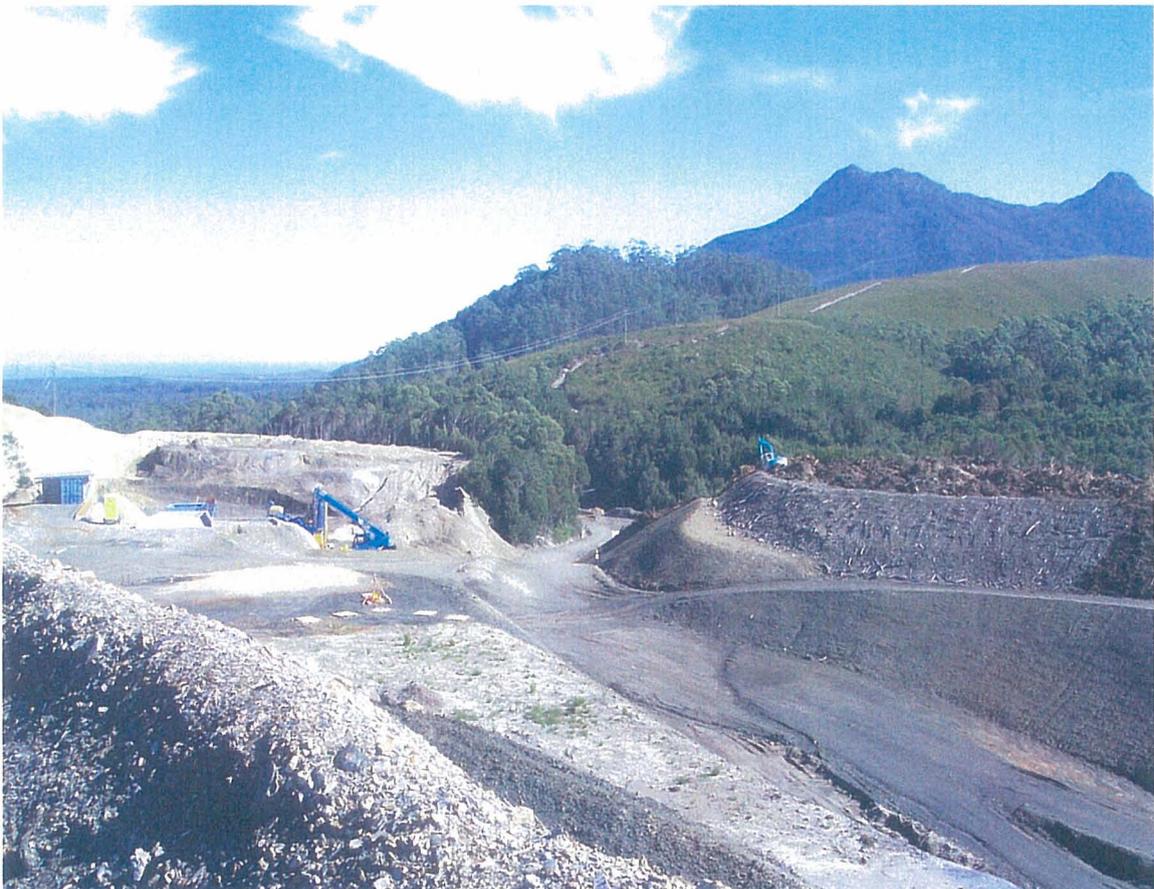




Comstock Mine Environmental Monitoring Report – June 2006 Quarter



August 2006

Heather Worby BSc (Hons)

Contents

1.0 INTRODUCTION	4
2.0 WATER MONITORING	4
W1 – COMSTOCK CREEK UPSTREAM.....	4
W2 – MAIN ADIT INLET	5
W3 – MAIN ADIT OUTLET.....	5
W4 – BASE OF SWANSEA DUMP.....	5
3.0 RESULTS	5
4.0 DISCUSSION	19
APPENDIX A	21
LABORATORY ANALYSIS OF WATER SAMPLES.....	21
APPENDIX B	63
WATER SAMPLING DATA COLLECTION.....	63
APPENDIX C	72
CONCEPTUAL WATER MANAGEMENT PLAN.....	72
APPENDIX D	73
REHABILITATION PHOTOS OF THE CENTRAL WASTE ROCK DUMP	73
FIGURE 1. LOCATION MAP OF THE COMSTOCK MINE SHOWING WATER MONITORING LOCATIONS: <i>W1</i> (UPSTREAM OF ALL MINING ACTIVITY – COMSTOCK CREEK), <i>W2</i> (OUTLET OF SEDIMENT TRAP BASE OF DECLINE, ADJACENT TO DRAINAGE ADIT), <i>W3</i> (DRAINAGE ADIT ADJACENT TO COMSTOCK CREEK), AND <i>W4</i> (DISCHARGE FROM THE SECOND COLLECTION DAM WEST OF SWANSEA DUMP).	4
FIGURE 2 – PH VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	5
FIGURE 3 – CONDUCTIVITY (MS/CM) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	6
FIGURE 4 – TOTAL SUSPENDED SOLIDS (MG/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	6
FIGURE 5 – ALKALINITY TOTAL (MG CaCO₃/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	7
FIGURE 6 – ACIDITY (MG CaCO₃/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	7
FIGURE 7 – AL (DISSOLVED M/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	8
FIGURE 8 – AL (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	8
FIGURE 9 – As (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	9
FIGURE 10 – As (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	9
FIGURE 11 – Cd (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	10
FIGURE 12 – Cd (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS <i>W1</i>, <i>W2</i>, <i>W3</i> AND <i>W4</i> TAKEN DURING MAY 2001 TO JULY 2006.	10

FIGURE 13 – Co (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	11
FIGURE 14 – Co (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	11
FIGURE 15 – Cr (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	12
FIGURE 16 – Cr (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	12
FIGURE 17 – Cu (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	13
FIGURE 18 – Cu (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	13
FIGURE 19 – Fe (DISSOLVED M/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	14
FIGURE 20 – Fe (TOTAL M/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	14
FIGURE 21 – Mn (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	15
FIGURE 22 – Mn (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	15
FIGURE 23 – Ni (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	16
FIGURE 24 – Ni (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	16
FIGURE 25 – Pb (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	17
FIGURE 26 – Pb (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	17
FIGURE 27 – Zn (DISSOLVED MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	18
FIGURE 28 – Zn (TOTAL MG/L) VALUES FROM SAMPLE LOCATIONS W1, W2, W3 AND W4 TAKEN DURING MAY 2001 TO JULY 2006.	18
FIGURE 29 - SURVEY SHOWING CURRENT MINE PLAN ALONG ALLISON’S PIT AND THE CWRD THAT HAS RECENTLY BEEN CLAY CAPPED AS PART OF THE PERMIT CONDITIONS. 100% OF THE DUMP HAS BEEN CAPPED.	19
FIGURE 30 – REHABILITATION OF CLAY RESERVE 1	20
TABLE 1. SAMPLING VALUES FROM SITE W1	64
TABLE 2. SAMPLING VALUES FROM SITE W1	65
TABLE 3. SAMPLING VALUES FROM SITE W2	66
TABLE 5. SAMPLING VALUES FROM SITE W3	68
TABLE 6. SAMPLING VALUES FROM SITE W3	69
TABLE 7. SAMPLING VALUES FROM SITE W4	70
TABLE 8. SAMPLING VALUES FROM SITE W4	71

1.0 Introduction

Oceania Tasmania Pty Ltd (Oceania) is a wholly owned subsidiary of Zeehan Zinc Limited (Zeehan Zinc), and holds Comstock Mining Leases, 43M/85, 19M/1995, 123M/47 and 9M/2002. No extraction of Zn-Pb-Ag ore has occurred on site since September 2000 with major works concentrated on a Gravity Plant Development, Power connection and rehabilitation of the Central Waste Rock Dump (CWRD).

Section 37 of the Level 2 Mining Activity Environmental Permit (DPIWE, 6 July 2001) states it is a requirement for Oceania to carry out routine water quality tests every 3 months. This report summarises the required monitoring schedule including data from May 2001 to December 2005. The report also includes short summaries on NAPP and NAG results, the clay reserve and rehabilitation at the Comstock Mine.

2.0 Water Monitoring

Water samples at monitoring sites W1, W2, W3, and W4 (Figure 1) were collected on 22 December 2005 and analysed at 'Analytical Services Tasmania' for pH, conductivity, total suspended solids (Al, Cd, Co, Cr, Cu, Fe, Mn, Ni, Pb, Zn), total alkalinity and acidity. Laboratory results from sites W1, W2, W3 and W4 are attached as Appendix A for the last five years.

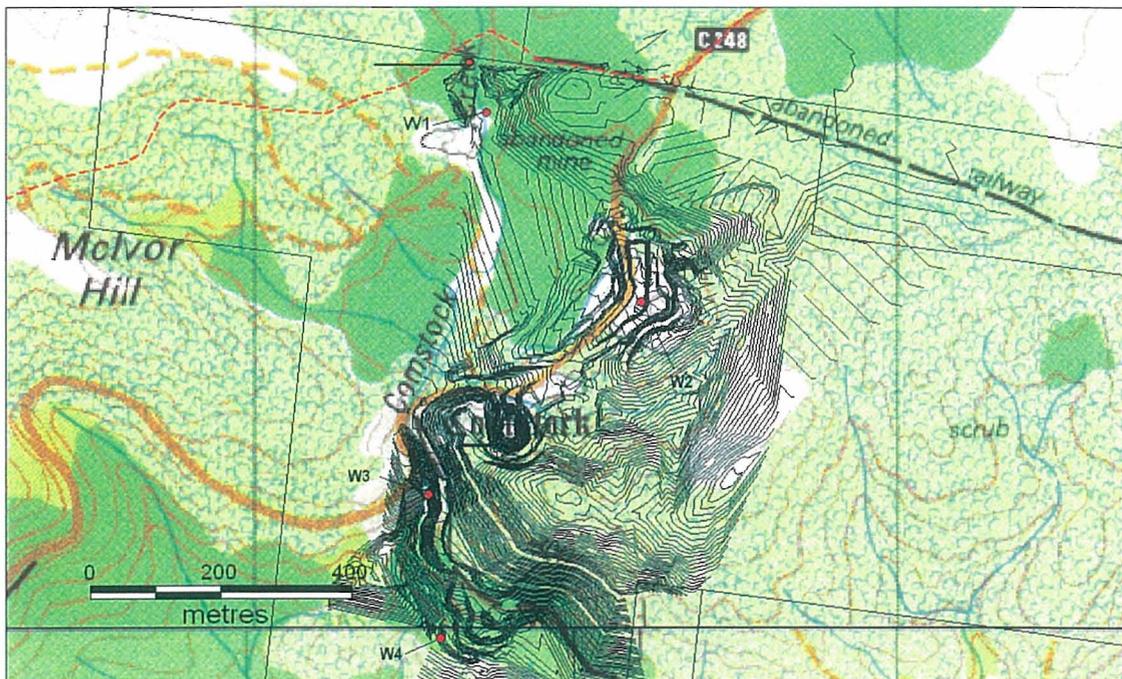


Figure 1. Location Map of the Comstock mine showing water monitoring locations: **W1** (upstream of all mining activity – Comstock Creek), **W2** (outlet of sediment trap base of decline, adjacent to drainage adit), **W3** (drainage adit adjacent to Comstock Creek), and **W4** (discharge from the second collection dam west of Swansea dump).

W1 – Comstock Creek Upstream

W1 is situated upstream of the mine site in Comstock Creek adjacent to historical workings.

W2 – Main Adit Inlet

W2 is situated in the collection areas beside the main adit inlet at the base of Allison’s decline. These areas contain a sediment screen to reduce sediment flow off site, and limestone to reduce the acidity of the run off.

W3 – Main Adit Outlet

W3 is situated at the main adit outlet.

W4 – Base of Swansea Dump

Location W4 is situated in a small pool at the base of the Swansea Tramway Waste Rock Dump.

Management Plan

As part of the DPEMP review Technical Advice on Water was commissioned to develop a Conceptual Water Management Plan for the Comstock Mine (Appendix C). This has been designed to address the issue of AMD at the Comstock Mine in conjunction with the waste management plan (Thompson and Brett 2003), and thereby allow for better water quality at the site and disposal of waste rock material.

At this stage, the water management plan is considered to be a conceptual plan, as there is limited flow data and there is no water balance for the site. Oceania Tasmania is committed to collecting the appropriate information so that the conceptual water management plan can be refined and developed into a water budget for the site.

3.0 Results

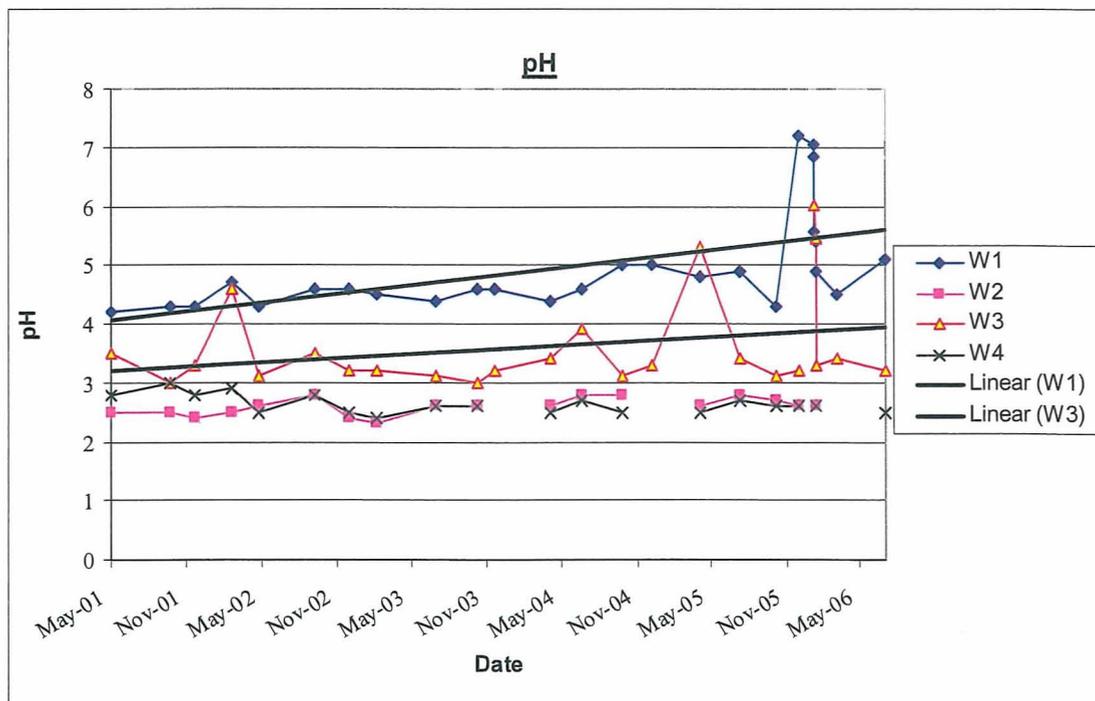


Figure 2 – pH values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

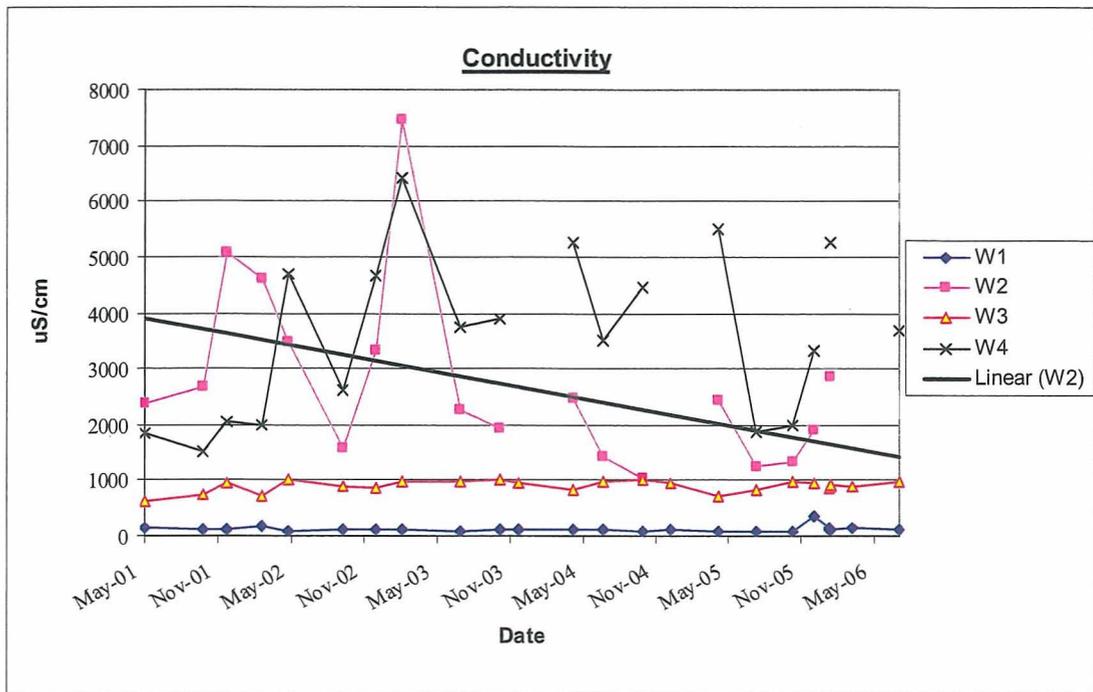


Figure 3 – Conductivity ($\mu\text{S}/\text{cm}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

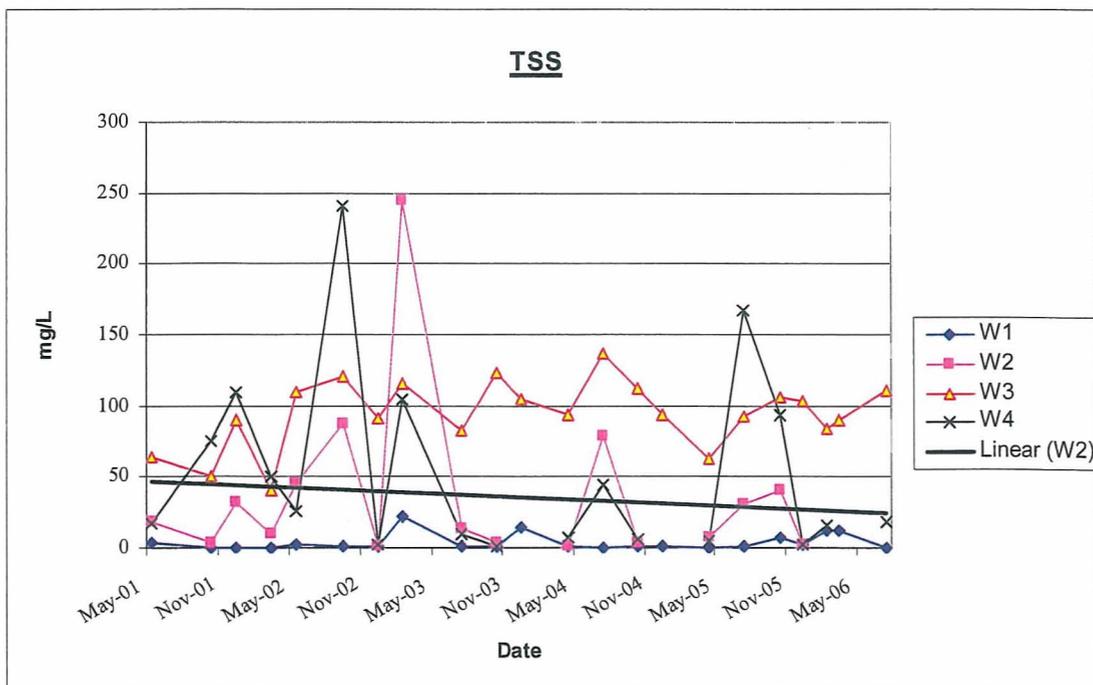


Figure 4 – Total Suspended Solids (mg/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

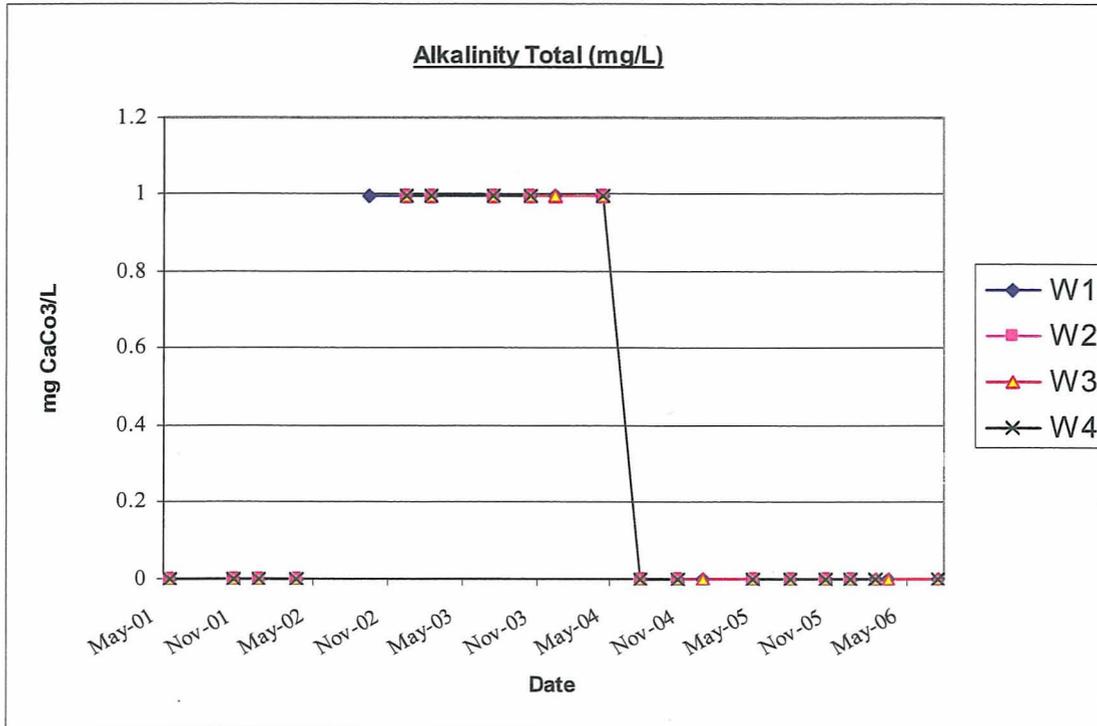


Figure 5 – Alkalinity Total (mg CaCO₃/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

