APPENDIX 3

Garrow Lake Water Column

Minimum Ice Conditions

Hydrolab Data

(August 29, 2008)

TABLE 1

2008 HYDROLAB RESULTS - GARROW LAKE - AUGUST 29th 2008

STATION 363-3 (Centre Station)

Depth	262-3 Temp (^{0}C)	262-3 DO (mg/L)	262-3 Cond (mS/cm)	262-3 pH	262-3 Redox (mV)
1	2.59	10.03	11.86	7.92	328
2	2.63	8.72	11.88	7.97	324
3	2.59	8.48	11.87	8.02	320
4	2.59	8.34	11.86	8.06	318
5	2.59	8.28	11.86	8.09	316
6	3.3	8.09	13.62	8.07	314
7	3.98	8.06	16.1	8.03	314
8	3.83	8.22	16.4	8.05	313
9	3.95	8.26	16.6	8.05	311
9.5	4.58	7.62	24.5	7.7	319
10	5.46	5.69	57.6	7.25	325
11	6.96	2.4	82.7	7.23	317
12	7.24	1.03	85.3	7.27	311
13	7.42	0.43	86.9	7.32	281
14	7.25	0.27	87.2	7.38	225
15	6.92	0.23	87.3	7.42	206
16	6.74	0.21	87.3	7.44	195
17	6.66	0.2	87.3	7.45	189
18	6.63	0.17	87.3	7.46	183
19	6.63	0.17	87.4	7.46	176
20	6.63	0.16	87.4	7.47	161
22	6.63	0.15	87.4	7.47	145
30	6.76	0.18	87.5	7.4	50
36	7.3	0.12	88.2	7.24	-29

TABLE 2

2008 HYDROLAB RESULTS - GARROW LAKE - AUGUST 29th 2008

STATION 363-3A (South Station)

Depth	262-3A Temp (^{0}C)	262-3A DO (mg/L)	262-3A Cond (mS/cm)	262-3A pH	262-3A (Redox mV)
1.5	2.63	8.88	11.89	8.09	226
2	2.63	8.65	11.88	8.13	223
3	2.61	8.57	11.89	8.15	222
4	2.61	8.47	11.91	8.17	221
5	2.63	8.38	11.89	8.19	221
6	2.63	8.37	11.91	8.22	221
7	3.25	8.21	15	8.17	225
8	3.77	8.27	16.4	8.15	227
9	3.9	8.31	16.7	8.14	228
9.5	4.23	8.07	19.8	8.01	233
10	5.06	6.12	44.9	7.35	246
11	7.09	2.4	85.3	7.31	240
12	7.24	1.42	86.2	7.34	236
13	7.45	0.6	87.1	7.36	207
14	7.06	0.42	87.4	7.42	192
15	6.89	0.34	87.3	7.45	182
16	6.69	0.29	87.5	7.47	174
17	6.66	0.27	87.4	7.48	169
18	6.65	0.24	87.4	7.48	165
19	6.65	0.22	87.4	7.49	147
20	6.65	0.2	87.4	7.49	121

Figure 1
Garrow Lake August 29th 2008
Centre (262-3) and South (262-3A) Stations - Minimum Ice Thickness Limnology

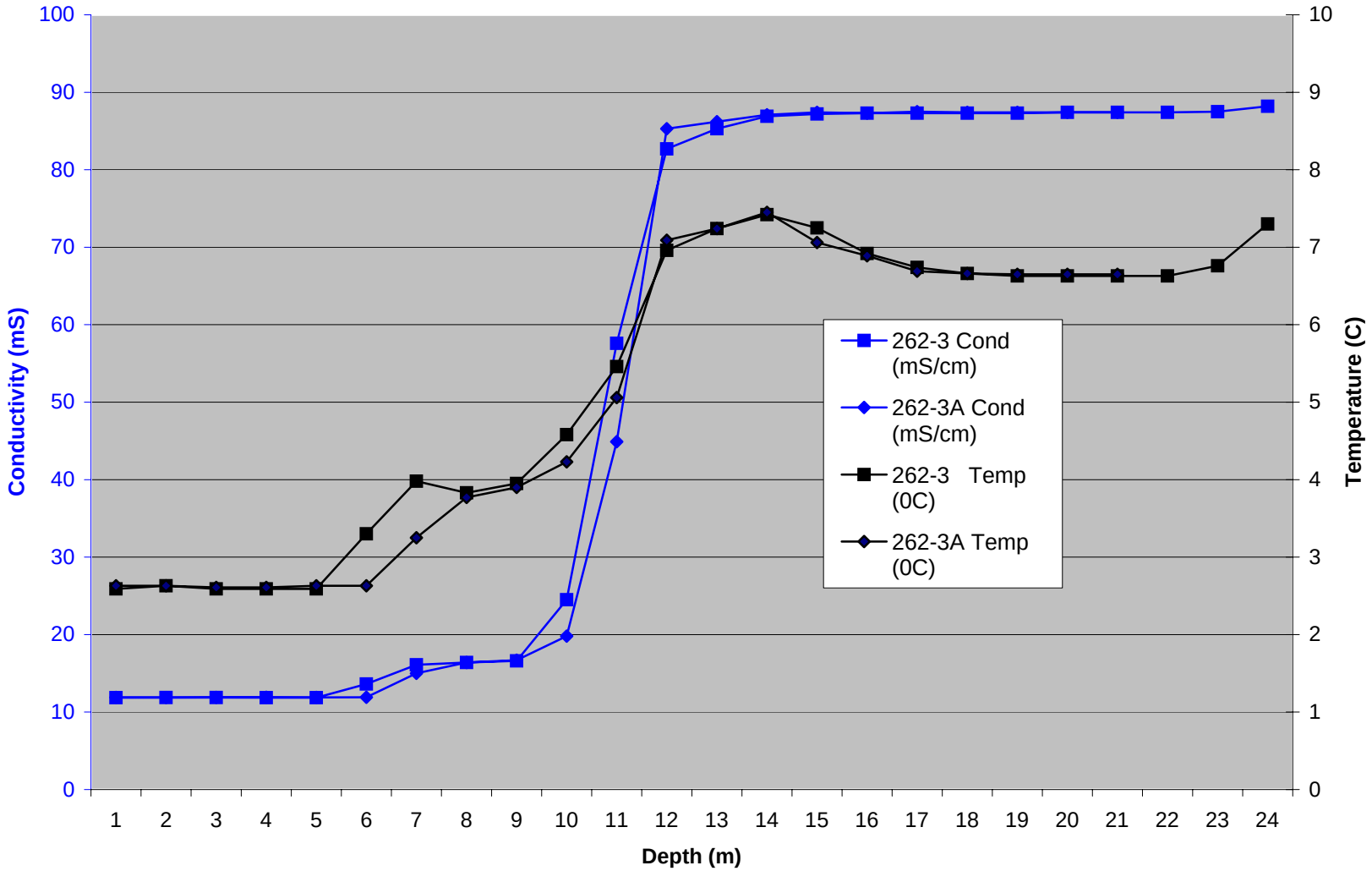
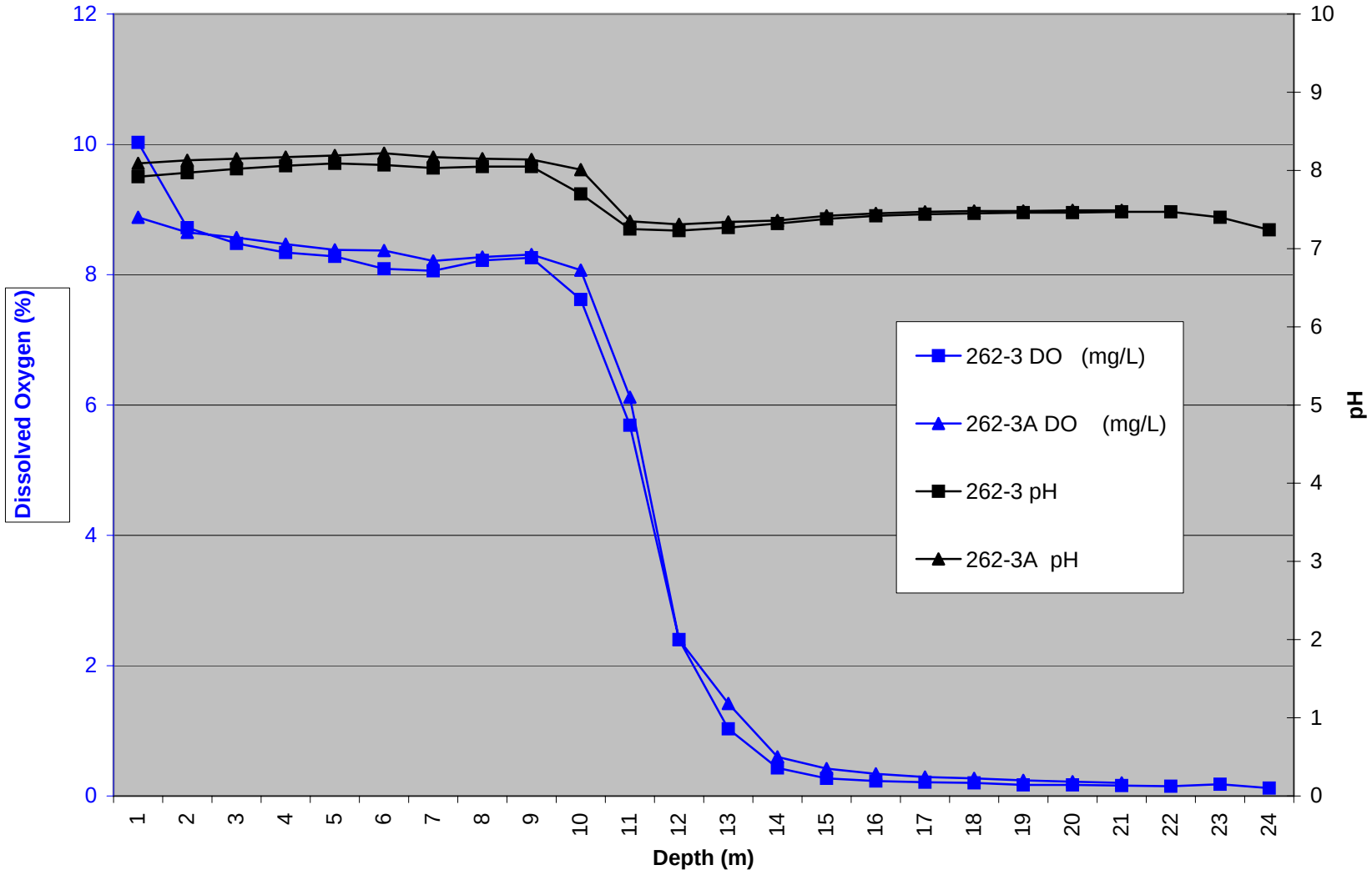


Figure 2
Garrow Lake August 29th, 2008
Centre (262-3) and South (262-3A) Stations - Minimum Ice Thickness Limnology



APPENDIX 4

Garrow Lake Water Column

Minimum Ice Conditions

Zinc Data and Graphs

(August 29, 2008)

TABLE 1

GARROW LAKE WATER COLUMN MONITORING

STATION 262-3: Garrow Lake at Centre

	Zinc Concentrations (mg/L)													
Depth	**18-Jan-02**	**13-Mar-02**	**4-Feb-03**	**29-Mar-03**	**1-Jan-04**	**3-May-04**	**13-May-05**	**25-Aug-05**	**22-May-06**	**21-Aug-06**	**3-Jun-07**	**25-Aug-07**	**27-May-08**	**29-Aug-08**
0								0.130	0.227	0.193				
1									0.246	0.186				
1.5								0.131	0.231	0.19	0.235	0.168		0.177
2							0.244	0.136	0.235	0.199	0.23	0.180		0.183
3	0.26	0.30	0.25	0.28	0.236	0.234	0.247	0.134	0.241	0.193	0.244	0.180	0.257	0.180
4				0.28	0.197	0.227	0.244	0.243	0.237	0.192	0.241	0.176	0.250	0.179
5		0.32		0.29	0.209	0.247	0.228	0.267	0.25	0.187	0.234	0.185	0.251	0.179
6				0.29	0.207	0.229	0.239	0.265	0.211	0.186	0.228	0.181	0.270	0.175
7		0.32		0.29	0.197	0.227	0.241	0.284	0.218	0.183	0.245	0.180	0.246	0.228
8				0.29	0.189	0.231	0.248	0.271	0.233	0.186	0.231	0.177	0.250	0.249
9				0.30	0.702	0.816	1.120	0.552	0.359	0.287	0.246	0.218	0.249	0.241
10	0.34	0.37	0.60	0.87	0.932	0.764	0.535	1.250	0.491	0.987	0.917	0.916	0.792	0.252
11	1.40	1.6	1.40	0.96	0.279	0.315	0.134	0.151	0.0721	0.0903	0.0319	0.024	0.046	0.038
12	0.68	0.60	0.585	0.52	0.27	0.262	0.120	0.104	0.0383	0.0578	0.0288	0.020	0.024	0.033
13	0.46	0.48	0.70	0.44	0.251	0.234	0.0812	0.105	0.0226	0.0241	0.0279	0.024	0.019	0.016
14	0.45	0.460	0.52	0.41	0.229	0.211	0.0482	0.0457	0.024	0.0304	0.0204		0.020	
15	0.42	0.47	0.44	0.52	0.256	0.211	0.0378	0.0565	0.021	0.0297	0.0208	0.022	0.020	0.025
16	0.44	0.48	0.44	0.42	0.265	0.201	0.0429	0.0556	0.03	0.0287	0.0589		0.021	0.019
17	0.44	0.48	0.44	0.42	0.267	0.193	0.0435	0.0409	0.0294	0.032	0.0252	0.022	0.020	0.020
18	0.44	0.48	0.44	0.41	0.275	0.204	0.0440	0.0435	0.0314	0.0336	0.0238		0.020	0.017
19	0.44	0.48	0.45	0.42	0.266	0.202	0.0448	0.0425	0.0351	0.034	0.0208	0.021	0.021	0.018
20	0.43	0.50	0.46	0.40	0.260	0.197	0.0425	0.0413	0.0293	0.0346	0.0228	0.025	0.021	0.018
22	0.43	0.49	0.46	0.42	0.260	0.199	0.0407	0.0468	0.0301	0.0351	0.0218	0.024	0.052	0.019
30	0.43	0.50		0.38	0.0514	0.117	0.0310	0.0404		0.092	0.0453	0.035	0.020	0.021
35	0.43	0.54		0.08							0.529			0.015
40	0.44	0.53	0.07	0.06	0.234	0.0301	0.0214	0.0235	0.0558	0.0139				

Note: - did not graph the data from 30m depth for May 22/06 as there is clearly a data error. The Zn = 0.561 and the TSS was 111 mg/L. The sample must have been contaminated.

