



Comstock Mine Environmental Monitoring Report Third Quarterly 2004

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Third Quarterly 2004

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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 clay capping 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 (DPEMP 2001 - Appendix F) for the quarter ending 30 September 2004.

2.0 Water Monitoring

Water samples at monitoring sites W1, W2, W3, and W4 (Figure 1) were collected on 12 October 2004 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.

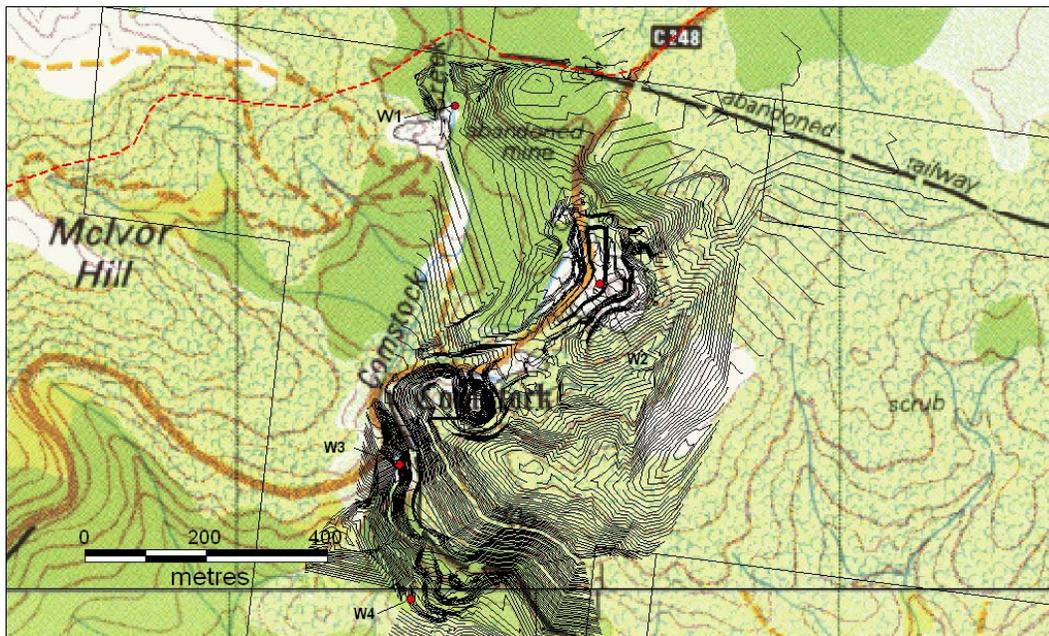


Figure 1. Location Map of the Comstock mine showing water monitoring locations: **W1** (upstream of all mining activity – Comstock Creek), **W2** (outlet of sediment trap base of decline, adjacent to drainage adit), **W3** (drainage adit adjacent to Comstock Creek), and **W4** (discharge from the second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

Results

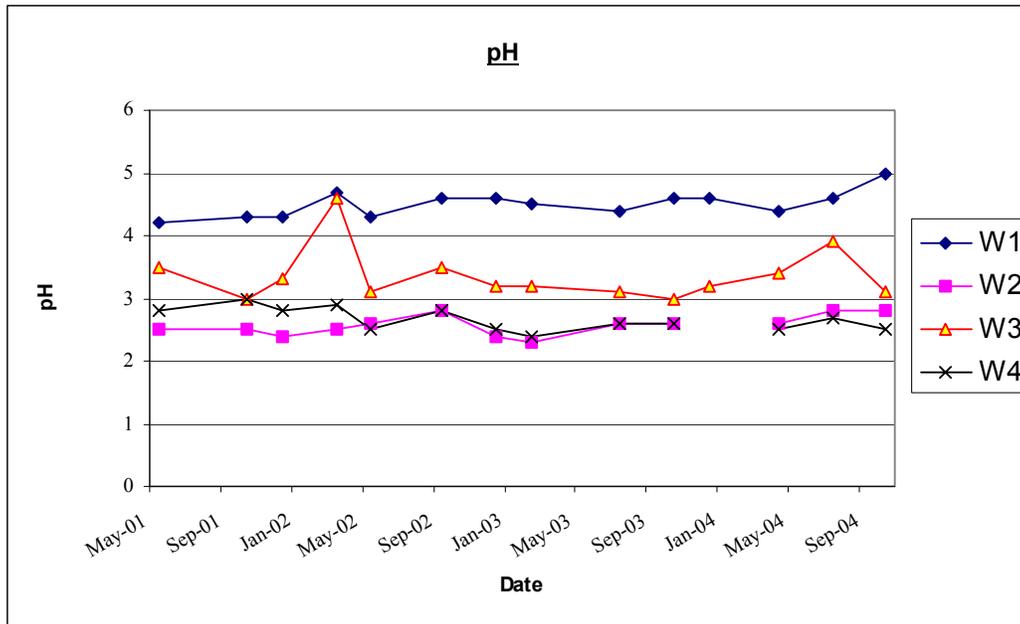


Figure 2 – pH values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

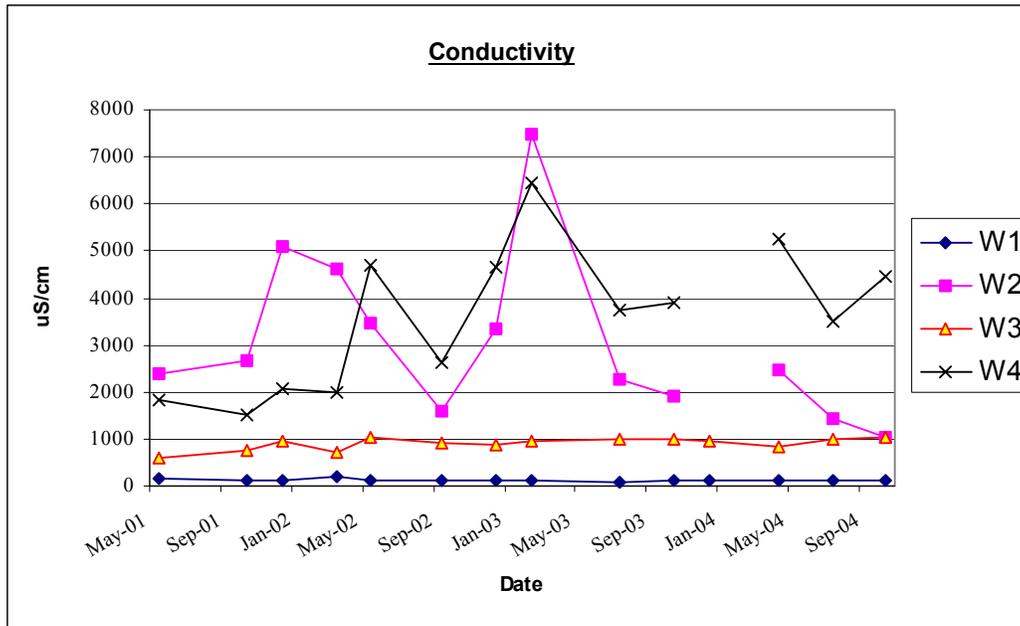


Figure 3 – Conductivity ($\mu\text{S}/\text{cm}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

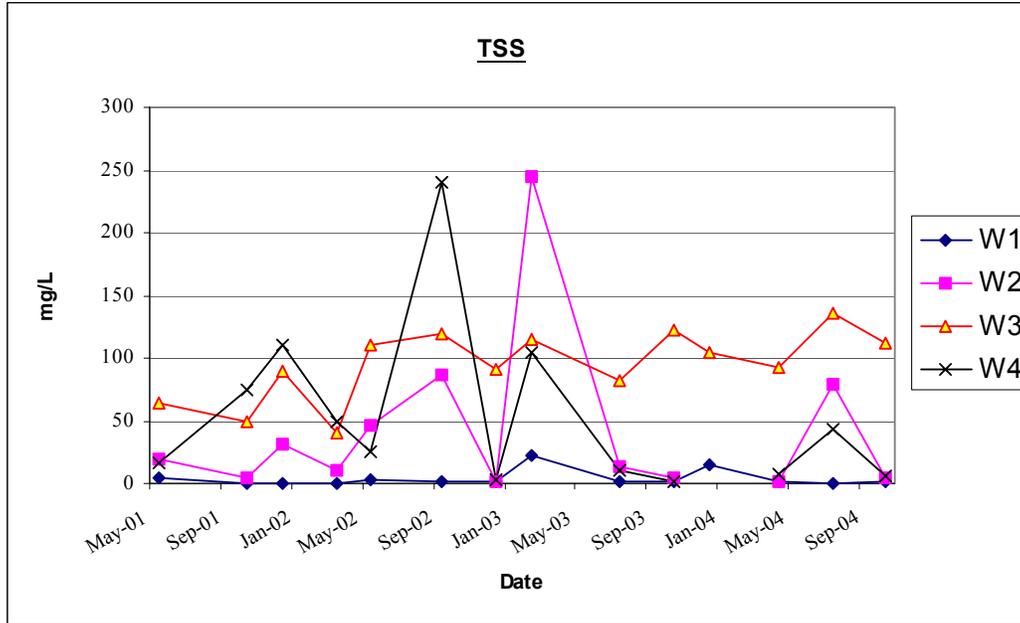


Figure 4 – Total Suspended Solids (mg/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