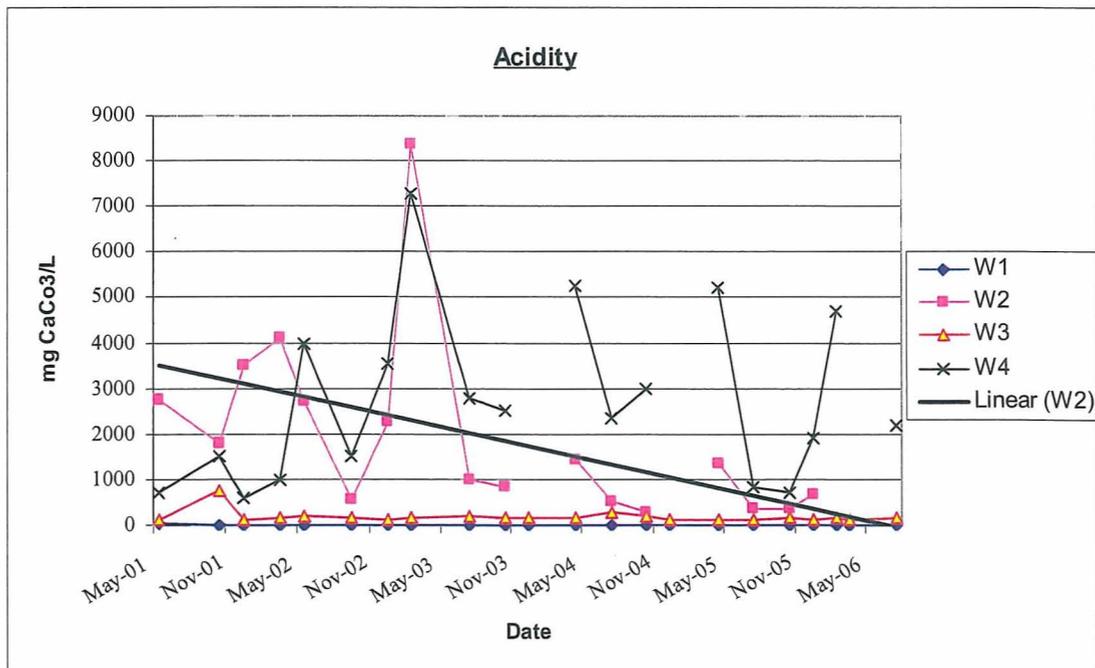


Figure 6 – Acidity (mg CaCO₃/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