- Jun-07 didn't show the 35 m depth as the sample result was disturbed and incorrect data collected.
- 27-May-08 Didn't show the 36M depth sample as zinc was 2.01. Believe that the sample was contaminated by hitting the lake bottom and creating turbidity

FIGURE 1A
GARROW LAKE - Station 262-3
Trend In Zinc Concentrations In The Water Column 2002 to 2008

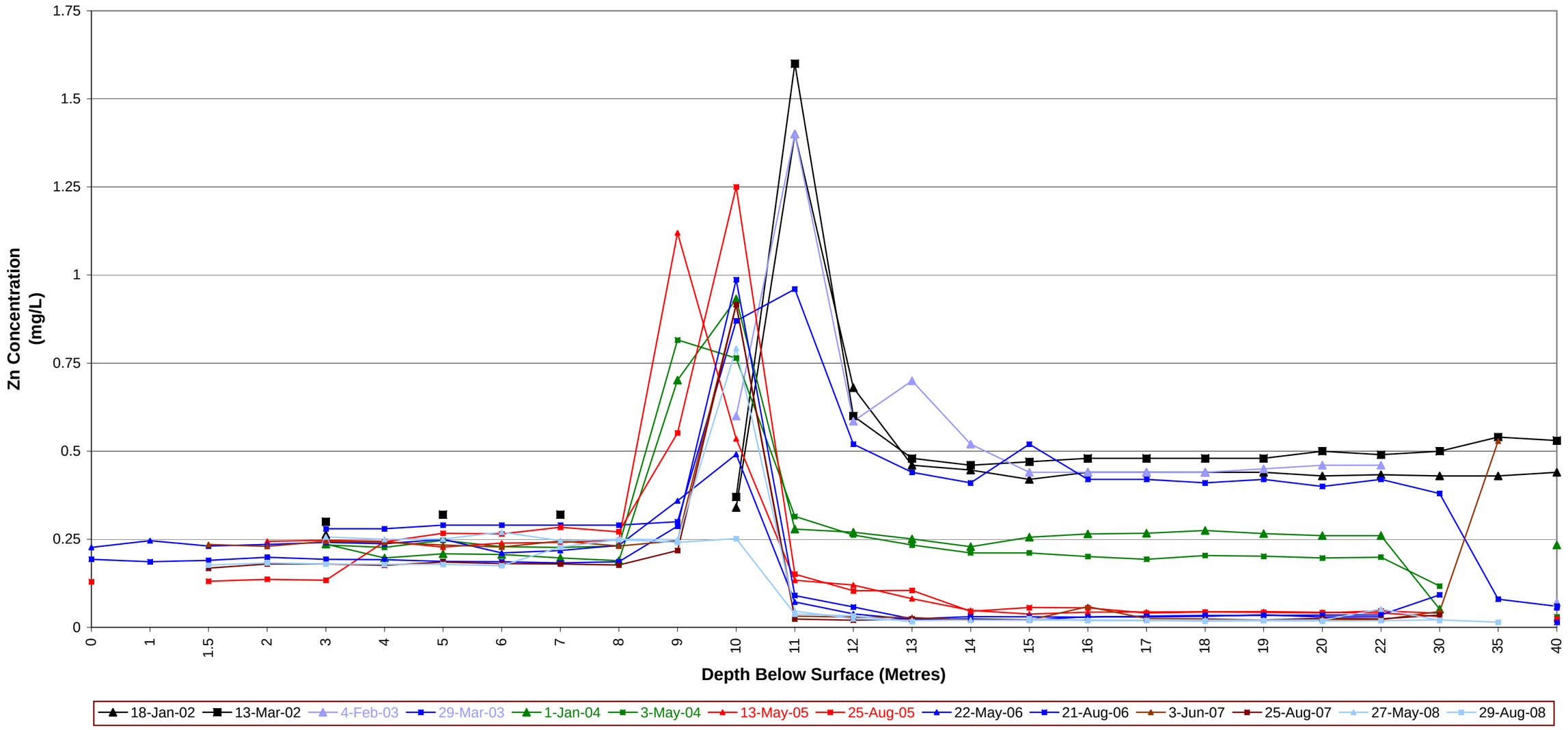


FIGURE 1B
Last 4 YEARS - SPRING
GARROW LAKE - Station 262-3
Trend In Zinc Concentrations In The Water Column 2005 to 2008

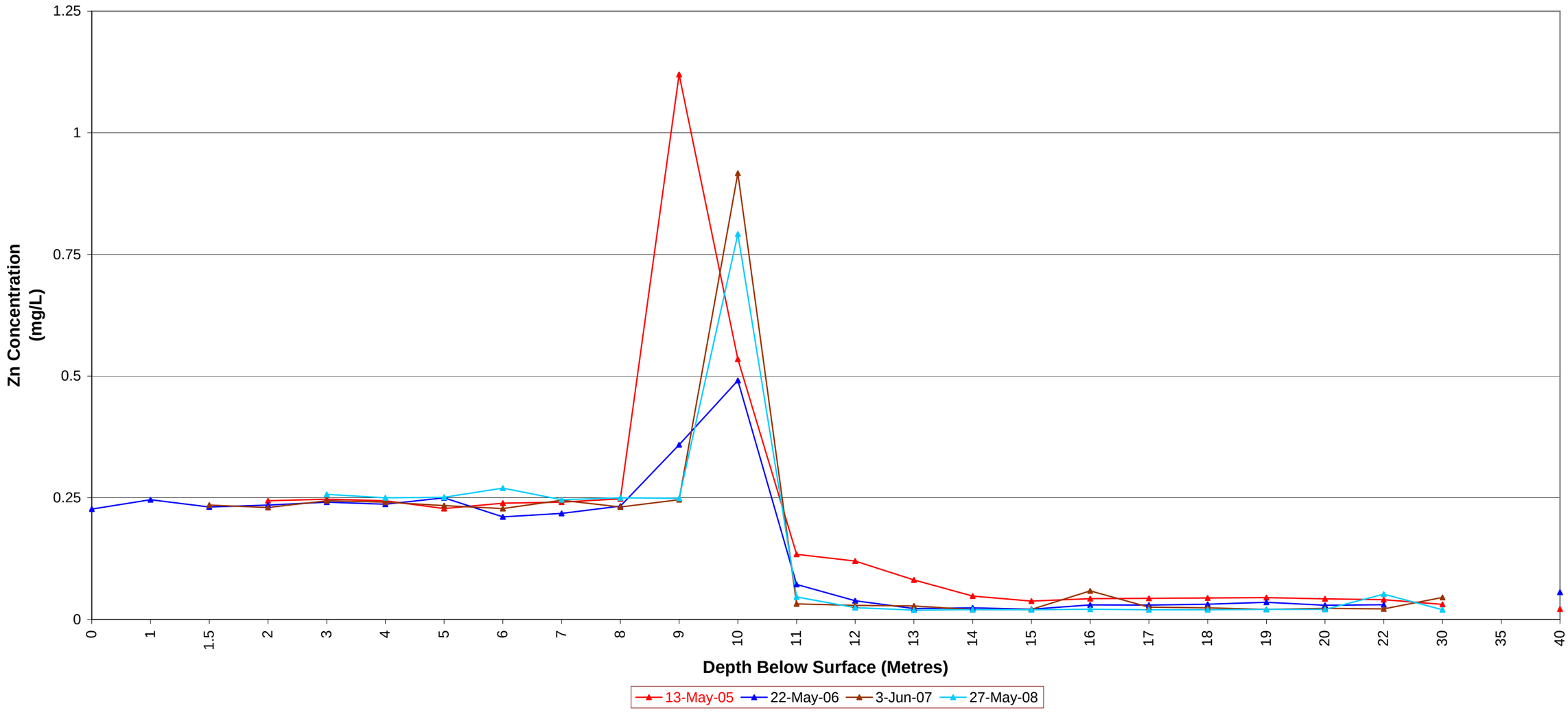


FIGURE 1C
Last 4 YEARS - SUMMER
GARROW LAKE - Station 262-3
Trend In Zinc Concentrations In The Water Column 2005 to 2008

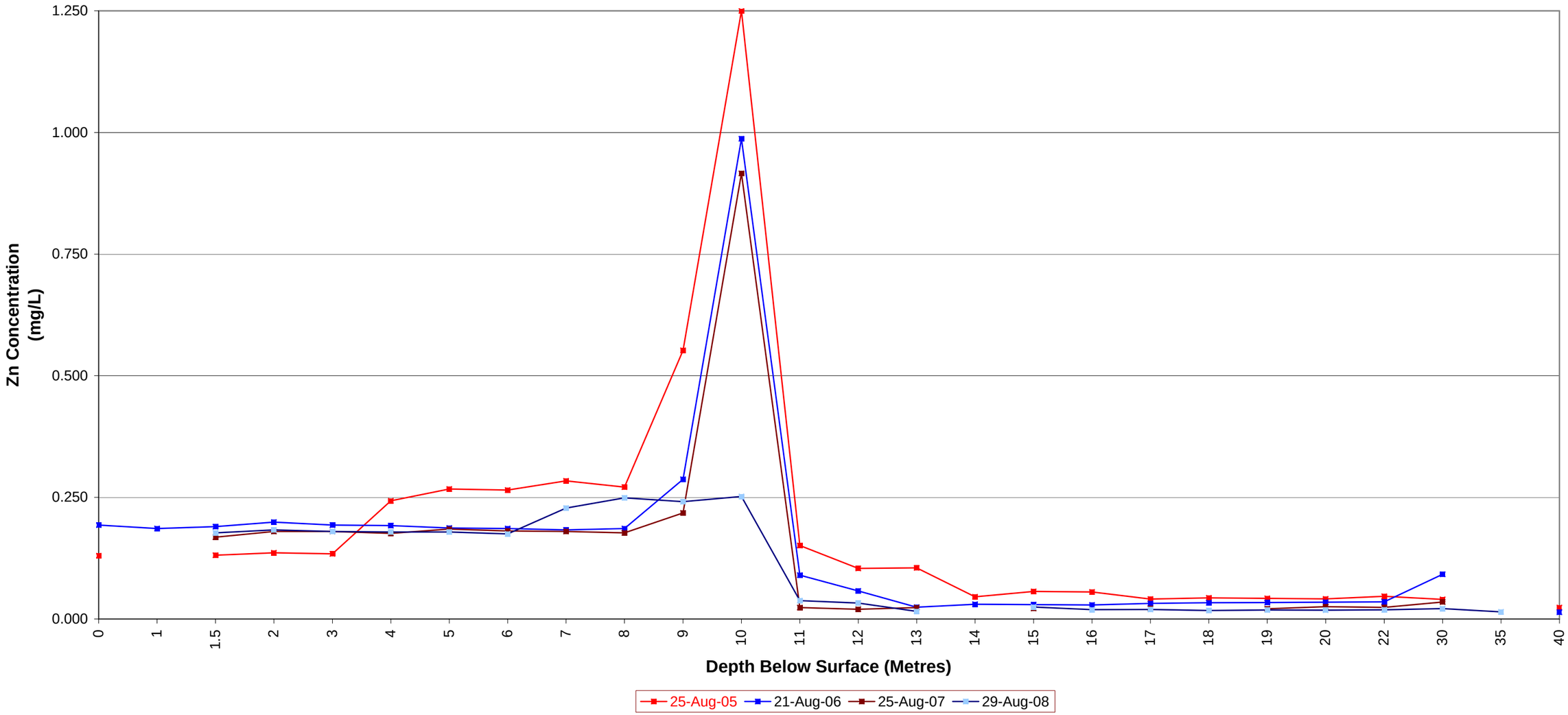


TABLE 2
GARROW LAKE
WATER COLUMN MONITORING
STATION 262-3A: Garrow Lake Near Discharge

	Zinc Concentrations mg/L									
Depth	**27-Jan-04**	**3-May-04**	**13-May-05**	**25-Aug-05**	**22-May-06**	**21-Aug-06**	**3-Jun-07**	**25-Aug-07**	**27-May-08**	**29-Aug-08**
0				0.113	0.246	0.233				
1				0.112	0.244	0.218				
1.5				0.104	0.255	0.222	0.212	0.178		0.151
2			0.224	0.109	0.235	0.235	0.207	0.182		0.145
3	0.223	0.232	0.221	0.115	0.267	0.213	0.210	0.186	0.257	0.150
4	0.211	0.230	0.231	0.176	0.205	0.215	0.207	0.186	0.250	0.155
5	0.223	0.250	0.206	0.219	0.216	0.222	0.212	0.191	0.251	0.149
6	0.202	0.240	0.219	0.230	0.243	0.217	0.191	0.180	0.270	0.152
7	0.208	0.252	0.228	0.240	0.246	0.220	0.186	0.177	0.246	0.222
8	0.223	0.228	0.264	0.253	0.237	0.221	0.167	0.201	0.250	0.216
9	1.000	0.916	0.854	0.574	0.374	0.369	0.196	0.251	0.249	0.232
10	0.423	0.496	0.501	1.090	0.983	1.190	0.720	1.030	0.792	0.495
11	0.308	0.300	0.136	0.146	0.098	0.108	0.038	0.030	0.046	0.325
12	0.297	0.283	0.106	0.094	0.059	0.080	0.025	0.023	0.024	0.018
13	0.238	0.250	0.042	0.089	0.032	0.056	0.023	0.028	0.019	0.013
14	0.241	0.203	0.041	0.030	0.031	0.037	0.017	0.021	0.020	0.022
15	0.261	0.211	0.045	0.037	0.030	0.035	0.018	0.023	0.020	0.019
16	0.270	0.193	0.041	0.040	0.032	0.034	0.018	0.020	0.021	0.018
17	0.272	0.198	0.046	0.038	0.030	0.038	0.018	0.019	0.021	0.018
18	0.265	0.198	0.039	0.037	0.026	0.032	0.019	0.021	0.021	0.018
19	0.263	0.201	0.047	0.042	0.032	0.031	0.018	0.022	0.019	
20	0.266	0.206	0.042	0.035	0.029	0.031	0.021	0.020	0.021	
22	0.267				0.029			0.023		
30	0.076									
40	0.075									

