Maximum Temp. (C)	1 Minute Minumum Temp. (C)	Daily Max Wind Spd (m/s)	Time of Maximum Wind Spd	Direction @ time of Max. Win	Maximum 2-Minute Wind Spd	Maximum 10-Minute Wind Spd	Daily Rainfall
15-Dec	-23.57	-31 4	8.78	2338	350.3	8.25	7.69	0
16-Dec	-30.97	-34.38	8.66	35	352.2	8.28	8.14	0
17-Dec	-24.96	-34.98	15.54	2030	110	13.98	13.26	0
18-Dec	-21.95	-24.96	21.27	2248	103.7	19.38	18.32	0
19-Dec	-13.14	-22.03	20.76	59	107.6	18.6	17.9	0
20-Dec	-12.47	-19.97	4.175	1616	210.6	3.642	2.929	0
21-Dec	-9.64	-19.65	6.586	202	151 4	6.041	5.091	0
22-Dec	-8.38	-18.46	1.568	242	11 15	1 499	1 413	0
23-Dec	-18.28	-22.24	1.254	2345	104	1 167	1.033	0
24-Dec	-8.36	-18.57	15.48	2259	240.8	14.24	13.57	0
25-Dec	-15.79	-25.27	16.13	1918	342.7	14.1	13.47	0
26-Dec	-25.27	-32.45	14.66	50	345.4	13.93	13.22	0
27-Dec	-19.82	-31 72	8.82	1718	174.3	7 79	7.3	0
28-Dec	-15.82	-19.82	8.88	1913	298.9	8.05	7.64	0
29-Dec	-12.92	-19.55	16.31	1617	207 1	14.1	13.1	0
30-Dec	-12.77	-19 42	16.27	2117	346.6	14.87	14.02	0
1-Jan	-19.22	-31.6	17.89	355	350.9	16.44	15.52	0
2-Jan	-26.89	-32.97	6 174	1755	144 1	5.775	5.315	0

Long Lake Meteorological Data

Table APPXV3A
Long Lake Meteorological Station
Daily Mean Data from Hourly Values

Date	Julian	Tim Day	Air Temp (2 m) (°C)	One-min Max air Temp (°C)	Relative Hum. Humidity 2 m (%)	Wind Speed (m/s)	Wind Direction (az)	Wind SD	Wind Speed (m/s)	Wind Direction (az)	SD	Solar Radiation (kW/m^2)	Net Radiation (W/m^2)	Standard Deviation	Water Temp (0 m)	Water Temp (0.5 m)	Water Temp (1.5 m)	Rain (mm)	Aerodynami Method (mm)	Penman's Combined Method (mm)
19-Jul	200	0	14.695	14.84708333	65.2925	5.67575	167.75	7.0628333	5.621875	163.14583	8.00575	0.289208333	144.985125		14.74	14.7595833	14.7358333	0.0	4.43	4.84
20-Jul	201	0	17.51833333	17.46833333	69.585	2.895083333	215.4070833	5.9717917	3.03825	223.11667	10.99829167	0.209416667	104.0075	52.20720833	15.5783333	15.5525	15.3875	0.8	2.37	3.22
21-Jul	202	0	15.91291667	15.84541667	69.31625	5.623	238.64	5.8652917	5.611916667	219.8865	11.489875	0.225333333	111.435875	51.27766667	16.0570833	16.0441667	15.9633333	0.5	4.19	4.02
22-Jul	203	0	12.77375	12.62125	59.96333333	7.83725	278.1713333	5.164125	8.013666667	290.32208	7.263166667	0.323625	151.4366667	15.397375	12.6045833	14.5775	14.54875	0.0	6.22	5.68
23-Jul	204	0	14.02366667	14.314625	58.18416667	2.799375	200.15875	7.128875	2.652708333	197.85958	13.77833333	0.283666667	136.104625	32.4275	13.8966667	15.49125	15.0204167	0.0	2.52	3.90
24-Jul	205	0	17.28708333	17.27916667	68.02541667	4.43275	203.95	5.1037083	4.492083333	201.71667	6.893041667	0.168833333	81.74875	19.94179167	15.5520833	15.5475	15.5245833	0.7	3.76	3.19
25-Jul	206	0	20.04291667	20.04458333	57.57916667	4.87575	216.7958333	5.43	4.810666667	214.5375	6.789791667	0.203666667	103.63375	25.40504167	15.8333333	15.8391667	15.7866667	2.5	6.52	4.56
26-Jul	207	0	15.55458333	15.39791667	58.035	4.383541667	93.143	6.800125	4.418291667	75.06875	11.26483333	0.250333333	126.1295833	19.197	15.8466667	15.5645833	15.5	0.0	4.37	4.41
27-Jul	208	0	15.53041667	15.54125	54.46791667	4.883333333	292.21475	5.2969583	4.821458333	283.70583	11.32766667	0.291416667	134.0433333	15.29291667	15.7316667	15.7608333	15.7133333	0.0	5.27	4.92
28-Jul	209	0	17.09958333	17.08125	56.32083333	5.4195	245.7825	5.6607083	5.319916667	259.01996	9.414	0.278416667	133.00625	24.313125	16.2154167	15.7833333	15.7220833	0.0	6.20	5.22
29-Jul	210	0	9.616541667	9.492666667	64.925	5.129083333	219.64925	8.636375	5.212541667	191.47346	9.881458333	0.23825	86.71333333	16.05375	12.0729167	14.6525	14.5883333	0.0	2.89	2.97
30-Jul	211	0	11.55875	11.6475	52.15083333	2.442541667	282.9534583	6.85675	2.556541667	238.00663	13.72758333	0.280875	112.10875	16.153875	14.90625	14.9541667	14.0808333	0.0	2.14	3.16
31-Jul	212	0	15.57	15.69	57.6325	3.061041667	243.3833333	4.3108333	3.085208333	240.59583	13.93704167	0.219583333	98.03220833	17.20758333	16.6620833	15.5783333	15.38875	0.0	3.08	3.31
01-Aug	213	0	15.74791667	15.5625	67.8975	3.845458333	208.08	5.4930833	3.822333333	235.81958	7.686791667	0.19825	95.86008333	27.88708333	17.3954167	15.7933333	15.6641667	0.3	2.97	3.23
02-Aug	214	0	9.722125	9.797375	58.505	3.413041667	94.50929167	7.31725	3.476041667	35.769542	11.50608333	0.294666667	119.2829167	16.41104167	13.2495417	14.8825	14.54375	0.0	2.34	3.34
03-Aug	215	0	14.88625	14.96708333	51.91583333	3.17375	247.8125	4.1645417	3.29625	244.80417	8.759291667	0.272416667	116.3525	13.41033333	16.6070833	15.18625	15.0595833	0.0	3.54	3.88
04-Aug	216	0	16.84333333	16.77583333	68.17125	3.615333333	187.9575833	5.0101667	3.405041667	187.03329	13.237125	0.16325	76.2375	24.23425	17.8554167	15.7554167	15.5541667	0.1	3.03	2.80
05-Aug	217	0	10.86625	10.774125	76.2875	5.916458333	57.15608333	6.2155417	6.009333333	43.969208	8.219916667	0.125291667	47.57391667	24.19358333	12.109	14.3929167	14.3704167	0.0	2.50	2.03
06-Aug	218	0	9.36175	9.480333333	61.62125	3.753666667	191.4580833	5.8494583	3.7145	234.06583	12.15129167	0.273416667	109.86525	23.721625	11.968125	13.8433333	13.3045833	0.0	2.32	3.14
07-Aug	219	0	13.80875	13.91916667	59.85208333	3.049416667	266.5458333	6.7083333	2.928708333	262.93333	12.297375	0.234291667	104.245	30.892375	15.5354167	14.8270833	14.5620833	0.0	2.65	3.26
08-Aug	220	0	14.67333333	14.7175	63	2.946125	209.5304167	6.1662083	2.839041667	206.71833	17.65595833	0.256041667	113.0858333	38.00683333	17.3079167	15.1204167	14.8516667	0.0	2.49	3.41
09-Aug	221	0	15.12	15.09291667	69.26791667	2.753541667	249.1857917	4.447125	2.805958333	265.62667	12.33954167	0.122041667	39.58	29.58675	15.4945833	15.2258333	15.11625	0.0	1.99	1.62
10-Aug	222	0	14.57666667	14.5175	83.1875	2.562125	122.4925	5.58525	2.69075	131.42458	12.79183333	0.084958333	32.840375	16.94354167	15.0620833	15.2825	15.1879167	4.3	0.98	1.09

Table APPXV3AB
Long Lake Meteorological Station
Daily Mean Data from Hourly Values

Date	Julian Day	Tim	Hourly Temp 2 m	1 - mm Air Temp 2 m	Hourly Temp 0.9 m	Hourly Humidity 2 m	Hourly Humidity 0.9 m	Hourly Wind Speed 2 m (m/s)	Wind Direction 2m	SD	Hourly Average Wind 0.9 m (m/s)	Wind Direction 0.9 m (azimuth)	SD	Solar Radiation (kW/m²)	Net Radiation (W/m²)	Standard Deviation	Water Temp (0 m)	Water Temp (.5 m)	Water Temp (1.5 m)	Rain (mm)	Aerodynamic Method Ea (mm/day)	Penman's Combined Method (mm)
11-Aug	223	0	11.57	11.50	9.06	72.81	116.81	4.13	62.47	8.12	4.00	61.06	10.15	0.18	83.85	45.92	15.61	14.51	14.37	0.3	2.10	2.69
12-Aug	224	0	12.91	13.07	13.15	69.89	68.95	3.63	222.73	4.31	3.50	216.74	7.79	0.23	104.93	26.55	12.83	14.62	14.50	0.0	2.23	3.09
13-Aug	225	0	16.50	16.50	16.58	62.71	61.73	3.72	237.45	4.20	3.73	243.71	10.08	0.19	88.68	17.13	14.25	15.03	14.87	0.0	3.57	3.28
14-Aug	226	0	13.00	12.88	13.12	80.65	79.26	4.36	176.47	5.39	4.06	182.43	11.13	0.06	11.10	12.65	14.02	14.86	14.87	1.2	1.73	0.93
15-Aug	227	0	12.01	12.03	12.44	71.00	68.81	2.80	146.01	7.33	2.74	139.36	15.29	0.20	87.14	53.70	13.88	14.48	13.64	0.0	1.65	2.47
16-Aug	228	0	12.06	12.09	12.31	81.03	79.61	3.49	255.09	5.08	3.47	251.89	7.49	0.10	26.66	19.09	14.34	14.43	14.43	6.8	1.35	1.11
17-Aug	229	0	11.56	11.60	11.75	86.00	85.72	4.28	155.89	6.49	4.03	150.74	8.84	0.11	52.97	21.07	14.02	14.10	13.88	3.9	1.12	1.54
18-Aug	230	0	15.97	16.05	16.05	79.07	78.31	5.76	287.11	4.75	5.91	288.63	5.95	0.20	104.77	22.93	14.54	14.57	14.51	3.9	3.05	3.45
19-Aug	231	0	12.72	12.51	12.95	71.11	69.97	8.27	319.64	5.60	8.33	317.15	6.84	0.15	62.09	35.28	13.98	14.21	14.22	0.4	4.91	3.29
20-Aug	232	0	10.34	10.41	10.79	65.32	64.01	3.79	247.10	7.32	4.06	252.89	11.43	0.20	63.43	22.77	13.62	13.61	13.27	0.0	2.30	2.26
21-Aug	233	0	10.28	10.31	10.52	75.84	75.22	6.53	154.61	6.15	6.36	155.39	6.64	0.04	-6.53	12.57	13.06	13.07	13.04	0.8	2.72	1.07
22-Aug	234	0	14.32	14.35	14.30	84.14	83.51	3.23	127.12	5.73	3.32	122.49	13.89	0.15	72.35	21.24	13.36	13.37	13.28	7.1	1.17	2.01
23-Aug	235	0	13.14	13.19	13.17	91.75	92.47	2.23	88.03	6.26	2.17	76.67	11.16	0.06	31.73	15.05	13.46	13.45	13.41	2.5	0.34	0.80
24-Aug	236	0	8.15	8.03	8.47	90.76	92.48	10.70	296.45	5.75	10.39	281.45	6.98	0.03	9.44	4.20	11.82	11.84	11.87	2.6	1.17	0.73
25-Aug	237	0	6.42	6.44	6.79	66.52	68.49	7.47	273.79	5.52	7.59	287.97	8.25	0.20	63.94	20.71	10.26	10.21	10.08	0.0	3.05	2.64
26-Aug	238	0	10.03	10.11	10.25	63.41	66.06	1.63	180.24	4.75	1.61	202.88	10.16	0.15	59.97	25.53	12.01	11.96	11.15	0.0	0.91	1.57
27-Aug	239	0	12.05	12.05	12.22	69.34	70.20	1.53	163.95	5.63	1.42	165.17	14.73	0.13	50.47	24.37	12.45	12.44	12.02	0.0	0.86	1.39
28-Aug	240	0	10.52	10.46	10.85	70.49	69.85	3.27	144.33	6.14	3.37	144.49	9.00	0.21	58.22	9.87	12.19	12.25	12.20	0.0	1.69	1.88
29-Aug	241	0	11.18	11.19	11.57	73.04	71.95	1.74	216.87	8.28	1.81	222.43	12.96	0.21	66.13	9.67	12.18	12.36	12.01	0.0	0.87	1.69
30-Aug	242	0	12.52	12.54	12.80	67.12	65.34	2.76	222.05	7.87	2.56	221.27	11.22	0.20	54.45	9.55	11.58	12.95	12.75	0.0	1.86	1.89
31-Aug	243	0	11.29	11.22	11.51	74.91	72.93	3.05	139.58	6.94	3.19	155.49	15.29	0.16	37.30	15.26	11.72	12.44	12.36	0.0	1.48	1.38
01-Sep	244	0	12.65	12.72	12.83	68.56	67.81	4.38	169.11	6.19	4.54	168.75	7.19	0.20	61.93	9.33	11.18	11.93	11.90	0.0	2.77	2.41
02-Sep	245	0	13.19	13.19	13.25	63.01	62.00	3.65	162.92	4.78	3.64	167.73	8.90	0.19	50.63	9.46	12.39	12.19	12.15	0.0	2.83	2.20
03-Sep	246	0	14.03	14.12	14.23	64.67	62.88	1.40	176.58	6.21	1.40	207.38	24.01	0.16	48.73	19.28	14.66	12.61	12.44	0.0	1.12	1.47
04-Sep	247	0	11.98	11.89	12.24	74.15	72.55	3.00	207.18	5.11	2.95	201.93	11.84	0.15	49.59	17.45	12.50	12.82	12.66	0.0	1.55	1.66
05-Sep	248	0	5.88	5.78	6.08	88.62	89.18	4.35	48.49	6.83	4.33	47.19	9.03	0.03	-4.76	5.82		11.39	11.09	5.7	0.59	0.21
06-Sep	249	0	4.23	4.18	4.63	78.89	78.57	3.43	91.45	7.13	3.45	62.13	11.12	0.14	32.07	19.31		10.37	9.73	0.0	0.82	0.95
07-Sep	250	0	4.51	4.52	4.93	79.05	77.81	1.83	104.90	7.86	1.87	103.65	10.42	0.16	26.14	14.08		11.14	10.31	0.0	0.46	0.67
08-Sep	251	0	4.43	4.40	4.84	77.49	78.00	3.70	119.01	6.52	3.62	119.00	8.79	0.07	12.30	10.57		10.65	10.58	0.4	0.92	0.69
09-Sep	252	0	5.80	5.81	6.09	78.19	78.03	3.55	87.35	6.70	3.43	60.72	9.75	0.14	33.74	31.23		10.40	9.74	0.5	0.97	1.06
10-Sep	253	0	3.03	2.95	3.20	87.68	88.13	7.21	32.65	7.15	6.99	34.33	8.19	0.02	-4.00	4.07		8.39	8.02	0.1	0.87	0.41
11-Sep	254	0	0.16	0.10	0.59	77.61	78.46	5.94	76.15	5.99	5.94	62.73	8.11	0.12	26.55	12.92		7.00	6.60	0.0	1.06	1.00
12-Sep	255	0	-0.02	0.08	0.40	72.85	73.37	2.54	115.35	7.05	2.48	115.20	9.43	0.12	13.55	18.38		8.85	7.80	0.0	0.55	0.51
13-Sep	256	0	4.47	4.59	4.69	77.46	77.77	3.29	184.70	5.42	3.22	170.93	12.08	0.10	22.08	22.12		8.71	8.57	0.8	0.83	0.80
14-Sep	257	0	3.43	3.26	3.78	77.18	76.96	2.97	72.09	5.62	3.03	68.22	9.45	0.15	26.61	16.70		8.32	7.93	0.3	0.72	0.81
15-Sep	258	0	3.49	3.67	3.71	85.39	86.50	5.77	126.43	6.67	5.64	125.33	7.48	0.06	14.86	12.56		8.22	8.14	0.7	0.82	0.68
16-Sep	259	0	8.02	8.07	8.10	89.79	90.71	4.10	246.28	4.15	4.11	242.90	6.21	0.07	22.71	14.62		8.60	8.56	2.1	0.55	0.68
17-Sep	260	0	8.11	8.16	8.25	84.73	83.82	3.61	145.84	6.09	3.61	168.35	10.17	0.09	35.94	14.83		8.76	8.71	0.0	0.85	1.06
18-Sep	261	0	6.25	6.00	6.37	85.34	85.73	5.53	213.28	4.21	5.71	245.10	8.24	0.04	-1.73	13.71		8.24	8.26	0.4	1.01	0.48
19-Sep	262	0	-0.60	-0.66	-0.30	89.85	91.45	6.22	104.05	7.75	6.09	102.52	8.77	0.03	-3.99	6.29		7.13	6.95	1.2	0.42	0.20
20-Sep	263	0	-2.62	-2.65	-2.36	92.35	95.06	5.64	82.50	7.77	5.72	80.25	9.62	0.06	17.68	6.63		6.54	6.41	0.8	0.19	0.34
21-Sep	264	0	-0.14	-0.02	0.18	91.35	94.83	5.65	184.23	5.84	5.62	181.90	7.22	0.04	11.19	6.73		6.03	5.94	0.0	0.24	0.30
22-Sep	265	0	1.83	1.80	2.10	93.65	96.35	2.28	132.72	3.97	2.27	137.99	10.34	0.04	10.90	5.30	6.54	6.55	6.39	0.0	0.08	0.21
23-Sep	266	0	1.30	1.34	1.61	87.02	88.41	3.46	217.42	5.46	3.53	218.55	9.81	0.08	13.66	14.40	5.94	5.88	5.76	0.0	0.36	0.41
24-Sep	267	0	3.69	3.77	3.91	89.00	90.18	3.54	210.01	4.61	3.49	211.78	6.13	0.05	8.47	12.59	5.98	5.98	5.95	0.0	0.37	0.34
25-Sep	268	0	6.80	6.77	6.89	86.08	86.18	5.67	213.70	5.08	5.59	209.86	6.43	0.06	20.32	11.52	6.34	6.35	6.32	1.8	1.04	0.87
26-Sep	269	0	1.38	1.26	1.68	80.08	80.34	5.70	244.29	6.04	5.93	272.74	8.19	0.07	8.66	14.84	5.31	5.32	5.32	0.1	1.02	0.71
27-Sep	270	0	1.38	1.43	1.62	89.16	90.48	4.05	145.49	5.96	4.10	142.99	7.23	0.03	4.08	5.73	5.27	5.28	5.20	3.0	0.35	0.26
28-Sep	271	0	1.73	1.70	1.97	90.88	92.59	1.77	111.30	5.20	1.90	114.68	9.66	0.04	12.06	6.02	5.65	5.67	5.51	0.1	0.12	0.25
29-Sep	272	0	0.80	0.79	1.11	92.30	94.80	2.69	175.29	4.47	2.76	155.02	7.78	0.04	7.24	8.28	5.25	5.29	5.19	1.7	0.12	0.17
30-Sep	273	0	0.54	0.59	0.83	76.17	76.53	3.12	238.58	5.78	3.12	242.96	9.27	0.08	-3.26	13.71	4.60	4.61	4.59	0.0	0.63	0.32
01-Oct	274	0	0.52	0.49	0.75	82.02	82.26	1.85	142.77	4.27	1.91	143.89	8.28	0.10	-1.31	14.56	4.85	4.88	4.72		0.28	0.15
02-Oct	275	0	1.72	1.78	1.93	78.18	78.57	3.48	193.50	4.26	3.32	192.79	7.85	0.07	-11.56	5.76	4.51	4.51	4.49		0.69	0.22
03-Oct	276	0	2.07	2.09	2.25	85.03	85.77	7.84	198.94	6.21	7.98	198.20	6.53	0.01	-21.41	4.18	4.41	4.41	4.40		1.06	0.28
04-Oct	277	0	2.22	2.23	2.38	93.82	96.65	2.66	142.94	4.77	2.62	144.80	6.85	0.02	2.16	5.45	4.35	4.35	4.26		0.09	0.08
05-Oct	278	0	-0.34	-0.48	-0.05	88.84	90.85	5.28	25.39	6.82	5.38	26.74	7.65	0.03	-4.50	11.07	3.69	3.77	3.95		0.39	0.17
06-Oct	279	0	-3.31	-3.30	-2.91	86.23	87.73	2.76	100.03	7.57	2.84	96.33	12.22	0.08	9.07	21.29	2.91	3.27	3.39		0.22	0.25
07-Oct	280	0	-1.41	-1.40	-1.11	90.58	93.05	3.22	105.24	6.83	3.45	110.16	7.64	0.04	3.54	6.97	3.46	3.51	3.52		0.17	0.15
08-Oct	281	0	-4.25	-4.27	-3.99	89.31	92.13	4.54	88.26	7.78	4.58	70.07	8.55	0.07	1.60	14.02	3.02	3.13	3.25		0.21	0.16
09-Oct	282	0	-4.78	-4.79	-4.34	86.93	89.78	5.19	106.33	7.94	5.27	106.61	7.96	0.04	3.79	5.41	2.87	2.91	2.93		0.31	0.21
																					67.7595118	64.961747
																					78.789657	81.180909
																				Total	Mean 1.7656526	1.7607549

Misery Meteorological Data

Rescan Environmental Services Ltd.
Project BHP455

Pointe de Misere
Meteorological Data

Date	Average Hourly Temp	one-minu Temp	verage Hourly Humidit	10-min Wind Speed (m/s)	Wind Direction	Standar Deviati	2-minute Wind Speed (m/s)	Wind Direction	Standar Deviati	15-minute Wind Speed (m/s)	Wind Direction	Standar Deviati	Rain (mm)
20-Jul	17.16	17.17	68.69	3.43	219.67	8.32	3.35	219.54	6.03	3.53	225.95	9.98	3.9
21-Jul	14.96	14.83	70.99	5.84	152.77	8.96	5.72	167.82	6.79	5.52	176.97	12.97	5.6
22-Jul	12.45	12.38	53.19	8.96	224.34	8.94	8.84	195.02	7.77	9.02	239.14	10.23	0
23-Jul	13.36	13.48	55.33	3.51	184.80	10.34	3.48	185.52	5.97	3.47	179.77	10.45	0
24-Jul	15.55	15.59	71.69	4.74	220.40	6.85	4.72	220.35	6.46	4.66	219.70	7.23	1.6
25-Jul	18.22	18.15	59.23	5.45	229.77	6.46	5.45	228.47	5.40	5.58	229.18	7.43	1.3
26-Jul	15.22	15.03	59.28	5.17	60.05	9.48	5.16	60.12	5.89	5.40	56.61	9.68	0
27-Jul	15.41	15.38	49.23	5.66	276.23	7.80	5.82	277.06	5.96	5.64	291.31	9.24	0
28-Jul	16.72	16.66	53.12	6.29	262.12	7.00	6.26	263.40	5.29	6.28	278.18	7.94	0
29-Jul	9.27	9.09	57.94	5.86	202.59	9.51	5.79	171.20	7.56	5.78	171.90	10.22	0
30-Jul	11.11	11.20	48.40	3.13	244.33	14.78	3.21	247.04	7.96	3.26	276.53	14.24	0
31-Jul	15.67	15.80	51.00	4.41	275.95	7.88	4.33	276.26	5.75	4.37	276.25	9.06	0
01-Aug	15.80	15.70	62.65	5.44	188.93	7.73	5.43	158.80	5.97	5.40	171.05	8.14	0.5
02-Aug	9.70	9.75	53.10	5.05	70.32	8.44	5.14	56.60	6.27	5.26	72.59	8.85	0
03-Aug	14.45	14.53	48.21	4.29	254.97	7.22	4.20	254.22	6.34	4.32	259.18	8.64	0
04-Aug	16.74	16.74	65.68	4.67	197.82	6.61	4.69	196.55	5.72	4.49	181.78	7.83	0
05-Aug	10.67	10.52	71.92	7.64	38.92	7.24	7.54	38.52	5.78	7.55	22.96	7.31	0
06-Aug	9.38	9.47	54.51	4.34	120.56	10.66	4.17	152.77	7.03	4.44	161.63	13.02	0
07-Aug	14.04	14.14	54.62	3.96	278.75	8.24	3.89	278.96	6.21	3.81	277.04	9.96	0
08-Aug	14.55	14.52	56.49	4.27	137.60	8.28	4.15	126.02	6.86	4.35	137.55	8.50	0
09-Aug	14.57	14.59	68.81	3.35	303.48	7.01	3.42	304.04	5.08	3.40	306.93	10.78	0.6
10-Aug	13.88	13.91	80.91	2.95	147.41	11.49	3.10	143.78	4.21	2.74	136.68	11.80	5.3
Data missing due to power supply damage.													
19-Aug	11.84	11.67	67.04	8.84	328.00	6.72	8.77	327.75	5.63	8.95	327.73	7.28	0.2
20-Aug	9.77	9.85	63.82	4.62	268.34	10.66	4.67	264.78	7.92	4.61	270.15	10.76	0
21-Aug	9.90	9.93	76.26	8.42	164.61	5.11	8.19	164.20	4.85	8.41	166.21	5.31	2.5
23-Aug	14.27	14.32	84.53	3.44	135.34	8.57	3.45	151.31	6.09	3.56	145.37	9.36	4.7
24-Aug	7.36	7.18	93.07	10.86	273.54	7.27	11.07	273.53	5.82	10.87	274.65	8.08	5
25-Aug	5.78	5.79	64.91	7.11	337.06	7.04	7.17	337.00	6.11	7.33	339.75	8.29	0
26-Aug	10.57	10.63	63.22	2.59	259.04	10.17	2.61	255.01	6.41	2.66	257.93	11.41	0
27-Aug	11.92	11.88	68.95	2.66	198.53	8.51	2.74	199.18	4.39	2.52	200.87	9.44	0
28-Aug	10.03	9.96	73.23	4.15	148.61	5.83	4.10	147.81	4.83	4.12	147.56	6.57	0
29-Aug	11.37	11.38	71.51	3.41	246.10	6.94	3.46	242.50	4.86	3.39	247.37	7.56	0
30-Aug	12.49	12.49	67.86	3.58	245.47	7.22	3.63	244.35	4.82	3.61	244.60	8.41	0
31-Aug	10.88	10.82	79.51	4.60	166.13	7.56	4.58	164.66	5.50	4.48	169.55	8.96	0
01-Sep	12.04	12.07	72.37	5.25	182.87	6.35	5.15	182.26	5.75	5.28	180.82	7.74	0

02-Sep	13.27	13.33	63.17	4.58	195.47	6.50	4.49	194.17	5.57	4.56	196.16	7.44	0
03-Sep	13.59	13.59	65.72	2.32	194.11	10.39	2.38	194.28	7.44	2.41	194.38	12.57	0
04-Sep	12.04	11.96	71.68	3.58	224.47	8.32	3.54	225.44	7.27	3.58	219.83	11.22	0
05-Sep	5.27	5.15	93.05	5.99	54.65	6.00	6.07	53.54	5.44	5.94	55.75	6.32	6.8
06-Sep	3.48	3.50	80.47	3.74	106.68	10.74	3.75	92.01	7.05	3.76	17.45	10.94	0.3
07-Sep	4.38	4.42	82.59	3.21	95.83	8.87	3.20	93.69	7.56	3.25	94.25	9.03	0
08-Sep	4.34	4.32	78.66	5.37	122.48	7.47	5.39	123.08	6.09	5.43	124.47	8.29	0
09-Sep	5.95	6.00	76.49	5.03	46.81	6.45	5.20	60.42	5.34	4.96	45.82	7.62	0.3
10-Sep	2.83	2.73	88.66	10.96	40.06	5.50	11.04	40.72	4.91	10.98	41.29	5.58	0.1
11-Sep	-0.20	-0.26	71.56	6.81	18.51	7.22	7.02	19.28	6.69	6.96	18.15	7.20	0
12-Sep	0.38	0.49	70.84	3.46	118.26	8.63	3.54	118.15	5.78	3.36	116.00	9.67	0
13-Sep	5.05	5.14	74.00	5.12	163.40	6.61	5.19	163.53	5.42	5.19	173.25	7.72	0
14-Sep	3.80	3.77	77.24	4.05	45.94	6.79	4.04	59.11	5.04	4.04	46.30	7.03	0
15-Sep	4.01	4.13	87.74	8.27	135.03	6.01	8.30	134.25	5.45	8.10	133.73	6.63	0.1
16-Sep	7.89	7.88	92.35	5.48	260.64	5.55	5.46	262.33	4.42	5.45	258.76	6.16	1.2
17-Sep	7.87	7.94	87.84	5.12	168.90	7.51	5.21	165.87	4.30	5.13	164.57	7.12	0.3
19-Sep	-0.67	-0.70	94.20	9.50	104.73	6.40	9.43	104.74	5.27	9.22	103.52	6.65	0.4
20-Sep	-2.76	-2.80	99.42	8.27	79.89	7.64	8.27	76.87	5.51	8.47	78.99	7.56	0
21-Sep	-0.52	-0.41	99.65	7.40	198.78	6.36	7.27	199.68	5.79	7.47	195.39	6.95	6.9
22-Sep	1.95	1.95	98.43	4.10	145.54	5.24	4.14	144.80	3.40	4.08	147.77	7.55	0
23-Sep	0.89	0.86	90.54	3.95	251.31	8.63	4.09	250.20	5.70	3.94	269.16	9.59	0.1
24-Sep	3.96	4.03	91.93	5.20	223.43	5.35	5.15	223.54	4.73	5.03	224.21	5.86	2.2
25-Sep	6.63	6.56	88.46	7.50	230.80	5.42	7.44	230.97	5.03	7.49	227.47	6.26	1.7
26-Sep	0.84	0.77	81.18	5.14	241.37	8.02	5.11	240.53	5.18	5.33	239.58	8.98	0
27-Sep	1.21	1.24	92.70	6.66	156.69	6.32	6.73	157.80	5.13	6.63	154.52	6.54	0.2
28-Sep	1.41	1.41	96.46	2.93	89.33	5.98	2.94	87.68	4.66	2.92	90.24	6.85	0.5
29-Sep	1.11	1.07	94.28	3.03	175.74	8.82	3.03	191.82	6.52	3.11	176.24	10.29	1
30-Sep	0.52	0.55	72.83	3.65	267.99	5.64	3.63	269.88	3.98	3.71	268.49	6.90	0
1-Oct	1.85	1.83	74.57	2.68	173.69	7.23	2.71	162.91	5.36	2.67	172.45	8.93	0
2-Oct	2.49	2.52	72.51	5.74	222.96	6.07	5.76	223.68	5.12	5.68	223.93	6.10	0
3-Oct	2.19	2.23	87.55	12.00	212.65	5.93	12.13	213.78	5.52	12.21	211.49	5.94	0.3
4-Oct	2.84	2.83	97.16	4.56	161.08	5.93	4.62	161.46	4.69	4.58	163.32	6.03	3.9
5-Oct	-0.76	-0.90	92.38	7.13	28.68	5.92	7.09	28.98	5.25	7.06	29.71	6.16	0
6-Oct	-3.61	-3.55	88.67	3.75	141.21	10.69	3.84	129.33	7.47	3.71	125.22	12.07	0.2
7-Oct	-1.40	-1.39	95.35	5.39	107.76	5.80	5.32	107.44	5.26	5.32	109.89	6.16	0.5
8-Oct	-4.34	-4.43	95.10	7.06	74.11	6.09	6.96	74.13	5.23	7.14	73.96	6.27	0
9-Oct	-4.83	-4.83	97.19	2.18	112.83	6.72	2.17	112.99	6.22	2.28	112.99	6.83	0
10-Oct	-5.05	-5.05	94.56	1.20	70.76	5.47	1.22	69.87	5.07	1.20	71.61	5.71	0
11-Oct	-5.19	-5.15	95.42	0.57	183.44	6.16	0.57	183.55	4.92	0.55	197.56	7.33	0
12-Oct	-0.56	-0.52	90.56	6.60	205.33	6.24	6.68	205.83	4.96	6.52	207.46	6.69	0.3
13-Oct	0.50	0.46	93.75	5.26	222.76	5.44	5.21	223.32	4.65	5.35	220.93	5.82	0
14-Oct	-2.69	-2.77	95.70	3.94	99.08	6.44	4.04	102.72	3.86	3.98	100.74	7.24	0
15-Oct	-3.87	-3.84	93.69	3.88	139.07	6.79	3.99	139.12	5.71	3.80	136.11	7.75	0
16-Oct	-3.56	-3.52	98.28	6.60	155.61	6.08	6.50	154.26	5.04	6.62	157.39	6.31	0
17-Oct	0.30	0.32	102.02	7.45	134.18	4.49	7.46	134.69	3.90	7.58	134.36	4.66	4.4
18-Oct	-0.09	-0.13	99.38	8.17	278.89	5.23	8.11	278.98	4.70	7.94	276.09	5.56	7.5
19-Oct	-4.11	-4.25	94.33	6.64	249.34	4.97	6.61	249.57	3.93	6.85	261.38	5.28	0
20-Oct	-7.53	-7.52	93.04	4.27	60.58	5.32	4.25	73.74	3.93	4.23	60.35	4.95	0
21-Oct	-7.93	-7.94	84.41	4.99	194.53	8.34	5.11	195.51	5.72	5.00	209.35	9.37	0

22-Oct	-7.13	-7.11	87.95	3.91	199.79	9.12	3.87	211.14	4.65	3.86	196.99	9.32	0
23-Oct	-5.87	-5.80	92.63	7.21	172.95	6.44	7.17	172.73	5.80	7.17	171.86	6.95	0
24-Oct	-1.73	-1.75	94.12	7.24	187.41	5.43	7.28	188.57	4.48	7.16	189.38	6.03	0.3
25-Oct	-1.08	-1.07	98.85	7.35	180.94	5.60	7.34	180.75	4.56	7.49	180.24	5.56	0.1
26-Oct	-1.01	-0.95	101.57	4.74	106.09	5.41	4.75	105.76	4.42	4.70	107.38	5.95	1.5
27-Oct	-1.83	-1.93	100.30	10.17	50.31	3.91	10.33	50.36	3.71	9.98	50.67	4.03	0
28-Oct	-5.44	-5.50	95.99	15.40	24.43	3.48	15.32	24.36	3.38	15.37	24.46	3.59	0
29-Oct	-8.69	-8.76	91.44	10.80	28.80	3.62	10.76	28.79	3.06	10.99	28.82	3.83	0
30-Oct	-11.46	-11.48	89.64	3.84	69.26	4.42	3.81	68.86	3.02	3.85	69.40	4.45	0
31-Oct	-11.35	-11.35	91.23	1.89	50.38	3.30	1.90	50.42	2.78	1.91	53.16	3.49	0
1-Nov	-12.49	-12.50	89.90	2.80	116.03	7.01	2.80	117.73	5.37	2.83	113.41	8.43	0
2-Nov	-10.04	-9.98	91.93	4.87	164.08	7.05	4.91	165.11	4.49	4.77	162.43	6.84	0
3-Nov	-8.47	-8.41	91.30	11.63	176.57	4.60	11.61	177.04	4.55	11.65	177.28	4.67	0
4-Nov	-6.74	-6.67	93.24	10.98	154.61	4.18	10.91	154.51	3.67	11.16	155.75	4.30	0
5-Nov	-7.29	-7.53	92.53	8.76	255.60	4.47	8.57	255.80	4.06	8.64	253.23	5.02	0
6-Nov	-20.18	-20.31	82.05	5.44	268.05	4.12	5.40	267.35	3.14	5.56	264.21	6.31	0
7-Nov	-13.73	-13.56	88.18	4.57	170.34	5.69	4.45	169.79	4.16	4.68	170.74	5.88	0
8-Nov	-8.66	-8.56	93.76	3.49	170.63	4.71	3.46	170.65	2.80	3.42	170.32	4.73	0
9-Nov	-10.86	-11.00	91.84	5.20	139.11	5.58	5.24	140.42	3.44	5.25	142.47	5.56	0
10-Nov	-9.77	-9.69	92.93	5.06	189.68	5.00	5.05	191.42	3.10	5.13	188.47	5.12	0
11-Nov	-5.48	-5.40	95.60	9.83	172.65	4.31	9.83	172.48	3.77	9.83	172.37	4.54	0
12-Nov	-5.60	-5.77	94.14	5.83	243.29	4.54	5.73	243.35	4.28	5.99	243.80	5.00	0
13-Nov	-13.13	-13.14	85.91	2.30	274.07	7.71	2.36	277.62	4.76	2.42	271.36	9.42	0
14-Nov	-17.98	-18.07	83.90	5.03	313.04	4.76	5.07	314.23	2.98	4.95	312.25	5.94	0
15-Nov	-18.76	-18.70	84.08	3.41	170.32	4.70	3.44	156.68	3.44	3.40	168.06	6.09	0
16-Nov	-15.93	-15.83	86.62	2.73	159.96	8.09	2.80	160.89	3.03	2.86	160.27	9.09	0
17-Nov	-13.04	-13.17	89.33	4.35	243.22	5.21	4.27	243.00	4.18	4.51	241.98	5.65	0
18-Nov	-12.63	-12.48	90.04	7.83	186.21	4.11	7.79	185.82	3.78	7.87	187.01	4.42	0
19-Nov	-15.84	-16.11	86.08	10.57	292.01	3.83	10.40	292.43	3.62	10.32	289.86	4.12	0
20-Nov	-23.75	-23.78	77.38	12.20	312.62	3.99	12.12	312.41	3.78	12.19	311.63	4.05	0
21-Nov	-27.15	-27.15	74.88	5.96	309.73	3.44	5.85	309.63	2.66	5.98	309.76	3.73	0
22-Nov	-27.14	-27.13	74.93	2.23	156.75	4.19	2.26	144.47	2.03	2.26	168.92	7.39	0
23-Nov	-27.13	-27.17	75.36	9.08	69.68	3.99	9.00	69.57	3.87	9.03	70.07	4.10	0
24-Nov	-30.05	-30.07	71.93	4.81	201.16	4.05	4.87	199.99	2.43	4.88	201.99	4.92	0
26-Nov	-28.4	-28.25	73.88	3.03	147.50	5.99	3.17	161.84	2.78	3.01	178.44	13.29	0
27-Nov	-23.96	-24.04	78.62	8.23	87.85	3.73	8.28	87.82	3.30	8.19	88.50	3.80	0
28-Nov	-25.63	-25.48	76.93	7.48	95.38	3.84	7.45	95.95	3.43	7.40	94.63	3.81	0
29-Nov	-19.28	-19.26	83.48	6.54	132.26	3.68	6.55	132.72	3.51	6.56	132.23	3.84	0
30-Nov	-22.47	-22.53	80.30	4.95	109.11	4.21	4.98	109.43	3.39	4.83	109.45	4.94	0
01-Dec	-23.13	-23.15	79.55	8.19	81.27	4.04	8.22	81.68	3.76	8.22	81.95	4.23	0
02-Dec	-25.55	-25.67	77.04	6.87	47.02	4.12	6.79	46.27	2.97	7.00	49.80	4.30	0
03-Dec	-26.89	-26.76	75.55	4.34	196.09	3.10	4.32	195.88	1.83	4.09	188.24	3.62	0
04-Dec	-20.13	-20.01	82.52	11.18	215.88	4.23	11.17	215.61	4.15	11.11	215.08	4.40	0
05-Dec	-17.2	-17.27	85.52	5.06	207.05	5.61	5.18	207.34	3.58	5.16	207.36	6.52	0
06-Dec	-17.62	-17.57	85.20	1.52	176.60	5.57	1.53	176.82	3.65	1.41	175.84	7.60	0
07-Dec	-18.94	-19.13	83.79	6.03	110.56	3.93	6.06	110.91	3.39	6.07	122.38	4.31	0
08-Dec	-31.69	-31.89	70.56	5.13	274.27	3.52	5.03	274.34	2.31	5.14	289.24	4.55	0
09-Dec	-32.14	-32.12	69.98	4.68	273.07	5.24	4.72	259.58	2.99	4.58	227.32	7.76	0
10-Dec	-33.84	-33.87	68.17	1.87	211.18	8.54	1.90	223.71	5.03	1.79	211.05	13.07	0

11-Dec	-33.63	-33.60	68.23	1.35	170.53	8.98	1.35	172.11	6.32	1.26	168.90	10.89	0
12-Dec	-26.37	-26.13	76.06	4.27	192.94	4.55	4.32	193.47	3.50	4.26	194.48	5.10	0
13-Dec	-20.25	-20.21	82.40	3.42	123.72	5.71	3.48	125.50	3.17	3.36	124.39	6.34	0
14-Dec	-15.39	-15.23	87.23	6.57	161.27	4.79	6.51	161.47	3.75	6.49	158.50	5.26	0
15-Dec	-15.21	-15.45	87.54	4.71	273.06	4.59	4.81	272.58	3.76	4.79	270.56	5.09	0
16-Dec	-25.7	-25.85	77.11	6.48	315.96	4.18	6.50	315.97	3.65	6.59	316.35	4.77	0
17-Dec	-32.2	-32.28	70.05	4.36	108.30	6.86	4.26	123.83	4.00	4.32	106.71	9.12	0
18-Dec	-30.71	-30.51	71.52	6.85	102.03	4.33	6.90	102.30	2.91	6.72	102.94	4.82	0
19-Dec	-23.45	-23.39	79.28	10.60	110.42	3.85	10.41	109.97	3.17	10.58	110.20	3.97	0
20-Dec	-17.85	-17.68	84.87	7.89	130.26	3.74	8.03	131.12	3.05	8.20	130.03	4.00	0
21-Dec	-14.94	-15.04	87.80	0.35	94.95	2.99	0.33	95.52	2.19	0.37	129.94	4.78	0
22-Dec	-13.47	-13.27	89.30	0.02	79.54	3.71	0.03	34.68	1.45	0.03	84.51	6.20	0
23-Dec	-13.92	-14.01	88.94	0.98	43.99	3.01	1.01	29.76	1.83	1.01	29.90	4.92	0
24-Dec	-20.88	-20.88	82.13	1.07	118.10	6.23	1.07	116.36	2.64	1.17	128.84	6.52	0
25-Dec	-12.43	-12.41	90.27	6.86	164.89	4.43	6.92	164.88	3.91	6.70	162.22	4.62	0
26-Dec	-21.11	-21.29	81.94	9.32	284.58	7.43	9.14	255.36	7.13	9.59	297.60	7.52	0
27-Dec	-28.45	-28.54	73.85	5.97	290.18	11.44	5.86	261.97	7.15	6.18	277.44	11.67	0
28-Dec	-26.78	-26.63	75.82	3.73	217.38	6.87	3.74	216.65	3.60	3.82	223.07	8.28	0
29-Dec	-16.95	-16.87	85.68	4.87	277.18	5.54	4.63	277.69	4.36	4.70	276.80	6.16	0
30-Dec	-15.56	-15.51	86.92	8.84	235.66	4.41	8.93	234.46	3.72	8.93	236.45	4.74	0
01-Jan	-14.29	-14.40	86.60	10.18	313.25	5.64	10.18	313.25	3.97	10.10	312.54	5.86	0
02-Jan	-27.04	-27.29	73.39	6.97	182.62	8.43	6.91	180.74	3.31	7.01	175.51	12.05	0
03-Jan	-29.98	-29.91	72.68	1.94	230.97	16.40	1.93	203.94	6.22	1.91	214.07	22.33	0
04-Jan	-24.48	-24.28	77.98	7.84	256.92	4.36	8.15	257.13	3.29	7.93	254.59	4.60	0
05-Jan	-18.31	-18.40	82.71	10.26	319.53	4.99	10.32	305.25	3.87	10.23	303.64	5.01	0
06-Jan	-18.7	-18.77	51.97	7.06	228.74	3.74	6.93	228.76	3.44	7.06	242.48	4.87	0

Penman's Evaporation

Calculation of Penman's Evaporation from daily mean values and includes Aerodynamic Method

Pen Ev Ep = Er + (gamma/(delta+gamma))Ea

es = 27*AP4)/(237.3+AP4))
delta s/(237.3+T)^2
B = (.0622*k^2*rowa*windspd)/P*rowW[ln(z2/z0)]^2

Constan rowa = 1.226
rowW = 999
Energy Er = Rn/(lv*row w)
Rn = Net Radiation

k = 0.4 Lv = 00-2.36*T
Cp = 1005 J/kgK gamma Cp*Kh*P)/(0.622
P = 1E+05 Kh/Kw 1

	Day	es	delta	B	ea	Aerodynamic Method Ea	Ea (m/s)
19-Jul	200	1673	107.9	9E-11	1092	5E-08	4.43
20-Jul	201	2003	126.4	5E-11	1394	3E-08	2.37
21-Jul	202	1809	115.6	9E-11	1254	5E-08	4.19
22-Jul	203	1476	96.74	1E-10	885.2	7E-08	6.22
23-Jul	204	1602	103.9	4E-11	931.9	3E-08	2.52
24-Jul	205	1974	124.8	7E-11	1343	4E-08	3.76
25-Jul	206	2345	145.1	8E-11	1350	8E-08	6.52
26-Jul	207	1768	113.3	7E-11	1026	5E-08	4.37
27-Jul	208	1765	113.2	8E-11	961.4	6E-08	5.27
28-Jul	209	1951	123.5	8E-11	1099	7E-08	6.20
29-Jul	210	1197	80.47	8E-11	777.3	3E-08	2.89
30-Jul	211	1363	90.17	4E-11	710.7	2E-08	2.14
31-Jul	212	1770	113.4	5E-11	1020	4E-08	3.08
01-Aug	213	1790	114.5	6E-11	1215	3E-08	2.97
02-Aug	214	1206	80.97	5E-11	705.4	3E-08	2.34
03-Aug	215	1693	109.1	5E-11	879.2	4E-08	3.54
04-Aug	216	1919	121.8	6E-11	1308	4E-08	3.03
05-Aug	217	1302	86.6	9E-11	992.9	3E-08	2.50
06-Aug	218	1177	79.26	6E-11	725.2	3E-08	2.32
07-Aug	219	1579	102.6	5E-11	945.3	3E-08	2.65
08-Aug	220	1670	107.8	5E-11	1052	3E-08	2.49
09-Aug	221	1719	110.6	4E-11	1191	2E-08	1.99
10-Aug	222	1660	107.2	4E-11	1381	1E-08	0.98
11-Aug	223	1364	90.25	7E-11	993.2	2E-08	2.10
12-Aug	224	1489	97.5	6E-11	1041	3E-08	2.23
13-Aug	225	1877	119.4	6E-11	1177	4E-08	3.57
14-Aug	226	1498	98	7E-11	1208	2E-08	1.73
15-Aug	227	1404	92.57	4E-11	966.2	2E-08	1.65
16-Aug	228	1409	92.86	5E-11	1122	2E-08	1.35
17-Aug	229	1363	90.18	7E-11	1168	1E-08	1.12
18-Aug	230	1815	116	9E-11	1421	4E-08	3.05
19-Aug	231	1471	96.41	1E-10	1029	6E-08	4.91
20-Aug	232	1256	83.95	6E-11	804.2	3E-08	2.30
21-Aug	233	1251	83.66	1E-10	941.3	3E-08	2.72
22-Aug	234	1632	105.7	5E-11	1363	1E-08	1.17
23-Aug	235	1512	98.82	3E-11	1399	4E-09	0.34
24-Aug	236	1084	73.75	2E-10	1003	1E-08	1.17
25-Aug	237	962.8	66.42	1E-10	659.4	4E-08	3.05
26-Aug	238	1231	82.44	3E-11	812.9	1E-08	0.91
27-Aug	239	1408	92.77	2E-11	988.2	1E-08	0.86
28-Aug	240	1271	84.84	5E-11	888	2E-08	1.69
29-Aug	241	1329	88.19	3E-11	955.9	1E-08	0.87

Energy Balance

Lv	Rn	Er	delta (mm/day)	gamma	Pen Evap
2466	145	6E-08	107.9	66.37	4.84
2465	104	4E-08	126.4	66.41	3.22
2463	111.4	5E-08	115.6	66.45	4.02
2467	151.4	6E-08	96.74	66.36	5.68
2465	136.1	6E-08	103.9	66.39	3.90
2464	81.75	3E-08	124.8	66.42	3.19
2464	103.6	4E-08	145.1	66.44	4.56
2464	126.1	5E-08	113.3	66.42	4.41
2464	134	5E-08	113.2	66.43	4.92
2464	133	5E-08	123.5	66.43	5.22
2466	86.71	4E-08	80.47	66.36	2.97
2468	112.1	5E-08	90.17	66.33	3.16
2465	98.03	4E-08	113.4	66.41	3.31
2464	95.86	4E-08	114.5	66.43	3.23
2478	119.3	5E-08	80.97	66.05	3.34
2466	116.4	5E-08	109.1	66.38	3.88
2461	76.24	3E-08	121.8	66.51	2.80
2475	47.57	2E-08	86.6	66.13	2.03
2479	109.9	4E-08	79.26	66.03	3.14
2468	104.2	4E-08	102.6	66.31	3.26
2466	113.1	5E-08	107.8	66.37	3.41
2465	39.58	2E-08	110.6	66.4	1.62
2466	32.84	1E-08	107.2	66.36	1.09
2474	83.85	3E-08	90.25	66.17	2.69
2470	104.9	4E-08	97.5	66.25	3.09
2462	88.68	4E-08	119.4	66.48	3.28
2470	11.1	4E-09	98	66.26	0.93
2468	87.14	4E-08	92.57	66.32	2.46
2467	26.66	1E-08	92.86	66.35	1.11
2468	52.97	2E-08	90.18	66.33	1.54
2467	104.8	4E-08	116	66.36	3.45
2468	62.09	3E-08	96.41	66.32	3.29
2469	63.43	3E-08	83.95	66.3	2.25
2470	-6.53	0	83.66	66.26	1.07
2469	72.35	3E-08	105.7	66.28	2.01
2469	31.73	1E-08	98.82	66.29	0.80
2473	9.439	4E-09	73.75	66.19	0.73
2477	63.94	3E-08	66.42	66.09	2.63
2473	59.97	2E-08	82.44	66.2	1.56
2471	50.47	2E-08	92.77	66.23	1.39
2472	58.22	2E-08	84.84	66.21	1.88
2472	66.13	3E-08	88.19	66.21	1.69

30-Aug	242	1452	95.34	4E-11	948.7	2E-08	1.86	2474	54.45	2E-08	95.34	66.17	1.89
31-Aug	243	1338	88.75	5E-11	976	2E-08	1.48	2473	37.3	2E-08	88.75	66.18	1.38
01-Sep	244	1464	96.05	7E-11	992.9	3E-08	2.77	2475	61.93	3E-08	96.05	66.14	2.42
02-Sep	245	1517	99.08	6E-11	940.6	3E-08	2.83	2472	50.63	2E-08	99.08	66.22	2.20
03-Sep	246	1603	104	2E-11	1008	1E-08	1.12	2466	48.73	2E-08	104	66.37	1.47
04-Sep	247	1401	92.42	5E-11	1017	2E-08	1.55	2471	49.59	2E-08	92.42	66.23	1.66
05-Sep	248	927.8	64.29	7E-11	827.4	7E-09	0.59	2486	-4.76	0	64.29	65.84	0.21
06-Sep	249	826.7	58.07	5E-11	649.5	9E-09	0.82	2487	32.07	1E-08	58.07	65.8	0.95
07-Sep	250	843.1	59.09	3E-11	656	5E-09	0.46	2487	26.14	1E-08	59.09	65.8	0.67
08-Sep	251	838.7	58.82	6E-11	654.2	1E-08	0.92	2489	12.3	5E-09	58.82	65.77	0.69
09-Sep	252	922.4	63.96	6E-11	719.7	1E-08	0.97	2485	33.74	1E-08	63.96	65.87	1.06
10-Sep	253	759.5	53.89	1E-10	669.4	1E-08	0.87	2493	-4	0	53.89	65.66	0.41
11-Sep	254	618	44.91	9E-11	484.9	1E-08	1.06	2498	26.55	1E-08	44.91	65.52	1.00
12-Sep	255	610.1	44.41	4E-11	447.6	6E-09	0.55	2498	13.55	5E-09	44.41	65.53	0.51
13-Sep	256	840.9	58.95	5E-11	654	1E-08	0.83	2489	22.08	9E-09	58.95	65.77	0.80
14-Sep	257	781.4	55.25	5E-11	601.4	8E-09	0.72	2491	26.61	1E-08	55.25	65.72	0.81
15-Sep	258	785	55.48	9E-11	679	1E-08	0.82	2493	14.86	6E-09	55.48	65.66	0.68
16-Sep	259	1075	73.17	6E-11	974.7	6E-09	0.55	2482	22.71	9E-09	73.17	65.96	0.68
17-Sep	260	1081	73.59	6E-11	906.5	1E-08	0.85	2481	35.94	1E-08	73.59	65.96	1.06
18-Sep	261	952	65.77	9E-11	816.2	1E-08	1.01	2486	-1.73	0	65.77	65.83	0.48
19-Sep	262	584.9	42.78	1E-10	534.9	5E-09	0.42	2502	-3.99	0	42.78	65.41	0.20
20-Sep	263	504	37.5	9E-11	479.1	2E-09	0.19	2507	17.68	7E-09	37.5	65.28	0.34
21-Sep	264	604.8	44.07	9E-11	573.6	3E-09	0.24	2501	11.19	4E-09	44.07	65.44	0.30
22-Sep	265	697.5	49.99	4E-11	672.1	9E-10	0.08	2497	10.9	4E-09	49.99	65.56	0.21
23-Sep	266	671.5	48.34	5E-11	593.7	4E-09	0.36	2498	13.66	5E-09	48.34	65.53	0.41
24-Sep	267	795.8	56.15	6E-11	717.7	4E-09	0.37	2492	8.473	3E-09	56.15	65.67	0.34
25-Sep	268	988.8	68	9E-11	852.2	1E-08	1.04	2485	20.32	8E-09	68	65.87	0.87
26-Sep	269	675.4	48.58	9E-11	542.6	1E-08	1.02	2498	8.664	3E-09	48.58	65.53	0.71
27-Sep	270	675	48.56	6E-11	610.7	4E-09	0.35	2498	4.084	2E-09	48.56	65.53	0.26
28-Sep	271	692.2	49.65	3E-11	641	1E-09	0.12	2497	12.06	5E-09	49.65	65.55	0.25
29-Sep	272	647.4	46.8	4E-11	613.7	1E-09	0.12	2499	7.241	3E-09	46.8	65.49	0.17
30-Sep	273	635.5	46.04	5E-11	486.3	7E-09	0.63	2500	-3.26	0	46.04	65.48	0.32
01-Oct	274	634.5	45.97	3E-11	521.9	3E-09	0.28	2500	-1.31	0	45.97	65.48	0.15
02-Oct	275	692	49.64	5E-11	543.7	8E-09	0.69	2497	-11.6	0	49.64	65.55	0.22
03-Oct	276	709.6	50.75	1E-10	608.6	1E-08	1.06	2496	-21.4	0	50.75	65.57	0.28
04-Oct	277	717.1	51.22	4E-11	693.1	1E-09	0.09	2496	2.161	9E-10	51.22	65.58	0.08
05-Oct	278	596.1	43.5	8E-11	541.6	4E-09	0.39	2502	-4.5	0	43.5	65.42	0.17
06-Oct	279	478.5	35.82	4E-11	419.8	3E-09	0.22	2509	9.068	4E-09	35.82	65.24	0.25
07-Oct	280	551	40.58	5E-11	512.6	2E-09	0.17	2504	3.536	1E-09	40.58	65.36	0.15
08-Oct	281	446.1	33.66	7E-11	411	2E-09	0.21	2511	1.598	6E-10	33.66	65.18	0.16
09-Oct	282	428.4	32.47	8E-11	384.6	4E-09	0.31	2512	3.786	2E-09	32.47	65.15	0.21
							146.55						146.14

