APPLIED RESEARCH & TECHNOLOGY

SHAPING TOMORROW THROUGH TECHNICAL INNOVATION

teckcominco

REPORT 2007RR06

MINERAL WEATHERING IN RED DOG SOILS: LEACHING

S.E. Jensen and S.H. Brienne

February 15, 2007

Project Team	:	**SWalden**	**DBigras**
	:	**NMcKay**	**RBlaskovich**
	:	**MWestphal**	
Research	:	**AWStradling, DWAshman, JRHarlamovs**	
Red Dog	:	**MThompson, JClark, JKulas, WHall**	
Intellectual Property	:	**FA Noone/R Perri**	
File Reference	:	**1210.356689 W**	

MINERAL WEATHERING IN RED DOG SOILS: LEACHING

SUMMARY

Mineral weathering in soils collected in the vicinity of Red Dog Operations in 2005 was studied. Diagnostic leaching techniques were used to estimate the distribution and extractability of metal ions. Kinetic and static methods evaluated the potential for long-term leaching.

The proportion of extractable zinc in samples close to the mill was 4.2% in standard diagnostic leaching testing. The proportion of extractable lead from these tests was an order of magnitude lower. The potential to produce acidic leachates was evident in one sample obtained close to the mine and mill. The pH of a surface sample close to the mill was less than 3 over the 37 week testing period. There is evidence of preferential leaching of zinc from the samples, consistent with a microbially mediated process. The kinetic test results are consistent with oxidative products being washed out of the sample over time. The continuing oxidation of lead, zinc and iron, however may still be occurring. The quantity of sulfate leached could not generally be accounted for by the concentrations of lead, zinc or iron. This result suggests that sulfate is leached from other minerals present in the soils.

Metals leaching is possible from soil samples close to the mine and mill. The effect of metals leaching on the environment and tundra require field testing under controlled conditions. The impacts of metals leaching on the tundra ecology are also required.

BACKGROUND

The Red Dog mine is located in the DeLong Mountains in the Western Brooks Range. The Red Dog mine has been in operation since late 1989. On-going work at the mine site has resulted in significant decreases in the release of zinc and lead-containing particulates to the environment.

Teck Cominco Alaska Red Dog mine conducted soil and vegetation investigations in 2003 and 2004 to evaluate the extent of the lead and zinc deposition. Emission inventories and air dispersion models were developed and are being used to understand historic and existing fugitive particulate deposition. The data collected is intended to provide the State and Teck Cominco with information pertaining to the relative contributions of different sources of fugitive particulates.

Attention has been focused previously on quantifying fugitive particulates and evaluating sources. The potential of the particulates to affect local vegetation has not been studied in detail, but is planned in 2006. High lead to zinc ratios were observed in soils sampled around the Red Dog mill, crushing and tailings areas [Brienne, 2007]. The higher lead to zinc ratios in the soil samples compared to the ore suggests selective sphalerite oxidation is occurring, possibly through a galvanic mechanism. One result of the mineral oxidation is release of metal ions to and a change in soil pH in the surrounding environment. The presence of weathered mineral grains was confirmed in previous testing at ART [Brienne, 2007]. The present investigation focuses on the investigation of the potential of metals release as a result of weathering processes.

OBJECTIVES

The proposed study is designed to answer the following questions:

- Can metals leach from dusts surrounding the Red Dog mine and mill?
- What is the potential for leaching from the minerals present in the soils around the Red Dog mine and mill?
- What is the potential for acid generation in the soils around the Red Dog mine and mill?

DETAILS

Sampling

The samples used in the investigation were already described [Brienne, 2007]. An additional sample was collected close to the mine and mill to provide material for diagnostic leaching. The sampling location is given in Figure 1. One sample was collected close to the mine and mill (Proximal sample). This sample was equivalent to the Triangle sample used in previous testing [Brienne, 2007]. The sample was collected on June 20, 2006.

The samples were collected at two depths:

- A “surface” sample representing the top 1 inch was collected. The “surface” samples contain potentially 90% vegetation/detritus and 10% inorganics.
- A second “mineralized” sample was collected one foot below the surface. The “mineralized” sample represents the naturally mineralized soil; approximately 90% clay and other inorganics.