Note - The Water Licence did not require sampling of this station prior to 2004

FIGURE 2A
GARROW LAKE - Station 262-3A
Zinc Concentrations In The Water Column

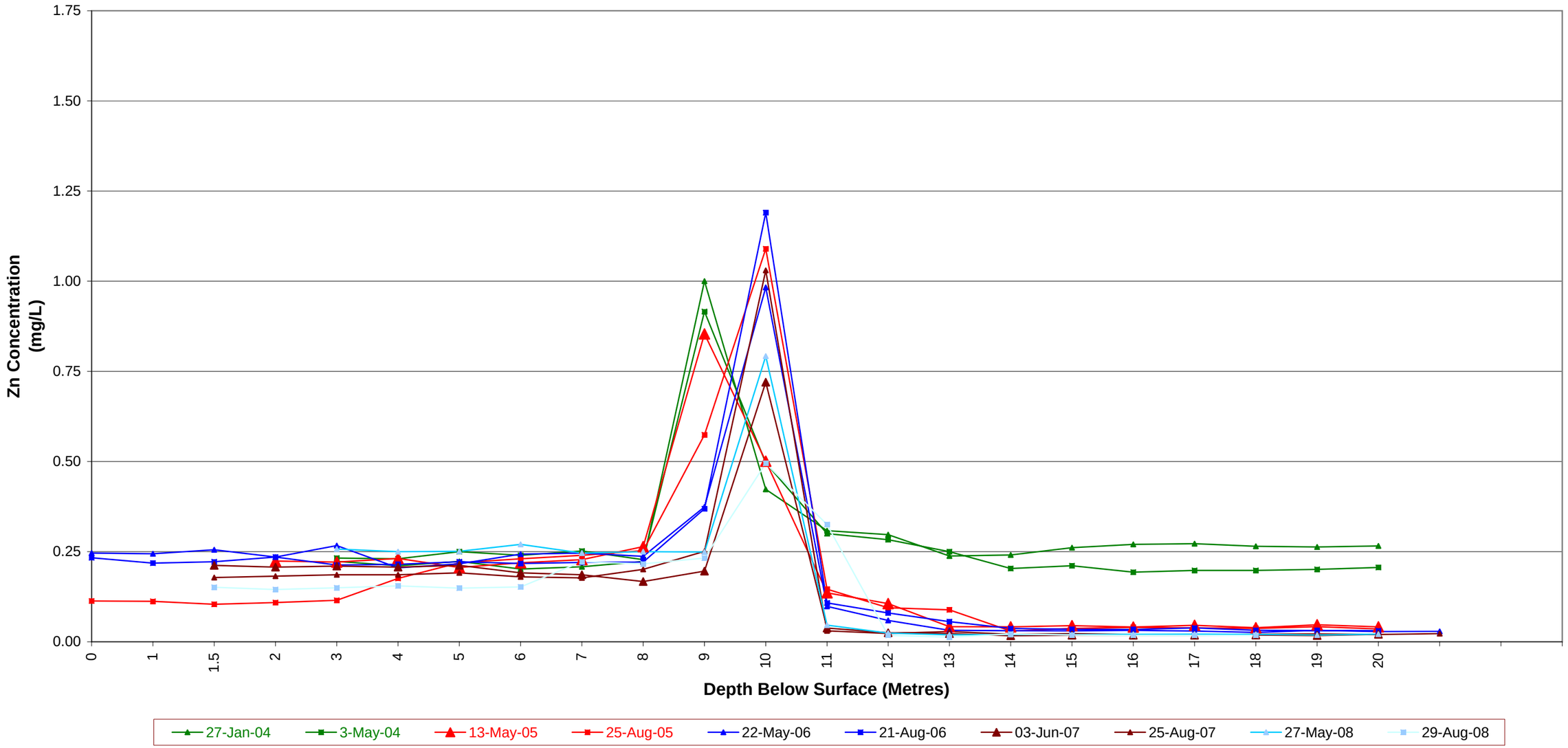


FIGURE 2B
LAST 4 YEARS - SPRING
GARROW LAKE - Station 262-3A
Zinc Concentrations In The Water Column 2005 to 2008

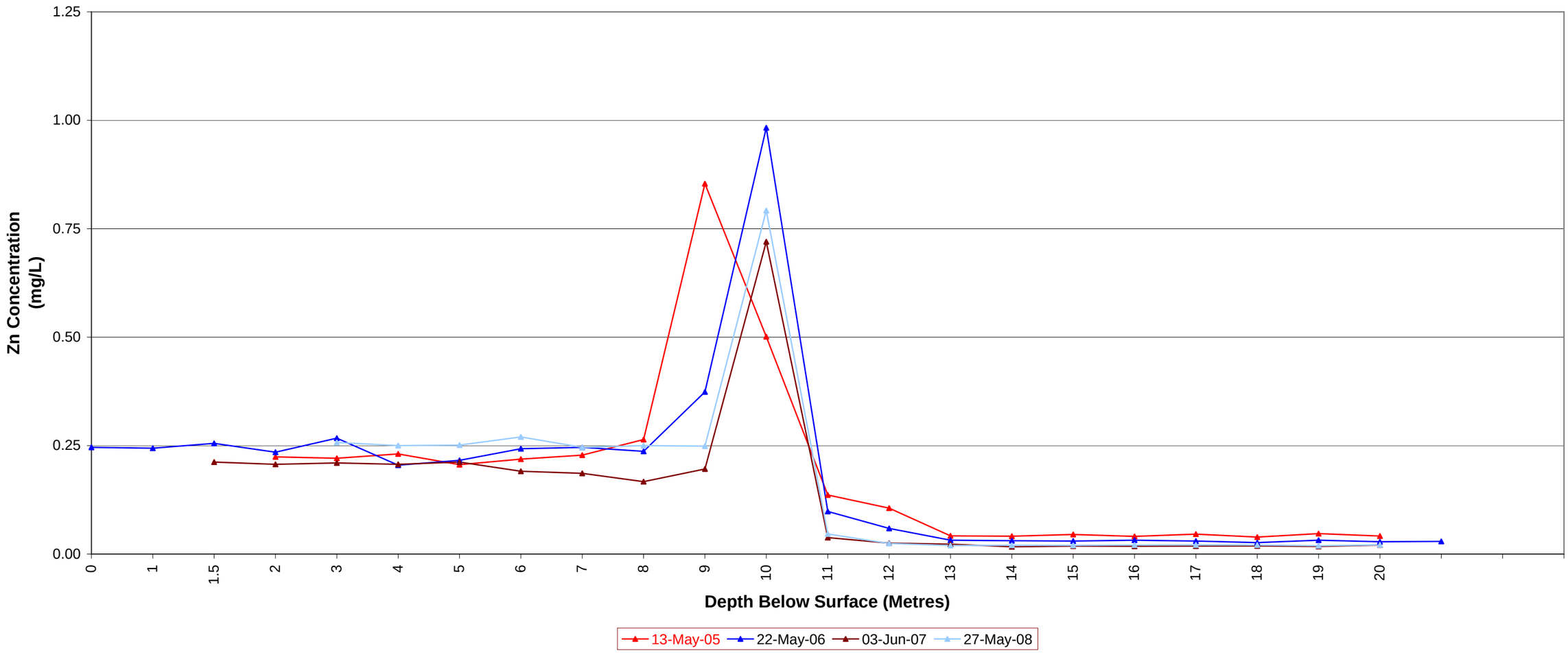


FIGURE 2C
LAST 4 YEARS - SUMMER
GARROW LAKE - Station 262-3A
Zinc Concentrations In The Water Column 2005 to 2008

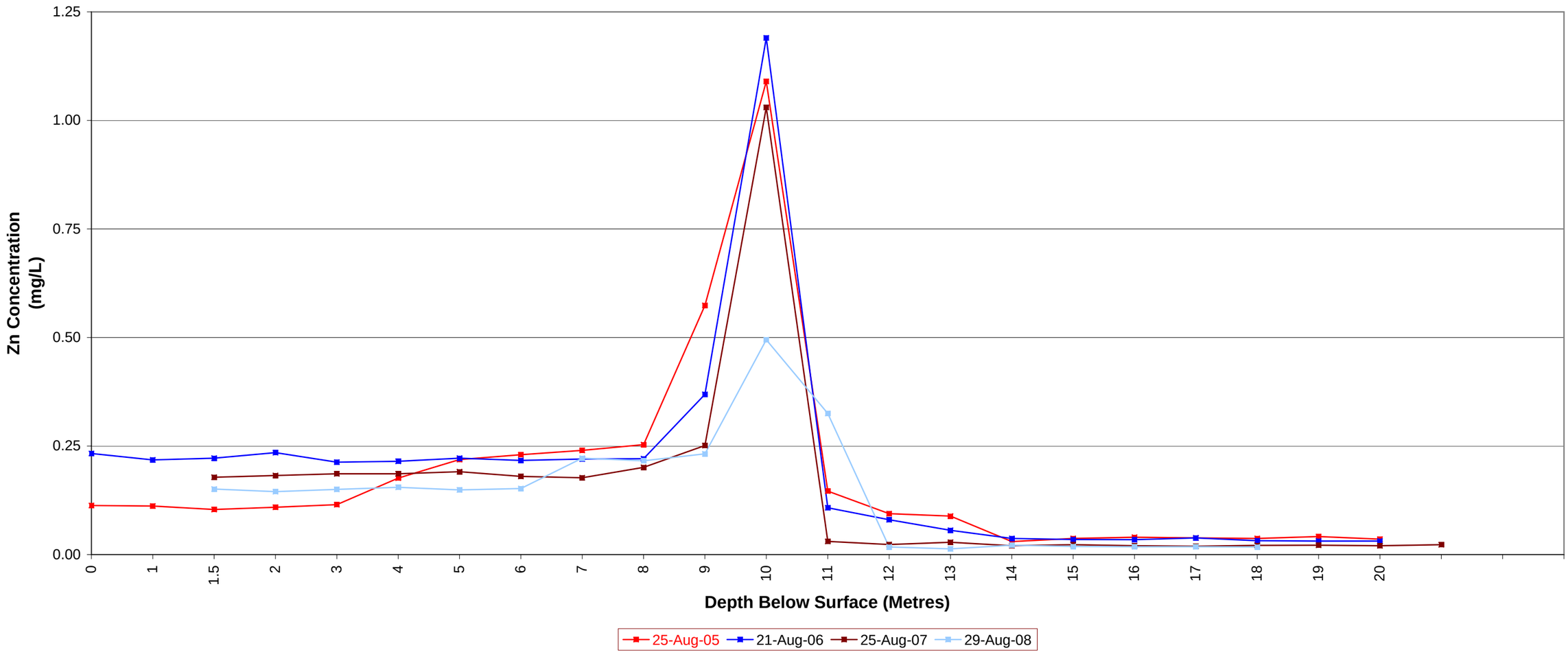


TABLE 3

GARROW LAKE

2008 WATER COLUMN MONITORING

COMPARE MID AND SOUTH

MONITORING STATION DATA

(mg/L Zn)

Depth Metres	May Sampling		August Sampling	
	262-3	262-3A	262-3	262-3A
0				
1				
1.5			0.177	0.151
2			0.183	0.145
3	0.257	0.257	0.180	0.150
4	0.250	0.250	0.179	0.155
5	0.251	0.251	0.179	0.149
6	0.270	0.270	0.175	0.152
7	0.246	0.246	0.228	0.222
8	0.250	0.250	0.249	0.216
9	0.249	0.249	0.241	0.232
10	0.792	0.792	0.252	0.495
11	0.046	0.046	0.038	0.325
12	0.024	0.024	0.033	0.018
13	0.019	0.019	0.016	0.013
14	0.020	0.020	0.019	0.022
15	0.020	0.020	0.025	0.019
16	0.021	0.021	0.019	0.018
17	0.020	0.021	0.020	0.018
18	0.020	0.021	0.017	0.018
19	0.021	0.019	0.018	
20	0.021	0.021	0.018	
22	0.052		0.019	
30	0.020		0.021	
36			0.015	
40				

Note:

- 27-May-08 for Station 262-3, didn't show the 36M depth sample as zinc was 2.01. Sampler believed to have hit the bottom contaminating the sample.