Class A Evaporation Pan

Comparison of Class A pan evaporation at Koala and Yellowknife AES Station

Date	Koala				Yellowknife			
	Volume Added	Volume Removed	Rain	Total Evaporation	Volume Added	Volume Removed	Rain	Total Evaporation
1994	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
28-Jul	5 3	0 0	0.0	5 3	9 2	0 0	0 0	9 2
29-Jul	4 6	0 0	0 0	4 6	7 4	0 0	0 0	7 4
30-Jul	5 2	0 0	0 0	5 2	7 4	0 0	0 0	7 4
31-Jul	5 8	0.0	0 0	5 8	4 4	0 0	0 0	4 4
01-Aug	4 9	0 0	0 0	4 9	6 8	0 0	0 0	6 8
02-Aug	5 1	0 0	0 0	5 1	7 8	0 0	0 0	7 8
03-Aug	5 1	0 0	0.1	5 2	5 5	0 0	0 0	5 5
04-Aug	4 5	0 0	0 0	4 5	4 8	0 0	0 0	4 8
05-Aug	4 5	0 0	0 0	4 5	6 6	0 0	0 0	6 6
06-Aug	5 7	0 0	0 0	5 7	5 4	0 0	0 0	5 4
07-Aug	4 7	0 0	0 0	4 7	4 9	0 0	0 0	4 9
08-Aug	3 8	0 0	0 0	3 6	5 6	0 0	0 0	5 6
09-Aug	no visit	0 0	4 3	4 3	6 6	0 0	0 0	6 6
10-Aug	4 7	0 0	0 3	5 0	6 2	0 0	0 0	6 2
11-Aug	0 4	0 0	0 0	0 4	5 2	0 0	0 0	5 2
12-Aug	3 9	0 0	0 0	3 9	5 8	0 0	0 0	5 8
13-Aug	0 5	0 0	0 0	0 5	6 2	0 0	0 0	6 2
14-Aug	0 9	0 0	1 2	2 1	3 6	0 0	0 0	3 6
15-Aug	3 4	0 0	0 0	3 4	3 7	0 0	0 0	3 7
16-Aug	0 5	0 0	6 8	7 3	3 4	0 0	0 0	3 4
17-Aug	0 0	3 7	3 9	0 2	2 4	0 0	0 0	2 4
18-Aug	0 0	4 5	3 9	-0 6	3 8	0 0	0 0	3 8
19-Aug	5 7	0 0	0 4	6 1	6 0	0 0	0 0	6 0
20-Aug	5 1	0 0	0 0	5 1	7 2	0 0	0 0	7 2
21-Aug	1 9	0 0	0 8	2 7	6 8	0 0	0 0	6 8
22-Aug	0 0	0.0	7 1	7 1	3 4	0 0	0 0	3 4
23-Aug	0 0	6 5	2 5	-4 0	0 0	0 8	2 6	1 8
24-Aug	0 0	0.0	2 6	2 6	1 2	0 0	1 2	2 4
25-Aug	0 7	0 0	0 0	0 7	2 4	0 0	tr	2 4
26-Aug	4 3	0 0	0 0	4 3	3 6	0 0	0 2	3 8
27-Aug	2 1	0 0	0 0	2 1	4 8	0 0	0 0	4 8
28-Aug	3 1	0 0	0 0	3 1	5 5	0 0	0 0	5 5
29-Aug	2 7	0 0	0 0	2 7	6 0	0 0	0 0	6 0
30-Aug	3 4	0 0	0 0	3 4	4 8	0 0	0 0	4 8
31-Aug	2 3	0 0	0 0	2 3	4 0	0 0	0 0	4 0
01-Sep	4 8	0 0	0 0	4 8	5 8	0 0	0 0	5 8
02 Sep	4 2	0 0	0 0	4 2	3 4	0 0	0 0	3 4
03 Sep	3 4	0 0	0 0	3 4	3 2	0 0	0 0	3 2
04-Sep	2 9	0 0	0 0	2 9	3 8	0 0	0 0	3 8
05-Sep	0 0	3 8	5 7	1 9	2 4	0 0	0 0	2 4
06-Sep	1 1	0 0	0 0	1 1	4 0	0 0	0 0	4 0
07-Sep	1 5	0 0	0 0	1 5	1 2	0 0	0 6	1 8
08-Sep	1 6	0 0	0 4	2 0	0 8	0 0	0 0	0 8
09-Sep	0 8	0 0	0 5	1 3	3 2	0 0	0 0	3 2
10-Sep	0 0	0 0	0.1	0 1	2 8	0 0	0 0	2 8
11-Sep	3 0	0 0	0 0	3 0	2 4	0 0	tr	2 4
12-Sep	1 0	0 0	0 0	1 0	0 0	1 7	1 6	-0 1
13-Sep	1 4	0 0	0 8	2 2	1 1	0 0	tr	1 1
14-Sep	0 7	0 0	0 3	1 0	2 2	0 0	0 0	2 2
15-Sep	0 6	0 0	0 7	1 3	0 0	0 0	1 4	1 4
16-Sep	0 0	1 5	2 1	0 6	4 8	0 0	0 0	4 8
17-Sep	1 1	0 0	0 0	1 1	3 6	0 0	0 0	3 6
18-Sep	0 2	0 0	0 0	0 2	4 8	0 0	tr	4 8
19-Sep	0 0	0 0	snow	0 0	0 0	1 4	2 2	0 8
Sum	132 9	19 8	44 5	157 6	227 9	3 9	9 8	233 8
Daily mean				2 9				4 3

tr = trace

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Precipitation Frequency Analysis on Annual Precipitation

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Analysis type	
Sample Size	34
Maximum	335.20
Minimum	164.60
Range	170.60
Median	255.50
Mean	260.56
Variance	2160.3
Standard Deviation	46.479
Coeff. of Variation	0.17838
Coeff. of Skew	-0.28763

Data to analyze:

1959	318.1	1979	226.9
1960	304.7	1980	167.5
1961	311.4	1981	254.8
1962	198.3	1984	330.4
1963	252.3	1985	306.9
1964	248.1	1986	304.0
1965	164.6	1987	335.2
1966	192.9	1988	233.7
1967	317.6	1989	218.5
1968	255.5	1990	233.7
1969	233.7	1991	314.9
1970	262.0	1992	255.5
1971	310.2	1993	289.0
1972	233.3	1994	249.7
1973	255.7		
1974	279.2		
1975	190.9		
1976	294.4		
1977	241.4		
1978	274.2		

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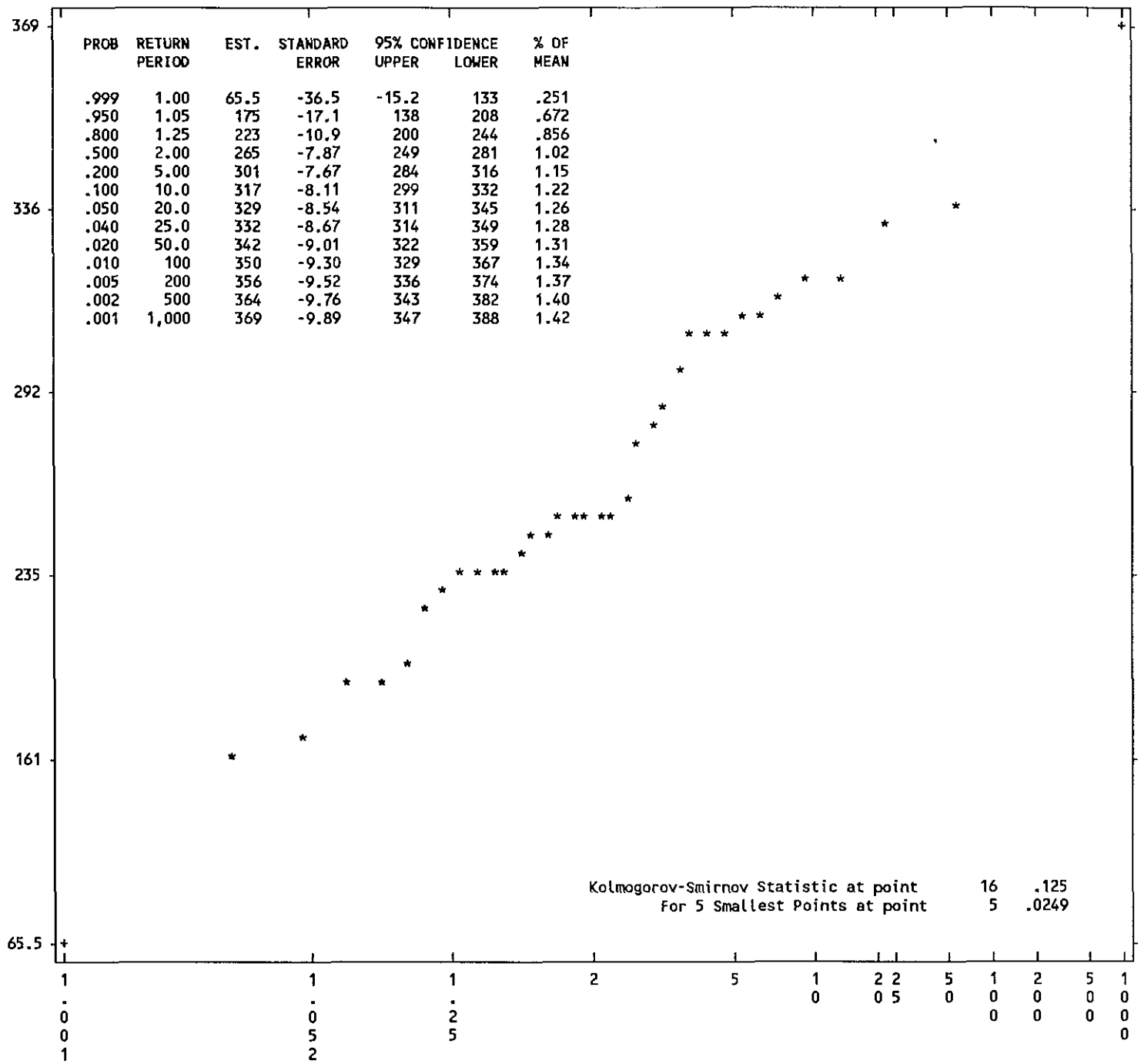
Contwoyto and Lupin Precipitation Data
from 1959 to 1994 : total 34 years data
THREE PARAMETER LOG-NORMAL distribution

Upper bound by Moments	746.820
Upper bound by Maximum Likelihood	482.531
Log Statistics: Mean	5.3811
Standard Dev.	0.21102
Skew Coef.	-0.70329E-01

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	65.5	-36.5	-15.2	133	.251
.950	1.05	175	-17.1	138	208	.672
.800	1.25	223	-10.9	200	244	.856
.500	2.00	265	-7.87	249	281	1.02
.200	5.00	301	-7.67	284	316	1.15
.100	10.0	317	-8.11	299	332	1.22
.050	20.0	329	-8.54	311	345	1.26
.040	25.0	332	-8.67	314	349	1.28
.020	50.0	342	-9.01	322	359	1.31
.010	100	350	-9.30	329	367	1.34
.005	200	356	-9.52	336	374	1.37
.002	500	364	-9.76	343	382	1.40
.001	1,000	369	-9.89	347	388	1.42

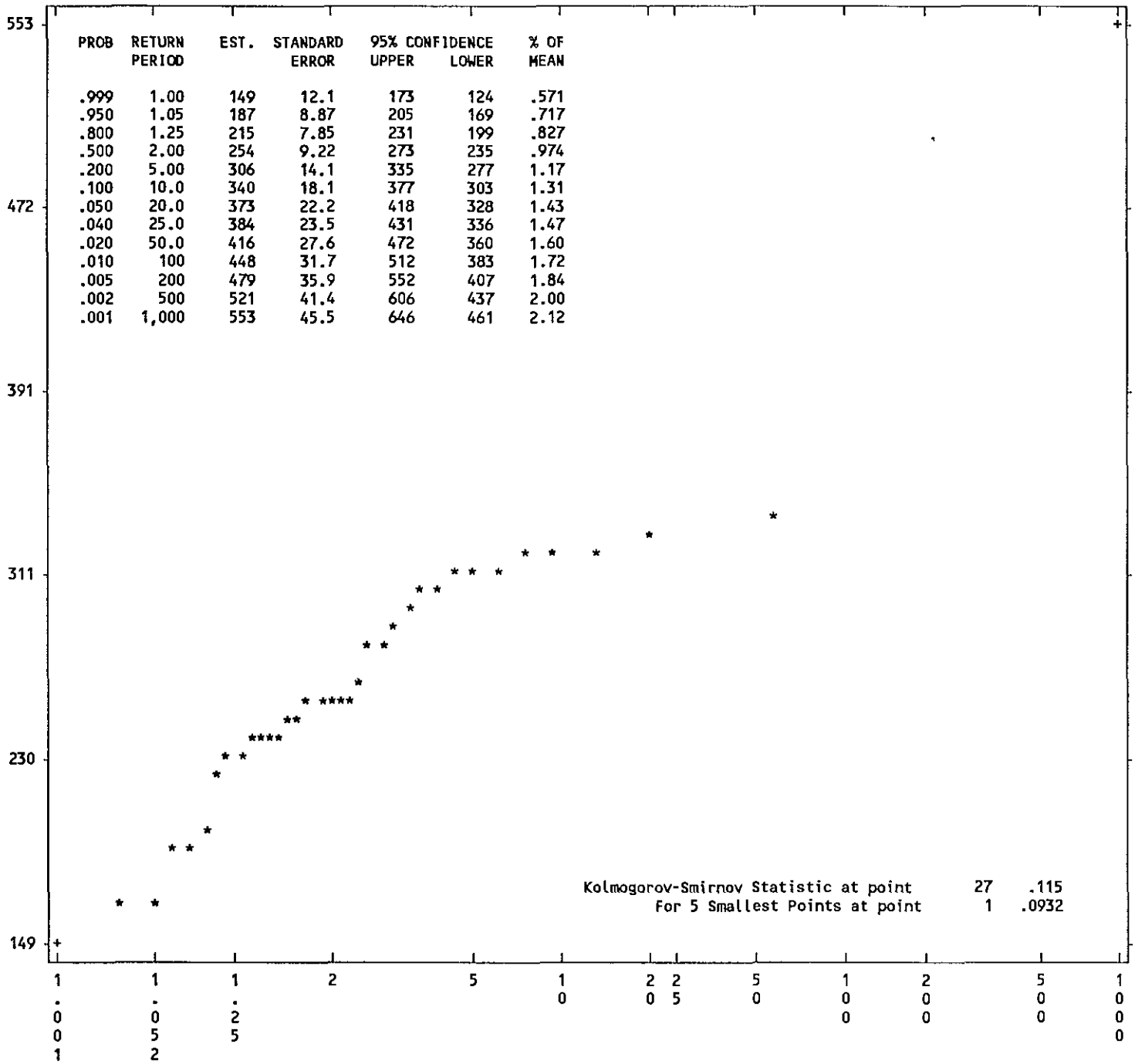


Contwoyto and Lupin Precipitation Data
from 1959 to 1994 : total 34 years data
GUMBEL distribution - method of maximum likelihood

Scale and location parameters estimated by the method of moments
a = 0.275945E-01
u = 239.647

Scale and location parameters estimated by the method of maximum likelihood
a = 0.218520E-01
u = 237.148

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	149	12.1	173	124	.571
.950	1.05	187	8.87	205	169	.717
.800	1.25	215	7.85	231	199	.827
.500	2.00	254	9.22	273	235	.974
.200	5.00	306	14.1	335	277	1.17
.100	10.0	340	18.1	377	303	1.31
.050	20.0	373	22.2	418	328	1.43
.040	25.0	384	23.5	431	336	1.47
.020	50.0	416	27.6	472	360	1.60
.010	100	448	31.7	512	383	1.72
.005	200	479	35.9	552	407	1.84
.002	500	521	41.4	606	437	2.00
.001	1,000	553	45.5	646	461	2.12



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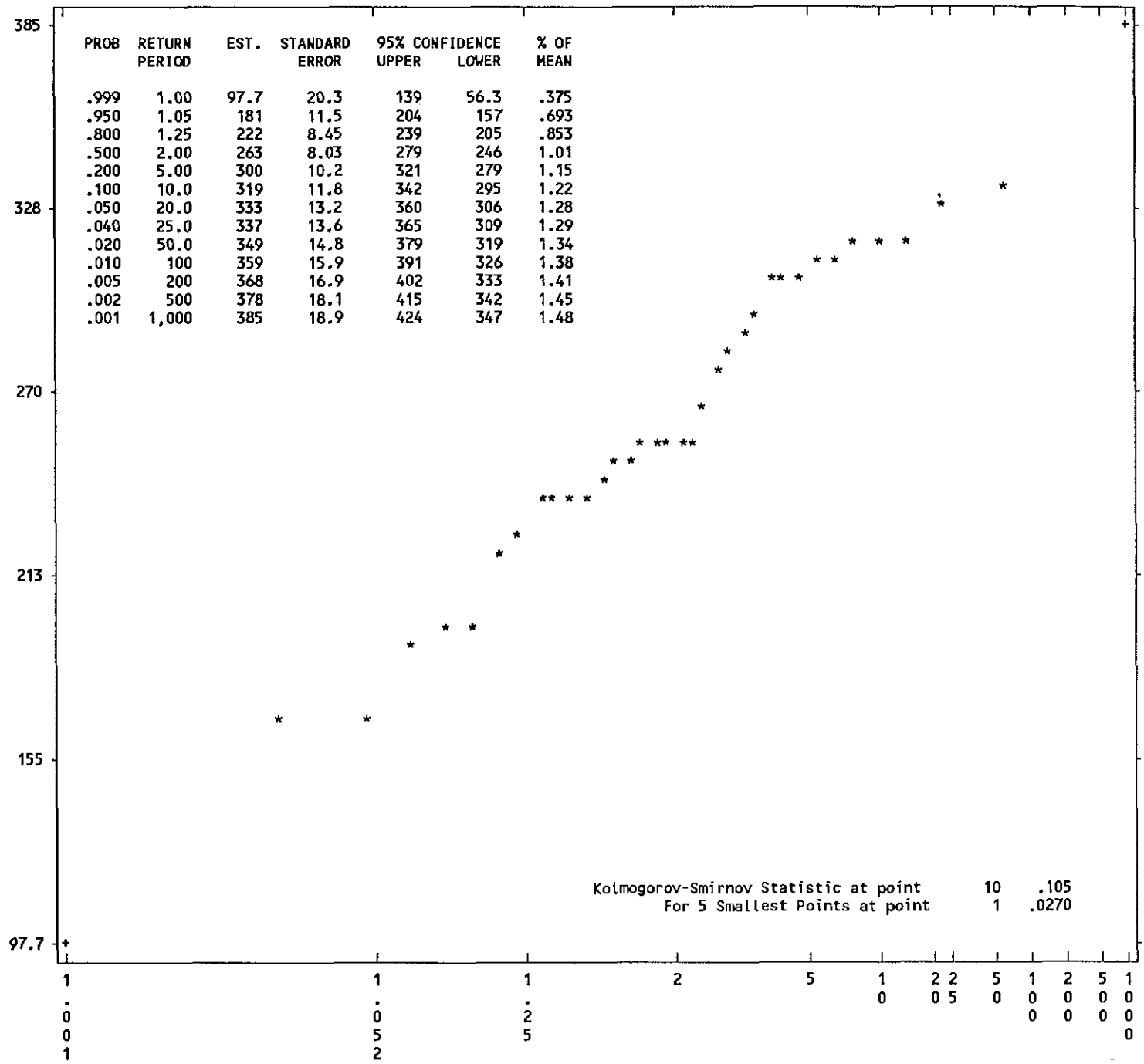
Upper bound 583.7507
Scale factor -6.68425
Shape factor 47.35040

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	97.7	20.3	139	56.3	.375
.950	1.05	181	11.5	204	157	.693
.800	1.25	222	8.45	239	205	.853
.500	2.00	263	8.03	279	246	1.01
.200	5.00	300	10.2	321	279	1.15
.100	10.0	319	11.8	342	295	1.22
.050	20.0	333	13.2	360	306	1.28
.040	25.0	337	13.6	365	309	1.29
.020	50.0	349	14.8	379	319	1.34
.010	100	359	15.9	391	326	1.38
.005	200	368	16.9	402	333	1.41
.002	500	378	18.1	415	342	1.45
.001	1,000	385	18.9	424	347	1.48



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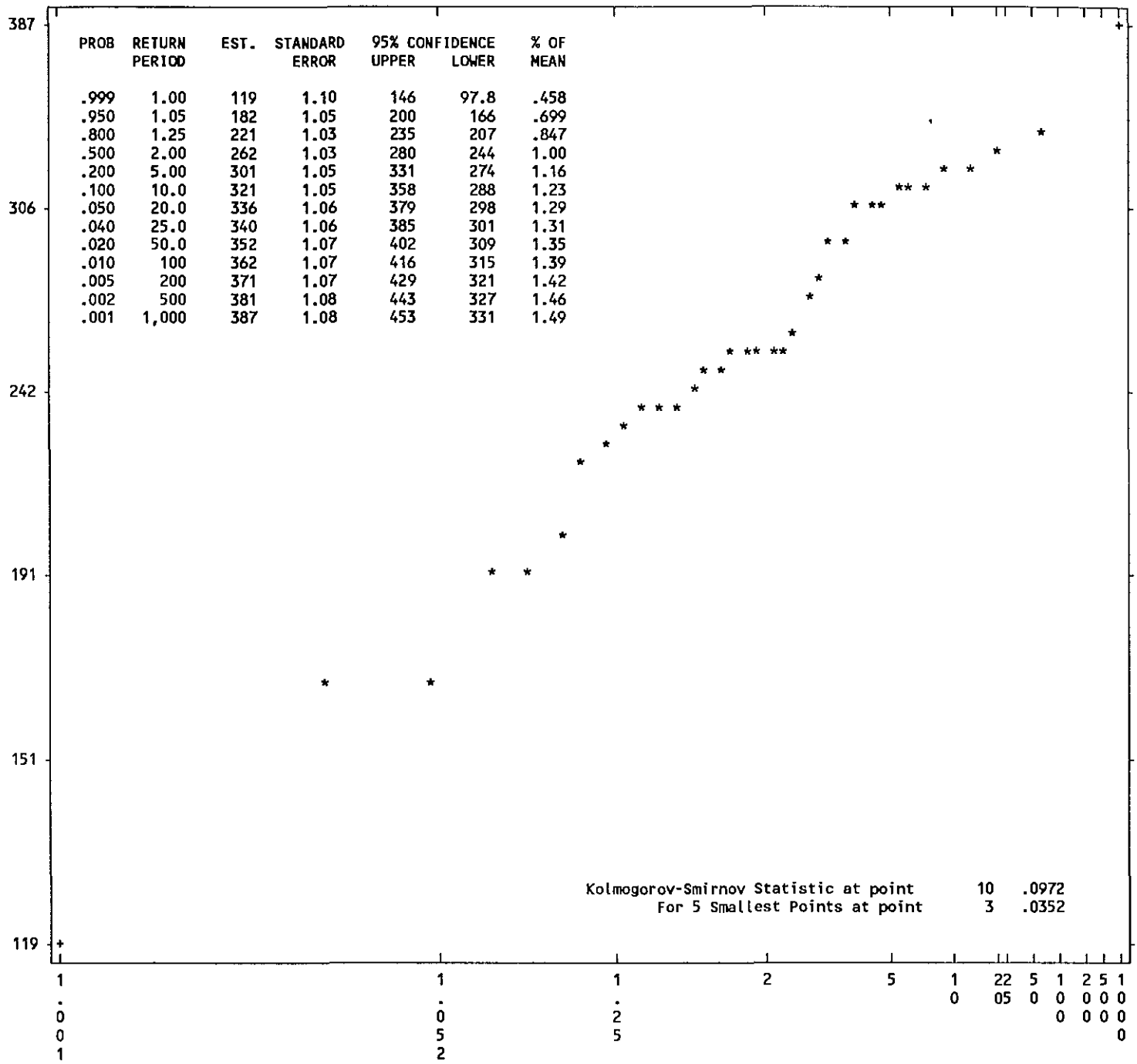
Contwoyto and Lupin Precipitation Data
from 1959 to 1994 : total 34 years data
LOG PEARSON TYPE III distribution

Log Statistics:	Mean	5.5463
	Standard Dev.	0.18863
	Skew Coeff.	-0.66301

Lower bound	452.7209
Scale factor	-0.06253
Shape factor	8.09950

PROB	RETURN PERIOD	EST.	STANDARD ERROR	95% CONFIDENCE UPPER	LOWER	% OF MEAN
.999	1.00	119	1.10	146	97.8	.458
.950	1.05	182	1.05	200	166	.699
.800	1.25	221	1.03	235	207	.847
.500	2.00	262	1.03	280	244	1.00
.200	5.00	301	1.05	331	274	1.16
.100	10.0	321	1.05	358	288	1.23
.050	20.0	336	1.06	379	298	1.29
.040	25.0	340	1.06	385	301	1.31
.020	50.0	352	1.07	402	309	1.35
.010	100	362	1.07	416	315	1.39
.005	200	371	1.07	429	321	1.42
.002	500	381	1.08	443	327	1.46
.001	1,000	387	1.08	453	331	1.49



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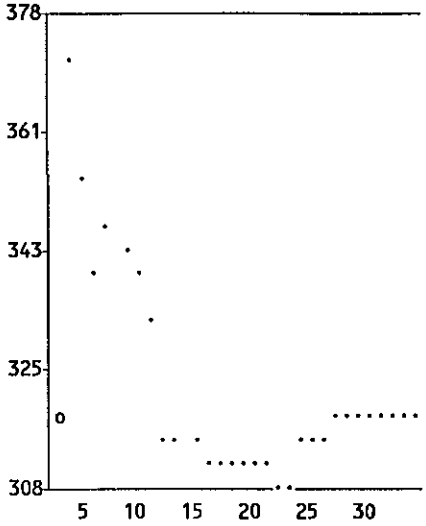
10 year return period vs. number of years.

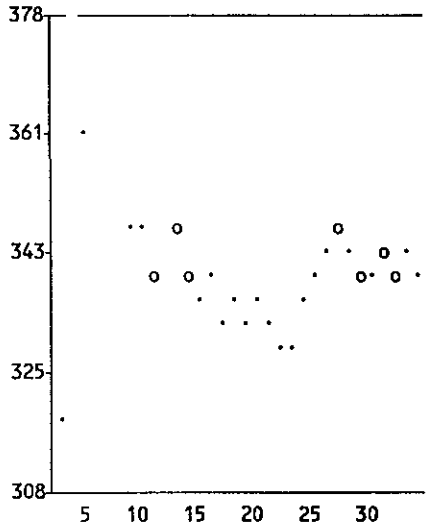
Years	Log Norm	Gumbel	P3	Log P3	KS Statistics			
3	320	319	320	320	0.029	0.086	0.813	0.030
4	372	378	335	341	0.276	0.284	0.176	0.191
5	353	360	333	337	0.209	0.214	0.161	0.159
6	340	347	328	332	0.174	0.175	0.157	0.152
7	345	350	328	335	0.145	0.145	0.145	0.135
8	315	334	324	330	0.208	0.145	0.144	0.137
9	344	348	331	337	0.179	0.181	0.175	0.171
10	338	345	326	332	0.151	0.149	0.153	0.145
11	332	338	322	326	0.139	0.133	0.145	0.137
12	315	338	319	323	0.137	0.129	0.127	0.118
13	316	345	323	327	0.243	0.138	0.156	0.146
14	314	339	320	323	0.213	0.128	0.151	0.142
15	314	338	317	320	0.153	0.131	0.140	0.131
16	313	339	317	319	0.135	0.131	0.121	0.111
17	312	333	315	318	0.123	0.122	0.118	0.109
18	312	337	316	319	0.121	0.124	0.095	0.085
19	311	334	314	317	0.112	0.133	0.093	0.084
20	310	335	313	316	0.096	0.134	0.083	0.073
21	310	331	312	314	0.089	0.106	0.083	0.074
22	309	330	311	314	0.085	0.116	0.078	0.069
23	308	330	310	312	0.094	0.124	0.075	0.066
24	313	335	315	318	0.095	0.115	0.081	0.072
25	314	339	317	320	0.105	0.111	0.100	0.090
26	315	342	318	322	0.114	0.108	0.114	0.104
27	319	347	323	326	0.110	0.103	0.116	0.107
28	319	344	321	324	0.111	0.114	0.114	0.106
29	318	341	320	323	0.113	0.096	0.114	0.107
30	317	338	319	321	0.113	0.108	0.113	0.106
31	318	341	321	323	0.121	0.104	0.124	0.117
32	318	340	320	322	0.121	0.110	0.119	0.112
33	317	341	320	322	0.119	0.109	0.107	0.100
34	317	340	319	321	0.125	0.115	0.105	0.097

10 year return period vs. number of years. "o" indicates lowest KS statistic.

Log Normal



Gumbel



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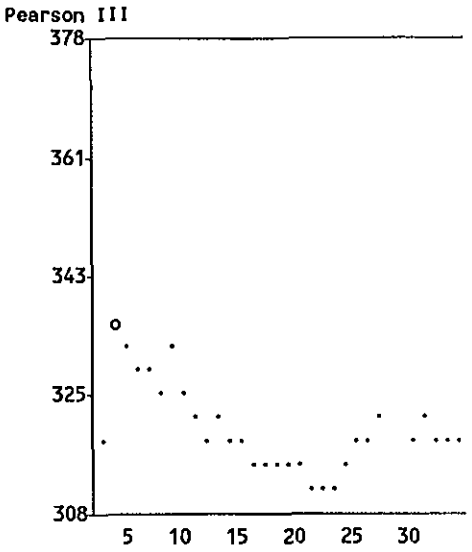

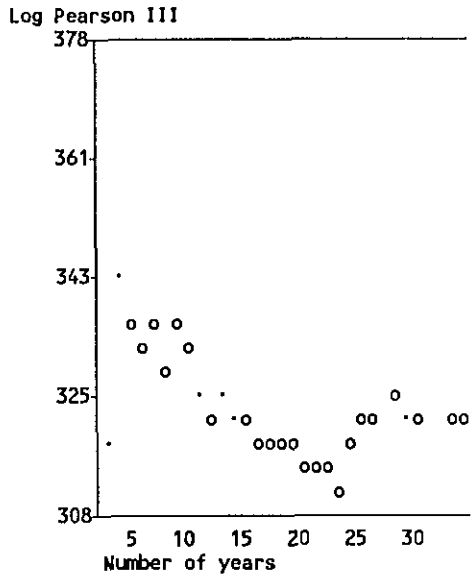

Snow Gauge Measurements

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Rescan Environmental Services Ltd						
Project no. 455		1	2	Nipher Snow Gauge Measurements		
Date	Time	Snow	Snow	Water	Comments	Initials
		Depth	Depth	Equivalent		
		(cm)	(cm)	(mm)		
1994	Snow started on Sept 19 with blizzard					
01-Sep						
02-Sep						
03-Sep						
04-Sep						
05-Sep						
06-Sep						
07-Sep						
08-Sep						
09-Sep						
10-Sep						
11-Sep						
12-Sep						
13-Sep						
14-Sep						
15-Sep						
16-Sep						
17-Sep						
18-Sep	0	0	0	0		
19-Sep					Blizzard, first snow	TT
20-Sep					Blizzard, snow	TT
21-Sep	09:30	N/A	N/A	19.8	Snow from Sept 19 to 21	TT
22-Sep	13:00	N/A	N/A	4		TT
23-Sep		N/A	N/A	0	No visit, sunny	TT
24-Sep	09 30	N/A	N/A	0.6	rain, melting snow	TT
25-Sep	10.50	N/A	N/A	0.8	rain, melting snow	TT
26-Sep	no visit					
27-Sep	08 20	0	0	0.6	vertical snow , lightly snowing	LMD
28-Sep	09 15	0	0	2.1	no snow at 9·15 , rained on 28th	LMD/C
29-Sep	10:23	0	0	0 6	lightly snowing	CH
30-Sep	08:15	0	0	0	sunny, slightly overcast	CH
Total				28 5		

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Rescan Environmental Services Ltd						
Project no: 455		1	2	Nipher Snow Gauge Measurements		
Date	Time	Snow	Snow	Water	Comments	Initials
		Depth	Depth	Equivalent		
		(cm)	(cm)	(mm)		
1994						
01-Oct	08:20	0	0	0 0	sunny, scatterred clouds	CH
02-Oct	10·00	0	0	0 0	sunny, scatterred clouds	CH
03-Oct		0	0	0 0	+++ wind, rain and snow	CH
04-Oct	09.30	0	0	1.0	snow did not settle, overcast	CH
05-Oct	10·30	0	0	1.0	rain, snow wind ++	CH
06-Oct	08:15	0	0	0.8	sunny, clear, light frost on ground	CH
07-Oct	08:45	0	0	1 2	Overcast, light snow all day	EA/TT
08-Oct	08:05	4	5	3 0	Snow last night, morning clear	CH/TT
09-Oct	10.05	0	0	0 4	freezing drizzle, took snow isotope s	SK/TT
10-Oct	11:20	1	4	1 4	light snow last night	TT/MM
11-Oct	08.45	1	1	0.0	ice fog	SK
12-Oct	10 50	1	2	0.0	overcast	SK
13-Oct	11·45	1	1.5	0.1	small snowfall melting today	SK
14-Oct	15·00	1	3	0.2	light flurries, vertical	LMD
15-Oct	17:00	1	3	0 4	light flurries, vertical, overcast most o	LMD
16-Oct	08 45	1	3	0.1	overcast, wind from east	LMD
17-Oct	09 15	4	6	3 8	snowing in AM , vertical, wind from e	LMD
18-Oct	08.50	13	14	10.0	snowing last night, still snowing, isot	LMD
19-Oct	08 00	13 5	14	0.8	Fresh snow, blowing snow, Temp dr	LW
20-Oct	13·30	10	16	0.0	clear and sunny	SK
21-Oct	12·15	12	18	2.0	very light flurries. winds clm, overcas	LMD
22-Oct	10 15	12	18	0.1	overcast, calm, light flurries	LMD
23-Oct	0950	11	14	0.1	overcast, strong wind, blowing snow,	LW
24-Oct	09:50	12	20	2.4	4" snow overnight, slack wind, warm	LW
25-Oct	09·30	20	21	0.2	blustery overnight, freezinf rain, light	LW
26-Oct	09 30	19 1	20	2.4	windy, freezing fog, no snow, blowin	LW
27-Oct	08 20	19	19.5	3.7	rain overnight, strong wind turning to	LW
28-Oct	10.00	16 2	125	19.1	major northern blizzard, winds 35+,	LW
29-Oct	09·50	16 9	+100	14.8	day 3 of blizzard, 30+ K winds, nil vi	LW
30-Oct	11 00	18	+100	1.8	nil snow, slack winds	CH
31-Oct	09 15	17	125est	0.1	slight wind, light flurries	LW
Total				70.9		

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Rescan Environmental Services Ltd						
Project no 455		1	2	Nipher Snow Gauge Measurements		
Date	Time	Snow	Snow	Water	Comments	Initials
		Depth	Depth	Equivalen		
		(cm)	(cm)	(mm)		
1994						
01-Nov		19	+100	1.4	overcast, light flurries	CH
02-Nov		19	+100	0.2	overcast, light flurries	CH
03-Nov					poor visibility, snow and winds, pea	CH
04-Nov		17	+100	0.8	blowing, light flurries, overcast	CH
05-Nov		19	+100	1.8	overcast, light winds, no snow?	CH
06-Nov	09·30	18	72	2.8	Sunny, depth at #2 measured after	TT
07-Nov	09 00	19	72	0.3	overcast, light snow, winds 10 knot	TT
08-Nov	08:50	20	74	1.8	overcast light snow	TT
09-Nov	08.50	23	75	2.1	overcast, snowing lightly, 10 knot w	TT
10-Nov	09.10	20	77	1.7	clear patches , light flurries	TT
11-Nov	09 50	22	71	0.2	high winds, blowing snow	TT
12-Nov	08:50	21	71	1.2	overcast, mild but windy	TT
13-Nov	09:10	21	71	0	sunny calm, looks like great day	TT
14-Nov	09.10	21	71	0	sunny, great day, adjust Nipher hei	TT
15-Nov	09·20	21	71	0	overcast, cold no wind, recheck hei	TT
16-Nov	09·50	21	71	0.1	overcast, occasional flurries	SK
17-Nov	09.30	22	71	0		SK
18-Nov	09:55	21	70	0.1	Winds from SE strong, overcast	LMD
19-Nov	no visit				Blizzard, whiteout	
20-Nov	no visit				Blizzard, whiteout	
21-Nov	13 30	21	70	8 8	clear in AM., overcast in PM	CH
22-Nov						CH
23-Nov	no visit				Blizzard,-60 wind chill, poor vivsibili	CH
24-Nov	10:30	17	74	3	Sunny all day	CH
25-Nov					sunny	
26-Nov	10:30	19	80	0	overcast	SK
27-Nov	13.30	18	76	1	snow overnight	SK
28-Nov					-58 with wind chill, overcast	CH
29-Nov	11:00	18	74	1 8	overcast, light snow, -31	CH
30-Nov	16:30	18	75	1.2	overcast, light snow	CH
Total				30.3		

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Rescan Environmental Services Ltd						
Project no 455		1	2	Nipher Snow Gauge Measurements		
Date	Time	Snow	Snow	Water	Comments	Initials
		Depth	Depth	Equivalent		
		(cm)	(cm)	(mm)		
1994						
01-Dec	13:45	18	74	0.2	overcast, light snow, windy	CH
02-Dec	no visit				light snow, windy	CH
03-Dec	11:00	19	74	4.6	sunny, clear day	CH
04-Dec	13:30	19	74	0.1	sunny , slight overcast, blowing sniw	CH
05-Dec	11.30	18	74	0.05	wind and snow	CH
06-Dec	no visit				no visit, no snow	SK
07-Dec	10:50	19	76	0 2	overcast, light snow overnight	SK
08-Dec	13:00	19	78	1.2	sunny, clear	SK
09-Dec	no visit				clear cold	SK
10-Dec	11:30	20	78	0.2	clear, no winds	SK
11-Dec	no visit					SK
12-Dec	11:15	20	78	0	snow overnight, overcast	SK
13-Dec	11:00			1		SK
14-Dec	no visit					SK
15-Dec	no visit					SK
16-Dec	11:00	19	78	0 4	slight snow overnight	SK
17-Dec	no visit				no snow	EA
18-Dec	no visit				no snow	EA
19-Dec	no visit				no snow	EA
20-Dec	15:00	20	78	20.3	Whiteout, strong winds	EA
21-Dec	14:00	22	77	0.8	fog, light snow	EA
22-Dec	15:00	20	77	0	overcast, some sunny periods	EA
23-Dec	15:30	20	77	0	no snow, clear	EA
24-Dec	no visit				high winds	EA
25-Dec	11:30	23	77	0 6	sunny, no snow	EA
26-Dec	no visit				sunny, no snow	EA
27-Dec	no visit				sunny, no snow	EA
28-Dec	no visit					EA
29-Dec	17:00	21	75	0 6		EA
30-Dec	no visit				overcast, no snow	EA
31-Dec	no visit					
Total				30 25		

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Rescan Environmental Services Ltd						
Project no 455		1	2	Nipher Snow Gauge Measurements		
Date	Time	Snow	Snow	Water	Comments	Initials
		Depth	Depth	Equivalent		
		(cm)	(cm)	(mm)		
1995						
01-Jan	no visit					
02-Jan	no visit					
03-Jan	16:05	19	74	1	gauge 2 with snow scour at 74 cm, s	TT
04-Jan	08:55	20	80	0	leveled scour on gauge 2 to 80 cm	TT
05-Jan	09:00	20	80	1	windy, sunny periods	TT
06-Jan	no visit				no visit	TT
07-Jan	no visit				no visit	TT
08-Jan	11:30	20	80	0	Clear, sunny	SK
09-Jan	no visit				no visit	SK
10-Jan	14:00			0 1	overcast, windy	SK
11-Jan	no visit				windy, overcast	SK
12-Jan					near whiteout, snow and wind	SK
13-Jan	15 30	18	80	1	clear and sunny	SK
14-Jan	no visit				clear and sunny	CH
15-Jan	no visit				clear and sunny	CH
16-Jan	15.30	19	80	0.2	overcast, light snow	CH
17-Jan	10:30	20	80	0.1	overcast, light snow	CH
18-Jan	14·30	21	80	0.1	snow flurries at night& AM,	CH
19-Jan	13.00	20	80	0	Sunny clear day	CH
20-Jan	no visit				no snow, overcast i AM Light flurries i	CH
21-Jan	16·00	20	79	0.6	fog inAM, snow & wind @ night	CH
22-Jan	14·30	20	81	0.2	snow at night, sunny, clear in PM	CH
23-Jan	15:30	20	81	0	fog inAM, sunny & clear in aft. fog in	CH
24-Jan	10 15	20	81	0	overcast, no snow, light wind	CH
25-Jan	14 00	20	81	0.1	sunny clear no snow	CH
26-Jan	10·15	19	79	0.4	light snow last night, overcast, no sn	CH
27-Jan	15:30	20	80	0.8	snow flurries last night, clear &sunny	CH
28-Jan	10:30	25	85	2.8	snow at night, no wind, clear &sunny	CH
29-Jan	no visit				cloudy	CH
30-Jan	no visit				overcast	SK
31-Jan	11:40	19	81	0 4	overcast	SK
Total				8 8		

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Rescan Environmental Services Ltd						
Project no: 455		1	2	Nipher Snow Gauge Measurements		
Date	Time	Snow	Snow	Water	Comments	Initials
		Depth	Depth	Equivalent		
		(cm)	(cm)	(mm)		
1995						
01-Feb	no visit					SK
02-Feb	no visit					SK
03-Feb	13:00	21	82	2 0	sunny, windy	SK
04-Feb	no visit					SK
05-Feb	no visit					SK
06-Feb	no visit					SK
07-Feb	13:55	19	79	0 3	overcast, very light snow in late aft.	TT
08-Feb	10:10	19	79	1.0	blowing snow last night, 20 - 30 knot	TT
09-Feb	no visit				blowing snow last night, 20 - 30 knot	TT
10-Feb	07·50	47	79	7.2	clear, cold , light wind	TT
11-Feb	no visit				whiteout called	CH
12-Feb	14 00	31	79	3.6	clear sunny, -37 with windchill	CH
13-Feb	no visit				whiteoutcalled, -54 with windchill	CH
14-Feb	14·00	30	79	6.8	overcast, no snow, mild winds	CH
15-Feb	no visit				clear, sunny, -25 with windchill	CH
16-Feb	visited				poor visibility, blowing snow, -38 w/	CH
17-Feb	09:30	29	79.5	2.4	whiteout last night, -37 w/ windchill	CH
18-Feb	14:00	29	79.5	0 2	overcast, no snow	CH
19-Feb	no visit				half whiteout, windy, blowing snow	CH
20-Feb	no visit				clear sunny	CH
21-Feb	no visit				light snow, and windy	CH
22-Feb	14.30	29	79	4.2	clear, overcast	CH
23-Feb	10:00	29	79	0	sunny, clear, -24 w/ windchill	CH
24-Feb	17 00	29	79	0	sunny, calm, -27 w/ windchill	CH
25-Feb	no visit				shift change	SK
26-Feb	13·30	29	81	0	partly cloudy	SK
27-Feb	11:30				sunny, clear	SK
28-Feb	no visit				sunny clear,very light wind, no precip	SK
Total				27.7		

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Rescan Environmental Services Ltd						
Project no: 455		1	2	Nipher Snow Gauge Measurements		
Date	Time	Snow	Snow	Water	Comments	Initials
		Depth	Depth	Equivalent		
		(cm)	(cm)	(mm)		
1995						
01-Mar	15:30	29	82	0	sunny, clear, very little wind	SK
02-Mar	no visit				very windy, visibility variable, -53 w/	SK
03-Mar	no visit				sunny, too cold , -65 w/ windchill	SK
04-Mar	16:00	29	79	0.3	sunny, light wind, recorded 0 25 mm	SK
05-Mar	no visit				clear, sunny	SK
06-Mar	no visit				clear, sunny	SK
07-Mar	16:30	29	79	0	clear, sunny	SK
08-Mar	no visit				clear, sunny	SK
09-Mar	no visit				clear, sunny	SK
10-Mar	no visit				light snow	SK
11-Mar	no visit				clear	SK
12-Mar	no visit				whiteout	SK
13-Mar	no visit				clear , sunny	SK
14-Mar	no visit				whiteout in AM , overcast, windy, blo	CH
15-Mar	13:30	29	79	13.8	overcast, moderate snowfall, mild wi	CH
16-Mar	12:00	29	88	1.4	clear, sunny -47 w/ windchill	CH
17-Mar	14:00	29	88	0	overcast, mild wind	SW
18-Mar	14:20	29	88	0	clear, sunny, -8	SW
19-Mar	14:30	29	87	0	overcast, windy, -4	SW
20-Mar	16 15	29	86	0.8	overcast, windy, -9	SW
21-Mar	no visit				whiteout called@ 04·30, +++wind	CH
22-Mar	no visit				light snow, windy	CH
23-Mar	no visit				roads not cleared	CH
24-Mar	13·00	37	101	45.4	light snow, windy	CH
25-Mar	no visit				shift change	CH
26-Mar	no visit				sunny, clear	SK
27-Mar	no visit				sunny, clear, little wind	SK
28-Mar	no visit				sunny, clear, little wind	SK
29-Mar	no visit				sunny, clear, little wind	SK
30-Mar	no visit				sunny, clear, little wind	SK
31-Mar	14.30	32	101	0	sunny. clear	SK
Total				61 7		

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Rescan Environmental Services Ltd						
Project no 455		1	2	Nipher Snow Gauge Measurements		
Date	Time	Snow	Snow	Water	Comments	Initials
		Depth	Depth	Equivalent		
		(cm)	(cm)	(mm)		
1995						
01-Apr	no visit					
02-Apr	13.10	31	105	2	sunny , windy	SK
03-Apr	no visit					
04-Apr	no visit					
05-Apr	no visit					
06-Apr	13 00	33	103	0.2	sunny clear	CH
07-Apr	no visit				sunny clear	CH
08-Apr	no visit				sunny clear	CH
09-Apr	13:00	32	103	0	sunny clear	CH
10-Apr	13:00	32.5	105	0 6	overcast, light snow	CH
11-Apr	no visit				sunny clear	CH
12-Apr	no visit				sunny clear	CH
13-Apr	no visit				sunny clear	CH
14-Apr	14:00	32	100	0	sunny clear	CH
15-Apr	no visit				Bizzard condition	CH
16-Apr	no visit				Roads drifted, no access	CH
17-Apr	08:30	34	103	3.2		CH
18-Apr	no visit					CH
19-Apr	no visit					CH
20-Apr		37	103		sunny clear	
20-Apr	13:40	37	103	0	sunny, cllear	TT
21-Apr	07:15	37	103	0	sunny, blue sky	TT
22-Apr	14:15	36	103	0	high clouds but clearing, sunny in aft	TT
23-Apr	07:10	35.5	103	<0 1 (tr)	Partly sunny, tr new snow overnight	TT
24-Apr	07:40	34	103	0.1	100% overcast, light snow in AM.	TT
25-Apr	07:30	32	103	0.1	Partly cloudy (50%),	TT
26-Apr	07 40	31	103	0	sunny, clear	TT
27-Apr	12.10	29	103	0	sunny, clear	TT + DD
28-Apr	09:10	29	103	0	sunny, clear	DD
29-Apr	09.00	25	102	0	overcast	DD
30-Apr	08:45	20	102	0	sunny, clear, windy	DD
Total				6.2		

Appendix II-A6

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1
	Lac de Gras	Lac de Gras	Lac de Gras	Lac de Gras	Lac de Gras	c de Gras NW	c de Gras NW	c de Gras NW	c de Gras NW	c de Gras NW
	0m	5m	10m	15m	20m	0m	4m	8m	12m	16m
	94 07 07	94 07 07	94 07 07	94 07 07	94 07 07	94 08 14	94 08 14	94 08 14	94 08 14	94 08 14
Conductivity (µmhos/cm)	13.1	12.2	12	11.7	11.7	11.5	11.5	11.4	11.2	11
Total Dissolved Solids (mg/L)	10	8	8	8	8	8	9	7	8	7
Hardness (mg CaCO3/L)	3.11	3.73	3.91	3.81	3.48	3.8	3.86	3.88	3.91	3.87
pH (units)	6.32	6.34	6.31	6.3	6.28	6.41	6.4	6.37	6.43	6.26
Total Suspended Solids (mg/L)	<1	<1	<1	<1	<1	<1	<1	2	2	<1
Turbidity (NTU)	0.41	0.4	0.3	0.3	0.31	0.35	0.35	0.22	0.3	0.32
Acidity (mg CaCO3/L)	2	2	2	2	2	<1.0	<1.0	<1.0	1.9	1.9
Alkalinity - Total (mg CaCO3/L)	3.4	3.5	3.5	3.5	3.6	3	2.9	3.6	3	4.5
Alkalinity - Bicarbonate (mg CaCO3/L)	3.4	3.5	3.5	3.5	3.6	3	2.9	3.6	3	4.5
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.5	<0.5	0.5	0.5	0.5	0.7	0.7	0.7	0.5	<0.5
Fluoride (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.02	0.02	0.02	0.02
Sulphate (mg/L)	1.2	<1.0	<1.0	1.3	1.1	2	2	<1.0	1.9	<1.0
Free Ammonia (mg NH3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	<0.001	0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ortho-Phosphate (mg P/L)	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Total Dissolved Phosphate (mg P/L)	0.004	0.003	0.004	0.003	0.003	0.003	0.003	0.004	0.003	0.003
Total Phosphorus (mg P/L)	0.004	0.004	0.004	0.004	0.005	0.003	0.003	0.005	0.003	0.004
Total Metals (mg/L)										
Aluminum	0.013	0.013	0.011	0.012	0.009	0.007	0.007	0.011	0.005	0.005
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	0.0002	0.0002	0.0002	0.0002
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.629	0.764	0.796	0.799	0.706	0.796	0.803	0.788	0.821	0.803
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0009	0.0008	0.0009	0.0007	0.0006	<0.0005	<0.0005	0.0005	0.0005	0.0005
Iron	0.01	0.01	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	0.001	0.001	0.01	<0.001	<0.001	<0.001	<0.001
Magnesium	0.385	0.473	0.467	0.456	0.42	0.463	0.461	0.465	0.48	0.463
Manganese	<0.005	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	0.00003	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00001	0.00002	0.00001	0.00001	0.00002	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1	Site 1
	Lac de Gras	Lac de Gras	Lac de Gras	Lac de Gras	Lac de Gras	c de Gras NW	c de Gras NW	c de Gras NW	c de Gras NW	c de Gras NW
	0m	5m	10m	15m	20m	0m	4m	8m	12m	16m
	94 07 07	94 07 07	94 07 07	94 07 07	94 07 07	94 08 14	94 08 14	94 08 14	94 08 14	94 08 14
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	<0.002	0.002	0.011	0.005	0.004	0.005	0.006	0.004	0.005	0.005
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.62	0.748	0.796	0.79	0.7	0.772	0.788	0.788	0.803	0.787
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0008	0.0009	<0.0005	0.0006	<0.0005	<0.0005	0.0005	0.0005	0.0005
Iron	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	<0.001	<0.001	<0.001	<0.001
Magnesium	0.38	0.452	0.467	0.447	0.42	0.455	0.46	0.465	0.463	0.462
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.42	0.43	0.44	0.43	0.42	0.37	0.37	0.36	0.37	0.37
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.3	0.4	0.37	0.32	0.3	0.48	0.48	0.47	0.47	0.48
Uranium	0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II. - A
Water Quality From Koala and Adjacent Watersheds

	Site 2 Mike L. 0m 94 07 09	Site 2 Mike L. 4m 94 07 09	Site 2 Mike L. 9m 94 07 09	Site 2 Mike L. 13m 94 07 09	Site 2 Mike L. 18m 94 07 09	Site 2 Mike L. 0m 94 08 15	Site 2 Mike L. 3m 94 08 15	Site 2 Mike L. 7m 94 08 16	Site 2 Mike L. 11m 94 08 16	Site 2 Mike L. 15m 94 08 16
Conductivity (µmhos/cm)	12.5	11.2	10.8	11.1	10.7	11	10.7	10.9	11	11.1
Total Dissolved Solids (mg/L)	8	8	7	7	7	8	7	7	7	9
Hardness (mg CaCO3/L)	2.89	2.27	2.92	3.06	3.1	3.68	3.64	3.7	3.61	3.6
pH (units)	6.5	6.28	6.23	6.15	6.19	5.85	5.91	5.91	5.9	5.89
Total Suspended Solids (mg/L)	3	<1	3	2	2	2	1	5	2	1
Turbidity (NTU)	0.44	0.41	0.5	0.47	0.51	0.96	0.62	0.56	0.51	0.51
Acidity (mg CaCO3/L)	2	6	3	2	2	1.4	1.4	1.4	1.4	2.1
Alkalinity - Total (mg CaCO3/L)	3.3	3	3.1	3	3	3.2	3.7	3.4	4	2.9
Alkalinity - Bicarbonate (mg CaCO3/L)	3.3	3	3.1	3	3	3.2	3.7	3.4	4	2.9
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.6	0.7	0.7	0.6	0.7	0.8	0.6	0.6	0.6	0.7
Fluoride (mg/L)	0.02	0.02	0.02	<0.02	<0.02	0.03	0.03	0.25	0.02	0.02
Sulphate (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	1	<1.0	1	1.1
Free Ammonia (mg NH3-N/L)	0.006	0.009	0.048	0.011	0.01	0.008	0.007	<0.005	0.005	0.017
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007
Nitrite (mg NO2-N/L)	<0.001	<0.001	<0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.002
Ortho-Phosphate (mg P/L)	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.003
Total Dissolved Phosphate (mg P/L)	0.004	0.004	0.006	0.005	0.005	0.007	0.01	0.005	0.006	0.006
Total Phosphorus (mg P/L)	0.004	0.004	0.006	0.008	0.006	0.008	0.02	0.006	0.006	0.007
Total Metals (mg/L)										
Aluminum	0.026	0.02	0.028	0.031	0.039	0.024	0.024	0.025	0.029	0.025
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.587	0.436	0.563	0.587	0.614	0.677	0.691	0.691	0.691	0.674
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0006	0.0008	0.0009	0.001	0.0011	0.001	0.001	0.001	0.001	0.001
Iron	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02
Lead	<0.001	<0.001	0.001	<0.001	0.003	0.005	<0.001	<0.001	<0.001	<0.001
Magnesium	0.392	0.298	0.374	0.4	0.418	0.501	0.479	0.487	0.489	0.465
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	0.005	0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00004	0.00007	0.00006	0.00005	0.00005	0.00005	0.00004	0.00004	0.00005	0.00005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix Ii - A
Water Quality From Koala and Adjacent Watersheds