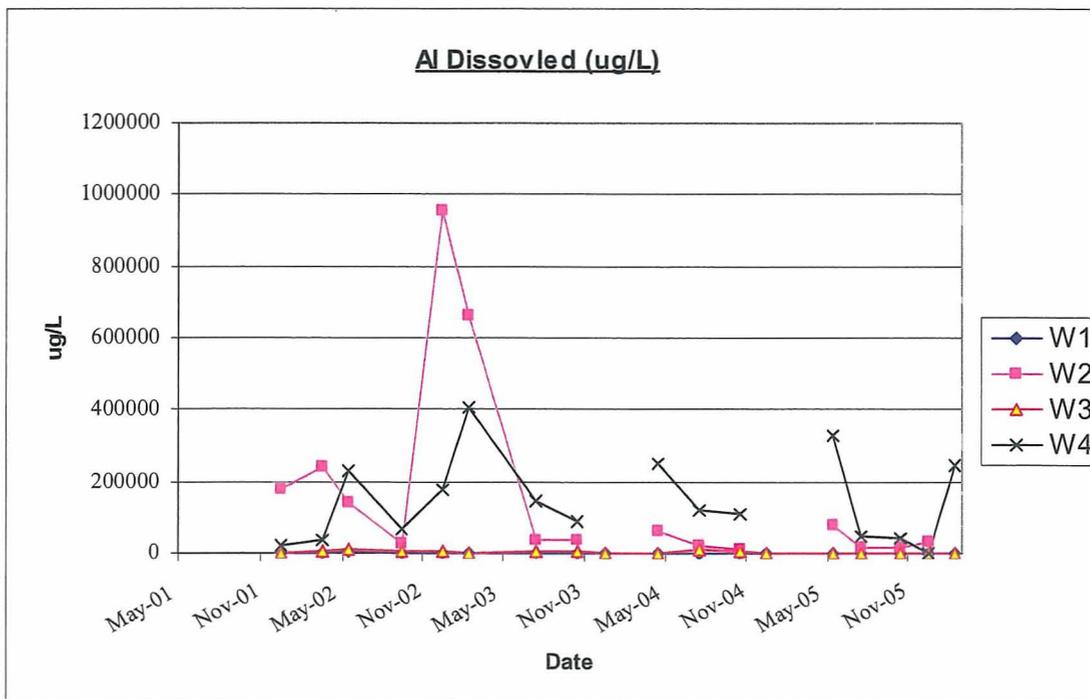


Figure 7 – Al (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

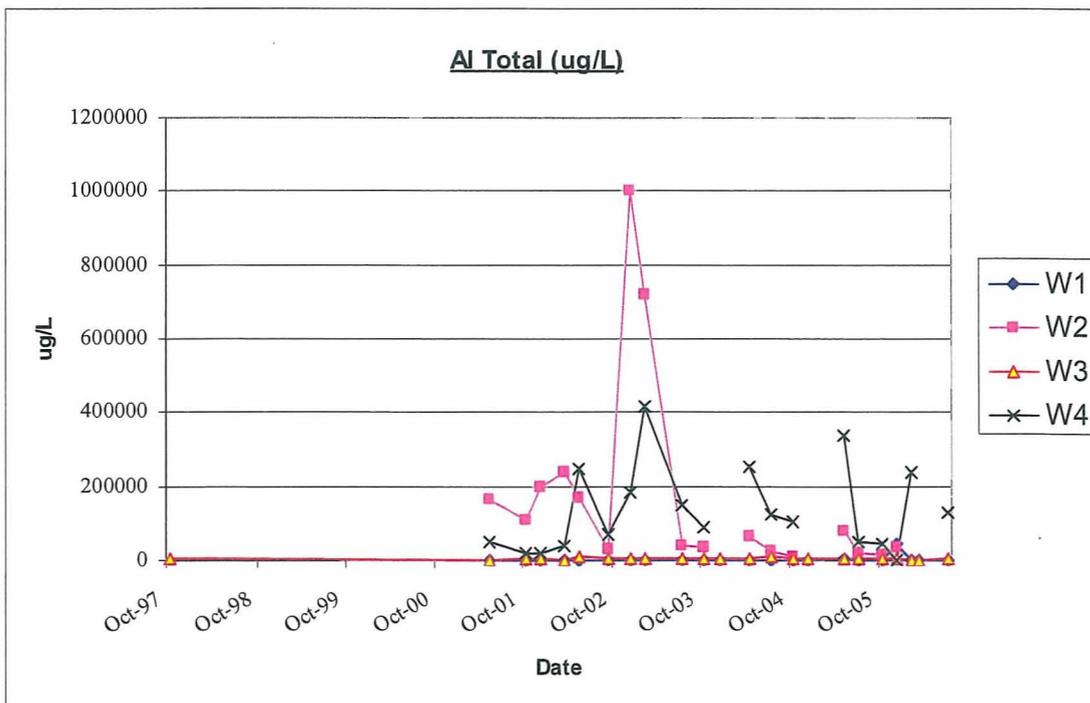


Figure 8 – Al (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

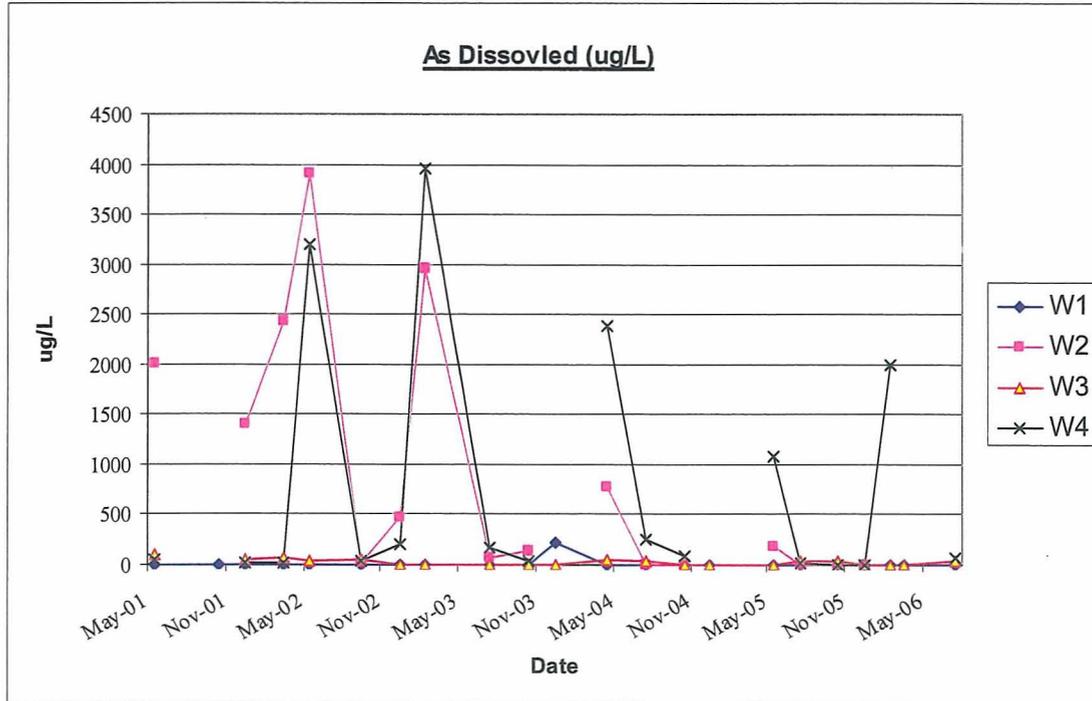


Figure 9 – As (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

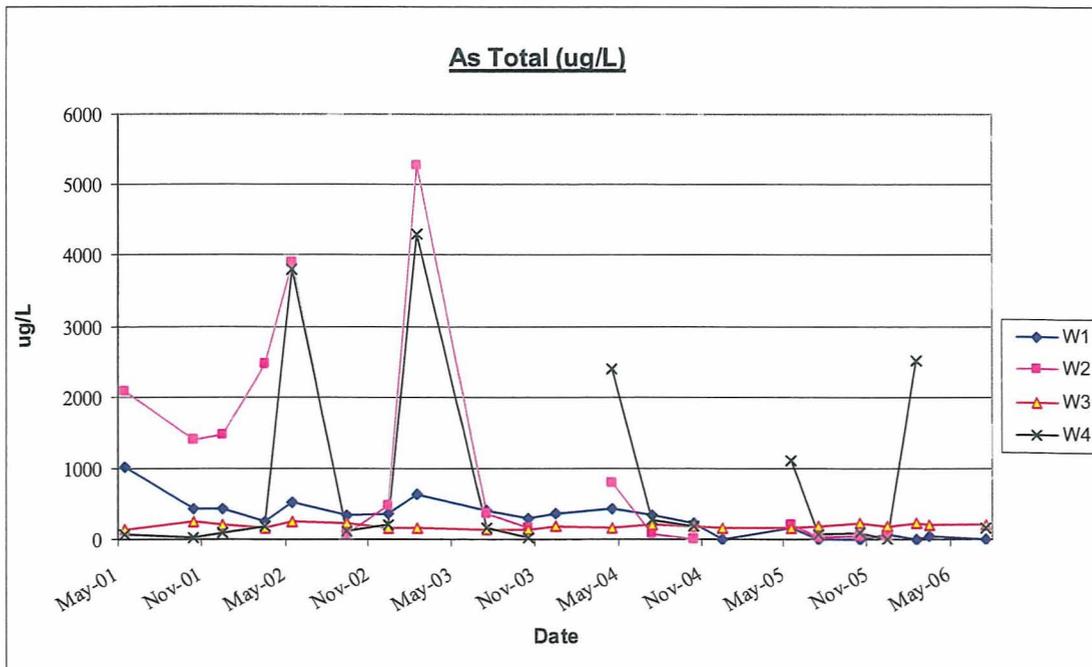


Figure 10 – As (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

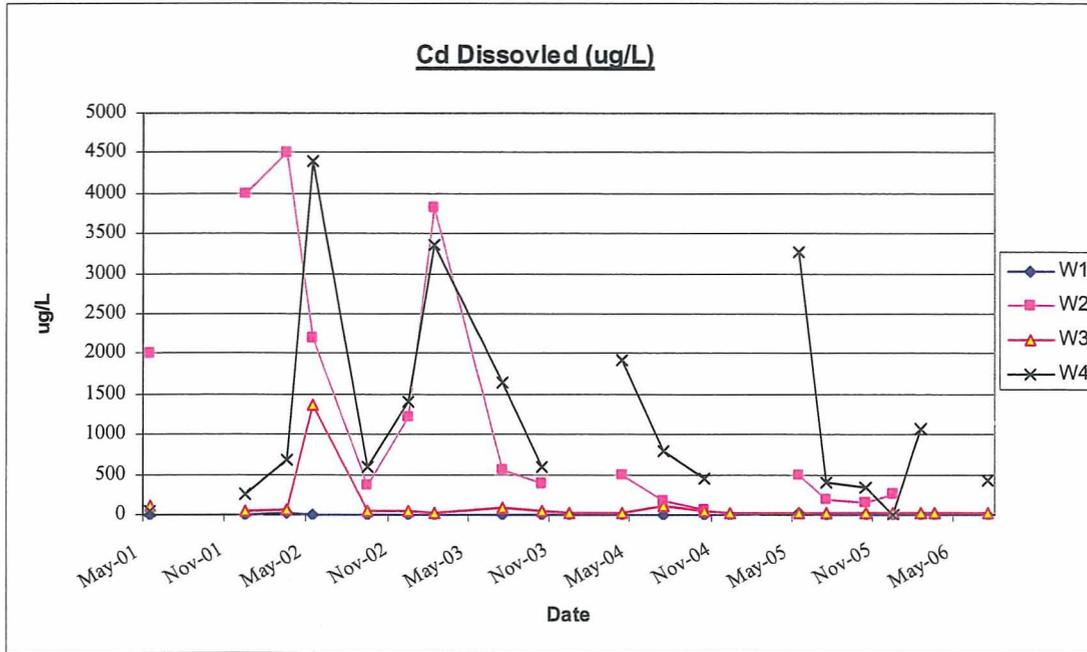


Figure 11 – Cd (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

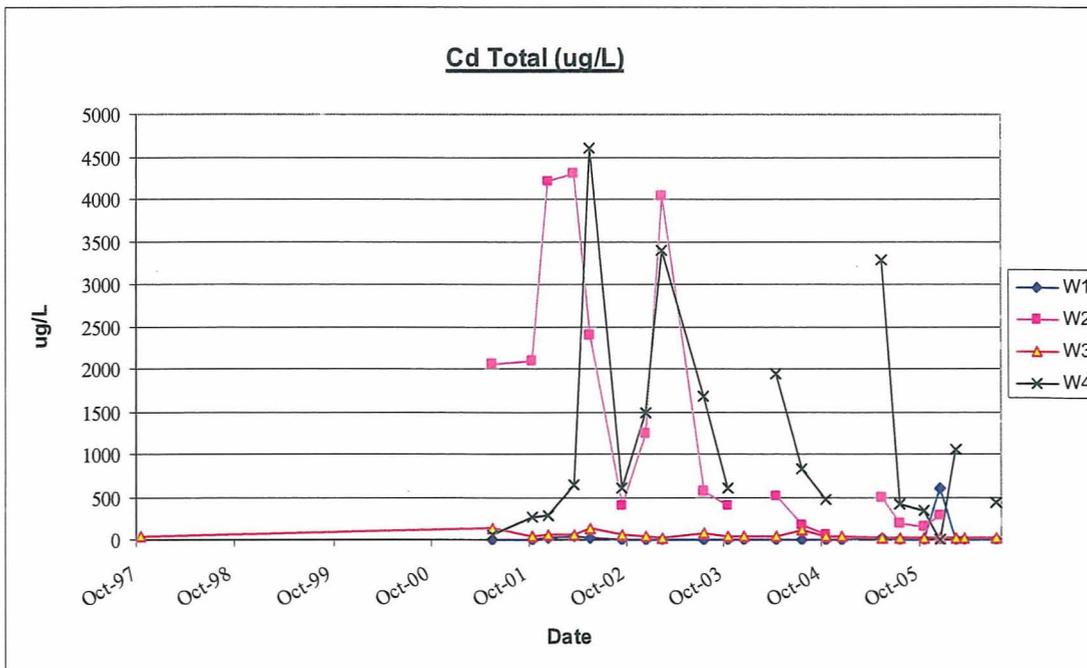


Figure 12 – Cd (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

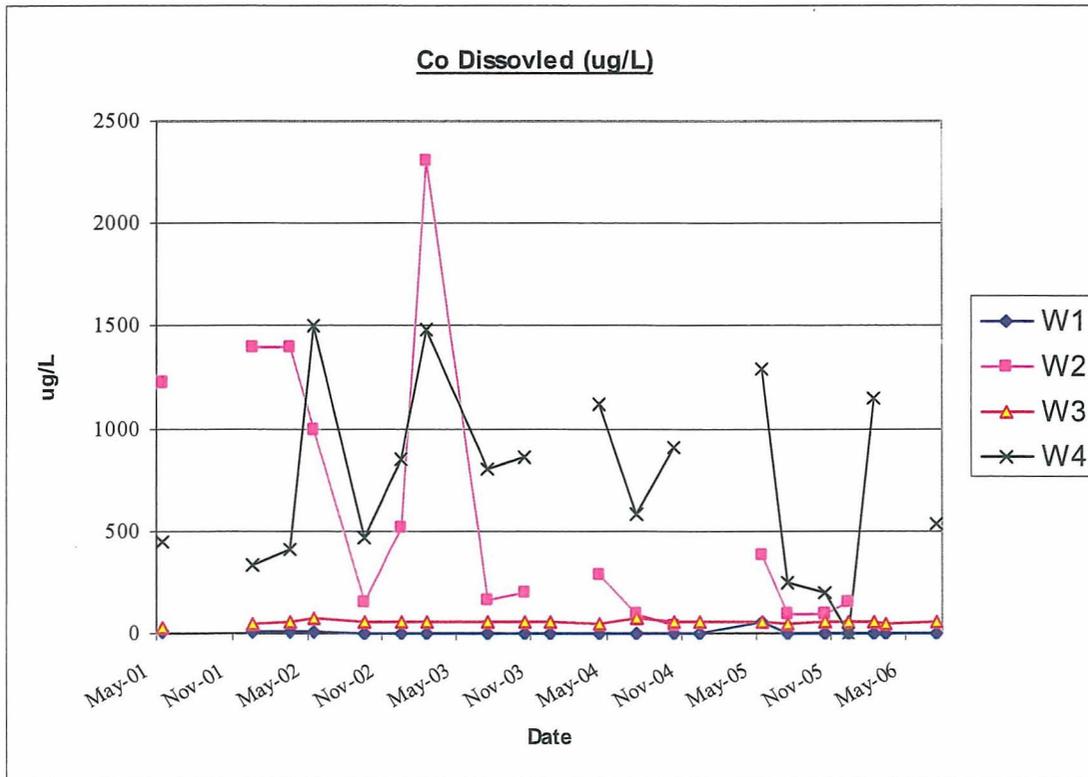


Figure 13 – Co (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

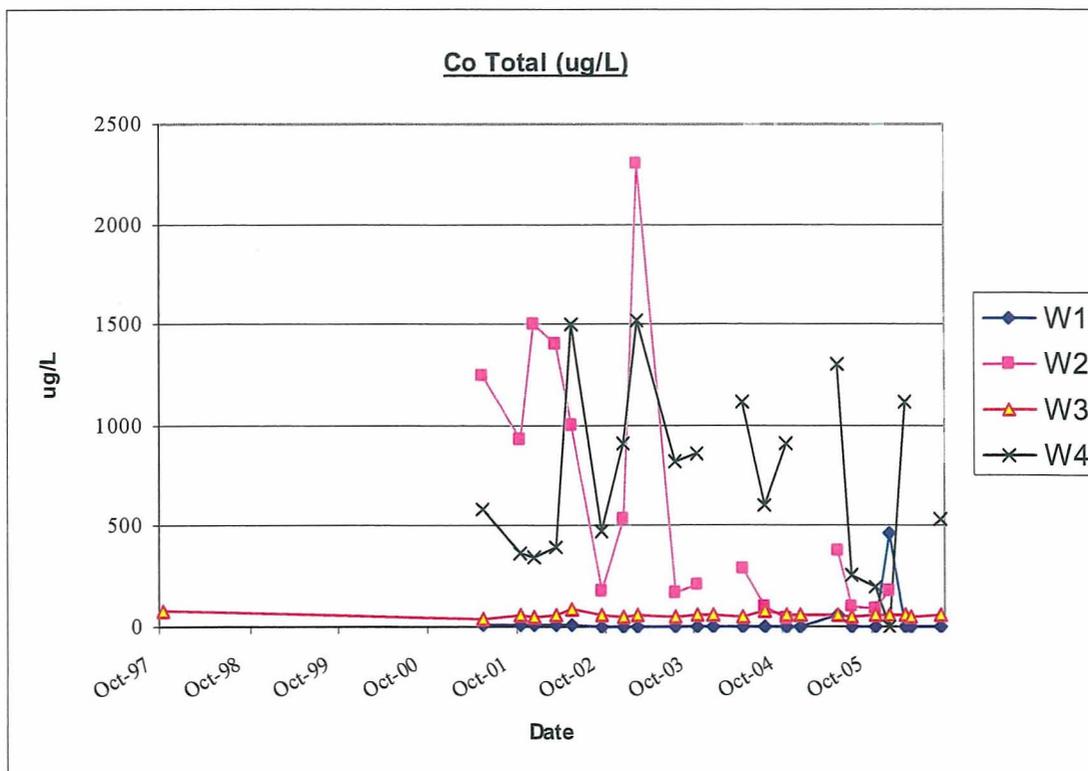


Figure 14 – Co (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

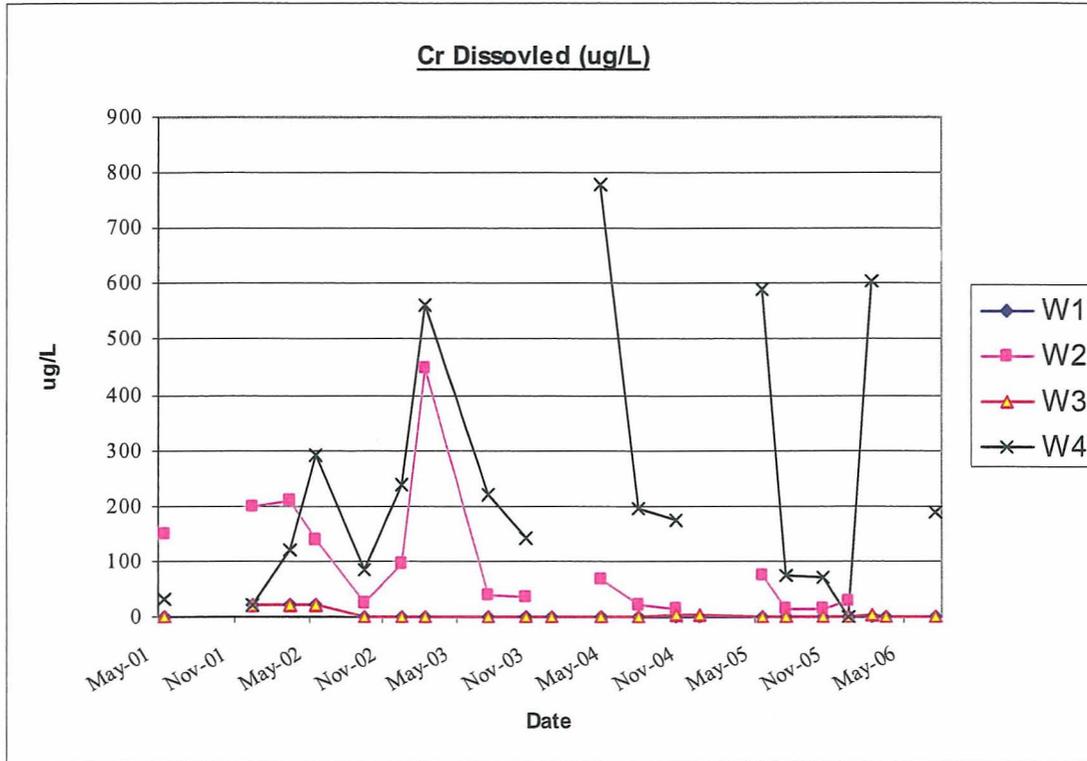


Figure 15 – Cr (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

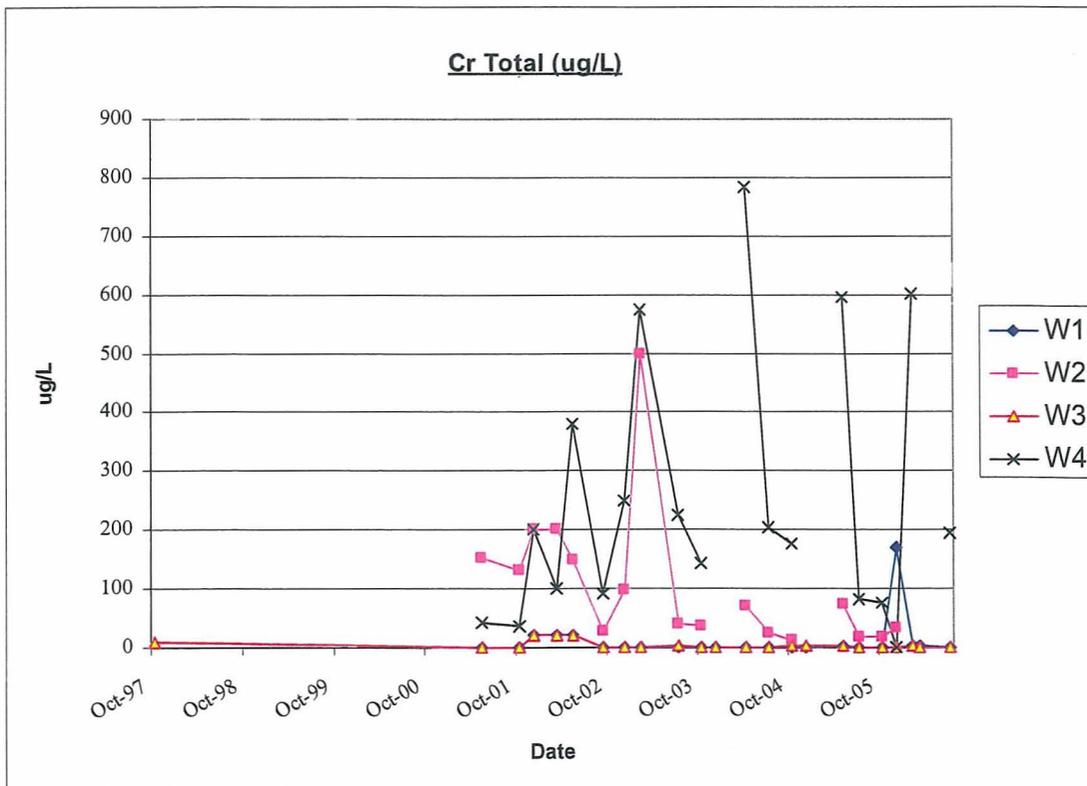


Figure 16 – Cr (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

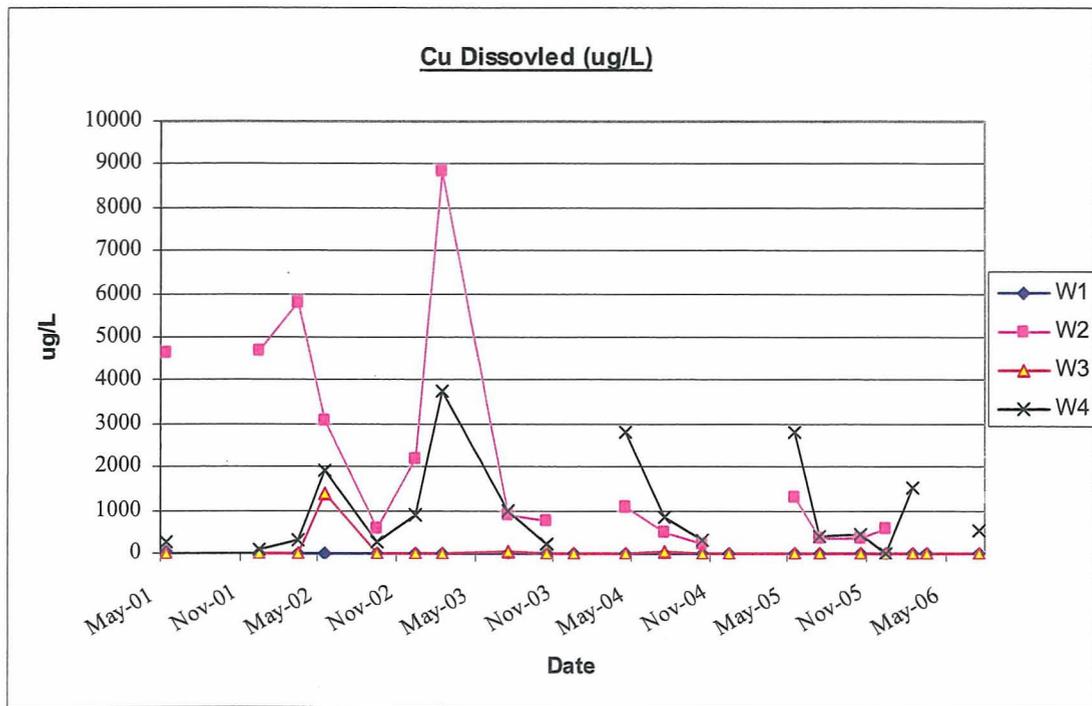


Figure 17 – Cu (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

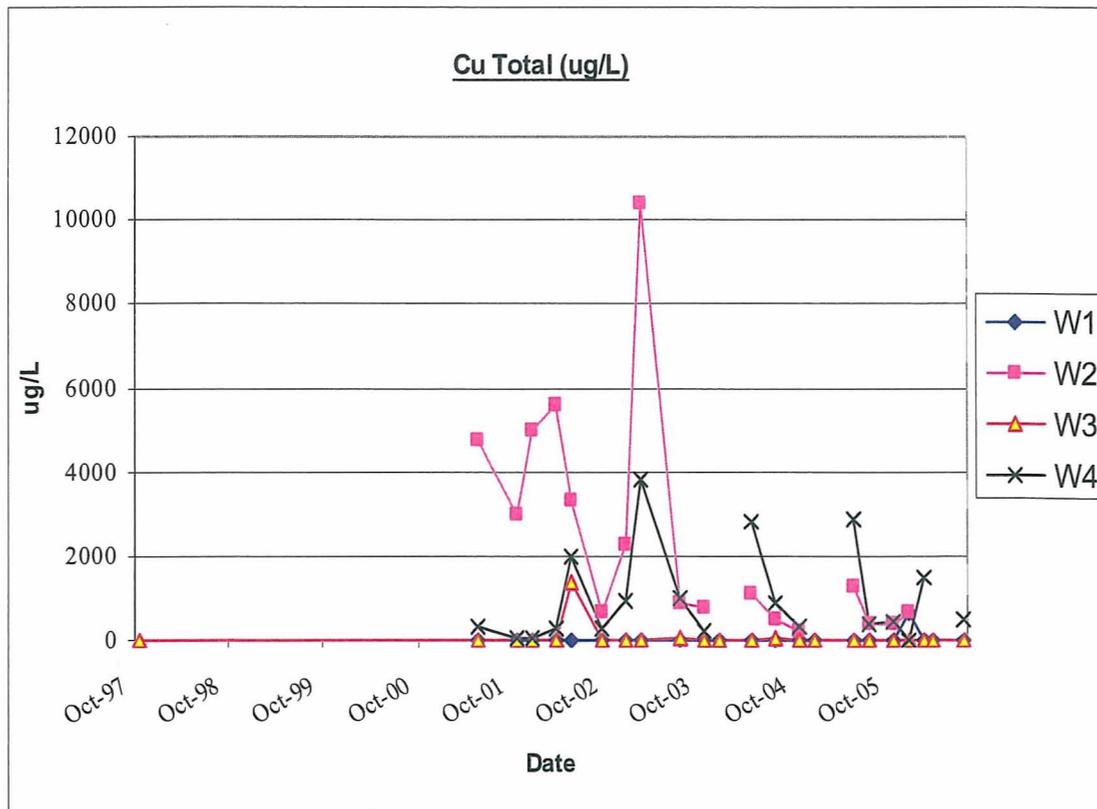


Figure 18 – Cu (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

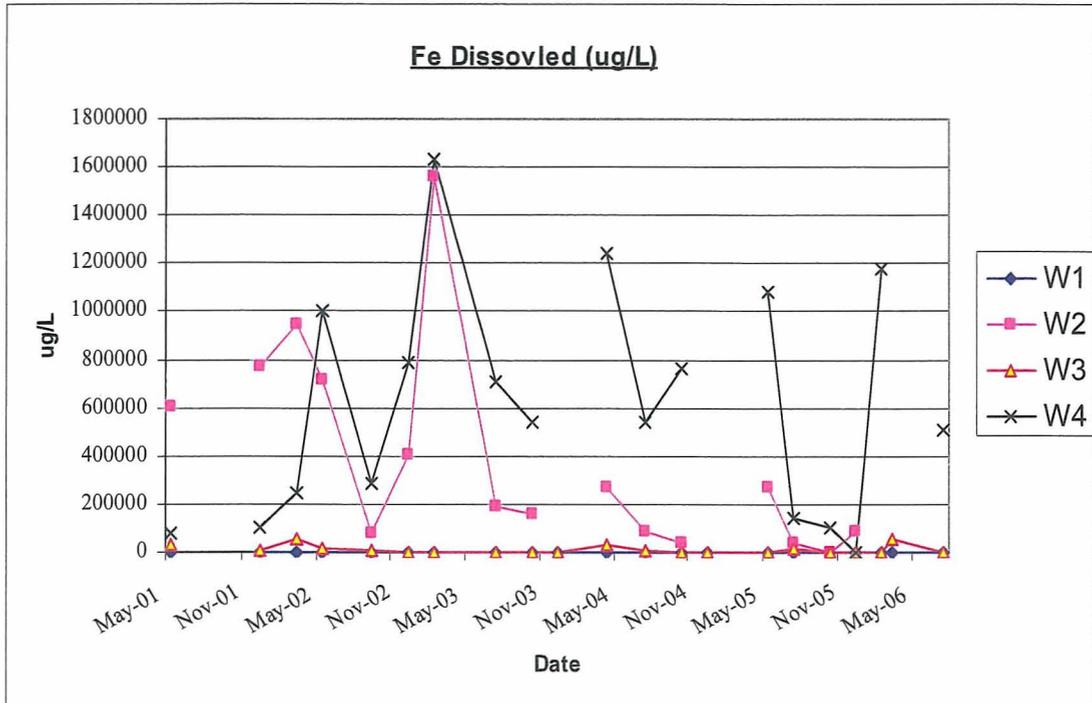


Figure 19 – Fe (dissolved μL) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