FIGURE 3A
GARROW LAKE
Comparision of Zinc Concentrations In The Water Column Between Monitoring Stations 262-3 In May and August of 2008

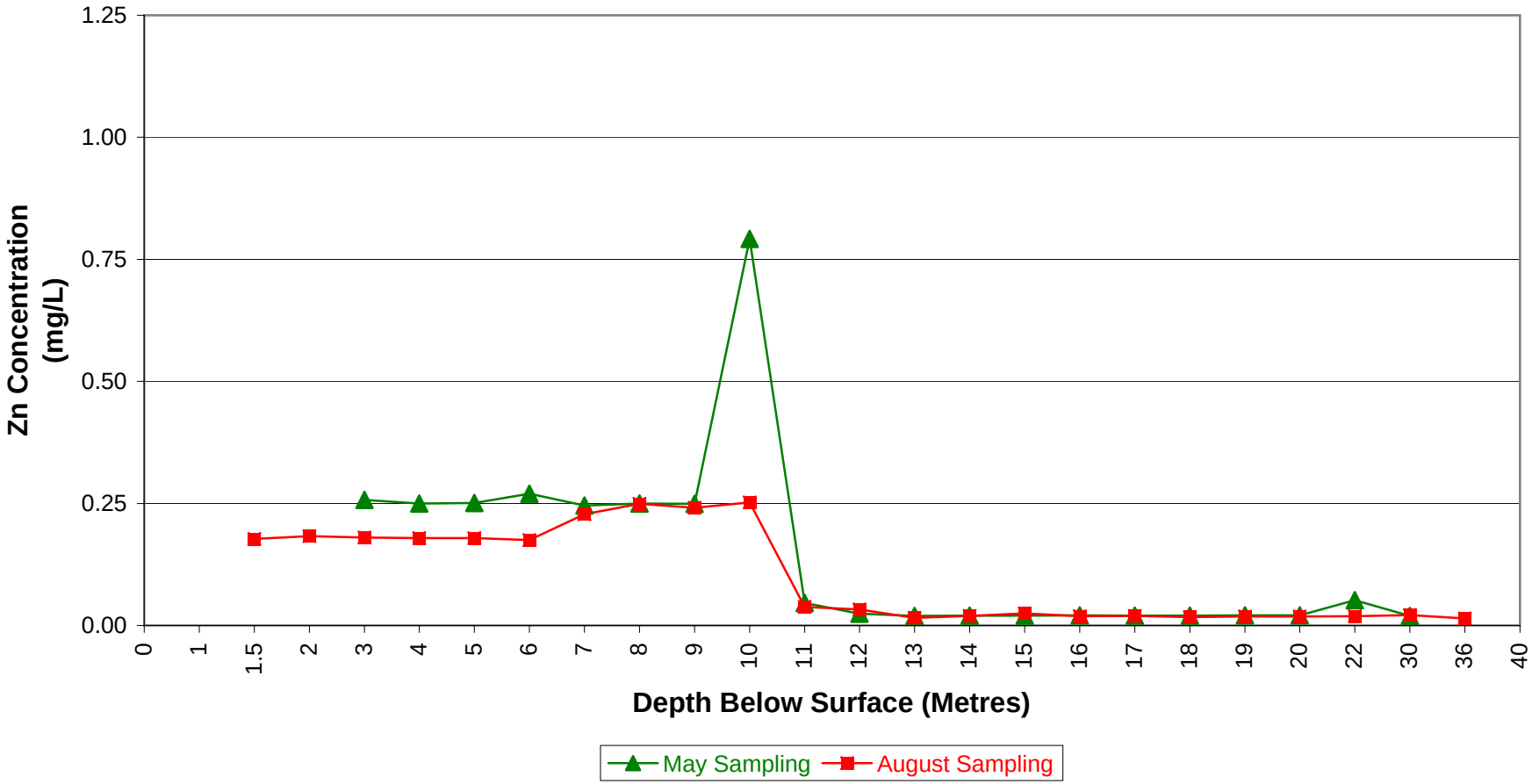


FIGURE 3B
GARROW LAKE - May 2008
Comparision of Zinc Concentrations In The Water Column Between Monitoring Stations 262-3 and 262-3A

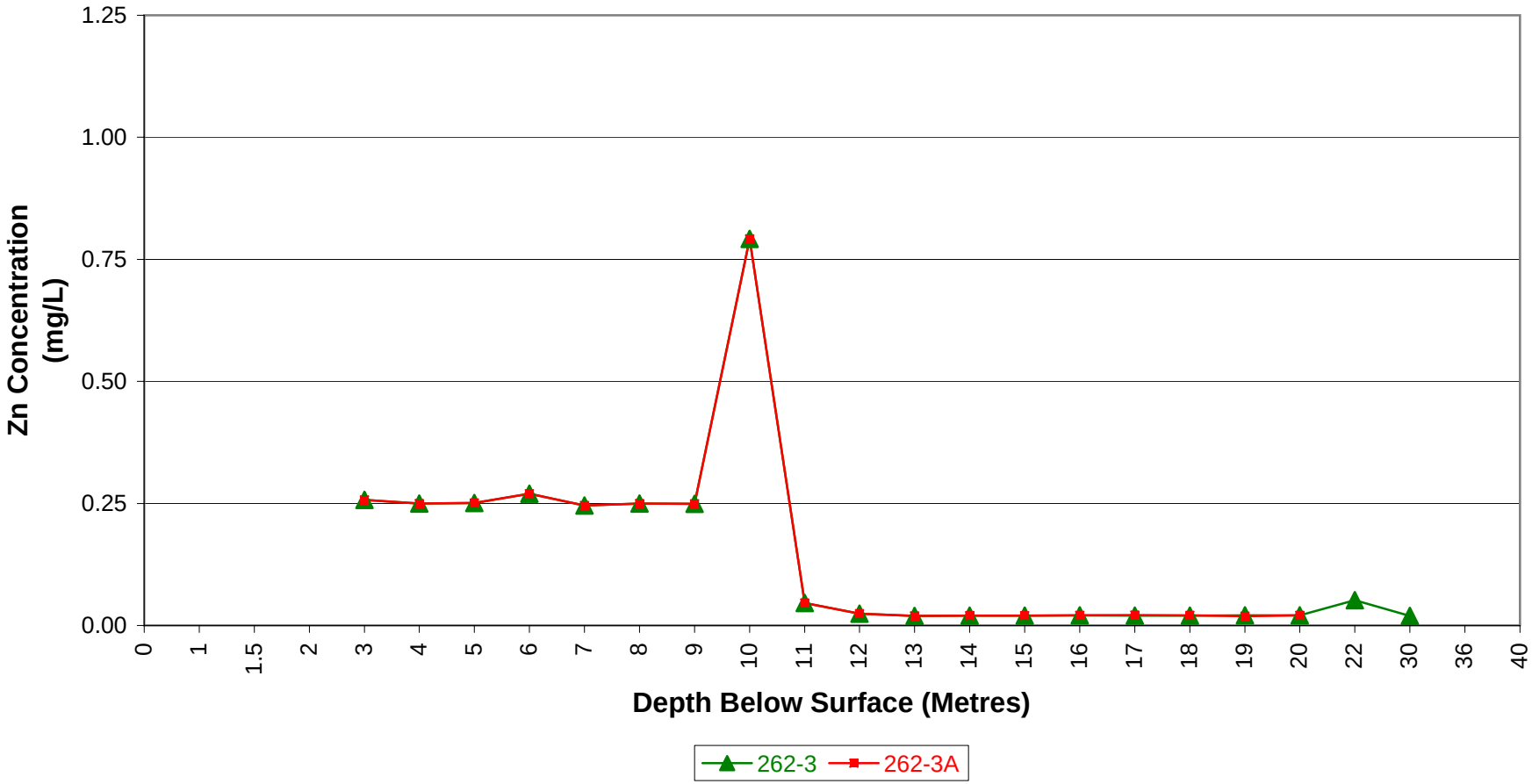
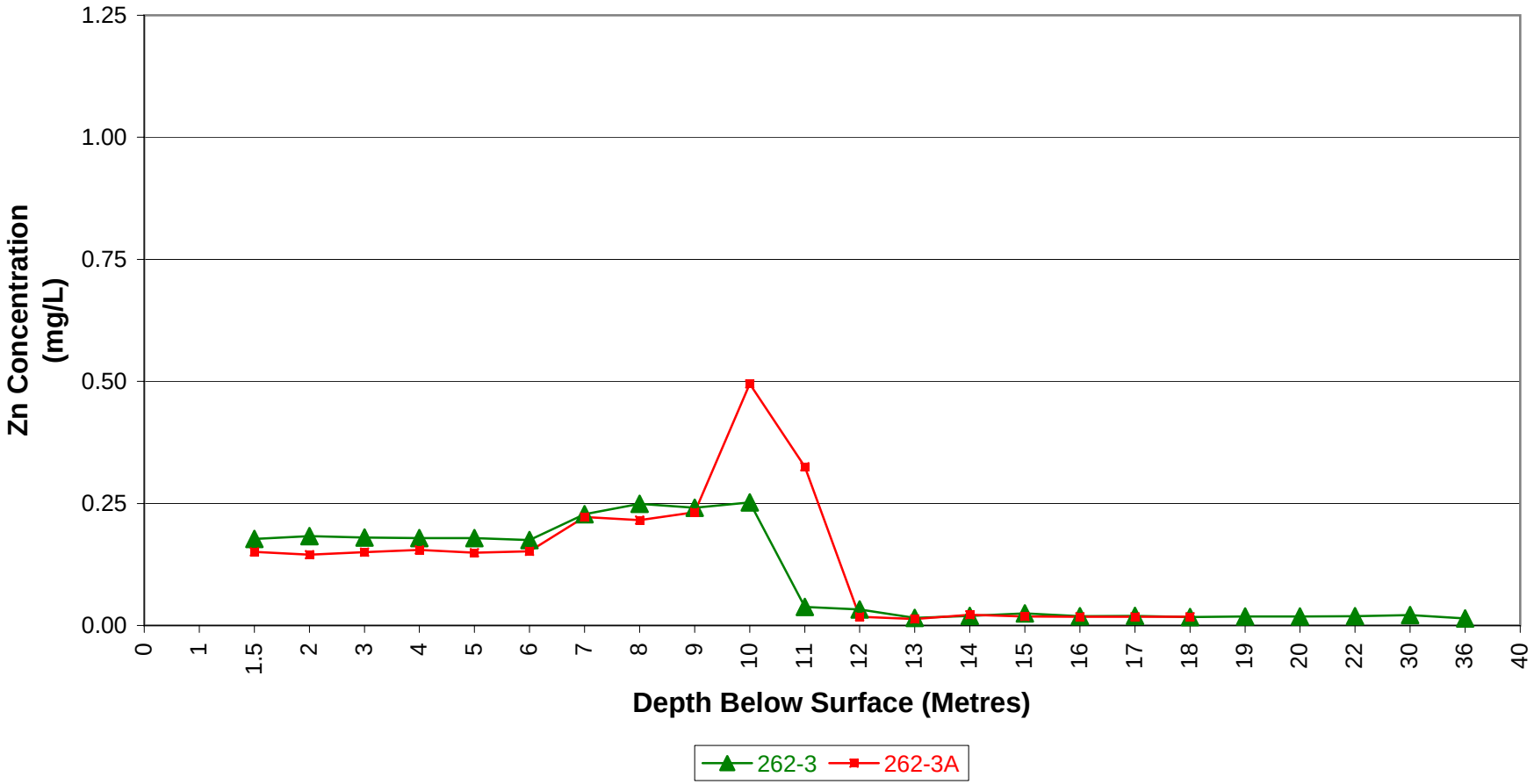


FIGURE 3C
GARROW LAKE - August 2008
Comparision of Zinc Concentrations In The Water Column Between Monitoring Stations 262-3 and 262-3A



APPENDIX 5

Garrow Lake Water Column

Minimum Ice Conditions

Monitoring Event Laboratory Data

(August 29, 2008)

Certificate of Analysis

TECK COMINCO METALS LTD.

ATTN: BRUCE DONALD

BAG 2000

KIMBERLEY BC V1A 3E1

Reported On: 15-SEP-08 11:45 AM

Lab Work Order #: L677272 **Date Received:** 02-SEP-08

Project P.O. #: 7397
Job Reference: 2008 AUGUST POLARIS GARROW LAKE
Legal Site Desc:
CofC Numbers:

Other Information:

Comments: Some of the metals detection limits were increased due to high levels of metals in these samples.

LINDSAY JONES
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L677272-1 Description: Sampled Date: 29-AUG-08 Sampled Time: 10:00 Client ID: GLC-1.5m	L677272-2 29-AUG-08 10:05 GLC-2m	L677272-3 29-AUG-08 10:10 GLC-3m	L677272-4 29-AUG-08 10:15 GLC-4m	L677272-5 29-AUG-08 10:20 GLC-5m
SEAWATER						
Physical Tests	Conductivity (uS/cm)	12000	12000	12000	12000	11900
	Hardness (as CaCO3) (mg/L)	1460	1470	1370	1440	1450
	pH (pH)	7.87	8.08	8.09	8.04	7.95
	Salinity (EC) (g/L)	6.9	6.9	6.9	6.9	6.9
	Total Suspended Solids (mg/L)	<3.0	3.3	4.0	<3.0	<3.0
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	114	118	114	112	113
	Sulphide as S (mg/L)					
Total Metals	Aluminum (Al)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Arsenic (As)-Total (mg/L)	<0.00020	<0.00020	0.00029	<0.00020	<0.00020
	Cadmium (Cd)-Total (mg/L)	0.000443	0.000451	0.000443	0.000453	0.000442
	Calcium (Ca)-Total (mg/L)	126	127	118	125	126
	Copper (Cu)-Total (mg/L)	0.000990	0.000917	0.00104	0.00204	0.000916
	Iron (Fe)-Total (mg/L)	0.016	0.017	0.017	0.018	0.017
	Lead (Pb)-Total (mg/L)	0.000130	0.000121	0.000131	0.000142	0.000114
	Magnesium (Mg)-Total (mg/L)	278	279	261	275	276
	Manganese (Mn)-Total (mg/L)	0.00530	0.00550	0.00547	0.00549	0.00539
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
	Nickel (Ni)-Total (mg/L)	0.00400	0.00426	0.00430	0.00421	0.00412
	Zinc (Zn)-Total (mg/L)	0.177	0.183	0.180	0.179	0.179

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L677272-6 Description: Sampled Date: 29-AUG-08 Sampled Time: 10:25 Client ID: GLC-6m	L677272-7 29-AUG-08 10:30 GLC-7m	L677272-8 29-AUG-08 10:35 GLC-8m	L677272-9 29-AUG-08 10:40 GLC-9m	L677272-10 29-AUG-08 10:45 GLC-10m
SEAWATER						
Physical Tests	Conductivity (uS/cm)	11900	15200	16400	16700	18200
	Hardness (as CaCO3) (mg/L)	1400	1820	2050	2020	2130
	pH (pH)	8.12	8.08	8.03	8.07	8.12
	Salinity (EC) (g/L)	6.9	9.0	9.8	10.0	10.9
	Total Suspended Solids (mg/L)	4.7	3.3	4.7	<3.0	<3.0
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	110	139	152	161	152
	Sulphide as S (mg/L)	<0.020				<0.020
Total Metals	Aluminum (Al)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Arsenic (As)-Total (mg/L)	<0.00020	<0.00020	0.00021	<0.00020	0.00021
	Cadmium (Cd)-Total (mg/L)	0.000437	0.000553	0.000610	0.000593	0.000633
	Calcium (Ca)-Total (mg/L)	121	155	172	169	179
	Copper (Cu)-Total (mg/L)	0.000969	0.00101	0.00636	0.00112	0.00112
	Iron (Fe)-Total (mg/L)	0.016	0.013	0.011	0.011	0.011
	Lead (Pb)-Total (mg/L)	0.000084	0.000091	0.000236	0.000096	0.000105
	Magnesium (Mg)-Total (mg/L)	268	349	392	387	409
	Manganese (Mn)-Total (mg/L)	0.00535	0.00605	0.00641	0.00619	0.00689
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.0025	<0.0025	0.0028	0.0027	0.0027
	Nickel (Ni)-Total (mg/L)	0.00405	0.00497	0.00523	0.00519	0.00536
	Zinc (Zn)-Total (mg/L)	0.175	0.228	0.249	0.241	0.252

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-C-COL-VA	Seawater	Alkalinity by Colourimetric (seawater)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

AS-TOT-C-HVAAS-VA	Seawater	Total Arsenic in Seawater by HVAAS	PUGET SOUND PROTOCOLS, EPA 7000 SERIES

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis of the seawater is by atomic absorption/emission spectrophotometry (EPA Method 7000 series).