Test outline

Testing took place using two protocols:

- Leaching testing using the California WET method [EPA, 1996]. The 2006 sample was used in this testing.
- Kinetic testing was performed using the Standard Test Method for Accelerated Weathering of Solid Materials Using a Modified Humidity Cell [ASTM, 1996]. A modified version was required due to the small sample size received. The 2005 samples were used in this testing [Brienne, 2007].

The leaching testing was done at the Teck Cominco Applied Research and Technology (ART) group in Trail, British Columbia. ART is an independent facility to Red Dog Operations. Kinetic testing was undertaken by Canadian Environmental and Metallurgical Incorporate (CEMI, Vancouver BC).

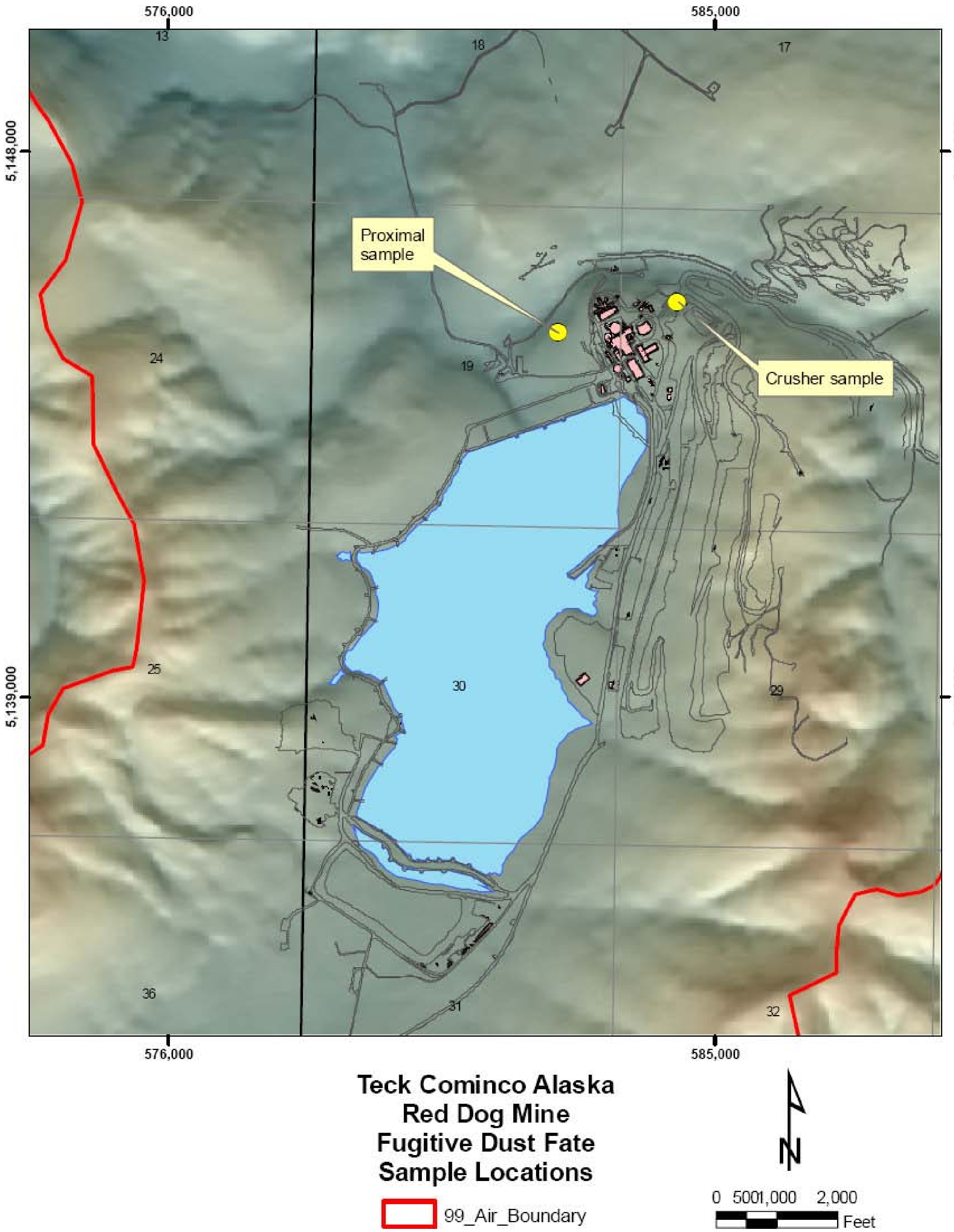

Figure 2. Other samples investigated in this study.