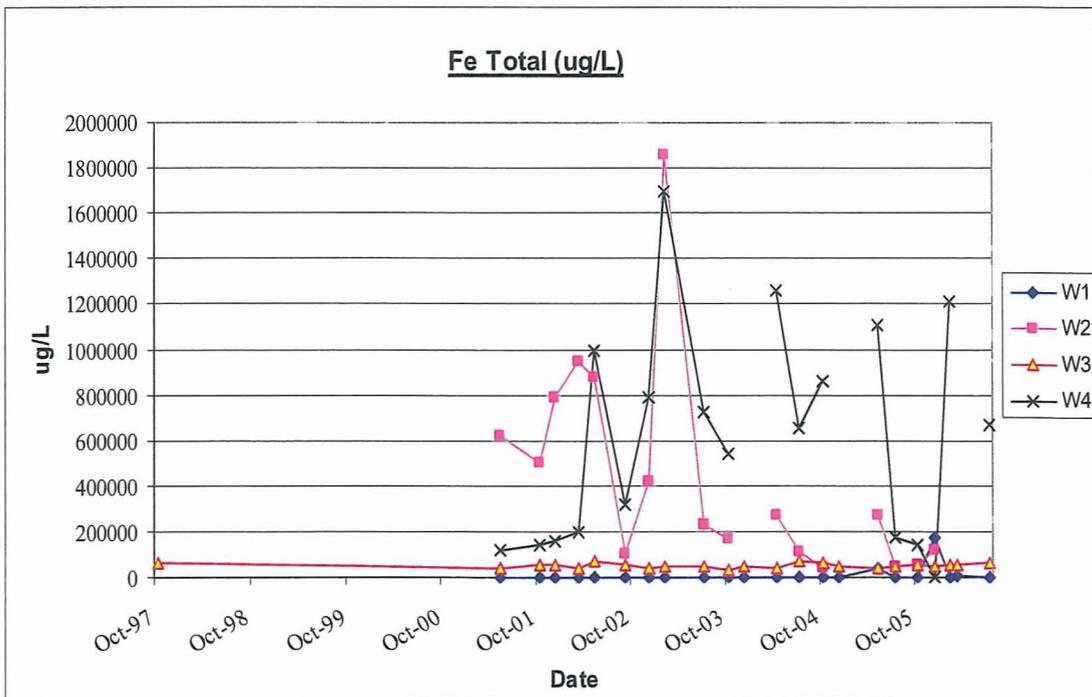


Figure 20 – Fe (total μL) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

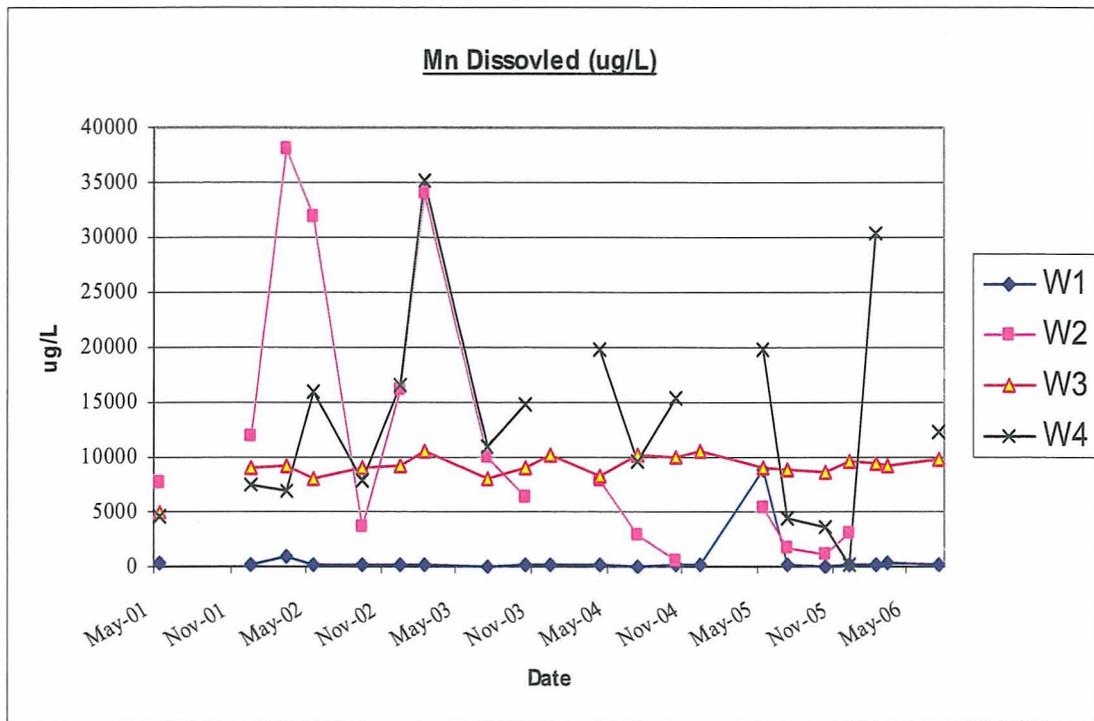


Figure 21 – Mn (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

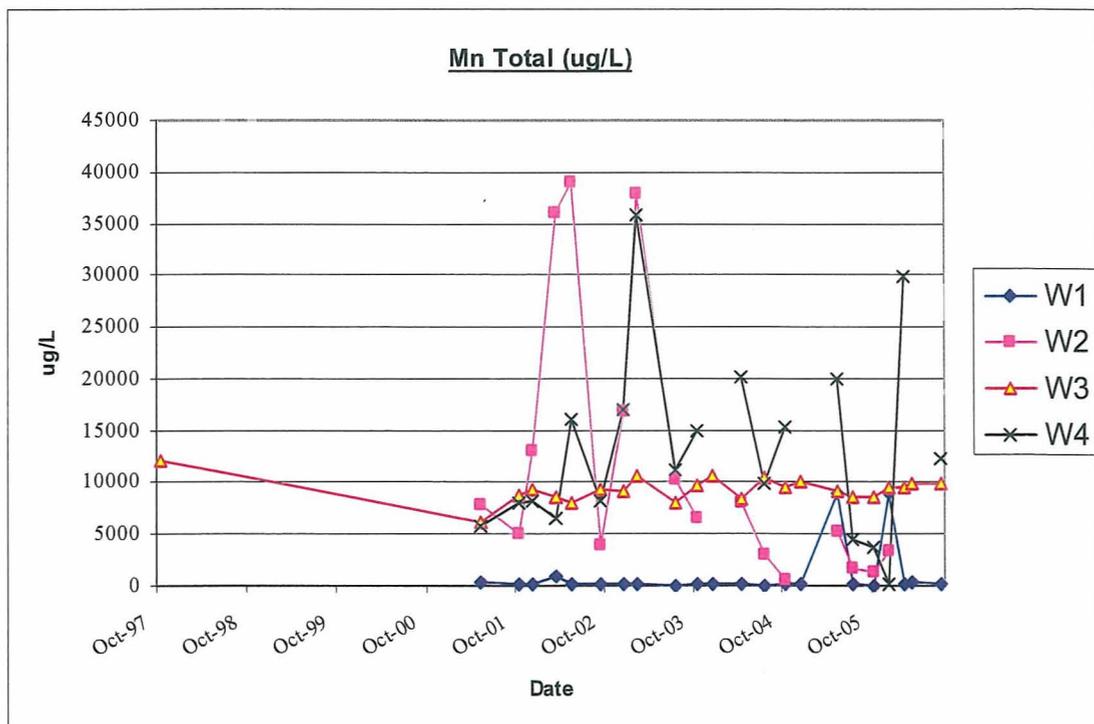


Figure 22 – Mn (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

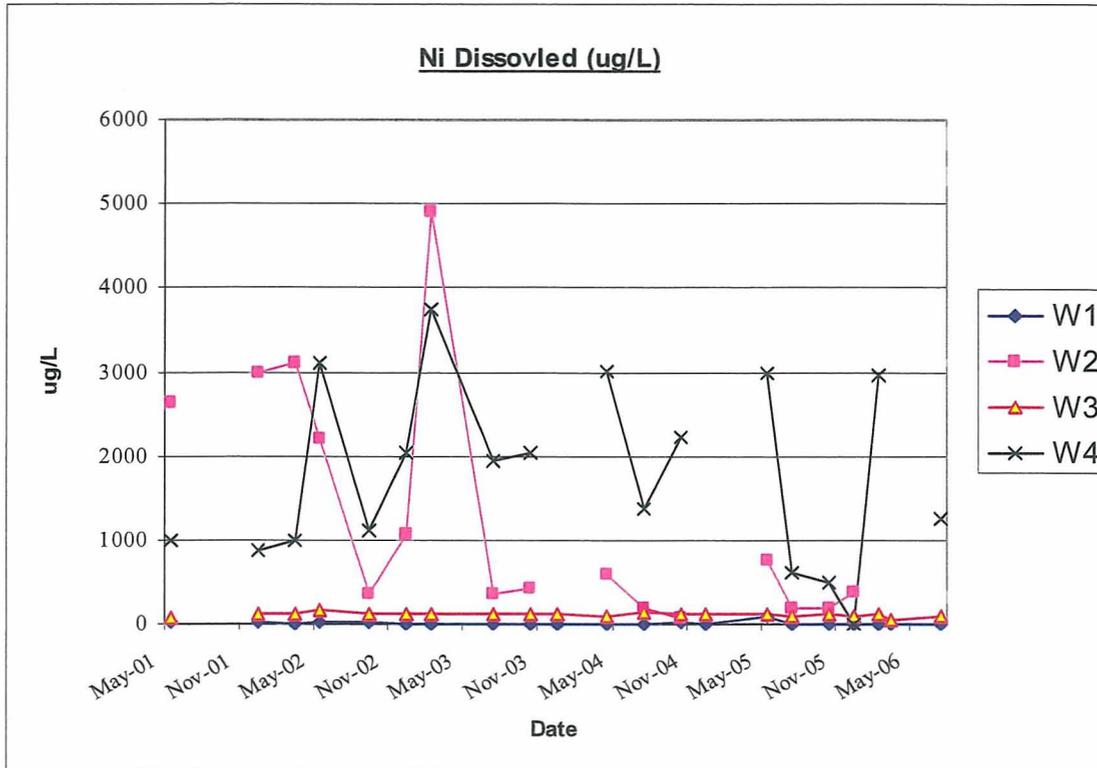


Figure 23 – Ni (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

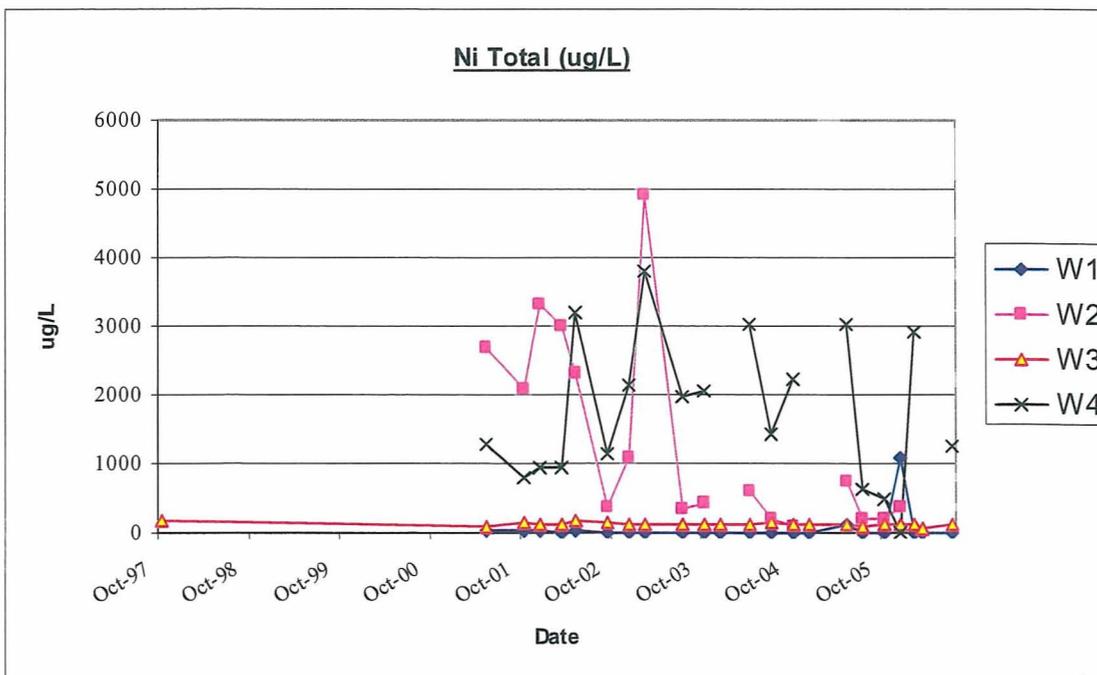


Figure 24 – Ni (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

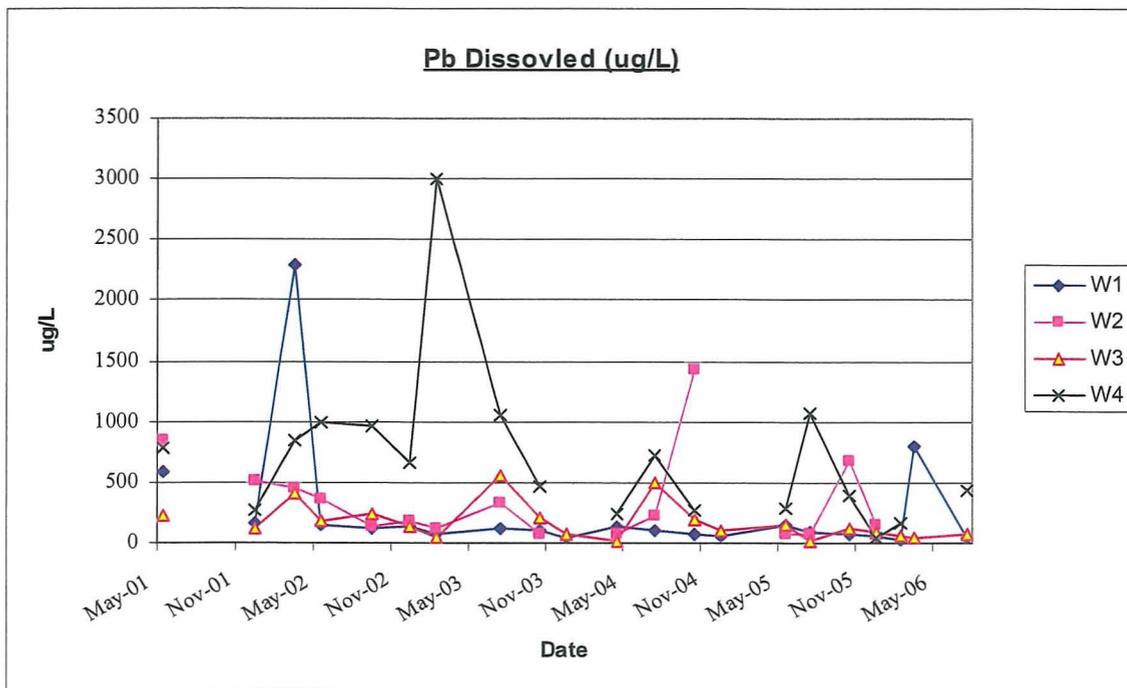


Figure 25 – Pb (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

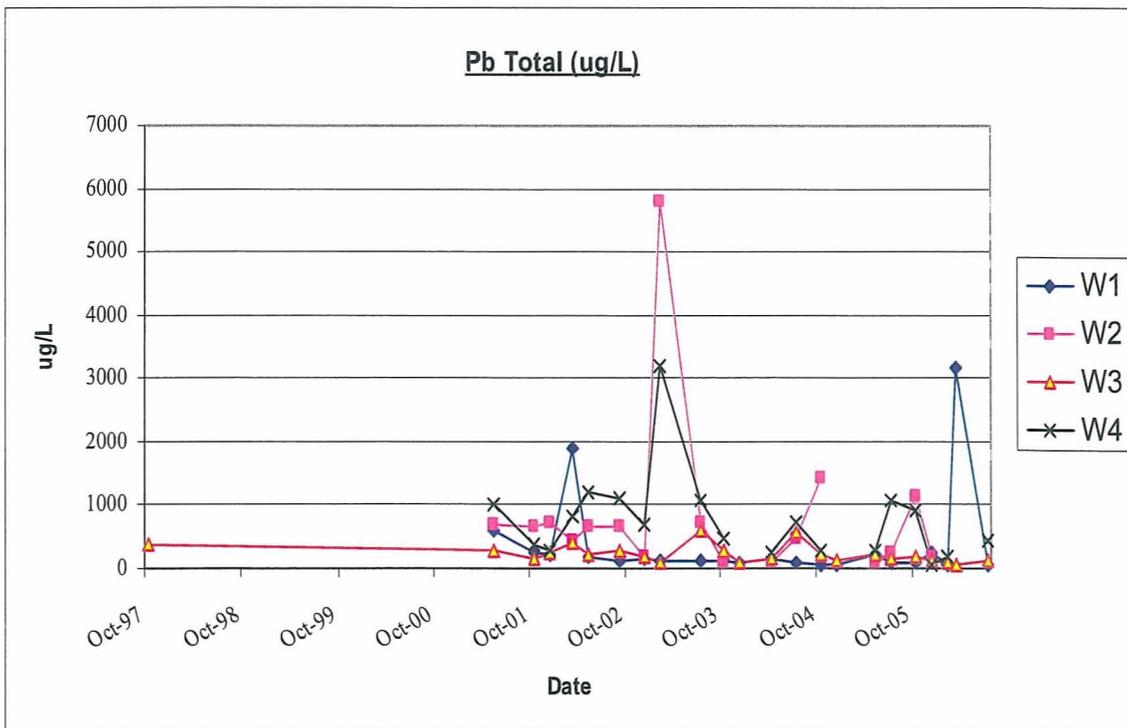


Figure 26 – Pb (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

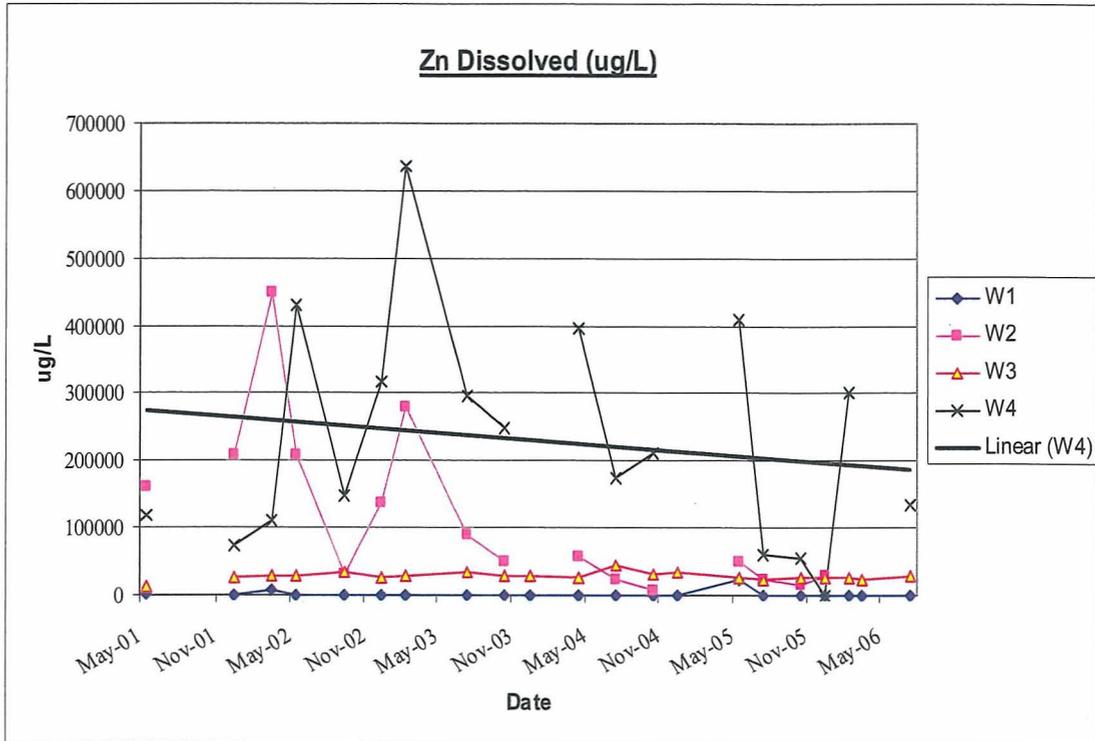


Figure 27 – Zn (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

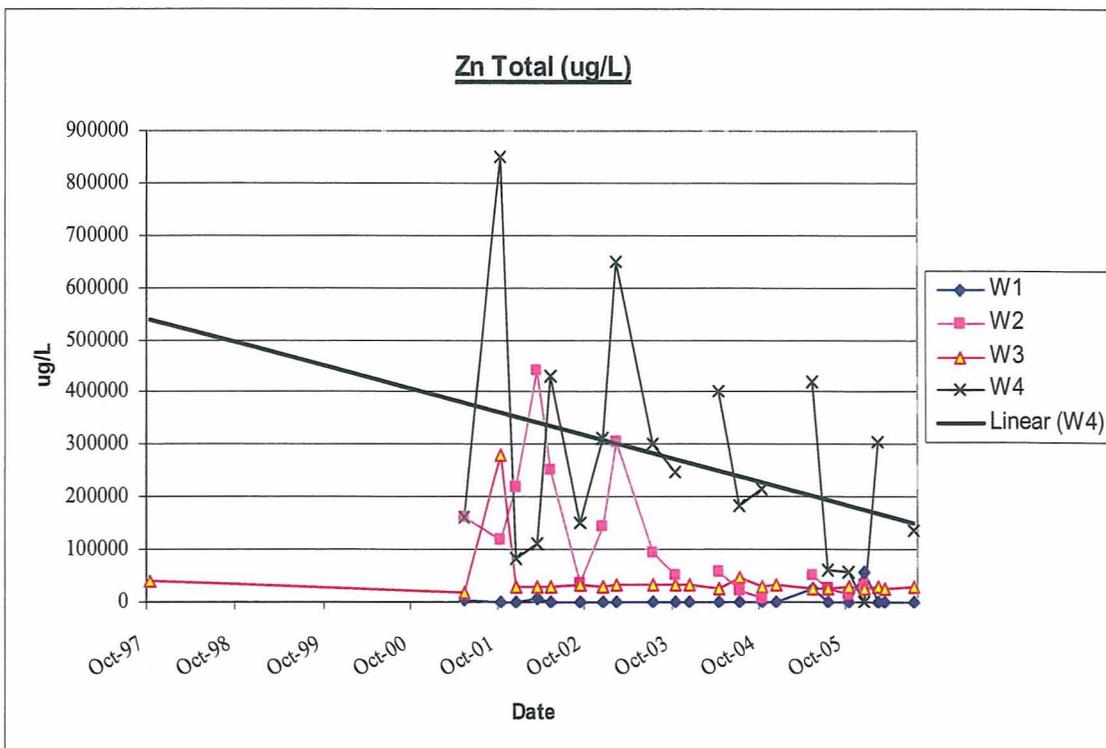


Figure 28 – Zn (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to July 2006.

4.0 Discussion

Clay reserve

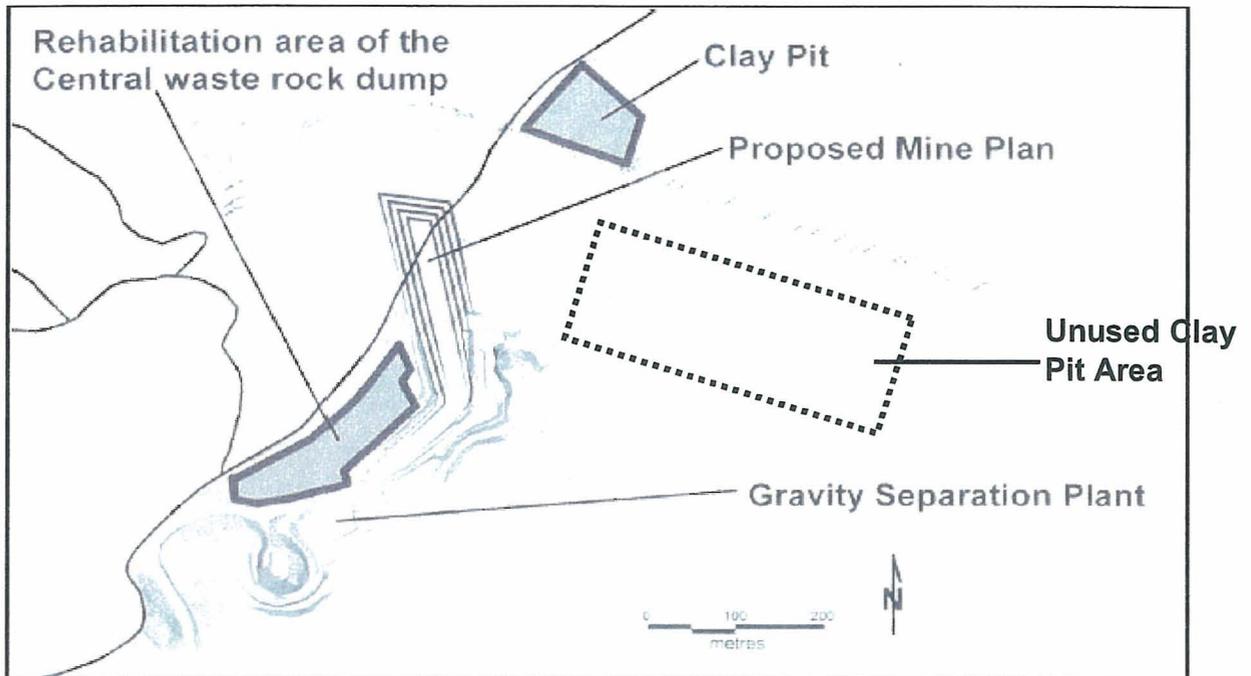


Figure 29 - Survey showing current mine plan along Allison's Pit and the CWRD that has recently been clay capped as part of the permit conditions. 100% of the dump has been capped.

Approximately 55,800m³ of clay have been moved from a clay pit, which was 10 metres deep, to the Central Waste Rock Dump. This 55,800m³ of clay was taken from the one clay pit leaving a large area of unused clay (Figure 29) that is of the same depth. The clay reserve at Comstock mine has previously been estimated at being a minimum reserve of between 240,000m³ and 360,000m³ as stated in the report 'Clay Reserve (Permeability and Homogeneity)' by Mine Geologist Paul Heath. This then shows that there is a large volume of clay in reserve to cap the Swansea Tramway Waste Dump (Figure 29). This clay pit transformed into a dam shortly after clay extraction and was used to assist the Fire Service early this year when a bush fire came within close proximity to the mine and town of Zeehan.

Rehabilitation

A large amount of rehabilitation has taken place at the Comstock Mine.

- Rehabilitation of the Central Waste Rock Dump (CWRD) has been essentially completed, with final seeding to take place in spring (Appendix D)
- The rehabilitation of the clay borrow area has been completed (Figure 30)
- South Comstock Pit has been backfilled with approximately 20,000 cubic metres of compacted talc and gravel and is now free draining at the surface.
- All disturbed topsoil has been carefully stockpiled for future use, and this will continue to be the case in future operations.

- Creation and rehabilitation of dam.
- Rehabilitation of Swansea Tramway Waste Rock Dump (STWRD)
- Excess clay from road diversion stockpiled at STWRD in prep for capping



Figure 30 – Rehabilitation of Clay Reserve 1

Appendix A

Laboratory Analysis of Water Samples

21 July 2006



ANALYTICAL SERVICES TASMANIA
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Laboratory Report

Report No: 29346 Issue No: 1 Report Date 08-Aug-2006 15:56
Status: Full Report

Site Description:

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Submitted By: Steven Davies

Client Order No: 0891

Report To: Heather Worby

Client: Oceania Tasmania

Address: 3/65 Murray Street Hobart TAS 7000

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement.

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Samples analysed as received.



Page 1 of 3

ANALYTICAL SERVICES TASMANIA

Report No: 29346 Issue No: 1 Report Date: 08-Aug-2006 15:56

Method	Analyte	Units / Sampled On :	Lab.No.:	94305	94306	94307	94308	94309
			Sample Id.:	W1	W3	W4	Upstream Comstock	DownstreamCo mstoc
1001-Water	pH		19/07/06 13:30	5.1	3.2	2.5	4.7	3.3
1002-Water	Conductivity	µS/cm	19/07/06 14:00	107	995	3700	109	892
1004-Water	TDS	mg/L	19/07/06 14:20	60	573	5430	56	544
1005-Water	TSS	mg/L	19/07/06 13:40	<1	111	19	10	86
1009-Water	Turbidity	NTU	19/07/06 15:00	1.9	270	33	6.1	180
1101-Water	Alkalinity Total	mg CaCO3/L		<2	<2	<2	<2	<2
1102-Water	Acidity	mg CaCO3/L		6	146	2200	7	135
1301-Water	Al Dissolved	µg/L		203	2560	127000	196	2870
	Al Total	µg/L		297	3640	128000	793	3610
	As Dissolved	µg/L		<5	37	69	<5	21
	As Total	µg/L		<5	201	157	<5	135
	Cd Dissolved	µg/L		1	23	430	1	24
	Cd Total	µg/L		1	24	431	2	23
	Co Dissolved	µg/L		3	59	532	3	54
	Co Total	µg/L		3	61	536	4	54
	Cr Dissolved	µg/L		<1	1	190	<1	1
	Cr Total	µg/L		<1	1	195	3	2
	Cu Dissolved	µg/L		2	3	519	5	6
	Cu Total	µg/L		4	3	524	10	7
	Fe Dissolved	µg/L		280	3540	512000	238	5250
	Fe Total	µg/L		1120	67200	672000	3470	45500
	Mn Dissolved	µg/L		174	9850	12300	175	8480
	Mn Total	µg/L		171	9910	12300	175	8260
	Ni Dissolved	µg/L		7	103	1260	8	93
	Ni Total	µg/L		7	111	1270	10	96
	Pb Dissolved	µg/L		48	73	440	54	96
	Pb Total	µg/L		71	121	453	202	150
	Zn Dissolved	µg/L		489	28000	136000	499	24300
	Zn Total	µg/L		475	28000	137000	488	23500

24 March 2006



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Laboratory Report

Report No: 28172 Issue No: 1 Report Date 26-Apr-2006 16:24

Status: Full Report

Site Description: Comstock

Received: 24-Mar-06

Submitted to: Sandy Bay Laboratory

Submitted By: P. Heath

Client Order No: 592

Report To: P. Heath

Client: Oceania Tasmania

Address: 3/65 Murray Street Hobart TAS 7001

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ANALYTICAL SERVICES TASMANIA