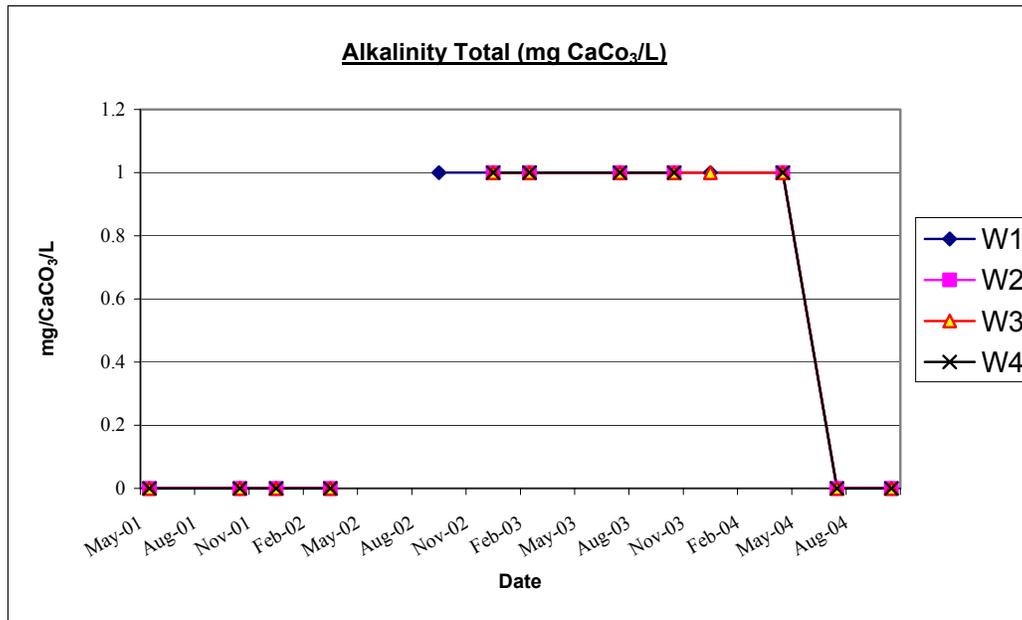


Figure 5 – Alkalinity Total (mg CaCO₃/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

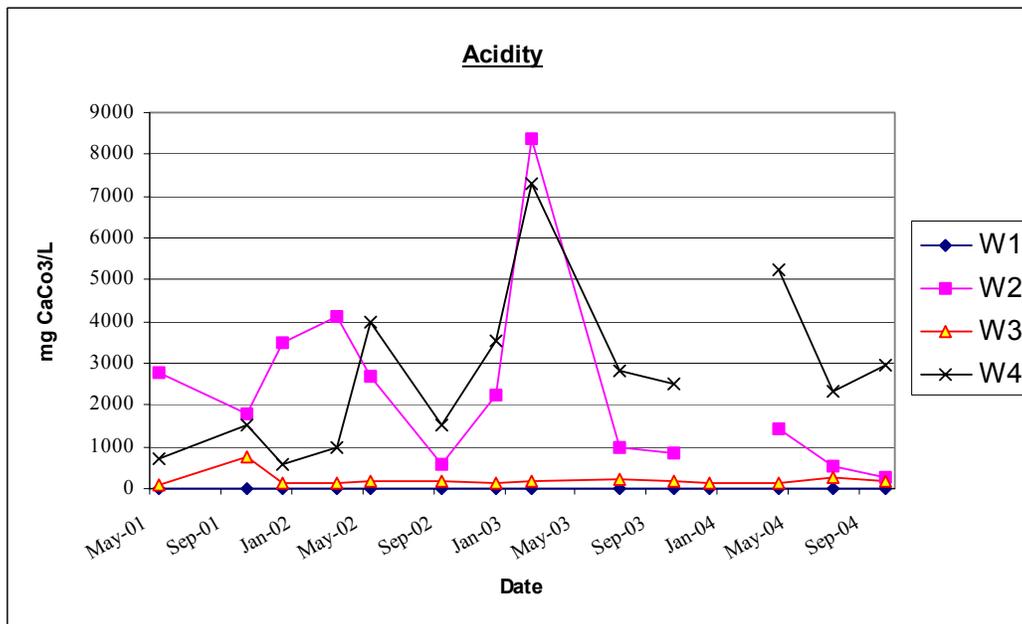


Figure 6 – Acidity (mg CaCO₃/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