	Site 2 Mike L. 0m 94 07 09	Site 2 Mike L. 4m 94 07 09	Site 2 Mike L. 9m 94 07 09	Site 2 Mike L. 13m 94 07 09	Site 2 Mike L. 18m 94 07 09	Site 2 Mike L. 0m 94 08 15	Site 2 Mike L. 3m 94 08 15	Site 2 Mike L. 7m 94 08 16	Site 2 Mike L. 11m 94 08 16	Site 2 Mike L. 15m 94 08 16
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.007	<0.001	0.001
Dissolved Metals (mg/L)										
Aluminum	0.012	0.019	0.025	0.026	0.024	0.012	0.012	0.012	0.012	0.017
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.542	0.43	0.56	0.587	0.596	0.677	0.666	0.677	0.666	0.674
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0006	0.0006	0.0009	0.0007	0.0008	0.001	0.001	0.001	0.001	0.001
Iron	0.02	0.02	0.01	0.02	0.02	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.373	0.29	0.37	0.387	0.392	0.482	0.479	0.487	0.473	0.465
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.34	0.41	0.46	0.41	0.4	0.48	0.48	0.48	0.47	0.47
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.33	0.34	0.44	0.41	0.41	0.45	0.43	0.45	0.42	0.42
Uranium	0.00003	0.00003	0.00004	0.00005	0.00003	0.00004	0.00003	0.00003	0.00004	0.00005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 3 Martine-West 94 08 08	Site 4 Martine L. 0m 94 07 08	Site 4 Martine L. 1m 94 07 08	Site 4 Martine L. 2m 94 07 08	Site 4 Martine L. 3m 94 07 08	Site 4 Martine L. 4m 94 07 08	Site 4 Martine L. A 0m 94 08 16	Site 4 Martine L. B 0m 94 08 18	Site 4 Martine L. C 0m 94 08 18	Site 4 Martine L. A 1m 94 08 16
Conductivity (µmhos/cm)	14.5	12	12.2	11.9	12	11.8	13.6	13.6	13.5	13.6
Total Dissolved Solids (mg/L)	9	8	8	8	8	8	8	8	8	8
Hardness (mg CaCO3/L)	4.68	2.86	2.67	2.94	2.34	2.3	4.4	4.35	4.41	4.41
pH (units)	6.33	6.47	6.4	6.39	6.4	6.37	5.92	6.08	6.09	6.1
Total Suspended Solids (mg/L)	2	<1	see below	<1	1	2	1	3	3	2
Turbidity (NTU)	0.55	0.5	see below	0.48	0.48	0.47	0.52	0.6	0.75	0.84
Acidity (mg CaCO3/L)	3.8	<1.0	2	2	2	2	1.4	1.4	1.4	1.4
Alkalinity - Total (mg CaCO3/L)	4.5	3.5	3	3.4	2.1	2.1	3.7	4.2	3.8	4.3
Alkalinity - Bicarbonate (mg CaCO3/L)	4.5	3.5	3	3.4	2.1	2.1	3.7	4.2	3.8	4.3
Alkalinity - Carbonate (mg CaCO3/L)	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	1.1	0.8	0.9	0.8	0.9	0.9	0.7	0.9	1	0.7
Fluoride (mg/L)	0.03	0.02	0.02	0.02	<0.02	<0.02	0.03	0.03	0.03	0.03
Sulphate (mg/L)	1	<1.0	<1.0	<1.0	<1.0	<1.0	1	1.1	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.011	0.008	0.01	0.01	0.009	0.008	0.016	0.013	0.012	0.014
Nitrate (mg NO3-N/L)	0.071	<0.005	0.006	<0.005	<0.005	<0.005	0.007	0.005	0.007	0.006
Nitrite (mg NO2-N/L)	0.002	0.001	0.002	<0.001	<0.001	<0.001	0.003	0.002	0.002	0.002
Ortho-Phosphate (mg P/L)	0.003	0.003	0.005	0.004	0.003	0.003	0.004	0.003	0.003	0.003
Total Dissolved Phosphate (mg P/L)	0.006	0.006	0.007	0.005	0.005	0.005	0.007	0.006	0.008	0.008
Total Phosphorus (mg P/L)	0.008	0.006	0.01	0.006	0.006	0.006	0.007	0.009	0.008	0.008
Total Metals (mg/L)										
Aluminum	0.019	0.026	0.022	0.024	0.019	0.018	0.013	0.016	0.014	0.013
Antimony	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.954	0.551	0.515	0.563	0.445	0.436	0.844	0.838	0.835	0.841
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0012	0.001	0.0011	0.001	0.0009	0.001	0.001	0.001	0.001
Iron	0.09	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Lead	0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
Magnesium	0.624	0.362	0.335	0.375	0.298	0.293	0.59	0.575	0.57	0.591
Manganese	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005
Mercury	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001
Selenium	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00002	0.00002	0.00003	0.00003	0.00004	0.00003	0.00002	0.00003	0.00002	0.00002
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 3 Martine-West	Site 4 Martine L. 0m	Site 4 Martine L. 1m	Site 4 Martine L. 2m	Site 4 Martine L. 3m	Site 4 Martine L. 4m	Site 4 Martine L. A 0m	Site 4 Martine L. B 0m	Site 4 Martine L. C 0m	Site 4 Martine L. A 1m
	94 08 08	94 07 08	94 07 08	94 07 08	94 07 08	94 07 08	94 08 16	94 08 18	94 08 18	94 08 16
Zinc	0.002	0.003	0.004	0.006	<0.001	<0.001	<0.001	0.002	<0.001	0.001
Dissolved Metals (mg/L)										
Aluminum	0.011	0.015	0.013	0.014	0.013	0.015	0.005	0.005	0.006	0.006
Antimony	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.893	0.55	0.515	0.56	0.445	0.436	0.82	0.811	0.825	0.816
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0012	0.001	0.0009	0.0005	0.0009	0.001	0.001	0.001	0.001
Iron	0.02	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
Lead	0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.595	0.362	0.335	0.375	0.298	0.293	0.573	0.566	0.57	0.577
Manganese	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.58	0.35	0.33	0.32	0.2	0.3	0.5	0.5	0.51	0.5
Selenium	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.55	0.45	0.4	0.39	0.33	0.36	0.58	0.58	0.58	0.58
Uranium	0.00001	0.00002	0.00003	0.00003	0.00003	0.00003	0.00001	0.00001	0.00001	0.00002
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.002	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 4 Martine L. B 1m 94 08 18	Site 4 Martine L. C 1m 94 08 18	Site 4 Martine L. A 3m 94 08 16	Site 4 Martine L. B 3m 94 08 18	Site 4 Martine L. C 3m 94 08 18	Site 4 Martine L. A 5m 94 08 16	Site 4 Martine L. B 5m 94 08 18	Site 4 Martine L. C 5m 94 08 18	Site 4 Martine L. A 7m 94 08 16	Site 4 Martine L. B 7m 94 08 18
Conductivity (µmhos/cm)	13.7	13.5	13.6	13.5	13.5	13.6	13.5	13.6	13.4	13.4
Total Dissolved Solids (mg/L)	8	10	9	8	10	8	10	9	9	10
Hardness (mg CaCO3/L)	4.34	4.4	4.44	4.4	4.46	4.4	4.33	4.4	4.49	4.27
pH (units)	6.03	6.05	5.95	6.14	6.08	6	6.04	6.11	5.93	6.05
Total Suspended Solids (mg/L)	3	1	2	3	3	3	<1	1	<1	3
Turbidity (NTU)	0.55	0.85	0.83	0.52	0.82	0.56	0.56	0.64	0.63	0.86
Acidity (mg CaCO3/L)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Alkalinity - Total (mg CaCO3/L)	4.1	4	3.4	3.7	4	4.1	4	3.5	4.3	4.2
Alkalinity - Bicarbonate (mg CaCO3/L)	4.1	4	3.4	3.7	4	4.1	4	3.5	4.3	4.2
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.9	1.1	1	1.1	0.9	0.9	1.1	0.8	1	1.1
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Sulphate (mg/L)	<1.0	1 4	1.1	<1.0	1.2	1	1.4	1.4	<1.0	1.3
Free Ammonia (mg NH3-N/L)	0.022	0.012	0.012	0.014	0.012	0.01	0.012	0.012	0.011	0.009
Nitrate (mg NO3-N/L)	0.009	0.007	0.008	0.007	0.007	0.007	0.006	0.007	0.006	0.008
Nitrite (mg NO2-N/L)	0.002	0.002	0.002	0.002	0.001	0.002	0.002	0.001	0.003	0.001
Ortho-Phosphate (mg P/L)	0.004	0.002	0.005	0.003	0.003	0.003	0.003	0.003	0.004	0.002
Total Dissolved Phosphate (mg P/L)	0.006	0.007	0.007	0.006	0.008	0.007	0.006	0.007	0.006	0.006
Total Phosphorus (mg P/L)	0.008	0.007	0.008	0.006	0.008	0.007	0.007	0.007	0.008	0.006
Total Metals (mg/L)										
Aluminum	0.015	0.014	0.015	0.015	0.014	0.014	0.013	0.013	0.014	0.016
Antimony	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.827	0.842	0.834	0.832	0.835	0.844	0.835	0.852	0.866	0.832
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.002	0.0005	0.001	0.001	0.002	0.001	0.001	0.001	0.001	0.001
Iron	0.06	0.06	0.07	0.06	0.06	0.07	0.05	0.05	0.07	0.07
Lead	0.002	0.002	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.569	0.593	0.581	0.572	0.593	0.594	0.575	0.586	0.605	0.578
Manganese	0.005	<0.005	0.005	0.005	<0.005	0.01	0.005	<0.005	0.005	0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00003	0.00002	0.00003	0.00003	0.00003	0.00004	0.00002	0.00002	0.00003	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 4 Martine L. B 1m 94 08 18	Site 4 Martine L. C 1m 94 08 18	Site 4 Martine L. A 3m 94 08 16	Site 4 Martine L. B 3m 94 08 18	Site 4 Martine L. C 3m 94 08 18	Site 4 Martine L. A 5m 94 08 16	Site 4 Martine L. B 5m 94 08 18	Site 4 Martine L. C 5m 94 08 18	Site 4 Martine L. A 7m 94 08 16	Site 4 Martine L. B 7m 94 08 18
Zinc	<0.001	0.001	<0.001	0.003	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.012	0.006	0.008	0.006	0.006	0.006	0.005	0.006	0.006	0.005
Antimony	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.814	0.808	0.827	0.824	0.825	0.82	0.811	0.808	0.83	0.803
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0005	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Iron	0.02	0.02	0.04	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Lead	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.56	0.578	0.577	0.568	0.583	0.573	0.561	0.578	0.586	0.551
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.5	0.51	0.51	0.5	0.51	0.5	0.52	0.51	0.5	0.51
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.57	0.59	0.57	0.58	0.59	0.58	0.61	0.58	0.58	0.59
Uranium	0.00002	0.00002	0.00002	0.00001	0.00003	0.00002	0.00002	0.00002	0.00002	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.001	<0.001	0.003	<0.001	<0.001	0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 4 Martine L. C 7m 94 08 18	Site 5 Fox 3 L. 0m 94 08 27	Site 5 Fox 3 L. 1m 94 08 27	Site 5 Fox 3 L. 3m 94 08 27	Site 5 Fox 3 L. 5m 94 08 27	Site 5 Fox 3 L. 6m 94 08 27	Site 5 Fox 3 L. A 0m 94 07 11	Site 5 Fox 3 L. B 0m 94 07 11	Site 5 Fox 3 L. A 2m 94 07 11	Site 5 Fox 3 L. B 2m 94 07 11
Conductivity (µmhos/cm)	13.5	13.5	13	14.2	13.5	13.9	11.6	-	13.8	-
Total Dissolved Solids (mg/L)	9	8	9	9	7	9	8	-	9	-
Hardness (mg CaCO3/L)	4.37	4.11	4.06	3.93	3.76	4.02	3.47	-	3.68	-
pH (units)	6.08	6.45	6.48	6.5	6.49	6.43	6.35	-	6.56	-
Total Suspended Solids (mg/L)	2	<1	<1	<1	<1	<1	3	-	<1	-
Turbidity (NTU)	0.59	0.6	0.6	0.7	0.7	0.7	0.41	-	0.43	-
Acidity (mg CaCO3/L)	1.4	2.1	2.1	2.1	2.1	2.1	3	-	2	-
Alkalinity - Total (mg CaCO3/L)	3.6	3.8	3.5	3.6	4.6	3.6	3.2	-	3.1	-
Alkalinity - Bicarbonate (mg CaCO3/L)	3.5	3.8	3.5	3.6	4.5	3.6	3.2	-	3.1	-
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	-
Chloride (mg/L)	1	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	-	0.5	-
Fluoride (mg/L)	0.03	0.4	0.4	0.4	0.4	0.4	0.02	-	0.02	-
Sulphate (mg/L)	1	1.1	2.2	2.4	1.5	1.8	2.2	-	1.4	-
Free Ammonia (mg NH3-N/L)	0.011	<0.005	<0.005	0.011	<0.005	0.007	<0.005	-	<0.005	-
Nitrate (mg NO3-N/L)	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	-
Nitrite (mg NO2-N/L)	0.002	0.001	0.001	0.001	0.001	0.002	<0.001	-	<0.001	-
Ortho-Phosphate (mg P/L)	0.003	0.006	0.003	0.005	0.003	0.004	0.002	-	0.003	-
Total Dissolved Phosphate (mg P/L)	0.006	0.007	0.006	0.009	0.008	0.006	0.005	-	0.005	-
Total Phosphorus (mg P/L)	0.007	0.007	0.007	0.01	0.008	0.007	0.005	-	0.006	-
Total Metals (mg/L)										
Aluminum	0.014	0.021	0.017	0.019	0.024	0.019	0.026	0.026	0.033	0.025
Antimony	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.822	0.713	0.726	0.665	0.645	0.729	0.635	0.67	0.811	0.587
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0011	0.0011	0.0013	0.001	0.0011	0.0009	0.0009	0.0013	0.0008
Iron	0.07	0.04	0.04	0.06	0.05	0.05	0.04	0.04	0.05	0.04
Lead	<0.001	0.001	0.001	0.002	<0.001	<0.001	0.005	0.009	<0.001	0.001
Magnesium	0.585	0.571	0.59	0.553	0.521	0.581	0.458	0.475	0.602	0.426
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00003	0.00004	0.00003	0.00003	0.00004	0.00004	0.00004	0.00003	0.00002	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 4 Martine L. C 7m 94 08 18	Site 5 Fox 3 L. 0m 94 08 27	Site 5 Fox 3 L. 1m 94 08 27	Site 5 Fox 3 L. 3m 94 08 27	Site 5 Fox 3 L. 5m 94 08 27	Site 5 Fox 3 L. 6m 94 08 27	Site 5 Fox 3 L. A 0m 94 07 11	Site 5 Fox 3 L. B 0m 94 07 11	Site 5 Fox 3 L. A 2m 94 07 11	Site 5 Fox 3 L. B 2m 94 07 11
Zinc	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.002	0.002
Dissolved Metals (mg/L)										
Aluminum	0.007	0.006	0.007	0.006	0.006	0.008	0.024	0.012	0.017	0.015
Antimony	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.796	0.706	0.689	0.665	0.645	0.706	0.635	0.67	0.683	0.587
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0009	0.0009	0.0007	0.0007	0.0008	0.0009	0.0009	0.0013	0.0008
Iron	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.001	<0.001	<0.001
Magnesium	0.578	0.571	0.569	0.55	0.521	0.548	0.458	0.472	0.478	0.426
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.5	0.51	0.51	0.5	0.51	0.51	0.53	0.51	0.51	0.51
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.57	0.56	0.53	0.53	0.54	0.55	0.63	0.5	0.63	0.56
Uranium	0.00003	0.00002	0.00002	0.00001	0.00002	0.00002	0.00004	0.00002	0.00002	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 5 Fox 3 L. A 3m 94 07 11	Site 5 Fox 3 L. B 3m 94 07 11	Site 5 Fox 3 L. A 4m 94 07 11	Site 5 Fox 3 L. B 4m 94 07 11	Site 5 Fox 3 L. A 5m 94 07 11	Site 5 Fox 3 L. B 5m 94 07 11	Site 7 Fox 1 L. 0m 94 07 11	Site 7 Fox 1 L. 5m 94 07 11	Site 7 Fox 1 L. 13m 94 07 11	Site 7 Fox 1 L. 20m 94 07 11
Conductivity (µmhos/cm)	11.7	-	11.6	-	12	-	16	16	16	16
Total Dissolved Solids (mg/L)	8	-	8	-	8	-	12	12	11	12
Hardness (mg CaCO3/L)	3.05	-	3.73	-	3.8	-	3.96	4.01	3.54	2.96
pH (units)	6.4	-	6.38	-	6.34	-	6.55	6.73	6.52	6.44
Total Suspended Solids (mg/L)	<1	-	2	-	1	-	<1	2	see below	<1
Turbidity (NTU)	0.43	-	0.39	-	0.45	-	0.49	0.45	see below	0.44
Acidity (mg CaCO3/L)	2	-	2	-	2	-	<1.0	<1.0	2	<1.0
Alkalinity - Total (mg CaCO3/L)	3.3	-	3	-	3	-	4	4.2	4.5	3.5
Alkalinity - Bicarbonate (mg CaCO3/L)	3.3	-	3	-	3	-	4	4.2	4.5	3.5
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	-	0.5	-	0.6	-	1.1	1.2	1.2	1.2
Fluoride (mg/L)	0.02	-	0.02	-	0.02	-	<0.02	0.02	<0.02	0.03
Sulphate (mg/L)	1.5	-	1.2	-	2.3	-	<1.0	1.6	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	<0.005	-	<0.005	-	<0.005	-	0.006	<0.005	0.009	0.012
Nitrate (mg NO3-N/L)	<0.005	-	<0.005	-	<0.005	-	<0.005	<0.005	0.009	0.023
Nitrite (mg NO2-N/L)	<0.001	-	<0.001	-	0.001	-	<0.001	<0.001	0.001	0.001
Ortho-Phosphate (mg P/L)	0.003	-	0.003	-	0.003	-	0.003	0.003	0.005	0.003
Total Dissolved Phosphate (mg P/L)	0.005	-	0.004	-	0.005	-	0.004	0.004	0.006	0.005
Total Phosphorus (mg P/L)	0.005	-	0.004	-	0.005	-	0.009	0.004	0.014	0.005
Total Metals (mg/L)										
Aluminum	0.021	0.032	0.025	0.03	0.036	0.033	0.022	0.019	0.019	0.021
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.563	0.91	0.69	0.894	0.765	0.774	1.02	1.07	0.808	0.672
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0007	0.0017	0.0005	0.0014	0.0016	0.0013	0.0006	0.0006	<0.0005	0.0007
Iron	0.04	0.05	0.05	0.05	0.06	0.06	0.02	0.02	0.02	0.02
Lead	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
Magnesium	0.4	0.649	0.488	0.623	0.534	0.542	0.445	0.482	0.371	0.313
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00003	0.00002	0.00003	0.00003	0.00003	0.00003	0.00005	0.00005	0.00004	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 5 Fox 3 L. A 3m 94 07 11	Site 5 Fox 3 L. B 3m 94 07 11	Site 5 Fox 3 L. A 4m 94 07 11	Site 5 Fox 3 L. B 4m 94 07 11	Site 5 Fox 3 L. A 5m 94 07 11	Site 5 Fox 3 L. B 5m 94 07 11	Site 7 Fox 1 L. 0m 94 07 11	Site 7 Fox 1 L. 5m 94 07 11	Site 7 Fox 1 L. 13m 94 07 11	Site 7 Fox 1 L. 20m 94 07 11
Zinc	0.002	0.004	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	0.001
Dissolved Metals (mg/L)										
Aluminum	0.01	0.02	0.019	0.023	0.023	0.017	0.019	0.014	0.013	0.015
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.563	0.718	0.69	0.703	0.693	0.697	0.922	0.933	0.808	0.67
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0006	0.0017	0.0005	0.0013	0.0006	0.0012	0.0006	0.0006	<0.0005	0.0005
Iron	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
Lead	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001
Magnesium	0.4	0.515	0.488	0.504	0.504	0.503	0.402	0.409	0.37	0.313
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.48	0.55	0.53	0.55	0.54	0.53	0.42	0.46	0.44	0.44
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.48	0.71	0.63	0.69	0.63	0.66	0.75	0.85	0.77	0.77
Uranium	0.00003	0.00002	0.00003	0.00003	0.00003	0.00003	0.00005	0.00005	0.00004	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 7 Fox 1 L. 26m 94 07 11	Site 7 Fox 1 L. 0m 94 08 28	Site 7 Fox 1 L. 5m 94 08 28	Site 7 Fox 1 L. 10m 94 08 28	Site 7 Fox 1 L. 15m 94 08 28	Site 7 Fox 1 L. 20m 94 08 28	Site 8 Nora L. 0m 94 08 26	Site 8 Nora L. 4m 94 08 26	Site 8 Nora L. 7m 94 08 26	Site 8 Nora L. 11m 94 08 26
Conductivity (µmhos/cm)	16.2	16.6	16.8	16.5	16.8	16.7	13.4	13.3	13.7	13.4
Total Dissolved Solids (mg/L)	12	12	13	13	13	12	8	8	8	9
Hardness (mg CaCO3/L)	5.12	4.9	4.71	4.64	4.65	4.66	4.33	4.29	4.19	4.41
pH (units)	6.4	6.6	6.59	6.63	6.5	6.33	6.65	6.55	6.59	6.58
Total Suspended Solids (mg/L)	2	3	<1	<1	<1	<1	<1	<1	<1	3
Turbidity (NTU)	0.48	0.43	0.4	0.41	0.51	0.34	0.7	0.8	0.6	0.7
Acidity (mg CaCO3/L)	<1.0	2	2	1	2	5.2	2.1	1.4	2.1	2.1
Alkalinity - Total (mg CaCO3/L)	6.3	5.1	5.1	4.7	4.5	4.7	4.1	4.3	4.2	3.8
Alkalinity - Bicarbonate (mg CaCO3/L)	6.3	5.1	5.1	4.7	4.5	4.7	4.1	4.3	4.2	3.8
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.9	0.8	1.1	0.9	1	0.9	<0.5	<0.5	<0.5	<0.5
Fluoride (mg/L)	0.02	0.05	0.04	0.04	0.04	0.04	0.4	0.4	0.4	0.4
Sulphate (mg/L)	<1.0	1.1	1	1.8	2	1.3	1.9	1.1	1.3	2.1
Free Ammonia (mg NH3-N/L)	0.015	0.017	0.019	0.014	0.019	0.028	0.008	<0.005	<0.005	0.005
Nitrate (mg NO3-N/L)	0.026	0.045	<0.005	0.005	0.005	0.039	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.001	0.002	0.001	0.003	0.002	0.002	0.001	0.001	<0.001	0.002
Ortho-Phosphate (mg P/L)	0.004	0.003	0.005	0.004	0.005	0.002	0.006	0.003	0.004	0.005
Total Dissolved Phosphate (mg P/L)	0.005	0.004	0.005	0.005	0.005	0.005	0.008	0.01	0.005	0.005
Total Phosphorus (mg P/L)	0.008	0.004	0.005	0.005	0.006	0.006	0.01	0.01	0.005	0.006
Total Metals (mg/L)										
Aluminum	0.027	0.017	0.019	0.017	0.017	0.021	0.009	0.008	0.009	0.008
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Calcium	1.18	1 1	1.13	1.09	1.12	1.12	0.718	0.708	0.692	0.716
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0006	0.0005	0.0005	0.0005	0.0005	0.001	0.0011	0.0021	0.0011	<0.0005
Iron	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Lead	<0.001	0.004	<0.001	<0.001	0.002	0.001	0.004	<0.001	<0.001	<0.001
Magnesium	0.528	0.521	0.52	0.519	0.515	0.513	0.649	0.646	0.624	0.65
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	0.001	0.002	0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002
Uranium	0.00004	0.00005	0.00004	0.00004	0.00004	0.00005	<0.00001	<0.00001	<0.00001	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 7 Fox 1 L. 26m 94 07 11	Site 7 Fox 1 L. 0m 94 08 28	Site 7 Fox 1 L. 5m 94 08 28	Site 7 Fox 1 L. 10m 94 08 28	Site 7 Fox 1 L. 15m 94 08 28	Site 7 Fox 1 L. 20m 94 08 28	Site 8 Nora L. 0m 94 08 26	Site 8 Nora L. 4m 94 08 26	Site 8 Nora L. 7m 94 08 26	Site 8 Nora L. 11m 94 08 26
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001
Dissolved Metals (mg/L)										
Aluminum	0.017	0.01	0.01	0.008	0.008	0.011	0.003	0.006	0.002	0.002
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.18	1 1	1.06	1.04	1.06	1.05	0.698	0.692	0.676	0.709
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	0.001	0.0005	0.0005	<0.0005	<0.0005
Iron	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	0.004	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001
Magnesium	0.528	0.517	0.501	0.497	0.49	0.494	0.627	0.621	0.607	0.64
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.61	0.57	0.57	0.57	0.57	0.57	0.46	0.45	0.45	0.46
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	1.03	0.96	0.99	0.98	0.95	0.93	0.45	0.46	0.45	0.45
Uranium	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	<0.00001	<0.00001	<0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 8 Nora L. 14m 94 08 26	Site 8 Nora L. 0m 94 07 12	Site 8 Nora L. 4m 94 07 12	Site 8 Nora L. 8m 94 07 12	Site 8 Nora L. 12m 94 07 12	Site 8 Nora L. 16m 94 07 12	Site 9 Slipper L. A 0m 94 07 07	Site 9 Slipper L. B 0m 94 07 07	Site 9 Slipper L. C 0m 94 07 07	Site 9 Slipper L. A 4m 94 07 07
Conductivity (µmhos/cm)	13.5	13.4	13	12.8	13	13.1	11.2	11.2	11.6	11.2
Total Dissolved Solids (mg/L)	9	9	9	9	9	9	8	8	8	8
Hardness (mg CaCO3/L)	4.41	4.4	2.79	4.09	3.33	3.79	2.84	3.23	2.8	3.49
pH (units)	6.45	6.52	6.64	6.14	6.56	6.39	6.3	6.35	6.4	6.38
Total Suspended Solids (mg/L)	1	<1	<1	<1	1	2	<1	<1	1	<1
Turbidity (NTU)	0.6	0.45	0.47	2.18	0.47	0.45	0.49	0.48	0.51	0.44
Acidity (mg CaCO3/L)	2.1	2	2	2	2	3	2	2	1.5	<1.0
Alkalinity - Total (mg CaCO3/L)	4.4	4.3	4.1	3.9	4.4	4.2	3.6	3.1	3.2	3
Alkalinity - Bicarbonate (mg CaCO3/L)	4.4	4.3	4.1	3.9	4.4	4.2	3.6	3.1	3.2	3
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	0.8	0.9	0.9
Fluoride (mg/L)	0.4	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Sulphate (mg/L)	1 4	1.5	<1.0	1.2	<1.0	1.1	<1.0	<1.0	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	<0.005	0.007	0.005	<0.005	0.009	0.01	0.005	0.005	0.005	0.009
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.001	<0.001	<0.001	0.002	0.001	0.001	<0.001	0.001	0.001	0.002
Ortho-Phosphate (mg P/L)	0.004	0.002	0.002	0.002	0.003	0.003	0.004	0.004	0.003	0.003
Total Dissolved Phosphate (mg P/L)	0.005	0.004	0.004	0.003	0.004	0.005	0.004	0.004	0.005	0.006
Total Phosphorus (mg P/L)	0.005	0.004	0.004	0.003	0.005	0.007	0.006	0.005	0.005	0.006
Total Metals (mg/L)										
Aluminum	0.012	0.018	0.024	0.021	0.023	0.018	0.024	0.028	0.027	0.022
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.74	0.562	0.73	0.774	0.742	0.584	0.635	0.733	0.709	0.681
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0012	0.0008	0.0012	0.0006	0.0006	0.0008	0.0008	0.0008	0.0007
Iron	0.02	0.03	0.04	0.03	0.04	0.03	0.04	0.04	0.05	0.04
Lead	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.001	0.002	0.001	0.002
Magnesium	0.656	0.474	0.61	0.61	0.583	0.461	0.399	0.457	0.442	0.434
Manganese	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00003	<0.00001	0.00003
Uranium	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00003	0.00004	0.00003	0.00003
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 8 Nora L. 14m 94 08 26	Site 8 Nora L. 0m 94 07 12	Site 8 Nora L. 4m 94 07 12	Site 8 Nora L. 8m 94 07 12	Site 8 Nora L. 12m 94 07 12	Site 8 Nora L. 16m 94 07 12	Site 9 Slipper L. A 0m 94 07 07	Site 9 Slipper L. B 0m 94 07 07	Site 9 Slipper L. C 0m 94 07 07	Site 9 Slipper L. A 4m 94 07 07
Zinc	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.003	0.015	0.003	0.005	0.005	0.007	0.012	0.013	0.014	0.013
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.709	0.56	0.469	0.71	0.572	0.58	0.571	0.642	0.546	0.681
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	0.0008	0.0008	0.0007
Iron	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01
Lead	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.002	<0.001	<0.001
Magnesium	0.642	0.47	0.393	0.563	0.461	0.46	0.345	0.395	0.348	0.434
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.45	0.48	0.25	0.45	0.33	0.38	0.4	0.45	0.49	0.5
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	<0.00001	<0.00001
Sodium	0.45	0.81	0.38	0.61	0.48	0.53	0.19	0.4	0.35	0.34
Uranium	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00003	0.00003	0.00002	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 9 Slipper L. B 4m 94 07 07	Site 9 Slipper L. C 4m 94 07 07	Site 9 Slipper L. A 8m 94 07 07	Site 9 Slipper L. B 8m 94 07 07	Site 9 Slipper L. C 8m 94 07 07	Site 9 Slipper L. A 12m 94 07 07	Site 9 Slipper L. B 12m 94 07 07	Site 9 Slipper L. C 12m 94 07 07	Site 9 Slipper L. A 16m 94 07 07	Site 9 Slipper L. B 16m 94 07 07
Conductivity (µmhos/cm)	11.1	12	11.8	11.6	11.7	11.5	11.1	11.1	10.7	10.4
Total Dissolved Solids (mg/L)	8	9	9	8	8	8	8	8	7	7
Hardness (mg CaCO3/L)	3.54	3.65	2.51	2.11	2.15	2.57	3.4	1.94	1.9	3.33
pH (units)	6.33	6.43	6.33	6.35	6.32	6.32	6.29	6.18	6.06	6.03
Total Suspended Solids (mg/L)	<1	<1	<1	<1	<1	<1	<1	1	1	1
Turbidity (NTU)	0.59	0.49	0.52	0.53	0.63	0.61	0.52	0.49	0.48	0.49
Acidity (mg CaCO3/L)	1.5	1	1	1.5	1	2	2	2	2	2
Alkalinity - Total (mg CaCO3/L)	3.1	3	2.8	2.6	3.2	3.2	3.1	3.3	2.9	3.3
Alkalinity - Bicarbonate (mg CaCO3/L)	3.1	3	2.8	2.6	3.2	3.2	3.1	3.3	2.9	3.3
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.7	0.7	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.7
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	<0.02	<0.02
Sulphate (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.005	0.007	0.005	0.009	0.005	0.006	0.007	0.011	0.009	0.009
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006	0.006
Nitrite (mg NO2-N/L)	0.001	0.001	0.002	0.001	0.001	0.002	0.001	0.001	0.001	<0.001
Ortho-Phosphate (mg P/L)	0.004	0.004	0.006	0.003	0.003	0.003	0.003	0.003	0.004	0.004
Total Dissolved Phosphate (mg P/L)	0.005	0.005	0.006	0.006	0.004	0.005	0.006	0.005	0.006	0.005
Total Phosphorus (mg P/L)	0.006	0.008	0.006	0.009	0.011	0.005	0.006	0.012	0.012	0.007
Total Metals (mg/L)										
Aluminum	0.029	0.023	0.016	0.024	0.024	0.023	0.019	0.015	0.015	0.028
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.684	0.719	0.491	0.681	0.719	0.501	0.681	0.684	0.382	0.681
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0008	0.0008	0.0006	0.0007	0.0009	0.0006	0.0007	0.0006	0.0005	0.0016
Iron	0.04	0.04	0.03	0.04	0.04	0.03	0.03	0.03	0.03	0.04
Lead	0.001	0.001	0.001	0.002	0.001	<0.001	<0.001	0.001	<0.001	<0.001
Magnesium	0.446	0.452	0.312	0.44	0.454	0.322	0.426	0.291	0.233	0.421
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00002	0.00001	0.00003	0.00001	0.00002	0.00003	<0.00001	0.00001	<0.00001
Uranium	0.00004	0.00005	0.00003	0.00004	0.00004	0.00004	0.00004	0.00003	0.00002	0.00004
Vanadium	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 9 Slipper L. B 4m 94 07 07	Site 9 Slipper L. C 4m 94 07 07	Site 9 Slipper L. A 8m 94 07 07	Site 9 Slipper L. B 8m 94 07 07	Site 9 Slipper L. C 8m 94 07 07	Site 9 Slipper L. A 12m 94 07 07	Site 9 Slipper L. B 12m 94 07 07	Site 9 Slipper L. C 12m 94 07 07	Site 9 Slipper L. A 16m 94 07 07	Site 9 Slipper L. B 16m 94 07 07
Zinc	<0.001	<0.001	<0.001	0.002	0.002	0.001	<0.001	0.004	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.016	0.014	0.016	0.009	0.009	0.016	0.018	0.01	0.015	0.027
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.684	0.719	0.49	0.401	0.421	0.5	0.681	0.388	0.38	0.655
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0008	0.0008	0.0006	0.0007	<0.0005	0.0006	0.0007	0.0006	0.0005	0.0006
Iron	0.01	0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	0.02	0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.446	0.45	0.312	0.27	0.268	0.322	0.412	0.235	0.23	0.412
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.49	0.5	0.47	0.24	0.27	0.39	0.45	0.21	0.45	0.43
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	0.00001	0.00001	<0.00001	0.00002	<0.00001	0.00001	<0.00001
Sodium	0.35	0.36	0.37	0.03	0.04	0.22	0.32	<0.01	0.35	0.33
Uranium	0.00004	0.00003	0.00002	0.00002	0.00002	0.00002	0.00004	0.00001	0.00002	0.00004
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 9 Slipper L. C 16m 94 07 07	Site 9 Slipper L. 0m 94 08 15	Site 9 Slipper L. 3m 94 08 15	Site 9 Slipper L. 5m 94 08 15	Site 9 Slipper L. 7m 94 08 15	Site 9 Slipper L. 10m 94 08 15	Site 10 Nero L. A 0m 94 07 13	Site 10 Nero L. B 0m 94 07 13	Site 10 Nero L. A 4m 94 07 13	Site 10 Nero L. B 4m 94 07 13
Conductivity (µmhos/cm)	10.5	12.5	12.5	12.5	12.5	12.5	11	-	11.7	-
Total Dissolved Solids (mg/L)	7	7	8	8	8	8	8	-	8	-
Hardness (mg CaCO3/L)	2.65	4.15	4.29	4.13	4.15	4.22	4.03	-	4.04	-
pH (units)	6.05	5.9	5.87	5.88	5.74	5.99	6.41	-	6.4	-
Total Suspended Solids (mg/L)	<1	<1	1	<1	3	1	<1	-	<1	-
Turbidity (NTU)	0.49	0.61	0.61	0.66	0.57	0.67	0.47	-	0.58	-
Acidity (mg CaCO3/L)	2	1.4	1.4	1.4	1.4	1.4	2	-	2	-
Alkalinity - Total (mg CaCO3/L)	3.2	3.8	3.5	3.6	3.7	3.7	3.2	-	4	-
Alkalinity - Bicarbonate (mg CaCO3/L)	3.2	3.8	3.5	3.5	3.7	3.7	3.2	-	4	-
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	<1.0	-
Chloride (mg/L)	0.6	0.7	0.8	1	0.7	0.9	0.5	-	0.6	-
Fluoride (mg/L)	<0.02	0.03	0.03	0.03	0.03	0.03	0.03	-	0.03	-
Sulphate (mg/L)	<1.0	1	1.2	1.2	1.2	1.4	1.6	-	1.3	-
Free Ammonia (mg NH3-N/L)	0.011	0.008	0.007	0.008	0.007	0.007	0.042	-	<0.005	-
Nitrate (mg NO3-N/L)	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	-
Nitrite (mg NO2-N/L)	0.001	0.002	0.001	0.001	0.001	0.001	0.001	-	0.001	-
Ortho-Phosphate (mg P/L)	0.004	0.004	0.003	0.003	0.004	0.004	0.004	-	0.004	-
Total Dissolved Phosphate (mg P/L)	0.006	0.005	0.005	0.005	0.005	0.006	0.005	-	0.005	-
Total Phosphorus (mg P/L)	0.007	0.013	0.006	0.005	0.006	0.006	0.005	-	0.005	-
Total Metals (mg/L)										
Aluminum	0.028	0.015	0.014	0.012	0.013	0.013	0.028	0.007	0.032	0.023
Antimony	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.536	0.814	0.814	0.811	0.796	0.8	0.749	0.808	0.85	0.343
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0007	0.001	0.001	0.001	0.001	0.001	0.0007	0.0006	0.0007	<0.0005
Iron	0.03	0.05	0.05	0.05	0.05	0.05	0.03	0.03	0.03	0.02
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.336	0.522	0.547	0.558	0.539	0.54	0.483	0.511	0.528	0.22
Manganese	<0.005	<0.005	<0.005	0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	<0.00001
Uranium	0.00004	0.00004	0.00003	0.00004	0.00002	0.00003	0.00003	0.00004	0.00005	0.00004
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 9 Slipper L. C 16m 94 07 07	Site 9 Slipper L. 0m 94 08 15	Site 9 Slipper L. 3m 94 08 15	Site 9 Slipper L. 5m 94 08 15	Site 9 Slipper L. 7m 94 08 15	Site 9 Slipper L. 10m 94 08 15	Site 10 Nero L. A 0m 94 07 13	Site 10 Nero L. B 0m 94 07 13	Site 10 Nero L. A 4m 94 07 13	Site 10 Nero L. B 4m 94 07 13
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.024	0.008	0.007	0.006	0.006	0.007	0.012	0.007	0.011	0.014
Antimony	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.53	0.8	0.814	0.766	0.772	0.8	0.74	0.602	0.799	0.34
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0007	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	0.0005	<0.0005
Iron	0.03	0.04	0.03	0.03	0.04	0.03	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.323	0.522	0.547	0.539	0.539	0.54	0.48	0.371	0.496	0.22
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.34	0.51	0.51	0.51	0.51	0.51	0.43	0.29	0.42	0.4
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.28	0.47	0.47	0.47	0.47	0.47	0.58	0.42	0.62	0.5
Uranium	0.00003	0.00001	0.00001	0.00002	0.00001	0.00002	0.00003	0.00004	0.00004	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 10 Nero L. A 7m 94 07 13	Site 10 Nero L. B 7m 94 07 13	Site 10 Nero L. A 11m 94 07 13	Site 10 Nero L. B 11m 94 07 13	Site 10 Nero L. A 14m 94 07 13	Site 10 Nero L. B 14m 94 07 13	Site 10 Nero L. 0m 94 08 23	Site 10 Nero L. 3m 94 08 23	Site 10 Nero L. 6m 94 08 23	Site 10 Nero L. 9m 94 08 23
Conductivity (µmhos/cm)	10	-	8.7	-	10	-	14.1	14.1	14.1	14
Total Dissolved Solids (mg/L)	7	-	6	-	7	-	8	8	8	8
Hardness (mg CaCO3/L)	4.1	-	3.93	-	3.84	-	4.38	4.36	4.43	4.4
pH (units)	6.4	-	6.32	-	6.24	-	6.55	6.54	6.57	6.52
Total Suspended Solids (mg/L)	1	-	<1	-	<1	-	1	4	<1	<1
Turbidity (NTU)	0.62	-	0.65	-	0.76	-	0.8	0.9	1.1	0.7
Acidity (mg CaCO3/L)	2	-	2	-	2	-	2.1	2.1	2.1	2.1
Alkalinity - Total (mg CaCO3/L)	3.9	-	3.5	-	3.5	-	4.2	4.9	4.2	4.3
Alkalinity - Bicarbonate (mg CaCO3/L)	3.9	-	3.5	-	3.5	-	4.2	4.9	4.2	4.3
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	-	<1.0	-	<1.0	-	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.6	-	0.6	-	0.5	-	<0.5	<0.5	<0.5	0.6
Fluoride (mg/L)	0.03	-	0.02	-	0.02	-	0.4	0.4	0.4	0.4
Sulphate (mg/L)	1.3	-	1.2	-	1.5	-	1.3	1.3	1.5	1.2
Free Ammonia (mg NH3-N/L)	<0.005	-	0.023	-	0.015	-	0.01	0.015	0.011	0.014
Nitrate (mg NO3-N/L)	<0.005	-	<0.005	-	0.008	-	0.032	<0.005	0.005	<0.005
Nitrite (mg NO2-N/L)	0.001	-	0.001	-	0.001	-	0.002	0.002	0.001	0.001
Ortho-Phosphate (mg P/L)	0.004	-	0.005	-	0.004	-	0.004	0.005	0.004	0.005
Total Dissolved Phosphate (mg P/L)	0.005	-	0.005	-	0.005	-	0.006	0.007	0.005	0.006
Total Phosphorus (mg P/L)	0.006	-	0.006	-	0.006	-	0.007	0.007	0.005	0.007
Total Metals (mg/L)										
Aluminum	0.031	0.032	0.037	0.029	0.049	0.026	0.016	0.017	0.017	0.017
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.846	0.817	0.64	0.67	0.799	0.755	0.872	0.869	0.872	0.876
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0006	0.0005	0.0006	0.0006	0.0006	0.0007	0.0008	<0.0005	0.0018	0.0026
Iron	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
Magnesium	0.518	0.495	0.393	0.425	0.498	0.505	0.573	0.571	0.578	0.576
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00005	0.00005	0.00007	0.00005	0.00004	0.00006	0.00003	0.00002	0.00003	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 10 Nero L. A 7m 94 07 13	Site 10 Nero L. B 7m 94 07 13	Site 10 Nero L. A 11m 94 07 13	Site 10 Nero L. B 11m 94 07 13	Site 10 Nero L. A 14m 94 07 13	Site 10 Nero L. B 14m 94 07 13	Site 10 Nero L. 0m 94 08 23	Site 10 Nero L. 3m 94 08 23	Site 10 Nero L. 6m 94 08 23	Site 10 Nero L. 9m 94 08 23
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.01	0.014	0.01	0.013	0.012	0.017	0.008	0.008	0.008	0.008
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.802	0.809	0.64	0.67	0.754	0.75	0.836	0.84	0.846	0.852
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	0.0009	0.0009
Iron	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
Magnesium	0.509	0.495	0.39	0.42	0.476	0.5	0.556	0.551	0.562	0.551
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.41	0.41	0.4	0.41	0.4	0.42	0.45	0.46	0.46	0.46
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.72	0.62	0.61	0.69	0.65	0.63	0.59	0.6	0.6	0.59
Uranium	0.00005	0.00005	0.00004	0.00005	0.00004	0.00004	0.00002	0.00002	0.00002	0.00002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 10 Nero L. 12m 94 08 23	Site 12 Larry L. 0m 94 08 22	Site 12 Larry L. 1m 94 08 22	Site 12 Larry L. 3m 94 08 22	Site 12 Larry L. 5m 94 08 22	Site 12 Larry L. 6m 94 08 22	Site 12 Larry L. 0m 94 07 04	Site 12 Larry L. 2m 94 07 04	Site 12 Larry L. 4m 94 07 04	Site 12 Larry L. 6m 94 07 04
Conductivity (µmhos/cm)	13.9	14.9	15.4	15.5	15.1	15	14.2	13.5	12.5	12.9
Total Dissolved Solids (mg/L)	8	11	11	11	12	12	10	10	9	9
Hardness (mg CaCO3/L)	4.46	3.67	3.7	3.65	3.55	3.58	2.55	2.48	3	2.76
pH (units)	6.5	6.52	6.48	6.48	6.45	6.51	6.24	6.33	6.31	6.24
Total Suspended Solids (mg/L)	<1	3	3	<1	<1	<1	3	<1	5	5
Turbidity (NTU)	0.8	0.7	0.8	0.8	0.8	0.7	2.85	2.56	3.08	3.17
Acidity (mg CaCO3/L)	2.8	2.1	2.1	1 4	2.1	1.4	1.5	1.5	1.5	2
Alkalinity - Total (mg CaCO3/L)	4.1	3.6	4.1	4	4	4	3.4	3.4	3.6	3.3
Alkalinity - Bicarbonate (mg CaCO3/L)	4.1	3.6	4.1	4	4	4	3.4	3.4	3.6	3.3
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	0.9	0.8	0.9
Fluoride (mg/L)	0.4	0.05	0.05	0.05	0.05	0.04	0.03	0.03	0.03	0.03
Sulphate (mg/L)	1.9	2.1	1.2	1.4	2.5	2.2	<1.0	<1.0	1.3	<1.0
Free Ammonia (mg NH3-N/L)	0.012	0.006	0.01	0.007	0.014	0.011	<0.005	0.009	0.011	0.014
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.003
Ortho-Phosphate (mg P/L)	0.005	0.003	0.003	0.007	0.007	0.006	0.008	0.008	0.007	0.004
Total Dissolved Phosphate (mg P/L)	0.005	0.005	0.007	0.007	0.007	0.008	0.009	0.011	0.009	0.011
Total Phosphorus (mg P/L)	0.01	0.006	0.007	0.007	0.008	0.008	0.009	0.013	0.012	0.012
Total Metals (mg/L)										
Aluminum	0.021	0.033	0.031	0.03	0.028	0.033	0.121	0.103	0.096	0.12
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.846	0.669	0.689	0.682	0.689	0.672	0.675	0.646	0.635	0.662
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0009	0.0009	0.001	0.0009	0.0011	0.0012	0.0009	0.0008	0.0007	0.0009
Iron	0.04	0.05	0.06	0.06	0.06	0.06	0.09	0.09	0.09	0.11
Lead	<0.001	0.002	0.007	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Magnesium	0.571	0.505	0.512	0.506	0.513	0.497	0.511	0.498	0.471	0.512
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	0.001	<0.001	0.001	<0.001	<0.001	0.003	0.003	0.002	0.002
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	0.00001	<0.00001
Uranium	0.00003	0.00004	0.00006	0.00005	0.00005	0.00005	0.00008	0.00007	0.00007	0.00007
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 10 Nero L. 12m 94 08 23	Site 12 Larry L. 0m 94 08 22	Site 12 Larry L. 1m 94 08 22	Site 12 Larry L. 3m 94 08 22	Site 12 Larry L. 5m 94 08 22	Site 12 Larry L. 6m 94 08 22	Site 12 Larry L. 0m 94 07 04	Site 12 Larry L. 2m 94 07 04	Site 12 Larry L. 4m 94 07 04	Site 12 Larry L. 6m 94 07 04
Zinc	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.01	0.013	0.013	0.013	0.012	0.031	0.022	0.022	0.04	0.026
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.846	0.662	0.665	0.665	0.65	0.646	0.503	0.483	0.63	0.538
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0009	0.0007	0.001	0.0009	0.0008	0.0007	<0.0005	0.0008	0.0007	0.0008
Iron	<0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.04	0.02
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.571	0.49	0.495	0.483	0.468	0.478	0.314	0.309	0.346	0.343
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.002	0.001
Potassium	0.47	0.56	0.56	0.55	0.55	0.55	0.42	0.42	0.46	0.43
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	0.00001	<0.00001
Sodium	0.57	1.05	1.05	1.05	1.03	1.04	0.68	0.69	0.77	0.69
Uranium	0.00002	0.00004	0.00003	0.00003	0.00004	0.00004	0.00004	0.00005	0.00005	0.00004
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 12 Larry L. 7m 94 07 04	Site 13 Airstrip-Larry 94 08 03	Site 14 Grizzly L. 0m 94 06 20	Site 14 Grizzly L. 10m 94 06 20	Site 14 Grizzly L. 21m 94 06 20	Site 14 Grizzly L. 30m 94 06 20	Site 14 Grizzly L. 42m 94 06 20	Site 14 Grizzly L. 0m 94 08 13	Site 14 Grizzly L. 9m 94 08 13	Site 14 Grizzly L. 18m 94 08 13
Conductivity (µmhos/cm)	12.7	12.9	9.8	9.7	9.6	9.6	9	10.2	9.8	10
Total Dissolved Solids (mg/L)	9	89	7	7	7	7	10	8	7	7
Hardness (mg CaCO3/L)	3.1	45.5	1.56	1.92	1.37	1.99	1.94	3.35	3.32	3.44
pH (units)	6.29	4.6	6.27	6.18	6.21	6.21	6.09	6.15	5.92	6.21
Total Suspended Solids (mg/L)	6	1	<1	5	3	3	67	<1	<1	2
Turbidity (NTU)	3.61	0.8	0.26	0.34	0.35	0.21	20.5	0.54	0.58	0.22
Acidity (mg CaCO3/L)	3	10.4	2	2	2	2	2	1.9	18.7	2.8
Alkalinity - Total (mg CaCO3/L)	3.3	1.0	2	2.5	2.4	2.2	2.2	2.3	3.4	3
Alkalinity - Bicarbonate (mg CaCO3/L)	3.3	1.0	2	2.5	2.4	2.2	2.2	2.3	3.4	3
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	1	1.3	0.6	0.6	0.5	0.6	0.6	0.7	0.7	0.6
Fluoride (mg/L)	0.03	0.11	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.03	0.03
Sulphate (mg/L)	<1.0	49.3	<1.0	<1.0	<1.0	<1.0	<1.0	1	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.006	0.067	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.013
Nitrate (mg NO3-N/L)	<0.005	0.097	<0.005	<0.005	0.007	0.011	0.011	<0.005	0.005	0.013
Nitrite (mg NO2-N/L)	0.002	0.001	0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001
Ortho-Phosphate (mg P/L)	0.003	0.001	0.002	0.002	0.002	0.001	0.003	0.001	0.002	0.002
Total Dissolved Phosphate (mg P/L)	0.01	0.002	0.003	0.002	0.002	0.002	0.003	0.001	0.003	0.003
Total Phosphorus (mg P/L)	0.017	0.003	0.003	0.003	0.002	0.003	0.083	0.001	0.004	0.004
Total Metals (mg/L)										
Aluminum	0.128	0.431	0.025	0.018	0.029	0.02	0.234	0.053	0.056	0.055
Antimony	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Barium	<0.010	0.065	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.6	9.38	0.339	0.395	0.533	0.409	0.536	0.694	0.687	0.706
Chromium	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	0.007	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0008	0.0005	<0.0005	0.0011	0.001	<0.0005	0.0023	0.001	0.001	0.001
Iron	0.12	0.73	<0.01	<0.01	<0.01	<0.01	0.18	0.01	<0.01	0.01
Lead	0.001	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001
Magnesium	0.479	6.22	0.21	0.232	0.319	0.249	0.317	0.41	0.404	0.411
Manganese	<0.005	0.129	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.002	0.014	<0.0005	<0.0005	0.0005	<0.0005	0.0008	<0.001	<0.001	<0.001
Selenium	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00003	<0.00001	<0.00001	<0.00001
Uranium	0.00008	0.00006	0.00002	0.00003	0.00004	0.00003	0.0001	0.00004	0.00004	0.00005
Vanadium	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 12 Larry L. 7m 94 07 04	Site 13 Airstrip-Larry 94 08 03	Site 14 Grizzly L. 0m 94 06 20	Site 14 Grizzly L. 10m 94 06 20	Site 14 Grizzly L. 21m 94 06 20	Site 14 Grizzly L. 30m 94 06 20	Site 14 Grizzly L. 42m 94 06 20	Site 14 Grizzly L. 0m 94 08 13	Site 14 Grizzly L. 9m 94 08 13	Site 14 Grizzly L. 18m 94 08 13
Zinc	<0.001	0.015	<0.001	<0.001	<0.001	0.005	0.004	0.005	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.048	0.377	0.024	0.017	0.028	0.019	0.043	0.045	0.049	0.055
Antimony	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	0.054	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.6	8.44	0.313	0.39	0.282	0.4	0.4	0.68	0.673	0.701
Chromium	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0008	0.0005	<0.0005	0.0011	<0.0005	<0.0005	0.0008	0.001	0.001	0.001
Iron	0.04	0.05	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	<0.01
Lead	<0.001	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001
Magnesium	0.389	5.93	0.189	0.23	0.162	0.24	0.228	0.402	0.397	0.41
Manganese	<0.005	0.106	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.002	0.013	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.001	<0.001	<0.001
Potassium	0.5	1.36	0.25	0.29	0.39	0.26	0.21	0.34	0.33	0.34
Selenium	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.78	1.84	0.27	0.33	0.42	0.29	0.23	0.45	0.42	0.43
Uranium	0.00006	0.00006	0.00002	0.00003	0.00004	0.00001	0.00002	0.00004	0.00003	0.00003
Vanadium	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.015	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 14 Grizzly L. 27m 94 08 13	Site 14 Grizzly L. 36m 94 08 13	Site 15 Moose L. 0m 94 08 22	Site 15 Moose L. 2m 94 08 22	Site 15 Moose L. 4m 94 08 22	Site 15 Moose L. 6m 94 08 22	Site 15 Moose L. 8m 94 08 22	Site 15 Moose L. 0m 94 07 06	Site 15 Moose L. 3m 94 07 06	Site 15 Moose L. 5m 94 07 06
Conductivity (µmhos/cm)	10.2	10.1	13	13	13.2	13.7	12.8	12	11.8	11.9
Total Dissolved Solids (mg/L)	7	7	8	8	7	8	7	8	8	8
Hardness (mg CaCO3/L)	3.48	3.34	4.47	4.47	4.43	4.47	4.46	3.45	2.38	2.61
pH (units)	6.11	5.94	6.61	6.56	6.56	6.68	6.59	6.54	6.47	6.55
Total Suspended Solids (mg/L)	<1	<1	<1	<1	<1	<1	1	<1	<1	<1
Turbidity (NTU)	0.17	0.19	0.6	0.5	0.7	0.7	0.6	0.3	0.29	0.3
Acidity (mg CaCO3/L)	2.8	3	1.4	2.1	2.1	2.1	2.1	2	1.5	1.5
Alkalinity - Total (mg CaCO3/L)	2.3	2.3	5.1	5.1	5	4	5.3	4.6	4.3	4.1
Alkalinity - Bicarbonate (mg CaCO3/L)	2.3	2.3	5.1	5.1	5	4	5.3	4.6	4.3	4.1
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.6	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	0.5
Fluoride (mg/L)	0.03	0.03	0.04	0.04	0.04	0.4	0.4	0.03	0.03	0.03
Sulphate (mg/L)	1.6	1.2	<1.0	<1.0	<1.0	1.1	1	<1.0	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.013	0.014	0.007	0.013	0.008	0.009	0.007	0.005	<0.005	<0.005
Nitrate (mg NO3-N/L)	0.018	0.018	0.005	0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.002	0.001	0.002	0.001	0.002	0.002	0.001	0.001	0.002	0.001
Ortho-Phosphate (mg P/L)	0.002	0.004	0.002	0.002	0.004	0.002	0.002	0.002	0.003	0.003
Total Dissolved Phosphate (mg P/L)	0.003	0.005	0.006	0.006	0.007	0.005	0.004	0.004	0.004	0.004
Total Phosphorus (mg P/L)	0.004	0.006	0.008	0.007	0.009	0.005	0.005	0.004	0.004	0.005
Total Metals (mg/L)										
Aluminum	0.066	0.064	0.017	0.017	0.016	0.017	0.015	0.046	0.016	0.02
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0002	<0.0001	<0.0001
Calcium	0.703	0.709	0.797	0.803	0.81	0.814	0.8	1.23	0.522	0.496
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0015	0.0015	0.0013	0.0009	0.0014	0.0013	0.001	0.0012	<0.0005	<0.0005
Iron	0.02	0.01	0.03	0.03	0.03	0.03	0.03	0.04	0.02	0.02
Lead	<0.001	<0.001	0.001	0.002	0.001	<0.001	<0.001	0.001	0.007	0.001
Magnesium	0.418	0.416	0.612	0.611	0.604	0.602	0.601	0.568	0.356	0.333
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00006	0.00005	0.00002	0.00002	0.00003	0.00002	0.00002	0.00003	0.00002	0.00002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 14 Gnzzly L. 27m 94 08 13	Site 14 Gnzzly L. 36m 94 08 13	Site 15 Moose L. 0m 94 08 22	Site 15 Moose L. 2m 94 08 22	Site 15 Moose L. 4m 94 08 22	Site 15 Moose L. 6m 94 08 22	Site 15 Moose L. 8m 94 08 22	Site 15 Moose L. 0m 94 07 06	Site 15 Moose L. 3m 94 07 06	Site 15 Moose L. 5m 94 07 06
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.024	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.059	0.056	0.01	0.01	0.011	0.009	0.01	0.02	0.007	0.015
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.703	0.672	0.79	0.797	0.8	0.797	0.797	0.659	0.448	0.496
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0015	0.0008	0.0009	0.0008	0.0006	0.0008	0.0012	<0.0005	<0.0005
Iron	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
Magnesium	0.418	0.403	0.607	0.603	0.591	0.602	0.599	0.439	0.306	0.333
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.34	0.34	0.48	0.47	0.47	0.47	0.47	0.49	0.23	0.31
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.43	0.41	0.44	0.44	0.45	0.44	0.45	0.37	<0.01	0.11
Uranium	0.00006	0.00004	0.00002	0.00001	0.00001	0.00001	0.00001	0.00002	<0.00001	0.00002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 15 Moose L. 7m 94 07 06	Site 15 Moose L. 9m 94 07 06	Site 16 Leslie-Moose 94 08 08	Site 17 Leslie L. 0m 94 07 14	Site 17 Leslie L. 3m 94 07 14	Site 17 Leslie L. 5m 94 07 14	Site 17 Leslie L. 8m 94 07 14	Site 17 Leslie L. 11m 94 07 14	Site 17 Leslie L. 0m 94 08 20	Site 17 Leslie L. 2m 94 08 21
Conductivity (µmhos/cm)	11.9	11.7	12.1	11.6	11.5	11.4	11.9	12	12.8	12.3
Total Dissolved Solids (mg/L)	8	8	8	8	8	7	8	8	8	8
Hardness (mg CaCO3/L)	3.14	4.21	4.13	3.2	3.82	3.32	4.13	4.23	4.36	4.41
pH (units)	6.52	6.46	6.52	6.46	6.55	6.53	6.46	6.46	6.52	6.41
Total Suspended Solids (mg/L)	<1	<1	01	<1	<1	<1	<1	<1	2	1
Turbidity (NTU)	0.31	0.34	0.3	0.33	0.34	0.34	0.38	0.54	0.56	0.43
Acidity (mg CaCO3/L)	1.5	1.5	1.9	2	2	2	2	2	1.4	1.4
Alkalinity - Total (mg CaCO3/L)	4.2	4.1	3.9	3.9	3.8	4.1	4.3	4.1	4.6	4.5
Alkalinity - Bicarbonate (mg CaCO3/L)	4.2	4.1	3.9	3.9	3.8	4.1	4.3	4.1	4.6	4.5
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	0.7	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride (mg/L)	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Sulphate (mg/L)	1	<1.0	1	<1.0	1.8	1	1.3	1.2	1.2	1.5
Free Ammonia (mg NH3-N/L)	0.005	0.011	0.013	0.007	0.007	<0.005	<0.005	0.017	0.007	0.009
Nitrate (mg NO3-N/L)	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	0.036	<0.005
Nitrite (mg NO2-N/L)	0.002	0.001	0.001	0.001	0.002	0.001	0.001	0.001	0.002	<0.001
Ortho-Phosphate (mg P/L)	0.003	0.003	0.003	0.002	0.002	0.001	0.002	0.003	0.002	0.005
Total Dissolved Phosphate (mg P/L)	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.006	0.006	0.005
Total Phosphorus (mg P/L)	0.004	0.004	0.004	0.005	0.005	0.004	0.004	0.008	0.008	0.006
Total Metals (mg/L)										
Aluminum	0.02	0.026	0.02	0.02	0.02	0.022	0.029	0.02	0.018	0.016
Antimony	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Barium	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0002	<0.0001	<0.0001	<0.0001
Calcium	0.587	0.788	0.797	0.579	0.748	0.827	0.981	0.561	0.781	0.781
Chromium	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	0.0006	0.0005	0.0007	0.0007	0.0008	0.0013	0.0006	0.0005	0.0005
Iron	0.02	0.02	0.04	<0.01	0.02	0.03	0.03	0.02	0.03	0.03
Lead	0.001	0.001	0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.001	0.004
Magnesium	0.415	0.548	0.574	0.454	0.488	0.499	0.489	0.385	0.597	0.604
Manganese	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00002	0.00002	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Uranium	0.00002	0.00004	0.00003	0.00004	0.00003	0.00003	0.00004	0.00002	0.00003	0.00002
Vanadium	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 15 Moose L. 7m 94 07 06	Site 15 Moose L. 9m 94 07 06	Site 16 Leslie-Moose 94 08 08	Site 17 Leslie L. 0m 94 07 14	Site 17 Leslie L. 3m 94 07 14	Site 17 Leslie L. 5m 94 07 14	Site 17 Leslie L. 8m 94 07 14	Site 17 Leslie L. 11m 94 07 14	Site 17 Leslie L. 0m 94 08 20	Site 17 Leslie L. 2m 94 08 21
Zinc	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.007	<0.001	<0.001	0.002
Dissolved Metals (mg/L)										
Aluminum	0.017	0.019	0.009	0.017	0.012	0.012	0.014	0.011	0.01	0.01
Antimony	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.58	0.788	0.744	0.57	0.715	0.631	0.783	0.56	0.77	0.778
Chromium	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	0.0006	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005
Iron	<0.01	0.01	0.01	<0.01	0.02	<0.01	<0.01	<0.01	0.01	0.01
Lead	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
Magnesium	0.41	0.546	0.551	0.409	0.48	0.424	0.48	0.38	0.592	0.599
Manganese	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.47	0.49	0.51	0.3	0.4	0.34	0.4	0.44	0.49	0.49
Selenium	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00002	0.00002	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Sodium	0.41	0.39	0.42	0.41	0.35	0.34	0.5	0.58	0.41	0.41
Uranium	0.00002	0.00002	0.00002	0.00002	0.00002	0.00003	0.00004	0.00002	0.00002	0.00001
Vanadium	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 17 Leslie L. 4m 94 08 21	Site 17 Leslie L. 6m 94 08 21	Site 17 Leslie L. 8m 94 08 21	Site 18 Long-Leslie 94 08 08	Site 19 Long L.(S) 0m 94 07 14	Site 19 Long L.(S) 7m 94 07 14	Site 19 Long L. (S) 15m 94 07 14	Site 19 Long L. (S) 22m 94 07 14	Site 19 Long L. (S) 30m 94 07 14	Site 19 Long (S) L. 0m 94 08 29
Conductivity (µmhos/cm)	12.5	12.4	12.3	10.8	10.5	10.9	10.6	10.8	10.8	11.2
Total Dissolved Solids (mg/L)	8	8	8	8	7	8	7	8	8	7
Hardness (mg CaCO3/L)	4.37	4.33	4.34	3.58	3.67	3.77	3.74	3.74	3.81	3.56
pH (units)	6.39	6.51	6.45	6.45	6.47	6.45	6.39	6.34	6.32	6.49
Total Suspended Solids (mg/L)	1	1	3	01	<1	<1	<1	<1	<1	1
Turbidity (NTU)	0.48	0.45	0.48	0.28	0.28	0.28	0.43	0.32	0.28	0.33
Acidity (mg CaCO3/L)	1.4	1.4	1.4	1.9	2	2	2	2	2	3
Alkalinity - Total (mg CaCO3/L)	5	4.7	4.5	3.1	3.2	3.7	3.3	3.5	3.5	4
Alkalinity - Bicarbonate (mg CaCO3/L)	5	4.7	4.6	3.1	3.2	3.7	3.3	3.5	3.5	4
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	0.5	0.6	0.7	0.7	0.7	0.7	<0.5
Fluoride (mg/L)	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.03
Sulphate (mg/L)	1.3	1.2	1	2.1	<1.0	<1.0	1.2	<1.0	1.2	<1.0
Free Ammonia (mg NH3-N/L)	0.007	0.008	0.01	0.008	0.01	0.01	0.011	0.021	0.013	0.011
Nitrate (mg NO3-N/L)	<0.005	0.008	<0.005	0.005	<0.005	<0.005	<0.005	0.005	0.007	<0.005
Nitrite (mg NO2-N/L)	<0.001	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
Ortho-Phosphate (mg P/L)	0.004	0.002	0.003	0.002	0.003	0.002	0.002	0.001	0.002	0.002
Total Dissolved Phosphate (mg P/L)	0.005	0.005	0.005	0.004	0.003	0.003	0.002	0.003	0.003	0.003
Total Phosphorus (mg P/L)	0.008	0.005	0.005	0.006	0.004	0.006	0.002	0.003	0.003	0.003
Total Metals (mg/L)										
Aluminum	0.017	0.022	0.014	0.027	0.015	0.02	0.02	0.016	0.019	0.02
Antimony	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Barium	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Calcium	0.777	0.773	0.773	0.715	0.454	0.645	0.699	0.573	0.659	0.736
Chromium	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0005	0.0005	0.0005	0.0007	0.0008	0.0008	0.0008	0.0008	0.0005
Iron	0.03	0.03	0.03	0.02	<0.01	0.01	0.01	0.02	0.02	0.02
Lead	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
Magnesium	0.591	0.597	0.593	0.477	0.29	0.404	0.43	0.351	0.405	0.484
Manganese	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00005	0.00004	0.00003	0.00003	0.00003	0.00004	0.00004	0.00004	0.00004	0.00003
Vanadium	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II. - A
Water Quality From Koala and Adjacent Watersheds