Report No: 28172 **Issue No:** 1 **Report Date:** 26-Apr-2006 16:24

Method	Analyte	Units / Sampled On :	Lab.No.:	88539	88540
			Sample Id.:	w1	w3
			24/03/06 08:15	24/03/06 08:30	
1001-Water	pH		4.5	3.4	
1002-Water	Conductivity	µS/cm	138	892	
1004-Water	TDS	mg/L	77	547	
1009-Water	Turbidity	NTU	7.0	250	
1011-Water	TSS	mg/L	12	90	
1101-Water	Alkalinity Total	mg CaCO3/L	<2	<2	
1102-Water	Acidity	mg CaCO3/L	12	131	
1311-Water	Al Dissolved	µg/L	250	347	
	Al Total	µg/L	437	2010	
	As Dissolved	µg/L	0.7	0.6	
	As Total	µg/L	52.8	195	
	Cd Dissolved	µg/L	0.8	16.5	
	Cd Total	µg/L	0.8	16.0	
	Co Dissolved	µg/L	4.7	50.9	
	Co Total	µg/L	4.7	49.4	
	Cr Dissolved	µg/L	<1	<1	
	Cr Total	µg/L	3	<1	
	Cu Dissolved	µg/L	3.2	2.9	
	Cu Total	µg/L	6.9	3.0	
	Fe Dissolved	µg/L	283	58200	
	Fe Total	µg/L	4740	58800	
	Mn Dissolved	µg/L	323	9310	
	Mn Total	µg/L	321	9850	
	Ni Dissolved	µg/L	9.8	50.9	
	Ni Total	µg/L	9.9	49.4	
	Pb Dissolved	µg/L	801	45.7	
	Pb Total	µg/L	3180	77.8	
	Zn Dissolved	µg/L	436	24800	
	Zn Total	µg/L	442	24300	

22 December 2005



ANALYTICAL SERVICES TASMANIA
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Laboratory Report

Report No: 27327 **Issue No:** 2 **Report Date:** 03-Feb-2006 12:49

Status: Full Report with Changes/Corrections

Site Description: Comstock Mine

Received: 22-Dec-05

Submitted to: Sandy Bay Laboratory

Submitted By: P. Heath

Client Order No:

Report To: P. Heath

Client: Oceania Tasmania

Address: 3/65 Murray Street Hobart TAS 7001

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Page 1 of 3

ANALYTICAL SERVICES TASMANIA

Report No: 27327 Issue No: 2 Report Date: 03-Feb-2006 12:49

Method	Analyte	Units / Sampled On :	Lab.No.:			
			84723	84724	84725	84726
		Sample Id.:	W1	W2	W3	W4
			21/12/05 11:15	21/12/05 11:25	21/12/05 11:30	21/12/05 12:06
1001-Water	pH		7.2	2.6	3.2	2.5
1002-Water	Conductivity	µS/cm	366	1910	940	3320
1004-Water	TDS	mg/L	74	1460	845	3910
1005-Water	TSS	mg/L	3	3	103	3
1009-Water	Turbidity	NTU	3.5	2.2	230	2.6
1101-Water	Alkalinity Total	mg CaCO3/L	<2	<2	<2	<2
1102-Water	Acidity	mg CaCO3/L	11	863	131	1930
1301-Water	Al Dissolved	µg/L	285	30900	2510	270
	Al Total	µg/L	42700	34900	2640	388
	As Dissolved	µg/L	<5	<5	<5	<5
	As Total	µg/L	68	38	174	<5
	Cd Dissolved	µg/L	<1	257	24	<1
	Cd Total	µg/L	604	288	25	<1
	Co Dissolved	µg/L	2	157	56	2
	Co Total	µg/L	463	178	56	2
	Cr Dissolved	µg/L	<1	29	<1	<1
	Cr Total	µg/L	171	33	<1	<1
	Cu Dissolved	µg/L	4	577	2	2
	Cu Total	µg/L	670	653	3	4
	Fe Dissolved	µg/L	869	86000	849	423
	Fe Total	µg/L	176000	117000	49600	1490
	Mn Dissolved	µg/L	133	3020	9610	132
	Mn Total	µg/L	8990	3420	9410	130
	Ni Dissolved	µg/L	4	382	105	<2
	Ni Total	µg/L	1080	368	105	6
	Pb Dissolved	µg/L	64	145	65	52
	Pb Total	µg/L	243	176	120	74
	Zn Dissolved	µg/L	384	28300	25700	376
	Zn Total	µg/L	56100	32600	25600	369

Results in BOLD are those that have changed or been added since the report was last issued

27 October 2005



ANALYTICAL SERVICES TASMANIA

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Laboratory Report

Report No: 26694

Issue No: 1

Report Date: 15-Nov-2005 17:21

Status: Full Report

Site Description: Comstock Mine

Received: 28-Oct-05

Submitted to: Sandy Bay Laboratory

Submitted By: P. Heath

Client Order No: 568

Report To: P. Heath

Client: Oceania Tasmania

Address: 3/65 Murray Street Hobart TAS 7001

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Page 1 of 3

ANALYTICAL SERVICES TASMANIA

Report No: 26694 Issue No: 1 Report Date: 15-Nov-2005 17:21

Method	Analyte	Units / Sampled On :	Lab.No:	81629	81630	81631	81632
			Sample Id:	W1	W2	W3	Wa
			27/10/05 11:42	27/10/05 11:53	27/10/05 12:25	27/10/05 12:15	
1001-Water	pH			4.3	2.7	3.1	2.6
1002-Water	Conductivity	µS/cm		83	1350	988	2000
1004-Water	TDS	mg/L		56	476	548	1220
1005-Water	TSS	mg/L		7	40	106	93
1009-Water	Turbidity	NTU		6.2	48	230	90
1101-Water	Alkalinity Total	mg CaCO3/L		<2	<2	<2	<2
1102-Water	Acidity	mg CaCO3/L		11	349	150	712
1301-Water	Al Dissolved	µg/L		354	16400	2300	42800
	Al Total	µg/L		480	17000	2870	43200
	As Dissolved	µg/L		<5	<5	35	7
	As Total	µg/L		<5	34	217	86
	Cd Dissolved	µg/L		<1	148	28	339
	Cd Total	µg/L		<1	144	27	337
	Co Dissolved	µg/L		1	92	57	205
	Co Total	µg/L		2	89	57	202
	Cr Dissolved	µg/L		<1	15	<1	70
	Cr Total	µg/L		<1	17	1	77
	Cu Dissolved	µg/L		4	364	15	464
	Cu Total	µg/L		7	367	16	466
	Fe Dissolved	µg/L		696	39800	3200	104000
	Fe Total	µg/L		1270	57600	58600	144000
	Mn Dissolved	µg/L		70	1240	6750	3680
	Mn Total	µg/L		74	1240	8630	3650
	Ni Dissolved	µg/L		3	185	111	496
	Ni Total	µg/L		3	186	109	490
	Pb Dissolved	µg/L		77	678	122	399
	Pb Total	µg/L		96	1150	188	903
	Zn Dissolved	µg/L		291	15300	26900	56700
	Zn Total	µg/L		295	15100	27000	56800

27 July 2005



ANALYTICAL SERVICES TASMANIA
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Laboratory Report

Report No: 25754 **Issue No:** 1 **Report Date:** 27-Jul-2005 16:51
Status: Full Report

Site Description: Comstock Mine
Received: 13-Jul-05

Submitted to: Sandy Bay Laboratory
Submitted By: P. Heath

Client Order No:
Report To: P. Heath
Client: Oceania Tasmania
Address: 3/65 Murray Street Hobart TAS 7001

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Page 1 of 3

ANALYTICAL SERVICES TASMANIA

Report No: 25754 Issue No: 1 Report Date: 27-Jul-2005 16:51

Method	Analyte	Lab.No.: Sample Id.: Units / Sampled On :	76935	76936	76937	76938	76939
			W1	W2	W3	W4	Clay Pit Item
1001-Water	pH	11/07/05 04:15	4.9	2.6	3.4	2.7	3.6
1002-Water	Conductivity	11/07/05 04:15	97	1280	637	1080	349
1004-Water	TDS	11/07/05 04:30	59	742	529	1500	171
1005-Water	TSS	11/07/05 04:40	1	31	92	167	<1
1009-Water	Turbidity	11/07/05 03:50	2.4	44	270	220	0.4
1101-Water	Alkalinity Total		<2	<2	<2	<2	<2
1102-Water	Acidity		13	371	136	847	62
1301-Water	Al Dissolved		368	17900	635	47300	5240
	Al Total		437	18600	2710	49900	5370
	As Dissolved		<5	<5	26	12	<5
	As Total		<5	23	177	70	<5
	Cd Dissolved		2	184	21	407	4
	Cd Total		2	186	22	414	4
	Co Dissolved		3	87	51	252	119
	Co Total		4	86	52	258	123
	Cr Dissolved		<1	16	<1	75	<1
	Cr Total		<1	17	1	83	1
	Cu Dissolved		5	374	3	380	41
	Cu Total		6	382	5	383	43
	Fe Dissolved		731	43000	10500	142000	1570
	Fe Total		1050	46300	48600	178000	1570
	Mn Dissolved		146	1050	8770	4440	624
	Mn Total		150	1070	8680	4520	637
	Ni Dissolved		9	196	100	620	271
	Ni Total		10	202	96	631	278
	Pb Dissolved		88	70	20	524	37
	Pb Total		98	250	143	1070	38
	Zn Dissolved		637	23400	23800	61300	4400
	Zn Total		654	23600	24400	61900	4560

10 May 2005

10/05/2005 4:00 PM FROM: Fax TO: 6221 5334 PAGE: 001 OF 001



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Laboratory Report

Report No: 25001 Issue No: 1 Report Date 10-May-2005 16:26

Status: Full Report

Site Description:

Received: 21-Apr-05

Submitted to: Sandy Bay Laboratory

Submitted By: P. Heath

Client Order No:

Report To: P. Heath

Client: Oceania Tasmania

Address: 3/65 Murray Street Hobart TAS 7001

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Page 1 of 3

13:05:2005 01:02 PM FROM: Env TO: 6233 9338 PAGE: 001 OF 001

ANALYTICAL SERVICES TASMANIA

Report No: 29011 Issue No: 1 Report Date: 10-May-2005 16:26

Method	Analyte	Lab No.:	73176		73177		73178		73179	
			Sample Id.:	W1	W2	W3	W4			
Units / Sampled On :			20 04 05 07:44	20 04 05 07:52	20 04 05 08:07	20 04 05 08:15				
1001-Water	pH		4.8	2.6	5.3	2.5				
1002-Water	Conductivity	µS/cm	80	2430	709	5510				
1004-Water	TDS	mg/L	87	3340	605	12800				
1005-Water	TSS	mg/L	<1	7	63	5				
1006-Water	Turbidity	NTU	1.9	17	260	2.2				
1011-Water	Alkalinity Total	mg CaCO3/L	<2	<2	<2	<2				
1020-Water	Acidity	mg CaCO3/L	15	1340	132	5200				
2011-Water	Al Dissolved	µg/L	2500	80600	2580	330000				
	Al Total	µg/L	3030	79200	3100	836000				
	As Dissolved	µg/L	<5	163	<5	1060				
	As Total	µg/L	158	211	164	1110				
	Cd Dissolved	µg/L	25	600	25	3270				
	Cd Total	µg/L	26	493	26	3280				
	Co Dissolved	µg/L	54	384	56	1290				
	Co Total	µg/L	56	377	57	1300				
	Cr Dissolved	µg/L	<1	74	1	591				
	Cr Total	µg/L	2	73	2	597				
	Cu Dissolved	µg/L	6	1310	5	2820				
	Cu Total	µg/L	7	1290	7	2860				
	Fe Dissolved	µg/L	639	269000	850	108000				
	Fe Total	µg/L	39600	267000	41200	1110000				
	Mn Dissolved	µg/L	8810	6320	9080	19800				
	Mn Total	µg/L	8920	5230	9070	20000				
	Ni Dissolved	µg/L	105	759	106	3000				
	Ni Total	µg/L	106	745	106	3030				
	Pb Dissolved	µg/L	149	81	151	278				
	Pb Total	µg/L	209	95	213	285				
	Zn Dissolved	µg/L	24900	50600	25800	408000				
	Zn Total	µg/L	25300	49600	25800	418000				

22 December 2004

22.Dec. 2004 16:34

No.2053 P. 2/3



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NATA Accreditation
Number: 5589

Laboratory Report

Report No: 23958 **Issue No:** 1 **Final Report**
Submitted By: P. Hcath
Client: Oceania Tasmania
Site Description:
Received: 08-Dec-04 **Client Order No:**
Report Date: 22-Dec-2004 15:41
Report To: P. Hcath
Address: 3/65 Murray Street Hobart TAS 7001

Test Method(s) :

Test Date

Chemical Testing

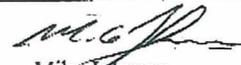
1001-Water:	pH in Water by APHA Method 4500-H	14-Dec-2004
1002-Water:	Conductivity by APHA Method 2510	14-Dec-2004
1004-Water:	Solids, Total Dissolved by APHA Method 2540C	20-Dec-2004
1005-Water:	Solids, Total Suspended by APHA Method 2540D	16-Dec-2004
1101-Water:	Alkalinity by APHA Method 2320/4500-CO2	20-Dec-2004
1102-Water:	Acidity by APHA Method 2310	21-Dec-2004
1301-Water:	Metals in Water by APHA Method 3030/3120	15-Dec-2004



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Mike Johnson
Chemical Testing

20-Dec-2004 15:34

No. 2053 P 3/3



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Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania
Sandy Bay Tasmania 7005



NATA Accreditation
Number 5589

Report No: 23958

Report Date: 22-Dec-2004 15:41

Method	Analyte	Units / Sampled On :	Lab.No.:	66639	66640	66641
			Sample Id.:	W 1	W 3	AUSTRAL CREEK
				08-12-04 03:43	08-12-04 03:27	08-12-04
1001-Water	pH			5.0	3.3	6.6
1002-Water	Conductivity	µS/cm		108	951	180
1004-Water	TDS	mg/L		85	625	118
1005-Water	TSS	mg/L		1	93	8
1101-Water	Alkalinity Total	mg CaCO3/L		<1	<1	36
1102-Water	Acidity	mg CaCO3/L		9	132	6
1301-Water	Al Dissolved	µg/L		216	2570	76
	Al Total	µg/L		273	3010	123
	As Dissolved	µg/L		<5	<5	<5
	As Total	µg/L		<5	189	8
	Cd Dissolved	µg/L		1	28	4
	Cd Total	µg/L		1	29	4
	Co Dissolved	µg/L		3	59	4
	Co Total	µg/L		3	60	4
	Cr Dissolved	µg/L		<1	3	<1
	Cr Total	µg/L		<1	3	<1
	Cu Dissolved	µg/L		2	3	<1
	Cu Total	µg/L		4	4	1
	Fe Dissolved	µg/L		273	1420	404
	Fe Total	µg/L		878	44200	701
	Mn Dissolved	µg/L		187	10800	791
	Mn Total	µg/L		189	10100	778
	Ni Dissolved	µg/L		10	118	11
	Ni Total	µg/L		10	115	11
	Pb Dissolved	µg/L		59	100	20
	Pb Total	µg/L		72	131	38
	Zn Dissolved	µg/L		506	34700	1850
	Zn Total	µg/L		504	33900	1870

12 October 2005

29 Oct. 2004 16:37

No. 0505 P. 2



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NATA Accreditation
Number: 5589

Laboratory Report

Report No: 23464 **Issue No:** 1 **Final Report**
Submitted By: P. Heath
Client: Oceania Tasmania
Site Description:
Received: 13-Oct-04 **Client Order No:** 765
Report Date: 29-Oct-2004 15:53
Report To: P. Heath
Address: 3/65 Murray Street Hobart TAS 7001

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01 NOV 2004

Test Method(s) :	Test Date
Chemical Testing	
1001-Water: pH in Water by APHA Method 4500-H	20-Oct-2004
1002-Water: Conductivity by APHA Method 2510	20-Oct-2004
1005-Water: Solids, Total Suspended by APHA Method 2540D	25-Oct-2004
1101-Water: Alkalinity by APHA Method 2320/4500-CO2	26-Oct-2004
1102-Water: Acidity by APHA Method 2310	25-Oct-2004
1301-Water: Metals in Water by APHA Method 3030/3120	18-Oct-2004



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Chemical Testing

Oceania Tasmania Pty Ltd –Environmental Monitoring Report

29-Oct-2004 15:37

No. 0605 P. 3



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Sandy Bay Laboratory

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Sandy Bay Tasmania 7005



NATA Accreditation
Number: 5389

Report No: 23464

Report Date: 29-Oct-2004 15:53

Method	Analyte	Lab.No.:	Sample Id.:			
			64102	64103	64104	64105
		Units / Sampled On :	W1	W2	W3	W4
			12/10/04 09:30	12/10/04 10:30	12/10/04 10:15	12/10/04 10:00
1001-Water	pH		5.0	2.8	3.1	2.5
1002-Water	Conductivity	µS/cm	102	1050	1020	4460
1005-Water	TSS	mg/L	1	4	112	6
1101-Water	Alkalinity Total	mg CaCO3/L	<1	<1	<1	<1
1102-Water	Acidity	mg CaCO3/L	10	278	190	2970
1301-Water	Al Dissolved	µg/L	228	11300	3700	108000
	Al Total	µg/L	277	11200	4360	106000
	As Dissolved	µg/L	<5	10	<5	82
	As Total	µg/L	<5	10	192	184
	Cd Dissolved	µg/L	1	63	42	456
	Cd Total	µg/L	2	62	43	488
	Co Dissolved	µg/L	3	37	59	907
	Co Total	µg/L	3	37	59	908
	Cr Dissolved	µg/L	<1	13	2	175
	Cr Total	µg/L	<1	13	3	177
	Cu Dissolved	µg/L	5	213	7	322
	Cu Total	µg/L	5	212	8	343
	Fe Dissolved	µg/L	340	38300	2810	762000
	Fe Total	µg/L	630	37900	61800	884000
	Mn Dissolved	µg/L	127	493	9930	15300
	Mn Total	µg/L	129	484	9590	15300
	Ni Dissolved	µg/L	12	81	119	2230
	Ni Total	µg/L	13	79	116	2230
	Pb Dissolved	µg/L	68	1430	198	275
	Pb Total	µg/L	78	1410	235	277
	Zn Dissolved	µg/L	467	6510	30600	211000
	Zn Total	µg/L	477	6510	30300	216000

6 July 2004



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NATA Accreditation
Number: 5589

Laboratory Report

Report No: 22753 **Issue No:** 1 **Final Report**
Submitted By: P. Heath
Client: Oceania Tasmania
Site Description: Comstock Mine
Received: 06-Jul-04 **Client Order No:**
Report Date: 21-Jul-2004 14:21
Report To: Shane Bartel
Address: 3/65 Murray Street Hobart TAS 7001

Test Method(s) :

Test Date

Chemical Testing

1001-Water:	pH in Water by APHA Method 4500-H	07-Jul-2004
1002-Water:	Conductivity by APHA Method 2510	07-Jul-2004
1004-Water:	Solids, Total Dissolved by APHA Method 2540C	12-Jul-2004
1005-Water:	Solids, Total Suspended by APHA Method 2540D	09-Jul-2004
1009-Water:	Turbidity by APHA Method 2130B	19-Jul-2004
1101-Water:	Alkalinity by APHA Method 2320/4500-CO2	12-Jul-2004
1102-Water:	Acidity by APHA Method 2310	14-Jul-2004
1301-Water:	Metals in Water by APHA Method 3030/3120	12-Jul-2004



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Mike Johnson
Chemical Testing



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Sandy Bay Laboratory

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Sandy Bay Tasmania 7005



NATA Accreditation
Number: 5589

Report No: 22753

Report Date: 21-Jul-2004 14:21

		Lab.No.:	60602	60603	60604	60605
		Sample Id.:	W1	W1	W3	W4
1001-Water	pH		4.6	2.8	3.9	2.7
1002-Water	Conductivity	µS/cm	117	1440	990	3500
1004-Water	TDS	mg/L	72	733	761	4200
1005-Water	TSS	mg/L	<1	79	136	44
1009-Water	Turbidity	NTU	1.2	100	350	13
1101-Water	Alkalinity Total	mg CaCO3/L	<1	<1	<1	<1
1102-Water	Acidity	mg CaCO3/L	10	533	288	2340
1301-Water	Al Dissolved	µg/L	304	21200	9600	118000
	Al Total	µg/L	342	22500	10300	123000
	As Dissolved	µg/L	<5	8	26	256
	As Total	µg/L	<5	67	194	269
	Cd Dissolved	µg/L	2	172	101	800
	Cd Total	µg/L	2	176	104	830
	Co Dissolved	µg/L	3	94	76	585
	Co Total	µg/L	3	97	79	606
	Cr Dissolved	µg/L	<1	22	<1	196
	Cr Total	µg/L	<1	24	1	204
	Cu Dissolved	µg/L	5	500	28	853
	Cu Total	µg/L	5	515	29	894
	Fe Dissolved	µg/L	340	89200	10500	540000
	Fe Total	µg/L	417	109000	71400	667000
	Mn Dissolved	µg/L	80	2920	10200	9570
	Mn Total	µg/L	81	2990	10400	9890
	Ni Dissolved	µg/L	6	192	149	1380
	Ni Total	µg/L	14	198	153	1440
	Pb Dissolved	µg/L	105	229	503	717
	Pb Total	µg/L	109	473	563	741
	Zn Dissolved	µg/L	454	22800	44800	175000
	Zn Total	µg/L	468	23000	45400	184000

21 April 2004



ANALYTICAL SERVICES TASMANIA
Sandy Bay Laboratory
c/o Chemistry Department University of Tasmania
Sandy Bay Tasmania 7005
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Email: ast.sandybay@dpiwe.tas.gov.au



NATA Accreditation
Number: 5589

Laboratory Report

Report No: 22182 Issue No: 1 Final Report
Submitted By: G. Johnson
Client: Oceania Tasmania
Site Description:
Received: 21-Apr-04 Client Order No:
Report Date: 03-May-2004 15:36
Report To: Shane Bartel
Address: 3/65 Murray Street Hobart TAS 7001

Test Method(s) :	Test Date
Chemical Testing	
1001-Water: pH in Water by APHA Method 4500-H	26-Apr-2004
1002-Water: Conductivity by APHA Method 2510	26-Apr-2004
1004-Water: Solids, Total Dissolved by APHA Method 2540C	26-Apr-2004
1005-Water: Solids, Total Suspended by APHA Method 2540D	26-Apr-2004
1009-Water: Turbidity by APHA Method 2130B	27-Apr-2004
1101-Water: Alkalinity by APHA Method 2320/4500-CO2	27-Apr-2004
1102-Water: Acidity by APHA Method 2310	03-May-2004
1301-Water: Metals in Water by APHA Method 3030/3120	22-Apr-2004



NATA Accreditation
Number: 5589

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement.