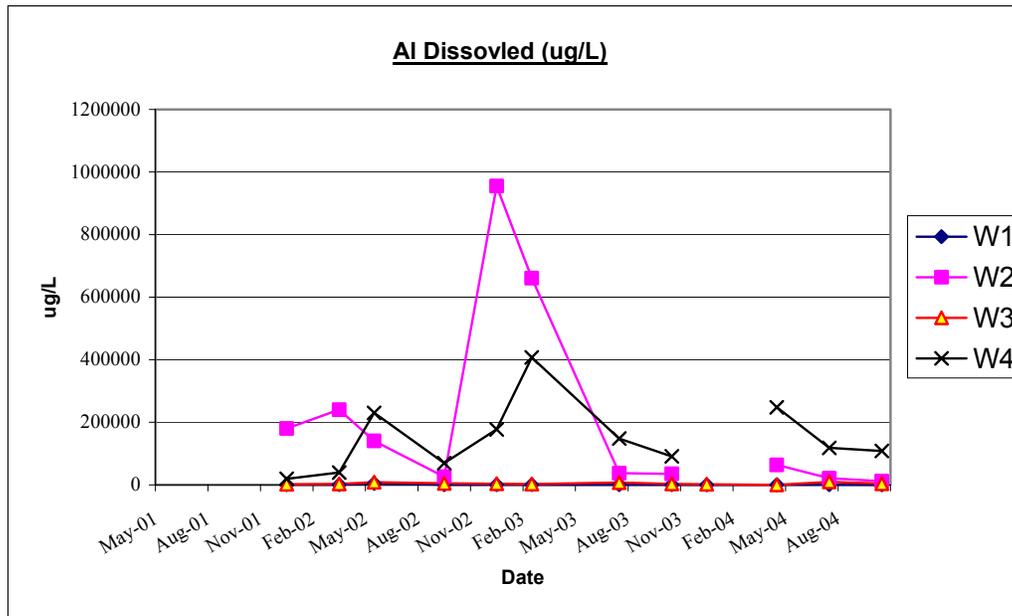


Figure 7 – Al (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

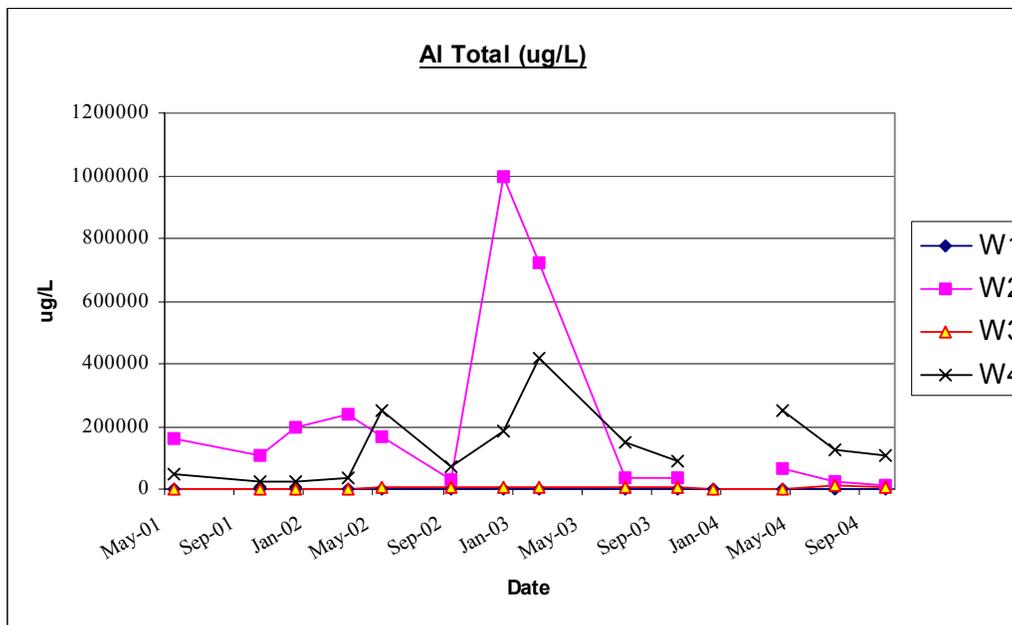


Figure 8 – Al (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

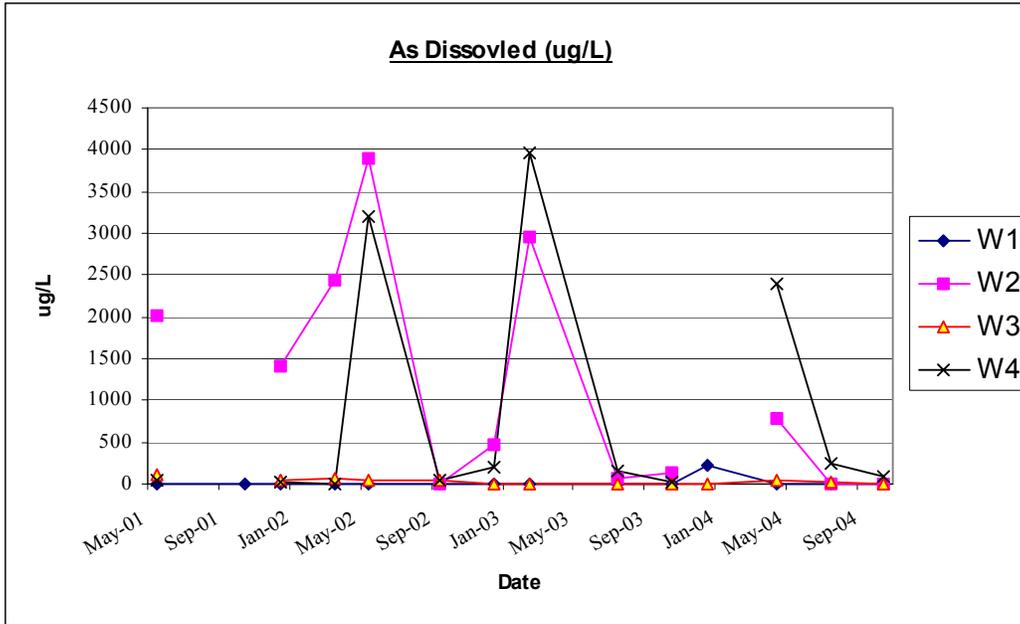


Figure 9 – As (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

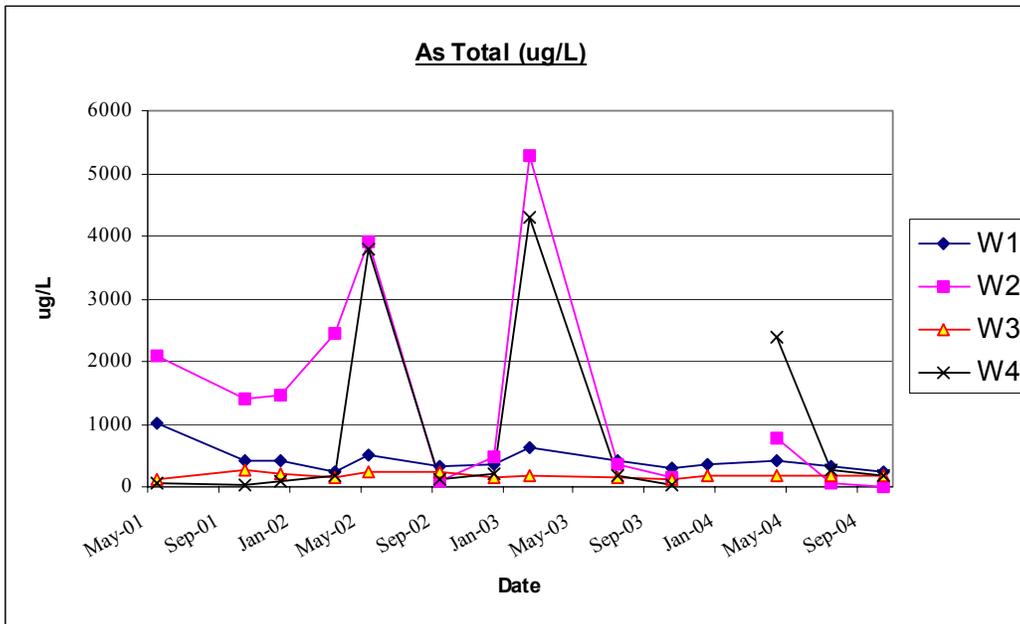


Figure 10 – As (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

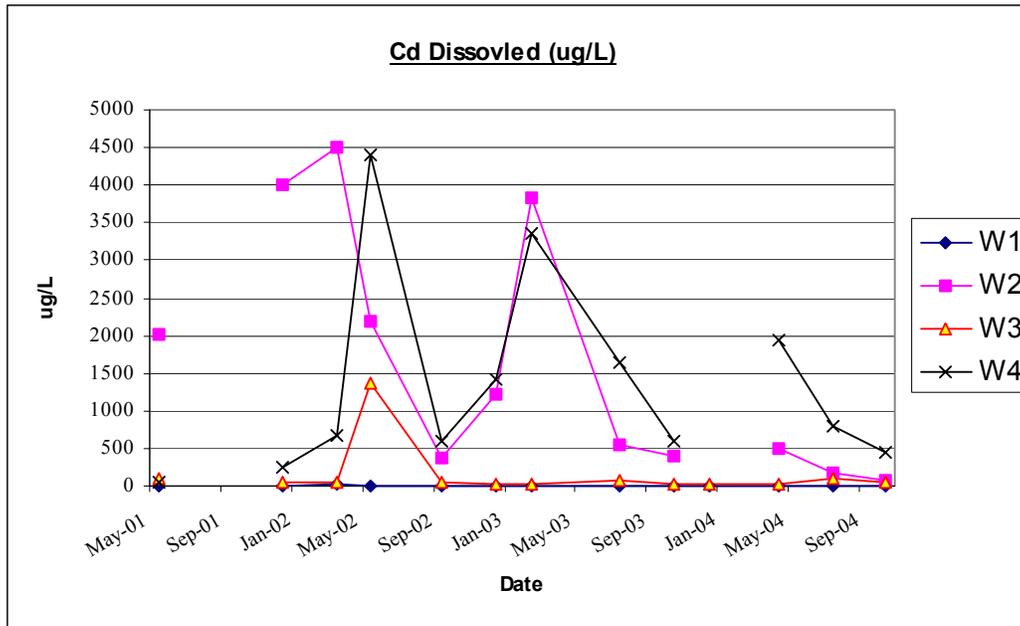