Sample characterization

Representative samples of Proximal surface and subsurface soil were assayed. An additional amount of each soil sample was passed through a 9500 µm screen followed by a 300 µm screen to separate out the fines. The three different size fractions, unscreened, -9500 µm and -300 µm were assayed by ICP. Assays for the -9500 +300 µm fraction were calculated. Results are shown in Table 1.

Table 1. Size assay data and distribution for Red Dog soil samples collected in 2006.

Column	Mass (%)	Assays (%)			Distribution (%)		
		Iron	Lead	Zinc	Iron	Lead	Zinc
Proximal surface							
-300 µm	47.3	3.9	3.8	2.2	42	62	78
-9500 + 300 µm	47.5	4.9	1.8	0.6	53	30	22
+9500 µm	5.2	4.4	4.7	0.0	5	8	-
Head	100	4.4	2.9	1.3	100	100	100
Proximal sub-surface							
-300 µm	22	4.6	0.04	0.14	20	24	21
-9500 + 300 µm	73	5.5	0.04	0.17	77	76	79
+9500 µm	5	3.4	0.00	0.00	3	0	0
Head	100	5.2	0.02	0.12	100	100	100

The lead to zinc ratio in the Proximal surface sample was higher than that of a typical Red Dog ore. The mass distribution for the Proximal surface sample was split approximately equally between the coarser (-9500 +300 µm) and finer fractions (-300 µm). The mass was concentrated more Proximal sub-surface sample in the -9500 µm fraction. The lead, zinc and iron were mainly concentrated in the -9500 µm fraction.

Leaching

The availability of metal ions and potential of metal ion leaching may be estimated using diagnostic leaching [EPA, 1996]. Additional amounts of both the surface and subsurface Proximal sample were requested for this testwork. A known weight of each soil sample passing a 9.5 mm screen was weighed and transferred to a vessel capable of rotating end over end at 30 ± 2 rpm on a roller. Water acidified to a pH of 5.00 ± 0.05 was used to leach the dust samples. The amount of water used was equal to 20 times the weight of the test samples. The samples were agitated end-over-end for 18 hours, and then filtered through a glass fiber filter (0.7 µm). The pH of each sample was measured. The surface sample had an average pH of 3.23 and that of the subsurface sample was recorded as 5.95. The samples where then acidified to a pH <2 and sent for analysis. The results of the diagnostic leaching tests are presented given in Table 2.

Table 2. Diagnostic leaching results of the Proximal -9500 μm fraction.

Sample	**Head Assay (%)**		**Leached (%)**	
	Lead	Zinc	Lead	Zinc
Surface	2.9	1.3	0.34	4.22
Sub-surface	0.02	0.12	0.16	4.23

Using EPA method 1312, 4.2% zinc leached from each of the Proximal surface and sub-surface soil samples, respectively. The lead leaching (0.34%) is approximately an order of magnitude below zinc for the surface sample. The 0.16% of lead leached from the sub-surface sample is half that of the surface sample. The results suggest some leaching is possible from the samples, however the overall quantity is low.

Kinetic testing

Kinetic testing was based on a modified humidity cell tests [ASTM, 1996]. The following 2005 samples were used in the kinetic testing [Brienne, 2007]:

- HC1, TT3 sub-surface distant from the mine and mill
- HC2, TT3 surface distant from the mine and mill
- HC3, Triangle sub-surface close to the mine and mill
- HC4, Triangle surface close to the mine and mill

Given the organic nature of the samples, the standard 1000 g mass was not used in all of the Humidity Cell (HC) tests. Those containing TT3 sub-surface (HC1) and TT3 surface (HC2) used weights of 488 g and 152 g, respectively whereas Triangle sub-surface (HC3) and Triangle surface (HC4) contained 1000 g each. The initial flushing volume was decreased for HC1 and HC2, but all four cells received a weekly flush volume of 500 mL. The protocol requires that the test period be a minimum of 20 weeks. The long-range leachablity of metal ions from the samples was determined by extending the test period 37 weeks. Full experimental results may be found in the in the appendix.

pH

Humidity cells are used to define the acid generation behavior of a sample under aggressive oxidative conditions over time. The weekly effluent is collected and analyzed for cations and anions that indicate the presence of solubilized weathering products and trace metals. Another important parameter analyzed is pH. Table 3 lists the four samples and an overall analysis of the weekly leachate pH values. The broad acid generating classifications developed by Robertson are also given in Table 3 for comparison [Robertson et al., 1992]. Leachate pH values as a function of cycle time are given in Figure 2.