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Mike Johnson
Chemical Testing

May 2004 10:10

No. 6193 P. 3/3



Tasmania

ANALYTICAL SERVICES TASMANIA
Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania
Sandy Bay Tasmania 7005



NATA Accreditation
Number: 5589

Report No: 22182

Report Date: 03-May-2004 13:36

		Lab.No.:	57564	57565	57566	57567
		Sample Id.:	W1	W2	W3	W4
1001-Water	pH		4.4	2.6	3.4	2.5
1002-Water	Conductivity	µS/cm	126	2480	835	5280
1004-Water	TDS	mg/L	87	2570	581	5680
1005-Water	TSS	mg/L	<1	<1	93	7
1006-Water	Turbidity	NTU	2.7	1.2	230	3.2
1101-Water	Alkalinity Total	mg CaCO3/L	<1	<1	<1	<1
1102-Water	Acidity	mg CaCO3/L	13	1440	146	5260
1301-Water	Al Dissolved	µg/L	387	63500	214	248000
	Al Total	µg/L	425	64300	2920	251000
	As Dissolved	µg/L	<5	776	47	2390
	As Total	µg/L	<5	785	165	2400
	Cd Dissolved	µg/L	3	495	28	1930
	Cd Total	µg/L	3	501	29	1940
	Co Dissolved	µg/L	3	288	50	1120
	Co Total	µg/L	4	291	52	1120
	Cr Dissolved	µg/L	<1	68	<1	780
	Cr Total	µg/L	<1	69	<1	784
	Cu Dissolved	µg/L	5	1090	1	2800
	Cu Total	µg/L	5	1110	4	2830
	Fe Dissolved	µg/L	439	267000	32000	1240000
	Fe Total	µg/L	1070	269000	43500	1280000
	Mn Dissolved	µg/L	196	7940	8340	18900
	Mn Total	µg/L	197	8030	8480	20100
	Ni Dissolved	µg/L	8	603	102	3010
	Ni Total	µg/L	9	613	104	3020
	Pb Dissolved	µg/L	131	79	8	245
	Pb Total	µg/L	144	89	165	252
	Zn Dissolved	µg/L	1050	57000	26300	396000
	Zn Total	µg/L	1060	57600	26700	402000

9 December 2003

19-Jan-2004 9:53

No 5589 P. 2



ANALYTICAL SERVICES TASMANIA

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NATA Accreditation
Number: 5589

Laboratory Report

Report No: 21263 *Please quote this number when making enquiries about this report*

Submitted By: Shane Bartel

Client: Oceania Tasmania

Site Description:

Received: 10-Dec-03

Client Order No:

Report Date: 19-Jan-2004 9:53

Report To: Shane Bartel

Address: 3/65 Murray Street Hobart TAS 7001

Test Method(s) :

Test Date

Chemical Testing

1001-Water:	pH in Water by APHA Method 4500-H	16-Dec-2003
1002-Water:	Conductivity by APHA Method 2510	16-Dec-2003
1004-Water:	Solids, Total Dissolved by APHA Method 2540C	15-Dec-2003
1005-Water:	Solids, Total Suspended by APHA Method 2540D	17-Dec-2003
1009-Water:	Turbidity by APHA Method 2130B	16-Dec-2003
1101-Water:	Alkalinity by APHA Method 2320/4500-CO2	15-Dec-2003
1102-Water:	Acidity by APHA Method 2310	18-Dec-2003
1301-Water:	Metals in Water by APHA Method 3030/5120	17-Dec-2003



NATA Accreditation
Number: 5589

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Mike Johnson
Chemical Testing

19 Jan. 2004 9:57

No. 8886 P. 3



Tasmania

ANALYTICAL SERVICES TASMANIA
Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania
 Sandy Bay Tasmania 7005



NATA Accreditation
 Number: 5589

Report No: 21263

Report Date: 19-Jan-2004 9:53

Method	Analyte	Units / Sampled On :	Lab.No.:	52699	52700
			Sample Id.:	W1	W5
			09/12/03 13:38	09/12/03 13:45	
1001-Water	pH			4.6	3.2
1002-Water	Conductivity	µS/cm		118	984
1004-Water	TDS	mg/L		100	796
1005-Water	TSS	mg/L		15	104
1009-Water	Turbidity	NTU		3.1	250
1101-Water	Alkalinity Total	mg CaCO ₃ /L		<1	<1
1102-Water	Acidity	mg CaCO ₃ /L		12	144
1301-Water	Al Dissolved	µg/L		215	1960
	Al Total	µg/L		370	2530
	As Dissolved	µg/L		<5	<5
	As Total	µg/L		<5	190
	Cd Dissolved	µg/L		1	25
	Cd Total	µg/L		1	31
	Co Dissolved	µg/L		4	56
	Co Total	µg/L		4	59
	Cr Dissolved	µg/L		<1	<1
	Cr Total	µg/L		1	<1
	Cu Dissolved	µg/L		5	4
	Cu Total	µg/L		8	4
	Fe Dissolved	µg/L		467	1970
	Fe Total	µg/L		2790	44900
	Mn Dissolved	µg/L		211	10200
	Mn Total	µg/L		215	10600
	Ni Dissolved	µg/L		10	113
	Ni Total	µg/L		12	118
	Pb Dissolved	µg/L		42	69
	Pb Total	µg/L		80	109
	Zn Dissolved	µg/L		334	29000
	Zn Total	µg/L		339	30800

24 October 2003

3-Nov-2003 11:20

No 2012 P 2/3



ANALYTICAL SERVICES TASMANIA

Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania

Sandy Bay Tasmania 7005

Telephone: (03) 6226 7175 Fax: (03) 6226 7825

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Laboratory Report

Report No: 20914 *Please quote this number when making enquiries about this report*
Submitted By: Simon Youd
Client: Oceania Tasmania
Site Description:
Received: 24-Oct-03 **Client Order No:**
Report Date: 31-Oct-2003 16:42
Report To: Shane Bartel
Address: 3/65 Murray Street Hobart TAS 7001

Test Method(s) :

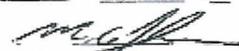
		Test Date
Chemical Testing		
1001-Water:	pH in Water by APHA Method 4500-11	30-Oct-2003
1002-Water:	Conductivity by APHA Method 2510	28-Oct-2003
1004-Water:	Solids, Total Dissolved by APHA Method 2540C	27-Oct-2003
1005-Water:	Solids, Total Suspended by APHA Method 2540D	27-Oct-2003
1009-Water:	Turbidity by APHA Method 2130B	31-Oct-2003
1101-Water:	Alkalinity by APHA Method 2320/4500-CO2	28-Oct-2003
1102-Water:	Acidity by APHA Method 2310	28-Oct-2003
1301-Water:	Metals in Water by APHA Method 3030/3120	29-Oct-2003



NATA Accreditation
Number: 5589

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Mike Johnson
Chemical Testing

Oceania Tasmania Pty Ltd –Environmental Monitoring Report

8-Nov-2003 11:20

No 2012 P. 3/0



ANALYTICAL SERVICES TASMANIA
 Sandy Bay Laboratory
 c/- Chemistry Department University of Tasmania
 Sandy Bay Tasmania 7005



Report No: 20914

Report Date: 31-Oct-2003 16:42

Method	Analyte	Units / Sampled On :	Lab.No.: 50916 50917		50918 50919	
			Sample Id.: w1	w2	w3	w4
			16-10-03 20:00	16-10-03 20:00	16-10-03 20:00	16-10-03 20:00
1001-Water	pH		4.6	2.6	3.1	2.6
1002-Water	Conductivity	µS/cm	113	1930	1000	3910
1004-Water	TDS	mg/L	65	1250	572	4640
1005-Water	TSS	mg/L	<1	4	123	1
1009-Water	Turbidity	NTU	2.8	11	330	4.4
1101-Water	Alkalinity Total	mg CaCO3/L	<1	<1	<1	<1
1102-Water	Acidity	mg CaCO3/L	9	837	161	2520
1301-Water	Al Dissolved	µg/L	251	34700	3100	91100
	Al Total	µg/L	293	35200	3490	91000
	As Dissolved	µg/L	<5	143	7	27
	As Total	µg/L	<5	152	127	32
	Cd Dissolved	µg/L	2	391	35	596
	Cd Total	µg/L	3	402	38	596
	Co Dissolved	µg/L	3	200	55	862
	Co Total	µg/L	3	206	59	864
	Cr Dissolved	µg/L	<1	36	<1	142
	Cr Total	µg/L	<1	37	<1	143
	Cu Dissolved	µg/L	5	771	6	240
	Cu Total	µg/L	6	779	6	240
	Fe Dissolved	µg/L	277	161000	2350	540000
	Fe Total	µg/L	654	167000	28200	542000
	Mn Dissolved	µg/L	133	6340	9130	14900
	Mn Total	µg/L	142	6500	9650	14900
	Ni Dissolved	µg/L	10	430	113	2050
	Ni Total	µg/L	12	438	117	2050
	Pb Dissolved	µg/L	109	79	250	468
	Pb Total	µg/L	125	88	268	470
	Zn Dissolved	µg/L	620	50900	30100	249000
	Zn Total	µg/L	651	51800	31200	249000

17 July 2003

5, Aug. 2003 16:44

No. 0009 P. 2/3



ANALYTICAL SERVICES TASMANIA

Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania

Sandy Bay Tasmania 7005

Telephone: (03) 6226 7175 Fax: (03) 6226 7825

Email: ast.sandybay@dpwrc.tas.gov.au

Laboratory Report

Report No: 20195 *Please quote this number when making enquiries about this report*
Submitted By: P. Heath
Client: Oceania Tasmania
Site Description: Constock Mine
Received: 22-Jul-03 **Client Order No:**
Report Date: 05-Aug-2003 14:19
Report To: P. Heath
Address: 3/65 Murray Street Hobart TAS 7001

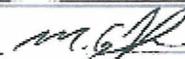
Test Method(s) :		Test Date
Chemical Testing		
1001-Water:	pH in Water by APHA Method 4500-H	29-Jul-2003
1002-Water:	Conductivity by APHA Method 2510	29-Jul-2003
1004-Water:	Solids, Total Dissolved by APHA Method 2540C	23-Jul-2003
1009-Water:	Turbidity by APHA Method 2130B	04-Aug-2003
1011-Water:	Solids, Total Suspended 0.45µm Filtration	23-Jul-2003
1101-Water:	Alkalinity by APHA Method 2320/4500-CO2	26-Jul-2003
1102-Water:	Acidity by APHA Method 2510	31-Jul-2003
1301-Water:	Metals in Water by APHA Method 3030/3120	26-Jul-2003



NATA Accreditation
Number: 5589

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement.

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Mike Johnson
Chemical Testing

Oceania Tasmania Pty Ltd –Environmental Monitoring Report

5-Aug-2003 16:45

No.0009 P 3/3



Tasmania

ANALYTICAL SERVICES TASMANIA
Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania
Sandy Bay Tasmania 7005



NATA Accreditation
Number: 5589

Report No: 20195

Report Date: 05-Aug-2003 14:19

Method	Analyte	Units / Sampled On :	Lab.No.: 47378	47379	47380	47381
			Sample Id.: W1	W2	W3	W4
1001-Water	pH		17-07-03 4.4	17-07-03 2.6	17-07-03 3.1	17-07-03 2.6
1002-Water	Conductivity	µS/cm	95	2250	988	3740
1004-Water	TDS	mg/L	93	2210	667	5920
1009-Water	Turbidity	NTU	3.7	54	250	4.5
1011-Water	TSS	mg/L	<1	13	82	10
1101-Water	Alkalinity Total	mg CaCO3/L	<1	<1	<1	<1
1102-Water	Acidity	mg CaCO3/L	13	979	203	2800
1301-Water	Al Dissolved	µg/L	370	37200	6960	148000
	Al Total	µg/L	412	38300	7250	151000
	As Dissolved	µg/L	<5	70	<5	162
	As Total	µg/L	<5	382	140	169
	Cd Dissolved	µg/L	2	558	76	1640
	Cd Total	µg/L	2	567	76	1870
	Co Dissolved	µg/L	3	163	54	804
	Co Total	µg/L	3	167	54	817
	Cr Dissolved	µg/L	<1	38	1	220
	Cr Total	µg/L	<1	41	2	224
	Cu Dissolved	µg/L	7	877	36	970
	Cu Total	µg/L	7	902	36	985
	Fe Dissolved	µg/L	522	191000	2950	711000
	Fe Total	µg/L	639	232000	47600	729000
	Mn Dissolved	µg/L	89	9970	8020	11000
	Mn Total	µg/L	89	10200	8010	11200
	Ni Dissolved	µg/L	9	346	111	1940
	Ni Total	µg/L	8	354	111	1980
	Pb Dissolved	µg/L	114	337	562	1060
	Pb Total	µg/L	119	744	617	1080
	Zn Dissolved	µg/L	555	91100	33400	297000
	Zn Total	µg/L	559	93800	33600	302000

21 February 2003

07:03 03 FRI 06:51 FAX 03 6226 7825 AST

002/003



ANALYTICAL SERVICES TASMANIA

Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania

Sandy Bay Tasmania 7005

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Email: ast.sandybay@dpiwe.tas.gov.au

Laboratory Report

Report No: 19107 *Please quote this number when making enquiries about this report*
Submitted By: Shane Bartel
Client: Oceania Tasmania
Site Description: Comstock Mine
Received: 21-Feb-03 **Client Order No:**
Report Date: 06-Mar-2003 15:28
Report To: Shane Bartel
Address: 365 Murray Street Hobart TAS 7001

Test Method(s) :

		Test Date
1001-Water:	pH in Water by APHA Method 4500-H	03-Mar-2003
1002-Water:	Conductivity by APHA Method 2510	03-Mar-2003
1004-Water:	Solids, Total Dissolved by APHA Method 2540C	03-Mar-2003
1005-Water:	Solids, Total Suspended by APHA Method 2540D	03-Mar-2003
1101-Water:	Alkalinity by APHA Method 2320/4500-CO3	06-Mar-2003
1102-Water:	Acidity by APHA Method 2310	24-Feb-2003
1301-Water:	Metals in Water by APHA Method 3030/3120	25-Feb-2003



NATA Accreditation
Number 5589

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Mike Johnson
Manager

Page 1 of 2

07/03 03 FRI 08:51 FAX 03 6226 7925 AST

003/003



ANALYTICAL SERVICES TASMANIA
 Sandy Bay Laboratory
 c/- Chemistry Department University of Tasmania
 Sandy Bay Tasmania 7005



NATA Accreditation
 Number: 5545

Report No: 19107

Report Date: 06-Mar-2003 15:28

Method	Analyte	Units / Sampled On :	Lab.No.: 41890		41891		41892		41893	
			W1	W2	W3	W4				
1001-Water	pH		4.6	2.3	3.2	2.4				
1002-Water	Conductivity	µS/cm	123	7470	973	6430				
1004-Water	TDS	mg/L	453	11600	669	31700				
1005-Water	TSS	mg/L	22	245	115	105				
1101-Water	Alkalinity Total	mg CaCO3/L	<1	<1	<1	<1				
1102-Water	Acidity	mg CaCO3/L	13	6360	165	7280				
1201-Water	Al Dissolved	µg/L	433	661000	2510	407000				
	Al Total	µg/L	627	721000	3220	417000				
	As Dissolved	µg/L	<5	2960	7	3960				
	As Total	µg/L	<5	5270	167	4300				
	Cd Dissolved	µg/L	<1	3830	26	3350				
	Cd Total	µg/L	<1	4040	28	3400				
	Co Dissolved	µg/L	4	2310	62	1460				
	Co Total	µg/L	4	2300	64	1520				
	Cr Dissolved	µg/L	1	447	<1	563				
	Cr Total	µg/L	1	498	1	574				
	Cu Dissolved	µg/L	7	6860	3	3770				
	Cu Total	µg/L	9	10400	3	3800				
	Fe Dissolved	µg/L	961	1660000	1760	1630000				
	Fe Total	µg/L	3050	1860000	50800	1700000				
	Mn Dissolved	µg/L	273	34100	10500	35200				
	Mn Total	µg/L	279	37900	10700	35900				
	Ni Dissolved	µg/L	11	4920	122	3750				
	Ni Total	µg/L	12	4910	126	3800				
	Pb Dissolved	µg/L	76	121	50	3000				
	Pb Total	µg/L	116	5800	87	3200				
	Zn Dissolved	µg/L	342	278000	30000	636000				
	Zn Total	µg/L	348	304000	30600	648000				

16 December 2002



ANALYTICAL SERVICES TASMANIA

Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania

Sandy Bay Tasmania 7005

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Email: ast.sandybay@dpiwe.tas.gov.au

Laboratory Report

Report No: 18595 *Please quote this number when making enquiries about this report*
Submitted By: P. Heath
Client: Oceania Tasmania
Site Description: Constock Mine
Received: 17-Dec-02 Client Order No:
Report Date: 15-Jan-2003 16:25
Report To: Shane Bartel
Address: 165 Murray Street, Hobart TAS 7001

Test Method(s) :

1001-Water: pH in Water by APHA Method 4500-H
1002-Water: Conductivity by APHA Method 2510
1004-Water: Solids, Total Dissolved by APHA Method 2540C
1005-Water: Solids, Total Suspended by APHA Method 2540D
1009-Water: Turbidity by APHA Method 2130B
1101-Water: Alkalinity by APHA Method 2520/4500-CO2
1102-Water: Acidity by APHA Method 2310
1301-Water: Metals in Water by APHA Method 3030/3120



NATA Accreditation
Number 5589

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Greg Hince
Senior Chemist

Page 1 of 2



ANALYTICAL SERVICES TASMANIA
 Sandy Bay Laboratory
 c/- Chemistry Department University of Tasmania
 Sandy Bay Tasmania 7005



Report No: 18695

Report Date: 15-Jan-2003 16:25

Method	Analyte	Units / Sampled On:	Lab. No:	39604	39605	39606	39607
			Sample Id:	W1	W3	W3	W4
			16/12/02 16:30	16/12/02 09:15	16/12/02 09:30	16/12/02 09:45	
1001-Water	pH			4.6	2.4	3.2	2.5
1002-Water	Conductivity	µS/cm		115	3330	856	4660
1004-Water	TDS	mg/L		73	3680	555	6340
1005-Water	TSS	mg/L		<1	<1	91	3
1009-Water	Turbidity	NTU		2.3	0.8	220	4.4
1101-Water	Alkalinity Total	mg CaCO ₃ /L		<1	<1	<1	<1
1102-Water	Acidity	mg CaCO ₃ /L		9	2290	136	3630
1301-Water	Al Dissolved	µg/L		349	96500	3470	177000
	Al Total	µg/L		366	100000	3660	183000
	As Dissolved	µg/L		<5	406	<5	210
	As Total	µg/L		<5	483	156	216
	Cd Dissolved	µg/L		2	1210	34	1420
	Cd Total	µg/L		2	1240	38	1500
	Co Dissolved	µg/L		4	514	54	856
	Co Total	µg/L		4	529	54	910
	Cr Dissolved	µg/L		<1	93	<1	239
	Cr Total	µg/L		<1	96	1	249
	Cu Dissolved	µg/L		7	2190	5	871
	Cu Total	µg/L		8	2270	5	937
	Fe Dissolved	µg/L		413	400000	637	790000
	Fe Total	µg/L		665	424000	39600	791000
	Mn Dissolved	µg/L		171	16100	9190	16600
	Mn Total	µg/L		168	16800	9120	16800
	Ni Dissolved	µg/L		11	1050	110	2050
	Ni Total	µg/L		11	1090	107	2150
	Pb Dissolved	µg/L		142	181	143	664
	Pb Total	µg/L		146	187	179	706
	Zn Dissolved	µg/L		568	136000	27300	318000
	Zn Total	µg/L		556	142000	27200	311000

24 September 2002

10/10 02 THU 08:51 FAX 03 6226 7825 AST

002/003



ANALYTICAL SERVICES TASMANIA

Sandy Bay Laboratory

c/- Chemistry Department University of Tasmania

Sandy Bay Tasmania 7005

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Email: ast.sandybay@dpfwe.tas.gov.au

Laboratory Report

Report No: 18174 *Please quote this number when making enquiries about this report*

Submitted By: Shane Bartel

Client: Oceania Tasmania

Site Description:

Received: 26-Sep-02

Client Order No:

Report Date: 09-Oct-2002 10:49

Report To: Shane Bartel

Address: 3/65 Murray Street Hobart TAS 7001

Test Method(s) :

1001-Water:	pH in Water by APHA Method 4500-H
1002-Water:	Conductivity by APHA Method 2510
1005-Water:	Solids, Total Suspended by APHA Method 2540D
1101-Water:	Alkalinity by APHA Method 2320/4500-CO2
1102-Water:	Acidity by APHA Method 2310
1103-Water:	Anions by Ion Chromatography APHA Method 4110C
1301-Water:	Metals in Water by APHA Method 3030/3120
1302-Water:	Major Cations in Water by APHA Method 3030/3120



NATA Accreditation
Number 5589

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement.

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Mike Johnson
Manager

Page 1 of 2

Oceania Tasmania Pty Ltd –Environmental Monitoring Report

10/10/02 THU 06:51 FAX 03 6226 7825 AST

003/003



ANALYTICAL SERVICES TASMANIA
Sandy Bay Laboratory
 c/- Chemistry Department University of Tasmania
 Sandy Bay Tasmania 7005



Report No: 18174

Report Date: 09-Oct-2002 10:49

Method	Analyte	Units / Sampled On :	Lab.No.:	36755	36756	36757	36758
			Sample Id.:	W1	W2	W3	W4
1001-Water	pH		23-02-02	4.6	2.8	3.5	2.8
1002-Water	Conductivity	µS/cm	23-02-03	113	1590	895	2630
1005-Water	TSS	mg/L	23-02-02	<1	87	120	241
1101-Water	Alkalinity HCO3	mg CaCO3/L	23-02-02	<1			
1102-Water	Acidity	mg CaCO3/L	23-02-03	10	570	175	1530
1103-Water	Chloride	mg/L	23-02-02	20			
	Sulphate	mg/L	23-02-03	12			
1301-Water	Al Dissolved	µg/L	23-02-02	297	25800	4630	69600
	Al Total	µg/L	23-02-03	339	29000	5570	71400
	As Dissolved	µg/L	23-02-02	<5	9	44	36
	As Total	µg/L	23-02-03	<5	77	231	105
	Cd Dissolved	µg/L	23-02-02	3	355	50	588
	Cd Total	µg/L	23-02-03	3	398	53	601
	Co Dissolved	µg/L	23-02-02	3	158	58	473
	Co Total	µg/L	23-02-03	3	174	60	476
	Cr Dissolved	µg/L	23-02-02	<1	24	<1	86
	Cr Total	µg/L	23-02-03	<1	28	1	90
	Cu Dissolved	µg/L	23-02-02	7	592	10	287
	Cu Total	µg/L	23-02-03	7	655	10	295
	Fe Dissolved	µg/L	23-02-02	317	80200	5100	290000
	Fe Total	µg/L	23-02-03	501	107000	54400	315000
	Mn Dissolved	µg/L	23-02-02	126	3650	9120	7980
	Mn Total	µg/L	23-02-03	138	4090	9300	8130
	Ni Dissolved	µg/L	23-02-02	15	349	127	1120
	Ni Total	µg/L	23-02-03	14	379	129	1150
	Pb Dissolved	µg/L	23-02-02	127	131	243	961
	Pb Total	µg/L	23-02-03	140	666	300	1100
	Zn Dissolved	µg/L	23-02-02	628	32200	33200	147000
	Zn Total	µg/L	23-02-03	874	35200	34000	149000
1302-Water	Ca Total	mg/L	23-02-02	1.40			
	Mg Total	mg/L	23-02-03	2.89			
	Na Total	mg/L	23-02-02	9.53			

10 May 2002

ALLISON LABORATORIES



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Attention: Shane Bartel

page 1 of 2

MAY 2002

Gite 7835
Greg.