	Site 17 Leslie L. 4m 94 08 21	Site 17 Leslie L. 6m 94 08 21	Site 17 Leslie L. 8m 94 08 21	Site 18 Long-Leslie 94 08 08	Site 19 Long L.(S) 0m 94 07 14	Site 19 Long L.(S) 7m 94 07 14	Site 19 Long L. (S) 15m 94 07 14	Site 19 Long L. (S) 22m 94 07 14	Site 19 Long L. (S) 30m 94 07 14	Site 19 Long (S) L. 0m 94 08 29
Zinc	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.01	0.011	0.009	0.013	0.015	0.016	0.014	0.016	0.014	0.017
Antimony	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.777	0.762	0.762	0.674	0.45	0.64	0.69	0.57	0.65	0.674
Chromium	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0008	<0.0005	<0.0005	<0.0005	0.0005
Iron	0.01	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
Magnesium	0.589	0.59	0.593	0.46	0.29	0.4	0.43	0.35	0.4	0.456
Manganese	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.49	0.5	0.49	0.46	0.4	0.42	0.41	0.4	0.43	0.46
Selenium	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.42	0.42	0.41	0.39	0.54	0.6	0.55	0.55	0.63	0.41
Uranium	0.00002	0.00002	0.00002	0.00002	0.00003	0.00004	0.00003	0.00004	0.00003	0.00003
Vanadium	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 19 Long (S) L. 7m 94 08 29	Site 19 Long (S) L. 14m 94 08 28	Site 19 Long (S) L. 21m 94 08 28	Site 19 Long (S) L. 28m 94 08 28	Site 20 Long L. (N) A 0m 94 07 15	Site 20 Long L. (N) B 0m 94 07 15	Site 20 Long L. (N) C 0m 94 07 15	Site 20 Long L. (N) A 5m 94 07 15	Site 20 Long L. (N) B 5m 94 07 15	Site 20 Long L. (N) C 5m 94 07 15
Conductivity (µmhos/cm)	11	11	11.1	11.3	10.7	11.1	10.9	11	10.9	10.8
Total Dissolved Solids (mg/L)	7	7	7	7	7	8	7	8	7	7
Hardness (mg CaCO3/L)	3.61	3.66	3.59	3.59	4.26	3.81	3.74	3.81	4.03	3.73
pH (units)	6.47	6.43	6.44	6.32	6.5	6.44	6.4	6.41	6.33	6.4
Total Suspended Solids (mg/L)	<1	1	<1	2	<1	<1	<1	<1	<1	<1
Turbidity (NTU)	0.29	0.3	0.39	0.29	0.23	0.24	0.24	0.23	0.28	0.31
Acidity (mg CaCO3/L)	2	2	2	2	2	2	2	2	2	2
Alkalinity - Total (mg CaCO3/L)	3.7	4.1	3.6	3.8	4.1	2.9	3.5	3.4	4	3.6
Alkalinity - Bicarbonate (mg CaCO3/L)	3.7	4.1	3.6	3.8	4.1	2.9	3.5	3.4	4	3.6
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	0.5	<0.5	0.7	0.7	<0.5	<0.5	<0.5	<0.5
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02
Sulphate (mg/L)	<1.0	<1.0	<1.0	<1.0	1.1	1.4	2	1.5	1.3	1.9
Free Ammonia (mg NH3-N/L)	0.012	0.011	0.011	0.019	0.007	<0.005	<0.005	<0.005	<0.005	0.005
Nitrate (mg NO3-N/L)	<0.005	0.029	0.01	0.025	<0.005	0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	<0.001	0.004	0.004	0.005	<0.001	0.001	0.001	0.001	0.001	0.001
Ortho-Phosphate (mg P/L)	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.001
Total Dissolved Phosphate (mg P/L)	0.003	0.003	0.003	0.005	0.002	0.003	0.003	0.003	0.003	0.004
Total Phosphorus (mg P/L)	0.003	0.003	0.005	0.006	0.003	0.005	0.003	0.004	0.004	0.004
Total Metals (mg/L)										
Aluminum	0.018	0.019	0.019	0.022	0.02	0.023	0.02	0.025	0.02	0.016
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0005	<0.0001
Arsenic	0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.693	0.724	0.751	0.725	0.755	0.78	0.822	0.771	0.745	0.648
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.02	<0.0005	0.001	0.0011	0.001	0.0008	0.0016	0.0009	0.0006
Iron	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.01
Lead	0.001	0.002	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.472	0.484	0.514	0.48	0.471	0.483	0.471	0.463	0.438	0.315
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002
Uranium	0.00003	0.00003	0.00003	0.00003	0.00003	0.00004	0.00005	0.00004	0.00004	0.00004
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 19 Long (S) L. 7m 94 08 29	Site 19 Long (S) L. 14m 94 08 28	Site 19 Long (S) L. 21m 94 08 28	Site 19 Long (S) L. 28m 94 08 28	Site 20 Long L. (N) A 0m 94 07 15	Site 20 Long L. (N) B 0m 94 07 15	Site 20 Long L. (N) C 0m 94 07 15	Site 20 Long L. (N) A 5m 94 07 15	Site 20 Long L. (N) B 5m 94 07 15	Site 20 Long L. (N) C 5m 94 07 15
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.009	0.002
Dissolved Metals (mg/L)										
Aluminum	0.016	0.016	0.015	0.018	0.014	0.014	0.017	0.014	0.014	0.013
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.693	0.711	0.69	0.689	0.75	0.748	0.748	0.77	0.74	0.64
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	0.0005	<0.0005	0.001	<0.0005	<0.0005	0.0005	0.0005	0.0009	<0.0005
Iron	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.455	0.457	0.454	0.455	0.47	0.471	0.454	0.458	0.43	0.31
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.46	0.46	0.46	0.45	0.45	0.27	0.43	0.45	0.46	0.45
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.42	0.42	0.43	0.4	0.59	0.55	0.56	0.62	0.61	0.67
Uranium	0.00002	0.00003	0.00002	0.00003	0.00003	0.00004	0.00003	0.00004	0.00003	0.00004
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.002

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 20 Long L. (N) A 11m 94 07 15	Site 20 Long L. (N) B 11m 94 07 15	Site 20 Long L. (N) C 11m 94 07 15	Site 20 Long L. (N) A 16m 94 07 15	Site 20 Long L. (N) B 16m 94 07 15	Site 20 Long L. (N) C 16m 94 07 15	Site 20 Long L. (N) A 21m 94 07 15	Site 20 Long L. (N) B 21m 94 07 15	Site 20 Long L. (N) C 21m 94 07 15	Site 20 Long (N) L. 0m 94 08 28
Conductivity (µmhos/cm)	11.1	11.1	11.4	12.1	11.8	11	12.6	11.2	11	11.1
Total Dissolved Solids (mg/L)	8	8	8	8	8	7	9	8	8	7
Hardness (mg CaCO3/L)	3.8	3.7	3.45	3.75	4.16	2.01	3.8	3.78	3.41	3.53
pH (units)	6.3	6.35	6.41	6.4	6.42	6.36	6.3	6.3	6.35	6.5
Total Suspended Solids (mg/L)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Turbidity (NTU)	0.35	0.34	0.34	0.37	0.28	0.25	0.24	0.32	0.27	0.35
Acidity (mg CaCO3/L)	2	2	2	2	2	2	2	2	2	1
Alkalinity - Total (mg CaCO3/L)	3.8	3.6	3.3	3.7	3.9	3.3	3.3	3.7	3.5	3.7
Alkalinity - Bicarbonate (mg CaCO3/L)	3.8	3.6	3.3	3.7	3.9	3.3	3.3	3.7	3.5	3.7
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.5	0.5	<0.5	0.5
Fluoride (mg/L)	<0.02	<0.02	<0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
Sulphate (mg/L)	1.7	1 4	1.1	1.6	1.3	1	1.8	1.1	1.2	<1.0
Free Ammonia (mg NH3-N/L)	<0.005	0.006	0.007	0.007	0.011	0.005	0.005	0.007	0.009	0.01
Nitrate (mg NO3-N/L)	<0.005	<0.005	0.005	<0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
Ortho-Phosphate (mg P/L)	0.002	0.002	0.001	0.004	0.002	0.002	0.002	0.002	0.002	0.003
Total Dissolved Phosphate (mg P/L)	0.004	0.004	0.003	0.004	0.004	0.005	0.004	0.004	0.004	0.005
Total Phosphorus (mg P/L)	0.005	0.004	0.008	0.005	0.007	0.005	0.005	0.005	0.004	0.006
Total Metals (mg/L)										
Aluminum	0.023	0.021	0.023	0.021	0.025	0.023	0.003	0.016	0.021	0.025
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.769	0.851	0.475	0.78	0.757	0.762	0.804	0.541	0.737	0.739
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0009	0.001	0.0007	0.001	0.0011	0.0015	0.0012	0.0007	0.0011	0.001
Iron	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.04
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01
Magnesium	0.467	0.457	0.287	0.458	0.47	0.466	0.461	0.321	0.454	0.507
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00004	0.00004	0.00002	0.00005	0.00004	0.00005	0.00004	0.00003	0.00005	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 20 Long L. (N) A 11m 94 07 15	Site 20 Long L. (N) B 11m 94 07 15	Site 20 Long L. (N) C 11m 94 07 15	Site 20 Long L. (N) A 16m 94 07 15	Site 20 Long L. (N) B 16m 94 07 15	Site 20 Long L. (N) C 16m 94 07 15	Site 20 Long L. (N) A 21m 94 07 15	Site 20 Long L. (N) B 21m 94 07 15	Site 20 Long L. (N) C 21m 94 07 15	Site 20 Long (N) L. 0m 94 08 28
Zinc	<0.001	0.008	0.002	<0.001	0.001	0.001	0.003	<0.001	0.008	0.002
Dissolved Metals (mg/L)										
Aluminum	0.014	0.013	0.016	0.017	0.015	0.02	0.003	0.015	0.021	0.011
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.762	0.743	0.47	0.753	0.75	0.408	0.776	0.54	0.686	0.672
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.001
Iron	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006
Magnesium	0.46	0.449	0.28	0.455	0.47	0.241	0.452	0.32	0.414	0.451
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.44	0.41	0.39	0.4	0.51	0.21	0.43	0.46	0.38	0.45
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.71	0.61	0.52	0.53	0.72	0.29	0.54	0.61	0.53	0.43
Uranium	0.00004	0.00003	0.00002	0.00003	0.00004	0.00003	0.00002	0.00003	0.00003	0.00002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	0.002	<0.001	0.002	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 20 Long (N) L. 6m 94 08 28	Site 20 Long (N) L. 11m 94 08 28	Site 20 Long (N) L. 17m 94 08 28	Site 20 Long (N) L. 23m 94 08 28	Site 21 Nancy-Long 94 08 09	Site 22 Little-Moose 94 08 04	Site 24 Kodiak-Little 94 08 03	Site 25 Kodiak L. 0m 94 07 02	Site 25 Kodiak L. 3m 94 07 02	Site 25 Kodiak L. 5m 94 07 02
Conductivity (µmhos/cm)	11.1	10.7	11.3	11.1	17	17	17.7	18	17.6	17
Total Dissolved Solids (mg/L)	7	6	7	7	11	12	13	13	13	12
Hardness (mg CaCO3/L)	3.49	3.64	3.55	3.62	5.53	5.29	5.85	3.47	5.12	4.74
pH (units)	6.5	6.5	6.49	6.48	5.5	6.39	6.64	5.5	5.66	5.62
Total Suspended Solids (mg/L)	<1	<1	1	2	3	01	1	7	5	5
Turbidity (NTU)	0.39	0.3	0.43	0.34	1 19	0.44	0.63	2.82	2.97	1 12
Acidity (mg CaCO3/L)	2	2	1	2	18.9	1.9	1.9	2	2	2
Alkalinity - Total (mg CaCO3/L)	3.4	3.5	3.9	3.8	5.5	3.8	4.6	3.5	4.8	4.7
Alkalinity - Bicarbonate (mg CaCO3/L)	3.4	3.5	3.9	3.8	5.5	3.8	4.6	3.5	4.8	4.7
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	1.0	1.0	1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	0.5	<0.5	<0.5	0.8	1.1	1.3	1.3	1.2	1.1
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03
Sulphate (mg/L)	1.7	<1.0	<1.0	1 1	1.0	1.4	1.5	<1.0	<1.0	1.2
Free Ammonia (mg NH3-N/L)	0.017	0.008	0.013	0.012	0.005	0.005	0.019	<0.005	<0.005	<0.005
Nitrate (mg NO3-N/L)	<0.005	<0.005	0.033	0.012	0.005	0.088	0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	<0.001	<0.001	0.018	0.002	0.002	0.002	0.002	0.003	0.003	0.003
Ortho-Phosphate (mg P/L)	0.002	0.002	0.002	0.002	0.005	0.098	0.004	0.009	0.009	0.006
Total Dissolved Phosphate (mg P/L)	0.005	0.002	0.004	0.003	0.008	0.104	0.007	0.013	0.009	0.011
Total Phosphorus (mg P/L)	0.006	0.003	0.004	0.003	0.01	0.106	0.007	0.015	0.013	0.014
Total Metals (mg/L)										
Aluminum	0.018	0.023	0.02	0.021	0.213	0.024	0.029	0.145	0.184	0.128
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0002	0.0001	0.0001	0.0001	0.0002
Barium	<0.010	<0.010	<0.010	<0.010	0.01	0.010	0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	0.050	0.050	0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	<0.0001	<0.0001	<0.0001
Calcium	0.716	0.706	0.72	0.705	1.02	1.2	1.19	0.635	1.03	0.817
Chromium	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0005	0.001	0.001	0.002	0.001	0.001	0.0006	0.0007	0.0011
Iron	0.02	0.02	0.02	0.02	0.82	0.07	0.05	0.08	0.11	0.11
Lead	<0.001	<0.001	0.001	0.002	0.001	0.001	0.001	0.0009	0.0005	0.0014
Magnesium	0.486	0.477	0.498	0.485	0.726	0.71	0.807	0.462	0.77	0.666
Manganese	<0.005	<0.005	<0.005	<0.005	0.011	0.008	0.005	<0.005	<0.005	<0.005
Mercury	0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Nickel	<0.001	0.001	0.001	<0.001	0.002	0.001	0.001	0.0022	0.003	0.0028
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00002
Uranium	0.00003	0.00003	0.00003	0.00003	0.0001	0.00003	0.00004	0.00005	0.00007	0.00006
Vanadium	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 20 Long (N) L. 6m 94 08 28	Site 20 Long (N) L. 11m 94 08 28	Site 20 Long (N) L. 17m 94 08 28	Site 20 Long (N) L. 23m 94 08 28	Site 21 Nancy-Long 94 08 09	Site 22 Little-Moose 94 08 04	Site 24 Kodiak-Little 94 08 03	Site 25 Kodiak L. 0m 94 07 02	Site 25 Kodiak L. 3m 94 07 02	Site 25 Kodiak L. 5m 94 07 02
Zinc	<0.001	<0.001	<0.001	0.002	0.004	0.002	0.004	0.005	0.003	0.002
Dissolved Metals (mg/L)										
Aluminum	0.013	0.014	0.015	0.014	0.15	0.024	0.02	0.023	0.01	0.027
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	0.0002	0.0001	0.0001	0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	0.01	0.010	0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	0.050	0.050	0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0002	<0.0001	<0.0001	<0.0001
Calcium	0.663	0.69	0.653	0.702	1.02	1.03	1.08	0.63	0.969	0.81
Chromium	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Copper	0.0005	<0.0005	0.0005	0.0005	0.002	0.0005	0.0005	0.0006	0.0007	0.0011
Iron	<0.01	<0.01	<0.01	<0.01	0.26	0.02	0.01	0.03	<0.01	0.03
Lead	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.0005	<0.0005	<0.0005
Magnesium	0.446	0.466	0.466	0.454	0.726	0.661	0.769	0.46	0.655	0.66
Manganese	<0.005	<0.005	<0.005	<0.005	0.011	0.005	0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.001	0.0015	0.0015	0.0019
Potassium	0.45	0.47	0.46	0.46	0.35	0.56	0.57	0.31	0.51	0.52
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001	0.00001
Sodium	0.42	0.42	0.42	0.43	0.64	0.59	0.6	0.39	0.5	0.53
Uranium	0.00002	0.00002	0.00001	0.00002	0.00008	0.00003	0.00003	0.00004	0.00003	0.00004
Vanadium	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	0.002	0.002	0.001	0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 25 Kodiak L. 8m 94 07 02	Site 25 Kodiak L. 11m 94 07 02	Site 25 Kodiak L. A 0m 94 08 19	Site 25 Kodiak L. B 0m 94 08 19	Site 25 Kodiak L. C 0m 94 08 19	Site 25 Kodiak L. A 3m 94 08 19	Site 25 Kodiak L. B 3m 94 08 19	Site 25 Kodiak L. C 3m 94 08 19	Site 25 Kodiak L. A 5m 94 08 19	Site 25 Kodiak L. B 5m 94 08 19
Conductivity (µmhos/cm)	16.9	16.8	17.7	17 4	17	17.2	17	17	17	17
Total Dissolved Solids (mg/L)	12	12	11	11	11	12	12	11	11	11
Hardness (mg CaCO3/L)	4.85	4.31	6.13	6.09	6.1	6.22	6.11	6.07	6.05	6.03
pH (units)	5.53	5.53	6.55	6.45	6.59	6.45	6.43	6.45	6.36	6.6
Total Suspended Solids (mg/L)	3	11	3	<1	<1	<1	<1	<1	<1	1
Turbidity (NTU)	2.62	4.34	0.82	0.79	0.82	0.74	0.71	0.65	0.62	0.63
Acidity (mg CaCO3/L)	2	2	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Alkalinity - Total (mg CaCO3/L)	4.5	4.6	4.7	4.9	5	5.4	4.9	5.1	5.2	5.1
Alkalinity - Bicarbonate (mg CaCO3/L)	4.5	4.6	4.6	4.9	5	5.4	4.9	5.1	5.2	5.1
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	1.2	1.4	0.8	0.9	0.8	0.9	1.2	0.7	0.6	0.9
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Sulphate (mg/L)	<1.0	<1.0	1.5	1.1	1.5	1.8	1.7	1.2	1.6	2
Free Ammonia (mg NH3-N/L)	<0.005	<0.005	0.008	0.008	0.006	0.007	0.007	0.008	0.007	0.007
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.003	0.003	0.001	0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001
Ortho-Phosphate (mg P/L)	0.01	0.011	0.005	0.004	0.004	0.004	0.004	0.005	0.005	0.005
Total Dissolved Phosphate (mg P/L)	0.01	0.016	0.008	0.007	0.008	0.007	0.008	0.008	0.007	0.008
Total Phosphorus (mg P/L)	0.012	0.025	0.008	0.008	0.008	0.007	0.01	0.008	0.009	0.008
Total Metals (mg/L)										
Aluminum	0.182	0.302	0.027	0.025	0.025	0.023	0.026	0.026	0.025	0.029
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0002	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.02	0.947	1.14	1.15	1.15	1.14	1.14	1.13	1.15	1.14
Chromium	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0013	0.001	0.0015	0.001	0.001	0.001	0.001	0.001	0.001
Iron	0.1	0.41	0.03	0.04	0.04	0.03	0.03	0.03	0.03	0.03
Lead	<0.0005	0.0005	0.002	0.003	0.002	0.002	0.002	0.002	<0.001	<0.001
Magnesium	0.749	0.819	0.801	0.804	0.816	0.818	0.815	0.801	0.809	0.81
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Nickel	0.0028	0.0033	<0.001	0.002	0.001	0.001	0.001	0.001	<0.001	0.002
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00003	0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00008	0.0001	0.00004	0.00004	0.00004	0.00003	0.00005	0.00005	0.00005	0.00005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 25 Kodiak L. 8m 94 07 02	Site 25 Kodiak L. 11m 94 07 02	Site 25 Kodiak L. A 0m 94 08 19	Site 25 Kodiak L. B 0m 94 08 19	Site 25 Kodiak L. C 0m 94 08 19	Site 25 Kodiak L. A 3m 94 08 19	Site 25 Kodiak L. B 3m 94 08 19	Site 25 Kodiak L. C 3m 94 08 19	Site 25 Kodiak L. A 5m 94 08 19	Site 25 Kodiak L. B 5m 94 08 19
Zinc	0.004	0.004	0.001	0.003	<0.001	<0.001	0.001	<0.001	<0.001	0.001
Dissolved Metals (mg/L)										
Aluminum	0.006	0.017	0.015	0.015	0.015	0.014	0.019	0.015	0.016	0.017
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.932	0.822	1.13	1.13	1.12	1.14	1.13	1.12	1.12	1.11
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0013	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Iron	<0.01	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.0005	<0.0005	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001
Magnesium	0.613	0.55	0.801	0.793	0.803	0.818	0.798	0.796	0.79	0.794
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.0015	0.0015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.48	0.36	0.54	0.54	0.54	0.54	0.55	0.54	0.54	0.55
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.48	0.44	0.59	0.59	0.59	0.6	0.61	0.6	0.6	0.6
Uranium	0.00005	0.00004	0.00003	0.00004	0.00002	0.00003	0.00003	0.00004	0.00003	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.002	0.003	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 25 Kodiak L. C 5m 94 08 19	Site 25 Kodiak L. A 8m 94 08 19	Site 25 Kodiak L. B 8m 94 08 19	Site 25 Kodiak L. C 8m 94 08 19	Site 25 Kodiak L. A 11m 94 08 19	Site 25 Kodiak L. B 11m 94 08 19	Site 25 Kodiak L. C 11m 94 08 19	Site 29 Panda L. 0m 94 06 28	Site 29 Panda L. 4m 94 06 28	Site 29 Panda L. 8m 94 06 28
Conductivity (µmhos/cm)	17	17 1	17	17	16.9	16.9	17	16	14	13.6
Total Dissolved Solids (mg/L)	11	12	11	10	11	11	10	11	10	10
Hardness (mg CaCO3/L)	6.37	6.48	6.27	6.19	6.16	6.15	6.17	2.51	3.12	2.94
pH (units)	6.44	6.59	6.47	6.52	6.5	6.52	6.4	6.57	6.53	6.45
Total Suspended Solids (mg/L)	2	<1	<1	<1	14	13	17	3	3	5
Turbidity (NTU)	0.68	0.65	0.76	0.63	0.26	3.12	5.34	1.75	2.03	1.9
Acidity (mg CaCO3/L)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1	<1.0	<1.0
Alkalinity - Total (mg CaCO3/L)	4.8	5	5	5.3	5.5	4.8	4.6	2.5	4.1	3.9
Alkalinity - Bicarbonate (mg CaCO3/L)	4.8	5	5	5.3	5.5	4.8	4.6	2.5	4.1	3.9
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.8	0.9	0.6	0.8	1	0.9	1	0.6	0.5	0.7
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	<0.02	<0.02	<0.02
Sulphate (mg/L)	1.7	1.5	1.9	1.2	1 1	2.1	1.2	<1.0	1	<1.0
Free Ammonia (mg NH3-N/L)	0.008	0.008	0.007	0.007	0.007	0.007	0.007	0.013	0.018	0.01
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001
Ortho-Phosphate (mg P/L)	0.006	0.004	0.005	0.005	0.005	0.005	0.005	0.007	0.007	0.005
Total Dissolved Phosphate (mg P/L)	0.006	0.007	0.007	0.007	0.009	0.01	0.012	0.007	0.007	0.006
Total Phosphorus (mg P/L)	0.015	0.007	0.007	0.008	0.027	0.026	0.034	0.007	0.008	0.009
Total Metals (mg/L)										
Aluminum	0.027	0.025	0.033	0.029	0.027	0.028	0.026	0.065	0.084	0.062
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0001	0.0002	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.19	1.22	1.23	1.16	1.13	1.13	1.15	0.469	0.628	0.552
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0005	0.001	0.001	0.001	0.001	0.001	0.0006	0.0011	0.0008
Iron	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Lead	<0.001	<0.001	0.004	0.001	<0.001	<0.001	<0.001	<0.0005	0.0012	0.0005
Magnesium	0.825	0.844	0.857	0.819	0.822	0.825	0.821	0.339	0.442	0.383
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.00001
Uranium	0.00004	0.00004	0.00005	0.00004	0.00005	0.00005	0.00004	0.00002	0.00003	0.00002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 25 Kodiak L. C 5m 94 08 19	Site 25 Kodiak L. A 8m 94 08 19	Site 25 Kodiak L. B 8m 94 08 19	Site 25 Kodiak L. C 8m 94 08 19	Site 25 Kodiak L. A 11m 94 08 19	Site 25 Kodiak L. B 11m 94 08 19	Site 25 Kodiak L. C 11m 94 08 19	Site 29 Panda L. 0m 94 06 28	Site 29 Panda L. 4m 94 06 28	Site 29 Panda L. 8m 94 06 28
Zinc	<0.001	<0.001	0.002	0.002	<0.001	0.001	<0.001	<0.001	0.005	<0.001
Dissolved Metals (mg/L)										
Aluminum	0.015	0.015	0.015	0.014	0.014	0.018	0.015	0.024	0.026	0.031
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.19	1.2	1.16	1.15	1.11	1.11	1.13	0.46	0.602	0.55
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0005	0.0005	0.001	0.001	0.001	0.001	0.0006	0.0008	0.0008
Iron	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02
Lead	<0.001	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	<0.0005	0.0007	<0.0005
Magnesium	0.825	0.844	0.818	0.804	0.821	0.823	0.812	0.33	0.392	0.38
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0012	0.0013	0.0019
Potassium	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.21	0.28	0.4
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.59	0.6	0.6	0.59	0.6	0.61	0.6	0.19	0.25	0.35
Uranium	0.00003	0.00004	0.00002	0.00003	0.00003	0.00003	0.00004	0.00002	0.00002	0.00002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 29 Panda L. 12m 94 06 28	Site 29 Panda L. 16m 94 06 28	Site 29 Panda L. 0m 94 08 12	Site 29 Panda L. 4m 94 08 12	Site 29 Panda L. 8m 94 08 12	Site 29 Panda L. 12m 94 08 12	Site 29 Panda L. 17m 94 08 12	Site 23 Little L. 0m 94 07 04	Site 23 Little L. 4m 94 07 04	Site 23 Little L. 8m 94 07 04
Conductivity (µmhos/cm)	13.6	13.5	15.2	14.4	15.7	21.4	15.1	15	15	14.6
Total Dissolved Solids (mg/L)	10	9	12	12	12	15	11	11	11	10
Hardness (mg CaCO3/L)	3.05	3.43	5.28	3.1	4.7	5.18	4.07	2.43	3.12	4.34
pH (units)	6.46	6.51	6.52	6.44	6.32	6.54	6.51	5.64	5.67	5.72
Total Suspended Solids (mg/L)	1	5	3	<1	2	<1	<1	1	3	2
Turbidity (NTU)	1.86	1.92	0.75	0.88	0.79	0.8	0.58	1.72	1.83	2.02
Acidity (mg CaCO3/L)	<1.0	2	<1.0	1.9	2	3	3.8	2	2	2
Alkalinity - Total (mg CaCO3/L)	3.3	3.5	4	3.5	3.5	6	4	3.5	4.2	4.2
Alkalinity - Bicarbonate (mg CaCO3/L)	3.3	3.5	4	3.5	3.5	6	4	3.5	4.2	4.2
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.8	0.6	1.6	0.8	0.8	0.7	0.6	1.1	0.9	1
Fluoride (mg/L)	<0.02	<0.02	0.04	0.04	0.04	0.03	0.03	0.02	0.03	0.02
Sulphate (mg/L)	<1.0	<1.0	1.1	<1.0	1	<1.0	<1.0	<1.0	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.008	0.011	0.011	0.011	0.019	0.044	0.019	<0.005	<0.005	<0.005
Nitrate (mg NO3-N/L)	<0.005	<0.005	0.019	0.018	0.011	0.011	0.014	<0.005	<0.005	0.018
Nitrite (mg NO2-N/L)	0.002	0.002	0.002	0.002	0.002	<0.001	0.002	0.003	0.003	0.005
Ortho-Phosphate (mg P/L)	0.007	0.005	0.004	0.004	0.003	0.003	0.005	0.002	0.006	0.007
Total Dissolved Phosphate (mg P/L)	0.008	0.007	0.006	0.006	0.007	0.007	0.006	0.002	0.009	0.007
Total Phosphorus (mg P/L)	0.008	0.01	0.007	0.008	0.007	0.007	0.008	0.002	0.013	0.009
Total Metals (mg/L)										
Aluminum	0.066	0.079	0.05	0.038	0.053	0.036	0.04	0.073	0.091	0.263
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	0.0001	0.0032	<0.0001	0.0001	0.0026	<0.0001	<0.0001	0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	0.011	0.012	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.569	0.634	0.972	0.613	1 18	0.977	0.764	0.439	0.562	0.803
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0008	0.001	0.0015	0.0005	0.001	0.0005	0.0005	0.0007	0.0006	0.0008
Iron	0.03	0.03	0.02	0.02	0.02	<0.01	0.02	0.09	0.09	0.12
Lead	<0.0005	0.0005	0.002	<0.001	<0.001	<0.001	<0.001	<0.0005	0.0007	0.0008
Magnesium	0.403	0.459	0.699	0.428	0.801	0.678	0.524	0.333	0.418	0.571
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.0018	0.002	0.002	0.001	0.002	0.002	0.002	0.0011	0.001	0.0019
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.00002	0.00002	0.00002
Uranium	0.00002	0.00004	0.00003	0.00002	0.00004	0.00003	0.00003	0.00004	0.00005	0.00007
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 29 Panda L. 12m 94 06 28	Site 29 Panda L. 16m 94 06 28	Site 29 Panda L. 0m 94 08 12	Site 29 Panda L. 4m 94 08 12	Site 29 Panda L. 8m 94 08 12	Site 29 Panda L. 12m 94 08 12	Site 29 Panda L. 17m 94 08 12	Site 23 Little L. 0m 94 07 04	Site 23 Little L. 4m 94 07 04	Site 23 Little L. 8m 94 07 04
Zinc	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.013	0.002
Dissolved Metals (mg/L)										
Aluminum	0.03	0.032	0.039	0.021	0.027	0.033	0.035	0.034	0.022	0.023
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001	0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.56	0.63	0.967	0.58	0.881	0.97	0.764	0.43	0.56	0.8
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0008	<0.0005	0.001	0.0005	0.0005	0.0005	0.0005	0.0007	0.0006	0.0008
Iron	0.02	0.02	0.01	<0.01	<0.01	<0.01	<0.01	0.02	0.02	0.02
Lead	<0.0005	<0.0005	0.002	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	0.0008
Magnesium	0.4	0.45	0.696	0.401	0.606	0.67	0.524	0.33	0.417	0.57
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.0016	0.0017	0.002	<0.001	0.002	0.002	0.002	0.0011	0.001	0.0016
Potassium	0.36	0.38	0.47	0.22	0.27	0.38	0.39	0.5	0.45	0.49
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00002	0.00002
Sodium	0.32	0.38	0.52	0.26	0.32	0.36	0.42	0.57	0.58	0.53
Uranium	0.00002	0.00002	0.00003	0.00002	0.00002	0.00002	0.00003	0.00004	0.00005	0.00006
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 23 Little L. 13m 94 07 04	Site 23 Little L. 19m 94 07 04	Max	Min	Mean	STD
Conductivity (µmhos/cm)	14.6	15.3	21.4	8.7	13.015094	2.2558735
Total Dissolved Solids (mg/L)	10	11	89	6	9.2216981	5.7789372
Hardness (mg CaCO3/L)	5.01	4.06	45.5	1.37	4.0884906	3.0215712
pH (units)	5.64	5.42	6.73	4.6	6.3104245	0.2835779
Total Suspended Solids (mg/L)	2	5	67	1	3.5473684	7 1082338
Turbidity (NTU)	2.25	2.31	20.5	0.17	0.8342857	1.5504359
Acidity (mg CaCO3/L)	2	3	18.9	1	2.1190955	1.8828672
Alkalinity - Total (mg CaCO3/L)	4	4.3	6.3	2	3.8293839	0.7511826
Alkalinity - Bicarbonate (mg CaCO3/L)	4	4.3	6.3	2	3.8279621	0.7510153
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	0	0	#DIV/0!	#DIV/0!
Chloride (mg/L)	0.9	0.9	1.6	0.5	0.7821192	0.2251181
Fluoride (mg/L)	0.02	0.02	0.4	0.02	0.0642162	0.1086906
Sulphate (mg/L)	1.2	<1.0	49.3	1	1.7952	4.2988344
Free Ammonia (mg NH3-N/L)	0.005	<0.005	0.067	0.005	0.0110938	0.0076912
Nitrate (mg NO3-N/L)	0.024	0.085	0.097	0.005	0.0162687	0.0199602
Nitrite (mg NO2-N/L)	0.004	0.004	0.018	0.001	0.0016568	0.0015081
Ortho-Phosphate (mg P/L)	0.008	0.007	0.098	0.001	0.0040284	0.0067195
Total Dissolved Phosphate (mg P/L)	0.009	0.01	0.104	0.001	0.0059764	0.0071175
Total Phosphorus (mg P/L)	0.01	0.011	0.106	0.001	0.0077925	0.0094895
Total Metals (mg/L)						
Aluminum	0.164	0.112	0.431	0.003	0.0357793	0.0490341
Antimony	<0.0001	<0.0001	0.0005	0.0005	0.0005	#DIV/0!
Arsenic	0.0002	0.0001	0.0032	0.0001	0.0002143	0.0004961
Barium	<0.010	<0.010	0.065	0.01	0.0245	0.0270123
Beryllium	<0.003	<0.003	0	0	#DIV/0!	#DIV/0!
Boron	<0.050	<0.050	0	0	#DIV/0!	#DIV/0!
Cadmium	<0.0001	<0.0001	0.0003	0.0001	0.0001318	5.679E-05
Calcium	1.02	0.794	9.38	0.339	0.806545	0.6080554
Chromium	<0.001	<0.001	0.002	0.001	0.0011667	0.0004082
Cobalt	<0.001	<0.001	0.007	0.007	0.007	#DIV/0!
Copper	0.001	0.0008	0.02	0.0005	0.0010272	0.0013724
Iron	0.1	0.13	0.82	0.01	0.0482126	0.0806117
Lead	0.0009	0.0009	0.01	0.0005	0.0020699	0.0019673
Magnesium	0.648	0.559	6.22	0.21	0.5393559	0.4060577
Manganese	<0.005	<0.005	0.129	0.005	0.010875	0.0252179
Mercury	<0.00005	<0.00005	0.00005	0.00005	0.00005	0
Molybdenum	<0.001	<0.001	0.002	0.001	0.00125	0.0005
Nickel	0.002	0.0016	0.014	0.0005	0.0017176	0.0016675
Selenium	<0.0005	<0.0005	0	0	#DIV/0!	#DIV/0!
Silver	0.00002	0.00002	0.00003	0.00001	1.638E-05	7.35E-06
Uranium	0.00007	0.00006	0.0001	0.00001	3.828E-05	1.566E-05
Vanadium	<0.005	<0.005	0.006	0.005	0.0053333	0.0005774

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 23 Little L. 13m 94 07 04	Site 23 Little L. 19m 94 07 04	Max	Min	Mean	STD
Zinc	0.005	0.003	0.024	0.001	0.0032727	0.0035786
Dissolved Metals (mg/L)						
Aluminum	0.033	0.027	0.377	0.002	0.0175249	0.027671
Antimony	<0.0001	<0.0001	0	0	#DIV/0!	#DIV/0!
Arsenic	<0.0001	<0.0001	0.0004	0.0001	0.0001147	5.577E-05
Barium	<0.010	<0.010	0.054	0.01	0.032	0.0311127
Beryllium	<0.003	<0.003	0	0	#DIV/0!	#DIV/0!
Boron	<0.050	<0.050	0	0	#DIV/0!	#DIV/0!
Cadmium	<0.0001	<0.0001	0.0002	0.0001	0.00015	5.774E-05
Calcium	1.01	0.79	8.44	0.282	0.7617613	0.5502291
Chromium	<0.001	<0.001	0	0	#DIV/0!	#DIV/0!
Cobalt	<0.001	<0.001	0.006	0.006	0.006	#DIV/0!
Copper	0.001	0.0008	0.002	0.0005	0.0008083	0.0002532
Iron	0.04	0.03	0.26	0.01	0.0218519	0.0246527
Lead	0.0009	0.0006	0.006	0.0005	0.0018906	0.0015363
Magnesium	0.604	0.507	5.93	0.162	0.5109775	0.389934
Manganese	<0.005	<0.005	0.106	0.011	0.0585	0.0671751
Mercury	<0.00005	<0.00005	0	0	#DIV/0!	#DIV/0!
Molybdenum	<0.001	<0.001	0	0	#DIV/0!	#DIV/0!
Nickel	0.0014	0.0015	0.013	0.0006	0.0018933	0.0021383
Potassium	0.5	0.45	1.36	0.2	0.4483784	0.1054878
Selenium	<0.0005	<0.0005	0	0	#DIV/0!	#DIV/0!
Silver	0.00002	0.00002	0.00002	0.00001	0.0000125	4.399E-06
Sodium	0.6	0.48	1.84	0.03	0.5247273	0.1952786
Uranium	0.00005	0.00005	0.00008	0.00001	2.859E-05	1.212E-05
Vanadium	<0.005	<0.005	0	0	#DIV/0!	#DIV/0!
Zinc	0.003	<0.001	0.015	0.001	0.002	0.0024121

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 26 Koala-Kodiak 94 08 02	Site 27 Koala L. A 0m 94 07 03	Site 27 Koala L B 0m 94 07 03	Site 27 Koala L C 0m 94 07 03	Site 27 Koala L A 5m 94 07 03	Site 27 Koala L B 5m 94 07 03	Site 27 Koala L. C 5m 94 07 03	Site 27 Koala L. A 9m 94 07 03	Site 27 Koala L B 9m 94 07 03
Conductivity (µmhos/cm)	33.5	21.7	21.6	21.6	21.9	21.6	21.5	19.6	20.6
Total Dissolved Solids (mg/L)	22	15	15	15	15	15	15	14	14
Hardness (mg CaCO3/L)	10.7	8.05	8.21	8.42	8.44	8.29	8.17	8.48	8.05
pH (units)	7 16	5.95	5.85	5.85	5.73	5.9	5.91	6.1	6.13
Total Suspended Solids (mg/L)	3	7	8	9	8	8	9	11	10
Turbidity (NTU)	4.19	3.92	6.52	6.22	7.54	8.09	7.85	8.2	7 12
Acidity (mg CaCO3/L)	1.9	2	2	2	2	2	2	2	2
Alkalinity - Total (mg CaCO3/L)	8.2	6.3	6.3	6.5	6.7	6.6	6.5	6.5	5.9
Alkalinity - Bicarbonate (mg CaCO3/L)	8.2	6.3	6.3	6.5	6.7	6.6	6.5	5.7	6.5
Alkalinity - Carbonate (mg CaCO3/L)	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	3.2	1.4	1.4	1.5	1.6	1.8	1.6	1 4	1.5
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.02	0.02	0.02	0.02
Sulphate (mg/L)	1.9	1.5	2.3	2.1	1.9	1.9	2.1	1.2	1.4
Free Ammonia (mg NH3-N/L)	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate (mg NO3-N/L)	0.123	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.021	<0.005
Nitrite (mg NO2-N/L)	0.007	0.008	0.008	0.006	0.007	0.008	0.007	0.004	0.007
Ortho-Phosphate (mg P/L)	0.008	0.024	0.004	0.004	0.015	0.008	0.006	0.005	0.009
Total Dissolved Phosphate (mg P/L)	0.009	0.025	0.023	0.023	0.027	0.029	0.025	0.028	0.022
Total Phosphorus (mg P/L)	0.014	0.025	0.026	0.027	0.063	0.029	0.028	0.028	0.026
Total Metals (µg/L)									
Aluminum	0.218	0.387	0.277	0.314	0.363	0.317	0.36	0.34	0.37
Antimony	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0004	0.0003	0.0002	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003
Barium	0.023	0.027	0.023	0.028	0.03	0.028	0.028	0.028	0.029
Beryllium	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	2.37	1.68	1.69	1.7	1.67	1.72	1.68	1.72	1.58
Chromium	0.001	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0016	0.0011	0.0013	0.0014	0.0012	0.0012	0.0014	0.0011
Iron	0.37	0.33	0.14	0.36	0.36	0.35	0.34	0.37	0.38
Lead	0.001	0.0023	0.0019	0.0028	<0.0005	<0.0005	0.0005	<0.0005	0.0005
Magnesium	1.55	1.66	1.18	1.73	1.75	1.74	1.67	1.81	1.74
Manganese	0.068	0.009	0.007	0.009	0.009	0.009	0.009	0.01	0.009
Mercury	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 26 Koala-Kodiak 94 08 02	Site 27 Koala L. A 0m 94 07 03	Site 27 Koala L B 0m 94 07 03	Site 27 Koala L C 0m 94 07 03	Site 27 Koala L A 5m 94 07 03	Site 27 Koala L B 5m 94 07 03	Site 27 Koala L. C 5m 94 07 03	Site 27 Koala L. A 9m 94 07 03	Site 27 Koala L B 9m 94 07 03
Molybdenum	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.004	0.0083	0.008	0.0083	0.009	0.0086	0.0092	0.0092	0.0096
Selenium	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00002	0.00001	0.00001	0.00005	0.00005	0.00002	0.00002
Uranium	0.00005	0.00011	0.00009	0.0001	0.00011	0.00014	0.00013	0.0001	0.00013
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.006	0.018	0.004	0.003	0.003	0.003	0.005	0.003	0.01
Dissolved Metals (µg/L)									
Aluminum	0.04	0.023	0.031	0.03	0.029	0.028	0.05	0.028	0.043
Antimony	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0004	0.0002	0.0002	0.0003	0.0002	0.0002	0.0003	0.0002	0.0001
Barium	0.021	0.021	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Beryllium	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	2.17	1.61	1.66	1.7	1.66	1.67	1.6	1.7	1.58
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0016	0.0011	0.0013	0.0014	0.0012	0.0012	0.0014	0.0011
Iron	0.13	0.04	0.03	0.04	0.05	0.05	0.04	0.03	0.04
Lead	0.001	0.001	0.0007	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Magnesium	1.28	0.975	0.984	1.01	1.04	0.998	1.01	1.03	0.997
Manganese	0.037	<0.005	<0.005	0.006	0.006	<0.005	<0.005	<0.005	<0.005
Mercury	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.003	0.0042	0.0041	0.0047	0.0041	0.0043	0.0043	0.0037	0.0042
Potassium	0.75	0.63	0.58	0.59	0.58	0.58	0.61	0.63	0.61
Selenium	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	0.00001	0.00001	0.00001	0.00004	0.00005	0.00002	<0.00001
Sodium	1.49	0.65	0.57	0.55	0.6	0.71	0.63	0.64	0.58
Uranium	0.00004	0.00005	0.00006	0.00006	0.00008	0.00008	0.00013	0.00008	0.00006
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.006	0.004	0.004	0.002	<0.001	<0.001	0.004	<0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 27 Koala L. C 9m 94 07 03	Site 27 Koala L. A 13m 94 07 03	Site 27 Koala L. B 13m 94 07 03	Site 27 Koala L. C 13m 94 07 03	Site 27 Koala L A 18m 94 07 03	Site 27 Koala L. B 18m 94 07 03	Site 27 Koala L. C 18m 94 07 03	Site 27 Koala L. A 0m 94 08 18	Site 27 Koala L. B 0m 94 08 18
Conductivity (µmhos/cm)	22.1	21.6	21.5	22.1	22.8	22.6	22.9	22.7	22.4
Total Dissolved Solids (mg/L)	16	15	15	16	16	16	16	15	14
Hardness (mg CaCO3/L)	8.42	8.62	6.25	8.63	8.46	7 4	5.13	9.13	9.17
pH (units)	5.87	6.03	5.96	5.71	5.85	5.81	5.81	6.33	6.39
Total Suspended Solids (mg/L)	9	11	11	9	10	19	12	5	7
Turbidity (NTU)	8.02	7.62	8.35	7 48	8.2	8.1	7.96	3.42	3.57
Acidity (mg CaCO3/L)	2	2	2	2	2	2	2	1.4	1.4
Alkalinity - Total (mg CaCO3/L)	6.1	6.1	6	6.1	6.6	6.8	5.3	7 1	7.8
Alkalinity - Bicarbonate (mg CaCO3/L)	6.1	6.1	6	6.1	6.6	6.8	5.3	7 1	7.8
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	1.7	1.8	1.7	1.9	1.4	1.3	1.4	1 4	1.3
Fluoride (mg/L)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Sulphate (mg/L)	2.6	1.7	<1.0	2.9	1.7	<1.0	<1.0	1.8	1.2
Free Ammonia (mg NH3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	0.013	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.008	0.007	0.008	0.008	0.008	0.007	0.01	0.004	0.003
Ortho-Phosphate (mg P/L)	0.007	0.009	0.008	0.002	0.008	0.006	0.007	0.014	0.011
Total Dissolved Phosphate (mg P/L)	0.025	0.023	0.029	0.026	0.026	0.026	0.025	0.019	0.011
Total Phosphorus (mg P/L)	0.03	0.027	0.031	0.028	0.03	0.029	0.031	0.019	0.013
Total Metals (µg/L)									
Aluminum	0.327	0.465	0.366	0.346	0.374	0.365	0.311	0.165	0.156
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002
Arsenic	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0002	0.0001	0.0001
Barium	0.028	0.028	0.029	0.029	0.03	0.024	0.024	0.02	0.021
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.72	1.72	1.72	1.72	1.87	1.37	1.35	1.92	1.88
Chromium	0.004	0.003	0.003	0.003	0.003	0.004	0.003	0.001	0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0012	0.0014	0.0017	0.0011	0.0012	0.0012	0.0011	0.001	0.001
Iron	0.24	0.39	0.39	0.41	0.41	0.39	0.35	0.16	0.15
Lead	0.0009	<0.0005	0.0006	<0.0005	0.0007	<0.0005	0.0005	<0.001	<0.001
Magnesium	1.45	1.82	1.85	1.88	1.91	1.61	1.53	1.35	1.37
Manganese	0.009	0.01	0.01	0.011	0.011	0.009	0.009	0.006	0.006
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 27 Koala L. C 9m 94 07 03	Site 27 Koala L. A 13m 94 07 03	Site 27 Koala L. B 13m 94 07 03	Site 27 Koala L. C 13m 94 07 03	Site 27 Koala L A 18m 94 07 03	Site 27 Koala L. B 18m 94 07 03	Site 27 Koala L. C 18m 94 07 03	Site 27 Koala L. A 0m 94 08 18	Site 27 Koala L. B 0m 94 08 18
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.0093	0.0093	0.009	0.009	0.0092	0.0081	0.008	0.004	0.004
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00004	0.00001	0.00003	0.00002	0.00001	0.00005	<0.00001	<0.00001
Uranium	0.00011	0.00012	0.00013	0.00012	0.00011	0.00009	0.00009	0.00009	0.00007
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.003	0.004	0.003	0.028	0.003	0.004	0.002	0.001	0.001
Dissolved Metals (µg/L)									
Aluminum	0.041	0.055	0.033	0.004	0.039	0.037	0.026	0.017	0.017
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002	<0.0002
Arsenic	0.0003	0.0003	0.0002	0.0002	0.0003	0.0002	0.0002	<0.0001	0.0001
Barium	0.023	0.024	0.018	0.023	0.023	0.023	0.013	0.017	0.018
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.68	1.72	1.25	1.72	1.72	1.3	1.02	1.84	1.83
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0012	0.0014	0.0017	0.0011	0.0012	0.001	0.0009	0.001	0.001
Iron	0.04	0.05	0.03	0.06	0.02	0.03	0.02	0.02	0.02
Lead	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0005	<0.0005	<0.001	<0.001
Magnesium	1.02	1.05	0.757	1.05	1.01	1.01	0.625	1.1	1.11
Manganese	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.0046	0.0046	0.0038	0.0048	0.0042	0.0039	0.0027	0.003	0.003
Potassium	0.6	0.63	0.61	0.6	0.63	0.59	0.38	0.58	0.57
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00003	0.00001	0.00003	0.00001	0.00001	0.00001	<0.00001	<0.00001
Sodium	0.57	0.76	0.51	0.58	0.54	0.52	0.38	0.62	0.65
Uranium	0.00006	0.00005	0.00006	0.00006	0.00006	0.00007	0.00004	0.00007	0.00005
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.003	<0.001	0.003	<0.001	0.002	0.001	<0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 27 Koala L. A 4m 94 08 18	Site 27 Koala L. B 4m 94 08 18	Site 27 Koala L. A 9m 94 08 18	Site 27 Koala L. B 9m 94 08 18	Site 27 Koala L. A 13m 94 08 18	Site 27 Koala L. B 13m 94 08 18	Site 27 Koala L. A 17m 94 08 18	Site 27 Koala L. B 17m 94 08 18	Site 28 Panda-Koala 94 08 02
Conductivity (µmhos/cm)	22.5	22.6	22.9	22.5	23.3	23	28.1	28	14.3
Total Dissolved Solids (mg/L)	15	15	14	13	13	13	18	18	11
Hardness (mg CaCO3/L)	9.07	9.21	8.95	9.29	9.49	9.77	12	12.5	4.94
pH (units)	6.33	6.38	6.44	6.39	6.49	6.39	6.55	6.51	6.62
Total Suspended Solids (mg/L)	4	3	6	6	7	9	8	8	01
Turbidity (NTU)	3.35	3.51	3.48	3.46	5.5	5.61	6.2	5.97	0.48
Acidity (mg CaCO3/L)	1 4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.9
Alkalinity - Total (mg CaCO3/L)	7	6.4	7.5	7	7.2	7.5	9.5	8.4	4.3
Alkalinity - Bicarbonate (mg CaCO3/L)	7	6.4	7.5	7	7.2	7.5	9.5	8.4	4.3
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.0
Chloride (mg/L)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	0.7
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Sulphate (mg/L)	1.7	2.1	1.2	1.7	1.1	1.7	2.2	2	1.1
Free Ammonia (mg NH3-N/L)	<0.005	0.006	<0.005	0.01	0.007	0.008	0.009	0.009	0.021
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.015
Nitrite (mg NO2-N/L)	0.004	0.004	0.004	0.005	0.006	0.005	0.006	0.006	0.002
Ortho-Phosphate (mg P/L)	0.012	0.012	0.015	0.01	0.021	0.015	0.02	0.018	0.002
Total Dissolved Phosphate (mg P/L)	0.014	0.014	0.016	0.012	0.021	0.015	0.02	0.018	0.006
Total Phosphorus (mg P/L)	0.014	0.015	0.018	0.012	0.026	0.018	0.021	0.02	0.006
Total Metals (µg/L)									
Aluminum	0.171	0.156	0.177	0.15	0.18	0.165	0.17	0.19	0.043
Antimony	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	0.0001
Arsenic	0.0002	0.0001	0.0002	0.0001	0.0002	0.0002	0.0003	0.0002	0.0001
Barium	0.02	0.02	0.019	0.02	0.025	0.025	0.035	0.036	0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0005
Calcium	1.93	1.89	1.84	1.91	2.02	2.03	2.56	2.6	1.01
Chromium	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Copper	0.001	0.001	0.002	0.001	<0.0005	0.001	0.001	0.001	0.001
Iron	0.16	0.17	0.15	0.15	0.24	0.22	0.24	0.22	0.05
Lead	0.002	0.002	<0.001	<0.001	<0.001	0.001	<0.001	0.001	0.001
Magnesium	1.35	1.39	1.34	1.4	1.62	1.64	1.9	1.94	0.682
Manganese	0.006	0.006	0.006	0.006	0.007	0.007	0.008	0.008	0.017
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 27 Koala L. A 4m 94 08 18	Site 27 Koala L. B 4m 94 08 18	Site 27 Koala L. A 9m 94 08 18	Site 27 Koala L. B 9m 94 08 18	Site 27 Koala L. A 13m 94 08 18	Site 27 Koala L. B 13m 94 08 18	Site 27 Koala L. A 17m 94 08 18	Site 27 Koala L. B 17m 94 08 18	Site 28 Panda-Koala 94 08 02
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Nickel	0.004	0.005	0.004	0.005	0.006	0.01	0.007	0.008	0.002
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Uranium	0.00006	0.00007	0.00009	0.00007	0.00009	0.00009	0.00008	0.0001	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Zinc	0.001	0.003	0.001	0.002	0.003	<0.001	0.002	0.001	0.026
Dissolved Metals (µg/L)									
Aluminum	0.016	0.015	0.014	0.018	0.02	0.019	0.019	0.017	0.041
Antimony	<0.0002	<0.0002	<0.0002	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	0.0001
Arsenic	0.0002	0.0001	0.0001	0.0001	0.0002	0.0002	0.0002	0.0002	0.0001
Barium	0.017	0.018	0.017	0.02	0.023	0.025	0.033	0.036	0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002
Calcium	1.84	1.85	1.82	1.86	1.94	1.94	2.48	2.53	0.918
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Copper	0.001	0.001	0.001	0.001	<0.0005	0.001	0.001	0.001	0.0005
Iron	0.02	0.02	0.02	0.02	0.03	0.02	0.02	0.03	0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Magnesium	1.09	1.11	1.07	1.13	1.13	1.19	1.41	1.5	0.643
Manganese	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	0.005	<0.005	0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Nickel	0.003	0.004	0.003	0.003	0.005	0.004	0.005	0.005	0.002
Potassium	0.57	0.59	0.58	0.57	0.58	0.58	0.65	0.65	0.5
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001
Sodium	0.63	0.67	0.63	0.65	0.61	0.6	0.63	0.61	0.44
Uranium	0.00006	0.00005	0.00005	0.00005	0.00007	0.00005	0.00007	0.00006	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005
Zinc	<0.001	0.003	0.001	0.002	0.001	<0.001	0.002	0.001	0.006