Table 3. Kinetic cell final leachate pH results.					
Classification	**Kinetic testing final leachate pH**				**Comments**
	HC1	**HC2**	**HC3**	**HC4**	
pH >5	•				No significant acid generation or neutralization
pH 3 to 5		•	•		Likely acid generating and consuming some acid
pH <3				•	Strongly acid generating

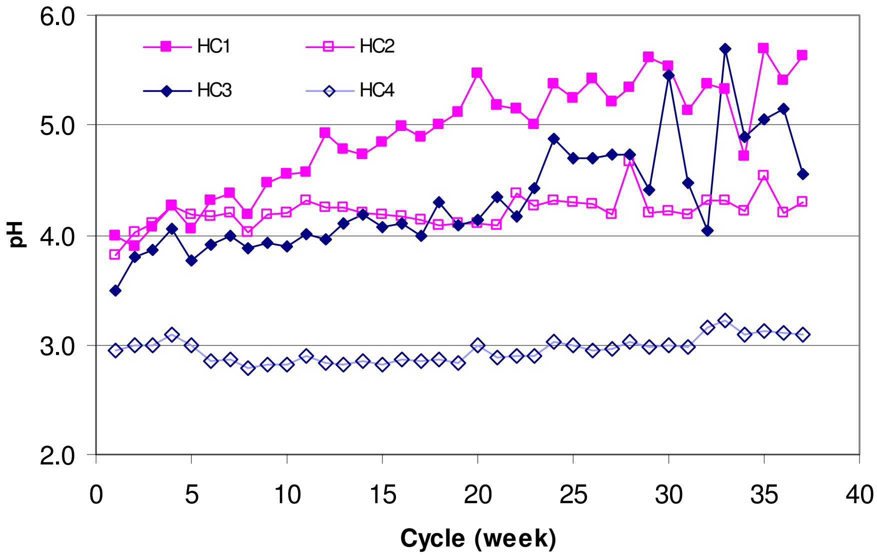

Figure 2. Leachate pH obtained from kinetic testing.

The leachate pH values for HC1 (TT3 sub-surface) show an increase over the testing period. This result indicates that there will be no significant acid generation from this soil. The lowest leachate pH was observed for HC4 (Triangle surface) where the pH was 3 ± 0.2 for the duration of the test. Oxidative processes within this sample will result in acid leachates. The leachate of HC3 (Triangle mineral) remained between pH 3 and pH 5.

The leachate pH values for the surface samples (HC2 and HC4) were lower than the sub-surface samples (HC1 and HC3, respectively). Any modifications of pH as a result of oxidative processes in the surface appear to be buffered by soil in the sub-surface samples.

Leachate characteristics

The complete oxidation of sulfide minerals produces sulfate as a by-product. The sulfate production rate can be used as an indicator of the acid generation rate. The leachate sulfate concentration plotted against time indicates the weathering behavior of the sample. A curve that continues to trend upward indicates the continuous formation of weathering products, typical of an acid generating material. A curve that is initially high and then declines indicates the dissolution of previously accumulated ARD products, followed by little to no new product generation [Robertson et al., 1992].

The metal or anion concentration as well as the pH of the four soil samples over time are given in Figures 3 through 6. The metal and anion concentrations are normalized to the mass of the original sample and for sample volume (mg/L) to provide a basis of comparison between samples.

The weekly quantity of zinc leached generally decreased over the testing period for all cells. The initial zinc leached for the HC4 was 298 mg/L and this dropped to 46 mg/L for the last test. Similar results, though with lower zinc extractions were observed for the other samples. The observed trend suggested flushing of stored oxidation products over the duration of the testing. The possibility of further weathering cannot be discounted based on the kinetic test results.

The leaching behavior of lead was different to that of zinc. The weekly quantity of lead leached was lower than that for zinc, reflecting the assay values and lower solubility of lead sulfate. The quantity of lead leached in HC4 was initially 2.5 mg/kg and 4.3 mg/kg at the end of the test. The amount leached per week was approximately constant over the leaching period. This result suggests a different leaching mechanism for lead than that observed for zinc.