RESULTS OF ANALYSIS

Samples labelled as shown below were delivered to these laboratories. The results of analyses conducted on these are tabulated herewith:

Laboratory Reference	160890	160891	160892	160893
Sample Identification	W 1	W 2	W 3	W 4
pH	4.3	2.6	3.1	2.5
Conductivity µS/cm	100	3,480	1,020	4,710
Total Suspended Solids mg/L	3	46	110	26
Total Dissolved Solids mg/L	84	6,100	740	9,000
Acidity to pH 8.3 mg/L as CaCO₃	11	2,700	200	4,000
Total Aluminium mg/L	0.51	170	8.6	250
Total Arsenic mg/L	0.0009	3.9	0.25	3.8
Total Cadmium mg/L	< 0.01	2.4	0.13	4.6
Total Cobalt mg/L	< 0.01	1.0	0.09	1.5
Total Chromium mg/L	< 0.02	0.15	< 0.02	0.38
Total Copper mg/L	< 0.01	3.3	1.4	2.0
Total Iron mg/L	1.3	880	70	1,000
Total Manganese mg/L	0.11	39	8.0	16
Total Nickel mg/L	≤ 0.02	2.3	0.18	3.2
Total Lead mg/L	0.19	0.68	0.23	1.2
Total Zinc mg/L	0.75	250	28	430



K. J. Allison B.Sc.
Chemist

Samples received 10.05.02
Analysis completed 21.05.02

Methodology: This sample was analyzed essentially in accord with the relevant methods as set out in "Standard Methods for the Examination of Water & Wastewater" 17th Ed. (1989), APHA

20/02 04 000 11:04 FAX 03 62 347574

ALLISON LABORATORIES

002



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page 2 of 2

RESULTS OF ANALYSIS

Samples labelled as shown below were delivered to these laboratories. The results of analyses conducted on these are tabulated herewith:

Laboratory Reference		160890	160891	160892	160893
Sample Identification		W 1	W 2	W 3	W 4
Dissolved Aluminium	mg/L	0.46	140	8.6	230
Dissolved Arsenic	mg/L	0.0005	3.9	0.038	3.2
Dissolved Cadmium	mg/L	< 0.01	2.2	0.13	4.4
Dissolved Cobalt	mg/L	< 0.01	1.0	0.08	1.5
Dissolved Chromium	mg/L	< 0.02	0.14	< 0.02	0.29
Dissolved Copper	mg/L	< 0.01	3.1	1.4	1.9
Dissolved Iron	mg/L	1.1	720	14	1,000
Dissolved Manganese	mg/L	0.11	32	8.0	16
Dissolved Nickel	mg/L	< 0.02	2.2	0.17	3.1
Dissolved Lead	mg/L	0.15	0.36	0.18	1.0
Dissolved Zinc	mg/L	0.75	210	28	430

K J Allison B.Sc.
Chemist

Samples received 10.05.02
Analysis completed 21.05.02

Methodology: This sample was analysed essentially in accord with the relevant methods set out in "Standard Methods for the Examination of Water & Wastewater" 17th Ed. (1989). APHA

6 March 2002



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15 MAR 2002

page 1 of 2

RESULTS OF ANALYSIS

Samples labelled as shown below were delivered to these laboratories on 7th of March 2002.
The results of analyses conducted on these are tabulated herewith:

Laboratory Reference		159713	159714	159715	159716
Sample Identification		W 1	W 2	W 3	W 4
pH		4.7	2.5	4.6	2.9
Conductivity	µS/cm	190	4,600	700	2,000
Total Suspended Solids	mg/L	< 1	10	40	50
Total Dissolved Solids	mg/L	120	9,000	600	2,200
Acidity to pH 8.3	mg/L as CaCO ₃	18	4,100	140	1,000
Total Aluminium	mg/L	0.29	240	2.9	39
Total Arsenic	mg/L	0.0095	2.46	0.15	0.17
Total Cadmium	mg/L	0.03	4.5	0.06	0.68
Total Cobalt	mg/L	< 0.01	1.4	0.06	0.41
Total Chromium	mg/L	< 0.02	0.21	< 0.02	0.12
Total Copper	mg/L	0.01	5.8	0.01	0.30
Total Iron	mg/L	1.2	950	56	250
Total Manganese	mg/L	1.0	38	9.2	6.9
Total Nickel	mg/L	0.01	3.1	0.11	1.0
Total Lead	mg/L	2.3	0.45	0.40	0.85
Total Zinc	mg/L	7.2	450	29	110

K J Allison B.Sc.
Chemist

Samples received 07.03.02
Analysis completed 15.03.02

Methodology: This sample was analysed essentially in accord with the relevant methods as set out in "Standard Methods for the Examination of Water & Wastewater" 17th Ed. (1989), APHA.



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page 2 of 2

RESULTS OF ANALYSIS

Samples labelled as shown below were delivered to these laboratories on 7th of March 2002.
The results of analyses conducted on these are tabulated herewith:

Laboratory Reference		159713	159714	159715	159716
Sample Identification		W 1	W 2	W 3	W 4
Dissolved Aluminium	mg/L	0.25	240	0.51	38
Dissolved Arsenic	mg/L	0.0060	2.44	0.060	0.011
Dissolved Cadmium	mg/L	0.03	4.3	0.06	0.64
Dissolved Cobalt	mg/L	< 0.01	1.4	0.06	0.40
Dissolved Chromium	mg/L	< 0.02	0.20	< 0.02	0.10
Dissolved Copper	mg/L	0.01	5.6	0.01	0.30
Dissolved Iron	mg/L	1.2	950	43	200
Dissolved Manganese	mg/L	0.93	36	8.5	6.6
Dissolved Nickel	mg/L	0.01	3.0	0.11	0.93
Dissolved Lead	mg/L	1.9	0.45	0.40	0.81
Dissolved Zinc	mg/L	6.4	440	28	110


K J Allison B.Sc.
Chemist

Samples received 07.03.02
Analysis completed 15.03.02

Methodology: This sample was analyzed essentially in accord with the relevant methods set out in "Standard Methods for the Examination of Water & Wastewater" 17th Ed. (1989), APHA

7 December 2001

01 MON 09:46 FAX 03 62 347574
ALLISON LABORATORIES
2002

ALLISON LABORATORIES

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page 1 of 2

RESULTS OF ANALYSIS

Samples labelled as shown below were delivered to these laboratories on 7th of December 2001. The results of analyses conducted on these are tabulated herewith:

Laboratory Reference	157774	157775	157776	157777
Sample Identification	W 1 7.12.01	W 2 7.12.01	W 3 7.12.01	W 4 7.12.01
pH	4.3	2.4	3.3	2.8
Conductivity μS/cm	130	5080	960	2050
Total Suspended Solids mg/L	< 1	32	90	110
Total Dissolved Solids mg/L	45	5940	540	1300
Acidity to pH 8.3 mg/L as CaCO ₃	8	3500	120	590
Total Aluminium mg/L	0.43	200	2.9	21
Total Arsenic mg/L	0.0022	1.47	0.21	0.081
Total Cadmium mg/L	< 0.01	4.2	0.05	0.28
Total Cobalt mg/L	< 0.01	1.5	0.05	0.35
Total Chromium mg/L	< 0.02	0.20	< 0.02	0.02
Total Copper mg/L	< 0.01	5.0	< 0.01	0.077
Total Iron mg/L	0.63	790	54	160
Total Manganese mg/L	0.19	13	9.3	8.2
Total Nickel mg/L	0.02	3.3	0.11	0.93
Total Lead mg/L	0.22	0.74	0.25	0.30
Total Zinc mg/L	0.92	220	27	83

K J Allison B.Sc.
Chemist

Samples received 07.12.01
Analysis complete 14.12.01

Methodology: This sample was analysed essentially in accord with the relevant methods as set out in "Standard Methods for the Examination of Water & Wastewater" 17th Ed. (1989), APHA.

58

01 MON 09:47 FAX 03 62 347574 ALLISON LABORATORIES 003



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Attention: Shane Bartel

page 2 of 2 pages

RESULTS OF ANALYSIS

Samples labelled as shown below were delivered to these laboratories on 7th of December 2001. The results of analyses conducted on these are tabulated herewith:

Laboratory Reference	157774	157775	157776	157777
Sample Identification	W 1 7.12.01	W 2 7.12.01	W 3 7.12.01	W 4 7.12.01
Dissolved Aluminium mg/L	0.34	180	1.8	19
Dissolved Arsenic mg/L	0.0004	1.41	0.043	0.014
Dissolved Cadmium mg/L	< 0.01	4.0	0.05	0.26
Dissolved Cobalt mg/L	< 0.01	1.4	0.05	0.34
Dissolved Chromium mg/L	< 0.02	0.20	< 0.02	< 0.02
Dissolved Copper mg/L	< 0.01	4.7	< 0.01	0.075
Dissolved Iron mg/L	0.31	770	9.3	100
Dissolved Manganese mg/L	0.19	12	9.1	7.5
Dissolved Nickel mg/L	0.02	3.0	0.11	0.87
Dissolved Lead mg/L	0.17	0.52	0.12	0.27
Dissolved Zinc mg/L	0.91	210	26	75



K J Allison B.Sc.
Chemist

Samples received 07.12.01
Analysis complete 14.12.01

Methodology: This sample was analysed essentially in accord with the relevant methods as set out in "Standard Methods for the Examination of Water & Wastewater" 17th Ed. (1989), APHA.

9 October 2001

17/12 '01 MON 08:46 FAX 03 62 347574

ALLISON LABORATORIES

001



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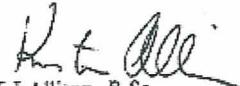
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RESULTS OF ANALYSIS
AMMENDED DOCUMENT

Samples labelled as shown below were delivered to these laboratories on 10th of October 2001. The results of analyses conducted on these are tabulated herewith:

Laboratory Reference	156685	156686	156687	156688
Sample Identification	W 1 9.10.01	W 2 9.10.01	W 3 9.10.01	W 4 9.10.01
pH	4.3	2.5	5.4*	3.0
Conductivity $\mu\text{S}/\text{cm}$	120	2680	740	1510
Total Suspended Solids mg/L	< 1	4	50	75
Total Dissolved Solids mg/L	80	3800	640	1370
Acidity to pH 8.3 mg/L as CaCO ₃	9	1800	110	560
Total Aluminium mg/L	0.42	110	2.9	21
Total Arsenic mg/L	0.0002	1.4	0.26	0.029
Total Cadmium mg/L	< 0.01	2.1	0.033	0.26
Total Cobalt mg/L	< 0.01	0.93	0.063	0.37
Total Chromium mg/L	< 0.02	0.13	< 0.02	0.035
Total Copper mg/L	0.01	3.0	< 0.01	0.077
Total Iron mg/L	0.67	500	57	140
Total Manganese mg/L	0.21	5.1	8.8	8.1
Total Nickel mg/L	0.02	2.1	0.13	0.80
Total Lead mg/L	0.24	0.67	0.16	0.39
Total Zinc mg/L	1.2	120	28	85

* pH after sitting =3.0


K J Allison B.Sc.
Chemist

Samples received 10.10.01
Analysis complete 17.10.01
Ammended results (Zn) 13.12.01

Methodology: This sample was analysed essentially in accord with the relevant methods as set out in "Standard Methods for the Examination of Water & Wastewater" 17th Ed. (1987), APHA

18 May 2001

01/06 01 FRI 16:11 FAX 613 62267825 ANALYTICAL SERVICES TASM

002/004



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NATA Accreditation
Number: 5589

Laboratory Report

Report No: 14986 *Please quote this number when making enquiries about this report*
Submitted By: Shane Bartel
Client: Oceania Tasmania
Site Description:
Received: 18-May-01 **Client Order No:**
Report Date: 01-Jun-2001 16:03
Report To: Shane Bartel
Address: 3/65 Murray Street Hobart TAS 7001

Test Method(s) :

1001-Water: pH in Water by APHA Method 4500-H
1002-Water: Conductivity by APHA Method 2510
1011-Water: Solids, Total Suspended 0.45µm Filtration
1101-Water: Alkalinity by APHA Method 2320/4500-CO2
1102-Water: Acidity by APHA Method 2310
1301-Water: Metals in Water by APHA Method 3030/3120



NATA Accreditation
Number: 5589

The tests, calibrations or measurements covered by this document have been performed in accordance with NATA requirements which include the requirements of ISO/IEC 17025 and are traceable to national standards of measurement.

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Samples analysed as received.


Mike Johnson
Manager

Page 1 of 3

Oceania Tasmania Pty Ltd –Environmental Monitoring Report

01/08 01 FRI 16:12 FAX 613 82267825 ANALYTICAL SERVICES TASM

003/004



ANALYTICAL SERVICES TASMANIA
Sandy Bay Laboratory
 c/- Chemistry Department University of Tasmania
 Sandy Bay Tasmania 7005



NATA Accreditation
 Number: 5589

Report No: 14986

Report Date: 01-Jun-2001 15:50

Method	Analyte	Units / Sampled On :	Lab.No.:	21882	21853	21854	21855	21886
			Sample Id.:	51	52	54	55	56
1001-Water	pH			4.2	5.5	3.5	2.5	3.0
1002-Water	Conductivity	µS/cm		153	141	270	2390	795
1011-Water	TSS	mg/L		4	16	15	19	16
1101-Water	Alkalinity Total	mg/L CaCO ₃		<1	4	<1	<1	<1
1102-Water	Acidity	mg/L CaCO ₃		20	11	63	2760	229
1301-Water	Al (Total)	µg/L		1020	905	4040	154000	13400
	As (Dissolved)	µg/L		<5	15	<5	2010	<5
	As (Total)	µg/L		<5	14	<5	2080	8
	Cd (Unresolved)	µg/L		15	7	76	2670	41
	Cd (Total)	µg/L		15	7	75	2740	54
	Co (Dissolved)	µg/L		7	4	11	1230	31
	Co (Total)	µg/L		8	5	11	1250	42
	Cr (Dissolved)	µg/L		<1	<1	3	148	2
	Cr (Total)	µg/L		<1	<1	3	153	3
	Cu (Dissolved)	µg/L		27	22	123	4650	55
	Cu (Total)	µg/L		26	23	122	4780	70
	Fe (Dissolved)	µg/L		868	2280	3780	605000	18300
	Fe (Total)	µg/L		850	2430	3810	622000	24400
	Mn (Unresolved)	µg/L		336	435	265	7620	443
	Mn (Total)	µg/L		335	435	265	7700	587
	Ni (Dissolved)	µg/L		15	8	20	2630	58
	Ni (Total)	µg/L		15	8	22	2680	71
	Pb (Dissolved)	µg/L		593	182	486	852	1520
	Pb (Total)	µg/L		591	188	486	884	2020
	Zn (Dissolved)	µg/L		3180	1160	8180	161000	8840
	Zn (Total)	µg/L		3150	1170	8130	161000	8930

Appendix B

Water Sampling Data Collection

Oceania Tasmania Pty Ltd – Environmental Monitoring Report

Table 1. Sampling values from site W1

Date	Conductivity	TSS mg/L	Alkalinity (total) CaCO ₃ mg/L	Acidity CaCO ₃ mg/L	pH	Al (dissolved) ug/L	Al (total) ug/L	As (dissolved) ug/L	As (total) ug/L	Cd (dissolved) ug/L	Cd (total) ug/L	Co (dissolved) ug/L	Co (total) ug/L
27-Jun-00					4.6							10	
22-Sep-00					5.5					40		50	
15-Jan-01		2			4.7	234	452			<1	1	3	3
18-May-01	153	4	<1	20	4.2		1020	<5	<5	<5	<5	7	8
9-Oct-01	120	<1	<1	9	4.3		420	<5	<5		<5		5
7-Dec-01	130	<1	<1	8	4.3	340	430	<5	<5	10	10	10	10
6-Mar-02	190	<1	<1	18	4.7	290	250	6	9.5	30	30	10	10
10-May-02	100	3		11	4.3	4600	510	<5	<5	10	10	10	10
24-Sep-02	113	1	1	10	4.6	297	339	<5	<5	3	3	3	3
16-Dec-02	115	1	1	9	4.6	349	366	<5	<5	2	2	4	4
21-Feb-03	123	22	1	13	4.5	433	627	<5	<5	1	1	4	4
17-Jul-03	95	1	1	13	4.4	370	412	<5	<5	2	2	3	3
24-Oct-03	113	1	1	9	4.6	251	293	<5	<5	2	3	3	3
9-Dec-03	118	15	1	12	4.6	215	370	215	370	1	1	4	4
21-Apr-04	128	1	1	13	4.4	387	425	<5	<5	3	3	3	4
6-Jul-04	117	<1	<1	10	4.6	304	342	<5	<5	2	2	3	3
12-Oct-04	102	1	<1	10	5.0	226	227	<5	<5	1	2	3	3
22-Dec-04	108	1	<1	9	5.0	216	273	<5	<5	1	1	3	3
10-May-05	90	<1	<2	15	4.8	2500	3030	<5	159	25	26	54	56
27-Jul-05	97	1	<2	13	4.9	368	437	<5	<5	2	2	3	4
27-Oct-05	83	7	<2	11	4.3	354	480	<5	<5	<1	<1	1	2
22-Dec-05	366	3	<2	11	7.2	285	42700	<5	68	<1	604	2	463
26-Jan-06	135				7.0								
27-Jan-06	135				6.9								
28-Jan-06	132				5.6								
29-Jan-06	131				5.4								
1-Feb-06	114	12	<2	<1	4.9	247	446	<5	<5	<1	<1	4	4
24-Mar-06	138	12	<2	12	4.5	250	437	0.7	52.8	0.8	0.8	4.7	4.7
19-Jul-06	107	<1	<2	6	5.1	203	297	<5	<5	1	1	3	3

Oceania Tasmania Pty Ltd – Environmental Monitoring Report

Table 2. Sampling values from site W1

Date	Cr (dissolved) ug/L	Cr (total) ug/L	Cu (dissolved) ug/L	Cu (total) ug/L	Fe (dissolved) ug/L	Fe (total) ug/L	Mn (dissolved) ug/L	Mn (total) ug/L	Ni (dissolved) ug/L	Ni (total) ug/L	Pb (dissolved) ug/L	Pb (total) ug/L	Zn (dissolved) ug/L	Zn (total) ug/L
27-Jun-00			30		470		40		40		80		230	
22-Sep-00	40		10		46040		7560		50		130		24600	
15-Jan-01	<1	1	4	6	636	2360	285	281	9	11	64	142	345	366
18-May-01	<1	<1	27	26	866	850	336	335	15	15	593	591	3180	3130
9-Oct-01		<1		10		670		210		20		240		1200
7-Dec-01	20	20	10	10	310	630	190	190	20	20	170	220	910	920
6-Mar-02	20	20	10	10	1200	1200	1000	930	10	10	2300	1900	7200	6400
10-May-02	20	20	10	10	1100	1300	110	110	20	20	150	190	750	750
24-Sep-02	1	1	7	7	317	501	128	139	13	14	127	140	628	674
16-Dec-02	1	1	7	8	413	665	171	168	11	11	142	146	668	658
21-Feb-03	1	1	7	9	961	3050	273	279	11	12	78	116	342	348
17-Jul-03	1	1	7	7	522	639	89	89	9	8	114	119	555	559
24-Oct-03	1	1	5	6	277	654	133	142	10	12	109	125	620	651
9-Dec-03	1	1	5	8	467	2790	211	215	10	12	42	80	334	339
21-Apr-04	1	1	5	5	439	1070	196	197	8	9	131	144	1050	1060
6-Jul-04	1	1	5	5	340	417	80	81	6	14	105	109	454	468
12-Oct-04	<1	<1	5	5	340	630	127	129	12	13	68	78	467	477
22-Dec-04	<1	<1	2	4	273	878	187	189	10	10	59	72	506	504
10-May-05	<1	2	6	7	639	39600	8810	8920	105	106	149	209	24900	25300
27-Jul-05	<1	<1	5	6	731	1050	146	150	9	10	88	98	637	654
27-Oct-05	<1	<1	4	7	698	1270	70	74	3	3	77	98	291	295
22-Dec-05	<1	171	4	670	869	176000	133	8990	4	1080	64	243	384	56100
26-Jan-06														
27-Jan-06														
28-Jan-06														
29-Jan-06														
1-Feb-06	<1	2	2	4	655	3090	276	267	11	12	32	79	232	226
24-Mar-06	<1	3	3.2	6.9	283	4740	323	321	9.8	9.9	801	3180	436	442
19-Jul-06	<1	<1	2	4	280	1120	174	171	7	7	48	71	489	475