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 31 Vulture-Polar	Site 32 Vulture L. 0m	Site 32 Vulture L. 8m	Site 32 Vulture L. 16m	Site 32 Vulture L. 24m	Site 32 Vulture L. 33m	Site 32 Vulture L. 0m	Site 32 Vulture L. 9m	Site 32 Vulture L. 18m
	94 08 04	94 07 01	94 07 01	94 07 01	94 07 01	94 07 01	94 08 13	94 08 13	94 08 13
Conductivity (µmhos/cm)	13.5	10	10	10	10	9.9	10.5	10.5	10.3
Total Dissolved Solids (mg/L)	8	7	7	7	7	7	8	7	7
Hardness (mg CaCO3/L)	3.83	1.71	1.24	2.2	1.91	1.71	3.45	3.4	3.45
pH (units)	6.26	6.42	6.4	6.41	6.39	6.39	6.68	6.31	6.24
Total Suspended Solids (mg/L)	3	1	2	3	1	2	<1	<1	3
Turbidity (NTU)	0.9	0.29	0.34	0.29	0.22	0.46	0.38	0.29	0.14
Acidity (mg CaCO3/L)	1.9	2	2	2	2	2	<1.0	<1.0	<1.0
Alkalinity - Total (mg CaCO3/L)	3.5	2.7	2	3.5	2.3	2.1	3.6	3.4	3
Alkalinity - Bicarbonate (mg CaCO3/L)	3.5	2.7	2	3.5	2.3	2.1	3.6	3.4	3
Alkalinity - Carbonate (mg CaCO3/L)	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.6	<0.5	<0.5	<0.5	0.6	0.6	0.6	0.8	0.7
Fluoride (mg/L)	0.03	<0.02	<0.02	<0.02	<0.02	<0.02	0.03	0.04	0.03
Sulphate (mg/L)	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate (mg NO3-N/L)	0.044	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001
Ortho-Phosphate (mg P/L)	0.004	0.002	0.002	0.002	0.002	0.002	0.002	0.001	0.004
Total Dissolved Phosphate (mg P/L)	0.011	0.004	0.003	0.003	0.003	0.002	0.003	0.003	0.004
Total Phosphorus (mg P/L)	0.014	0.005	0.003	0.003	0.004	0.003	0.003	0.005	0.004
Total Metals (µg/L)									
Aluminum	0.033	0.007	0.006	0.007	0.011	0.006	0.022	0.014	0.008
Antimony	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001
Barium	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.631	0.646	0.627	0.668	0.492	0.433	0.661	0.653	0.648
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0024	0.0036	0.0009	0.0007	0.0006	0.0005	0.0005	<0.0005
Iron	0.12	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	0.001	0.0014	<0.0005	<0.0005	0.0005	<0.0005	<0.001	<0.001	<0.001
Magnesium	0.547	0.459	0.421	0.449	0.358	0.304	0.47	0.461	0.45
Manganese	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 31 Vulture-Polar	Site 32 Vulture L. 0m	Site 32 Vulture L. 8m	Site 32 Vulture L. 16m	Site 32 Vulture L. 24m	Site 32 Vulture L. 33m	Site 32 Vulture L. 0m	Site 32 Vulture L. 9m	Site 32 Vulture L. 18m
	94 08 04	94 07 01	94 07 01	94 07 01	94 07 01	94 07 01	94 08 13	94 08 13	94 08 13
Molybdenum	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	<0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001
Selenium	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00003	0.00002	0.00001	0.00001	0.00001	<0.00001	0.00001	0.00001	<0.00001
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Metals (µg/L)									
Aluminum	0.016	0.005	0.002	0.004	0.005	0.004	0.007	0.007	0.005
Antimony	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Barium	0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.631	0.335	0.228	0.406	0.347	0.316	0.632	0.629	0.648
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0015	<0.0005	<0.0005	0.0007	0.0005	<0.0005	<0.0005	<0.0005
Iron	0.04	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	0.001	0.0013	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001
Magnesium	0.547	0.212	0.163	0.288	0.254	0.224	0.454	0.443	0.445
Manganese	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001
Potassium	0.47	0.17	0.13	0.22	0.24	0.24	0.34	0.28	0.34
Selenium	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.42	0.23	0.14	0.26	0.29	0.31	0.44	0.5	0.44
Uranium	0.00002	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	<0.00001
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 32 Vulture L. 27m 94 08 13	Site 32 Vulture L. 36m 94 08 13	Site 33 de Gras stream 94 08 09	Koala2 max	Koala2 min	Koala2 mean	Koala2 s.d.	Koala basin max	Koala basin min	Koala basin mean	Koala basin s.d.
Conductivity (µmhos/cm)	10.4	10.4	12.1	33.5	9.9	18.951282	6.2433911	18	8.7	12.853807	2.2029313
Total Dissolved Solids (mg/L)	6	6	8	22	6	12.666667	4.1316069	89	6	9.0862944	5.9622678
Hardness (mg CaCO3/L)	3.51	3.45	3.73	12.5	1.24	6.8417949	3.086287	45.5	1.37	4.1138071	3.1228716
pH (units)	6.27	6.2	6.34	7 16	5.71	6.224359	0.3106089	6.73	4.6	6.3191371	0.2687058
Total Suspended Solids (mg/L)	<1	<1	01	19	1	7.030303	3.8607387	67	1	3.6385542	7.5878245
Turbidity (NTU)	0.32	0.33	0.4	8.35	0.14	4.2125641	3.1549357	20.5	0.17	0.7785128	1.5871953
Acidity (mg CaCO3/L)	1.9	1.9	1.9	2	1.4	1.8166667	0.2645751	18.9	1	2.1117021	1.9294706
Alkalinity - Total (mg CaCO3/L)	3.5	4	2.8	9.5	2	5.6051282	1.9589133	6.3	2	3.8239796	0.7532402
Alkalinity - Bicarbonate (mg CaCO3/L)	3.5	4	2.8	9.5	2	5.6	1.9583828	6.3	2	3.822449	0.7530493
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	1.0	0	0			0	0		
Chloride (mg/L)	0.5	<0.5	0.9	3.2	0.5	1.3314286	0.5120727	1.4	0.5	0.7764706	0.2201802
Fluoride (mg/L)	0.03	0.04	0.03	0.04	0.02	0.0273529	0.0056723	0.4	0.02	0.0662286	0.1114149
Sulphate (mg/L)	<1.0	<1.0	1	2.9	1	1.76	0.4813176	49.3	1	1.8190083	4.3678239
Free Ammonia (mg NH3-N/L)	<0.005	<0.005	0.009	0.021	0.006	0.0105455	0.0046554	0.067	0.005	0.0107785	0.0073905
Nitrate (mg NO3-N/L)	<0.005	<0.005	0.029	0.123	0.005	0.032	0.0389322	0.097	0.005	0.0150847	0.0191881
Nitrite (mg NO2-N/L)	<0.001	<0.001	0.002	0.01	0.001	0.0055806	0.0024052	0.018	0.001	0.0015806	0.0015156
Ortho-Phosphate (mg P/L)	0.002	0.003	0.004	0.024	0.001	0.0079487	0.0060609	0.098	0.001	0.0039286	0.0069456
Total Dissolved Phosphate (mg P/L)	0.004	0.004	0.004	0.029	0.002	0.0155128	0.0095142	0.104	0.001	0.0059036	0.0073634
Total Phosphorus (mg P/L)	0.004	0.004	0.004	0.063	0.003	0.0182051	0.0126578	0.106	0.001	0.0077563	0.0098235
Total Metals (µg/L)				0	0			0	0		
Aluminum	0.008	0.012	0.018	0.465	0.006	0.1891026	0.1475314	0.431	0.003	0.0322077	0.0463857
Antimony	<0.0001	<0.0001	0.0001	0.0004	0.0004	0.0004		0.0005	0.0005	0.0005	
Arsenic	0.0001	0.0001	0.0001	0.0004	0.0001	0.0002121	9.273E-05	0.0004	0.0001	0.0001273	5.596E-05
Barium	<0.010	<0.010	0.010	0.036	0.019	0.0260385	0.0045209	0.065	0.01	0.0375	0.0388909
Beryllium	<0.003	<0.003	0.003	0	0			0	0		
Boron	<0.050	<0.050	0.050	0	0			0	0		
Cadmium	<0.0001	<0.0001	0.0001	0.0005	0.0005	0.0005		0.0003	0.0001	0.0001318	5.679E-05
Calcium	0.661	0.655	0.795	2.6	0.433	1.4471795	0.6179993	9.38	0.339	0.8119662	0.6267963
Chromium	<0.001	<0.001	0.001	0.004	0.001	0.0023846	0.0009829	0.001	0.001	0.001	0
Cobalt	<0.001	<0.001	0.001	0	0			0.007	0.007	0.007	
Copper	<0.0005	<0.0005	0.0005	0.0036	0.0005	0.0012176	0.0005649	0.02	0.0005	0.001044	0.0014222
Iron	<0.01	<0.01	0.06	0.41	0.01	0.256	0.1218705	0.82	0.01	0.0476166	0.0828057
Lead	<0.001	<0.001	0.001	0.0028	0.0005	0.00124	0.0007698	0.01	0.0005	0.0021907	0.002028
Magnesium	0.465	0.452	0.508	1.94	0.304	1.2360513	0.5821933	6.22	0.21	0.541314	0.4188687
Manganese	<0.005	<0.005	0.005	0.068	0.005	0.0105862	0.0112932	0.129	0.005	0.010875	0.0252179
Mercury	<0.00005	<0.00005	0.00005	0	0			0.00005	0.00005	0.00005	0

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 32 Vulture L. 27m 94 08 13	Site 32 Vulture L. 36m 94 08 13	Site 33 de Gras stream 94 08 09	Koala2 max	Koala2 min	Koala2 mean	Koala2 s.d.	Koala basin max	Koala basin min	Koala basin mean	Koala basin s.d.
Molybdenum	<0.001	<0.001	0.001	0	0			0.002	0.001	0.00125	0.0005
Nickel	<0.001	<0.001	0.001	0.01	0.0005	0.0069857	0.0026123	0.014	0.0005	0.0017057	0.0018816
Selenium	<0.0005	<0.0005	0.0005	0	0			0	0		
Silver	<0.00001	<0.00001	0.00001	0.00005	0.00001	2.294E-05	1.532E-05	0.00003	0.00001	1.625E-05	7.742E-06
Uranium	0.00001	<0.00001	0.00003	0.00014	0.00001	7.528E-05	4.178E-05	0.0001	0.00001	3.83E-05	1.556E-05
Vanadium	<0.005	<0.005	0.005	0	0			0.006	0.005	0.0053333	0.0005774
Zinc	<0.001	<0.001	0.001	0.028	0.001	0.0053333	0.007136	0.024	0.001	0.0031429	0.0035398
Dissolved Metals (µg/L)				0	0			0	0		
Aluminum	0.006	0.006	0.009	0.055	0.002	0.0211795	0.0144366	0.377	0.002	0.0166796	0.0284463
Antimony	<0.0001	<0.0001	0.0001	0	0			0	0		
Arsenic	<0.0001	<0.0001	0.0001	0.0004	0.0001	0.0001964	7.927E-05	0.0004	0.0001	0.0001167	5.921E-05
Barium	<0.010	<0.010	0.010	0.036	0.013	0.0220769	0.0046983	0.054	0.01	0.032	0.0311127
Beryllium	<0.003	<0.003	0.003	0	0			0	0		
Boron	<0.050	<0.050	0.050	0	0			0	0		
Cadmium	<0.0001	<0.0001	0.0001	0.0002	0.0002	0.0002	#DIV/0!	0.0002	0.0001	0.00015	5.774E-05
Calcium	0.655	0.648	0.717	2.53	0.228	1.3538462	0.6429006	8.44	0.282	0.7659758	0.5674745
Chromium	<0.001	<0.001	0.001	0	0			0	0		
Cobalt	<0.001	<0.001	0.001	0	0			0.006	0.006	0.006	
Copper	<0.0005	<0.0005	0.0005	0.0017	0.0005	0.0011296	0.0002599	0.002	0.0005	0.0008183	0.0002578
Iron	<0.01	<0.01	0.01	0.13	0.01	0.0337931	0.0224267	0.26	0.01	0.0220619	0.0258577
Lead	<0.001	<0.001	0.001	0.0013	0.0006	0.00092	0.0002775	0.006	0.0005	0.0020556	0.0016073
Magnesium	0.454	0.445	0.471	1.5	0.163	0.8392051	0.3604202	5.93	0.162	0.5128502	0.4025848
Manganese	<0.005	<0.005	0.005	0.037	0.005	0.00975	0.0110551	0.106	0.011	0.0585	0.0671751
Mercury	<0.00005	<0.00005	0.00005	0	0			0	0		
Molybdenum	<0.001	<0.001	0.001	0	0			0	0		
Nickel	<0.001	<0.001	0.001	0.005	0.002	0.0038963	0.0008017	0.013	0.0006	0.0021563	0.0029278
Potassium	0.34	0.34	0.54	0.75	0.13	0.504359	0.1574099	1.36	0.2	0.4530918	0.1046265
Selenium	<0.0005	<0.0005	0.0005	0	0			0	0		
Silver	<0.00001	<0.00001	0.00001	0.00005	0.00001	1.923E-05	1.382E-05	0.00002	0.00001	0.0000116	3.742E-06
Sodium	0.43	0.47	0.49	1.49	0.14	0.5497436	0.2079029	1.84	0.03	0.5332195	0.1966967
Uranium	0.00001	<0.00001	0.00001	0.00013	0.00001	5.344E-05	2.484E-05	0.00008	0.00001	2.838E-05	1.192E-05
Vanadium	<0.005	<0.005	0.005	0	0			0	0		
Zinc	<0.001	<0.001	0.001	0.006	0.001	0.0026111	0.0016499	0.015	0.001	0.002	0.0025166

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 48 Misery L. 0m 94 09 07	Site 48 Misery L. 5m 94 09 07	Site 48 Misery L. 11m 94 09 07	Site 48 Misery L. 16m 94 09 07	Site 48 Misery L. 22m 94 09 07	Site 48 Misery L. 0m 94 07 30	Site 48 Misery L. 7m 94 07 30	Site 48 Misery L. 14m 94 07 30	Site 48 Misery L. 21m 94 07 30	Site 48 Misery L. 28m 94 07 30
Conductivity (µmhos/cm)	23.5	22.8	22.8	23.6	23.9	22	22	23.6	22.9	23.4
Total Dissolved Solids (mg/L)	13	14	14	14	14	15	15	17	16	16
Hardness (mg CaCO3/L)	8.09	8.14	8.04	8.6	8.94	7.69	7.63	8.2	8.25	8.66
pH (units)	6.89	6.92	6.89	6.84	6.8	6.81	6.87	6.8	6.7	6.78
Total Suspended Solids (mg/L)	1	1	1	2	3	<1	4	4	7	5
Turbidity (NTU)	0.82	1.01	0.91	2.14	2.69	3.3	3.31	5.2	5.06	5.36
Acidity (mg CaCO3/L)	1.9	1.9	1.9	1.9	2.9	2	2	2	2	2
Alkalinity - Total (mg CaCO3/L)	7.7	7.3	7.6	7.6	7.9	6.6	6.9	7.2	7.1	7.8
Alkalinity - Bicarbonate (mg CaCO3/L)	7.7	7.3	7.6	7.6	7.9	6.6	6.9	7.2	7.1	7.8
Alkalinity - Carbonate (mg CaCO3/L)	1	1	1	1	1	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.5	0.5	0.5	0.5	0.5	0.8	0.8	0.9	0.7	0.9
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05	0.05	0.05
Sulphate (mg/L)	2.1	2.7	2.6	3.1	2.7	2.9	2.2	2.5	2.6	2.9
Free Ammonia (mg NH3-N/L)	0.005	0.005	0.005	0.005	0.005	<0.005	0.005	0.006	0.007	0.01
Nitrate (mg NO3-N/L)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	0.006
Nitrite (mg NO2-N/L)	0.001	0.001	0.002	0.002	0.003	0.001	0.001	0.002	0.002	0.003
Ortho-Phosphate (mg P/L)	0.003	0.003	0.002	0.006	0.011	0.007	0.008	0.009	0.01	0.01
Total Dissolved Phosphate (mg P/L)	0.004	0.004	0.004	0.008	0.011	0.008	0.008	0.01	0.01	0.012
Total Phosphorus (mg P/L)	0.005	0.005	0.005	0.009	0.012	0.009	0.008	0.012	0.012	0.019
Total Metals (µg/L)	0	0	0	0	0					
Aluminum	0.044	0.041	0.042	0.055	0.227	0.207	0.181	0.208	0.178	0.189
Antimony	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0003	0.0003	0.0002	0.0002
Barium	0.01	0.01	0.01	0.012	0.016	<0.010	<0.010	0.013	0.013	0.014
Beryllium	0.003	0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.05	0.05	0.05	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.52	1.53	1.53	1.71	1.72	1.67	1.66	1.79	1.86	1.97
Chromium	0.001	0.001	0.001	0.001	0.001	0.001	<0.001	0.001	0.001	<0.001
Cobalt	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0006	0.0005	0.0005	0.0008	0.001	0.0009	0.0007	0.0008	0.0008	0.0007
Iron	0.04	0.04	0.04	0.07	0.15	0.16	0.17	0.21	0.19	0.19
Lead	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	1.07	1.07	1.07	1.16	1.28	1.23	1.23	1.4	1.4	1.43
Manganese	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	0.005	0.005	<0.005
Mercury	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 48 Misery L. 0m 94 09 07	Site 48 Misery L. 5m 94 09 07	Site 48 Misery L. 11m 94 09 07	Site 48 Misery L. 16m 94 09 07	Site 48 Misery L. 22m 94 09 07	Site 48 Misery L. 0m 94 07 30	Site 48 Misery L. 7m 94 07 30	Site 48 Misery L. 14m 94 07 30	Site 48 Misery L. 21m 94 07 30	Site 48 Misery L. 28m 94 07 30
Molybdenum	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.002	0.002	0.002	0.004	0.006	0.003	0.003	0.006	0.006	0.006
Selenium	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00002	0.00002	0.00002	0.00003	0.00004	0.00004	0.00003	0.00005	0.00004	0.00004
Vanadium	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	0.001	0.001	0.025	0.014	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Metals (µg/L)	0	0	0	0	0					
Aluminum	0.01	0.009	0.011	0.012	0.023	0.036	0.035	0.041	0.037	0.021
Antimony	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0003	0.0002	0.0002	0.0002
Barium	0.01	0.01	0.01	0.011	0.013	<0.010	<0.010	0.012	0.012	0.012
Beryllium	0.003	0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.05	0.05	0.05	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.52	1.53	1.53	1.62	1.72	1.48	1.47	1.62	1.62	1.73
Chromium	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0005	0.0005	0.0005	0.0005	0.0008	<0.0005	0.0008	0.0008	<0.0005
Iron	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	<0.01
Lead	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	1.04	1.05	1.02	1 11	1 13	0.968	0.96	1.01	1.02	1.06
Manganese	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.002	0.002	0.002	0.004	0.005	0.002	0.002	0.003	0.003	0.003
Potassium	0.65	0.66	0.69	0.68	0.67	0.64	0.67	0.63	0.65	0.66
Selenium	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.63	0.65	0.66	0.64	0.63	0.61	0.63	0.61	0.6	0.59
Uranium	0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	0.00002	0.00002	0.00001	0.00001
Vanadium	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	0.001	0.001	0.002	0.003	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 48 Misery L. 0m 94 09 07	Site 48 Misery L. 5m 94 09 07	Site 48 Misery L. 11m 94 09 07	Site 48 Misery L. 16m 94 09 07	Site 48 Misery L. 22m 94 09 07	Site 48 Misery L. 0m 94 07 30	Site 48 Misery L. 7m 94 07 30	Site 48 Misery L. 14m 94 07 30	Site 48 Misery L. 21m 94 07 30	Site 48 Misery L. 28m 94 07 30
pH (units)	6.89	6.92	6.89	6.84	6.8	6.81	6.87	6.8	6.7	6.78
Aluminum	0.044	0.041	0.042	0.055	0.227	0.207	0.181	0.208	0.178	0.189
Federal Guidelines (pH> 6.5)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Federal Guidelines (pH<6.5)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Federal Guidelines	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Lead	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Federal Guidelines	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 54	Site 54	Site 54	Site 54	Site 54	Site 54	Site 54	Stie 54
	Lac de Gras-M	Lac de Gras-M	LacdeGrasMis	Lac de Gras-Mis.	Lac de Gras-Mis.	Lac de Gras-Mis.	Lac de Gras-Mis.	Lac de Gras-Mis.
	0m	5m	11m	16m	23m	0m	7m	15m
	94 09 08	94 09 08	94 09 08	94 09 08	94 09 08	94 07 31	94 07 31	94 07 31
Conductivity (µmhos/cm)	12.4	12.9	12.1	11.8	12.3	11.4	11.3	11.4
Total Dissolved Solids (mg/L)	8	8	8	7	7	8	8	8
Hardness (mg CaCO3/L)	3.8	3.78	3.74	3.8	3.75	3.63	3.66	3.72
pH (units)	6.58	6.58	6.51	6.52	6.54	6.46	6.45	6.5
Total Suspended Solids (mg/L)	1	1	1	<1	1	3	2	3
Turbidity (NTU)	0.53	0.43	0.33	0.46	0.49	0.25	0.23	0.25
Acidity (mg CaCO3/L)	1.9	1.9	1.9	1.9	1.9	2	2	2
Alkalinity - Total (mg CaCO3/L)	3.9	3	3.9	3.8	3.3	4	3.5	3.7
Alkalinity - Bicarbonate (mg CaCO3/L)	3.9	3	3.9	3.8	3.3	4	3.5	3.7
Alkalinity - Carbonate (mg CaCO3/L)	1	1	1	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.5	0.5	0.5	<0.5	<0.5	0.6	0.7	0.8
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04
Sulphate (mg/L)	1.3	1.8	1.2	1.2	1.4	1	<1.0	1
Free Ammonia (mg NH3-N/L)	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate (mg NO3-N/L)	0.005	0.005	0.005	<0.005	<0.005	<0.005	0.006	<0.005
Nitrite (mg NO2-N/L)	0.001	0.001	0.001	<0.001	0.002	<0.001	<0.001	<0.001
Ortho-Phosphate (mg P/L)	0.003	0.004	0.002	0.003	0.002	0.001	0.003	0.002
Total Dissolved Phosphate (mg P/L)	0.006	0.005	0.004	0.003	0.005	0.004	0.004	0.004
Total Phosphorus (mg P/L)	0.006	0.005	0.006	0.003	0.006	0.004	0.007	0.005
Total Metals (µg/L)	0	0	0					
Aluminum	0.01	0.006	0.006	0.015	0.007	0.009	0.007	0.01
Antimony	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0001	0.0002	0.0001	0.0001	<0.0001	<0.0001
Barium	0.01	0.01	0.01	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	0.003	0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.05	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0008	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.725	0.737	0.717	0.734	0.719	0.763	0.763	0.776
Chromium	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0007	0.0006	0.0007	0.001	0.0008	0.0009	0.0007	0.0009
Iron	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	0.01
Lead	0.006	0.001	0.001	<0.001	<0.001	<0.001	0.001	0.001
Magnesium	0.482	0.482	0.472	0.48	0.474	0.487	0.49	0.49
Manganese	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 54	Site 54	Site 54	Site 54	Site 54	Site 54	Site 54	Stie 54
	Lac de Gras-M	Lac de Gras-M	LacdeGrasMis	Lac de Gras-Mis.	Lac de Gras-Mis.	Lac de Gras-Mis.	Lac de Gras-Mis.	Lac de Gras-Mis.
	0m	5m	11m	16m	23m	0m	7m	15m
	94 09 08	94 09 08	94 09 08	94 09 08	94 09 08	94 07 31	94 07 31	94 07 31
Molybdenum	0.002	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00001	0.00001	0.00001	<0.00001	0.00001	0.00001	0.00001	<0.00001
Vanadium	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	0.001	0.001	<0.001	0.03	<0.001	<0.001	<0.001
Dissolved Metals (µg/L)	0	0	0					
Aluminum	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003
Antimony	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001
Barium	0.01	0.01	0.01	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	0.003	0.003	0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.05	0.05	0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0004	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.725	0.731	0.717	0.734	0.719	0.703	0.714	0.719
Chromium	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0006	0.0005	0.0005	0.0005	0.0006	0.0005	0.0005	0.0005
Iron	0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	0.006	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.482	0.474	0.472	0.478	0.474	0.455	0.457	0.467
Manganese	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.42	0.43	0.43	0.41	0.42	0.39	0.39	0.39
Selenium	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.44	0.44	0.44	0.45	0.45	0.41	0.42	0.42
Uranium	0.00001	0.00001	0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001
Vanadium	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	0.001	0.001	<0.001	0.003	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 54 Lac de Gras-M 0m 94 09 08	Site 54 Lac de Gras-M 5m 94 09 08	Site 54 LacdeGrasMis 11m 94 09 08	Site 54 Lac de Gras-Mis. 16m 94 09 08	Site 54 Lac de Gras-Mis. 23m 94 09 08	Site 54 Lac de Gras-Mis. 0m 94 07 31	Site 54 Lac de Gras-Mis. 7m 94 07 31	Stie 54 Lac de Gras-Mis. 15m 94 07 31
pH (units)	6.58	6.58	6.51	6.52	6.54	6.46	6.45	6.5
Aluminum	0.01	0.006	0.006	0.015	0.007	0.009	0.007	0.01
Federal Guidelines (pH>6.5)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Federal Guidelines (pH<6.5)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Cadmium	0.0004	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Federal Guidelines	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Lead	0.006	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Federal Guidelines	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 54 Lac de Gras-Mis. 22m 94 07 31	Site 54 Lac de Gras-Mis. 30m 94 07 31	max	min	mean	s.d
Conductivity (µmhos/cm)	11.5	11.6	23.9	11.3	17 46	5.76526806
Total Dissolved Solids (mg/L)	8	8	17	7	11.3	3.70064006
Hardness (mg CaCO3/L)	3.64	3.73	8.94	3.63	5.9745	2.32586028
pH (units)	6.43	6.46	6.92	6.43	6.6665	0.17750537
Total Suspended Solids (mg/L)	<1	<1	7	1	2.5	1.78885438
Turbidity (NTU)	0.24	0.26	5.36	0.23	1.6635	1.82872482
Acidity (mg CaCO3/L)	2	2	2.9	1.9	2	0.21764288
Alkalinity - Total (mg CaCO3/L)	4.1	3.8	7.9	3	5.535	1.91923093
Alkalinity - Bicarbonate (mg CaCO3/L)	4.1	3.8	7.9	3	5.535	1.91923093
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	1	1	1	0
Chloride (mg/L)	0.5	0.5	0.9	0.5	0.62222222	0.15550886
Fluoride (mg/L)	0.03	0.03	0.05	0.03	0.0365	0.00875094
Sulphate (mg/L)	1.5	1.2	3.1	1	1.99473684	0.74122547
Free Ammonia (mg NH3-N/L)	<0.005	<0.005	0.01	0.005	0.00566667	0.00149747
Nitrate (mg NO3-N/L)	0.031	<0.005	0.031	0.005	0.00715385	0.00717456
Nitrite (mg NO2-N/L)	0.003	<0.001	0.003	0.001	0.00173333	0.00079881
Ortho-Phosphate (mg P/L)	0.002	0.003	0.011	0.001	0.0047	0.00324605
Total Dissolved Phosphate (mg P/L)	0.005	0.005	0.012	0.003	0.0062	0.00276444
Total Phosphorus (mg P/L)	0.005	0.006	0.019	0.003	0.00745	0.00381789
Total Metals (µg/L)			0	0	0	0
Aluminum	0.009	0.009	0.227	0.006	0.073	0.08598409
Antimony	<0.0001	<0.0001	0.0001	0.0001	0.0001	0
Arsenic	<0.0001	<0.0001	0.0003	0.0001	0.0002125	8.8506E-05
Barium	<0.010	<0.010	0.016	0.01	0.01163636	0.00211058
Beryllium	<0.003	<0.003	0.003	0.003	0.003	4.4001E-11
Boron	<0.050	<0.050	0.05	0.05	0.05	9.9563E-10
Cadmium	<0.0001	<0.0001	0.0008	0.0001	0.0001875	0.00024749
Calcium	0.785	0.788	1.97	0.717	1.22335	0.49600396
Chromium	<0.001	0.001	0.001	0.001	0.001	0
Cobalt	<0.001	<0.001	0.001	0.001	0.001	0
Copper	0.001	0.001	0.001	0.0005	0.00078	0.00016092
Iron	0.01	0.01	0.21	0.01	0.0825	0.07945649
Lead	0.002	<0.001	0.006	0.001	0.00154545	0.00150756
Magnesium	0.498	0.502	1.43	0.472	0.85985	0.39619536
Manganese	<0.005	<0.005	0.005	0.005	0.005	1.0976E-10
Mercury	<0.00005	<0.00005	0.00005	0.00005	0.00005	0

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 54 Lac de Gras-Mis. 22m 94 07 31	Site 54 Lac de Gras-Mis. 30m 94 07 31	max	min	mean	s.d
Molybdenum	<0.001	<0.001	0.002	0.001	0.001125	0.00035355
Nickel	<0.001	<0.001	0.006	0.001	0.00330769	0.00205688
Selenium	<0.0005	<0.0005	0.0005	0.0005	0.0005	0
Silver	<0.00001	<0.00001	0.00001	0.00001	0.00001	1.7188E-13
Uranium	0.00002	0.00001	0.00005	0.00001	2.3333E-05	1.372E-05
Vanadium	<0.005	<0.005	0.005	0.005	0.005	6.2227E-11
Zinc	<0.001	0.001	0.03	0.001	0.0076	0.01130585
Dissolved Metals (µg/L)			0	0	0	0
Aluminum	0.004	0.003	0.041	0.002	0.01295	0.01394529
Antimony	<0.0001	<0.0001	0.0001	0.0001	0.0001	0
Arsenic	<0.0001	<0.0001	0.0003	0.0001	0.00017333	5.9362E-05
Barium	<0.010	<0.010	0.013	0.01	0.01090909	0.00113618
Beryllium	<0.003	<0.003	0.003	0.003	0.003	4.4001E-11
Boron	<0.050	<0.050	0.05	0.05	0.05	9.9563E-10
Cadmium	<0.0001	<0.0001	0.0004	0.0001	0.0001375	0.00010607
Calcium	0.712	0.715	1.73	0.703	1.15145	0.44839978
Chromium	<0.001	<0.001	0.001	0.001	0.001	0
Cobalt	<0.001	<0.001	0.001	0.001	0.001	0
Copper	0.0005	0.0005	0.0008	0.0005	0.00056111	0.00011448
Iron	<0.01	<0.01	0.02	0.01	0.01083333	0.00288675
Lead	<0.001	<0.001	0.006	0.001	0.001625	0.00176777
Magnesium	0.453	0.472	1.13	0.453	0.7526	0.29406308
Manganese	<0.005	<0.005	0.005	0.005	0.005	6.2227E-11
Mercury	<0.00005	<0.00005	0.00005	0.00005	0.00005	0
Molybdenum	<0.001	<0.001	0.001	0.001	0.001	0
Nickel	<0.001	<0.001	0.005	0.001	0.00238462	0.00119293
Potassium	0.37	0.39	0.69	0.37	0.532	0.13268879
Selenium	<0.0005	<0.0005	0.0005	0.0005	0.0005	0
Silver	<0.00001	<0.00001	0.00001	0.00001	0.00001	1.7188E-13
Sodium	0.4	0.42	0.66	0.4	0.527	0.10239757
Uranium	<0.00001	<0.00001	0.00002	0.00001	1.2143E-05	4.2582E-06
Vanadium	<0.005	<0.005	0.005	0.005	0.005	6.2227E-11
Zinc	<0.001	<0.001	0.003	0.001	0.00155556	0.00088192

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 54 Lac de Gras-Mis. 22m 94 07 31	Site 54 Lac de Gras-Mis. 30m 94 07 31	max	min	mean	s.d
pH (units)	6.43	6.46	6.92	6.43	6.6665	0.17750537
Aluminum	0.009	0.009				
Federal Guidelines (pH>6.5)	0.1	0.1				
Federal Guidelines (pH<6.5)	0.005	0.005				
Cadmium	<0.0001	<0.0001				
Federal Guidelines	0.0002	0.0002				
Lead	<0.001	<0.001				
Federal Guidelines	0.001	0.001				

Appendix II - A
Water Quality From Koala and Ajacent Watersheds

	Site 41 South (E)	Site 42 South (W)	Site 43 South (S)				
	94 08 11	94 08 10	94 08 11				
				max	min	mean	s.d
Conductivity (µmhos/cm)	11.6	11.3	12.5	12.5	11.3	11.8	0.6244998
Total Dissolved Solids (mg/L)	7	9	8	9	7	8	1
Hardness (mg CaCO3/L)	3.8	3.36	3.59	3.8	3.36	3.58333333	0.22007574
pH (units)	6.43	6.25	6.3	6.43	6.25	6.32666667	0.09291573
Total Suspended Solids (mg/L)	7	3	2	7	2	4	2.64575131
Turbidity (NTU)	1.25	1.15	0.88	1.25	0.88	1.09333333	0.19139836
Acidity (mg CaCO3/L)	1.9	1.9	1.9	1.9	1.9	1.9	2.9802E-08
Alkalinity - Total (mg CaCO3/L)	3.4	2.4	3.5	3.5	2.4	3.1	0.60827625
Alkalinity - Bicarbonate (mg CaCO3/L)	3.4	2.4	3.5	3.5	2.4	3.1	0.60827625
Alkalinity - Carbonate (mg CaCO3/L)	1.0	1.0	1.0	0	0		
Chloride (mg/L)	0.6	0.8	0.9	0.9	0.6	0.76666667	0.15275252
Fluoride (mg/L)	0.04	0.04	0.03	0.04	0.03	0.03666667	0.0057735
Sulphate (mg/L)	1.1	1.7	1.0	1.7	1.1	1 4	0.42426407
Free Ammonia (mg NH3-N/L)	0.017	0.005	0.021	0.021	0.017	0.019	0.00282843
Nitrate (mg NO3-N/L)	0.005	0.021	0.006	0.021	0.005	0.01066667	0.00896289
Nitrite (mg NO2-N/L)	0.002	0.001	0.002	0.002	0.001	0.00166667	0.00057735
Ortho-Phosphate (mg P/L)	0.004	0.005	0.005	0.005	0.004	0.00466667	0.00057735
Total Dissolved Phosphate (mg P/L)	0.01	0.006	0.01	0.01	0.006	0.00866667	0.0023094
Total Phosphorus (mg P/L)	0.017	0.011	0.01	0.017	0.01	0.01266667	0.00378594
Total Metals (µg/L)				0	0		
Aluminum	0.034	0.024	0.03	0.034	0.024	0.02933333	0.00503322
Antimony	0.0001	0.0001	0.0001	0	0		
Arsenic	0.0004	0.0001	0.0002	0.0004	0.0001	0.00023333	0.00015275
Barium	0.010	0.010	0.010	0	0		
Beryllium	0.003	0.003	0.003	0	0		
Boron	0.050	0.050	0.050	0	0		
Cadmium	0.0001	0.0001	0.0001	0	0		
Calcium	0.645	0.71	0.618	0.71	0.618	0.65766667	0.04728989
Chromium	0.001	0.001	0.001	0	0		
Cobalt	0.001	0.001	0.001	0	0		
Copper	0.001	0.0005	0.0005	0.001	0.001	0.001	
Iron	0.29	0.04	0.11	0.29	0.04	0.14666667	0.12897028
Lead	0.001	0.001	0.001	0	0		
Magnesium	0.557	0.445	0.505	0.557	0.445	0.50233333	0.0560476
Manganese	0.014	0.005	0.005	0.014	0.005	0.008	0.00519615
Mercury	0.00005	0.00005	0.00005	0	0		

Appendix II - A
Water Quality From Koala and Ajacent Watersheds

	Site 41 South (E)	Site 42 South (W)	Site 43 South (S)				
	94 08 11	94 08 10	94 08 11				
				max	min	mean	s.d
Molybdenum	0.001	0.001	0.001	0	0		
Nickel	0.001	0.001	0.001	0	0		
Selenium	0.0005	0.0005	0.0005	0	0		
Silver	0.00001	0.00001	0.00001	0	0		
Uranium	0.00003	0.00004	0.00007	0.00007	0.00003	4.6667E-05	2.0817E-05
Vanadium	0.005	0.005	0.005	0	0		
Zinc	0.001	0.004	0.001	0.004	0.004	0.004	
Dissolved Metals (µg/L)				0	0		
Aluminum	0.01	0.009	0.005	0.01	0.005	0.008	0.00264575
Antimony	0.0001	0.0001	0.0001	0	0		
Arsenic	0.0003	0.0001	0.0002	0.0003	0.0001	0.0002	0.0001
Barium	0.010	0.010	0.010	0	0		
Beryllium	0.003	0.003	0.003	0	0		
Boron	0.050	0.050	0.050	0	0		
Cadmium	0.0001	0.0001	0.0001	0	0		
Calcium	0.63	0.643	0.612	0.643	0.612	0.62833333	0.01556706
Chromium	0.001	0.001	0.001	0	0		
Cobalt	0.001	0.001	0.001	0	0		
Copper	0.0005	0.0005	0.0005	0	0		
Iron	0.12	0.01	0.02	0.12	0.02	0.07	0.07071068
Lead	0.001	0.001	0.001	0	0		
Magnesium	0.542	0.425	0.501	0.542	0.425	0.48933333	0.0593661
Manganese	0.005	0.005	0.005	0	0		
Mercury	0.00005	0.00005	0.00005	0	0		
Molybdenum	0.001	0.001	0.001	0	0		
Nickel	0.001	0.001	0.001	0	0		
Potassium	0.49	0.46	0.51	0.51	0.46	0.48666667	0.02516611
Selenium	0.0005	0.0005	0.0005	0	0		
Silver	0.00001	0.00001	0.00001	0	0		
Sodium	0.42	0.43	0.57	0.57	0.42	0.47333333	0.08386497
Uranium	0.00003	0.00002	0.00003	0.00003	0.00002	2.6667E-05	5.7735E-06
Vanadium	0.005	0.005	0.005	0	0		
Zinc	0.001	0.003	0.001	0.003	0.003	0.003	