The sulfate leaching results for all of the soil samples also indicate the dissolution of stored products, rather than the generation of new products. The weekly variation in leached sulfate, magnesium and calcium generally show the same trends. This result may indicate that there are some soluble or semi-soluble sulfate-containing minerals in the soil that are contributing to the leached sulfate. The final leachate concentrations of lead, zinc and iron at most account for 50% of the sulfate leached in HC2, HC3 and HC4. This result suggests other sources of sulfate contribute to the leached sulfate.

Final extractions

The total lead, zinc and sulphur leached over the testing period was calculated from the leachate concentrations, extraction volumes, initial mass of sample and sample assay. Results for leaching lead, zinc and sulfur are presented in Table 4.

Table 4. Metals recover from kinetic cell testing.

Cell	Head Assay (%)			Total leached (%)		
	Lead	Zinc	Sulfur	Lead	Zinc	Sulfur
HC1	0.006	0.002	0.09	0.39	3.4	10.0
HC2*	-	-	-	-	-	-
HC3	0.09	0.08	0.12	0.40	11.7	15.1
HC4	1.9	0.6	2.0	0.26	30.0	10.2

*: due to the large amount of vegetative matter in this sample, a total assay on the head assay was not available

The percentage of zinc leached from the Triangle soil samples (sub-surface and surface) was much higher than the percentage of lead leached. The observation of more zinc leaching than lead indicates some preferential weathering mechanism taking place in the Triangle samples. Preferential oxidation of sphalerite occurs in Red Dog ores and may account for the relatively higher zinc leached in the soil samples. The preferential initial leaching of zinc over iron and lead has been observed in the microbially-mediated oxidation of sphalerite, pyrite and galena-containing ores. The presence of lead is also due to the lower solubility of the lead sulfate.

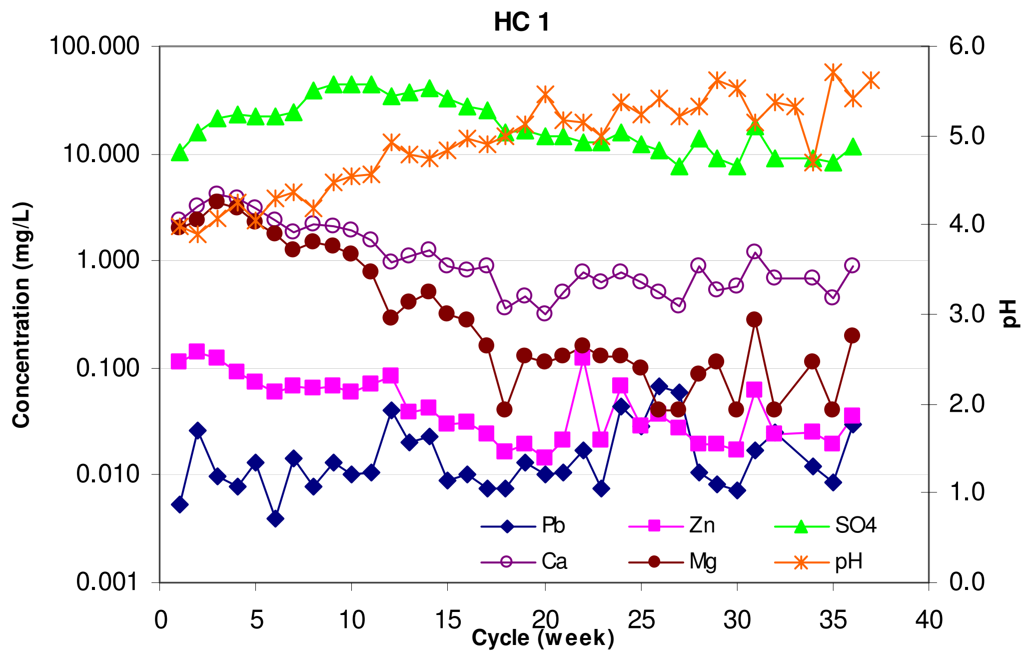

Figure 3. Leachate concentrations from kinetic testing of HC1 (TT3 sub-surface sample).