EC-C-PCT-VA	Seawater	Conductivity (Automated) (seawater)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Seawater	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-TOT-C-CVAFS-VA	Seawater	Total Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-TOT-C-ICP-VA	Seawater	Total Metals in Seawater by ICPOES	PUGET SOUND PROTOCOLS, EPA 6010B

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-C-LOW-MS-VA	Seawater	Total Metals in Seawater by ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by atomic inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-SPE-MS-VA	Seawater	Total Metals in Seawater by SPE ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995, and with procedures adapted from Cetac Technologies Incorporated. A suspended particulate resin (SPR), consisting of immobilized iminodiacetate (IDA) on a divinylbenzene polymer, is used to chelate and preconcentrate metals in seawater. Instrumental analysis is by inductively coupled plasma mass spectrometry (ICPMS).

PH-C-PCT-VA	Seawater	pH by Meter (Automated) (seawater)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

S2-C-T-COL-VA	Seawater	Tot. Sulphide by Colorimetric (seawater)	APHA 4500-S2 "Sulphide"

This analysis is carried out using procedures adapted from APHA Method 4500-S2 "Sulphide". Sulphide is determined using the methlyene blue colourimetric method.

SALINITY-C-EC-VA	Seawater	Salinity by calc. using EC (seawater)	APHA 2520 B

This analysis is carried out using procedures adapted from APHA Method 2520 "Salinity". Salinity is determined using a samples conductivity and the Practical Salinity Scale.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
TSS-C-VA	Seawater	Solids by Gravimetric (seawater)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Environmental
excellence in analytical testing

1988 Triumph Street, **Vancouver**, BC Canada V5L 1K5 Tel: 604-253-4188 Toll Free: 1-800-665-0243 Fax: 604-253-6700
#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8820 100th Street, **Fort St. John**, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286

www.alsenviro.com

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Teck Cominco Metals Ltd.				
ADDRESS:	Bag 2000				
CITY:	Kimberley	PROV:	BC	POSTAL CODE:	V1A 3E1
TEL:	250-427-8405	FAX:	250-427-8451	CONTACT:	Bruce Donald
PROJECT NAME AND NO.:		2008 August Polaris Garrow Lake		SAMPLER:	Curtis Kidd
QUOTE NO.:		PO NO.:		ALS CONTACT:	
REPORT FORMAT:	☑ HARDCOPY	☑ EMAIL - ADDRESS:	bruce.donald@teckcominco.co		
667272	☐ FAX	☑ EXCEL	☑ PDF	☐ OTHER:	

ANALYSIS REQUESTED:

FOR LAB USE ONLY WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Conductivity, hardness, pH, salinity	TSS, Alkalinity	Total Metals (MS-ICP)	Sulphide										NOTES (sample specific comments, due dates, etc.)
	GLC-1.5m	2008-08-29	10:00	seawater	x	x	x											
	GLC-2m	2008-08-29	10:05	seawater	x	x	x											
	GLC-3m	2008-08-29	10:10	seawater	x	x	x											
	GLC-4m	2008-08-29	10:15	seawater	x	x	x											
	GLC-5m	2008-08-29	10:20	seawater	x	x	x											
	GLC-6m	2008-08-29	10:25	seawater	x	x	x	x										
	GLC-7m	2008-08-29	10:30	water	x	x	x											
	GLC-8m	2008-08-29	10:35	seawater	x	x	x											
	GLC-9m	2008-08-29	10:40	seawater	x	x	x											
	GLC-10m	2008-08-29	10:45	seawater	x	x	x	x										

TURN AROUND REQUIRED:	◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)	RELINQUISHED BY:	DATE: Aug. 30/08	RECEIVED BY:	DATE: Sep 2
		Curtis Kidd	TIME: 3 pm	MB	TIME: 1030
SEND INVOICE TO:	☑ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)	RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
INVOICE FORMAT:	☑ HARDCOPY ☐ PDF ☐ FAX		TIME:		TIME:

SPECIAL INSTRUCTIONS: Water is hypersaline, for TSS measurement run 1-2L distilled through filters!!!
CC: alaudrum@gartnerlee.com; Total metals have been preserved with HNO3; No preservative for general parameters; Sulfide has been preserved with NaOH and zinc acetate

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature:	Cooling Method?
X Yes ___ No ___ N/A	16.0 °C	___ Icepacks X Ice ___ None
	Frozen? ___ Yes X No	

Certificate of Analysis

TECK COMINCO METALS LTD.

ATTN: BRUCE DONALD

BAG 2000

KIMBERLEY BC V1A 3E1

Reported On: 16-SEP-08 10:23 AM

Lab Work Order #: **L677081** **Date Received:** **02-SEP-08**

Project P.O. #: 7397
Job Reference: 2008 AUGUST POLARIS GARROW LAKE
Legal Site Desc:
CofC Numbers:

Other Information:

Comments:

LINDSAY JONES
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L677081-1	L677081-2	L677081-3	L677081-4	L677081-5
	Description					
	Sampled Date	29-AUG-08	29-AUG-08	29-AUG-08	29-AUG-08	29-AUG-08
	Sampled Time	10:50	10:55	11:00	11:05	11:10
	Client ID	GLC-11m	GLC-12m	GLC-13m	GLC-14m	GLC-15m
Grouping	**Analyte**					
SEAWATER						
Physical Tests	Conductivity (uS/cm)	50600	87000	87900	88100	88200
	Hardness (as CaCO3) (mg/L)	12700	12900	13100	13300	12900
	pH (pH)	7.89	7.79	7.76	7.77	7.77
	Salinity (EC) (g/L)	33.9	62.9	63.7	63.8	63.9
	Total Suspended Solids (mg/L)	10.7	10.7	10.7	8.7	13.3
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	239	427	430	432	451
	Sulphide as S (mg/L)		<0.020		<0.020	
Total Metals	Aluminum (Al)-Total (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Arsenic (As)-Total (mg/L)	<0.00020	0.00037	0.00044	<0.00020	<0.00020
	Cadmium (Cd)-Total (mg/L)	0.000051	0.000043	<0.000020	0.000022	0.000023
	Calcium (Ca)-Total (mg/L)	825	834	871	889	857
	Copper (Cu)-Total (mg/L)	0.000661	0.000590	0.000320	0.000381	0.000429
	Iron (Fe)-Total (mg/L)	0.061	0.060	0.123	0.417	0.392
	Lead (Pb)-Total (mg/L)	0.000579	0.000515	0.000451	0.000800	0.00102
	Magnesium (Mg)-Total (mg/L)	2590	2620	2660	2680	2620
	Manganese (Mn)-Total (mg/L)	0.127	0.127	0.116	0.103	0.103
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.025
	Nickel (Ni)-Total (mg/L)	0.00890	0.00870	0.00759	0.00569	0.00583
	Zinc (Zn)-Total (mg/L)	0.0377	0.0328	0.0158	0.0194	0.0246

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L677081-6	L677081-7	L677081-8	L677081-9	L677081-10
	Description					
	Sampled Date	29-AUG-08	29-AUG-08	29-AUG-08	29-AUG-08	29-AUG-08
	Sampled Time	11:15	11:20	11:25	11:30	11:35
	Client ID	GLC-16m	GLC-17m	GLC-18m	GLC-19m	GLC-20m
Grouping	**Analyte**					
SEAWATER						
Physical Tests	Conductivity (uS/cm)	88300	88300	88000	88100	88300
	Hardness (as CaCO3) (mg/L)	13100	13000	13200	13200	12600
	pH (pH)	7.77	7.78	7.77	7.76	7.78
	Salinity (EC) (g/L)	64.0	64.0	63.8	63.8	64.0
	Total Suspended Solids (mg/L)	17.3	6.7	15.3	10.0	8.7
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	440	439	441	431	425
	Sulphide as S (mg/L)	<0.020		<0.020		<0.020
Total Metals	Aluminum (Al)-Total (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
	Arsenic (As)-Total (mg/L)	<0.00020	0.00023	<0.00020	<0.00020	<0.00020
	Cadmium (Cd)-Total (mg/L)	<0.000020	0.000021	<0.000020	<0.000020	<0.000020
	Calcium (Ca)-Total (mg/L)	863	863	866	885	787
	Copper (Cu)-Total (mg/L)	0.000370	0.000595	0.000329	0.000341	0.000357
	Iron (Fe)-Total (mg/L)	0.368	0.352	0.348	0.352	0.341
	Lead (Pb)-Total (mg/L)	0.00190	0.00105	0.000772	0.000792	0.000766
	Magnesium (Mg)-Total (mg/L)	2660	2630	2680	2680	2590
	Manganese (Mn)-Total (mg/L)	0.0988	0.102	0.0976	0.100	0.0969
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.025
	Nickel (Ni)-Total (mg/L)	0.00565	0.00568	0.00552	0.00558	0.00556
	Zinc (Zn)-Total (mg/L)	0.0192	0.0197	0.0174	0.0184	0.0182

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L677081-11	L677081-12	L677081-13		
	Description					
	Sampled Date	29-AUG-08	29-AUG-08	29-AUG-08		
	Sampled Time	11:40	11:50	12:00		
	Client ID	GLC-22m	GLC-30m	GLC-36m		
Grouping	**Analyte**					
SEAWATER						
Physical Tests	Conductivity (uS/cm)	88200	88700	89500		
	Hardness (as CaCO3) (mg/L)	12600	12900	12900		
	pH (pH)	7.79	7.78	7.73		
	Salinity (EC) (g/L)	63.9	64.4	65.0		
	Total Suspended Solids (mg/L)	20.0	24.0	16.7		
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	432	437	434		
	Sulphide as S (mg/L)	<0.020	0.86	2.37		
Total Metals	Aluminum (Al)-Total (mg/L)	<0.50	<0.50	<0.50		
	Arsenic (As)-Total (mg/L)	<0.00020	0.00023	0.00042		
	Cadmium (Cd)-Total (mg/L)	<0.000020	0.000026	0.000032		
	Calcium (Ca)-Total (mg/L)	808	820	805		
	Copper (Cu)-Total (mg/L)	0.000335	0.000289	0.000326		
	Iron (Fe)-Total (mg/L)	0.358	0.364	0.226		
	Lead (Pb)-Total (mg/L)	0.000819	0.00425	0.00673		
	Magnesium (Mg)-Total (mg/L)	2580	2630	2660		
	Manganese (Mn)-Total (mg/L)	0.0999	0.0926	0.0690		
	Mercury (Hg)-Total (mg/L)	<0.000010	0.000049	<0.000010		
	Molybdenum (Mo)-Total (mg/L)	<0.025	<0.025	<0.025		
	Nickel (Ni)-Total (mg/L)	0.00567	0.00362	0.00130		
	Zinc (Zn)-Total (mg/L)	0.0189	0.0212	0.0146		

Reference Information

Additional Comments for Sample Listed:

Samplenum	Matrix	Report Remarks	Sample Comments

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-C-COL-VA	Seawater	Alkalinity by Colourimetric (seawater)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

AS-TOT-C-HVAAS-VA	Seawater	Total Arsenic in Seawater by HVAAS	PUGET SOUND PROTOCOLS, EPA 7000 SERIES

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis of the seawater is by atomic absorption/emission spectrophotometry (EPA Method 7000 series).

EC-C-PCT-VA	Seawater	Conductivity (Automated) (seawater)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Seawater	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-TOT-C-CVAFS-VA	Seawater	Total Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-TOT-C-ICP-VA	Seawater	Total Metals in Seawater by ICPOES	PUGET SOUND PROTOCOLS, EPA 6010B

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-C-LOW-MS-VA	Seawater	Total Metals in Seawater by ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by atomic inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-SPE-MS-VA	Seawater	Total Metals in Seawater by SPE ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995, and with procedures adapted from Cetac Technologies Incorporated. A suspended particulate resin (SPR), consisting of immobilized iminodiacetate (IDA) on a divinylbenzene polymer, is used to chelate and preconcentrate metals in seawater. Instrumental analysis is by inductively coupled plasma mass spectrometry (ICPMS).

PH-C-PCT-VA	Seawater	pH by Meter (Automated) (seawater)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

S2-C-T-COL-VA	Seawater	Tot. Sulphide by Colorimetric (seawater)	APHA 4500-S2 "Sulphide"

This analysis is carried out using procedures adapted from APHA Method 4500-S2 "Sulphide". Sulphide is determined using the methlyene blue colourimetric method.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
SALINITY-C-EC-VA	Seawater	Salinity by calc. using EC (seawater)	APHA 2520 B

This analysis is carried out using procedures adapted from APHA Method 2520 "Salinity". Salinity is determined using a samples conductivity and the Practical Salinity Scale.