Figure 11 – Cd (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

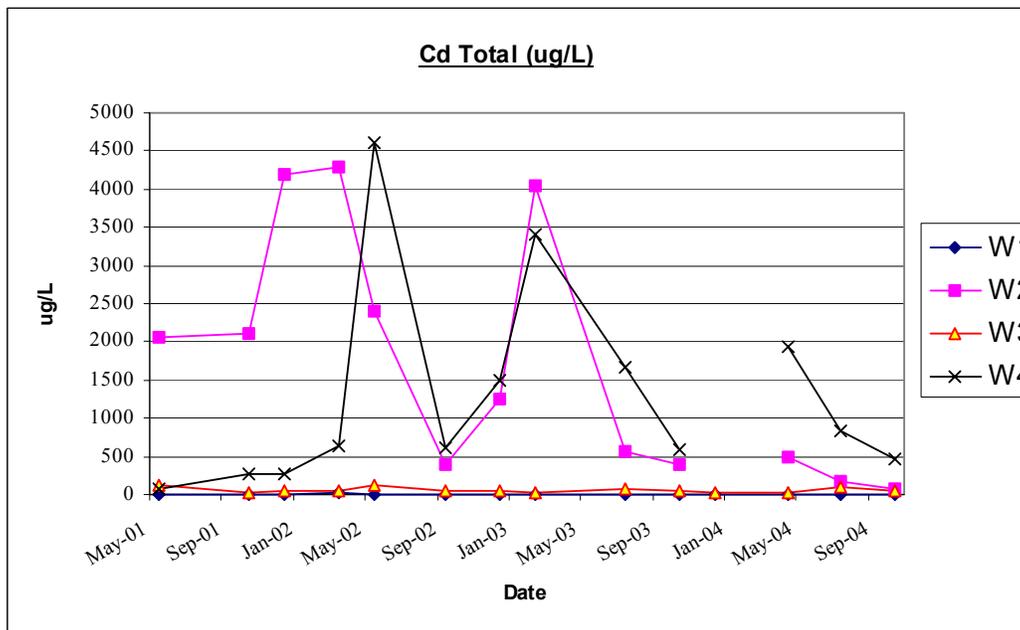


Figure 12 – Cd (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

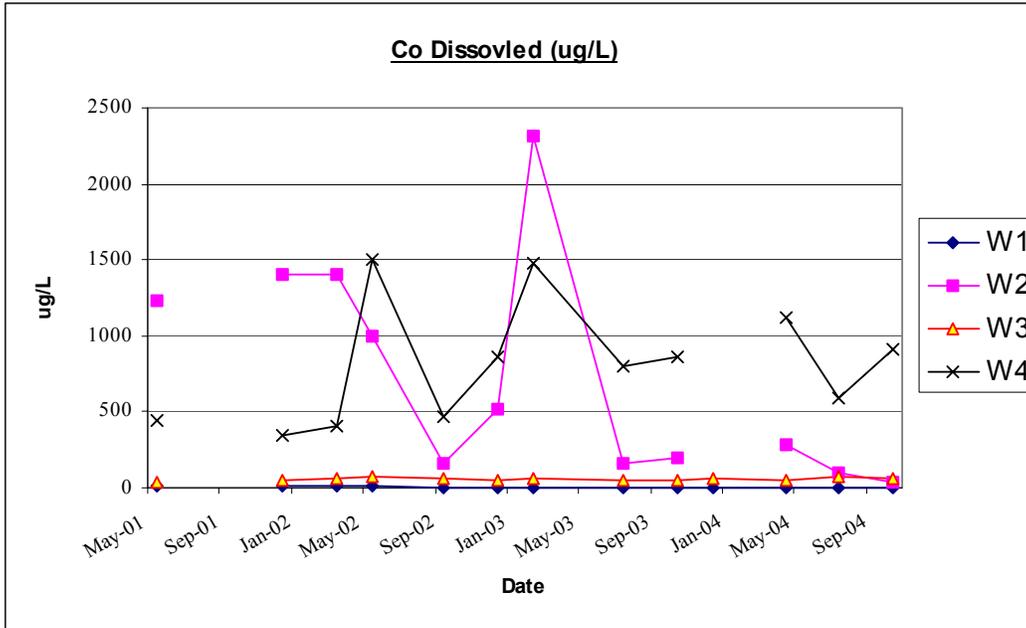


Figure 13 – Co (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

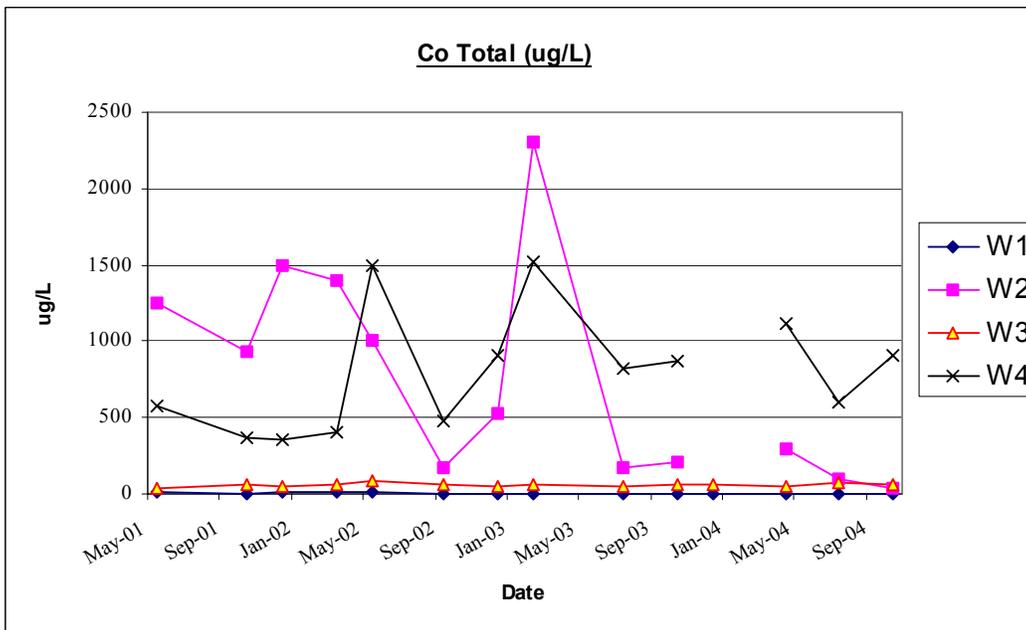


Figure 14 – Co (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

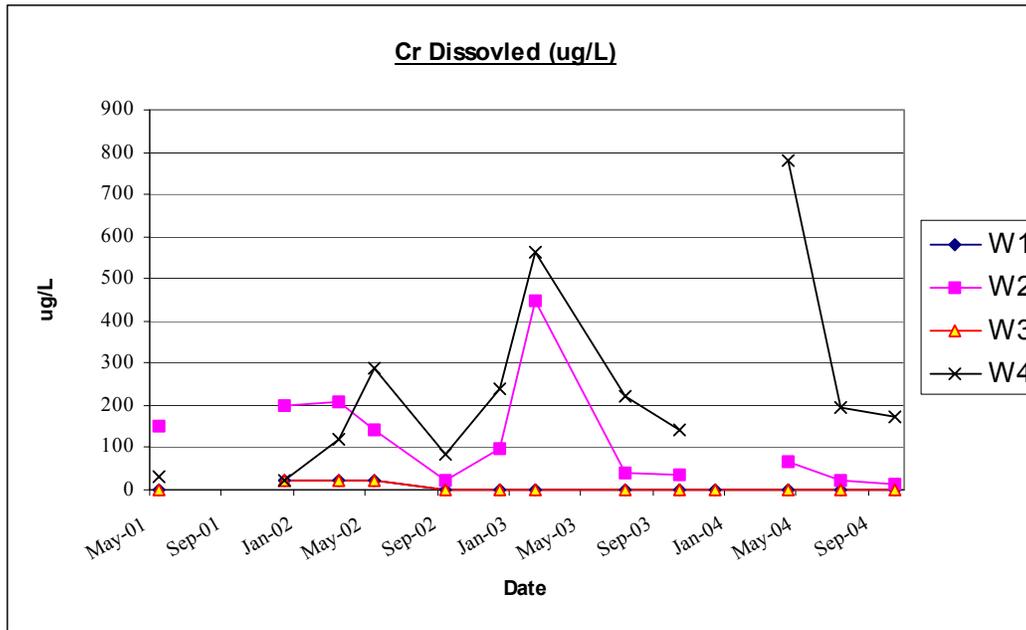


Figure 15 – Cr (dissolved µg/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