Oceania Tasmania Pty Ltd – Environmental Monitoring Report

Table 3. Sampling values from site W2

Date	Conductivity	TSS mg/L	Alkalinity (total) CaCO ₃ mg/L	Acidity CaCO ₃ mg/L	pH	Al (dissolved) ug/L	Al (total) ug/L	As (dissolved) ug/L	As (total) ug/L	Cd (dissolved) ug/L	Cd (total) ug/L	Co (dissolved) ug/L	Co (total) ug/L
15-Jan-01													
18-May-01	2380	19	<1	2760	2.5		164000	2010	2080	2670	2740	1230	1250
9-Oct-01	2680	4	<1	1800	2.5		110000		1400		2100		930
7-Dec-01	5080	32	<1	3500	2.4	180000	200000	1410	1470	4000	4200	1400	1500
6-Mar-02	4600	10	<1	4100	2.5	240000	240000	2440	2460	4500	4300	1400	1400
10-May-02	3480	46		2700	2.6	140000	170000	3900	3900	2200	2400	1000	1000
24-Sep-02	1590	87		570	2.8	25800	29000	9	77	365	398	158	174
16-Dec-02	3330	1	1	2260	2.4	955000	1000000	466	483	1210	1240	514	529
21-Feb-03	7470	245	1	8360	2.3	661000	721000	2960	5270	3830	4040	2310	2300
17-Jul-03	2250	13	1	979	2.6	37200	38300	70	362	558	567	163	167
24-Oct-03	1930	4	1	837	2.6	34700	35200	143	152	391	402	200	208
9-Dec-03													
21-Apr-04	2480	1	1	1440	2.6	63500	64300	776	785	495	501	288	291
6-Jul-04	1440	79	<1	533	2.8	21200	22500	8	67	172	176	94	97
12-Oct-04	1050	4	<1	278	2.8	11300	11200	<5	10	63	62	37	37
22-Dec-04													
10-May-05	2430	7	<2	1340	2.6	80600	79200	183	211	500	493	384	377
27-Jul-05	1260	31	<2	371	2.8	17900	18600	<5	23	194	198	97	98
27-Oct-05	1350	40	<2	349	2.7	16400	17000	<5	34	148	144	92	89
22-Dec-05	1910	3	<2	663	2.6	30900	34900	<5	38	257	288	157	178
29-Jan-06	2860				2.6								

Oceania Tasmania Pty Ltd – Environmental Monitoring Report

Table 4. Sampling values from site W2

Date	Cr (dissolved) ug/L	Cr (total) ug/L	Cu (dissolved) ug/L	Cu (total) ug/L	Fe (dissolved) ug/L	Fe (total) ug/L	Mn (dissolved) ug/L	Mn (total) ug/L	Ni (dissolved) ug/L	Ni (total) ug/L	Pb (dissolved) ug/L	Pb (total) ug/L	Zn (dissolved) ug/L	Zn (total) ug/L
15-Jan-01														
18-May-01	149	153	4650	4780	605000	622000	7620	7790	2630	2680	852	684	161000	161000
9-Oct-01		130		3000		500000		5100		2100		670		120000
7-Dec-01	200	200	4700	5000	770000	790000	12000	13000	3000	3300	520	740	210000	220000
6-Mar-02	210	200	5800	5600	950000	950000	38000	36000	3100	3000	450	450	450000	440000
10-May-02	140	150	3100	3300	720000	880000	32000	39000	2200	2300	360	680	210000	250000
24-Sep-02	24	28	592	655	80200	107000	3650	4000	349	379	131	666	32200	35200
16-Dec-02	96	96	2190	2270	408000	424000	16100	16800	1060	1090	181	187	138000	142000
21-Feb-03	447	498	8860	10400	1560000	1860000	34100	37900	4920	4910	121	5800	279000	304000
17-Jul-03	38	41	877	902	191000	232000	9970	10200	346	354	337	744	91100	93800
24-Oct-03	36	37	771	779	161000	167000	6340	6600	430	438	79	88	50900	51800
9-Dec-03														
21-Apr-04	68	69	1090	1110	267000	269000	7940	8030	603	613	79	89	57000	57600
6-Jul-04	22	24	500	515	89200	109000	2920	2990	192	198	229	473	22800	23000
12-Oct-04	13	13	213	212	38300	37900	493	484	81	79	1430	1410	6610	6510
22-Dec-04														
10-May-05	74	73	1310	1290	269000	267000	5320	5230	759	745	81	95	50600	49600
27-Jul-05	16	17	374	382	43600	49300	1650	1670	196	202	70	250	23400	23600
27-Oct-05	15	17	364	367	39800	57600	1240	1240	185	186	678	1150	15300	15100
22-Dec-05	29	33	577	653	86000	117000	3020	3420	382	386	145	176	28300	32600

Oceania Tasmania Pty Ltd – Environmental Monitoring Report

Table 5. Sampling values from site W3

Date	Conductivity	TSS mg/L	Alkalinity (total) CaCO3 mg/L	Acidity CaCO3 mg/L	pH	Al (dissolved) ug/L	Al (total) ug/L	As (dissolved) ug/L	As (total) ug/L	Cd (dissolved) ug/L	Cd (total) ug/L	Co (dissolved) ug/L	Co (total) ug/L
22-Oct-97							2800				42		76
30-Jun-99		59	<1	61		1780	2190			19	19	23	23
8-Mar-00		57	<1	98		441	1960			12	14	37	40
27-Jun-00					5.0	1150				50		40	
22-Sep-00					6.0	10				20		60	
15-Jan-01		107			3.1	7040	8230			254	254	112	114
18-May-01	613	64	<1	105	3.5		2260	106	129	106	129	32	39
9-Oct-01	740	50	<1	740	3.0		2900		260		33		63
7-Dec-01	960	90	<1	120	3.3	1800	2900	43	210	50	50	50	50
6-Mar-02	700	40	<1	140	4.6	2900	510	60	150	60	60	60	60
10-May-02	1020	110		200	3.1	8600	8600	38	250	1360	130	80	90
24-Sep-02	896	120		175	3.5	4630	5570	44	231	50	53	58	60
16-Dec-02	856	91	1	136	3.2	3470	3860	<5	156	34	38	54	54
21-Feb-03	973	115	1	165	3.2	2510	3220	7	167	26	28	62	64
17-Jul-03	988	82	1	203	3.1	6960	7250	<5	140	76	76	54	54
24-Oct-03	1000	123	1	161	3.0	3100	3490	7	127	35	38	55	59
9-Dec-03	964	104	1	144	3.2	1960	2530	<5	190	25	31	56	59
21-Apr-04	835	93	1	146	3.4	214	2920	47	165	28	29	50	52
6-Jul-04	990	136	<1	288	3.9	9600	10300	26	194	101	104	76	79
12-Oct-04	1020	112	<1	190	3.1	3700	4360	<5	192	42	43	59	59
22-Dec-04	951	93	<1	132	3.3	2570	3010	<5	169	28	29	59	60
10-May-05	709	63	<2	132	5.3	2590	3100	<5	164	25	26	56	57
27-Jul-05	837	92	<2	136	3.4	835	2710	26	177	21	22	51	52
27-Oct-05	988	106	<2	150	3.1	2300	2870	35	217	28	27	57	57
22-Dec-05	940	103	<2	131	3.2	2510	2840	<5	174	24	25	56	56
28-Jan-06	856				6.0								
29-Jan-06	883				5.5								
1-Feb-06	933	84	<2	163	3.3	1850	2230	<5	218	18	21	54	57
24-Mar-06	892	90	<2	131	3.4	347	2010	0.6	195	16.5	16	50.9	49.4
19-Jul-06	995	111.0	<2	146	3.2	2560	3640	37	201	23.0	24	59	61

Oceania Tasmania Pty Ltd – Environmental Monitoring Report

Table 6. Sampling values from site W3

Date	Cr (dissolved) ug/L	Cr (total) ug/L	Cu (dissolved) ug/L	Cu (total) ug/L	Fe (dissolved) ug/L	Fe (total) ug/L	Mn (dissolved) ug/L	Mn (total) ug/L	Ni (dissolved) ug/L	Ni (total) ug/L	Pb (dissolved) ug/L	Pb (total) ug/L	Zn (dissolved) ug/L	Zn (total) ug/L
22-Oct-97		8		6		67700		12200		166		373		37700
30-Jun-99	<1	<1	10	12	351	25100	4290	4270	47	42	81	147	14700	14900
8-Mar-00	<1	<1	2	2	11700	43100	8620	8770	73	75	<5	46	22500	23200
27-Jun-00	50		50		19820		2780		30		170		13590	
22-Sep-00	0		60		8980		6720		10		180		2840	
15-Jan-01	1	3	125	128	1010	49000	8680	8660	250	256	91	122	37200	37100
18-May-01	<1	<1	7	7	31100	38300	5030	6080	62	75	231	287	13500	16500
9-Oct-01		<1		5		57000		8800		130		160		280000
7-Dec-01	20	20	10	10	9300	54000	9100	9300	110	110	120	250	26000	27000
6-Mar-02	20	20	10	10	56000	43000	9200	8500	110	110	400	400	29000	28000
10-May-02	20	20	1400	1400	14000	70000	8000	8000	170	180	180	230	28000	28000
24-Sep-02	1	1	10	10	5100	54400	9120	9300	127	129	243	300	33200	34000
16-Dec-02	1	1	5	5	837	39800	9190	9120	110	107	143	179	27300	27200
21-Feb-03	1	1	3	3	1760	50800	10500	10700	122	126	50	87	30000	30600
17-Jul-03	1	2	36	36	2950	47600	8020	8010	111	111	562	617	33400	33600
24-Oct-03	1	1	6	6	2350	28200	9130	9650	113	117	205	288	30100	31200
9-Dec-03	1	1	4	4	1670	44900	10200	10600	113	118	69	109	29000	30800
21-Apr-04	1	1	1	4	32000	43500	8340	8480	102	104	8	165	26300	26700
6-Jul-04	1	1	28	29	10500	71400	10200	10400	149	153	503	563	44800	45400
12-Oct-04	2	3	7	8	2810	61800	9930	9590	119	116	198	235	30600	30300
22-Dec-04	3	3	3	4	1420	44200	10600	10100	118	115	100	131	34700	33900
10-May-05	1	2	5	7	650	41200	9080	9070	108	108	151	213	25800	25800
27-Jul-05	<1	1	3	5	18500	48800	8770	8660	100	98	20	143	23800	24400
27-Oct-05	<1	1	15	16	3200	58600	8750	8630	111	109	122	188	26900	27000
22-Dec-05	<1	<1	2	3	849	49600	9610	9410	105	106	85	120	25700	25800
28-Jan-06														
29-Jan-06														
1-Feb-06	3	2	1	<1	1120	53900	9380	9570	107	109	56	88	27200	27700
24-Mar-06	<1	<1	2.9	3	58200	58800	9310	9850	50.9	49.4	45.7	77.8	24800	24300
19-Jul-06	1	1	3	3	3540	67200	9850	9910	103	111	73	121	28000	28000

Oceania Tasmania Pty Ltd – Environmental Monitoring Report

Table 7. Sampling values from site W4

Date	Conductivity	TSS mg/L	Alkalinity (total) CaCO ₃ mg/L	Acidity CaCO ₃ mg/L	pH	Al (dissolved) ug/L	Al (total) ug/L	As (dissolved) ug/L	As (total) ug/L	Cd (dissolved) ug/L	Cd (total) ug/L	Co (dissolved) ug/L	Co (total) ug/L
15-Jan-01		132			3.0	78700	86600			514	530	1730	1710
18-May-01	1830	17	<1	729	2.8		47500	46	62	46	62	446	579
9-Oct-01	1510	75	<1	1510	3.0		21000		29		260		370
7-Dec-01	2050	110	<1	590	2.8	19000	21000	14	81	260	280	340	350
6-Mar-02	2000	50	<1	1000	2.9	39000	38000	11	170	680	640	410	400
10-May-02	4710	26		4000	2.5	230000	250000	3200	3800	4400	4600	1500	1500
24-Sep-02	2630	241	<1	1530	2.8	69600	71400	36	105	588	601	473	476
16-Dec-02	4660	3	1	3530	2.5	177000	183000	210	215	1420	1500	856	910
21-Feb-03	6430	105	1	7280	2.4	407000	417000	3960	4300	3350	3400	1480	1520
17-Jul-03	3740	10	1	2800	2.6	148000	151000	162	169	1640	1670	804	817
24-Oct-03	3910	1	1	2520	2.6	91100	91000	27	32	596	596	862	864
9-Dec-03													
21-Apr-04	5260	7	1	5260	2.5	248000	251000	2390	2400	1930	1940	1120	1120
6-Jul-04	3500	44	<1	2340	2.7	118000	123000	256	269	800	830	585	606
12-Oct-04	4460	6	<1	2970	2.5	108000	106000	82	184	456	466	907	906
22-Dec-04													
10-May-05	5510	5	<2	5200	2.5	330000	336000	1090	1110	3270	3280	1290	1300
27-Jul-05	1880	167	<2	847	2.7	47300	49900	12	70	407	414	252	258
27-Oct-05	2000	93	<2	712	2.6	42800	43200	7	86	339	337	205	202
22-Dec-05	3320	3	<2	1930	2.5	270	388	<5	<5	<1	<1	2	2
1-Feb-06	5260	16	<2	4690	2.6	243000.0	240000	2000	2510	1060	1050	1150	1120
24-Mar-06													
19-Jul-06	3700	19	<2	2200	2.5	127000	128000	69	157	430	431	532	536

Oceania Tasmania Pty Ltd – Environmental Monitoring Report

Table 8. Sampling values from site W4

Date	Cr (dissolved) ug/L	Cr (total) ug/L	Cu (dissolved) ug/L	Cu (total) ug/L	Fe (dissolved) ug/L	Fe (total) ug/L	Mn (dissolved) ug/L	Mn (total) ug/L	Ni (dissolved) ug/L	Ni (total) ug/L	Pb (dissolved) ug/L	Pb (total) ug/L	Zn (dissolved) ug/L	Zn (total) ug/L
15-Jan-01	92	186	69	73	139000	390000	13400	13000	5260	5150	3200	11600	258000	257000
18-May-01	33	43	264	341	77600	117000	4560	5770	991	1280	780	998	119000	160000
9-Oct-01		35		77		140000		8100		800		390		850000
7-Dec-01	20	200	75	77	100000	160000	7500	8200	870	930	270	300	75000	83000
6-Mar-02	120	100	300	300	250000	200000	6900	6600	1000	930	850	810	110000	110000
10-May-02	290	380	1900	2000	1000000	1000000	16000	16000	3100	3200	1000	1200	430000	430000
24-Sep-02	86	90	287	295	290000	315000	7980	8130	1120	1150	961	1100	147000	149000
16-Dec-02	239	249	871	937	790000	791000	16600	16900	2050	2150	664	705	318000	311000
21-Feb-03	563	574	3770	3800	1630000	1700000	35200	35900	3750	3800	3000	3200	636000	649000
17-Jul-03	220	224	970	985	711000	729000	11000	11200	1940	1980	1060	1080	297000	302000
24-Oct-03	142	143	240	240	540000	542000	14800	14900	2050	2050	468	470	249000	249000
9-Dec-03														
21-Apr-04	780	784	2800	2830	1240000	1260000	19900	20100	3010	3020	245	252	396000	402000
6-Jul-04	196	204	853	894	540000	657000	9570	9890	1380	1440	717	741	175000	184000
12-Oct-04	175	177	322	343	762000	864000	15300	15300	2230	2230	275	277	211000	216000
22-Dec-04														
10-May-05	591	597	2820	2860	1080000	1110000	19800	20000	3000	3030	278	285	409000	418000
27-Jul-05	75	83	380	393	142000	178000	4440	4520	620	631	524	1070	61300	61900
27-Oct-05	70	77	464	466	104000	144000	3680	3650	498	490	399	903	56700	56800
22-Dec-05	<1	<1	2	4	423	1490	132	130	<2	6	52	74	376	368
1-Feb-06	606	601	1540	1520	1180000	1210000	30300	29900	2970	2920	168	184	302000	306000
24-Mar-06														
19-Jul-06	190	195	519	524	512000	672000	12300	12300	1260	1270	440	453	136000	137000

Appendix C

Conceptual Water Management Plan

**Conceptual Water Management
Model for Zeehan Zinc Ltd,
Comstock Mine**

15 March 2006

DRAFT

A Report to Zeehan Zinc Ltd

L. Koehnken
Technical Advice on Water



stream. The exact location and extent of alkali addition on site has yet to be refined, although it is recognised that treatment is required prior to use in the processing plant, and prior to discharge from the polishing pond.

The various components of the plan are discussed in more detail in the following sections.

2.1 Comstock Creek

The Comstock mine site is situated within the Comstock Creek catchment, with the Creek running along the western side of the site. Comstock Creek has been affected by historic mining operations, including discharge from the historic adit located within the Comstock mine site.

Zeehan Zinc Ltd proposes to divert Comstock Creek away from the mine by way of a short diversion from the existing creek bed to an adjacent tributary. The diversion will occur downstream of the confluence of the creek and the historic adit, thus limiting the amount of historic acid drainage entering the proposed polishing pond, which is situated on the existing creek drainage line. The Comstock Creek channel downstream of the diversion will be used to direct the discharge from the tailings pond and waste rock dump into the polishing pond.

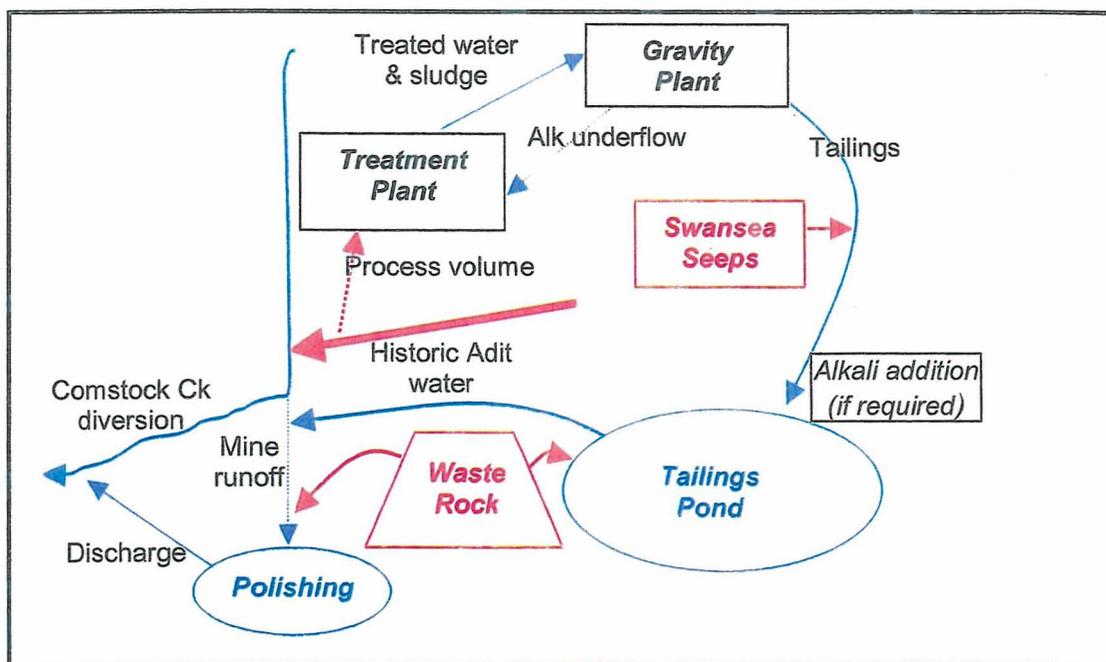


Figure 2.1. Conceptual model of water management at Zeehan Zinc.

2.2 Historic adit water

An historic adit cuts through the mining lease in the area of the South Comstock Open Pit. Although accurate flow records are not available, Zeehan Zinc personnel indicate that flow from the adit is relatively stable due to a predominantly groundwater source, with flows of up to about 50 l/s (D. Tanner, P. Heath, pers comm.). The present quality of the adit water is poor, with pH values generally in the range of 3.0 – 4.0, with elevated levels of aluminium, cadmium, arsenic, iron, manganese, lead and zinc.

contained within the seeps, additional alkali may need to be added to the combined tailings/seep stream prior to discharge into the tailings pond. The degree of alkali addition will depend on the remnant alkalinity of the tailings stream, the degree of water recycling within the gravity processing plant and the quality and quantity of seepage from the waste rock dump. Detailed information on the quality and quantity of process water is required to refine this element of on site water management.

2.5 Seeps from combined tailings / waste rock storage facility

As designed, waste rock and tailings will be co-disposed, with non-acid producing rock used to cover acid producing rock, and create the tailings dam embankment. Seeps (acidic or alkali) from the waste rock will be captured by the tailings dam or the polishing pond, where solids will settle, and the water will mix with the process water.

2.6 Advantages of proposed water management design

The water management plan in conjunction with the co-disposal of tailings and waste rock has the following advantages:

- Mining activities are isolated from Comstock Creek through diversion of the Creek;
- Only one discharge point allows rapid detection and management of potential water quality issues;
- The use of adit water for processing will result in the neutralisation of a large portion of the historic flow during the life of the mine which will improve water quality in Comstock Creek;
- The water management plan provides flexibility for re-using water, utilizing alkalinity contained in the host rock, treating historic adit water and treating the Swansea dump seeps.

2.7 Development of detailed water balance for site

To progress the water management conceptual model to a detailed water balance for the site, additional flow and water quality information associated with the adit water, process circuit and tailings stream needs to be collected. The required information includes (but is probably not limited to):

- Detailed flow records for the historic adit are crucial for establishing the pre-mining metal flux from the adit, and determining what portion of adit water will be used in the process circuit;
- Daily (?) flow estimates of Comstock Creek, possibly based on catchment modelling of rainfall / runoff, are required to establish the final discharge water quality targets from the polishing pond;
- Investigation of various neutralisation options to establish which achieves the required environmental outcome most cost effectively, including where and in how many stages alkalinity is added to the adit water to protect process infrastructure and provide sufficient buffering for the Swansea seeps;
- Water quality monitoring of adit and Swansea seepage water needs to include sulphate so that the potential for gypsum formation can be evaluated with

- The potential to discharge the historic adit water into Comstock Creek (as will occur during mining) or towards the polishing pond,
- The potential to stockpile alkali waste rock for the establishment of passive water treatment options during the close out of the site;
- A better understanding of the sources of water to the historic adit will be gained during mining which could lead to the identification of management options;
- The remnant Comstock Creek channel can be used to collect and passively treat acidic sources, with the polishing pond used to settle solids;
- The final shaping of the combined waste rock and tailings storage facility will allow water shedding with surface waters to be directed away from potential acid sources.

Appendix D

Rehabilitation Photos of the Central Waste Rock Dump



Back of Central Waste Rock Dump (CWRD)



View from the top of CWRD



View from entrance to Comstock Mine



Looking down over CWRD and entrance to mine site

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Back of Central Waste Rock Dump (CWRD)



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Looking down over CWRD and entrance to mine site