TSS-C-VA	Seawater	Solids by Gravimetric (seawater)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

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#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8820 100th Street, **Fort St. John**, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286

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CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Teck Cominco Metals Ltd.				
ADDRESS:	Bag 2000				
CITY:	Kimberley	PROV:	BC	POSTAL CODE:	V1A 3E1
TEL:	250-427-8405	FAX:	250-427-8451	CONTACT:	Bruce Donald
PROJECT NAME AND NO.:		2008 August Polaris Garrow Lake		SAMPLER:	Curtis Kidd
QUOTE NO.:		PO NO.:		ALS CONTACT:	

REPORT FORMAT: 677081

☑ HARDCOPY ☑ EMAIL - ADDRESS: bruce.donald@teckcominco.co

☐ FAX ☑ EXCEL ☑ PDF ☐ OTHER:

ANALYSIS REQUESTED:

FOR LAB USE ONLY	WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Conductivity, hardness, pH, salinit	TSS, Alkalinity	Total Metals (MS-ICP)	Sulphide										NOTES (sample specific comments, due dates, etc.)
		GLC-11m	2008-08-29	10:50	seawater	x	x	x											
		GLC-12m	2008-08-29	10:55	seawater	x	x	x	x										
		GLC-13m	2008-08-29	11:00	seawater	x	x	x											
		GLC-14m	2008-08-29	11:05	seawater	x	x	x	x										
		GLC-15m	2008-08-29	11:10	seawater	x	x	x											
		GLC-16m	2008-08-29	11:15	seawater	x	x	x	x										
		GLC-17m	2008-08-29	11:20	seawater	x	x	x											
		GLC-18m	2008-08-29	11:25	seawater	x	x	x	x										
		GLC-19m	2008-08-29	11:30	seawater	x	x	x											
		GLC-20m	2008-08-29	11:35	seawater	x	x	x	x										

TURN AROUND REQUIRED: ◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)

SEND INVOICE TO: ☑ SAME AS REPORT ☑ DIFFERENT FROM REPORT (provide details below)

INVOICE FORMAT: ☑ HARDCOPY ☐ PDF ☐ FAX

RELINQUISHED BY:	DATE:	Aug. 30/08	RECEIVED BY:	DATE:	
Curtis Kidd	TIME:	3 pm		TIME:	
RELINQUISHED BY:	DATE:		RECEIVED BY:	DATE:	Sept. 2
	TIME:		[illegible]	TIME:	10:30am

SPECIAL INSTRUCTIONS: Water is hypersaline, for TSS measurement run 1-2L distilled through filters!!!

CC: alaudrum@gartnerlee.com; Total metals have been preserved with HNO3; No preservative for general parameters; Sulfide has been preserved with NaOH and zinc acetate

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature: 12 °C	Cooling Method?
✓Yes ___No ___N/A	Frozen? ___Yes ✓No	___Icepacks ___Ice ✓None

all coolers.

ALS Environmental
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CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Teck Cominco Metals Ltd.				
ADDRESS:	Bag 2000				
CITY:	Kimberley	PROV:	BC	POSTAL CODE:	V1A 3E1
TEL:	250-427-8405	FAX:	250-427-8451	CONTACT:	Bruce Donald
PROJECT NAME AND NO.:		2008 August Polaris Garrow Lake		SAMPLER:	Curtis Kidd
QUOTE NO.:		PO NO.:		ALS CONTACT:	
REPORT FORMAT:	☑ HARDCOPY ☑ EMAIL - ADDRESS: bruce.donald@teckcominco.co				
	☐ FAX ☑ EXCEL ☑ PDF ☐ OTHER:				

ANALYSIS REQUESTED:

FOR LAB USE ONLY	WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Conductivity, hardness, pH, salinit	TSS, Alkalinity	Total Metals (MS-ICP)	Sulphide										NOTES (sample specific comments, due dates, etc.)
		GLC-22m	2008-08-29	11:40	seawater	x	x	x	x										
		GLC-30m	2008-08-29	11:50	seawater	x	x	x	x										
		GLC-36m	2008-08-29	12:00	seawater	x	x	x	x										

TURN AROUND REQUIRED: ◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)

SEND INVOICE TO: ☑ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)

INVOICE FORMAT: ☑ HARDCOPY ☐ PDF ☐ FAX

RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
Curtis Kidd	TIME: 3 pm		TIME:
RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
	TIME:		TIME:

SPECIAL INSTRUCTIONS: Water is hypersaline, for TSS measurement run 1-2L distilled through filters!!!
CC: alaudrum@gartnerlee.com; Total metals have been preserved with HNO3; No preservative for general parameters; Sulfide has been preserved with NaOH and zinc acetate

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature: 12 °C	Cooling Method?
___Yes ___No ___N/A	Frozen? ___Yes ___No	___Icepacks ___Ice ✓None

- all coolers.

Certificate of Analysis

TECK COMINCO METALS LTD.

ATTN: BRUCE DONALD

BAG 2000

KIMBERLEY BC V1A 3E1

Reported On: 15-SEP-08 11:48 AM

Lab Work Order #: **L677293** **Date Received:** **02-SEP-08**

Project P.O. #: 7397
Job Reference: 2008 AUGUST POLARIS GARROW LAKE
Legal Site Desc:
CofC Numbers:

Other Information:

Comments: Please note that sample GLS-4m appears twice on the Chain of Custody with two separate sampling times. Only one sample labellied GLS-4m was received with no sampling time indicated.

Some of the metals detection limits were increased due to high levels of metals in these samples.

LINDSAY JONES
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L677293-1 Description: Sampled Date: 29-AUG-08 Sampled Time: 02:00 Client ID: GLS-1.5m	L677293-2 29-AUG-08 02:05 GLS-2m	L677293-3 29-AUG-08 02:15 GLS-3M	L677293-4 29-AUG-08 02:10 GLS-4M	L677293-5 29-AUG-08 02:25 GLS-5M
SEAWATER						
Physical Tests	Conductivity (uS/cm)	11700	11500	11500	11500	11700
	Hardness (as CaCO3) (mg/L)	1480	1460	1460	1460	1480
	pH (pH)	8.07	8.08	8.09	8.10	8.06
	Salinity (EC) (g/L)	6.8	6.7	6.7	6.7	6.8
	Total Suspended Solids (mg/L)	<3.0	<3.0	4.7	<3.0	<3.0
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	117	113	112	108	124
	Sulphide as S (mg/L)					
Total Metals	Aluminum (Al)-Total (mg/L)	<0.050	<0.0010	<0.050	<0.050	<0.050
	Arsenic (As)-Total (mg/L)	<0.00020	<0.00020	0.00020	<0.00020	<0.00020
	Cadmium (Cd)-Total (mg/L)	0.000440	0.000435	0.000438	0.000444	0.000450
	Calcium (Ca)-Total (mg/L)	126	125	126	126	126
	Copper (Cu)-Total (mg/L)	0.000819	0.000783	0.000824	0.000806	0.000807
	Iron (Fe)-Total (mg/L)	0.011	0.012	0.012	0.011	0.012
	Lead (Pb)-Total (mg/L)	0.000222	0.000171	0.00127	0.000113	0.000136
	Magnesium (Mg)-Total (mg/L)	282	279	278	278	282
	Manganese (Mn)-Total (mg/L)	0.00485	0.00483	0.00497	0.00505	0.00495
	Mercury (Hg)-Total (mg/L)	<0.000010	0.000015	0.000017	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
	Nickel (Ni)-Total (mg/L)	0.00354	0.00349	0.00389	0.00363	0.00356
	Zinc (Zn)-Total (mg/L)	0.151	0.145	0.150	0.155	0.149

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L677293-6	L677293-7	L677293-8	L677293-9	
	Description					
	Sampled Date	29-AUG-08	29-AUG-08	29-AUG-08	29-AUG-08	
	Sampled Time	02:30	02:35	02:40	02:45	
	Client ID	GLS-6M	GLS-7M	GLS-8M	GLS-9M	
Grouping	**Analyte**					
SEAWATER						
Physical Tests	Conductivity (uS/cm)	11600	15500	15900	16100	
	Hardness (as CaCO3) (mg/L)	1450	1980	2050	2040	
	pH (pH)	8.08	8.11	8.11	8.10	
	Salinity (EC) (g/L)	6.8	9.2	9.5	9.6	
	Total Suspended Solids (mg/L)	<3.0	3.3	<3.0	<3.0	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	110	146	147	156	
	Sulphide as S (mg/L)	<0.020				
Total Metals	Aluminum (Al)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Arsenic (As)-Total (mg/L)	0.00023	<0.00020	<0.00020	<0.00020	
	Cadmium (Cd)-Total (mg/L)	0.000446	0.000642	0.000603	0.000666	
	Calcium (Ca)-Total (mg/L)	124	167	173	170	
	Copper (Cu)-Total (mg/L)	0.000816	0.00100	0.00100	0.00112	
	Iron (Fe)-Total (mg/L)	0.014	<0.010	<0.010	0.011	
	Lead (Pb)-Total (mg/L)	0.000108	0.000127	0.000131	0.000175	
	Magnesium (Mg)-Total (mg/L)	276	380	394	392	
	Manganese (Mn)-Total (mg/L)	0.00489	0.00593	0.00575	0.00611	
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Total (mg/L)	<0.0025	0.0025	0.0027	0.0036	
	Nickel (Ni)-Total (mg/L)	0.00353	0.00456	0.00444	0.00487	
	Zinc (Zn)-Total (mg/L)	0.152	0.222	0.216	0.232	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-C-COL-VA	Seawater	Alkalinity by Colourimetric (seawater)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

AS-TOT-C-HVAAS-VA	Seawater	Total Arsenic in Seawater by HVAAS	PUGET SOUND PROTOCOLS, EPA 7000 SERIES

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis of the seawater is by atomic absorption/emission spectrophotometry (EPA Method 7000 series).

EC-C-PCT-VA	Seawater	Conductivity (Automated) (seawater)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Seawater	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-TOT-C-CVAFS-VA	Seawater	Total Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-TOT-C-ICP-VA	Seawater	Total Metals in Seawater by ICPOES	PUGET SOUND PROTOCOLS, EPA 6010B

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-C-LOW-MS-VA	Seawater	Total Metals in Seawater by ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by atomic inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-SPE-MS-VA	Seawater	Total Metals in Seawater by SPE ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995, and with procedures adapted from Cetac Technologies Incorporated. A suspended particulate resin (SPR), consisting of immobilized iminodiacetate (IDA) on a divinylbenzene polymer, is used to chelate and preconcentrate metals in seawater. Instrumental analysis is by inductively coupled plasma mass spectrometry (ICPMS).

PH-C-PCT-VA	Seawater	pH by Meter (Automated) (seawater)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

S2-C-T-COL-VA	Seawater	Tot. Sulphide by Colorimetric (seawater)	APHA 4500-S2 "Sulphide"

This analysis is carried out using procedures adapted from APHA Method 4500-S2 "Sulphide". Sulphide is determined using the methlyene blue colourimetric method.

SALINITY-C-EC-VA	Seawater	Salinity by calc. using EC (seawater)	APHA 2520 B

This analysis is carried out using procedures adapted from APHA Method 2520 "Salinity". Salinity is determined using a samples conductivity and the Practical Salinity Scale.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
TSS-C-VA	Seawater	Solids by Gravimetric (seawater)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Environmental
excellence in analytical testing

1988 Triumph Street, **Vancouver**, BC Canada V5L 1K5 Tel: 604-253-4188 Toll Free: 1-800-665-0243 Fax: 604-253-6700
#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8820 100th Street, **Fort St. John**, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286

www.alsenviro.com

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Teck Cominco Metals Ltd.				
ADDRESS:	Bag 2000				
CITY:	Kimberley	PROV:	BC	POSTAL CODE:	V1A 3E1
TEL:	250-427-8405	FAX:	250-427-8451	CONTACT:	Bruce Donald
PROJECT NAME AND NO.:	2008 August Polaris Garrow Lake			SAMPLER:	Curtis Kidd
QUOTE NO.:		PO NO.:		ALS CONTACT:	
REPORT FORMAT: 1677293	☑ HARDCOPY ☑ EMAIL - ADDRESS: bruce.donald@teckcominco.c				
	☐ FAX ☑ EXCEL ☑ PDF ☐ OTHER:				

ANALYSIS REQUESTED:

FOR LAB USE ONLY WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Conductivity, hardness, pH, salinit	TSS, Alkalinity	Total Metals (MS-ICP)	Sulphide	NOTES (sample specific comments, due dates, etc.)
	GLS-1.5m	2008-08-29	2:00	seawater	x	x	x		
	GLS-2m	2008-08-29	2:05	seawater	x	x	x		
	GLS-4m	2008-08-29	2:10	seawater	x	x	x		
	GLS-3m	2008-08-29	2:15	seawater	x	x	x		
	GLS-4m	2008-08-29	2:20	seawater	x	x	x		
	GLS-5m	2008-08-29	2:25	seawater	x	x	x		
	GLS-6m	2008-08-29	2:30	seawater	x	x	x	x	
	GLS-7m	2008-08-29	2:35	seawater	x	x	x		
	GLS-8m	2008-08-29	2:40	seawater	x	x	x		
	GLS-9m	2008-08-29	2:45	seawater	x	x	x		

TURN AROUND REQUIRED:	◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)	RELINQUISHED BY:	DATE:	Aug. 30/08	RECEIVED BY:	DATE:	Sept 2
		Curtis Kidd	TIME:	3 pm	NB	TIME:	1030
SEND INVOICE TO:	☑ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)	RELINQUISHED BY:	DATE:		RECEIVED BY:	DATE:	
INVOICE FORMAT:	☑ HARDCOPY ☐ PDF ☐ FAX		TIME:			TIME:	

SPECIAL INSTRUCTIONS: Water is hypersaline, for TSS measurement run 1-2L distilled through filters!!!

CC: alaudrum@gartnerlee.com; Total metals have been preserved with HNO3; No preservative for general parameters; Sulfide has been preserved with NaOH and zinc acetate

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature:	Cooling Method?
X Yes ___ No ___ N/A	1.0 °C	___ Icepacks X Ice ___ None
	Frozen? ___ Yes X No	

Certificate of Analysis

TECK COMINCO METALS LTD.

ATTN: BRUCE DONALD

BAG 2000

KIMBERLEY BC V1A 3E1

Reported On: 15-SEP-08 11:57 AM

Lab Work Order #: **L677099** **Date Received:** **03-SEP-08**

Project P.O. #: 7397
Job Reference: 2008 MAY POLARIS GARROW LAKE
Legal Site Desc:
CofC Numbers:

Other Information:

Comments: Some of the metals detection limits were increased due to high levels of metals in these samples.