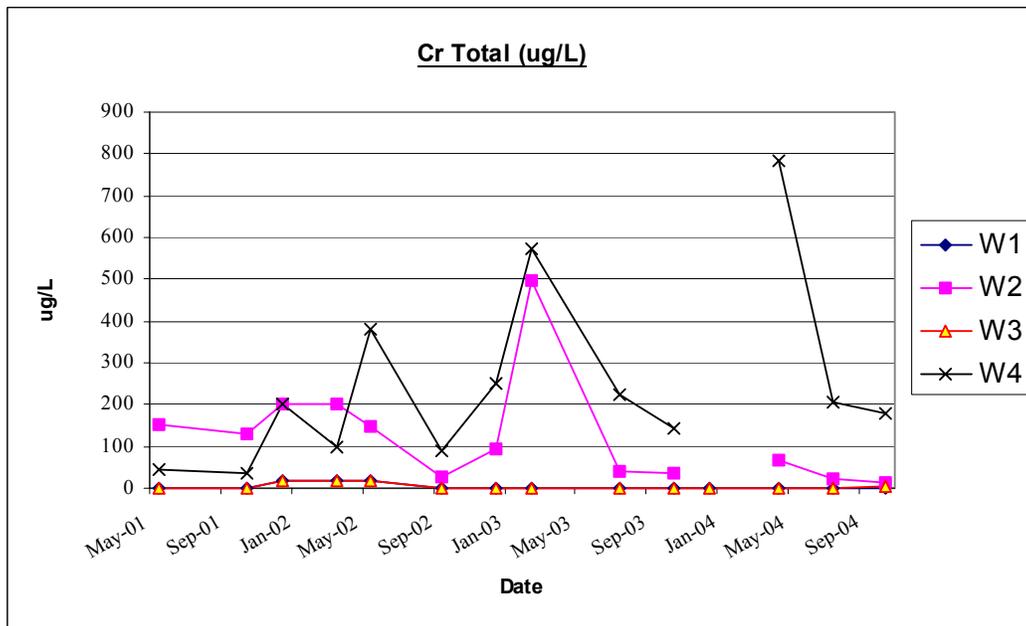


Figure 16 – Cr (total µg/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

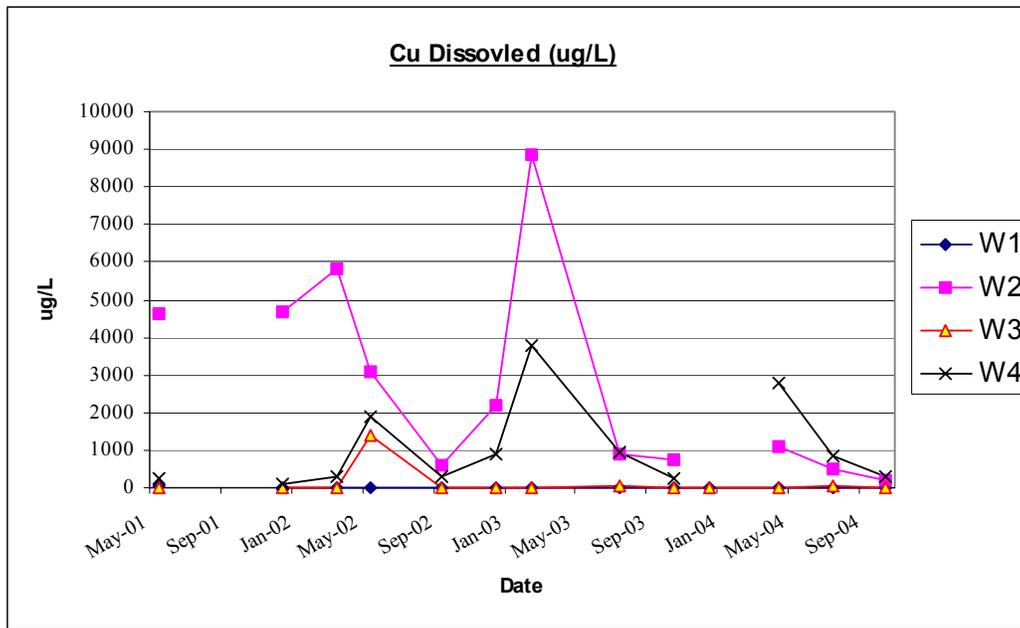


Figure 17 – Cu (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

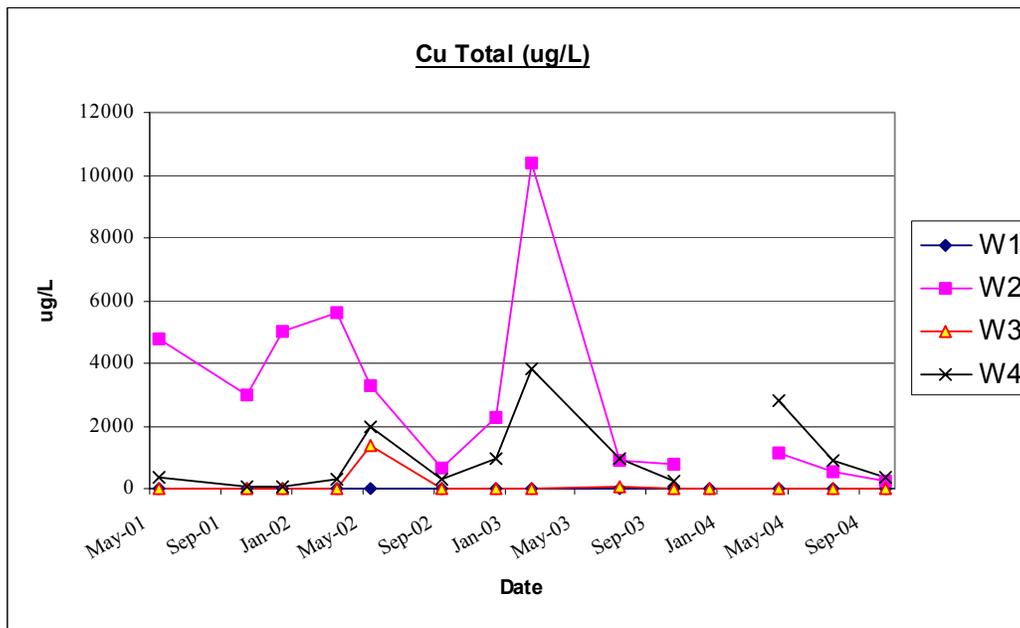


Figure 18 – Cu (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

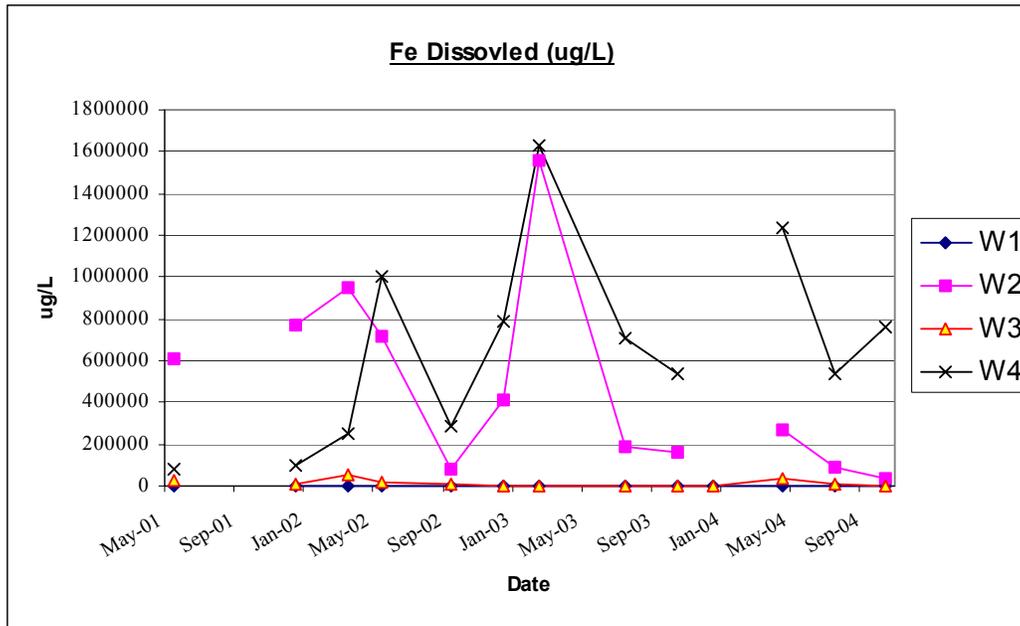


Figure 19 – Fe (dissolved μL) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