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 38 Sieve L. 0m 94 07 16	Site 38 Sieve L. 3m 94 07 16	Site 38 Sieve L. 5m 94 07 16	Site 38 Sieve L. 7m 94 07 16	Site 38 Sieve L. 9m 94 07 16	Site 38 Sieve L. 0m 94 08 30	Site 38 Sieve L. 2m 94 08 30	Site 38 Sieve L. 4m 94 08 30	Site 38 Sieve L. 6m 94 08 30
Conductivity (µmhos/cm)	9.9	10.5	9.8	9.7	9.9	10.6	10.5	10.5	10.5
Total Dissolved Solids (mg/L)	7	8	7	7	7	6	6	6	6
Hardness (mg CaCO3/L)	2.91	2.62	1.64	2.22	1.83	3.39	3.39	3.32	3.45
pH (units)	6.56	6.64	6.46	6.42	6.3	6.4	6.4	6.38	6.44
Total Suspended Solids (mg/L)	3	<1	1	<1	3	1	3	3	2
Turbidity (NTU)	0.43	0.56	0.46	0.57	0.44	0.55	0.53	0.6	0.58
Acidity (mg CaCO3/L)	2	2	2	2	2	2	2	2	2
Alkalinity - Total (mg CaCO3/L)	3.3	3.5	2.8	2.6	2.9	4	3.2	4	4
Alkalinity - Bicarbonate (mg CaCO3/L)	3.3	3.5	2.8	2.6	2.9	4	3.2	4	4
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	0.5	<0.5	<0.5
Fluoride (mg/L)	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
Sulphate (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.006	0.008	0.006	0.006	<0.005	0.025	0.027	0.025	0.022
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.018
Nitrite (mg NO2-N/L)	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	<0.001	<0.001	0.002
Ortho-Phosphate (mg P/L)	0.003	0.003	0.003	0.003	0.004	0.006	0.004	0.004	0.005
Total Dissolved Phosphate (mg P/L)	0.006	0.004	0.006	0.003	0.007	0.006	0.005	0.007	0.007
Total Phosphorus (mg P/L)	0.006	0.007	0.007	0.006	0.011	0.006	0.006	0.007	0.007
Total Metals (µg/L)									
Aluminum	0.017	0.021	0.017	0.014	0.017	0.018	0.018	0.021	0.018
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.424	0.525	0.477	0.362	0.556	0.643	0.63	0.65	0.653
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0009	0.001	0.001	0.0008	0.001	0.002	0.002	0.002	0.002
Iron	0.05	0.07	0.06	0.05	0.06	0.06	0.06	0.06	0.06
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	0.001	<0.001
Magnesium	0.297	0.349	0.32	0.24	0.347	0.495	0.485	0.501	0.5
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 38 Sieve L. 0m 94 07 16	Site 38 Sieve L. 3m 94 07 16	Site 38 Sieve L. 5m 94 07 16	Site 38 Sieve L. 7m 94 07 16	Site 38 Sieve L. 9m 94 07 16	Site 38 Sieve L. 0m 94 08 30	Site 38 Sieve L. 2m 94 08 30	Site 38 Sieve L. 4m 94 08 30	Site 38 Sieve L. 6m 94 08 30
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001
Uranium	0.00003	0.00003	0.00003	0.00003	0.00004	0.00002	0.00001	0.00002	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Metals (µg/L)									
Aluminum	0.012	0.011	0.011	0.011	0.009	0.01	0.008	0.008	0.007
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.42	0.497	0.318	0.36	0.355	0.601	0.604	0.588	0.604
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	0.0005	0.0005	<0.0005	0.0005	0.001	0.002	0.001	0.001
Iron	0.03	0.02	0.02	0.03	0.02	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.29	0.335	0.206	0.24	0.229	0.459	0.457	0.449	0.473
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.31	0.25	0.32	0.2	0.23	0.49	0.49	0.48	0.5
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.43	0.34	0.56	0.25	0.3	0.38	0.38	0.38	0.38
Uranium	0.00001	0.00002	0.00002	0.00002	0.00002	0.00001	<0.00001	<0.00001	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 38 Sieve L. 7m 94 08 30	Site 44 Arnie L. 0m 94 08 05	Site 44 Arnie L. 1m 94 08 05	Site 44 Arnie L. 2m 94 08 05	Site 44 Arnie L. 3m 94 08 05	Site 44 Arnie L. 4m 94 08 05	Site 44 Arnie L. A 0m 94 09 04	Site 44 Arnie L. B 0m 94 09 04	Site 44 Arnie L. A 1m 94 09 04	Site 44 Arnie L. B 1m 94 09 04	Site 44 Arnie L. A 2m 94 09 04
Conductivity (µmhos/cm)	10.7	19	19	19	19	19.1	19.7	19.8	19.5	20.5	19.7
Total Dissolved Solids (mg/L)	6	13	11	11	12	12	14	14	14	15	14
Hardness (mg CaCO3/L)	3.71	7.95	8.29	7.94	8.1	8.23	7.97	8	8.04	8.03	8.08
pH (units)	6.34	6.68	6.61	6.65	6.64	6.74	6.7	6.69	6.7	6.69	6.72
Total Suspended Solids (mg/L)	see below	0.01	1	1	1	3	1	1	1	0.01	1
Turbidity (NTU)	0.59	0.85	0.77	0.85	0.87	1.2	0.67	0.87	0.71	0.75	0.74
Acidity (mg CaCO3/L)	4	1.9	1.9	1.9	1.9	2.9	1.9	1.9	1.9	1.9	1.9
Alkalinity - Total (mg CaCO3/L)	3.4	7	7.8	7.5	7 1	7.5	7.8	8.1	8.3	7 4	7.7
Alkalinity - Bicarbonate (mg CaCO3/L)	3.4	7	7.8	7.5	7 1	7.5	7.8	8.1	8.3	7 4	7.7
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	1	1	1	1	1	1	1	1	1	1
Chloride (mg/L)	<0.5	1	0.6	0.6	0.6	0.7	0.5	0.5	0.5	0.5	0.5
Fluoride (mg/L)	see below	0.04	0.04	0.04	0.04	0.05	0.03	0.04	0.04	0.04	0.04
Sulphate (mg/L)	1.2	1	1	1	1.2	1.6	1.6	1.2	1.2	1.7	1.3
Free Ammonia (mg NH3-N/L)	0.02	0.022	0.023	0.021	0.019	0.021	0.005	0.005	0.007	0.005	0.007
Nitrate (mg NO3-N/L)	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Nitrite (mg NO2-N/L)	<0.001	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Ortho-Phosphate (mg P/L)	0.004	0.004	0.004	0.005	0.005	0.004	0.005	0.005	0.005	0.005	0.004
Total Dissolved Phosphate (mg P/L)	0.008	0.012	0.014	0.014	0.013	0.015	0.012	0.014	0.013	0.013	0.014
Total Phosphorus (mg P/L)	0.008	0.016	0.014	0.014	0.018	0.021	0.014	0.015	0.014	0.017	0.015
Total Metals (µg/L)		0	0	0	0	0	0	0	0	0	0
Aluminum	0.051	0.05	0.042	0.047	0.045	0.101	0.084	0.081	0.07	0.071	0.075
Antimony	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Arsenic	0.0001	0.0004	0.0004	0.0004	0.0004	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004
Barium	<0.010	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Beryllium	<0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Boron	<0.050	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Cadmium	0.0003	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	1.03	1.2	1.2	1.11	1.19	1.11	1	1.01	1.01	1.01	1.04
Chromium	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Copper	0.003	0.001	0.001	0.001	0.001	0.002	0.0018	0.0013	0.0012	0.0012	0.0012
Iron	0.07	0.27	0.26	0.28	0.26	0.39	0.23	0.23	0.23	0.24	0.24
Lead	0.002	0.001	0.001	0.001	0.001	0.001	0.005	0.001	0.002	0.001	0.002
Magnesium	0.518	1.57	1.5	1.46	1.54	1.41	1.33	1.33	1.34	1.34	1.33
Manganese	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Mercury	<0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 38 Sieve L. 7m 94 08 30	Site 44 Arnie L. 0m 94 08 05	Site 44 Arnie L. 1m 94 08 05	Site 44 Arnie L. 2m 94 08 05	Site 44 Arnie L. 3m 94 08 05	Site 44 Arnie L. 4m 94 08 05	Site 44 Arnie L. A 0m 94 09 04	Site 44 Arnie L. B 0m 94 09 04	Site 44 Arnie L. A 1m 94 09 04	Site 44 Arnie L. B 1m 94 09 04	Site 44 Arnie L. A 2m 94 09 04
Molybdenum	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Nickel	<0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Selenium	<0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Silver	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001
Uranium	0.00002	0.00008	0.00008	0.00008	0.00007	0.00007	0.00007	0.00007	0.00008	0.00008	0.00007
Vanadium	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Zinc	0.005	0.001	0.001	0.001	0.001	0.001	0.003	0.006	0.002	0.004	0.001
Dissolved Metals (µg/L)		0	0	0	0	0	0	0	0	0	0
Aluminum	0.007	0.038	0.039	0.043	0.039	0.037	0.031	0.032	0.034	0.03	0.037
Antimony	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Arsenic	<0.0001	0.0004	0.0004	0.0004	0.0004	0.0005	0.0003	0.0002	0.0003	0.0003	0.0003
Barium	<0.010	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Beryllium	<0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Boron	<0.050	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Cadmium	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	0.7	0.952	1.05	0.952	0.996	1.06	1	1.01	1.01	1.01	1.04
Chromium	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Copper	0.001	0.0005	0.0005	0.0005	0.0005	0.001	0.0014	0.001	0.0011	0.0012	0.0012
Iron	<0.01	0.2	0.21	0.21	0.21	0.21	0.15	0.15	0.15	0.15	0.16
Lead	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Magnesium	0.476	1.35	1.38	1.35	1.36	1.35	1.33	1.33	1.34	1.34	1.33
Manganese	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Mercury	<0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Molybdenum	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Nickel	<0.001	0.002	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.001
Potassium	0.51	0.64	0.64	0.63	0.63	0.65	0.66	0.65	0.65	0.65	0.65
Selenium	<0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Silver	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001
Sodium	0.38	0.5	0.49	0.49	0.49	0.5	0.52	0.52	0.52	0.52	0.53
Uranium	0.00001	0.00007	0.00008	0.00008	0.00007	0.00007	0.00006	0.00006	0.00006	0.00006	0.00007
Vanadium	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Zinc	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.001	0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 44 Arnie L. B 2m 94 09 04	Site 44 Arnie L. A3m 94 09 04	Site 44 Arnie L. B 3m 94 09 04	Site 44 Arnie L. A 4m 94 09 04	Site 44 Arnie L. B 4m 94 09 04	Site 44 Arnie L. 0m 94 07 29	Site 44 Arnie L. 2m 94 07 29	Site 44 Arnie L. 4m 94 07 29	Site 44 Arnie L. 6m 94 07 29
Conductivity (µmhos/cm)	19.9	21 4	21 1	19.9	19.9	16.4	15.6	15.4	17.3
Total Dissolved Solids (mg/L)	13	14	14	11	12	11	11	10	12
Hardness (mg CaCO3/L)	7.94	8.01	8.01	8.06	7.98	4.46	4.54	3.62	4.51
pH (units)	6.69	6.75	6.7	6.72	6.74	6.58	6.4	6.49	6.62
Total Suspended Solids (mg/L)	1	1	2	1	1	2	4	3	<1
Turbidity (NTU)	0.78	0.84	1.01	0.94	0.9	1.3	1.2	1.13	1.17
Acidity (mg CaCO3/L)	1.9	1.9	1.9	1.9	1.9	2	2	2	2
Alkalinity - Total (mg CaCO3/L)	8.4	7.6	7.2	8	8.4	4	4	4.1	4
Alkalinity - Bicarbonate (mg CaCO3/L)	8.4	7.6	7.2	8	8.4	4	4	4.1	4
Alkalinity - Carbonate (mg CaCO3/L)	1	1	1	1	1	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7
Fluoride (mg/L)	0.04	0.04	0.04	0.04	0.04	0.08	0.06	0.05	0.05
Sulphate (mg/L)	1.8	1.6	1.6	1.5	1.2	1.2	1.9	1.1	1.4
Free Ammonia (mg NH3-N/L)	0.007	0.007	0.005	0.005	0.007	0.011	0.012	0.007	0.009
Nitrate (mg NO3-N/L)	0.005	0.005	0.005	0.005	0.005	0.006	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	0.002	0.002	0.002	0.002	0.002	<0.001	<0.001	<0.001	<0.001
Ortho-Phosphate (mg P/L)	0.005	0.005	0.005	0.005	0.005	0.004	0.003	0.004	0.004
Total Dissolved Phosphate (mg P/L)	0.013	0.013	0.014	0.015	0.013	0.008	0.008	0.007	0.009
Total Phosphorus (mg P/L)	0.015	0.014	0.015	0.015	0.015	0.009	0.012	0.01	0.009
Total Metals (µg/L)	0	0	0	0	0				
Aluminum	0.071	0.069	0.07	0.066	0.076	0.094	0.081	0.096	0.101
Antimony	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Barium	0.01	0.01	0.01	0.01	0.01	<0.010	<0.010	<0.010	<0.010
Beryllium	0.003	0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.05	0.05	0.05	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.01	1.01	1.02	0.981	0.966	0.865	0.833	0.811	0.824
Chromium	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0012	0.0014	0.0016	0.0014	0.0017	0.0009	0.0008	0.0008	0.0007
Iron	0.23	0.24	0.24	0.23	0.23	0.39	0.36	0.36	0.35
Lead	0.001	0.001	0.001	0.001	0.001	0.001	0.002	<0.001	<0.001
Magnesium	1.32	1.33	1.33	1.36	1.35	0.687	0.689	0.68	0.674
Manganese	0.005	0.005	0.005	0.005	0.005	0.014	0.014	0.014	0.014
Mercury	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 44 Arnie L. B 2m 94 09 04	Site 44 Arnie L. A3m 94 09 04	Site 44 Arnie L. B 3m 94 09 04	Site 44 Arnie L. A 4m 94 09 04	Site 44 Arnie L. B 4m 94 09 04	Site 44 Arnie L. 0m 94 07 29	Site 44 Arnie L. 2m 94 07 29	Site 44 Arnie L. 4m 94 07 29	Site 44 Arnie L. 6m 94 07 29
Molybdenum	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Selenium	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00004	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00007	0.00008	0.00008	0.00008	0.00007	0.00008	0.00006	0.00006	0.00008
Vanadium	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.003	0.002	0.005	0.001	0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Metals (µg/L)	0	0	0	0	0				
Aluminum	0.035	0.033	0.027	0.034	0.032	0.035	0.035	0.034	0.036
Antimony	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0003	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004	0.0004
Barium	0.01	0.01	0.01	0.01	0.01	<0.010	<0.010	<0.010	<0.010
Beryllium	0.003	0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003	<0.003
Boron	0.05	0.05	0.05	0.05	0.05	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	1.01	1.01	1.02	0.981	0.966	0.748	0.772	0.598	0.753
Chromium	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0012	0.0014	0.0014	0.0013	0.0017	0.0009	0.0008	0.0008	0.0007
Iron	0.15	0.15	0.15	0.14	0.15	0.23	0.23	0.21	0.24
Lead	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	1.32	1.33	1.33	1.36	1.35	0.629	0.634	0.517	0.638
Manganese	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005
Mercury	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	0.001	0.001	0.001	0.001	<0.001	0.001	<0.001	<0.001
Potassium	0.65	0.65	0.66	0.65	0.65	0.53	0.57	0.55	0.55
Selenium	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.52	0.52	0.52	0.52	0.52	0.6	0.64	0.63	0.61
Uranium	0.00006	0.00007	0.00006	0.00006	0.00006	0.00004	0.00004	0.00005	0.00004
Vanadium	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 44 Arnie L. 8m 94 07 29	Site 46 Mark L. 0m 94 09 04	Site 46 Mark L. 1m 94 09 04	Site 46 Mark L. 3m 94 09 04	Site 46 Mark L. 5m 94 09 04	Site 46 Mark L. 7m 94 09 04	Site 46 Mark L. 0m 94 07 29	Site 46 Mark L. 2m 94 07 29	Site 46 Mark L. 3m 94 07 29
Conductivity (µmhos/cm)	15.4	18.9	18.4	18.7	18.1	18.5	17.9	17 4	17.5
Total Dissolved Solids (mg/L)	10	13	13	12	13	12	13	12	12
Hardness (mg CaCO3/L)	4.47	6.01	6	6.03	6.05	6	5.61	5.58	5.55
pH (units)	6.34	6.57	6.55	6.55	6.54	6.55	6.41	6.48	6.46
Total Suspended Solids (mg/L)	1	1	1	1	1	1	1	1	1
Turbidity (NTU)	1.2	0.6	0.49	0.74	0.81	0.53	0.45	0.51	0.4
Acidity (mg CaCO3/L)	2	1.9	1.9	1.9	1.9	1.9	2	2	2
Alkalinity - Total (mg CaCO3/L)	4.2	4.9	4.7	5	4.7	4.6	4	4.3	3.9
Alkalinity - Bicarbonate (mg CaCO3/L)	4.2	4.9	4.7	5	4.7	4.6	4	4.3	3.9
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	1	1	1	1	1	<1.0	<1.0	<1.0
Chloride (mg/L)	0.8	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.8
Fluoride (mg/L)	0.05	0.03	0.03	0.03	0.03	0.03	0.05	0.05	0.05
Sulphate (mg/L)	1.8	3.5	3.3	3.2	3.2	2.5	2.8	3.1	3.1
Free Ammonia (mg NH3-N/L)	0.017	0.005	0.005	0.005	0.006	0.005	0.011	0.011	0.009
Nitrate (mg NO3-N/L)	0.005	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	<0.001	0.002	0.001	0.001	0.001	0.002	<0.001	<0.001	<0.001
Ortho-Phosphate (mg P/L)	0.003	0.003	0.002	0.002	0.002	0.003	0.003	0.002	0.002
Total Dissolved Phosphate (mg P/L)	0.009	0.012	0.006	0.007	0.007	0.008	0.005	0.008	0.006
Total Phosphorus (mg P/L)	0.009	0.012	0.007	0.007	0.007	0.008	0.007	0.008	0.006
Total Metals (µg/L)		0	0	0	0	0			
Aluminum	0.086	0.016	0.016	0.015	0.016	0.016	0.026	0.023	0.021
Antimony	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0004	0.0002	0.0003	0.0003	0.0002	0.0002	0.0001	0.0002	0.0002
Barium	<0.010	0.01	0.01	0.01	0.01	0.01	<0.010	<0.010	<0.010
Beryllium	<0.003	0.003	0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003
Boron	<0.050	0.05	0.05	0.05	0.05	0.05	<0.050	<0.050	<0.050
Cadmium	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.84	0.849	0.849	0.849	0.849	0.849	0.84	0.872	0.862
Chromium	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Cobalt	0.002	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Copper	0.0009	0.002	0.0016	0.0019	0.002	0.0015	0.002	0.001	0.001
Iron	0.38	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Lead	<0.001	0.004	0.003	0.001	0.001	0.001	0.002	<0.001	<0.001
Magnesium	0.696	0.95	0.943	0.95	0.954	0.954	0.914	0.923	0.937
Manganese	0.015	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 44 Amie L. 8m 94 07 29	Site 46 Mark L. 0m 94 09 04	Site 46 Mark L. 1m 94 09 04	Site 46 Mark L. 3m 94 09 04	Site 46 Mark L. 5m 94 09 04	Site 46 Mark L. 7m 94 09 04	Site 46 Mark L. 0m 94 07 29	Site 46 Mark L. 2m 94 07 29	Site 46 Mark L. 3m 94 07 29
Molybdenum	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Nickel	0.001	0.002	0.001	0.002	0.001	0.001	0.002	0.002	0.002
Selenium	<0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	0.00001	0.00001	0.00001	0.00004	0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00006	0.00002	0.00003	0.00003	0.00003	0.00003	0.00004	0.00003	0.00004
Vanadium	<0.005	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.001	0.001	0.002	0.003	0.001	<0.001	<0.001	<0.001
Dissolved Metals (µg/L)		0	0	0	0	0			
Aluminum	0.036	0.005	0.005	0.005	0.005	0.008	0.01	0.01	0.01
Antimony	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0003	0.0001	0.0002	0.0001	0.0001	0.0001	0.0001	0.0002	0.0001
Barium	<0.010	0.01	0.01	0.01	0.01	0.01	<0.010	<0.010	<0.010
Beryllium	<0.003	0.003	0.003	0.003	0.003	0.003	<0.003	<0.003	<0.003
Boron	<0.050	0.05	0.05	0.05	0.05	0.05	<0.050	<0.050	<0.050
Cadmium	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.746	0.848	0.849	0.849	0.849	0.849	0.796	0.792	0.798
Chromium	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Copper	0.0009	0.0016	0.0015	0.0014	0.002	0.0013	0.002	0.001	0.001
Iron	0.25	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Lead	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Magnesium	0.632	0.946	0.943	0.95	0.954	0.943	0.879	0.875	0.865
Manganese	<0.005	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	0.001	0.001	0.001	0.001	0.001	<0.001	<0.001	<0.001
Nickel	<0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001
Potassium	0.54	0.67	0.69	0.68	0.68	0.67	0.67	0.69	0.66
Selenium	<0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.61	0.55	0.55	0.55	0.56	0.55	0.51	0.51	0.51
Uranium	0.00005	0.00001	0.00001	0.00001	0.00002	0.00002	0.00003	0.00002	0.00003
Vanadium	<0.005	0.005	0.005	0.005	0.005	0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.001	0.001	0.002	0.002	0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 46 Mark L. 5m 94 07 29	Site 46 Mark L. 6.5m 94 07 29	Site 51 Bat L. A 0m 94 09 03	Site 51 Bat L. B 0m 94 09 03	Site 51 Bat L. C 0m 94 09 03	Site 51 Bat L. A 1m 94 09 03	Site 51 Bat L. B 1m 94 09 03	Site 51 Bat L. C 1m 94 09 03	Site 51 Bat L. A 1.5m 94 09 03
Conductivity (µmhos/cm)	17 4	17.7	11.8	12.2	11.5	11.5	11 4	12.3	11.6
Total Dissolved Solids (mg/L)	12	13	7	7	6	7	7	7	7
Hardness (mg CaCO3/L)	5.55	5.56	3.68	3.7	3.67	3.69	3.75	3.66	3.71
pH (units)	6.51	6.48	6.45	6.45	6.39	6.4	6.37	6.44	6.41
Total Suspended Solids (mg/L)	1	1	2	3	5	2	2	1	3
Turbidity (NTU)	0.45	0.43	0.81	0.81	0.81	0.85	0.89	0.72	0.69
Acidity (mg CaCO3/L)	2	2	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Alkalinity - Total (mg CaCO3/L)	4.1	3.9	3.5	3.6	3.7	3.2	3.3	4	3.5
Alkalinity - Bicarbonate (mg CaCO3/L)	4.1	3.9	3.5	3.6	3.7	3.3	3.3	4	3.5
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	1	1	1	1	1	1	1
Chloride (mg/L)	0.7	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Fluoride (mg/L)	0.06	0.05	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Sulphate (mg/L)	2.7	3.1	1.6	1.2	1.3	1 4	1 1	1.2	1.2
Free Ammonia (mg NH3-N/L)	0.007	0.007	0.007	0.01	0.012	0.008	0.011	0.01	0.008
Nitrate (mg NO3-N/L)	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Nitrite (mg NO2-N/L)	<0.001	<0.001	0.001	0.001	0.002	0.001	0.002	0.001	0.002
Ortho-Phosphate (mg P/L)	0.003	0.003	0.009	0.011	0.005	0.006	0.007	0.006	0.007
Total Dissolved Phosphate (mg P/L)	0.007	0.005	0.011	0.013	0.011	0.013	0.013	0.011	0.011
Total Phosphorus (mg P/L)	0.008	0.006	0.015	0.015	0.012	0.015	0.013	0.013	0.012
Total Metals (µg/L)			0	0	0	0	0	0	0
Aluminum	0.022	0.022	0.022	0.023	0.024	0.029	0.024	0.027	0.025
Antimony	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Arsenic	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
Barium	<0.010	<0.010	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Beryllium	<0.003	<0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Boron	<0.050	<0.050	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Cadmium	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	0.875	0.879	0.591	0.588	0.597	0.594	0.604	0.598	0.601
Chromium	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Copper	0.001	0.002	0.001	0.0009	0.001	0.001	0.0011	0.001	0.0028
Iron	0.07	0.07	0.06	0.05	0.06	0.06	0.07	0.06	0.06
Lead	<0.001	<0.001	0.004	0.004	0.005	0.008	0.01	0.008	0.003
Magnesium	0.928	0.936	0.539	0.543	0.548	0.537	0.547	0.54	0.537
Manganese	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Mercury	<0.00005	<0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 46 Mark L. 5m 94 07 29	Site 46 Mark L. 6.5m 94 07 29	Site 51 Bat L. A 0m 94 09 03	Site 51 Bat L. B 0m 94 09 03	Site 51 Bat L. C 0m 94 09 03	Site 51 Bat L. A 1m 94 09 03	Site 51 Bat L. B 1m 94 09 03	Site 51 Bat L. C 1m 94 09 03	Site 51 Bat L. A 1.5m 94 09 03
Molybdenum	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Nickel	0.002	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Selenium	<0.0005	<0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Silver	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Uranium	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
Vanadium	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Zinc	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.041	0.001
Dissolved Metals (µg/L)			0	0	0	0	0	0	0
Aluminum	0.011	0.01	0.006	0.006	0.005	0.005	0.006	0.005	0.004
Antimony	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Arsenic	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001
Barium	<0.010	<0.010	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Beryllium	<0.003	<0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Boron	<0.050	<0.050	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Cadmium	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	0.798	0.803	0.591	0.588	0.597	0.594	0.604	0.588	0.601
Chromium	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Copper	0.001	0.001	0.001	0.0009	0.001	0.001	0.0009	0.001	0.0009
Iron	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Lead	<0.001	<0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.003
Magnesium	0.864	0.864	0.536	0.543	0.53	0.537	0.543	0.533	0.537
Manganese	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Mercury	<0.00005	<0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Molybdenum	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Nickel	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Potassium	0.66	0.64	0.5	0.48	0.49	0.5	0.53	0.5	0.47
Selenium	<0.0005	<0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Silver	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Sodium	0.51	0.5	0.45	0.44	0.44	0.45	0.45	0.44	0.43
Uranium	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Vanadium	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Zinc	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 51 Bat L. B 1.5m 94 09 03	Site 51 Bat L. C 1.5m 94 09 03	Site 51 Bat L. A 2.0m 94 09 03	Site 51 Bat L. B 2.0m 94 09 03	Site 51 Bat L. C 2.0m 94 09 03	Site 51 Bat L. A 2.5m 94 09 03	Site 51 Bat L. B 2.5m 94 09 03	Site 51 Bat L. C 2.5m 94 09 03	Site 51 Bat L. 0m 94 07 31
Conductivity (µmhos/cm)	11.8	11.7	11.6	11.5	11.5	13.9	11.3	11.3	10.9
Total Dissolved Solids (mg/L)	7	7	7	7	7	7	8	7	8
Hardness (mg CaCO3/L)	3.68	3.66	3.61	3.66	3.65	3.72	3.5	3.76	3.48
pH (units)	6.42	6.42	6.42	6.39	6.43	6.61	6.41	6.42	6.47
Total Suspended Solids (mg/L)	1	1	2	1	2	1	1	2	<1
Turbidity (NTU)	1.06	0.95	0.74	1.04	0.91	0.88	0.89	0.86	0.5
Acidity (mg CaCO3/L)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2
Alkalinity - Total (mg CaCO3/L)	4.2	3.6	4.2	3.7	4.3	4 4	3.9	4.2	3.5
Alkalinity - Bicarbonate (mg CaCO3/L)	4.2	3.6	4.2	3.7	4.3	4 4	3.9	4.2	3.5
Alkalinity - Carbonate (mg CaCO3/L)	1	1	1	1	1	1	1	1	<1.0
Chloride (mg/L)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7
Fluoride (mg/L)	0.03	0.03	0.03	0.02	0.03	0.03	0.03	0.03	0.04
Sulphate (mg/L)	1.2	1.2	1	1.2	1 1	1	1 4	1.2	<1.0
Free Ammonia (mg NH3-N/L)	0.013	0.011	0.01	0.015	0.01	0.009	0.01	0.009	0.013
Nitrate (mg NO3-N/L)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	<0.005
Nitrite (mg NO2-N/L)	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	<0.001
Ortho-Phosphate (mg P/L)	0.006	0.006	0.007	0.005	0.005	0.005	0.005	0.005	0.003
Total Dissolved Phosphate (mg P/L)	0.012	0.01	0.01	0.01	0.01	0.011	0.011	0.01	0.009
Total Phosphorus (mg P/L)	0.015	0.012	0.012	0.012	0.013	0.012	0.013	0.013	0.018
Total Metals (µg/L)	0	0	0	0	0	0	0	0	
Aluminum	0.028	0.023	0.029	0.034	0.024	0.023	0.024	0.02	0.024
Antimony	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0002	0.0001	0.0002	0.0001	0.0001	0.0002	0.0002
Barium	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	<0.010
Beryllium	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	<0.003
Boron	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	<0.050
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001
Calcium	0.598	0.601	0.591	0.598	0.598	0.604	0.556	0.61	0.605
Chromium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
Copper	0.0012	0.0012	0.0018	0.001	0.0035	0.001	0.001	0.001	0.0008
Iron	0.07	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06
Lead	0.005	0.005	0.004	0.005	0.004	0.002	0.004	0.002	0.002
Magnesium	0.536	0.544	0.529	0.526	0.53	0.536	0.515	0.546	0.548
Manganese	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	<0.005
Mercury	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 51 Bat L. B 1.5m 94 09 03	Site 51 Bat L. C 1.5m 94 09 03	Site 51 Bat L. A 2.0m 94 09 03	Site 51 Bat L. B 2.0m 94 09 03	Site 51 Bat L. C 2.0m 94 09 03	Site 51 Bat L. A 2.5m 94 09 03	Site 51 Bat L. B 2.5m 94 09 03	Site 51 Bat L. C 2.5m 94 09 03	Site 51 Bat L. 0m 94 07 31
Molybdenum	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	<0.001
Nickel	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Selenium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001
Uranium	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00003	0.00002
Vanadium	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	<0.005
Zinc	0.001	0.001	0.001	0.005	0.005	0.001	0.002	0.001	<0.001
Dissolved Metals (µg/L)	0	0	0	0	0	0	0	0	
Aluminum	0.006	0.006	0.006	0.005	0.005	0.005	0.005	0.008	0.015
Antimony	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002
Barium	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	<0.010
Beryllium	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	<0.003
Boron	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	<0.050
Cadmium	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	<0.0001
Calcium	0.598	0.598	0.591	0.598	0.598	0.604	0.55	0.61	0.551
Chromium	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
Cobalt	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
Copper	0.0009	0.0009	0.0009	0.001	0.0009	0.0009	0.001	0.001	<0.0005
Iron	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	<0.01
Lead	0.005	0.004	0.002	0.002	0.003	0.001	0.001	0.001	<0.001
Magnesium	0.53	0.526	0.518	0.525	0.523	0.536	0.515	0.542	0.511
Manganese	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	<0.005
Mercury	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	<0.00005
Molybdenum	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
Nickel	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	<0.001
Potassium	0.48	0.48	0.48	0.49	0.49	0.48	0.48	0.48	0.43
Selenium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	<0.0005
Silver	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001
Sodium	0.44	0.43	0.44	0.44	0.45	0.44	0.43	0.43	0.39
Uranium	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	<0.00001
Vanadium	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	<0.005
Zinc	0.001	0.001	0.001	0.001	0.004	0.001	0.002	0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 51 Bat L. 1m 94 07 31	Site 51 Bat L. 2m 94 07 31	Site 51 Bat L. 3m 94 07 31	Site 51 Bat L. 4m 94 07 31	Site 52 Paul (E) L. 0m 94 09 06	Site 52 Paul (E) L. 3m 94 09 06	Site 52 Paul (E) L. 5m 94 09 06	Site 52 Paul (E) L. 8m 94 09 06	Site 52 Paul (E) L. 11m 94 09 06
Conductivity (µmhos/cm)	10.8	10.9	10.7	10.6	14	13.7	13.4	13.7	13.1
Total Dissolved Solids (mg/L)	8	8	8	8	8	9	9	8	8
Hardness (mg CaCO3/L)	3.61	3.54	3.56	3.53	4.31	4.28	4.34	4.36	4.29
pH (units)	6.49	6.46	6.43	6.47	6.55	6.58	6.57	6.65	6.57
Total Suspended Solids (mg/L)	<1	<1	3	1	2	1	1	1	1
Turbidity (NTU)	0.52	0.5	0.44	0.54	0.98	0.66	0.96	0.65	0.61
Acidity (mg CaCO3/L)	2	2	2	2	2.9	1.9	1.9	1.9	2.4
Alkalinity - Total (mg CaCO3/L)	3.3	3.2	3.4	3.8	4 4	4.7	4.3	5	5
Alkalinity - Bicarbonate (mg CaCO3/L)	3.3	3.2	3.4	3.8	4 4	4.7	4.3	5	5
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	1	1	1	1	1
Chloride (mg/L)	<0.5	<0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5
Fluoride (mg/L)	0.04	0.02	0.05	0.05	0.03	0.03	0.03	0.03	0.03
Sulphate (mg/L)	1.2	1.1	<1.0	1 1	1.2	1.3	1 1	1.2	1 1
Free Ammonia (mg NH3-N/L)	0.013	0.009	0.009	0.009	0.009	0.01	0.013	0.013	0.008
Nitrate (mg NO3-N/L)	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005
Nitrite (mg NO2-N/L)	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.001	0.002	0.001
Ortho-Phosphate (mg P/L)	0.002	0.003	0.003	0.003	0.107	0.006	0.007	0.009	0.005
Total Dissolved Phosphate (mg P/L)	0.008	0.008	0.008	0.008	0.116	0.011	0.009	0.015	0.012
Total Phosphorus (mg P/L)	0.008	0.008	0.008	0.01	0.116	0.014	0.012	0.015	0.014
Total Metals (µg/L)					0		0	0	0
Aluminum	0.022	0.021	0.019	0.021	0.018	0.016	0.014	0.015	0.015
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Arsenic	0.0001	0.0001	0.0002	0.0002	0.0004	0.0004	0.0004	0.0004	0.0005
Barium	<0.010	<0.010	<0.010	<0.010	0.01	0.01	0.01	0.01	0.01
Beryllium	<0.003	<0.003	<0.003	<0.003	0.003	0.003	0.003	0.003	0.003
Boron	<0.050	<0.050	<0.050	<0.050	0.05	0.05	0.05	0.05	0.05
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	0.605	0.608	0.608	0.628	0.685	0.682	0.719	0.707	0.679
Chromium	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Copper	0.0006	0.0007	0.0006	0.0006	0.0011	0.002	0.001	0.0011	0.001
Iron	0.05	0.05	0.05	0.06	0.03	0.03	0.03	0.03	0.03
Lead	0.004	0.002	0.001	<0.001	0.003	0.001	0.001	0.001	0.001
Magnesium	0.553	0.558	0.556	0.56	0.632	0.627	0.648	0.647	0.63
Manganese	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0.00005	0.00005	0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 51 Bat L. 1m 94 07 31	Site 51 Bat L. 2m 94 07 31	Site 51 Bat L. 3m 94 07 31	Site 51 Bat L. 4m 94 07 31	Site 52 Paul (E) L. 0m 94 09 06	Site 52 Paul (E) L. 3m 94 09 06	Site 52 Paul (E) L. 5m 94 09 06	Site 52 Paul (E) L. 8m 94 09 06	Site 52 Paul (E) L. 11m 94 09 06
Molybdenum	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Nickel	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Uranium	<0.00001	<0.00001	0.00002	0.00002	0.00002	0.00003	0.00002	0.00003	0.00003
Vanadium	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005
Zinc	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.001	0.001	0.001
Dissolved Metals (µg/L)					0		0	0	0
Aluminum	0.007	0.007	0.008	0.006	0.004	0.012	0.003	0.005	0.002
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Arsenic	0.0001	0.0001	0.0001	0.0002	0.0004	0.0004	0.0004	0.0004	0.0004
Barium	<0.010	<0.010	<0.010	<0.010	0.01	0.01	0.01	0.01	0.01
Beryllium	<0.003	<0.003	<0.003	<0.003	0.003	0.003	0.003	0.003	0.003
Boron	<0.050	<0.050	<0.050	<0.050	0.05	0.05	0.05	0.05	0.05
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	0.579	0.558	0.576	0.569	0.685	0.682	0.703	0.7	0.679
Chromium	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Copper	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	0.0008	0.001	0.0011	0.0009
Iron	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01	0.01
Lead	0.003	0.002	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Magnesium	0.526	0.522	0.516	0.512	0.632	0.627	0.628	0.635	0.63
Manganese	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0.00005	0.00005	0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Nickel	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001
Potassium	0.46	0.41	0.41	0.43	0.51	0.52	0.51	0.51	0.51
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Sodium	0.41	0.39	0.4	0.38	0.54	0.53	0.53	0.54	0.51
Uranium	<0.00001	<0.00001	0.00001	<0.00001	0.00002	0.00001	0.00001	0.00001	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005
Zinc	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 52 Paul (E) L. 0m 94 08 01	Site 52 Paul (E) L. 3m 94 08 01	Site 52 Paul (E) L. 6m 94 08 01	Site 52 Paul (E) L. 9m 94 08 01	Site 52 Paul (E) L. 11m 94 08 01	Site 53 Paul (W) L. 0m 94 09 07	Site 53 Paul (W) L. 3m 94 09 07	Site 53 Paul (W) L. 5m 94 09 07	Site 53 Paul (W) L. 7m 94 09 07
Conductivity (µmhos/cm)	12.8	12.9	12.7	12.6	12.8	14.7	13.3	13.7	14.7
Total Dissolved Solids (mg/L)	9	9	9	9	9	8	8	8	8
Hardness (mg CaCO3/L)	4.34	4.43	4.29	4.28	4.31	4.36	4.42	4 44	4 43
pH (units)	6.55	6.55	6.52	6.48	6.44	6.66	6.6	6.65	6.52
Total Suspended Solids (mg/L)	2	<1	<1	1	<1	1	1	2	1
Turbidity (NTU)	0.6	0.62	0.65	0.67	0.69	0.59	0.71	0.56	0.6
Acidity (mg CaCO3/L)	2	2	2	2	2	2.9	1.9	1.9	1.9
Alkalinity - Total (mg CaCO3/L)	4.4	4.5	4.4	4.5	4.5	5	4.5	4.8	4.5
Alkalinity - Bicarbonate (mg CaCO3/L)	4.4	4.5	4.4	4.5	4.5	5	4.5	4.8	4.5
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	1	1	1	1
Chloride (mg/L)	0.7	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.5
Fluoride (mg/L)	0.05	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03
Sulphate (mg/L)	<1.0	<1.0	<1.0	1.1	<1.0	1.2	1	1 1	1.6
Free Ammonia (mg NH3-N/L)	0.008	0.009	0.009	0.007	0.009	0.005	0.005	0.005	0.005
Nitrate (mg NO3-N/L)	0.005	0.006	0.006	<0.005	0.005	0.005	0.005	0.005	0.005
Nitrite (mg NO2-N/L)	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.004	0.001	0.005
Ortho-Phosphate (mg P/L)	0.003	0.003	0.002	0.003	0.004	0.007	0.004	0.004	0.004
Total Dissolved Phosphate (mg P/L)	0.008	0.008	0.009	0.008	0.011	0.012	0.009	0.011	0.011
Total Phosphorus (mg P/L)	0.009	0.008	0.009	0.01	0.012	0.016	0.009	0.011	0.012
Total Metals (µg/L)						0	0	0	0
Aluminum	0.02	0.021	0.018	0.016	0.018	0.01	0.021	0.085	0.012
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001
Arsenic	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.01	0.01	0.01
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.003	0.003	0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05	0.05	0.05
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	0.844	0.83	0.838	0.817	0.817	0.725	0.744	0.774	0.744
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Copper	0.0007	0.0008	0.0006	0.0006	0.0006	0.0009	0.0009	0.0016	0.0009
Iron	0.04	0.04	0.04	0.05	0.06	0.03	0.06	0.08	0.04
Lead	<0.001	<0.001	0.001	<0.001	<0.001	0.003	0.001	0.004	0.001
Magnesium	0.645	0.635	0.641	0.635	0.648	0.619	0.651	0.667	0.639
Manganese	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0.00005	0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 52 Paul (E) L. 0m 94 08 01	Site 52 Paul (E) L. 3m 94 08 01	Site 52 Paul (E) L. 6m 94 08 01	Site 52 Paul (E) L. 9m 94 08 01	Site 52 Paul (E) L. 11m 94 08 01	Site 53 Paul (W) L. 0m 94 09 07	Site 53 Paul (W) L. 3m 94 09 07	Site 53 Paul (W) L. 5m 94 09 07	Site 53 Paul (W) L. 7m 94 09 07
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Nickel	0.002	0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005	0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001
Uranium	0.00002	0.00002	0.00001	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005
Zinc	0.005	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Dissolved Metals (µg/L)						0	0	0	0
Aluminum	0.003	0.005	0.003	0.006	0.006	0.002	0.003	0.004	0.002
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001
Arsenic	0.0003	0.0004	0.0004	0.0003	0.0004	0.0003	0.0003	0.0003	0.0003
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.01	0.01	0.01
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.003	0.003	0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05	0.05	0.05
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0001
Calcium	0.775	0.766	0.745	0.743	0.75	0.725	0.744	0.751	0.737
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Copper	<0.0005	0.0008	<0.0005	<0.0005	<0.0005	0.0009	0.0009	0.0009	0.0009
Iron	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Magnesium	0.584	0.61	0.589	0.59	0.591	0.619	0.623	0.624	0.628
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0.00005	0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Potassium	0.48	0.47	0.49	0.47	0.48	0.5	0.48	0.48	0.48
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005	0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001
Sodium	0.47	0.47	0.46	0.47	0.48	0.5	0.51	0.51	0.51
Uranium	0.00001	0.00002	0.00001	0.00001	0.00002	0.00001	0.00001	0.00002	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 53 Paul (W) L. 9m 94 09 07	Site 53 Paul (w) L. 0m 94 08 01	Site 53 Paul (W) L. 3m 94 08 01	Site 53 Paul (W) L. 6m 94 08 01	Site 53 Paul (W) L. 9m 94 08 01	Site 53 Paul (W) L. 11m 94 08 01	max	min	mean
Conductivity (µmhos/cm)	13.1	12.8	12.6	12.7	12.7	12.7	21 4	9.7	14.44
Total Dissolved Solids (mg/L)	8	9	8	9	9	9	15	6	9.4375
Hardness (mg CaCO3/L)	4 44	4.28	4.09	4.29	4.27	4.27	8.29	1.64	4.849875
pH (units)	6.56	6.59	6.52	6.5	6.49	6.52	6.75	6.3	6.526375
Total Suspended Solids (mg/L)	2	1	1	<1	2	<1	5	0.01	1.544412
Turbidity (NTU)	0.82	0.88	0.84	0.78	0.79	0.89	1.3	0.4	0.742875
Acidity (mg CaCO3/L)	1.9	2	2	2	2	2	4	1.9	2.0125
Alkalinity - Total (mg CaCO3/L)	4.8	4.6	4.9	4.8	4.6	4.6	8.4	2.6	4.765
Alkalinity - Bicarbonate (mg CaCO3/L)	4.8	4.6	4.9	4.8	4.6	4.6	8.4	2.6	4.76625
Alkalinity - Carbonate (mg CaCO3/L)	1	<1.0	<1.0	<1.0	<1.0	<1.0	1	1	1
Chloride (mg/L)	0.5	0.7	0.7	0.7	0.8	0.6	1	0.5	0.574286
Fluoride (mg/L)	0.03	0.05	0.04	0.04	0.04	0.04	0.08	0.02	0.036456
Sulphate (mg/L)	1.6	<1.0	<1.0	<1.0	<1.0	1.2	3.5	1	1.57377
Free Ammonia (mg NH3-N/L)	0.007	0.01	0.01	0.013	0.011	0.011	0.027	0.005	0.010392
Nitrate (mg NO3-N/L)	0.007	0.005	<0.005	<0.005	<0.005	0.005	0.018	0.005	0.005333
Nitrite (mg NO2-N/L)	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.001	0.001851
Ortho-Phosphate (mg P/L)	0.005	0.004	0.003	0.007	0.004	0.005	0.107	0.002	0.005725
Total Dissolved Phosphate (mg P/L)	0.008	0.006	0.009	0.01	0.009	0.01	0.116	0.003	0.011038
Total Phosphorus (mg P/L)	0.009	0.011	0.011	0.017	0.01	0.012	0.116	0.006	0.012675
Total Metals (µg/L)	0						0	0	0
Aluminum	0.014	0.041	0.029	0.052	0.041	0.041	0.101	0.01	0.03605
Antimony	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001
Arsenic	0.0004	0.0006	0.0005	0.0006	0.0005	0.0006	0.0006	0.0001	0.000314
Barium	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.01	0.01
Beryllium	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.003	0.003
Boron	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05	0.05
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0003	0.0001	0.000106
Calcium	0.731	0.779	0.811	0.804	0.807	0.807	1.2	0.362	0.773625
Chromium	0.001	<0.001	<0.001	<0.001	0.001	<0.001	0.001	0.001	0.001
Cobalt	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.001022
Copper	0.0013	0.001	0.0007	0.0007	0.0009	0.0008	0.0035	0.0006	0.001235
Iron	0.04	0.05	0.04	0.05	0.05	0.05	0.39	0.03	0.1125
Lead	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.01	0.001	0.002536
Magnesium	0.635	0.633	0.644	0.648	0.647	0.645	1.57	0.24	0.766888
Manganese	0.006	0.005	0.005	0.005	0.005	0.006	0.015	0.005	0.005883
Mercury	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 53 Paul (W) L. 9m 94 09 07	Site 53 Paul (w) L. 0m 94 08 01	Site 53 Paul (W) L. 3m 94 08 01	Site 53 Paul (W) L. 6m 94 08 01	Site 53 Paul (W) L. 9m 94 08 01	Site 53 Paul (W) L. 11m 94 08 01	max	min	mean
Molybdenum	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.001022
Nickel	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.001333
Selenium	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00004	0.00001	1.15E-05
Uranium	0.00002	0.00003	0.00003	0.00002	0.00002	0.00003	0.00008	0.00001	3.64E-05
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005
Zinc	0.001	0.005	<0.001	<0.001	<0.001	<0.001	0.041	0.001	0.002729
Dissolved Metals (µg/L)	0						0	0	0
Aluminum	0.002	0.006	0.005	<0.002	0.004	0.004	0.043	0.002	0.013633
Antimony	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001
Arsenic	0.0003	0.0005	0.0005	0.0005	0.0004	0.0005	0.0005	0.0001	0.000264
Barium	0.01	<0.010	<0.010	<0.010	<0.010	<0.010	0.01	0.01	0.01
Beryllium	0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	0.003	0.003
Boron	0.05	<0.050	<0.050	<0.050	<0.050	<0.050	0.05	0.05	0.05
Cadmium	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0001
Calcium	0.731	0.721	0.689	0.72	0.725	0.722	1.06	0.318	0.727475
Chromium	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001
Cobalt	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001
Copper	0.0009	0.001	<0.0005	0.0005	0.0008	0.0008	0.002	0.0005	0.001009
Iron	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.25	0.01	0.071333
Lead	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.001	0.001375
Magnesium	0.635	0.602	0.576	0.605	0.598	0.6	1.38	0.206	0.73355
Manganese	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005
Mercury	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0.00005
Molybdenum	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001
Nickel	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.001	0.001137
Potassium	0.48	0.47	0.48	0.46	0.48	0.49	0.69	0.2	0.527
Selenium	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	0.00001	1.02E-05
Sodium	0.51	0.48	0.48	0.48	0.49	0.48	0.64	0.25	0.479625
Uranium	0.00001	0.00002	0.00002	0.00002	0.00002	0.00002	0.00008	0.00001	2.66E-05
Vanadium	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	0.005	0.005
Zinc	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.001	0.001239

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	s.d
Conductivity (µmhos/cm)	3.509791
Total Dissolved Solids (mg/L)	2.574676
Hardness (mg CaCO3/L)	1 758665
pH (units)	0.11241
Total Suspended Solids (mg/L)	0.920789
Turbidity (NTU)	0.21138
Acidity (mg CaCO3/L)	0.297404
Alkalinity - Total (mg CaCO3/L)	1.537391
Alkalinity - Bicarbonate (mg CaCO3/L)	1 536142
Alkalinity - Carbonate (mg CaCO3/L)	0
Chloride (mg/L)	0.111233
Fluoride (mg/L)	0.010626
Sulphate (mg/L)	0.703065
Free Ammonia (mg NH3-N/L)	0.005393
Nitrate (mg NO3-N/L)	0.001791
Nitrite (mg NO2-N/L)	0.001122
Ortho-Phosphate (mg P/L)	0.011592
Total Dissolved Phosphate (mg P/L)	0.012221
Total Phosphorus (mg P/L)	0.012208
Total Metals (µg/L)	0
Aluminum	0.02567
Antimony	3.29E-12
Arsenic	0.000138
Barium	0
Beryllium	0
Boron	1 38E-09
Cadmium	3.23E-05
Calcium	0.184559
Chromium	0
Cobalt	0.000147
Copper	0.000568
Iron	0.103734
Lead	0.002036
Magnesium	0.337362
Manganese	0.002552
Mercury	1.65E-12

	s.d
Molybdenum	0.000149
Nickel	0.000475
Selenium	0
Silver	6.25E-06
Uranium	2.3E-05
Vanadium	0
Zinc	0.005841
Dissolved Metals (µg/L)	0
Aluminum	0.012804
Antimony	3.29E-12
Arsenic	0.000133
Barium	0
Beryllium	0
Boron	1.38E-09
Cadmium	3.29E-12
Calcium	0.172624
Chromium	0
Cobalt	0
Copper	0.000336
Iron	0.083979
Lead	0.000866
Magnesium	0.330717
Manganese	0
Mercury	1.65E-12
Molybdenum	0
Nickel	0.000348
Potassium	0.107378
Selenium	0
Silver	1 47E-06
Sodium	0.070107
Uranium	2.22E-05
Vanadium	0
Zinc	0.000705

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 34 Ursula(W) L. A 0m 94 07 17	Site 34 Ursula(W) L. B 0m 94 07 17	Site 34 Ursula(W) L. A 4m 94 07 17	Site 34 Ursula(W) L. B 4m 94 07 17	Site 34 Ursula(W) L. A 8m 94 07 17	Site 34 Ursula(W) L. B 8m 94 07 17	Site 34 Ursula(W) L. A 12m 94 07 17	Site 34 Ursula(W) L. B 12m 94 07 17	Site 34 Ursula(W) L. A 16m 94 07 17	Site 34 Ursula(W) L. B 16m 94 07 17
Conductivity (µmhos/cm)	7.8	-	8.1	-	7.8	-	7.8	-	7.9	-
Total Dissolved Solids (mg/L)	6	-	6	-	6	-	6	-	6	-
Hardness (mg CaCO3/L)	2.04	-	2.22	-	2.23	-	2.22	-	1.8	-
pH (units)	6.46	-	6.45	-	6.47	-	6.37	-	6.38	-
Total Suspended Solids (mg/L)	1	-	<1	-	<1	-	1	-	<1	-
Turbidity (NTU)	0.22	-	0.38	-	0.34	-	0.27	-	0.46	-
Acidity (mg CaCO3/L)	2	-	2	-	2	-	2	-	2	-
Alkalinity - Total (mg CaCO3/L)	2.1	-	2.8	-	2.3	-	2.3	-	2.1	-
Alkalinity - Bicarbonate (mg CaCO3/L)	2.1	-	2.8	-	2.3	-	2.3	-	2.1	-
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	-	<1.0	-	<1.0	-	<1.0	-	<1.0	-
Chloride (mg/L)	0.6	-	0.5	-	0.6	-	0.6	-	0.6	-
Fluoride (mg/L)	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-
Sulphate (mg/L)	<1.0	-	<1.0	-	<1.0	-	1	-	<1.0	-
Free Ammonia (mg NH3-N/L)	<0.005	-	0.006	-	0.006	-	0.009	-	0.006	-
Nitrate (mg NO3-N/L)	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-
Nitrite (mg NO2-N/L)	<0.001	-	0.001	-	0.001	-	0.002	-	0.001	-
Ortho-Phosphate (mg P/L)	0.002	-	0.003	-	0.001	-	0.002	-	0.002	-
Total Dissolved Phosphate (mg P/L)	0.003	-	0.007	-	0.002	-	0.004	-	0.004	-
Total Phosphorus (mg P/L)	0.003	-	0.011	-	0.002	-	0.004	-	0.004	-
Total Metals (µg/L)										
Aluminum	0.005	0.005	0.009	0.005	0.006	0.007	0.005	0.004	0.004	0.003
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0002	<0.0001	<0.0001	<0.0001
Calcium	0.35	0.22	0.465	0.352	0.454	0.415	0.48	0.357	0.376	0.132
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	0.0009	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Iron	0.02	0.01	0.02	0.01	0.02	0.02	0.03	0.02	0.02	0.01
Lead	<0.001	<0.001	0.002	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.215	0.147	0.291	0.231	0.289	0.256	0.28	0.22	0.238	0.082
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 34 Ursula(W) L. A 0m 94 07 17	Site 34 Ursula(W) L. B 0m 94 07 17	Site 34 Ursula(W) L. A 4m 94 07 17	Site 34 Ursula(W) L. B 4m 94 07 17	Site 34 Ursula(W) L. A 8m 94 07 17	Site 34 Ursula(W) L. B 8m 94 07 17	Site 34 Ursula(W) L. A 12m 94 07 17	Site 34 Ursula(W) L. B 12m 94 07 17	Site 34 Ursula(W) L. A 16m 94 07 17	Site 34 Ursula(W) L. B 16m 94 07 17
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	0.00003	0.00003	0.00002	<0.00001	<0.00001	<0.00001	0.00002
Uranium	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	<0.00001	0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Dissolved Metals (µg/L)										
Aluminum	0.003	0.005	0.006	0.002	0.003	<0.002	0.005	<0.002	<0.002	<0.002
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.35	0.22	0.435	0.35	0.435	0.346	0.438	0.271	0.359	0.13
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Iron	0.01	0.01	0.01	<0.01	0.01	0.01	0.01	0.01	0.01	0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.21	0.14	0.274	0.23	0.278	0.219	0.274	0.169	0.22	0.08
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.19	0.08	0.19	0.15	0.21	0.16	0.19	0.08	0.13	0.11
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.33	0.26	0.35	0.27	0.38	0.29	0.37	0.17	0.26	0.18
Uranium	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 34 Ursula (W) L. A 0m 94 08 31	Site 34 Ursula (W) L. B 0m 94 08 31	Site 34 Ursula (W) L. A 2m 94 08 31	Site 34 Ursula (W) L. B 2m 94 08 31	Site 34 Ursula (W) L. A 4m 94 08 31	Site 34 Ursula (W) L. B 4m 94 08 31	Site 34 Ursula (W) L. A 6m 94 08 31	Site 34 Ursula (W) L. B 6m 94 08 31
Conductivity (µmhos/cm)	7.8	8.7	8.1	8	8.4	8.3	8.5	8.4
Total Dissolved Solids (mg/L)	4	5	5	4	4	4	4	5
Hardness (mg CaCO3/L)	2.38	2.43	2.5	2.42	2.37	2.42	2.47	2.34
pH (units)	6.33	6.3	6.33	6.36	6.33	6.45	6.32	6.34
Total Suspended Solids (mg/L)	<1	1	<1	1	<1	3	<1	<1
Turbidity (NTU)	0.35	0.48	0.44	0.3	0.25	0.36	0.45	0.49
Acidity (mg CaCO3/L)	2	2	2	2	1	1	2	2
Alkalinity - Total (mg CaCO3/L)	2.2	2.4	2.6	2.4	2.8	2.5	2.7	2.4
Alkalinity - Bicarbonate (mg CaCO3/L)	2.2	2.4	2.6	2.4	2.8	2.5	2.7	2.4
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Sulphate (mg/L)	<1.0	1.2	1.2	1.1	<1.0	<1.0	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.011	0.008	0.011	0.007	0.007	0.011	0.011	0.016
Nitrate (mg NO3-N/L)	<0.005	0.022	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO2-N/L)	<0.001	0.005	<0.001	<0.001	0.002	0.001	<0.001	0.001
Ortho-Phosphate (mg P/L)	0.002	0.003	0.002	0.002	0.002	0.002	0.002	0.002
Total Dissolved Phosphate (mg P/L)	0.002	0.005	0.003	0.003	0.002	0.004	0.003	0.003
Total Phosphorus (mg P/L)	0.003	0.005	0.004	0.003	0.003	0.005	0.003	0.006
Total Metals (µg/L)								
Aluminum	0.014	0.011	0.011	0.008	0.009	0.008	0.009	0.007
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004
Calcium	0.469	0.491	0.488	0.457	0.451	0.47	0.488	0.439
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0005	0.0005	<0.0005	<0.0005	<0.0005	0.0005	<0.0005	<0.0005
Iron	0.02	0.02	0.03	0.02	0.01	0.02	0.03	0.02
Lead	0.002	0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
Magnesium	0.326	0.333	0.338	0.323	0.325	0.331	0.335	0.325
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 34 Ursula (W) L. A 0m 94 08 31	Site 34 Ursula (W) L. B 0m 94 08 31	Site 34 Ursula (W) L. A 2m 94 08 31	Site 34 Ursula (W) L. B 2m 94 08 31	Site 34 Ursula (W) L. A 4m 94 08 31	Site 34 Ursula (W) L. B 4m 94 08 31	Site 34 Ursula (W) L. A 6m 94 08 31	Site 34 Ursula (W) L. B 6m 94 08 31
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Uranium	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.003	0.001	<0.001	0.002	<0.001	<0.001	<0.001
Dissolved Metals (µg/L)								
Aluminum	0.004	0.003	0.004	0.006	0.004	0.003	0.009	0.003
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.455	0.472	0.488	0.457	0.437	0.457	0.482	0.439
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Iron	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.301	0.303	0.311	0.31	0.31	0.31	0.308	0.303
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.28	0.28	0.32	0.3	0.3	0.28	0.28	0.3
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.37	0.43	0.36	0.38	0.36	0.36	0.36	0.38
Uranium	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	0.001	<0.001	0.002	<0.001	<0.001	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 34 Ursula (W) L. A 8m 94 08 31	Site 34 Ursula (W) L. B 8m 94 08 31	Site 35 Ursula (E) L. 0m 94 08 30	Site 35 Ursula (E) L. 4m 94 08 30	Site 35 Ursula (E) L. 8m 94 08 30	Site 35 Ursula (E) L. 12m 94 08 30	Site 35 Ursula (E) L. 17m 94 08 30	Site 35 Ursula (E) L. 0m 94 07 16	Site 35 Ursula (E) L. 3m 94 07 16
Conductivity (µmhos/cm)	7.8	7.9	8	8	8.1	8.9	8.8	7.8	8
Total Dissolved Solids (mg/L)	4	4	5	5	5	5	6	6	6
Hardness (mg CaCO3/L)	2.33	2.39	2.43	2.39	2.4	2.46	2.36	1.66	2.15
pH (units)	6.35	6.33	6.32	6.35	6.36	6.45	6.46	6.4	6.46
Total Suspended Solids (mg/L)	1	<1	1	1	<1	3	<1	<1	<1
Turbidity (NTU)	0.28	0.36	0.34	0.29	0.3	0.43	0.36	0.36	0.21
Acidity (mg CaCO3/L)	2	2	2	2	2	2	2	2	2
Alkalinity - Total (mg CaCO3/L)	2.8	2.6	2.5	2.4	2.2	2.3	2.6	2.6	2.7
Alkalinity - Bicarbonate (mg CaCO3/L)	2.8	2.6	2.5	2.4	2.2	2.3	2.6	2.6	2.7
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	0.5	<0.5	0.6	<0.5	<0.5	<0.5
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	<0.02	<0.02
Sulphate (mg/L)	<1.0	<1.0	<1.0	<1.0	1	<1.0	1.2	<1.0	<1.0
Free Ammonia (mg NH3-N/L)	0.007	0.009	0.013	0.011	0.009	0.005	0.011	0.008	0.007
Nitrate (mg NO3-N/L)	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	0.006
Nitrite (mg NO2-N/L)	<0.001	<0.001	<0.001	0.001	0.002	<0.001	0.004	<0.001	0.001
Ortho-Phosphate (mg P/L)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.001
Total Dissolved Phosphate (mg P/L)	0.003	0.003	0.003	0.003	0.003	0.007	0.003	0.003	0.002
Total Phosphorus (mg P/L)	0.003	0.003	0.003	0.003	0.005	0.007	0.003	0.003	0.002
Total Metals (µg/L)									
Aluminum	0.015	0.009	0.008	0.008	0.007	0.008	0.01	0.006	0.005
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	0.0001	0.0001	0.0012	0.0017	0.0007	<0.0001	0.0002	<0.0001	<0.0001
Calcium	0.451	0.495	0.479	0.485	0.458	0.505	0.467	0.361	0.306
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	0.0005	<0.0005	0.0005	<0.0005	0.0005	<0.0005	<0.0005
Iron	0.02	0.03	0.02	0.02	0.02	0.03	0.02	0.02	0.02
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.322	0.345	0.334	0.326	0.327	0.348	0.339	0.234	0.202
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 34 Ursula (W) L. A 8m 94 08 31	Site 34 Ursula (W) L. B 8m 94 08 31	Site 35 Ursula (E) L. 0m 94 08 30	Site 35 Ursula (E) L. 4m 94 08 30	Site 35 Ursula (E) L. 8m 94 08 30	Site 35 Ursula (E) L. 12m 94 08 30	Site 35 Ursula (E) L. 17m 94 08 30	Site 35 Ursula (E) L. 0m 94 07 16	Site 35 Ursula (E) L. 3m 94 07 16
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001
Uranium	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002	0.003	<0.001
Dissolved Metals (µg/L)									
Aluminum	0.004	0.003	0.004	0.005	0.005	0.003	0.004	0.004	0.005
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.431	0.442	0.449	0.451	0.458	0.475	0.431	0.326	0.3
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Iron	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Magnesium	0.305	0.312	0.318	0.308	0.306	0.31	0.313	0.206	0.2
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.28	0.28	0.27	0.27	0.29	0.28	0.27	0.21	0.22
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.36	0.38	0.36	0.38	0.4	0.41	0.45	0.51	0.45
Uranium	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.002	<0.001

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 35 Ursula (E) L. 6m 94 07 16	Site 35 Ursula (E) L. 9m 94 07 16	Site 35 Ursula (E) L. 13m 94 07 16	Site 36 Ursula str(N) 94 08 10	Site 37 Ursula str(S) 94 08 10	max	min	mean	s.d
Conductivity (µmhos/cm)	8.1	12.3	8	12.3	10	12.3	7.8	8.5037037	1.19340543
Total Dissolved Solids (mg/L)	6	8	6	10	7	10	4	5.48148148	1.36917635
Hardness (mg CaCO3/L)	1.5	2.36	1.5	3.81	3.21	3.81	1.5	2.32555556	0.45328997
pH (units)	6.55	6.52	6.48	6.1	6.22	6.55	6.1	6.37925926	0.09462175
Total Suspended Solids (mg/L)	<1	1	<1	1	4	4	1	1.58333333	1.08362467
Turbidity (NTU)	0.22	0.2	0.29	0.8	3.02	3.02	0.2	0.4537037	0.5271487
Acidity (mg CaCO3/L)	2	2	2	3.8	1.9	3.8	1	1.98888889	0.44921584
Alkalinity - Total (mg CaCO3/L)	2.2	2.3	2.4	2.8	3.8	3.8	2.1	2.51111111	0.33779071
Alkalinity - Bicarbonate (mg CaCO3/L)	2.2	2.3	2.4	2.8	3.8	3.8	2.1	2.51111111	0.33779071
Alkalinity - Carbonate (mg CaCO3/L)	<1.0	<1.0	<1.0	1.0	1.0	0	0		
Chloride (mg/L)	<0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.56363636	0.0504525
Fluoride (mg/L)	<0.02	<0.02	<0.02	0.03	0.03	0.03	0.03	0.03	0
Sulphate (mg/L)	<1.0	1.2	<1.0	1.0	1.0	1.2	1	1.12857143	0.09511897
Free Ammonia (mg NH3-N/L)	0.005	0.008	0.005	0.009	0.021	0.021	0.005	0.00911538	0.00361471
Nitrate (mg NO3-N/L)	0.006	<0.005	<0.005	0.998	0.005	0.998	0.006	0.174	0.40372664
Nitrite (mg NO2-N/L)	<0.001	0.001	<0.001	0.002	0.002	0.005	0.001	0.0018	0.00120712
Ortho-Phosphate (mg P/L)	0.002	0.001	0.002	0.003	0.01	0.01	0.001	0.0022963	0.0016128
Total Dissolved Phosphate (mg P/L)	0.002	0.003	0.003	0.007	0.02	0.02	0.002	0.00407407	0.00349644
Total Phosphorus (mg P/L)	0.005	0.004	0.004	0.008	0.023	0.023	0.002	0.00488889	0.00411688
Total Metals (µg/L)						0	0		
Aluminum	0.005	0.005	0.006	0.024	0.18	0.18	0.003	0.0133125	0.03068197
Antimony	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0	0		
Arsenic	<0.0001	<0.0001	<0.0001	0.0001	0.0005	0.0005	0.0001	0.0003	0.00028284
Barium	<0.010	<0.010	<0.010	0.010	0.010	0	0		
Beryllium	<0.003	<0.003	<0.003	0.003	0.003	0	0		
Boron	<0.050	<0.050	<0.050	0.050	0.050	0	0		
Cadmium	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0.0017	0.0001	0.00048	0.00055737
Calcium	0.249	0.392	0.319	0.815	0.623	0.815	0.132	0.42996875	0.11954038
Chromium	<0.001	<0.001	<0.001	0.001	0.001	0	0		
Cobalt	<0.001	<0.001	<0.001	0.001	0.001	0	0		
Copper	<0.0005	<0.0005	<0.0005	0.001	0.002	0.002	0.0005	0.00076667	0.00050249
Iron	0.01	0.02	0.02	0.14	0.28	0.28	0.01	0.031875	0.05031754
Lead	<0.001	<0.001	<0.001	0.001	0.001	0.002	0.001	0.0016	0.00054772
Magnesium	0.152	0.252	0.205	0.499	0.482	0.499	0.082	0.289125	0.08574221
Manganese	<0.005	<0.005	<0.005	0.017	0.007	0.017	0.007	0.012	0.00707107
Mercury	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0	0		

Appendix II - A
Water Quality From Koala and Adjacent Watersheds

	Site 35 Ursula (E) L. 6m 94 07 16	Site 35 Ursula (E) L. 9m 94 07 16	Site 35 Ursula (E) L. 13m 94 07 16	Site 36 Ursula str(N) 94 08 10	Site 37 Ursula str(S) 94 08 10	max	min	mean	s.d
Molybdenum	<0.001	<0.001	<0.001	0.001	0.001	0	0		
Nickel	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001	0.001	
Selenium	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0	0		
Silver	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00003	0.00001	0.00002	8.9443E-06
Uranium	0.00001	0.00001	0.00001	0.00005	0.00008	0.00008	0.00001	1.8462E-05	2.1543E-05
Vanadium	<0.005	<0.005	<0.005	0.005	0.005	0	0		
Zinc	<0.001	<0.001	<0.001	0.001	0.001	0.003	0.001	0.002	0.0008165
Dissolved Metals (µg/L)						0	0		
Aluminum	0.005	0.004	0.002	0.006	0.017	0.017	0.002	0.00467857	0.00281601
Antimony	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0	0		
Arsenic	<0.0001	<0.0001	<0.0001	0.0001	0.0003	0.0003	0.0003	0.0003	
Barium	<0.010	<0.010	<0.010	0.010	0.010	0	0		
Beryllium	<0.003	<0.003	<0.003	0.003	0.003	0	0		
Boron	<0.050	<0.050	<0.050	0.050	0.050	0	0		
Cadmium	<0.0001	<0.0001	<0.0001	0.0001	0.0001	0	0		
Calcium	0.24	0.39	0.298	0.763	0.563	0.763	0.13	0.4074375	0.11264015
Chromium	<0.001	<0.001	<0.001	0.001	0.001	0	0		
Cobalt	<0.001	<0.001	<0.001	0.001	0.001	0	0		
Copper	<0.0005	<0.0005	<0.0005	0.0005	0.001	0.001	0.001	0.001	
Iron	0.01	0.01	0.01	0.03	0.09	0.09	0.01	0.01625	0.02028957
Lead	<0.001	<0.001	<0.001	0.001	0.001	0	0		
Magnesium	0.15	0.25	0.183	0.464	0.439	0.464	0.08	0.2691875	0.07904365
Manganese	<0.005	<0.005	<0.005	0.005	0.005	0.005	0.005	0.005	
Mercury	<0.00005	<0.00005	<0.00005	0.00005	0.00005	0	0		
Molybdenum	<0.001	<0.001	<0.001	0.001	0.001	0	0		
Nickel	<0.001	<0.001	<0.001	0.001	0.001	0	0		
Potassium	0.14	0.2	0.12	0.51	0.4	0.51	0.08	0.2365625	0.09195403
Selenium	<0.0005	<0.0005	<0.0005	0.0005	0.0005	0	0		
Silver	<0.00001	<0.00001	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	
Sodium	0.29	0.39	0.23	0.5	0.41	0.51	0.17	0.355625	0.07963374
Uranium	0.00001	0.00001	0.00001	0.00003	0.00006	0.00006	0.00001	1.7778E-05	1.7159E-05
Vanadium	<0.005	<0.005	<0.005	0.005	0.005	0	0		
Zinc	<0.001	<0.001	<0.001	0.001	0.001	0.002	0.001	0.00133333	0.0005164

Temperature and Dissolved Oxygen Levels in Lakes

Appendix II - A

June/July Temperature and Dissolved Oxygen Levels in Lakes

	Panda Lake - 29			Grizzly Lake - 14			Vulture Lake - 32			Kodiak Lake - 25			Koala Lake - 27		
Date	Jun. 28/94			Jun. 30/94			July 1/94			July 2/94			July 3/94		
DEPTHS	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (.10 mg)	pH
0	9.3	11.83	6.57	6.6	13.29	6.27	7 7	12.42	6.42	13.7	11.02	5.50	13.8	10.46	5.95
1	9.2	11.66		6.6	12.83		7.6	12.79		13.6	11.03		13.8	10.22	
2	9.2	11 72		6.6	13.12		7 6	12.69		13.3	10.63		13.6	10.25	
3	9.3	11.69		6.6	13.31		7.6	12.57		12.3	10.82	5.66	11.7	10.80	
4	9.2	11 71	6.53	6.5	13.41		7.5	11.88		11.6	10.17		10.2	11.07	
5	9.2	11.64		6.4	12.82		7.5	12.70		11.3	10.76	5.62	9.5	11.03	5.73
6	9.2	11.57		6.4	13.24		7.5	12.03		11.0	10.59		8.9	11.35	
7	9.1	11.62		6.3	13.18		7 4	12.26		10.8	10.38		8.6	11.29	
8	9.1	11 76	6.45	6.2	13.18		7 3	12.17	6.40	10.3	10.25	5.53	8.4	11.38	
9	9.1	11 74		6.2	13.24		6.8	12.68		10.1	10.98		8.3	11 40	6.10
10	9.0	11 77		6.0	13.32	6.18	6.7	12.18		10.1	10.85		8.1	11.25	
11	9.0	11.63		5.9	13.33		6.6	12.89		10.0	10.80	5.53	8.0	11 17	
12	8.8	11.58	6.46	5.8	13.27		6.4	12.74		10.0	10.58		7.9	11.43	
13	8.7	11 42		5.7	13.12		6.3	12.10					7.8	11.26	6.03
14	8.7	11.48		5.7	13.40		6.0	13.04					7 7	11.33	
15	8.6	11 32		5.6	13.25		6.0	12.84					7.6	11.43	
16	8.4	11.45	6.51	5.6	13.30		5.9	12.45	6.41				7.5	11.32	
17	7.9	11 52		5.5	13.35		5.9	12.72					7.5	11.54	
18				5.5	13.46		5.9	13.12					7.6	11.53	5.85
19				5.5	13.33		5.9	13.16							
20				5.5	13.38		5.8	13.15							
21				5.4	13.33	6.21	5.8	12.93							
22				5.4	13.34		5.8	12.51							
23				5.4	13.37		5.8	13.00							
24				5.4	13.34		5.7	12.64	6.39						
25				5.3	13.35		5.7	13.07							
26				5.3	13.36		5.7	12.87							
27				5.3	13.40		5.6	13.11							
28				5.3	13.50		5.6	13.05							
29				5.3	13.46		5.6	13.08							
30				5.3	13.47	6.21	5.6	13.10							
31				5.3	13.45		5.6	13.07							
32				5.3	13.43		5.6	12.98							
33				5.2	13.43		5.6	12.73	6.39						
34				5.2	13.41		5.6	12.56							
35				5.2	13.42										
36				5.2	13.44										
37				5.2	13.45										
38				5.2	13.48										
39				5.2	13.47										
40				5.2	13.40										
41															
42						6.09									

*up 1/2m

Appendix II - A

June/July Temperature and Dissolved Oxygen Levels in Lakes

	Little Lake - 23			Moose Lake - 15			Larry Lake - 12			Slipper Lake - 9			Martine Lake - 4		
Date	July 4/94			July 6/94			July 6/94			July 7/94			July 8/94		
DEPTHS	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (10 mg)	pH
0	15.1	9.53	5.64	14.9	10.02	6.54	14.7	9.75	6.24	14.8	10.00	6.90	16.5	9.40	6.47
1	14.8	9.78		14.9	9.91		14.6	9.63		14.8	9.96		16.3	9.03	6.40
2	14.5	10.01		14.8	10.12		14.6	9.50	6.33	14.8	10.05		16.1	9.33	6.39
3	13.8	9.90		14.7	10.05	6.47	14.6	9.58		14.8	10.01		15.9	8.90	6.40
4	12.0	10.60	5.67	14.1	10.16		14.4	9.70	6.31	14.8	9.90	6.38	15.7	9.07	6.37
5	10.9	10.26		12.2	11.28	6.55	11.5	10.45		14.7	9.96		15.6*	8.49*	
6	10.3	10.84		10.4	11.57		10.2	10.05	6.24	14.5	10.04				
7	10.0	10.79		9.8	11.68	6.52	9.8	9.42	6.29	10.5	10.99				
8	9.8	10.75	5.72	9.5	11.80		9.8*	9.43*		10.1	10.92	6.33			
9	9.7	10.54				6.46				9.8	10.91				
10	9.6	10.52								9.4	10.72				
11	9.4	10.57								8.9	10.41				
12	9.3	10.50								8.6	10.34	6.32			
13	9.1	10.23	5.64							8.1	10.25				
14	8.7	10.41								6.9	10.05				
15	7 7	10.08								6.1	9.35				
16	7 0	9.97								6.2*	7.24*				
17	6.3	10.35										6.1			
18	6.1	10.31													
19	6.1	10.19	5.42												
20															
21															
22															
23															
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*up 1/2m

Appendix II - A

June/July Temperature and Dissolved Oxygen Levels in Lakes

	Lac de Gras - 1			Mike Lake - 2			Fox 1 Lake - 7			Fox 3 Lake - 5			Nora Lake - 8		
Date	July 8/94			July 9/94			July 11/94			July 11/94			July 12/94		
DEPTHS	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (.10 mg)	pH
0	10.4	11.57	6.32	14.1	10.09	6.50	15.5	9.99	6.55	17.5	9.33	6.35	16.0	9.68	6.52
1	10.4	11.63		14.1	9.86		15.4	9.93		17.5	9.21		16.0	9.67	
2	10.4	11.60		14.0	9.46		15.4	9.94		17 4	9.43	6.56	16.0	9.46	
3	10.3	11.61		14.0	9.72		15.2	9.82		17 3	9.23	6.4	16.0	9.56	
4	10.1	11.90		13.9	10.00	6.28	14.7	10.20		16.1	9.24	6.38	15.9	9.50	6.64
5	9.6	11.80	6.34	13.6	9.56		13.8	10.33	6.73	15.7	9.12	6.34	14.7	10.05	
6	9.5	12.09		11.9	10.61		13.1	10.58		15.6*	9.19*		13.3	10.56	
7	8.8	12.32		8.9	11 15		9.8	12.45					10.4	11.66	
8	8.3	12.60		8.3	11.44		8.8	12.30					9.9	11.81	6.14
9	7.6	13.06		8.3	11.34	6.23	8.5	12.35					9.5	11.95	
10	7 4	13.11	6.31	8.1	10.87		8.2	12.16					8.8	12.05	
11	7.2	13.11		8.0	11.25		8.0	12.01					7.6	12.58	
12	6.8	13.30		8.0	11.26		7.8	11.98					6.8	12.78	6.56
13	6.5	13.48		8.0	11.22	6.15	7 6	11.83	6.52				6.5	12.84	
14	6.4	13.48		7.9	11.08		7 0	11.98					6.2	12.58	
15	6.3	13.41	6.30	7.9	11.00		6.2	12.18					5.8	12.37	
16	6.1	13.44		7 8	10.92		5.6	12.57					5.7	12.27	6.39
17	5.9	13.49		7 8	10.71		5.2	12.63					5.7*	12.19*	
18	5.8	13.59		7.8	9.87	6.19	4.9	12.72							
19	5.8	13.59					4.8	12.70							
20	5.6	13.57	6.28				4.7	12.58	6.44						
21							4.6	12.56							
22							4.6	12.44							
23							4.6	12.43							
24							4.6	12.27							
25							4.6	12.29							
26							4.6	12.20	6.40						
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Appendix II - A