LINDSAY JONES
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L677099-1 Description: Sampled Date: 29-AUG-08 Sampled Time: 14:50 Client ID: GLS-10m	L677099-2 29-AUG-08 14:55 GLS-11m	L677099-3 29-AUG-08 15:00 GLS-12m	L677099-4 29-AUG-08 15:05 GLS-13m	L677099-5 29-AUG-08 15:10 GLS-14m
SEAWATER						
Physical Tests	Conductivity (uS/cm)	31500	84900	87200	88200	88200
	Hardness (as CaCO3) (mg/L)	4330	11800	12900	13000	13400
	pH (pH)	7.95	7.80	7.75	7.79	7.78
	Salinity (EC) (g/L)	20.0	61.1	63.1	63.9	63.9
	Total Suspended Solids (mg/L)	4.0	8.0	6.7	12.7	18.0
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	175	423	437	441	436
	Sulphide as S (mg/L)	<0.020		<0.020		<0.020
Total Metals	Aluminum (Al)-Total (mg/L)	<0.10	<0.20	<0.20	<0.20	<0.20
	Arsenic (As)-Total (mg/L)	<0.00020	0.00041	<0.00020	<0.00020	0.00022
	Cadmium (Cd)-Total (mg/L)	0.00111	0.000443	<0.000020	<0.000020	0.000022
	Calcium (Ca)-Total (mg/L)	322	780	812	825	863
	Copper (Cu)-Total (mg/L)	0.00152	0.00131	0.000412	0.000331	0.000438
	Iron (Fe)-Total (mg/L)	<0.010	0.033	0.077	0.220	0.476
	Lead (Pb)-Total (mg/L)	0.000154	0.000696	0.000486	0.000540	0.000817
	Magnesium (Mg)-Total (mg/L)	856	2390	2640	2650	2740
	Manganese (Mn)-Total (mg/L)	0.0304	0.136	0.123	0.104	0.120
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	<0.0050	<0.010	<0.010	<0.010	<0.010
	Nickel (Ni)-Total (mg/L)	0.00613	0.00851	0.00792	0.00543	0.00633
	Zinc (Zn)-Total (mg/L)	0.495	0.325	0.0177	0.0131	0.0217

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L677099-6	L677099-7	L677099-8	L677099-9	
	Description					
	Sampled Date	29-AUG-08	29-AUG-08	29-AUG-08	29-AUG-08	
	Sampled Time	15:15	15:20	15:25	15:30	
	Client ID	GLS-15m	GLS-16m	GLS-17m	GLS-18m	
Grouping	**Analyte**					
SEAWATER						
Physical Tests	Conductivity (uS/cm)	88100	88300	88400	88300	
	Hardness (as CaCO3) (mg/L)	12700	13200	13200	13100	
	pH (pH)	7.78	7.76	7.78	7.79	
	Salinity (EC) (g/L)	63.8	64.0	64.1	64.0	
	Total Suspended Solids (mg/L)	12.7	6.7	8.0	7.3	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	436	437	438	439	
	Sulphide as S (mg/L)		<0.020		<0.020	
Total Metals	Aluminum (Al)-Total (mg/L)	<0.20	<0.20	<0.20	<0.20	
	Arsenic (As)-Total (mg/L)	<0.00020	0.00020	<0.00020	<0.00020	
	Cadmium (Cd)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	
	Calcium (Ca)-Total (mg/L)	817	870	847	831	
	Copper (Cu)-Total (mg/L)	0.000364	0.000324	0.000309	0.000304	
	Iron (Fe)-Total (mg/L)	0.404	0.391	0.376	0.383	
	Lead (Pb)-Total (mg/L)	0.000715	0.000764	0.000689	0.000721	
	Magnesium (Mg)-Total (mg/L)	2590	2670	2690	2670	
	Manganese (Mn)-Total (mg/L)	0.102	0.103	0.104	0.104	
	Mercury (Hg)-Total (mg/L)	0.000016	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Nickel (Ni)-Total (mg/L)	0.00532	0.00512	0.00515	0.00507	
	Zinc (Zn)-Total (mg/L)	0.0186	0.0178	0.0179	0.0177	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-C-COL-VA	Seawater	Alkalinity by Colourimetric (seawater)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

AS-TOT-C-HVAAS-VA	Seawater	Total Arsenic in Seawater by HVAAS	PUGET SOUND PROTOCOLS, EPA 7000 SERIES

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis of the seawater is by atomic absorption/emission spectrophotometry (EPA Method 7000 series).

EC-C-PCT-VA	Seawater	Conductivity (Automated) (seawater)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Seawater	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-TOT-C-CVAFS-VA	Seawater	Total Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-TOT-C-ICP-VA	Seawater	Total Metals in Seawater by ICPOES	PUGET SOUND PROTOCOLS, EPA 6010B

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-C-LOW-MS-VA	Seawater	Total Metals in Seawater by ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by atomic inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-SPE-MS-VA	Seawater	Total Metals in Seawater by SPE ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995, and with procedures adapted from Cetac Technologies Incorporated. A suspended particulate resin (SPR), consisting of immobilized iminodiacetate (IDA) on a divinylbenzene polymer, is used to chelate and preconcentrate metals in seawater. Instrumental analysis is by inductively coupled plasma mass spectrometry (ICPMS).

PH-C-PCT-VA	Seawater	pH by Meter (Automated) (seawater)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

S2-C-T-COL-VA	Seawater	Tot. Sulphide by Colorimetric (seawater)	APHA 4500-S2 "Sulphide"

This analysis is carried out using procedures adapted from APHA Method 4500-S2 "Sulphide". Sulphide is determined using the methlyene blue colourimetric method.

SALINITY-C-EC-VA	Seawater	Salinity by calc. using EC (seawater)	APHA 2520 B

This analysis is carried out using procedures adapted from APHA Method 2520 "Salinity". Salinity is determined using a samples conductivity and the Practical Salinity Scale.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
TSS-C-VA	Seawater	Solids by Gravimetric (seawater)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

ALS Environmental
excellence in analytical testing

1988 Triumph Street, **Vancouver**, BC Canada V5L 1K5 Tel: 604-253-4188 Toll Free: 1-800-665-0243 Fax: 604-253-6700
#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8820 100th Street, **Fort St. John**, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286

www.alsenviro.com

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Teck Cominco Metals Ltd.				
ADDRESS:	Bag 2000				
CITY:	Kimberley	PROV:	BC	POSTAL CODE:	V1A 3E1
TEL:	250-427-8405	FAX:	250-427-8451	CONTACT:	Bruce Donald
PROJECT NAME AND NO.:		2008 May Polaris Garrow Lake		SAMPLER:	Curtis Kidd
QUOTE NO.:		PO NO.:		ALS CONTACT:	

REPORT FORMAT: 1077099 ☑ HARDCOPY ☑ EMAIL - ADDRESS: bruce.donald@teckcominco.co ☐ FAX ☑ EXCEL ☑ PDF ☐ OTHER:

ANALYSIS REQUESTED:

FOR LAB USE ONLY	WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Conductivity, hardness, pH, salinit	TSS, Alkalinity	Total Metals (MS-ICP)	Sulphide										NOTES (sample specific comments, due dates, etc.)
		GLS-10m	2008-08-29	2:50	seawater	x	x	x	x										
		GLS-11m	2008-08-29	2:55	seawater	x	x	x											
		GLS-12m	2008-08-29	3:00	seawater	x	x	x	x										
		GLS-13m	2008-08-29	3:05	seawater	x	x	x											
		GLS-14m	2008-08-29	3:10	seawater	x	x	x	x										
		GLS-15m	2008-08-29	3:15	seawater	x	x	x											
		GLS-16m	2008-08-29	3:20	seawater	x	x	x	x										
		GLS-17m	2008-08-29	3:25	seawater	x	x	x											
		GLS-18m	2008-08-29	3:30	seawater	x	x	x	x										

TURN AROUND REQUIRED: ◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)

SEND INVOICE TO: ☑ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)

INVOICE FORMAT: ☑ HARDCOPY ☐ PDF ☐ FAX

RELINQUISHED BY:	DATE:	Aug. 30/08	RECEIVED BY:	DATE:	Sep 2
Curtis Kidd	TIME:	3 pm		TIME:	1030
RELINQUISHED BY:	DATE:		RECEIVED BY:	DATE:	
	TIME:			TIME:	

SPECIAL INSTRUCTIONS: Water is hypersaline, for TSS measurement run 1-2L distilled through filters!!!
CC: alaudrum@gartnerlee.com; Total metals have been preserved with HNO3; No preservative for general parameters; Sulfide has been preserved with NaOH and zinc acetate

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature: ____°C	Cooling Method?
☐ Yes ☐ No ☐ N/A	Frozen? ☐ Yes ☑ No	☐ Icepacks ☑ Ice ☐ None

Certificate of Analysis

TECK COMINCO METALS LTD.

ATTN: BRUCE DONALD

BAG 2000

KIMBERLEY BC V1A 3E1

Reported On: 15-SEP-08 11:42 AM

Lab Work Order #: **L677277** **Date Received:** **02-SEP-08**

Project P.O. #: 7397
Job Reference: 2008 AUGUST POLARIS GARROW LAKE
Legal Site Desc:
CofC Numbers:

Other Information:

Comments: Some of the metals detection limits were increased due to high levels of metals in these samples.

LINDSAY JONES
Account Manager

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L677277-1	L677277-2	L677277-3	L677277-4	
		Description					
		Sampled Date	29-AUG-08	29-AUG-08	29-AUG-08	29-AUG-08	
		Sampled Time	02:30	03:30	10:40	11:35	
		Client ID	GLS-6A m	GLS-18A m	GLC-9A m	GLC-20A m	
Grouping	**Analyte**						
SEAWATER							
Physical Tests	Conductivity (uS/cm)		11400	86100	15900	86200	
	Hardness (as CaCO3) (mg/L)		1470	13000	2040	13500	
	pH (pH)		8.08	7.61	8.07	7.61	
	Salinity (EC) (g/L)		6.7	62.3	9.5	62.3	
	Total Suspended Solids (mg/L)		<3.0	17.3	3.3	6.7	
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)		115	449	153	435	
	Sulphide as S (mg/L)			<0.020		<0.020	
Total Metals	Aluminum (Al)-Total (mg/L)		<0.050	<0.20	<0.050	<0.20	
	Arsenic (As)-Total (mg/L)		0.00029	<0.00020	0.00036	<0.00020	
	Cadmium (Cd)-Total (mg/L)		0.000443	<0.000020	0.000656	<0.000020	
	Calcium (Ca)-Total (mg/L)		127	849	172	843	
	Copper (Cu)-Total (mg/L)		0.000839	0.000379	0.00110	0.000314	
	Iron (Fe)-Total (mg/L)		0.018	0.355	0.011	0.363	
	Lead (Pb)-Total (mg/L)		0.000110	0.000859	0.000116	0.000773	
	Magnesium (Mg)-Total (mg/L)		280	2640	391	2770	
	Manganese (Mn)-Total (mg/L)		0.00517	0.0893	0.00644	0.0933	
	Mercury (Hg)-Total (mg/L)		<0.000010	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Total (mg/L)		<0.0025	0.020	0.0028	0.018	
	Nickel (Ni)-Total (mg/L)		0.00375	0.00509	0.00505	0.00554	
	Zinc (Zn)-Total (mg/L)		0.169	0.0178	0.243	0.0193	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-C-COL-VA	Seawater	Alkalinity by Colourimetric (seawater)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

AS-TOT-C-HVAAS-VA	Seawater	Total Arsenic in Seawater by HVAAS	PUGET SOUND PROTOCOLS, EPA 7000 SERIES

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis of the seawater is by atomic absorption/emission spectrophotometry (EPA Method 7000 series).

EC-C-PCT-VA	Seawater	Conductivity (Automated) (seawater)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

HARDNESS-CALC-VA	Seawater	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-TOT-C-CVAFS-VA	Seawater	Total Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-TOT-C-ICP-VA	Seawater	Total Metals in Seawater by ICPOES	PUGET SOUND PROTOCOLS, EPA 6010B

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-C-LOW-MS-VA	Seawater	Total Metals in Seawater by ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by atomic inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-SPE-MS-VA	Seawater	Total Metals in Seawater by SPE ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995, and with procedures adapted from Cetac Technologies Incorporated. A suspended particulate resin (SPR), consisting of immobilized iminodiacetate (IDA) on a divinylbenzene polymer, is used to chelate and preconcentrate metals in seawater. Instrumental analysis is by inductively coupled plasma mass spectrometry (ICPMS).

PH-C-PCT-VA	Seawater	pH by Meter (Automated) (seawater)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

S2-C-T-COL-VA	Seawater	Tot. Sulphide by Colorimetric (seawater)	APHA 4500-S2 "Sulphide"

This analysis is carried out using procedures adapted from APHA Method 4500-S2 "Sulphide". Sulphide is determined using the methlyene blue colourimetric method.

SALINITY-C-EC-VA	Seawater	Salinity by calc. using EC (seawater)	APHA 2520 B

This analysis is carried out using procedures adapted from APHA Method 2520 "Salinity". Salinity is determined using a samples conductivity and the Practical Salinity Scale.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
TSS-C-VA	Seawater	Solids by Gravimetric (seawater)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA		

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

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#2 -21 Highfield Circle SE, **Calgary**, AB Canada T2G 5N6 Tel: 403-214-5431 Toll Free: 1-866-722-6231 Fax: 403-214-5430
#2 - 8820 100th Street, **Fort St. John**, BC Canada V1J 3W9 Tel: 250-785-8281 Fax: 250-785-8286

www.alsenviro.com

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Teck Cominco Metals Ltd.				
ADDRESS:	Bag 2000				
CITY:	Kimberley	PROV:	BC	POSTAL CODE:	V1A 3E1
TEL:	250-427-8405	FAX:	250-427-8451	CONTACT:	Bruce Donald
PROJECT NAME AND NO.:		2008 August Polaris Garrow Lake		SAMPLER:	Curtis Kidd
QUOTE NO.:		PO NO.:		ALS CONTACT:	
REPORT FORMAT: 677277	☑ HARDCOPY ☑ EMAIL - ADDRESS: bruce.donald@teckcominco.co ☐ FAX ☑ EXCEL ☑ PDF ☐ OTHER:				

ANALYSIS REQUESTED:

FOR LAB USE ONLY WO #	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	Conductivity, hardness, pH, salinit	TSS, Alkalinity	Total Metals (MS-ICP)	Sulphide	NOTES (sample specific comments, due dates, etc.)
	GLS-6A m	2008-08-29	2:30	seawater	x	x	x		
	GLS-18A m	2008-08-29	3:30	seawater	x	x	x	x	
	GLC-9A m	2008-08-29	10:40	seawater	x	x	x		
	GLC-20A m	2008-08-29	11:35	seawater	x	x	x	x	

TURN AROUND REQUIRED:	◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)	RELINQUISHED BY: Curtis Kidd	DATE: Aug. 30/08	RECEIVED BY: MB	DATE: Sept
			TIME: 3 pm		TIME: 1030
SEND INVOICE TO:	☑ SAME AS REPORT ☐ DIFFERENT FROM REPORT (provide details below)	RELINQUISHED BY:	DATE:	RECEIVED BY:	DATE:
INVOICE FORMAT:	☑ HARDCOPY ☐ PDF ☐ FAX		TIME:		TIME:

SPECIAL INSTRUCTIONS: Water is hypersaline, for TSS measurement run 1-2L distilled through filters!!!