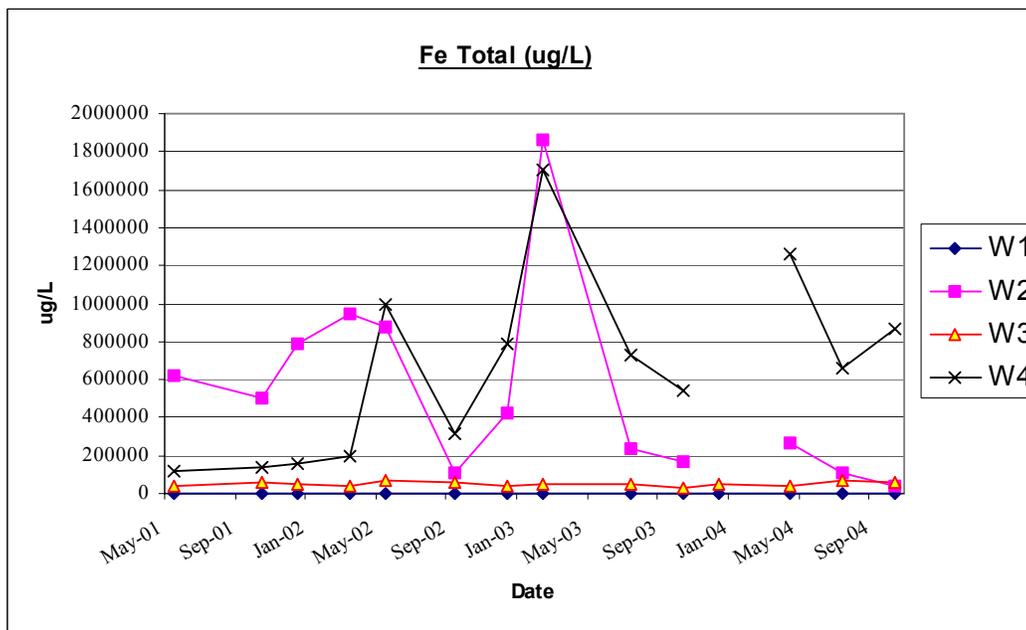


Figure 20 – Fe (total μL) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

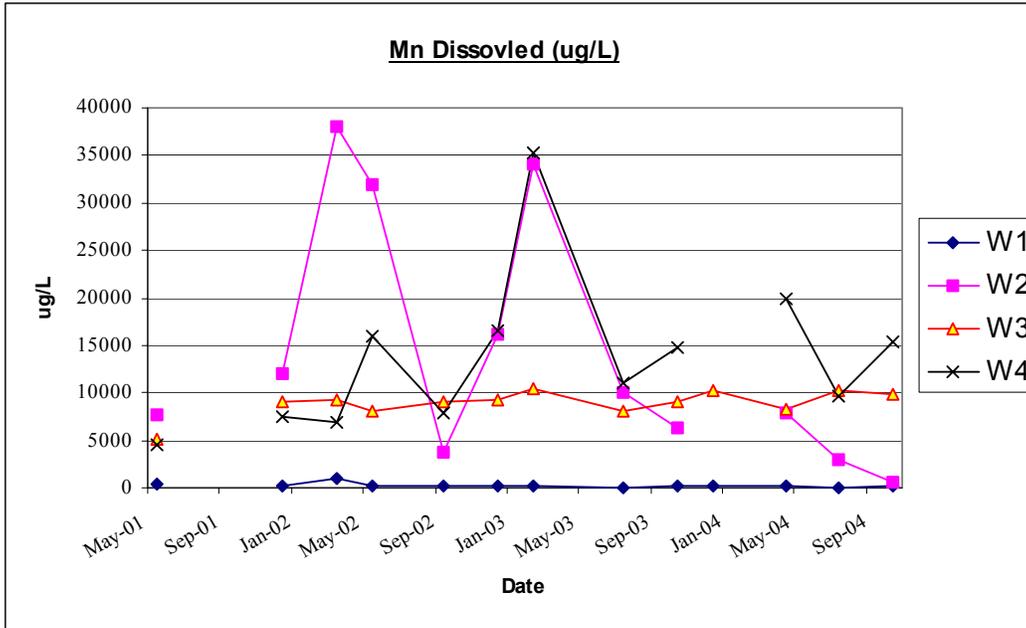


Figure 21 – Mn (dissolved µg/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