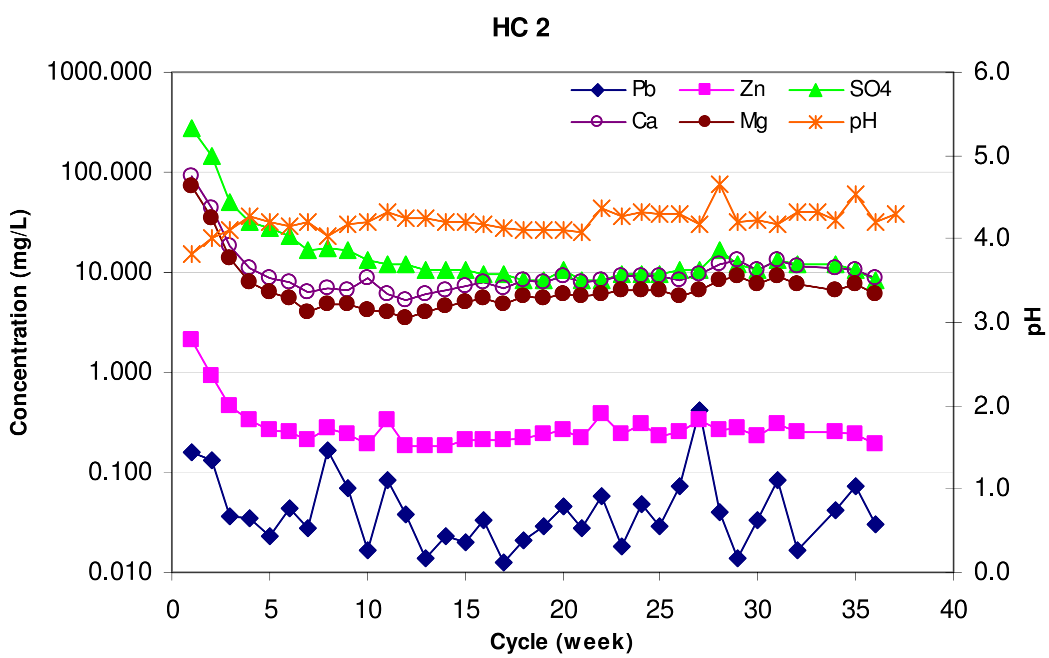

Figure 4. Leachate concentrations from kinetic testing of HC2 (TT3 surface sample).

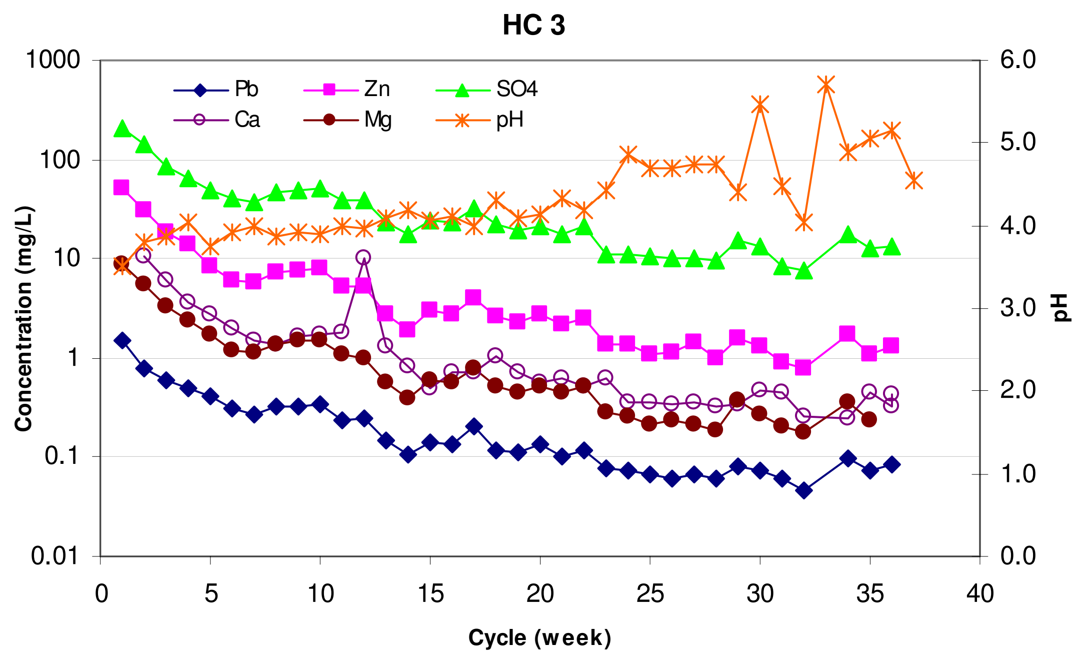

Figure 5. Leachate concentrations from kinetic testing of HC3 (Triangle sub-surface).