June/July Temperature and Dissolved Oxygen Levels in Lakes

	Nero Lake - 10			Leslie Lake - 17			Long Lake (N) - 20			Long Lake (S) - 19			Ursula Lake (E) - 35		
Date	July 13/94			July 14/94			July 15/94			July 14/94			July 16/94		
DEPTHS	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (.10 mg)	pH
0	16.3	9.68	6.41	16.6	9.39	6.46	15.1	9.03	6.50	15.3	8.81	6.47	15.9	9.78	
1	16.3	9.68		16.6	9.06		14.8	8.98		15.3	8.35		15.8	9.74	
2	16.3	9.61		16.6	9.36		14.8	9.42		15.2	8.61		15.8	9.85	
3	16.1	9.56		16.6	9.43	6.55	14.6	9.30		15.2	8.73		15.7	9.95	
4	15.7	9.56	6.40	16.5	9.37		14.6	9.24		15.1	8.39		15.7	9.92	
5	15.1	9.81		16.5	9.36	6.53	14.5	9.15	6.41	15.0	8.80		15.7	9.86	
6	14.3	10.01		16.4	9.30		14.5	8.91		14.0	9.19		15.6	9.80	
7	13.3	10.25	6.40	15.1	9.52		14.2	8.97		12.9	9.49	6.45	15.5	9.95	
8	10.8	11 11		13.0	10.00	6.46	13.2	9.36		10.5	10.26		15.1	10.04	
9	10.2	10.78		10.9	10.83		9.3	10.39		10.1	10.19		13.5	10.55	
10	9.8	10.71		10.1	10.45		8.0	10.60		8.9	10.59		12.8	11.13	
11	9.4	10.49	6.32	10.0	9.85	6.46	7.9	10.90	6.30	8.1	10.59		12.6	11.18	
12	9.2	9.73		9.9*	8.64*		7 6	11.04		7 7	10.69		11.3	11.55	
13	9.0	9.54					7 4	11.02		7 4	10.60		11.1	11.68	
14	8.9	8.87	6.24				7.3	11.04		7.2	10.91				
15							7 1	10.96		7 1	10.90	6.39			
16							7 1	10.91	6.40	6.9	10.87				
17							7.0	10.88		6.8	10.75				
18							7 0	10.85		6.8	10.73				
19							7.0	10.92		6.8	10.48				
20							6.9	10.95		6.8	10.86				
21							6.9	10.89	6.30	6.7	10.72				
22							6.9	10.83		6.7	10.37	6.34			
23										6.6	10.90				
24										6.6	10.88				
25										6.6	10.83				
26										6.6	10.86				
27										6.6	10.80				
28										6.6	10.67				
29										6.6	10.02				
30										6.7	10.59	6.32			
31										6.8	10.96				
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Appendix II - A

June/July Temperature and Dissolved Oxygen Levels in Lakes

	Ursula (W) - 34			Sieve Lake - 38			Mark Lake - 46			Misery Lake - 48			Lac de Gras - 54 (Mis. Pt.)		
Date	July 17/94			July 16/94			July 29/94			July 30/94			July 31/94		
DEPTHS	TEMP (C)	DO (.10 mg)		TEMP (C)	DO (10 mg)		TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (.10 mg)	pH
0	15.6	10.20		17 4	9.27		16.0	9.33	6.41	14.6	9.95	6.81	11 4	11.53	6.46
1	15.5	10.00		17 4	9.27		16.0	9.42		14.5	9.94		11 4	11 42	
2	15.5	10.08		17.2	9.28		16.0	9.33	6.48	14.5	9.43		11.4	11.54	
3	15.5	9.91		17.0	9.26		16.0	9.13	6.46	14.5	10.03		11.3	11.51	
4	15.5	9.97		16.7	9.29		15.9	9.39		14.4	9.84		11.3	11.61	
5	15.5	9.96		16.4	9.30		15.9	9.38	6.51	14.4	10.18		11.2	11.69	
6	15.5	9.86		15.8	9.27		15.9	9.43		14.3	9.98		11.2	11.63	
7	15.5	9.93		14.7	9.41		15.8*	9.48*	6.48*	11.3	11.52	6.87	11.1	11 71	6.45
8	15.5	9.95		11.5	10.20					8.0	11 78		11.0	11.66	
9	15.4	9.90		10.8	10.10					7.5	11.52		10.8	11.78	
10	14.0	10.53								7 1	11.60		10.8	11.72	
11	13.2	10.97								7.0	11.53		10.6	11.85	
12	12.2	11.25								6.9	11.65		10.5	11.87	
13	10.5	11 95								6.7	11.61		10.4	11.86	
14	9.1	12.51								6.6	11 77	6.80	9.4	12.30	
15	8.3	12.66								6.5	11 62		8.9	12.67	6.50
16	7.9	12.59								6.3	11 40		8.9	12.66	
17	7.5	12.63								6.1	11.57		8.8	12.65	
18										5.8	11.97		8.6	12.61	
19										5.6	11 71		8.5	12.75	
20										5.5	12.27		8.2	12.77	
21										5.4	12.33	6.70	7.8	13.00	
22										5.3	12.31		7 7	12.97	6.43
23										5.3	12.25		7.6	13.01	
24										5.4	12.09		7.5	13.12	
25										5.3	11 84		7.5	13.01	
26										5.3	12.13		7.5	13.12	
27										5.3	12.02		7 4	13.17	
28										5.3	11.83	6.78	7 4	13.26	
29													7 4	13.25	
30													7 4	13.15	6.46
31															
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Appendix II - A

June/July Temperature and Dissolved Oxygen Levels in Lakes

	Arnie Lake - 44			Paul Lake (W) - 53			Paul Lake (E) - 52			Bat Lake - 51		
Date	Aug. 5/94			Aug. 1/94			Aug. 1/94			July 31/94		
DEPTHS	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (.10 mg)	pH	TEMP (C)	DO (10 mg)	pH	TEMP (C)	DO (.10 mg)	pH
0	15.3	9.43	6.58	16.3	9.94	6.59	15.8	9.48	6.55	15.7	10.04	6.5
1	15.3	9.19		16.2	9.96		15.7	9.54		15.7	9.96	6.5
2	15.3	9.11	6.40	16.2	9.82		15.7	9.20		15.6	10.01	6.5
3	15.3	9.30		16.2	9.84	6.52	15.7	9.54	6.55	15.6	10.08	6.4
4	15.3	9.24	6.49	16.1	9.87		15.7	9.47		15.1	10.09	6.5
5				16.0	9.83		15.6	9.17				
6			6.62	16.0	9.76	6.50	15.6	9.34	6.52			
7				15.8	9.04		15.6	9.23				
8			6.34	15.7	9.50		15.5	9.25				
9				15.7	9.37	6.49	15.3	9.19	6.48			
10				15.4	9.22		15.2	8.83				
11				15.2	8.64	6.52	15.0	8.82	6.44			
12				15.1	7 50		14.8	7.86				
13												
14												
15												
16												
17												
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Appendix II - A
August/September Temperature and Dissolved Oxygen Levels in Lakes

	Panda Lake - 29		Grizzly Lake - 14		Vulture Lake - 32		Lac de Gras - 1		Slipper Lake - 9	
Date	Aug. 12/94		Aug. 13/94		Aug. 13/94		Aug. 14/94		Aug. 15/94	
DEPTHS	TEMP (C)	DO (10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (.10 mg)
0	14.6	9.74	14.4	9.82	14.1	10.07	13.3	10.47	14.9	9.64
1	14.6	9.80	14.4	9.78	14.0	9.88	13.3	10.26	14.9	9.39
2	14.6	9.80	14.4	9.54	14.0	9.79	13.3	10.18	14.9	9.56
3	14.6	9.78	14.4	9.81	14.0	9.83	13.2	10.10	14.8	9.59
4	14.5	9.45	14.4	9.73	14.0	9.73	13.1	9.97	14.7	9.52
5	14.5	9.68	14.3	9.70	13.9	9.65	13.0	9.85	14.6	9.46
6	14.4	9.61	14.3	9.65	13.9	9.84	13.0	9.93	14.4	9.13
7	14.2	9.71	14.2	9.72	13.9	9.68	12.7	9.93	14.4	9.11
8	14.2	9.66	14.0	9.70	13.8	9.88	12.6	9.91	14.4	9.34
9	14.1	9.54	13.7	9.56	13.8	9.73	12.5	10.02	14.4	9.36
10	13.9	9.37	8.1	12.38	13.7	9.51	12.3	10.07	14.4	9.39
11	12.2	8.12	6.4	12.64	13.7	9.61	12.0	10.13	14.2*	9.11*
12	8.4	7 40	5.8	12.55	13.2	9.93	11.8	10.15		
13	8.0	7 18	5.7	12.52	12.8	10.15	11.6	10.21		
14	7 7	6.72	5.6	12.36	10.3	11.77	10.4	10.43		
15	7.5	5.95	5.6	12.51	7.5	12.55	9.9	11 11		
16	7.5	5.03	5.5	12.40	6.8	12.90	9.5	11 17		
17	7.5	4.55	5.4	12.15	6.7	12.82	9.3*	11 13*		
18			5.4	12.39	6.5	12.87				
19			5.4	12.30	6.4	12.76				
20			5.3	12.35	6.4	12.61				
21			5.3	12.30	6.3	12.70				
22			5.3	12.20	6.2	12.52				
23			5.3	11 85	6.1	12.49				
24			5.2	12.02	6.0	12.38				
25			5.2	11.90	6.0	12.23				
26			5.2	11 91	6.0	11 95				
27			5.2	11 79	5.9	12.09				
28			5.1	11 77	5.9	12.03				
29			5.1	11 66	5.9	11.96				
30			5.1	11.51	5.8	11.95				
31			5.1	11.56	5.8	11.85				
32			5.1	11.48	5.8	11.67				
33			5.1	11.35	5.8	11 47				
34			5.1	11.34	5.8	11 73				
35			5.1	11.21	5.8	11.66				
36			5.0	11 10	5.8	11.61				
37			5.0	10.77						

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Appendix II - A
August/September Temperature and Dissolved Oxygen Levels in Lakes

	Mike Lake - 2		Martine Lake - 4		Koala Lake - 27		Kodiak Lake - 25		Little Lake - 23	
Date	Aug. 16/94		Aug. 16/94		Aug. 18/94		Aug. 20/94		Aug. 20/94	
DEPTHS	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (.10 mg)
0	14.2	9.90	14.1	9.56	13.6	9.88	13.5	10.03	13.9	9.81
1	14.2	9.79	14.1	9.39	13.6	9.87	13.5	9.86	13.9	9.66
2	14.2	9.76	14.0	9.51	13.6	9.78	13.5	9.64	13.9	9.61
3	14.2	9.78	14.0	9.48	13.6	9.78	13.5	9.74	13.8	9.67
4	14.2	9.52	13.8	9.05	13.6	9.87	13.4	9.94	13.6	9.74
5	14.2	9.75	13.7	9.07	13.6	9.78	13.4	9.82	13.3	9.86
6	14.1	9.81	13.7	9.04	13.6	9.81	13.4	9.54	13.3	9.52
7	14.1	9.65	13.6	8.94	13.6	9.78	13.4	9.57	13.2	9.86
8	14.0	9.69	13.6	8.59	13.6	9.74	13.4	9.85	13.2	9.65
9	13.7	9.58			13.5	9.69	13.4	9.73	13.1	9.62
10	12.2	9.67			12.9	9.56	13.3	10.00	13.0	9.69
11	9.2	9.77			11.0	9.63	13.3	9.90	13.1	9.57
12	8.2	9.70			8.3	10.06			13.0	9.55
13	8.0	9.56			7.3	9.69			12.9	9.08
14	7 9	9.52			7 1	9.19			12.7	8.57
15	7 7	9.15			7.0	8.66			8.8	6.12
16					7.0	8.53			7.5	5.26
17					6.9	8.47				
18					6.8	6.97				
19										
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Appendix II - A
August/September Temperature and Dissolved Oxygen Levels in Lakes

	Leslie Lake - 17		Larry Lake - 12		Moose Lake - 15		Nero Lake - 10		Nora Lake - 8	
Date	Aug. 21/94		Aug. 22/94		Aug. 22/94		Aug. 23/94		Aug. 26/94	
DEPTHS	TEMP (C)	DO (10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (10 mg)
0	13.3	9.87	12.2	9.82	13.2	9.92	13.5	9.90	10.4	10.42
1	13.3	9.83	12.1	9.91	13.1	9.38	13.5	9.89	10.5	10.56
2	13.3	9.70	12.1	9.77	12.9	9.71	13.5	9.85	10.4	10.50
3	13.3	9.83	12.1	9.68	12.8	9.52	13.5	9.85	10.4	10.54
4	13.3	9.68	12.1	9.67	12.6	9.37	13.5	9.82	10.4	10.51
5	13.3	9.66	12.1	10.01	12.3	9.33	13.5	9.82	10.5	10.57
6	13.3	9.99	12.1	9.79	12.2	9.56	13.5	9.83	10.6	10.52
7	13.3	9.81	12.1*	10.00*	12.0	9.34	13.4	9.73	10.4	10.56
8	13.3	9.75			12.1	9.40	13.2	9.90	10.4	10.51
9					12.1*	9.30*	13.2	9.80	10.4	10.64
10							13.1	9.92	10.4	10.44
11							13.0	9.81	10.4	10.67
12							13.0	10.06	10.4	10.60
13									10.3	10.45
14									10.3	10.48
15										
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Appendix II - A
August/September Temperature and Dissolved Oxygen Levels in Lakes

	Fox 3 Lake - 5		Fox 1 Lake - 7		Long Lake (N) - 20		Long Lake (S) - 19		Sieve Lake - 38	
Date	Aug. 27/94		Aug. 28/94		Aug. 28/94		Aug. 29/94		Aug. 30/94	
DEPTHS	TEMP (C)	DO (10 mg)	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (.10 mg)
0	9.2	10.43	9.4	10.73	9.9	10.30	10.7	10.30	9.4	10.98
1	9.6	10.69	9.8	10.72	9.9	10.53	10.7	10.17	9.4	10.85
2	9.2	10.42	9.7	10.67	10.1	9.85	10.6	10.01	9.5	10.95
3	9.3	10.50	9.6	10.63	9.6	10.40	10.6	10.07	9.4	10.89
4	8.7	10.43	9.6	10.57	9.5	10.10	10.6	9.96	9.3	10.61
5	9.3	10.67	9.5	10.49	9.3	10.35	10.6	9.85	9.4	10.80
6	9.4	10.47	9.4	10.54	9.3	10.24	10.5	9.76	9.3	10.89
7	9.5*	10.40*	9.4	10.68	9.4	10.23	10.6	9.85	9.0	10.92
8			9.7	10.42	9.7	10.10	10.6	10.10		
9			9.7	10.38	8.9	10.21	10.0	10.13		
10			9.4	10.51	8.6	10.28	10.0	10.11		
11			9.2	10.33	8.3	10.47	10.3	9.98		
12			9.0	10.47	8.4	10.54	10.8	10.18		
13			8.4	10.35	8.9	10.41	10.3	9.88		
14			9.1	10.09	8.3	10.34	10.3	9.98		
15			6.9	10.72	8.6	10.71	10.5	9.68		
16			4.5	11 19	8.5	10.76	10.1	10.06		
17			3.3	11.01	8.4	10.46	10.0	9.99		
18			2.6	10.91	8.1	10.35	9.7	9.81		
19			2.6	10.59	7.6	10.45	9.1	9.83		
20			2.9	9.73	7.5	10.30	8.8	10.02		
21					7.6	10.20	8.5	10.03		
22					7.9	10.37	6.9	10.39		
23					7.9	10.30	5.6	10.40		
24							5.6	10.43		
25							4.2	10.46		
26							2.9	10.90		
27							3.4	0.74		
28							4.6	0.64		
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Appendix II - A
August/September Temperature and Dissolved Oxygen Levels in Lakes

	Ursula Lake (E) - 35		Ursula Lake (W) - 34		Bat Lake - 51		Mark Lake - 46		Arnie Lake - 44	
Date	Aug. 30/94		Aug. 31/94		Sept. 3/94		Sept. 4/94		Sept. 5/94	
DEPTHS	TEMP (C)	DO (10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (10 mg)
0	8.8	11 15	10.6	10.72	13.4	10.07	13.0	9.91	12.7	9.65
1	9.1	10.73	10.8	10.60	13.1	10.03	13.0	9.63	12.7	9.94
2	9.0	10.95	10.8	10.62	12.9	10.00	12.9	9.78	12.7	9.84
3	9.0	10.95	10.6	10.19	12.9*	8.23*	12.8	9.16	12.7	9.96
4	8.7	11.25	10.4	10.34			12.6	9.79	12.7	10.02
5	8.6	10.92	10.1	10.36			12.4	9.80		
6	8.2	10.90	10.0	10.35			12.1	9.68		
7	8.1	11.07	10.5	10.22			11.4	9.15		
8	8.1	11.13	10.7	10.56						
9	7.9	11.12								
10	7.9	10.90								
11	7.8	10.91								
12	7.9	11.08								
13	8.0	10.96								
14	8.0	10.98								
15	8.3	10.95								
16	8.7	11 05								
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*up 1/2m

Appendix II - A
August/September Temperature and Dissolved Oxygen Levels in Lakes

	Paul Lake (E) - 42		Paul lake (W) - 53		Misery Lake - 48		Lac de Gras - 54 (Mis Pt.)	
Date	Sept. 6/94		Sept. 7/94		Sept. 7/94		Sept. 8/94	
DEPTHS	TEMP (C)	DO (.10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (10 mg)	TEMP (C)	DO (.10 mg)
0	11 7	10.26	11 4	10.58	10.8	10.50	10.9	10.34
1	11.7	10.19	11 3	10.33	10.8	10.53	10.9	10.36
2	11.7	10.19	11.3	10.55	10.8	10.49	10.9	10.28
3	11 7	10.19	11.3	10.21	10.7	10.52	10.9	10.26
4	11.6	10.18	11.3	10.02	10.7	10.43	10.9	10.28
5	11 4	9.65	11.2	10.16	10.7	10.37	10.9	10.28
6	11.2	9.87	11.0	10.23	10.7	10.42	10.9	10.34
7	11.3	9.79	10.9	10.19	10.7	10.50	10.9	10.34
8	11.2	9.48	10.8	10.41	10.7	10.52	10.9	10.36
9	11.2	9.50	10.8	9.60	10.7	10.55	10.9	10.33
10	11.2	9.39			10.7	10.49	10.9	10.29
11	11.2	7.61			10.7	10.38	10.9	10.28
12					10.6	10.07	10.9	10.28
13					10.3	9.96	10.9	10.30
14					9.1	9.56	10.9	10.20
15					6.5	9.55	10.9	10.23
16					6.0	9.50	10.9	10.27
17					5.9	9.36	10.8	10.24
18					5.6	9.50	10.8	10.23
19					5.4	9.45	10.8	10.22
20					5.3	9.07	10.8	10.18
21					5.2	9.38	10.8	10.21
22							10.8	10.21
23							10.8	10.16
24								
25								
26								
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37								

*up 1/2m

Appendix II - A
Water Quality QA/QC

	Site 46 ransport Blank e1226 94 06 13	Site 46 Initial Filter e1226 94 06 13	Site 46 Final Filter e1226 94 06 13	Site 5 ransport Blank e1968 94 07 11	Site 1 Field Blank e1867 94 07 07	Site 1 ransport Blank e1867 94 07 07	Site 1 Initial Filter e1867 94 07 07	Site 1 Final Filter e1867 94 07 07	Site 23 ransport Blank e1744 94 07 04	Site 23 Field Blank e1744 94 07 04	Site 23 Initial Filter e1744 94 07 04	Site 23 Final Filter e1744 94 07 04
Conductivity (µmhos/cm)	-	-	-	-	-	-	-	-	-	2.4	-	-
Total Dissolved Solids (mg/L)	-	-	-	-	-	-	-	-	-	2	-	-
Hardness $CaCO_3$ (mg/L)	-	-	-	-	-	-	-	-	-	<0.05	-	-
pH (units)	-	-	-	-	-	-	-	-	-	5.12	-	-
Total Suspended Solids (mg/L)	-	-	-	-	-	-	-	-	-	2	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	<0.10	-	-
Acidity (mg $CaCO_3$/L)	-	-	-	-	-	-	-	-	-	2	-	-
Alkalinity - Total (mg $CaCO_3$/L)	-	-	-	-	-	-	-	-	-	<1.0	-	-
Ikalinity - Bicarbonate (mg $CaCO_3$/L)	-	-	-	-	-	-	-	-	-	<1.0	-	-
Alkalinity - Carbonate (mg $CaCO_3$/L)	-	-	-	-	-	-	-	-	-	<1.0	-	-
Chloride (mg/L)	-	-	-	-	-	-	-	-	-	<0.5	-	-
Fluoride (mg/L)	-	-	-	-	-	-	-	-	-	<0.02	-	-
Sulphate (mg/L)	-	-	-	-	-	-	-	-	-	<1.0	-	-
Free Ammonia (mg NH_3-N/L)	-	-	-	-	-	-	-	-	-	0.048	-	-
Nitrate (mg NO_3-N/L)	-	-	-	-	-	-	-	-	-	<0.005	-	-
Nitrite (mg NO_2-N/L)	-	-	-	-	-	-	-	-	-	0.001	-	-
Ortho-Phosphate (mg P/L)	-	-	-	-	-	-	-	-	-	<0.001	-	-
Total Dissolved Phosphate (mg P/L)	-	-	-	-	-	-	-	-	-	<0.001	-	-
Total Phosphorus (mg P/L)	-	-	-	-	-	-	-	-	-	<0.001	-	-

Appendix II - A
Water Quality QA/QC

	Site 46 ransport Blank e1226 94 06 13	Site 46 Initial Filter e1226 94 06 13	Site 46 Final Filter e1226 94 06 13	Site 5 ransport Blank e1968 94 07 11	Site 1 Field Blank e1867 94 07 07	Site 1 ransport Blank e1867 94 07 07	Site 1 Initial Filter e1867 94 07 07	Site 1 Final Filter e1867 94 07 07	Site 23 ransport Blank e1744 94 07 04	Site 23 Field Blank e1744 94 07 04	Site 23 Initial Filter e1744 94 07 04	Site 23 Final Filter e1744 94 07 04
Total Metals (µg/L)												
Aluminum	<0.20	<0.20	<0.20	0.007	<0.002	<0.002	0.009	0.005	<0.002	0.005	0.027	0.005
Antimony	<0.20	<0.20	<0.20	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.005	<0.005	<0.005	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bismuth	<0.10	<0.10	<0.10	-	-	-	-	-	-	-	-	-
Boron	-	-	-	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.010	<0.010	<0.010	<0.0001	<0.0001	<0.0001	0.0001	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium	<0.015	<0.015	<0.015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.015	<0.015	<0.015	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	<0.0005	<0.0005	0.0007	<0.0005	0.0007	0.0007	<0.0005	0.0007	0.0013	0.004
Iron	<0.030	<0.030	<0.030	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
Lead	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	0.0008	<0.0005
Lithium	<0.015	<0.015	<0.015	-	-	-	-	-	-	-	-	-
Magnesium	<0.010	<0.010	<0.010	0.011	<0.010	<0.010	0.011	0.012	<0.010	<0.010	0.026	0.02
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	-	-	-	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.030	<0.030	<0.030	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.0005	<0.0005	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.0005	<0.0005	<0.0005	<0.0005
Phosphorus	<0.30	<0.30	<0.30	-	-	-	-	-	-	-	-	-
Potassium	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-	-
Selenium	<0.20	<0.20	<0.20	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.015	<0.015	<0.015	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	0.00001	0.00002	0.00002	0.00001
Sodium	<2.0	<2.0	<2.0	-	-	-	-	-	-	-	-	-
Strontium	<0.001	<0.001	<0.001	-	-	-	-	-	-	-	-	-
Thallium	<0.10	<0.10	<0.10	-	-	-	-	-	-	-	-	-
Tin	<0.30	<0.30	<0.30	-	-	-	-	-	-	-	-	-
Titanium	<0.010	<0.010	<0.010	-	-	-	-	-	-	-	-	-
Tungsten	<0.10	<0.10	<0.10	-	-	-	-	-	-	-	-	-
Uranium	-	-	-	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	0.002	<0.001	<0.001	0.001	0.002	0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality QA/QC

	Site 46 ransport Blank e1226 94 06 13	Site 46 Initial Filter e1226 94 06 13	Site 46 Final Filter e1226 94 06 13	Site 5 ransport Blank e1968 94 07 11	Site 1 Field Blank e1867 94 07 07	Site 1 ransport Blank e1867 94 07 07	Site 1 Initial Filter e1867 94 07 07	Site 1 Final Filter e1867 94 07 07	Site 23 ransport Blank e1744 94 07 04	Site 23 Field Blank e1744 94 07 04	Site 23 Initial Filter e1744 94 07 04	Site 23 Final Filter e1744 94 07 04
Dissolved Metals (µg/L)												
Aluminum	-	-	-	<0.002	-	-	-	-	-	0.005	-	-
Antimony	-	-	-	<0.0001	-	-	-	-	-	<0.0001	-	-
Arsenic	-	-	-	<0.0001	-	-	-	-	-	<0.0001	-	-
Barium	-	-	-	<0.010	-	-	-	-	-	<0.010	-	-
Beryllium	-	-	-	<0.003	-	-	-	-	-	<0.003	-	-
Boron	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
Cadmium	-	-	-	<0.0001	-	-	-	-	-	<0.0001	-	-
Calcium	-	-	-	<0.050	-	-	-	-	-	<0.050	-	-
Chromium	-	-	-	<0.001	-	-	-	-	-	<0.001	-	-
Cobalt	-	-	-	<0.001	-	-	-	-	-	<0.001	-	-
Copper	-	-	-	<0.0005	-	-	-	-	-	<0.0005	-	-
Iron	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-
Lead	-	-	-	<0.001	-	-	-	-	-	<0.0005	-	-
Magnesium	-	-	-	<0.010	-	-	-	-	-	<0.010	-	-
Manganese	-	-	-	<0.005	-	-	-	-	-	<0.005	-	-
Mercury	-	-	-	<0.00005	-	-	-	-	-	<0.00005	-	-
Molybdenum	-	-	-	<0.001	-	-	-	-	-	<0.001	-	-
Nickel	-	-	-	<0.001	-	-	-	-	-	<0.0005	-	-
Potassium	-	-	-	<0.01	-	-	-	-	-	<0.01	-	-
Selenium	-	-	-	<0.0005	-	-	-	-	-	<0.0005	-	-
Silver	-	-	-	<0.00001	-	-	-	-	-	<0.00001	-	-
Sodium	-	-	-	<0.01	-	-	-	-	-	0.04	-	-
Uranium	-	-	-	<0.00001	-	-	-	-	-	<0.00001	-	-
Vanadium	-	-	-	<0.005	-	-	-	-	-	<0.005	-	-
Zinc	-	-	-	<0.001	-	-	-	-	-	<0.001	-	-

Appendix II - A
Water Quality QA/QC

	Site 32 ransport Blank e1689 94 07 01	Site 20 Field Blank e2130 94 07 15	Site 20 ransport Blank e2130 94 07 15	Site 20 Initial Filter e2130 94 07 15	Site 20 Final Filter e2130 94 07 15	Site 34 Initial Filter e2114 94 07 17	Site 34 Final Filter e2114 94 07 17	es 12, 15 Initial Filter e3360 94 08 22	es 12, 15 Final Filter e3360 94 08 22	Sites 5, 8 Initial Filter e3360 94 08 26	Sites 5, 8 Final Filter e3360 94 08 26	Site 10 Initial Filter e3360 94 08 23
Conductivity (µmhos/cm)	-	1.2	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids (mg/L)	-	<1	-	-	-	-	-	-	-	-	-	-
Hardness $CaCO_3$ (mg/L)	-	<0.05	-	-	-	-	-	-	-	-	-	-
pH (units)	-	5.47	-	-	-	-	-	-	-	-	-	-
Total Suspended Solids (mg/L)	-	<1	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	<0.10	-	-	-	-	-	-	-	-	-	-
Acidity (mg $CaCO_3$/L)	-	2	-	-	-	-	-	-	-	-	-	-
Alkalinity - Total (mg $CaCO_3$/L)	-	<1.0	-	-	-	-	-	-	-	-	-	-
lkalinity - Bicarbonate (mg $CaCO_3$/L)	-	<1.0	-	-	-	-	-	-	-	-	-	-
Alkalinity - Carbonate (mg $CaCO_3$/L)	-	<1.0	-	-	-	-	-	-	-	-	-	-
Chloride (mg/L)	-	<0.5	-	-	-	-	-	-	-	-	-	-
Fluoride (mg/L)	-	<0.02	-	-	-	-	-	-	-	-	-	-
Sulphate (mg/L)	-	<1.0	-	-	-	-	-	-	-	-	-	-
Free Ammonia (mg NH_3-N/L)	-	<0.005	-	-	-	-	-	-	-	-	-	-
Nitrate (mg NO_3-N/L)	-	<0.005	-	-	-	-	-	-	-	-	-	-
Nitrite (mg NO_2-N/L)	-	<0.001	-	-	-	-	-	-	-	-	-	-
Ortho-Phosphate (mg P/L)	-	<0.001	-	-	-	-	-	-	-	-	-	-
Total Dissolved Phosphate (mg P/L)	-	<0.001	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (mg P/L)	-	<0.001	-	-	-	-	-	-	-	-	-	-

Appendix II - A
Water Quality QA/QC

	Site 32 ransport Blank e1689 94 07 01	Site 20 Field Blank e2130 94 07 15	Site 20 ransport Blank e2130 94 07 15	Site 20 Initial Filter e2130 94 07 15	Site 20 Final Filter e2130 94 07 15	Site 34 Initial Filter e2114 94 07 17	Site 34 Final Filter e2114 94 07 17	es 12, 15 Initial Filter e3360 94 08 22	es 12, 15 Final Filter e3360 94 08 22	Sites 5, 8 Initial Filter e3360 94 08 26	Sites 5, 8 Final Filter e3360 94 08 26	Site 10 Initial Filter e3360 94 08 23
Total Metals (µg/L)												
Aluminum	0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	0.004	<0.002	0.004	0.008	0.005
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	0.0001	0.0001	0.0003
Calcium	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	0.0006	<0.0005	0.001	0.0008	0.0038	0.0054	0.0007	<0.0005	<0.0005	<0.0005	0.0008
Iron	<0.01	0.01	<0.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	<0.010	0.013	<0.010	0.014	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.0005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Phosphorus	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.001	<0.001	0.003	<0.001	0.001	0.002	0.001	<0.001	0.001	0.001	<0.001

Appendix II - A
Water Quality QA/QC

	Site 32 ransport Blank e1689 94 07 01	Site 20 Field Blank e2130 94 07 15	Site 20 ransport Blank e2130 94 07 15	Site 20 Initial Filter e2130 94 07 15	Site 20 Final Filter e2130 94 07 15	Site 34 Initial Filter e2114 94 07 17	Site 34 Final Filter e2114 94 07 17	es 12, 15 Initial Filter e3360 94 08 22	es 12, 15 Final Filter e3360 94 08 22	Sites 5, 8 Initial Filter e3360 94 08 26	Sites 5, 8 Final Filter e3360 94 08 26	Site 10 Initial Filter e3360 94 08 23
Dissolved Metals (µg/L)												
Aluminum	-	<0.002	-	-	-	-	-	-	-	-	-	-
Antimony	-	<0.0001	-	-	-	-	-	-	-	-	-	-
Arsenic	-	<0.0001	-	-	-	-	-	-	-	-	-	-
Barium	-	<0.010	-	-	-	-	-	-	-	-	-	-
Beryllium	-	<0.003	-	-	-	-	-	-	-	-	-	-
Boron	-	<0.050	-	-	-	-	-	-	-	-	-	-
Cadmium	-	<0.0001	-	-	-	-	-	-	-	-	-	-
Calcium	-	<0.050	-	-	-	-	-	-	-	-	-	-
Chromium	-	<0.001	-	-	-	-	-	-	-	-	-	-
Cobalt	-	<0.001	-	-	-	-	-	-	-	-	-	-
Copper	-	<0.0005	-	-	-	-	-	-	-	-	-	-
Iron	-	<0.01	-	-	-	-	-	-	-	-	-	-
Lead	-	<0.001	-	-	-	-	-	-	-	-	-	-
Magnesium	-	<0.010	-	-	-	-	-	-	-	-	-	-
Manganese	-	<0.005	-	-	-	-	-	-	-	-	-	-
Mercury	-	<0.00005	-	-	-	-	-	-	-	-	-	-
Molybdenum	-	<0.001	-	-	-	-	-	-	-	-	-	-
Nickel	-	<0.001	-	-	-	-	-	-	-	-	-	-
Potassium	-	<0.01	-	-	-	-	-	-	-	-	-	-
Selenium	-	<0.0005	-	-	-	-	-	-	-	-	-	-
Silver	-	<0.00001	-	-	-	-	-	-	-	-	-	-
Sodium	-	<0.01	-	-	-	-	-	-	-	-	-	-
Uranium	-	0.00001	-	-	-	-	-	-	-	-	-	-
Vanadium	-	<0.005	-	-	-	-	-	-	-	-	-	-
Zinc	-	<0.001	-	-	-	-	-	-	-	-	-	-

Appendix II - A
Water Quality QA/QC

	Site 10 Final Filter e3360 94 08 23	Site 17 Initial Filter e3123 94 08 21	Site 17 Final Filter e3123 94 08 21	Site 17 ransport Blank e3123 94 08 21	Site 27 Initial Filter e3099 94 08 18	Site 27 Final Filter e3099 94 08 18	Site 27 ransport Blank e3099 94 08 18	Site 1 ransport Blank e2906 94 08 14	Site 1 Initial Filter e2906 94 08 14	Site 1 Final Filter e2906 94 08 14	Site 48 ransport Blank e3727 94 09 07	Site 34 ransport Blank e3553 94 08 31
Conductivity (µmhos/cm)	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Solids (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-
Hardness $CaCO_3$ (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-
pH (units)	-	-	-	-	-	-	-	-	-	-	-	-
Total Suspended Solids (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-
Turbidity (NTU)	-	-	-	-	-	-	-	-	-	-	-	-
Acidity (mg $CaCO_3$/L)	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity - Total (mg $CaCO_3$/L)	-	-	-	-	-	-	-	-	-	-	-	-
Ikalinity - Bicarbonate (mg $CaCO_3$/L)	-	-	-	-	-	-	-	-	-	-	-	-
Alkalinity - Carbonate (mg $CaCO_3$/L)	-	-	-	-	-	-	-	-	-	-	-	-
Chloride (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-
Sulphate (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-
Free Ammonia (mg NH_3-N/L)	-	-	-	-	-	-	-	-	-	-	-	-
Nitrate (mg NO_3-N/L)	-	-	-	-	-	-	-	-	-	-	-	-
Nitrite (mg NO_2-N/L)	-	-	-	-	-	-	-	-	-	-	-	-
Ortho-Phosphate (mg P/L)	-	-	-	-	-	-	-	-	-	-	-	-
Total Dissolved Phosphate (mg P/L)	-	-	-	-	-	-	-	-	-	-	-	-
Total Phosphorus (mg P/L)	-	-	-	-	-	-	-	-	-	-	-	-

Appendix II - A
Water Quality QA/QC

	Site 10 Final Filter e3360 94 08 23	Site 17 Initial Filter e3123 94 08 21	Site 17 Final Filter e3123 94 08 21	Site 17 ransport Blank e3123 94 08 21	Site 27 Initial Filter e3099 94 08 18	Site 27 Final Filter e3099 94 08 18	Site 27 ransport Blank e3099 94 08 18	Site 1 ransport Blank e2906 94 08 14	Site 1 Initial Filter e2906 94 08 14	Site 1 Final Filter e2906 94 08 14	Site 48 ransport Blank e3727 94 09 07	Site 34 ransport Blank e3553 94 08 31
Total Metals (µg/L)												
Aluminum	0.002	0.02	0.017	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	0.002	<0.002
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	<0.0002	<0.0002	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bismuth	-	-	-	-	-	-	-	-	-	-	-	-
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	0.0002	0.0003	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0001
Calcium	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	0.001	0.0005	<0.0005	0.001	0.001	0.001	<0.0005	<0.0005	0.0005	<0.0005	<0.0005
Iron	<0.01	0.03	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Lithium	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	<0.010	0.036	0.025	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Phosphorus	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-
Titanium	-	-	-	-	-	-	-	-	-	-	-	-
Tungsten	-	-	-	-	-	-	-	-	-	-	-	-
Uranium	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.001	<0.001	<0.001	0.001	0.002	<0.001	<0.001	0.002	<0.001	<0.001	<0.001

Appendix II - A
Water Quality QA/QC

	Site 10 Final Filter e3360 94 08 23	Site 17 Initial Filter e3123 94 08 21	Site 17 Final Filter e3123 94 08 21	Site 17 ransport Blank e3123 94 08 21	Site 27 Initial Filter e3099 94 08 18	Site 27 Final Filter e3099 94 08 18	Site 27 ransport Blank e3099 94 08 18	Site 1 ransport Blank e2906 94 08 14	Site 1 Initial Filter e2906 94 08 14	Site 1 Final Filter e2906 94 08 14	Site 48 ransport Blank e3727 94 09 07	Site 34 ransport Blank e3553 94 08 31
Dissolved Metals (µg/L)												
Aluminum	-	-	-	-	<0.002	<0.002	-	-	-	-	-	-
Antimony	-	-	-	-	<0.0001	<0.0002	-	-	-	-	-	-
Arsenic	-	-	-	-	<0.0001	<0.0001	-	-	-	-	-	-
Barium	-	-	-	-	<0.010	<0.010	-	-	-	-	-	-
Beryllium	-	-	-	-	<0.003	<0.003	-	-	-	-	-	-
Boron	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-
Cadmium	-	-	-	-	<0.0001	<0.0001	-	-	-	-	-	-
Calcium	-	-	-	-	<0.050	<0.050	-	-	-	-	-	-
Chromium	-	-	-	-	<0.001	<0.001	-	-	-	-	-	-
Cobalt	-	-	-	-	<0.001	<0.001	-	-	-	-	-	-
Copper	-	-	-	-	0.001	0.0005	-	-	-	-	-	-
Iron	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-
Lead	-	-	-	-	<0.001	<0.001	-	-	-	-	-	-
Magnesium	-	-	-	-	<0.010	<0.010	-	-	-	-	-	-
Manganese	-	-	-	-	<0.005	<0.005	-	-	-	-	-	-
Mercury	-	-	-	-	<0.00005	<0.00005	-	-	-	-	-	-
Molybdenum	-	-	-	-	<0.001	<0.001	-	-	-	-	-	-
Nickel	-	-	-	-	<0.001	<0.001	-	-	-	-	-	-
Potassium	-	-	-	-	0.02	0.01	-	-	-	-	-	-
Selenium	-	-	-	-	<0.0005	<0.0005	-	-	-	-	-	-
Silver	-	-	-	-	<0.00001	<0.00001	-	-	-	-	-	-
Sodium	-	-	-	-	0.12	0.1	-	-	-	-	-	-
Uranium	-	-	-	-	<0.00001	<0.00001	-	-	-	-	-	-
Vanadium	-	-	-	-	<0.005	<0.005	-	-	-	-	-	-
Zinc	-	-	-	-	<0.001	<0.001	-	-	-	-	-	-

Appendix II - A
Water Quality QA/QC

	Site 34 Initial Filter e3553 94 08 31	Site 34 Final Filter e3553 94 08 31	34, 35, 38 Initial Filter e3553 94 08 31	34, 35, 38 Final Filter e3553 94 08 31
Conductivity (µmhos/cm)	-	-	-	-
Total Dissolved Solids (mg/L)	-	-	-	-
Hardness $CaCO_3$ (mg/L)	-	-	-	-
pH (units)	-	-	-	-
Total Suspended Solids (mg/L)	-	-	-	-
Turbidity (NTU)	-	-	-	-
Acidity (mg $CaCO_3$/L)	-	-	-	-
Alkalinity - Total (mg $CaCO_3$/L)	-	-	-	-
Ikalinity - Bicarbonate (mg $CaCO_3$/L)	-	-	-	-
Alkalinity - Carbonate (mg $CaCO_3$/L)	-	-	-	-
Chloride (mg/L)	-	-	-	-
Fluoride (mg/L)	-	-	-	-
Sulphate (mg/L)	-	-	-	-
Free Ammonia (mg NH_3-N/L)	-	-	-	-
Nitrate (mg NO_3-N/L)	-	-	-	-
Nitrite (mg NO_2-N/L)	-	-	-	-
Ortho-Phosphate (mg P/L)	-	-	-	-
Total Dissolved Phosphate (mg P/L)	-	-	-	-
Total Phosphorus (mg P/L)	-	-	-	-

Appendix II - A
Water Quality QA/QC

	Site 34 Initial Filter e3553 94 08 31	Site 34 Final Filter e3553 94 08 31	34, 35, 38 Initial Filter e3553 94 08 31	34, 35, 38 Final Filter e3553 94 08 31
Total Metals (µg/L)				
Aluminum	0.004	<0.002	0.002	0.002
Antimony	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	<0.0001	<0.0001	<0.0001	<0.0001
Barium	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003
Bismuth	-	-	-	-
Boron	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	<0.050	<0.050	<0.050	<0.050
Chromium	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001
Copper	<0.0005	<0.0005	<0.0005	<0.0005
Iron	<0.01	<0.01	<0.01	<0.01
Lead	<0.001	<0.001	<0.001	<0.001
Lithium	-	-	-	-
Magnesium	0.017	0.022	<0.010	<0.010
Manganese	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001
Phosphorus	-	-	-	-
Potassium	-	-	-	-
Selenium	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	-	-	-	-
Strontium	-	-	-	-
Thallium	-	-	-	-
Tin	-	-	-	-
Titanium	-	-	-	-
Tungsten	-	-	-	-
Uranium	<0.00001	<0.00001	<0.00001	<0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	0.001	<0.001

Appendix II - A
Water Quality QA/QC

	Site 34 Initial Filter e3553 94 08 31	Site 34 Final Filter e3553 94 08 31	34, 35, 38 Initial Filter e3553 94 08 31	34, 35, 38 Final Filter e3553 94 08 31
Dissolved Metals (µg/L)				
Aluminum	-	-	-	-
Antimony	-	-	-	-
Arsenic	-	-	-	-
Barium	-	-	-	-
Beryllium	-	-	-	-
Boron	-	-	-	-
Cadmium	-	-	-	-
Calcium	-	-	-	-
Chromium	-	-	-	-
Cobalt	-	-	-	-
Copper	-	-	-	-
Iron	-	-	-	-
Lead	-	-	-	-
Magnesium	-	-	-	-
Manganese	-	-	-	-
Mercury	-	-	-	-
Molybdenum	-	-	-	-
Nickel	-	-	-	-
Potassium	-	-	-	-
Selenium	-	-	-	-
Silver	-	-	-	-
Sodium	-	-	-	-
Uranium	-	-	-	-
Vanadium	-	-	-	-
Zinc	-	-	-	-

Appendix II - A
Water Quality QA/QC

	Site 51 Bat L. A 0m 94 09 03	Site 51 Bat L. B 0m 94 09 03	Site 51 Bat L. C 0m 94 09 03	Site 51 Bat L. A 1m 94 09 03	Site 51 Bat L. B 1m 94 09 03	Site 51 Bat L. C 1m 94 09 03	Site 51 Bat L. A 1.5m 94 09 03	Site 51 Bat L. B 1.5m 94 09 03	Site 51 Bat L. C 1.5m 94 09 03
Conductivity (µmhos/cm)	11.8	12.2	11.5	11.5	11 4	12.3	11.6	11.8	11 7
Total Dissolved Solids (mg/L)	7	7	6	7	7	7	7	7	7
Hardness $CaCO_3$ (mg/L)	3.68	3.7	3.67	3.69	3.75	3.66	3.71	3.68	3.66
pH (units)	6.45	6.45	6.39	6.4	6.37	6.44	6.41	6.42	6.42
Total Suspended Solids (mg/L)	2	3	5	2	2	1	3	1	<1
Turbidity (NTU)	0.81	0.81	0.81	0.85	0.89	0.72	0.69	1.06	0.95
Acidity (mg $CaCO_3$/L)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Alkalinity - Total (mg $CaCO_3$/L)	3.5	3.6	3.7	3.2	3.3	4	3.5	4.2	3.6
Ikalinity - Bicarbonate (mg $CaCO_3$/L)	3.5	3.6	3.7	3.3	3.3	4	3.5	4.2	3.6
Alkalinity - Carbonate (mg $CaCO_3$/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride (mg/L)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Sulphate (mg/L)	1.6	1.2	1.3	1 4	1 1	1.2	1.2	1.2	1.2
Free Ammonia (mg NH_3-N/L)	0.007	0.01	0.012	0.008	0.011	0.01	0.008	0.013	0.011
Nitrate (mg NO_3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO_2-N/L)	0.001	0.001	0.002	0.001	0.002	0.001	0.002	0.001	0.001
Ortho-Phosphate (mg P/L)	0.009	0.011	0.005	0.006	0.007	0.006	0.007	0.006	0.006
Total Dissolved Phosphate (mg P/L)	0.011	0.013	0.011	0.013	0.013	0.011	0.011	0.012	0.01
Total Phosphorus (mg P/L)	0.015	0.015	0.012	0.015	0.013	0.013	0.012	0.015	0.012

Appendix II - A
Water Quality QA/QC

	Site 51 Bat L. A 0m 94 09 03	Site 51 Bat L. B 0m 94 09 03	Site 51 Bat L. C 0m 94 09 03	Site 51 Bat L. A 1m 94 09 03	Site 51 Bat L. B 1m 94 09 03	Site 51 Bat L. C 1m 94 09 03	Site 51 Bat L. A 1.5m 94 09 03	Site 51 Bat L. B 1.5m 94 09 03	Site 51 Bat L. C 1.5m 94 09 03
Total Metals (µg/L)									
Aluminum	0.022	0.023	0.024	0.029	0.024	0.027	0.025	0.028	0.023
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bismuth									
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.591	0.588	0.597	0.594	0.604	0.598	0.601	0.598	0.601
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0009	0.001	0.001	0.0011	0.001	0.0028	0.0012	0.0012
Iron	0.06	0.05	0.06	0.06	0.07	0.06	0.06	0.07	0.06
Lead	0.004	0.004	0.005	0.008	0.01	0.008	0.003	0.005	0.005
Lithium									
Magnesium	0.539	0.543	0.548	0.537	0.547	0.54	0.537	0.536	0.544
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Phosphorus									
Potassium									
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Tungsten									
Uranium	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	0.001	<0.001	<0.001	<0.001	0.041	<0.001	<0.001	<0.001

Appendix II - A
Water Quality QA/QC

	Site 51 Bat L. A 0m 94 09 03	Site 51 Bat L. B 0m 94 09 03	Site 51 Bat L. C 0m 94 09 03	Site 51 Bat L. A 1m 94 09 03	Site 51 Bat L. B 1m 94 09 03	Site 51 Bat L. C 1m 94 09 03	Site 51 Bat L. A 1.5m 94 09 03	Site 51 Bat L. B 1.5m 94 09 03	Site 51 Bat L. C 1.5m 94 09 03
Dissolved Metals (µg/L)									
Aluminum	0.006	0.006	0.005	0.005	0.006	0.005	0.004	0.006	0.006
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0002	0.0002	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.591	0.588	0.597	0.594	0.604	0.588	0.601	0.598	0.598
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.001	0.0009	0.001	0.001	0.0009	0.001	0.0009	0.0009	0.0009
Iron	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	0.001	0.001	0.001	0.002	0.002	0.001	0.003	0.005	0.004
Magnesium	0.536	0.543	0.53	0.537	0.543	0.533	0.537	0.53	0.526
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Potassium	0.5	0.48	0.49	0.5	0.53	0.5	0.47	0.48	0.48
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	<0.00001	<0.00001	<0.00001	<0.00001
Sodium	0.45	0.44	0.44	0.45	0.45	0.44	0.43	0.44	0.43
Uranium	<0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Appendix II - A
Water Quality QA/QC

	Site 51 Bat L. A 2.0m 94 09 03	Site 51 Bat L. B 2.0m 94 09 03	Site 51 Bat L. C 2.0m 94 09 03	Site 51 Bat L. A 2.5m 94 09 03	Site 51 Bat L. B 2.5m 94 09 03	Site 44 Amie L. A 0m 94 09 04	Site 44 Amie L. B 0m 94 09 04	Site 44 Amie L. A 1m 94 09 04	Site 44 Amie L. B 1m 94 09 04
Conductivity (µmhos/cm)	11.6	11.5	11.5	13.9	11.3	19.7	19.8	19.5	20.5
Total Dissolved Solids (mg/L)	7	7	7	7	8	14	14	14	15
Hardness $CaCO_3$ (mg/L)	3.61	3.66	3.65	3.72	3.5	7.97	8	8.04	8.03
pH (units)	6.42	6.39	6.43	6.61	6.41	6.7	6.69	6.7	6.69
Total Suspended Solids (mg/L)	2	<1	2	<1	<1	1	1	1	<1
Turbidity (NTU)	0.74	1.04	0.91	0.88	0.89	0.67	0.87	0.71	0.75
Acidity (mg $CaCO_3$/L)	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Alkalinity - Total (mg $CaCO_3$/L)	4.2	3.7	4.3	4.4	3.9	7.8	8.1	8.3	7 4
Ikalinity - Bicarbonate (mg $CaCO_3$/L)	4.2	3.7	4.3	4.4	3.9	7.8	8.1	8.3	7 4
Alkalinity - Carbonate (mg $CaCO_3$/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloride (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride (mg/L)	0.03	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04
Sulphate (mg/L)	1	1.2	1 1	<1.0	1 4	1.6	1.2	1.2	1 7
Free Ammonia (mg NH_3-N/L)	0.01	0.015	0.01	0.009	0.01	0.005	<0.005	0.007	<0.005
Nitrate (mg NO_3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrite (mg NO_2-N/L)	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002
Ortho-Phosphate (mg P/L)	0.007	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Total Dissolved Phosphate (mg P/L)	0.01	0.01	0.01	0.011	0.011	0.012	0.014	0.013	0.013
Total Phosphorus (mg P/L)	0.012	0.012	0.013	0.012	0.013	0.014	0.015	0.014	0.017

Appendix II - A
Water Quality QA/QC

	Site 51 Bat L. A 2.0m 94 09 03	Site 51 Bat L. B 2.0m 94 09 03	Site 51 Bat L. C 2.0m 94 09 03	Site 51 Bat L. A 2.5m 94 09 03	Site 51 Bat L. B 2.5m 94 09 03	Site 44 Arnie L. A 0m 94 09 04	Site 44 Arnie L. B 0m 94 09 04	Site 44 Arnie L. A 1m 94 09 04	Site 44 Arnie L. B 1m 94 09 04
Total Metals (µg/L)									
Aluminum	0.029	0.034	0.024	0.023	0.024	0.084	0.081	0.07	0.071
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0002	0.0001	0.0002	0.0001	0.0001	0.0004	0.0004	0.0004	0.0004
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Bismuth									
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.591	0.598	0.598	0.604	0.556	1	1.01	1.01	1.01
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0018	0.001	0.0035	0.001	0.001	0.0018	0.0013	0.0012	0.0012
Iron	0.07	0.06	0.06	0.06	0.06	0.23	0.23	0.23	0.24
Lead	0.004	0.005	0.004	0.002	0.004	0.005	0.001	0.002	0.001
Lithium									
Magnesium	0.529	0.526	0.53	0.536	0.515	1.33	1.33	1.34	1.34
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002	0.002	0.002
Phosphorus									
Potassium									
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00001	0.00002	<0.00001	<0.00001
Sodium									
Strontium									
Thallium									
Tin									
Titanium									
Tungsten									
Uranium	0.00002	0.00002	0.00002	0.00002	0.00002	0.00007	0.00007	0.00008	0.00008
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	0.005	0.005	0.001	0.002	0.003	0.006	0.002	0.004

Appendix II - A
Water Quality QA/QC

	Site 51 Bat L. A 2.0m 94 09 03	Site 51 Bat L. B 2.0m 94 09 03	Site 51 Bat L. C 2.0m 94 09 03	Site 51 Bat L. A 2.5m 94 09 03	Site 51 Bat L. B 2.5m 94 09 03	Site 44 Arnie L. A 0m 94 09 04	Site 44 Arnie L. B 0m 94 09 04	Site 44 Arnie L. A 1m 94 09 04	Site 44 Arnie L. B 1m 94 09 04
Dissolved Metals (µg/L)									
Aluminum	0.006	0.005	0.005	0.005	0.005	0.031	0.032	0.034	0.03
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Arsenic	0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	0.0002	0.0003	0.0003
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calcium	0.591	0.598	0.598	0.604	0.55	1	1.01	1.01	1.01
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	0.0009	0.001	0.0009	0.0009	0.001	0.0014	0.001	0.0011	0.0012
Iron	<0.01	<0.01	<0.01	<0.01	<0.01	0.15	0.15	0.15	0.15
Lead	0.002	0.002	0.003	<0.001	<0.001	0.001	<0.001	<0.001	<0.001
Magnesium	0.518	0.525	0.523	0.536	0.515	1.33	1.33	1.34	1.34
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.001	0.001	0.001
Potassium	0.48	0.49	0.49	0.48	0.48	0.66	0.65	0.65	0.65
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Silver	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	<0.00001	<0.00001
Sodium	0.44	0.44	0.45	0.44	0.43	0.52	0.52	0.52	0.52
Uranium	0.00001	0.00001	0.00001	0.00001	0.00001	0.00006	0.00006	0.00006	0.00006
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.001	<0.001	0.004	<0.001	0.002	0.001	0.004	<0.001	<0.001

Appendix II - A
Water Quality QA/QC

	Site 44 Arnie L. A 2m 94 09 04	Site 44 Arnie L. B 2m 94 09 04	Site 44 Arnie L. A3m 94 09 04	Site 44 Arnie L. B 3m 94 09 04	Site 44 Arnie L. A 4m 94 09 04	Site 44 Arnie L. B 4m 94 09 04	Site 23 Little L Rep 1 93 01	Site 23 Little L Rep 2 93 01
Conductivity (µmhos/cm)	19.7	19.9	21 4	21 1	19.9	19.9		
Total Dissolved Solids (mg/L)	14	13	14	14	11	12		
Hardness $CaCO_3$ (mg/L)	8.08	7.94	8.01	8.01	8.06	7.98		
pH (units)	6.72	6.69	6.75	6.7	6.72	6.74	6.1.6	6.1
Total Suspended Solids (mg/L)	1	1	1	2	<1	<1	1	1
Turbidity (NTU)	0.74	0.78	0.84	1.01	0.94	0.9	<0.05	0.9
Acidity (mg $CaCO_3$/L)	1.9	1.9	1.9	1.9	1.9	1.9		
Alkalinity - Total (mg $CaCO_3$/L)	7 7	8.4	7.6	7.2	8	8.4		
lkalinity - Bicarbonate (mg $CaCO_3$/L)	7 7	8.4	7.6	7.2	8	8.4		
Alkalinity - Carbonate (mg $CaCO_3$/L)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Chloride (mg/L)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9
Fluoride (mg/L)	0.04	0.04	0.04	0.04	0.04	0.04		
Sulphate (mg/L)	1.3	1.8	1.6	1.6	1.5	1.2		
Free Ammonia (mg NH_3-N/L)	0.007	0.007	0.007	<0.005	<0.005	0.007	0.02	0.027
Nitrate (mg NO_3-N/L)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005		
Nitrite (mg NO_2-N/L)	0.002	0.002	0.002	0.002	0.002	0.002		
Ortho-Phosphate (mg P/L)	0.004	0.005	0.005	0.005	0.005	0.005		
Total Dissolved Phosphate (mg P/L)	0.014	0.013	0.013	0.014	0.015	0.013		
Total Phosphorus (mg P/L)	0.015	0.015	0.014	0.015	0.015	0.015		

Appendix II - A
Water Quality QA/QC

	Site 44 Amie L. A 2m 94 09 04	Site 44 Amie L. B 2m 94 09 04	Site 44 Amie L. A3m 94 09 04	Site 44 Amie L. B 3m 94 09 04	Site 44 Amie L. A 4m 94 09 04	Site 44 Amie L. B 4m 94 09 04	Site 23 Little L Rep 1 93 01	Site 23 Little L Rep 2 93 01
Total Metals (µg/L)								
Aluminum	0.075	0.071	0.069	0.07	0.066	0.076	<0.2	<0.2
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.2	<0.2
Arsenic	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0002	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005
Bismuth							<0.1	<0.1
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01	<0.01
Calcium	1.04	1.01	1.01	1.02	0.981	0.966	0.98	0.926
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015
Copper	0.0012	0.0012	0.0014	0.0016	0.0014	0.0017	0.0085	0.006
Iron	0.24	0.23	0.24	0.24	0.23	0.23	0.033	0.031
Lead	0.002	0.001	<0.001	0.001	<0.001	<0.001	0.005	0.0028
Lithium							<0.015	<0.015
Magnesium	1.33	1.32	1.33	1.33	1.36	1.35	0.661	0.65
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.03	<0.03
Nickel	0.002	0.002	0.002	0.001	0.001	0.001	0.0005	0.0005
Phosphorus							<0.3	<0.3
Potassium							<2.0	<2.0
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.2	<0.2
Silver	<0.00001	<0.00001	0.00001	0.00004	<0.00001	0.00001	<0.015	<0.015
Sodium							<2.0	<2.0
Strontium							0.008	0.008
Thallium							<0.1	<0.1
Tin							<0.3	<0.3
Titanium							<0.01	<0.01
Tungsten							<0.1	<0.1
Uranium	0.00007	0.00007	0.00008	0.00008	0.00008	0.00007		
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.03	<0.03
Zinc	0.001	0.003	0.002	0.005	<0.001	<0.001	0.051	0.025

Appendix II - A
Water Quality QA/QC

	Site 44 Arnie L. A 2m 94 09 04	Site 44 Arnie L. B 2m 94 09 04	Site 44 Arnie L. A3m 94 09 04	Site 44 Arnie L. B 3m 94 09 04	Site 44 Arnie L. A 4m 94 09 04	Site 44 Arnie L. B 4m 94 09 04	Site 23 Little L Rep 1 93 01	Site 23 Little L Rep 2 93 01
Dissolved Metals (µg/L)								
Aluminum	0.037	0.035	0.033	0.027	0.034	0.032	<0.2	<0.2
Antimony	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.2	<0.2
Arsenic	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002	0.0001
Barium	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01
Beryllium	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.005	<0.005
Boron	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.1
Cadmium	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.01	<0.01
Calcium	1.04	1.01	1.01	1.02	0.981	0.966	0.933	0.926
Chromium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.015	<0.015
Copper	0.0012	0.0012	0.0014	0.0014	0.0013	0.0017	0.006	0.006
Iron	0.16	0.15	0.15	0.15	0.14	0.15	0.33	0.31
Lead	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.029	0.0028
Magnesium	1.33	1.32	1.33	1.33	1.36	1.35	0.654	0.621
Manganese	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005		
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.661	0.65
Nickel	0.001	0.001	0.001	0.001	0.001	0.001	<0.005	<0.005
Potassium	0.65	0.65	0.65	0.66	0.65	0.65	0.661	0.65
Selenium	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.005	<0.005
Silver	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.661	0.65
Sodium	0.53	0.52	0.52	0.52	0.52	0.52	<0.005	<0.005
Uranium	0.00007	0.00006	0.00007	0.00006	0.00006	0.00006		
Vanadium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.03	<0.03
Zinc	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.002

Appendix II-A7

Indian and Northern Affairs Canada / Affaires indiennes et du Nord Canada
P.O. Box 1500
Yellowknife, NT X1A 2R3

December 20, 1993

Mr. Bruce L. Turner
Project Manager
BHP Minerals Canada Ltd.
Suite 1600
1050 West Pender Street
Vancouver, B.C. V6E 3S7

Dear Mr. Turner,

Re: BHP/RESCAN Baseline Environmental Study Protocols

Attached are comments received from RERC members regarding the draft Baseline Environmental Study Protocols dated October 1993 and discussed at the workshop held in Yellowknife on November 30, 1993. You will note that the review by RERC has been both comprehensive and detailed and that there are many issues which will require further analysis and discussion before the protocols can be considered complete Nevertheless, BHP Minerals and Rescan are to be commended for the proactive, innovative and cooperative approach demonstrated to date, an approach which all RERC members welcome.