CC: alaudrum@gartnerlee.com; Total metals have been preserved with HNO3; No preservative for general parameters; Sulfide has been preserved with NaOH and zinc acetate

FOR LAB USE ONLY

Cooler Seal Intact?	Sample Temperature: 6 °C	Cooling Method?
✓ Yes ___ No ___ N/A	Frozen? ___ Yes ✗ No	___ Icepacks ✓ Ice ___ None

APPENDIX 6

Monitoring of Other

Site Surface Waters

&

Soil Samples from Former Concentrate Storage Shed

(July 19, 2008)

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

Certificate of Analysis

TECK COMINCO METALS LTD.

ATTN: BRUCE DONALD

BAG 2000

KIMBERLEY BC V1A 3E1

Reported On: 21-AUG-08 12:00 PM

Lab Work Order #: **L661124** **Date Received:** **26-JUL-08**

Project P.O. #: 7397
Job Reference: 80325
Legal Site Desc:
CofC Numbers: C048508

Other Information:

Comments:

Andre Langlais
Account Manager

ALS Canada Ltd.
Part of the **ALS Laboratory Group**
1988 Triumph Street, Vancouver, BC V5L 1K5
Phone: +1 604 253 4188 Fax: +1 604 253 6700 www.alsglobal.com
A Campbell Brothers Limited Company

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L661124-1				
	Description					
	Sampled Date	19-JUL-08				
	Sampled Time	08:30				
	Client ID	GARROW CREEK				
Grouping	**Analyte**					
SEAWATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	678				
	pH (pH)	7.94				
	Salinity (EC) (g/L)	3.3				
	Total Suspended Solids (mg/L)	<3.0				
Anions and Nutrients	Alkalinity, Total (as CaCO3) (mg/L)	71.0				
Cyanides	Cyanide, Total (mg/L)	<0.0050				
Total Metals	Aluminum (Al)-Total (mg/L)	0.450				
	Arsenic (As)-Total (mg/L)	<0.00020				
	Cadmium (Cd)-Total (mg/L)	0.000094				
	Calcium (Ca)-Total (mg/L)	63.7				
	Copper (Cu)-Total (mg/L)	0.000554				
	Iron (Fe)-Total (mg/L)	<0.015				
	Lead (Pb)-Total (mg/L)	0.000189				
	Magnesium (Mg)-Total (mg/L)	126				
	Manganese (Mn)-Total (mg/L)	0.00208				
	Mercury (Hg)-Total (mg/L)	<0.000010				
	Molybdenum (Mo)-Total (mg/L)	0.00211				
	Nickel (Ni)-Total (mg/L)	0.00235				
	Zinc (Zn)-Total (mg/L)	0.0121				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L661124-2	L661124-3	L661124-4		
	Description					
	Sampled Date	19-JUL-08	19-JUL-08	19-JUL-08		
	Sampled Time	10:00	10:00	10:00		
	Client ID	CSHED NORTH	CSHED MID	CSHED SOUTH		
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (pH)	8.44	8.89	8.49		
Metals	Lead (Pb) (mg/kg)	282	121	84		
	Zinc (Zn) (mg/kg)	553	351	294		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L661124-1	L661124-5	L661124-6		
		Description					
		Sampled Date	19-JUL-08	19-JUL-08	19-JUL-08		
		Sampled Time	08:30	11:00	11:30		
		Client ID	GARROW CREEK	FRUSTRATION LAKE	LRD		
Grouping	**Analyte**						
WATER							
Physical Tests	Hardness (as CaCO3) (mg/L)			84.8			
	Total Suspended Solids (mg/L)			3.5			
Total Metals	Aluminum (Al)-Total (mg/L)				<0.025		
	Antimony (Sb)-Total (mg/L)				<0.0025		
	Arsenic (As)-Total (mg/L)				<0.0025		
	Barium (Ba)-Total (mg/L)				<0.020		
	Beryllium (Be)-Total (mg/L)				<0.0050		
	Boron (B)-Total (mg/L)				0.56		
	Cadmium (Cd)-Total (mg/L)				0.000063		
	Calcium (Ca)-Total (mg/L)				107		
	Chromium (Cr)-Total (mg/L)				<0.0050		
	Cobalt (Co)-Total (mg/L)				<0.0015		
	Copper (Cu)-Total (mg/L)				<0.0050		
	Iron (Fe)-Total (mg/L)				<0.030		
	Lead (Pb)-Total (mg/L)				<0.0025		
	Lithium (Li)-Total (mg/L)				<0.025		
	Magnesium (Mg)-Total (mg/L)				46.6		
	Manganese (Mn)-Total (mg/L)				0.0022		
	Molybdenum (Mo)-Total (mg/L)				0.0087		
	Nickel (Ni)-Total (mg/L)				0.0094		
	Potassium (K)-Total (mg/L)				20.8		
	Selenium (Se)-Total (mg/L)				0.0116		
	Silver (Ag)-Total (mg/L)				<0.00010		
	Sodium (Na)-Total (mg/L)				220		
	Thallium (Tl)-Total (mg/L)				<0.0010		
	Tin (Sn)-Total (mg/L)				<0.0025		
	Titanium (Ti)-Total (mg/L)				<0.010		
	Uranium (U)-Total (mg/L)				0.0064		
	Vanadium (V)-Total (mg/L)				<0.0050		
	Zinc (Zn)-Total (mg/L)				0.0269		
Dissolved Metals	Calcium (Ca)-Dissolved (mg/L)			25.3			
	Magnesium (Mg)-Dissolved (mg/L)			5.25			
Radiological Parameters	Radium-226 (Bq/L)		0.020				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
ISCR:ST	Improper Sample Container Received: Subsamples Taken - Sample 5 - Dissolved metals
SFPL	Sample was Filtered and Preserved at the laboratory - Sample 5 - Dissolved metals
ISCR:ST	Improper Sample Container Received: Subsamples Taken - Sample 6 - Total metals
SPL	Sample was Preserved at the laboratory - Sample 6 - Total metals

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ALK-C-COL-VA	Seawater	Alkalinity by Colourimetric (seawater)	APHA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

AS-TOT-C-HVAAS-VA	Seawater	Total Arsenic in Seawater by HVAAS	PUGET SOUND PROTOCOLS, EPA 7000 SERIES

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis of the seawater is by atomic absorption/emission spectrophotometry (EPA Method 7000 series).

CN-C-T-MID-HH-COL-VA	Seawater	Total Cyanide by HH Distil. (seawater)	APHA 4500-CN "Cyanide"

This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HARDNESS-CALC-VA	Seawater	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-TOT-C-CVAFS-VA	Seawater	Total Mercury in Seawater by CVAFS	PUGET SOUND PROTOCOLS, EPA 245.7

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedure involves a cold-oxidation of the acidified seawater sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-DIS-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-C-ICP-VA	Seawater	Total Metals in Seawater by ICPOES	PUGET SOUND PROTOCOLS, EPA 6010B

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-C-LOW-MS-VA	Seawater	Total Metals in Seawater by ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995. The procedures may involve preliminary sample treatment by acid digestion or filtration (EPA Method 3005A). Instrumental analysis is by atomic inductively coupled plasma - mass spectrometry (EPA Method 6020A).

		Total Metals in Water by ICPOES (CCME)	EPA SW-846 3005A/6010B

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
MET-TOT-CCME-ICP-VA	Water	Total Metals in Water by ICPOES (CCME)	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-CCME-MS-VA	Water	Total Metals in Water by ICPMS (CCME)	EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

MET-TOT-SPE-MS-VA	Seawater	Total Metals in Seawater by SPE ICPMS	PUGET SOUND PROTOCOLS, EPA 6020A

This analysis is carried out using procedures adapted from "Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples" prepared for the United States Environmental Protection Agency and the Puget Sound Water Quality Authority, 1995, and with procedures adapted from Cetac Technologies Incorporated. A suspended particulate resin (SPR), consisting of immobilized iminodiacetate (IDA) on a divinylbenzene polymer, is used to chelate and preconcentrate metals in seawater. Instrumental analysis is by inductively coupled plasma mass spectrometry (ICPMS).

PB-CSR-ICP-VA	Soil	Pb in Soils by ICPOES (CSR SALM)	BCMELP CSR SALM Method 8

This analysis is carried out using procedures from CSR Analytical Method 8 "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, Lands and Parks, 26 June 2001, and procedures adapted from "Test Methods for Evaluating Solid Waste", SW-846 Method 3050B United States Environmental Protection Agency (EPA). The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 90 degrees Celsius for 2 hours by block digester using a 1:1 ratio of concentrated nitric and hydrochloric acids. Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

PH-1:2-VA	Soil	CSR pH by 1:2 Water Leach	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (10 mesh /2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

PH-C-PCT-VA	Seawater	pH by Meter (Automated) (seawater)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

RADIO-RADIUM226-SR	Water	Radium 226	CANMET 1986
SALINITY-C-EC-VA	Seawater	Salinity by calc. using EC (seawater)	APHA 2520 B

This analysis is carried out using procedures adapted from APHA Method 2520 "Salinity". Salinity is determined using a samples conductivity and the Practical Salinity Scale.

TSS-C-VA	Seawater	Solids by Gravimetric (seawater)	APHA 2540 Gravimetric

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

TSS-VA	Water	Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
ZN-CSR-ICP-VA	Soil	Zn in Soil by ICPOES (CSR SALM)	BCMELP CSR SALM METHOD 8

This analysis is carried out using procedures from CSR Analytical Method 8 "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, Lands and Parks, 26 June 2001, and procedures adapted from "Test Methods for Evaluating Solid Waste", SW-846 Method 3050B United States Environmental Protection Agency (EPA). The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 90 degrees Celsius for 2 hours by block digester using a 1:1 ratio of concentrated nitric and hydrochloric acids. Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
SR	Saskatchewan Research Council - Saskatoon, Saskatchewan, Can	VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

SRC Group # 2008-6405

SRC ANALYTICAL

Aug 21, 2008

422 Downey Road
Saskatoon, Saskatchewan, Canada
S7N 4N1
(306) 933-6932 or 1-800-240-8808
Fax: (306) 933-7922

ALS
Aurora Laboratory Services Ltd.
1988 Triumph Street
Vancouver, British Columbia V5L 1K5
Attn: Andre Langlais

Sample # **29612**
Date Sampled: **Jul 19, 2008 08:30**
Sample Matrix: **WATER**
Description: **L661124-1 GARROW CREEK**

Client PO #: **L661124**
Date Received: **Jul 29, 2008**

Analyte	Units	Result	DL	Date Entered
Radio Chemistry				
Radium-226	Bq/L	0.02	0.005	Aug 20, 2008

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division

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Page 1 of 1

REPORT TO:	REPORT FORMAT / DISTRIBUTION	SERVICE REQUESTED
COMPANY: Teck Cominco Metals Ltd.	STANDARD ✓ OTHER ✓	✓ REGULAR SERVICE (DEFAULT)
CONTACT: Bruce Donald	PDF ✓ EXCEL ✓ CUSTOM ____ FAX ____	RUSH SERVICE (2-3 DAYS)
ADDRESS: Bag 2000 Kimberley, BC V1A 3E1	EMAIL 1: bruce.donald@teckcominco.com	PRIORITY SERVICE (1 DAY or ASAP)
PHONE: 250-427-8408 FAX: 280-427-8451	EMAIL 2: alaudrum@gartnerlee.com	EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS
INVOICE TO: SAME AS REPORT ? (YES) / NO	INDICATE BOTTLES: FILTERED / PRESERVED (F/P) → → →	ANALYSIS REQUEST
COMPANY:	CLIENT / PROJECT INFORMATION: Polaris	
CONTACT:	JOB #: 80325	
ADDRESS:	PO /AFE:	
	Legal Site Description:	
PHONE: FAX:	QUOTE #:	
Lab Work Order # (lab use only): L661124	SAMPLER (Initials): CK	

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	pH, Salinity	Hardness, TSS	General Chemistry	Total Metals	Radium 226	Total Cyanide	Lead	Zinc				HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
	Garrow Creek	July 19, 08	8:30am	Seawater	X	X	X	X	X	X								
	〃	〃	〃	〃														
	〃	〃	〃	〃														
	〃	〃	〃	〃														
	C Shed - North	〃	10:00am	Soil	X						X	X						
	C Shed - Mid	〃	〃	〃	X						X	X						
	C Shed - South	〃	〃	〃	X						X	X						
	Frustration Lake	〃	11:00am	Water		X												
	LRD	〃	11:30am	〃							X	X						

GUIDELINES / REGULATIONS	SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS
CCME	Garrow Creek samples are hypersaline for TSS run 1-2L distilled through filters. For C-Shed soil samples pH only not salinity

Failure to complete all portions of this form may delay analysis. Please fill in this form *LEGIBLY*.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the reverse page of the white report copy.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:
Curtis Kidd	July 19,08		08/07/26 10:27
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:

SAMPLE CONDITION (lab use only)

TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION ? YES / NO (If no provide details)
14°C	