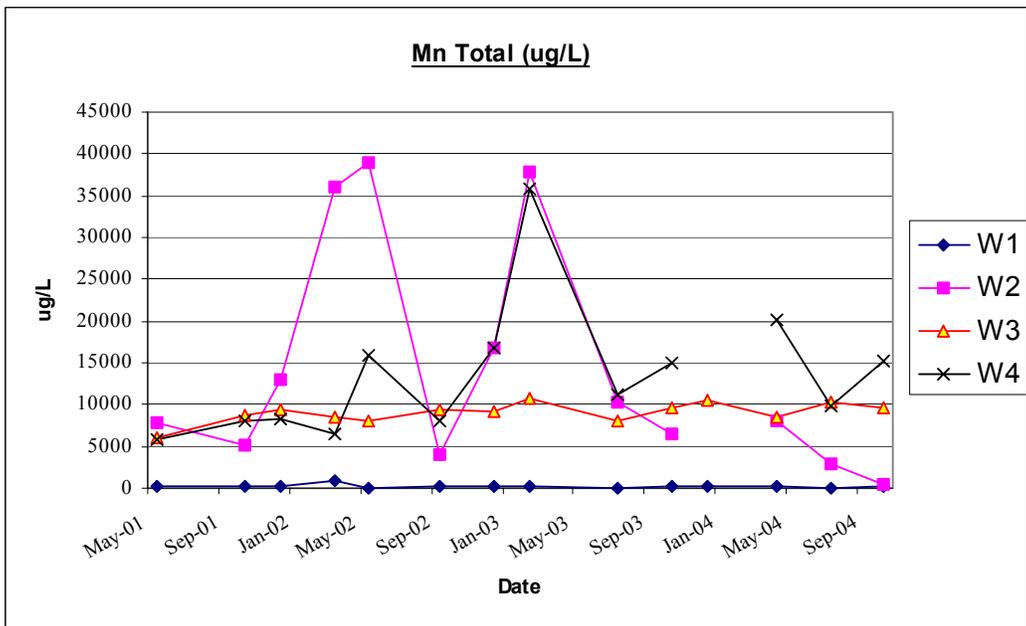


Figure 22 – Mn (total µg/L) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

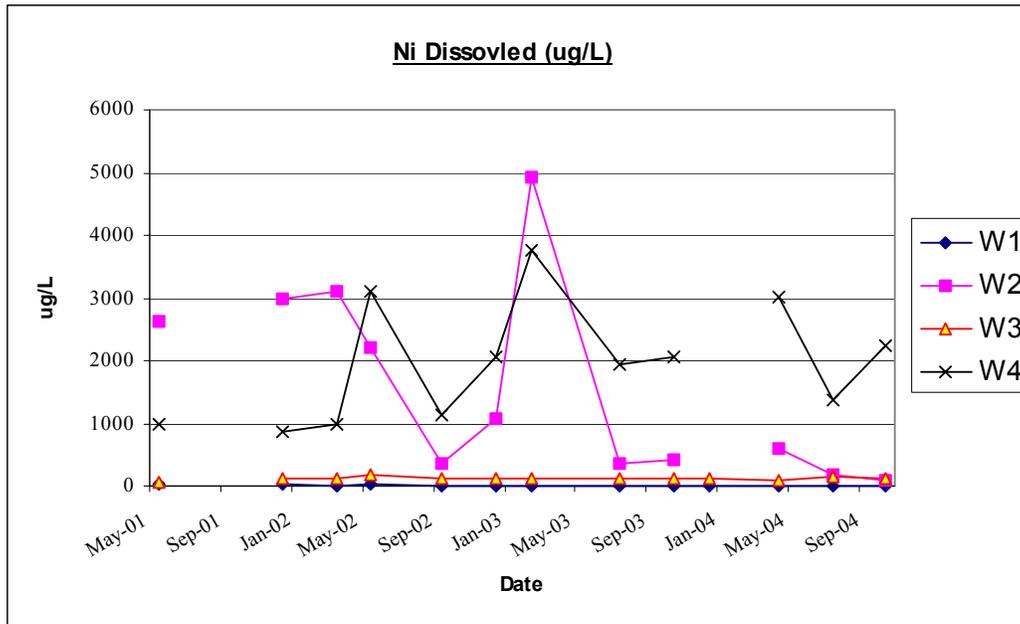


Figure 23 – Ni (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

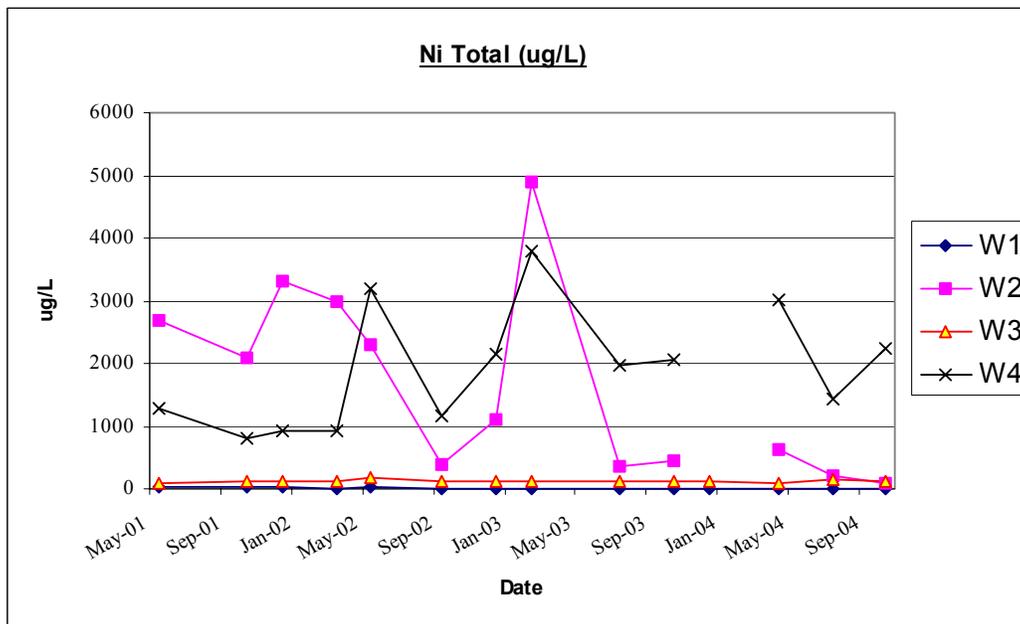


Figure 24 – Ni (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

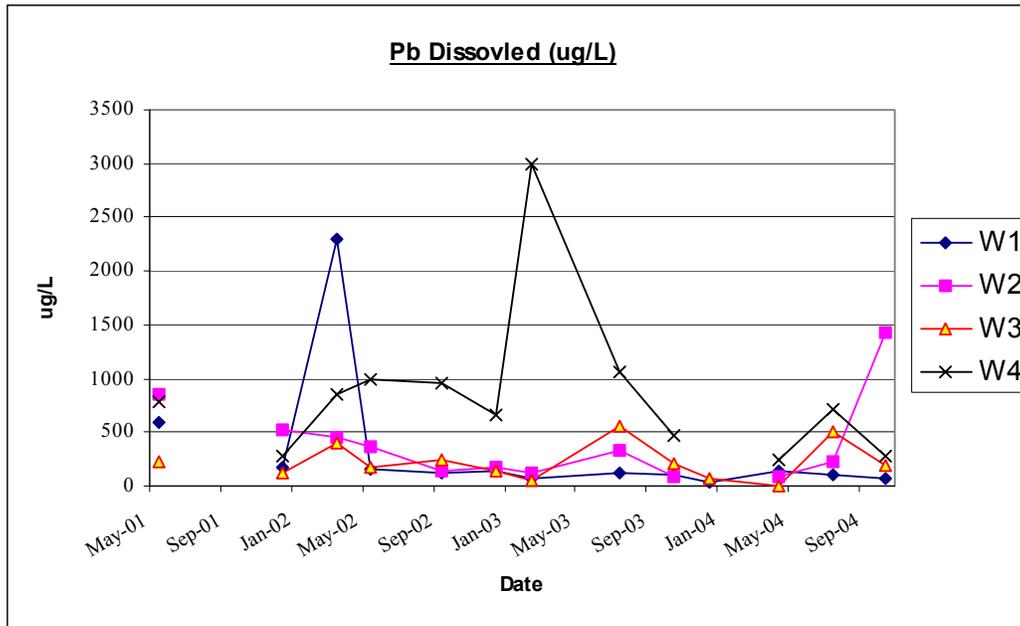


Figure 25 – Pb (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

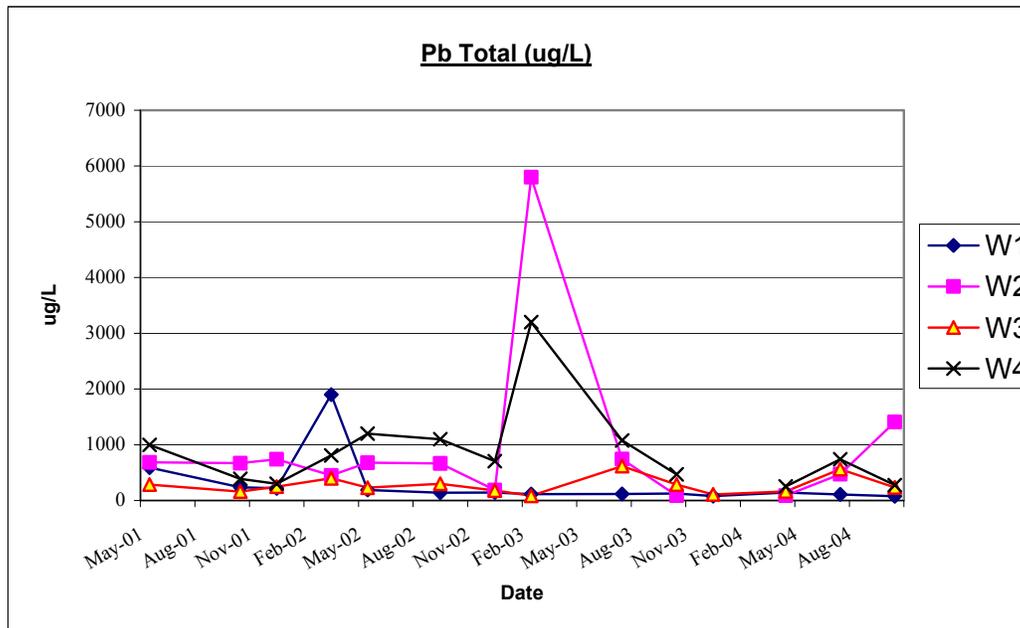


Figure 26 – Pb (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

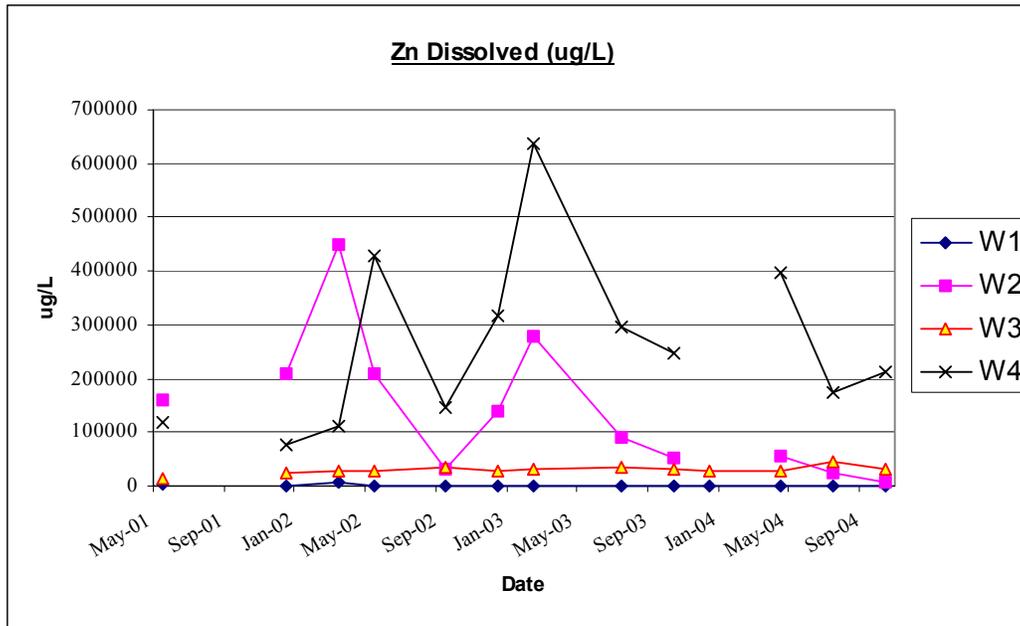


Figure 27 – Zn (dissolved $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

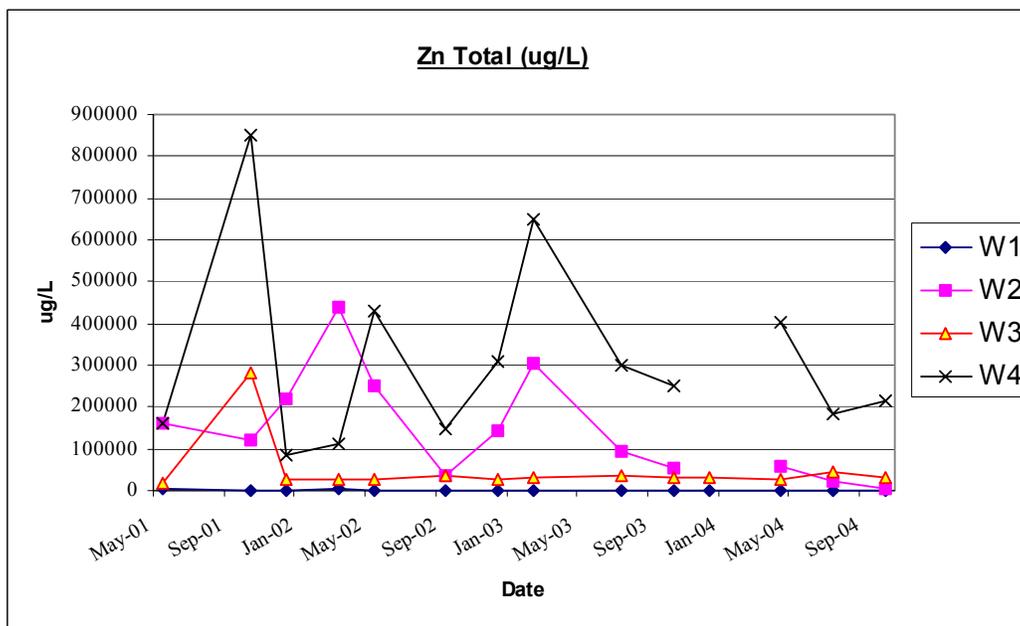


Figure 28 – Zn (total $\mu\text{g/L}$) values from sample locations W1, W2, W3 and W4 taken during May 2001 to October 2004.

3.0 Erosion Monitoring

E1 – East Wall of Allison's Decline

This site represents the east wall of Allison's decline and has been deemed a safe working environment by the mine manager. Site inspections by the mining staff will ensure that this will not become a potential hazard.

E2 – Southwestern Batter of Central Dump

This site represents the southwestern batter of the CWRD. The Central Waste Rock Dump rehabilitation is almost complete. Full re-contouring and clay capping have been completed. These activities have ensured erosion control through appropriate rehabilitation techniques and safety. On-site staff will continue monitoring this location in the future.

4.0 Summary

The Comstock operations have been limited to the rehabilitation of the CWRD. Now that the clay component has been completed, Oceania intends to re-vegetate the surface of the dump during summer 2004-05. Water sampling at sites W1, W2, W3 & W4 will continue to be reported on a quarterly basis.

Appendix A

Laboratory Analysis of Water Samples



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@dpiwe.tas.gov.au



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



Test Method(s) :

Chemical Testing

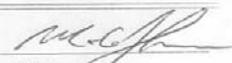
| | | Test Date |
|-------------|--|-------------|
| 1001-Water: | pH in Water by APHA Method 4500-H | 20-Oct-2004 |
| 1002-Water: | Conductivity by APHA Method 2510 | 20-Oct-2004 |
| 1005-Water: | Solids, Total Suspended by APHA Method 2540D | 25-Oct-2004 |
| 1101-Water: | Alkalinity by APHA Method 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 | 19-Oct-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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Samples analysed as received.


Mike Johnson
Chemical Testing



ANALYTICAL SERVICES TASMANIA
Sandy Bay Laboratory

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



NATA Accreditation
Number: 5589

Report No: 23464

Report Date: 29-Oct-2004 15:53

| Method | Analyte | Units / Sampled On : | Lab.No.: | | | |
|------------|------------------|----------------------|----------------|----------------|----------------|----------------|
| | | | 64102 | 64103 | 64104 | 64105 |
| | | | Sample Id.: | | | |
| | | | W1 | W2 | W3 | W4 |
| | | | 12/10/04 09:20 | 12/10/04 10:30 | 12/10/04 10:18 | 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 | 226 | 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 | 466 |
| | Co Dissolved | µg/L | 3 | 37 | 59 | 907 |
| | Co Total | µg/L | 3 | 37 | 59 | 906 |
| | 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 | 864000 |
| | 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 | 6610 | 30600 | 211000 |
| | Zn Total | µg/L | 477 | 6510 | 30300 | 216000 |

Appendix B