In addition to the specific concerns identified in the attached documents, significant additional effort is required in the areas of cumulative environmental effects and the integration of traditional knowledge with conventional scientific data collection. DIAND will be sponsoring a cumulative environmental effects workshop in Yellowknife on February 1 and 2, 1994 and I will be sending you additional information on that workshop as it becomes available. Representation from BHP Minerals and Rescan would be very welcome. Please contact Rob Walker of the Environment and Conservation Division (403-920-8255) for further details on the workshop.

With regard to the collection and integration of traditional knowledge, I strongly recommend that you contact the Dogrib Treaty 11 Tribal Council (Chief Joe Rabesca), the Yellowknives B Band (Chief Jonas Sangris and Chief Darryl Beaulieu) and the Dene Nation (Mr. Barney Masazumi) for information and guidance. Other RERC members, notably Mr. Tom Andrews at the Prince of Wales Northern Heritage Centre, will also be able to assist in this area. .../2

Canada

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Further consideration should also be given to determining the broad geographic extent of potential impacts from the project. Activities associated with the project (e.g. winter roads, aircraft, noise, atmospheric emissions and so on) will have environmental effects that will extend beyond the identified study area. The scope of the assessment should include all areas that may experience environmental effects likely to cause an impact. The study area for wildlife and habitat should, as a minimum, cover all kimberlite pipes found on the company's property or claims. This would facilitate approvals for development of other kimberlite pipes which may be explored or mined at some future date. This would also help in understanding how the project at Koala and Fox lakes, and potential future development of other kimberlite pipes, may effect the ecosystem.

If you have any questions regarding the attached comments - and I'm sure you will - I encourage you to contact the respective agencies and individuals directly. However, please feel free to contact me at any point.

Finally, as I mentioned at the November 30 meeting, I'm very encouraged by the clear intent of BHP Minerals to work closely and cooperatively with RERC throughout the development of its NWT Diamond program. I look forward to reviewing the revised protocols and participating in what promises to be a very interesting and exciting project.

Sincerely,

David Livingstone
Chair
Regional Environmental Review Committee

Attach.

c.c.: Warren Johnson [letter]
RERC members [letter]

Government of Canada / Gouvernement du Canada

TO / A

David Livingstone
Director
Renewable Resources and Environment
RERC, DIAND, Yellowknife

FROM / DE

Chief, Assessment & Monitoring
NWT District
EP/C&P/W&N Region
Yellowknife, NWT

SUBJECT / OBJET

RE: BHP MINERALS BASELINE ENVIRONMENTAL STUDY PROTOCOLS.

As requested during RERC's meeting of Nov 30, 1993 various departments were to respond to RERC with written comments regarding deficiencies of BHP's environmental study protocols. Environment Canada has reviewed the BHP's proposed study protocols to conduct the studies required to ensure that all potential environmental impacts are recognized and avoided or mitigated and that the formal requirements of an Initial Environmental Evaluation (IEE) are fully met. This submission summarizes the concerns of Environment Canada's EPS and Atmospheric Environment Service (AES), Canadian Wildlife Service (CWS) and Inland Water Directorate (IWD) based on an evaluation of information provided by the company.

The mandate of Environment Canada is to foster harmony between society and the environment for the economic social and cultural benefit of present and future generations of Canadians. The Department shares this responsibility with the provinces and other federal agencies.

The Department of the Environmental Act provides Environment Canada with the general responsibility for environmental management and protection. Environment Canada is responsible for providing environmental advice to federal government agencies and for the preservation and enhancement of environmental quality.

Mining developments are subject to the general provisions of the Fisheries Act, the Migratory Birds Convention Act, the Canadian Wildlife Act and the Canadian Environmental Protection Act. Environment Canada administers the latter three Acts and their associated regulations as well as the pollution prevention provisions and the Metal Mining Liquid Effluent Regulations and Guidelines of the federal Fisheries Act.

Staff from the EPS, AES, CWS and IWD participate in this review AES is responsible for providing weather and air quality information for Canadians. CWS is responsible for conserving and protecting migratory birds, the national interest in wildlife and meeting international obligations, IWD has expertise in water quantity and quality and ensures national and international obligations are met. EPS is responsible for delivery of the Department's pollution control programs and prevention of environmental degradation by federally owned facilities or regulated industries

ENVIRONMENTAL PROTECTION SERVICE.

In order for BHP to prepare for a formal Initial Environmental Evaluation the following information should be considered during protocol development:

Reviewers Responsibilities:

A list of regulatory requirements, statutes and policies applicable to BHP's Project would be helpful in creating a picture of who is responsible for what with regards to the project review. The environmental assessment process is one of the tools used to ensure that the environmental factors are included early in the decision making for new project proposals. This includes advising the proponent of anticipatory requirements so that they can be factored into the assessment process when appropriate. The introduction to this letter provides information which is applicable to Environment Canada

Point to note: The Canadian Environment Assessment Act (CEAA) will at some point in the near future, replace the "EARP Guidelines Order". The development of this type of mine will be captured by CEAA, under the Comprehensive study list.

Proponent Responsibilities:

Environmental baseline studies are required to support BHP's application to the responsible regulatory agencies for project approval and to meet the formal requirements of an Initial Environmental Evaluation (IEE). The baseline environmental and geological information obtained should provide sufficient data to assess and develop appropriate mitigation for the proposed development or provide cause to revise the project so that it can proceed in an environmentally acceptable manner.

Study Design and Statistical Analysis:

The Baseline Environmental Study Protocols submitted by BHP Minerals does not address the statistical tests to be used. The objectives of the sampling program should guide the selection process for the appropriate statistical tests.

For example the requirements of a statistical procedure can dictate the minimum number of sample replicates that should be collected at a station within and between time periods for use in time-trend comparisons. As a rule of thumb, parametric statistics should be used in analysis of monitoring data and no less than three sample replicates (five replicates is recommended) should be collected at each station per time period. Using the recommended five replicates will ensure that a "reasonable" estimate of variance is obtained and the use of a variety of different parametric and non-parametric statistical tests is not limited by the number of degrees of freedom available.

The level of significance for all statistical tests should be made at a minimum of the 95% level of probability.

Data Reporting

In general the field and laboratory protocols were poorly described. Sufficient information should be included with all reported data and methods to substantiate their use for the intended purpose. Supporting information for data and methods should include the following:

- *sampling and analytical methods and instruments, including any modifications;*
- *methods for locating sampling points, including estimates of accuracy;*
- *the Limits of Detection and Limits of Quantization (ensures that the accuracy, precision and representation of data quality are met) and the methods used to establish them;*
- *summary statistics on the precision and accuracy of the data;*
- *all raw data, including analyses of precision, accuracy and blanks; and*
- *any blank corrections and the supporting documentation to justify their use.*

Water Quality Protocol

The Use of Controls

There is a need to differentiate between control and sampling sites.

Assuming that Koala, Larry, Long, Fox 1, Airstrip and Little Lakes will be the most effected by the mining operations. Would this leave Exeter (sampling in 1992, 1993, 1994) and the 1994 plan to extend the baseline studies to watersheds north (Ursula), east (Paul and Mini), and south (South) of the Koala Lake watersheds (page 2-13) as the control sites?
If this is the case temporal control against which future changes can be compared are limited
If Exeter is the only lake used as a control site for the sampling period 1992 - 1993, then the spatial control for the study is limited.

Such temporal and spatial control assumes that natural variability in water quality at the control and exposed locations will be of the same magnitude.

Several drainage basins have ben identified for sampling. It appears that the Koala Drainage basin will be impacted first while others such as Paul, South and Mini may be impact in the future. Studies on these drainages could be deferred until it is known/decided that development activities will take place.

Lac De Gras is the main receiving water body for all of these drainages. It is recommended that baseline water quality for this lake be established as well

ositioning the Sampline Points

The technique used for positioning of sampling points was not described in BHP's field protocol. The monitoring approach requires comparison of water quality at fixed points, and care must taken to ensure that the same locations are being sampled over time.

Selection of the Number of Replicate Samples

Page 2-18 states "two stations will be chosen such that at one station replicate samples will be collected while at the other station the collected samples will be split." However, the number of replicate samples to be taken was not stated.

In order to facilitate statistical analysis, the minimum number of replicate samples at any sampling point should be at least 3. Although the following calculation probably won't be done for this study, the number of replicate samples required at each sampling point can be estimated by determining the variability of data from an initial survey.

Analysis of Total and Dissolved Metals

Field protocol states "Samples for analyses of total and dissolved metals will be shipped by air to a commercial laboratory" (page 2-18). The field protocol however, does not describe how the samples will be filtered in preparation for an analysis to differentiate between total and dissolved metals. The filtration method employed to separate total and dissolved metals should be reported. For each metal, the proportion of that dissolved (i.e. <45 um) to that absorbed to suspended particulates will be provide the investigator with an initial idea of how quickly each metal will likely be deposited to the bedded lake sediment.

Sample Preservation

Although a reference was provided for sample preservation, a brief outline included in the report would demonstrate to a reviewer that the water samples are protected from alteration of the parameters- of-interest before analysis.

Sample Storage

Storage of samples was not addressed in BHP's report. The storage conditions, maximum period of storage for the various parameters-of-interest should be outlined.

Sediment Sampling Protocol

The development of a protocol for sediment sampling is minimal and requires elaboration in study design.

The report states "Samples of sediment were obtained from 14 stations in the 1993 field study." (page 2-21) However, the location for the sediment sampling stations were not given (at least not that I could find). As with water sampling stations, sediment sampling stations should be established and fixed using a reliable technique (e.g. GPS).

Since geochemical data acquired from the sediment sampling is required to add relevance to the results of the biological monitoring data, it is important that the sediment sampling station are spatially separated from the biological sampling stations. There are two reasons for this:

1. *Deep bioturbation will result in the geochemistry of recent sediment with subsurface material.*

2. *The lateral and vertical physical integrity and chemical stratigraphy of sediment can be disrupted through mechanical and biological interactions with macrophyte root masses*

The contents of three Ekman grab samples can be taken in the proximity of potential monitoring stations to evaluate the abundance of benthic macrophytes, and absence or abundance of aquatic macrophytes.

Sediment sampling sites to detect the transport of metal-contaminated sediment should be established in areas where the <63um particle size will be deposited and accumulated (The protocol outlined in BHP's report does not address this). A full metal scan for all samples should be considered (ICAP) thus providing a much wider representation of background data

CANADIAN WILDLIFE SERVICE:

Attached copy of review comments provided by CWS.

ATMOSPHERIC ENVIRONMENT SERVICE:

Attached copy of review comments provided by AES.

INLAND WATER DIRECTORATE:

Hydrology: *Attached copy of review comments provided by Environmental Services Directorate*

Water Quality: *The selection criteria used by BHP in determining which analytical labs are to be used should be incorporated into the IEE.*

Rational for establishing a control basin requires further explanation

The lab methods identified will be following APHA Standard Methods 17th Editions(1989). This is an American Standard which in some cases may reflect a different standard then what has been adopted by Environment Canada. Environment Canada can identify which standards would be acceptable, but will require sufficient lead time.

The proposed detection limits for various parameters are questioned. When comparing the proposed limits to what can be achieved via EP's lab in Edmonton there are some discrepancies. A copy of EP's achievable detection limits are provided for information

If you have any questions or concerns regarding the above comments please contact me 920-6062.

Stephen Harbicht

cc	*J. N. Jasper*	*Environmental Services Directorate Yellowknife*
	Andrew Smart	*Water Planning and Management, EC. Regina*
	Paul Latour	*CWS, Yellowknife*
	Neil Parker	*Atmospheric Science and Issues Branch, Edmonton*
	R. Koski	*EPS, Edmonton*
	L. Johnston	*District Manager, EPS Yellowknife.*

Government of Canada / Gouvernement du Canada

MEMORANDUM / NOTE DE SERVICE

TO
S. Hatbicht
Chief, Assessment and Monitoring Division
NWT District, Environmental Protection

FILE
Our's RERC-BHP
Your's

FROM
J. N. Jasper
Head, Arctic Section
Climate, Atmospheric, & Hydrologic Sciences
Environmental Services Directorate

DATE
16 December, 1993

SUBJECT
OBJET Comments on BHP Mineral Baseline Environmental Study Protocols

I have reviewed the hydrology component of BHP's proposed environmental studies program (section 2 of their report) and wish to make the following comments in support of their approach and program specifics noted

BHP's proposed hydrology program takes a broad, general approach to addressing hydrology/water balance concerns for a project requiring considerable use of area waters BHP will monitor levels of water and/or flow rates in about 20 lakes and connecting streams throughout the area likely to be affected by mining. Evaporation will also be calculated using data from onsite weather stations and evaporation pans. This information must be combined for water use and environmental assessments.

A smaller, more "intensive" hydrology program (focusing on specifics of mine water withdrawals and tailings disposal) would normally be desirable. Area drainages (stream channels) are poorly defined however, and hydrology characteristics are therefore extremely difficult to define and monitor using conventional techniques BHP's "extensive' hydrology monitoring program, will produce a large area hydrology database for modelling and monitoring the area's water balance, future mine water use, and effects of mine operations A similar approach will be used for water quality

In my opinion, this is the only feasible approach possible Considerable followup data manipulation, modelling and interpretation will be required to define area water balance figures for mine environmental evaluation and design considerations. Study results will require careful scrutiny, and acceptance of some uncertainty in specifics, due to the unavoidable measurement difficulties. No other options are available however, and the extensive network proposed shows BHP's commitment to meeting RERC and future regulatory information requirements.

The small size of rivers and lakes affected by the project (a watershed headwater location) are both the cause of measurement problems (poorly defined channels between lakes), and a mitigating factor in potential impacts of mining. Due to the small drainage area, flows within and out of the area, loss of local aquatic habitat, and regional significance of impacts should all be quite low, if mining effects can be contained to local surface disturbance and tailings disposal lakes.

J N Jasper

c.c. A Smart

CONSERVATION AND PROTECTION
MEMORANDUM

CONSERVATION ET PROTECTION
NOTE DE SERVICE

To/A
Stephen Harbicht,
EP/C&P/W&N Region,
Yellowknife, NWT

From/De
Habitat Biologist
Canadian Wildlife Service
P. O. Box 637
Yellowknife, N.T. X1A 2N5

Security-Class.-Sécurité	
Our file -N / Référence	
Your file -V / Référence	
Date	December 10,1993

SUBJECT: BHP Minerals - Baseline Environmental Study Protocols

I have reviewed the above document and offer the following specific comments and those of a more general nature:

Specific comments

It would have been helpful if the maps, both within the document and those inserted at the back, had at least the major aspects of the project included. Instead, I had to keep referring back to the original BHP Minerals Bulk Sampling Project Description in order to relate their planned biological sampling program to the spatial characteristics of the project (e.g., location of roads, campsites, worksites).

An IEE report will require much more consistency in terminology and more detail in the methodology. For example, under Vegetation there is no real methodology described as to how they will isolate and quantify any distinct vegetation associations in the study area, if there are indeed that many. They mention air photos, field reconnaissance, and vegetation plots but there is no indication of how air photos will be truthed and how sampling effort to describe habitat components (communities) will be distributed. On p. 2-44, once again the methodology is vague. They treat waterfowl and shorebirds the same, but the abundance of each will have to be quantified differently. Waterfowl can be assessed by counts on each waterbody whereas shorebirds can be assessed by counts of individuals or pairs per unit of shoreline. The proponents do not indicate the frequency of sampling during the course of the study period. Will there be just one survey during each of the three periods identified? Also, they do not indicate how they will distribute sampling effort other than mentioning a "sample of lakes and ponds". What will determine exactly where they sample and how will it relate to what's happening on the project site? Likewise, their sampling scheme for small mammals and terrestrial birds lacks detail, especially how sites will be selected relative to industrial activity. If this sampling is to serve as a basis for monitoring the effects of the project, such considerations are necessary.

On p. 2-1, the proponents discussed "sampling a number of control points situated outside the zone of influence of the mining development" and then comparing these to sampling done "near the project site". This needs more detail. What will determine the zone of influence and how many control points will there be? What sort of sampling will be done at the control points and how will it be designed? This concept of controls and potentially impacted sites is not mentioned later in the discussion of wildlife and habitat assessment. Why not? Such an approach, while laudable, means a much greater commitment of time and money than monitoring wildlife and vegetation immediately around the project site. A large amount of sampling would be required because of the inherent annual and site-to-site variability observed in northern waterfowl and shorebirds, and other wildlife too. Will the proponents have the workforce and the financial commitment required for such a long-term approach?

General comments

We would suggest that a bit more thought be given to what is important relative to project scale. For example, in assessing the environmental effects of 2 open-pit mines approximately 7 km apart, is it necessary for a labour intensive sampling of small mammals and terrestrial birds? Is there a need for detailed vegetation studies? What will the results mean in terms of the localized disturbance caused by a project of this scale given the wide ranges and abundance of these species and vegetation communities? Furthermore the disturbance, although localized, will be intense resulting in essentially severe and irreversible impacts on these species in the immediate vicinity of a mine. There is little chance of effective reclamation of lost habitat for these species upon termination of the project. Perhaps it is better to accept these losses now and concentrate on other environmental issues surrounding the project such as contaminants, toxic waste, transportation corridors, watershed degradation and certain wildlife issues such as large mammals (esp. grizzly bears, caribou, and muskoxen).

There is the possibility, however, that this project could become considerably larger than 2 mines. There are numerous other ore bodies yet to be explored on just BHP's lease plus there are adjacent exploration leases that may contain diamondiferous ore bodies. The proponents themselves, in the RERC meeting of 30 November, did not rule out a vastly expanded diamond industry in the central barrens with a possible horizon of 50-100 years. The possibility, therefore, of an ever-expanding project requires us to take a broader look at the level of environmental monitoring necessary to detect cumulative impacts. Unfortunately, we do not have data from anywhere in the central barrens upon which to make predictions about mining projects there. In a sense, therefore, this RERC review represents a very important crossroads. It is now that we must decide the scope and scale of environmental assessment and monitoring.

Our view (CWS) is that any environmental monitoring now, should take into account the possibility of greatly expanded diamond mining activity in the central barrens. From our own migratory birds mandate and the effects the project could have on watershed quality, it is important that the distribution and abundance of migrating and breeding waterfowl and shorebirds be monitored progressively farther away from the project site. As stated earlier, a limited project consisting of 2 nearby open-pit mines is probably irrelevant to the total breeding populations of these species. What could be the effects 20 years from now, however, after other watersheds in the area have been impacted? Only by monitoring effects as the project proceeds can we begin to anticipate future problems.

Conclusions

It is difficult to assess the overall validity of the proponent's environmental studies as a basis for the IEE without knowing the future scale of this mining development. There is only a brief mention made (p. 2-1) of environmental monitoring as the project progresses. There the proponents state that the sampling "protocols" described in this document will form the basis of future monitoring. However, the proponents do not supply enough details for us to readily assess the effectiveness of their monitoring. If we are to have any hope of identifying cumulative impacts should diamond mining expand in the central barrens, then effective monitoring will be crucial from the beginning. CWS welcomes the opportunity to assist the proponents in developing suitable environmental monitoring measures and we are available at any time to discuss this matter.

Paul Latour
Habitat Biologist
Northern Conservation Branch
(403) 920-8532

Fax: (403) 873-8185

Western Region
Atmospheric Environment Service
Environment Canada

MEMORANDUM
NOTE DE SERVICE

TO / À: Stephen Harbicht
Chief, Assessment and Monitoring
EP/CA&P/W&N Region Yellowknife

FROM / DE: M Neil Parker WAESE
Atmospheric Science and Issues Branch

SUBJECT / OBJET: RERC Review: BHP Mineral Baseline Environmental Study Protocols

When reviewing the Broken Hills Proprietary Company Ltd. (BHP) document "Baseline Environmental Study Protocols" my main area of interest was regarding climate and in particular the network of auto stations and evaporation.

The company is referencing "AES Guidelines for Cooperative Climatological Autostations V. 2 0 " By adhering to these guidelines we feel the meteorological data collected will meet the monitoring needs

With respect to evaporation there is no information as to the model the company is proposing to use. I have initiated contacts within our Service and should BHP wish to consult with respect to the appropriateness of the proposed model and methods they may contact Paul Louie, Superintendent, Water Resources and Marine Adaptation Division Atmospheric Environment Service, Downsview (416) 739-4351 or Ron Hopkinson, Scientific Services Meteorologist, Atmospheric Environment Service, Regina - (306) 780-5739.

If BHP obtains continuous meteorological data for an extended period I would be interested in exploring the possibility of having at least a portion of the data set incorporated into the National Climate Archive. This would ensure it is permanently retained and becomes incorporated into future climatological studies of northern Canada

M Neil Parker

EP Laboratories
Conservation and Protection
Environment Canada
5320 122 Street
Edmonton, Alberta
T6H 3S5

FAX # (403) 435-7268

If there are problems with transmission please call (403) 435-7216.

To: Steve Harbicht NWIDO Date: 11-29-93

From Robert Koski Page 1 of 4

As per your request here are the detection limits for all our parameters. I hope this helps.

Rob

Analytical Services Laboratory
Method Detection Limits

Parameter	Water Detection Limit (milligrams per liter)	Solids Detection Limit (micrograms per gram)
Color	1 cu	N/A
Conductivity	*	N/A
Total Hardness	0.08	N/A
Calcium Hardness	0.03	N/A
Magnesium Hardness	0.05	N/A
pH	N/A	N/A
Total Residue	1	N/A
Fixed Residue	1	N/A
Total Dissolved Solids	1	N/A
Total Suspended Solids	1	N/A
Volatile Suspended Solids	1	N/A
Turbidity	*	N/A

cu - Color Units * Detection Limit not determined at this time
N/A - Not applicable

Parameter	Water Detection Limit		Solids Detection Limit	
	Normal Level	Low Level	Normal Level	Low Level
Aluminum	0.02	0.002	2	0.2
Antimony	*	*	*	*
Arsenic	0.03	0.001 (1)	3	0.1 (1)
Barium	0.002	0.0002	0.2	0.02
Beryllium	0.004	0.0004	0.4	*
Boron	0.01	*	1	
Cadmium	0.002	0.0002	0.2	0.02
Calcium	0.01	*	1	*
Chromium	0.004	0.0004	0.4	0.04
Copper	0.002	0.0002	0.2	0.02
Iron	0.002	0.0002	0.2	0.02
Lead	0.03	0.003	3	0.3

Parameter	Water Detection Limit		Solids Detection Limit	
	Normal Level	Low Level	Normal Level	Low Level
Lithium	0.005	*	0.3	*
Magnesium	0.01	*	1	*
Manganese	0.001	0.0001	0.1	0.01
Mercury	*	0.0002 (2)	*	0.02 (2)
Molybdenum	0.005	*	0.5	*
Nickel	0.005	0.0005	0.5	0.05
Phosphorous	0.05	*	5	*
Potassium	0.1	*	10	*
Selenium	0.03	0.002 (1)	3	0.2 (1)
Silicon	0.01	*	1	*
Silver	0.01	0.001	1	0.1
Sodium	0.05	*	5	*
Thorium	0.01	*	1	*
Titanium	0.002	*	0.2	*
Tin	0.03	*	3	*
Tungsten	0.03	*	3	*
Uranium	0.05	*	5	*
Vanadium	0.002	0.0002	0.2	0.02
Zinc	0.002	0.0002	0.2	0.02

Water Detection Limits are in milligrams per liter

Solid Detection Limits are in micrograms per gram

Normal levels are performed by ICP analysis

Low level analysis is performed by Chelation Concentration except where noted

* - Detection Limit not determined at this time

(1) Hydride Generation Analysis

(2) Cold Vapour Generation Analysis

Parameter	Water Detection Limits (milligrams per liter)	Solids Detection Limit (micrograms per gram)
Alkalinity	1	N/A
Chloride	0.02	*
Cyanide	0.01	N/A
Fluoride	0.01	N/A
Ammonia - Nitrogen	0.02	*
Nitrite - Nitrogen	0.07	N/A
Nitrate - Nitrogen	0.03	*
Total Kjeldahl Nitrogen	0.02	*
Total Phosphorous	0.01	*
Ortho Phosphorous	0.1	N/A
Silicate	*	N/A
Sulfate	0.5	N/A

* - Detection limit not determined at this time N/A - Not Applicable

Parameter	Water Detection Limits (milligrams per liter)	Solids Detection Limit (micrograms per gram)
Biochemical Oxygen Demand	1	N/A
Chemical Oxygen Demand	5	N/A
Oil & Grease	1	*
Total Inorganic Carbon	1	N/A
Total Organic Carbon	1	N/A
Total Carbon	1	0.02%[a]
Total Phenols	0.01	N/A

* - Detection limit not determined at this time N/A - Not Applicable

[a] - Data reported as percent wt/wt

Government of Canada / Gouvernement du Canada

Fisheries and Oceans / Pêches et Océans

Box 2310
Yellowknife, NT
X1A 2P7
920-6633

14 December 1993

Mr. David Livingstone
Director,
Renewable Resources and Environment
Indian and Northern Affairs Canada

Dear Mr. Livingstone:

Subject: RERC Review: BHP Minerals Baseline Environmental Study Protocols

Under the authority of the Fisheries Act, the Department of Fisheries and Oceans (DFO) has the responsibility to protect fish habitat. The Act provides the authority to prohibit the destruction of fish by any means other than fishing, and to modify, restrict or prohibit any work or undertaking that would likely result in the harmful alteration, disruption or destruction of fish habitat.

The following are the information requirements which are necessary to assess the impacts of the mine operation on fish and fish habitat. BHP must ensure that the Environmental Study Protocols fully address the following points.

- Describe the fish species (including life history and habitat utilization) found in waterbodies which may be impacted by the proposed project. This includes, but is not limited to, waterbodies which may be used for: the disposal of tailings, waste rock or other waste; water withdrawal; or activities resulting in the disruption, alteration or destruction by physical means. Emphasis must be placed on determining the importance to the overall system of those lakes which may be thus affected.

- Describe the relative seasonal abundance and distribution of those fish species which sustain or have the potential to sustain sport, commercial or domestic fisheries, or those which have an ecological support function for the fisheries resources (e.g. forage fish).

- Describe the biological charcateristics of these species including: sex and age structure; food habits; and fecundity. It is recommended that the following structures be used for age determination: lake trout - otoliths; whitefish species - otoliths; Arctic grayling - scales; and sucker species - pectoral fin rays.

- Map and describe the locations and seasonal use of habitats which are important or critical during the life cycles of these populations, in particular those used for spawning, rearing, feeding, migration and overwintering. The use of larval drift nets may be a way of determining migration patterns. To obtain accurate information, spring spawning surveys and observations must take place before and during the spring freshet.

- Provide an estimate of the productive capacity of those waterbodies which may be impacted by the mine operation. Refer to the Department of Fisheries and Oceans Policy for the Management of Fish Habitat. This information will be required by the company to put forth appropriate compensation options if a Fisheries Authorization is required for loss or disruption of habitat.

- Assess the importance of waterbodies which may be altered by chemical or physical means in terms of providing critical habitat for fish in downstream/upstream waterbodies.

- Describe the historical subsistence, commercial and recreational harvests of fish in the project area.

- Assess the background metal levels in the liver and muscle of fish. A complete ICP metal scan should be conducted. In fish tissue, those elements requiring greater senstivity (copper, lead, zinc, cadmium,and mercury) should be analysed using graphite furnace atomic absorption techniques. It is suggested that baseline metal levels be determined in fishes from Lac de Gras.

- Describe the occurence of rare, threatened or endangered fish species.

It is the responsibilty of the propoent to inform DFO of any changes in plans or operating conditions as the project procedes. All changes will be considered and advice given as necessary.

If you have any questions regarding this matter please contact me at 920-6633.

Sincerely,

D. K. McGowan

Dale McGowan
A/NWT Habitat Coordinator

cc: Burt Hunt, DFO, Yellowknife
Jaap Zwaan, BHP Minerals, Yellowknife
Jeff Stein, DFO, Winnipeg

Government of Canada / Gouvernement du Canada

To / À
David Livingstone
Director
Renewable Resources and Environment

From / De
Howard Madill
A/Regional Manager
Land Resources Division

Subject / Objet
RERC REVIEW: BHP MINERALS BASELINE ENVIRONMENTAL STUDY PROTOCOLS

Further to the RERC Workshop held on November 30th, listed below are specific comments at this time.

1.0 The overhead page titled Environmental Approvals Schedule Accelerated Case was very informative. Assuming Clem Pelletier revises it based on the discussion which took place, hard copies of it should be distributed to all members of RERC as soon as possible.

2.0 At the Workshop, Clem or Bruce Turner mentioned that their proposed all-weather road would be a separate submission. Even if that is the case, there should be a tie-in to this project in terms of how they interrelate, the location of the alignment in terms of the eskers, the location of known and potential pipes, etc.

3.0 With reference to Section 2.6.1.2 on page 2-23, it was mentioned that the 3 lakes most affected by development would be Koala (main Pipe), Long (tailings), and Fox 1 (secondary Pipe). Later in the discussion, I believe a fourth lake, Panda, was added to this list. It would be most useful to have these lakes, and any others, clearly listed, perhaps in a table with an indication of the various proposed engineering and construction works planned for each. This elaboration should also be indicated on the relevant maps.

4.0 In Section 2.7 Soils and Terrain Studies on page 2-36, it would be helpful to know how the specific tests involved with the analysis of representative soil samples relates to construction requirements and environmental mitigation measures.

Canada

5.0 With reference to Section 2-8 Permafrost, Clem mentioned that Don Haley of EBA will be addressing the fundamental geotechnical data listed in the second paragraph on page 2-37. It would be useful to have an elaboration or more specific information on the design criterion which will address the sensitivity of terrain units to disturbance - i.e. what criterion or criteria, how will it/they be arrived at, etc?

6.0 Concerning the *Aerial Photo Analysis* Section on page 2-37, it would be helpful to have a list or table indicating what aerial photo coverage exists for the project site, the scale, when it was flown, whether it is in black-and-white or colour, and referenced to a map showing the extent of coverage. It would also be useful to have a key map showing the aerial extent of any mosaics produced to date. Over and above this information, RERC should request one copy of the flight line index maps for use in the Resource Centre here in Land Resources, and ask the proponent to submit one copy to Mike Landreville, Secretary, Interdepartmental Committee on Air Survey, Natural Resources Canada, 615 booth Street, Room 180, Ottawa, ON K1A 0E9. Because of the benchmark importance of government having the "before picture" of the site area preceding development, it would not be inappropriate for RERC to also request that one set of the colour stereo photographs be submitted to Lands.

7.0 Concerning the samples from eskers proposed for use as borrow sources mentioned on page 2-38, the proponent should begin thinking about site restoration techniques and plans, including recontouring. Eskers have a significant visual impact on the landscape, and are often important for wildlife habitat and for archaeological research. Therefore, special attention needs to be given to any and all proposed use of eskers for such things as borrow sources, roads, and airstrips.

8.0 Regarding Section 2.10.1 Wildlife Field Surveys, we are recommending that Richard Couture attempt to integrate local traditional knowledge with the scientific information wherever possible. In this way, the proposed community consultation would involve a two way flow of information on a range of topics.

9.0 In Section 4.0 Socioeconomics on page 4-1, native employment and training are not really "sensitive" issues - they are practical considerations that need to be taken into account when doing business in the North.

10.0 The proponents community consultation strategy should include recognition of use of the project site area by the Dogrib, the Yellowknives, and hunters and trappers of Lútsel K'e. Recognition of downstream effects on Coppermine may or may not require that community meetings be held there. Perhaps this should be left up to NTI and KIA to determine.

I trust that these comments are constructive at this time.

If you require further clarification, please give me a call.

Howard Madill

cc: Arthur Boutilier
Kaye MacInnes
Ed Hornby

AB:dk

Government of Canada / Gouvernement du Canada

To / À

David Livingstone
Chairman
RERC

From / De

John Witteman
Regional Manager
Water Resources Division

Subject / Objet

COMMENTS BRP/RESCAN ENVIRONMENTAL STUDY PROTOCOLS

The Water Resources Division has reviewed the aforementioned document and provides the following enclosed comments. Please ensure that these comments are forwarded to the proponent.

If there are any questions/concerns, please feel free to contacted Mr. Erik Madsen at (403) 920-8141, Mr. Bob Reid at (403) 920-8548 or myself at (403) 920-8240.

John Witteman

Enc.

cc: K. McDonnell
B. Latham

Canada

To / A: John Witteman
Regional Manager
Water Resources Division

From / De: Erik Madsen
Industrial Coordinator
Water Resources Division

Subject / Objet: REVIEW OF BHP MINERAL'S BASELINE ENVIRONMENTAL STUDY PROTOCOLS

I have the following comments with regards to BHP/RESCAN's proposed environmental study protocols and from discussions that were held at the workshop on November 30, 1993.

Section 2.4:

BHP has divided the watersheds into 4 basins - Koala, Ursula, Paul/Mini, and South. It was indicated at the workshop that BHP should concentrate their water quality sampling program in the Koala basin, since this is the area which will most likely be affected if the project goes into full production.

It was indicated that since the entire drainage from the Koala system flows into Lac de Gras, that a water quality station should be added at Lac de Gras - (in the area where the Koala basin flows into it).

Section 2.4.1:

The proposed sampling campaign for the Koala basin is acceptable. The frequency of sampling could be reduced at the additional stations (Figure 2-8, 2-9), in the adjacent watersheds.

It is indicated on page 2-18 - paragraph 1, that in these additional water sheds that sampling will be done once in June and once in September. It was felt that only one set of sampling is required to achieve baseline data. The one set of sampling could be done in either June or September, which ever is best suited to BHP/RESCAN. BHP/RESCAN should sample the stations, where there may be potential for bringing pipes into production in the future.

Once in production, BHP may be requested to occasionally monitor a few of these other stations in the adjacent basins.

Canada

Section 2.4.2:

I reviewed BHP/RESCAN's proposed detection limits (Table 2.3) with Bill Coedy, Head of the DIAND Lab. He indicated that the limits for all parameters are acceptable except for zinc. It is felt that the detection for zinc should be lowered to 0.5 ug/L instead of 2.00 ug/L.

With regards to QA/QC, it was discussed that the DIAND lab in Yellowknife could be available to cross reference a few samples during the sampling program. Bill Coedy, indicated that he had no problems with this. Therefore, BHP/RESCAN can set up a schedule for this with Bill, who can be contacted at (403)-920-8192.

Long Lake - Proposed Tailings Containment Area:

It was indicated that Long Lake may be the proposed tailings containment area and that the tailings would be deposited via pipe in the "mudline".

BHP/RESCAN should provide data on test results in the project description and indicate how this method works at any other sites.

It was indicated that the plan is to thicken the tails to 45% prior to discharge and reclaim the water. BHP/RESCAN may wish to contact Polaris (Cominco), Mr. Glenn White (819)-253-2230, as they thicken their tails to 60% before discharge.

At the proposed production rates, initially 6000 tonnes/day and then 18,000 tonnes/day, Long Lake would eventually reach a point at where suspended solid levels could not be naturally controlled. The lake at some point in time (est. 13 years) would fill entirely with tailings. Therefore, BHP/RESCAN may wish to consider Long Lake as a tailings impoundment area from day one, and request a fish authorization up front.

In their project description BHP should outline their proposed operation plan for the Long Lake (water intake locations and discharge points). As well, they should provide rationale as to why they chose Long Lake and include alternative locations for future tailings disposal.

Sewage Disposal:

This was not discussed in the proposal but will most likely be in the project description. However, with a 250 - 300 man camp when in production, BHP/RESCAN should describe their proposed method of treatment and location of disposal.

Diversion Ditch - Panda Lake to Kodiak Lake & Pumping of Koala:

In the new NWT Waters Act/Regulations it states that a Class B licence is required if there is - "diversions of a water course that is greater than 2 metres wide at ordinary high water mark at point of diversion". This proposed diversion would fall into this category.

BHP/Rescan has indicated that they wish to construct this diversion in the summer/fall of 1994 and use the excavated material for the runway extension, pending bulk sampling results.

Therefore, it may be best that BHP apply in the new year for an amendment to their existing Class B licence to include clauses for the diversion. With it being a Class B licence, the Water Board can amend it and it does not require Minister's approval. This whole process may take 2 -3 months.

Summary:

All in all the proposed protocols are very thorough. This approach of reviewing study protocols prior to commencement of the studies is both valuable in saving time and money to both Industry and Government.

Erik Madsen

Erik Madsen

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INDIAN AND NORTHERN AFFAIRS CANADA

MEMORANDUM

AFFAIRES INDIENNES ET DU NORD CANADA

NOTE DE SERVICE

To/A
John Witteman
Manager
Water Resources Division
Yellowknife

From/De
Bob Reid
Hydrologist
Water Resources Division
Yellowknife

Security-Class. Sécurité

Our File - N/ Référence

Your File -V/ Référence

Date
26 November 1993

SUBJECT: BHP Minerals Canada Ltd. NWT Diamonds Baseline Environmental Studies Protocol

After reviewing the environmental studies protocol regarding the diamond project in the Lac de Gras/Exeter Lake area, there are several comments that I would like to make.

2.2 Climate

It is commendable that the company has taken the initiative to install meteorological stations within the project area to collect data for evaporation modelling. However, regarding the set up for the evaporation studies, I would like to make some detailed comments.

Site specific evaporation estimates are being made for tailings ponds by DIAND Water Resources staff. For these studies equipment has been located at the shore or slightly into the water. Air temperature, relative humidity and wind speed are measured at 0.5 metres and 2.0-3.0 metres above the water surface. Wind direction is not important for the evaporation calculations. A net radiometer (all-wave) is used at our sites rather than a pyranometer, as has been proposed for the Koala site. Pyranometers, I believe, measure short wave radiation only (at least the Li-Cor pyranometer and the CM7 Albedometer sold by Campbell Scientific measure only short wave radiation - as do Eppley "Black and White" pyranometers). Net short wave can be measured only if two sensors are mounted back-to-back and installed facing upward and downward. Long wave radiation is excluded. Thus, it may be more appropriate to use a net all-wave radiometer to simplify the installation and the evaporation calculations. The net radiation should be measured over water as it is the energy balance of the water that is important for the evaporation.

It is mentioned that the evaporation model to be used is based on the energy budget From talking with Derek Reihm of Rescan, the model being proposed sounds like it is one for regional evapotranspiration. It would be interesting to receive some literature on this model to compare it with the model we use. The model I am using is the Penman Combination method because

there is a calculated aerodynamic component added to the energy budget component Other models tend to use a constant for the aerodynamic effect. The Penman model seems to be giving reasonable results at our three study sites. I suspect that a weather station set up over land will give significantly different evaporation results than one set up over the water. If lake evaporation and lake storage changes are going to be used to calculate flow rates from lakes, then estimating a regional evapotranspiration rate should be reconsidered.

The map (Figure 2.2) shows the "Regional Atmospheric Climatological Stations" operated by the Atmospheric Environment Service (AES) of Environment Canada. It should be noted that AES also operates automatic weather stations associated with hydrometric stations on the Indin River and the Hanbury River.

2.3 Regional Hydrology

The proposal states that stream flow from lakes will be determined from lake level changes (storage) and evaporation data. As stated above, caution should be taken in using evaporation data, especially regional evapotranspiration data, for this purpose.

It was stated that the Nipher snow gauge data will be corrected for sublimation. I am curious to know how this is done. Nipher snow gauges can also be corrected for under-catch due to wind.

The locations for staff gauges, water level recorders and precipitation gauges look very good. The type of water level gauge to be used at the data loggers sites (labelled S^{1-3} on Figure 2-3) is not specified I thought I would mention that I have had little luck using ultrasonic water level gauges, but found that submersible pressure transducers work well. Unfortunately, the submersible transducers may be damaged if frozen. Also, staff gauges (and crest gauges) tend to get knocked out when the ice goes out, so I have found that nearby benchmarks are necessary to re-establish a staff gauge in the spring.

The project document identifies three "Regional Hydrologic Stations" (Figure 2-6) and states that they are "remote from the project area". The hydrometric stations identified are the Burnside River near the mouth, Gordon River near the mouth and Ellice River near the mouth. As I pointed out in a memo to TAC in October, there are historical hydrometric data for FIVE other rivers much closer to the project site. These stations are:

1. Coppermine River at the outlet of Point Lake (about 200 km downstream of Lac de Gras) with 28 years of data
2. Thonokied River near the mouth - drains the area immediately south of Lac de Gras. This station represents a small drainage basin of similar physiography to the Exeter Lake/Lac de Gras area. The Thonokied station has data for 11 years from 1981 to 1991 inclusive but unfortunately, is no longer operating. The station location was only 100 km southeast of the proposed mine site.
3. Indin River above Chalco Lake (about 200 km west) - 16 years of data. This site also has an automatic weather station operated by the Atmospheric Environment Service, Environment Canada.

4. Back River above Beechy Lake - 15 years of data.
5. Baillie River near the mouth - 15 years of data

Other hydrometric stations in the vicinity include:
6. Hanbury River above Hoare Lake - 22 years of data. This site also has an automatic weather station operated by the Atmospheric Environment Service, Environment Canada.
7. Acasta River above Little Crapeau Lake - 12 years of data
8. Coppermine River above Copper Creek (and above Bloody Falls) -combined record of about 10 years
9. Tree River near the mouth - 25 years of data
10. Waldron River near the mouth - 15 years of data
11. Lockhart River at outlet of Artillery Lake - 35 years of data

There are also four new hydrometric stations in the area:
12. Contwoyto Lake at Lupin mine - installed 1991
13. Fairy Lakes River - installed 1993
14. Burnside River at outlet of Contwoyto Lake - installed 1993
15. Hood River near Bathurst Inlet - installed 1993

The hydrometric data is available for all these stations and may be useful in determining the regional hydrology of the Lac de Gras area in addition to the stations mentioned in the protocols report.

Summary

The preliminary baseline environmental work looks quite good with respect to climate and hydrology. Perhaps a change in location of the weather station to focus on lake evaporation rather than regional evapotranspiration or establishing the Ursula basin station for lake evaporation may be beneficial. The installation and type of equipment for the evaporation studies should be discussed to get the optimal set up for modelling.

There are more sources of data for baseline hydrological and climatological assessment than those stated in the protocols document. There has also been a lot of field work done in the Central Arctic by industry and government that may provide good baseline information. A little digging through the "grey-literature" may produce a wealth of information.

Bob Reid

c.c. B. Latham

Comments on
Baseline Environmental Study Protocols, BHP Minerals Canada Ltd

Department of Renewable Resources

1.0 General Comments.

Wildlife, vegetation and habitat studies should cover an area which includes all potential kimberlite pipes on the property or under claims which may be developed by BHP Minerals. This would facilitate approvals for development of other kimberlite pipes which may be explored or mined at some future date. This would also help in understanding how the project at Koala and Fox Lakes, and potential future developments of other kimberlite pipes, may affect the ecosystem.

2.0 Specific Comments.

Page 2-37, Permafrost - Aerial Photo Analysis.

It is important that soils and terrain studies, including permafrost work, are carried out over a large enough area to provide the company with sufficient information to propose alternate sites for development. Landforms need to be examined for their importance as wildlife habitat (present and potential use) and their sensitivity to disturbance - eskers in the study area (covering the entire property or all claims) should be mapped and classified as to use or potential use by wildlife. This information should be used in the decision making process for locating facilities and selecting landforms, such as eskers, to be utilized for construction purposes

Page 2-38, Vegetation.

It is encouraging that the study protocols recognize the fragile nature of the tundra environment. Although terrain and vegetation disturbance may be local and site specific, vegetation communities should be considered a non-renewable resource since restoration and revegetation of disturbed areas may not occur or may require many years.

Vegetation may be an important part of the seasonal habitat requirements for some wildlife species, whether they are year-round residents or migrants.

It is unclear from the information provided, the extent of the study area proposed for vegetation studies. As recommended under the General Comments, the study area should encompass all potential pipes on the property or under claim which may be developed by the company. This should include a zone of influence around potential site-specific development sites.

Species lists should be compiled for both vascular plants and lichens in the study area.

Taxonomic identification of tundra plants should follow Porsild and Cody (1980).

Page 2-39 and 2-40, Wildlife and Wildlife Habitat

The one-year field program to provide information for the Initial Environmental Evaluation will only provide a "snap shot" assessment of wildlife use of the proposed development area.

The department would like to develop a long-term wildlife monitoring program in cooperation with the company to address impact monitoring and assessment objectives. BHP Minerals should contact the department's Environmental Assessment Biologist, Mr. Steven Matthews (873-7775)

The vegetation and habitat inventory work proposed is satisfactory, although the study area as defined, seems to be arbitrary. As recommended under the General Comments, the study area should encompass the entire property or all claims which may be developed by the company. The company should examine the relationship between terrain, landforms and vegetation or habitat to determine the importance of landscape features to wildlife.

Page 2-42, Caribou

There is a typographical mistake in the size of the Bathurst Caribou Herd. The population of the herd is approximately 350,000 animals.

Spring and fall migration through the Lac de Gras area may be difficult to predict in any particular year. There is sufficient information from Government of the Northwest Territories' Biologists to describe the distribution, abundance and seasonal movements of the Bathurst Caribou Herd. An intensive aerial survey program is not warranted. The department would like to discuss mitigation and monitoring programs with BHP Minerals in light of proposed and on-going government initiatives.

A year-round, ground-based observation program of caribou numbers and seasonal migration patterns could be implemented at this stage of the exploration program. We do not recommend flight crews try looking for caribou.

Unfortunately, the department's Caribou Biologist is presently out of the country and will not be back in Yellowknife until early January. Upon return, we recommend discussions begin between BHP Minerals and the department on long-term caribou monitoring, mitigation and impact assessment.

Page 2-44 Grizzly Bear

The grizzly bear (*Ursus arctos*) is considered "vulnerable" by the Committee on the Status of Endangered Wildlife in Canada

In general, the protocols proposed are acceptable. However, given the large home range of these animals, a survey of grizzly bear occurrence in the project area may not be sufficient to document the potential for disturbance. Proposals to conduct ground and aerial surveys for these bears should be developed in consultation with the department. Again, there is a need to coordinate BHP's field program for grizzly bears with the department's proposed and on-going studies in this area

Page 2-44, Waterfowl and Other Wetland Birds.

Performing shoreline surveys is not appropriate for both shorebirds and waterfowl. The study area needs to be classified according to habitat type and random plots established in each of the habitat types. Waterfowl and shorebirds should be treated differently. Departmental staff are available to assist in developing new study protocols for these groups of birds.

Page 2-45, Raptorial Birds.

This section is satisfactory.

Page 2-45, Small Mammals and Terrestrial Birds .

We do not understand why this field study is being proposed. Is it an inventory program or is it to serve as baseline information for future effects monitoring? More detail is required.

BHP Minerals should contact the department's Environmental Assessment Biologist, Mr. Steven Matthews (873-7775) for further discussions on issues related to wildlife.

3.0 Additional Studies

3.1 Resource Utilization Study

The company should design and conduct a study to determine the extent that resources and the land in general are utilized in the area which may be affected by the project. The study should cover the mine site and support infrastructure such as winter or all-weather roads. Utilization could include traditional uses by aboriginal people and other long term residents, outfitters and other forms of tourism activities, and recreational uses.

The Northwest Territories' economy and cultures are deeply rooted in the environment. This is recognized in the Government of the Northwest Territories Sustainable Development Policy (attached). Renewable resources are an integral component of the northern economy. They provide food, raw materials for clothing, crafts and construction, and opportunities for recreation.

Renewable resources are particularly valuable to aboriginal residents who practice traditional-type lifestyles. An effective and ongoing consultation program should also be initiated between the company and communities which may utilize the area for traditional activities. The objective of the program should be to:

1) Inform communities about the nature of the project;

2) Conduct scoping exercises of issues to be addressed in the Environmental Evaluation Report; and

3) Build a sense of meaningful participation with communities in the development and operation of the project.

This will help lend credibility to the Initial Environmental Evaluation Report, which will be reviewed by the Regional Environmental Review Committee, and the company's corporate image at the community level.

3.2 Waste Rock Management

Mining of diamonds can be expected to generate enormous amounts of waste rock. We recommend the company initiate a study to determine the best disposal option(s). We suggest the study consider:

1) The possibility contaminants may be generated by the waste rock;

2) Changes to natural drainage systems resulting from the deposition of waste rock,

3) Aesthetics;

4) The possibility of creating new habitat, using waste rock, which may benefit indigenous vegetation and wildlife species (e.g. man-made eskers);

5) Utilization of waste rock as granular material for required infrastructure This would reduce the need to destroy nearby eskers and other natural granular deposits.

3.3 Tailings From Kimberlite Pipe

The proposed project would be the first diamond mining operation in Canada. Little is known, therefore, about the environmental risks of tailings generated by a full-scale diamond mine in this region We recommend BHP Minerals initiate a study of environmental concerns associated with diamond mines found in other parts of the world and try to determine whether similar environmental concerns would be encountered at the Exeter Lake location. The focus should be on the bioavailability of rare earths and other elements which are unique to kimberlite An analysis of the tailings generated by the bulk sampling operation, conducted during the winter of 1993/94, should also be included in the study.

The Government of the Northwest Territories recognizes that environmental conservation is essential to long term economic prosperity while at the same time economic development can contribute significantly to the achievement of conservation goals. This interdependence between conservation and development will be officially recognized by the Government of the Northwest Territories through the application of the concept of sustainable development to all its decisions and actions related to natural and heritage resources in the Northwest Territories.

This policy is based on the following principles:

1. The Government of the Northwest Territories shall promote economic development which maintains harvestable resources at sustainable levels, essential ecological processes and natural diversity.

2. The Government of the Northwest Territories shall routinely combine and equally weigh conservation and development factors in decision-making processes for the use of resources.

3. Sustainable development of resources is essential to the long term economic, cultural and social well-being of northern residents.

4. Northern residents shall be assured meaningful input and participation in decisions related to conservation and resource development.

5. Initiatives associated with this policy shall be consistent with, or complement, all agreements, policies and legislation related to the settlement of aboriginal claims as they relate to conservation and development of resources.

6. Conservation and development practices shall take into account the local knowledge, values and experience to be found among the regular users of the environmental as well as the information developed in academic institutions, industry and government.

7. Natural resources should be managed so that opportunities for future resource uses are maximized and maintenance of ecosystems is ensured.

8. Conservation commitments in resource development proposals shall be a major consideration in determining the degree of Government of the Northwest Territories' political and financial support.

9. The Government of the Northwest Territories recognizes the need for conservation areas to maintain special values related to wildlife and wildlife habitat, unique or representative ecosystems, prime forests, productive agricultural soils, and heritage, recreational, tourism, scientific, and aesthetic resources. The Government of the Northwest Territories shall support human activities in such areas where they are compatible with the values being protected.

10. Enhanced cooperation with other circumpolar and neighbouring jurisdictions is important in addressing transboundary concerns related to resource management and the maintenance of environmental quality.

11. As far as possible, implementation of this policy will rely primarily on existing mechanisms and processes or those already under development through land claims or other processes.

Government Leader and
Chairman of the Executive Council

Reference

For elaboration of this policy refer to the Directive.

SCOPE

This policy applies to all decisions and actions of the Government of the Northwest Territories related to resource development in the Northwest Territories.

DEFINITIONS

1. Conservation

Means the wise use of renewable, non-renewable and heritage resources so that long term benefits can be enjoyed by present and future generations.

2. Conservation Area

Means an area of land or water that provides special management measures to maintain outstanding values related to wildlife and wildlife habitat, unique or representative ecosystems, prime forests, productive agricultural soils, and heritage, recreational, tourism, scientific, and aesthetic resources.

3. Environment

Means the air, water, ice, snow, land, animal and plant life, and heritage resources of the Northwest Territories.

4. Environmental Quality

Means the environment's capability to support the well being of all life forms.

5. Heritage Resource

Means the material remains or places of past human use or occupance. They consist of sites and artifacts of historical, archaeological, ethnological and ongoing cultural or religious significant.

6. Integrated Resource Management

Means a coordinated process in which all components of resource management (policy development, land and water use planning, environmental assessment, legislative and regulatory mechanism) are formally linked and complementary. The process is characterised by the sharing of values, information and advice among various interests.

7. Natural Diversity

Means the naturally occurring variety of living and nonliving elements in the environment.

8. Non-Renewable Resources

Means resources which cannot be replaced or renewed following extraction, including all minerals, aggregates, and fossil fuels.

9. Renewable Resources

Means land and water resources, such as fisheries, wildlife and their habitat, forestry and agriculture.

10. Resource Development

Means those activities including the exploration, construction and operational phases of non-renewable resources extraction, and commercial renewable resource use activities, plus other supporting activities.

11. Sustainable Development

Means a way of managing natural resources and the environmental so that economic, social and cultural needs are met while maintaining ecological processes and natural diversity.

PROVISIONS

1. Authority and Accountability

(a) Executive Council

The Executive Council is accountable for the application of the principles and guidelines outlined in this policy to all decisions and actions of the government regarding resource development.

(b) Ministers

Ministers responsible for programs and initiatives related to resource development shall adhere to the principles and guidelines outlined in this policy.

The Minister of Renewable Resources, in consultation with the Ministers of Economic Development and Tourism and Energy, Mines and Petroleum Resources, shall coordinate implementation and periodic review of this policy.

2. Sustainability Guidelines

The Government of the Northwest Territories shall promote conservation and resource development projects, or combinations of projects, which support the achievement of the following guidelines:

(a) Ecological

- maintain essential ecological processes
- maintain or enhance natural diversity
- maintain harvestable resources at sustainable levels

(b) Economic

- promote economic self-reliance at the local level
- increase employment opportunities for the resident labour force through education, training and job creation
- maximize opportunities for local retention and investment of profits
- influence the pace of development to promote long term benefits from the use of resources

(c) Social

- maintain or strengthen community values and identity
- build a sense of meaningful participation and responsibility into project development and implementation

(d) Cultural

- support and maintain traditional activities and relationships
- maintain or enhance heritage resources

3. Sustainable Development Objectives

The Government of the Northwest Territories recognizes that sustainable development of resources is essential to the long term economic security, self-sufficiency and social well-being of northern residents. The Government of the Northwest Territories shall, therefore, adopt the principles of sustainable development to guide all its decisions and actions related to resource use in the Northwest Territories.

Five main objectives shall provide the focus for pursuing this goal. These objectives shall be implemented through the Government of the Northwest Territories' own programs and through collaboration with other governments and organizations.

(a) Promote Integrated Resource Management

Recognizing that resource development decisions usually involve numerous management objectives and interest groups, the Government of the Northwest Territories shall promote an integrated approach to managing the environment and its resources.

(b) Maintain and Enhance Environmental Quality

Recognizing that the Northwest Territories' economy and cultures are deeply rooted in the environment, the Government of the Northwest territories shall ensure that environmental quality is maintained to support the long term stability of northern society.

(c) Establish Conservation Areas

Whereas the Governmental of the Northwest Territories will promote the consistent application of sustainable development principles to all lands and waters within the Northwest Territories, it recognizes the need for conservation areas to protect special values related to wildlife habitat, unique or representative ecosystems, prime forests, productive agricultural soils, and heritage, recreational, tourism, scientific and aesthetic resources.

(d) Develop Non-Renewable Resources in Ways that Contribute to a Sustainable Economy

The Government of the Northwest Territories will promote exploration, development and use of mineral, aggregate and fossil fuel resources in ways that provide lasting social and economic benefits while maintaining ecological processes and natural diversity.

(e) Promote Cooperation in the Management of Transboundary Resources

The Government of the Northwest Territories recognizes that bilateral or multilateral cooperation with other circumpolar and neighbouring jurisdictions will greatly help to prevent or abate transboundary environmental or socio-economic impacts.

4. Implementation

The provisions of this Directive shall be implemented through:

(a) Collaboration on joint programs or projects, and regular consultation with:

(i) native organizations;
(ii) other governments;
(iii) industry and business organizations;
(iv) environmental organizations;
(v) the public.

(b) Periodic reviews of Government of the Northwest Territories programs, policies and legislation to ensure that they are consistent with the principles of sustainable development.

5. Prerogative of Executive Council

Nothing in this Directive shall in any way be construed to limit the prerogative of the Executive Council to make decisions or take actions with respect to conservation and resource development in the Northwest Territories outside the provisions of this Directive.

Government Leader and
Chairman of the Executive Council

19 March, 1993

Northwest Territories Education, Culture and Employment

December 13, 1993

David Livingstone
Director,
Renewable Resources and Environment
Northern Affairs Program, DIAND
Yellowknife, NT

RE: RERC REVIEW: BHP BASELINE ENVIRONMENTAL STUDY PROTOCOLS: HERITAGE RESOURCES

We have reviewed the study protocols for the Heritage Resource Impact Assessment that BHP intends to conduct next summer, and have no substantive comments to make regarding the plan as outlined.

Archaeologists working in the Northwest Territories are required to apply for a permit. Applications must be received by March 31, 1994 at the latest. Please contact.

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BHP is to be commended for the approach they have taken.

Tom Andrews
Subarctic Archaeologist
Prince of Wales Northern Heritage Centre.