Water Sampling Data Collection

Table 1. Sampling values from site W1

| 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 |
|-----------|--------------|-------------|-------------------------------------|--------------------------|-----|---------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|
| 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 |
| 09-Oct-01 | 120 | <1 | <1 | 9 | 4.3 | | 420 | <5 | <5 | | <5 | | 5 |
| 07-Dec-01 | 130 | <1 | <1 | 8 | 4.3 | 340 | 430 | <5 | <5 | 10 | 10 | 10 | 10 |
| 06-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 |
| 09-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 |
| 06-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 |

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 |
| 09-Oct-01 | | <1 | | 10 | | 670 | | 210 | | 20 | | 240 | | 1200 |
| 07-Dec-01 | 20 | 20 | 10 | 10 | 310 | 630 | 190 | 190 | 20 | 20 | 170 | 220 | 910 | 920 |
| 06-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 |
| 09-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 |
| 06-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 |

Table 3. Sampling values from site W2

| 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 |
|-----------|--------------|-------------|-------------------------------------|--------------------------|-----|---------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|
| 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 |

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 |

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 |
| 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 |

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 |
| 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 |

Table 7. Sampling values from site W4

| 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 |
|-----------|--------------|-------------|-------------------------------------|--------------------------|-----|---------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|---------------------------|-----------------------|
| 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 |

Table 8. Sampling values from site W4

| Date | Cr | Cr | Cu | Cu | Fe | Fe | Mn | Mn | Ni | Ni | Pb | Pb | Zn | Zn |
|-----------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|---------------------|-----------------|
| | (dissolved) ug/L | (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 |

Samplers and sample dates

22/10/97, 10/06/99, 10/08/99, 08/03/00 (SEMF, Development Proposal and Environmental Management Plan, May 2000)

27/06/00, 22/09/00 (Meskanen, U., Acid Mine Drainage at the Comstock Ag-Pb-Zn Mine,... – Thesis, November 2000)

15/01/01 (Sarah Bunce – SEMF, March 21, 2001)

04/02/01 (Paul Heath – Oceania, March 21, 2001)

03/28/01 (Shane Bartel - Oceania Tasmania)

05/18/01 (Shane Bartel - Oceania Tasmania)

10/09/01 (Shane Bartel - Oceania Tasmania)

7/12/01 (Paul Heath - Oceania Tasmania)

6/03/02 (Shane Bartel - Oceania Tasmania)

10/05/02 (Shane Bartel - Oceania Tasmania)

24/09/02 (Paul Heath - Oceania Tasmania)

16/12/02 (Shane Bartel - Oceania Tasmania)

21/02/03 (Shane Bartel - Oceania Tasmania)

17/07/03 (Shane Bartel - Oceania Tasmania)

24/10/03 (Simon Youd - Zeehan Zinc)

09/12/03 (Paul Heath - Oceania Tasmania)

21/04/04 (Paul Heath - Oceania Tasmania)

06/07/04 (Paul Heath - Oceania Tasmania)

12/10/04 (Paul Heath - Oceania Tasmania)

Location summaries

W1 - Comstock Creek - furthest upstream (S1)

W2 - decline adit entrance (S4)

W3 - main adit drainage before mixing with Comstock Creek (S10)

W4 - discharge from second collection dam west of Swansea dump (S13)