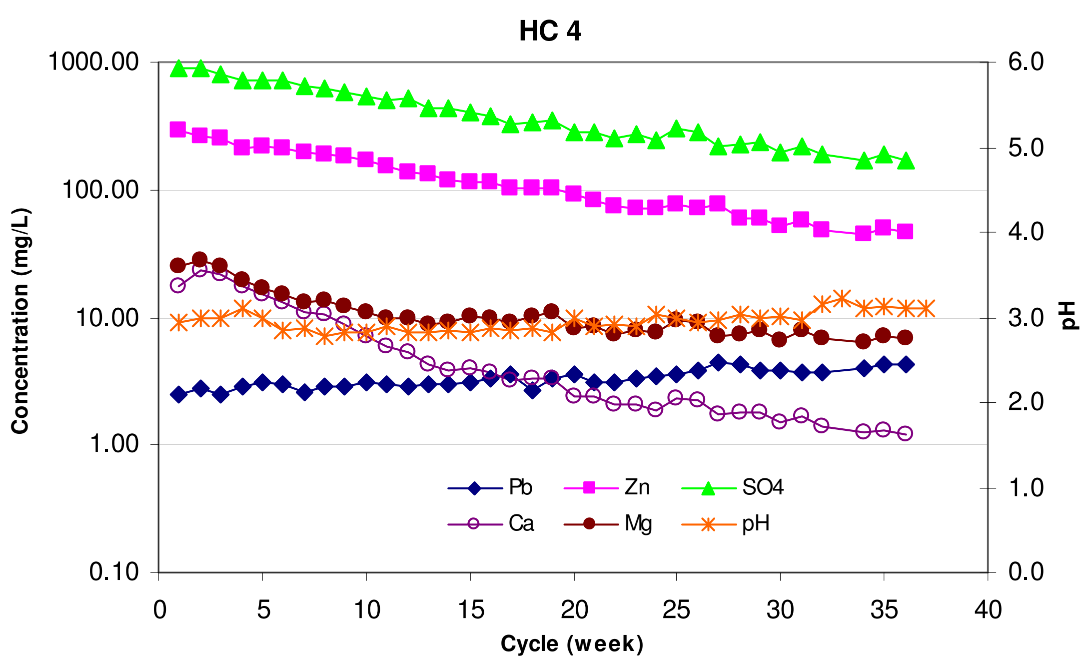

Figure 6. Leachate concentrations from kinetic testing of HC4 (Triangle surface).

The final leaching percentages indicate that the potential for lead leaching will be low. Some zinc may be leached under the aggressive oxidative conditions of the humidity cell tests.

The final metals leached during the kinetic testing may also be related to the diagnostic leaching results (Table 2). Similar lead extractions were observed in the kinetic and diagnostic leaching tests. More zinc leached from the soil samples in the kinetic compared to the diagnostic tests.

Initially high zinc extractions are supported by observations of oxidized zinc-containing mineral grains from a previous report [Brienne, 2007]. The testing also indicates some follow up oxidative processes could occur. The previous testing could not confirm that the mineral grains originated from the mine and mill, or were present due to other factors.

Post mortem analysis

Results from the post mortem analysis are given in Table 5. The organic nature of the TT3 samples is evident from mass loss on ignition. Photographs of the materials used in the kinetic testing also indicate high organic content [Brienne, 2007].

Table 5. Post kinetic analysis

Sample	**Total S (%)**	**NNP** (kg $CaCO_3$)/t	**Loss on Ignition (%)**
HC1 (TT3 sub-surface)	0.07	-6.4	43
HC2 (TT3 surface)	0.08	-29.5	95
HC3 (Triangle sub-surface)	0.11	-0.9	10
HC4 (Triangle surface)	1.38	18.2	19

Static methods have been used to estimate the acid potential for waste materials [Parker et al., 1999]. Prediction of acid potential when the net neutralization potential (NNP) is between +20 and -20 (kg CaCO3)/t are difficult [EPA, 1994a; MEND, 1995]. Results from the static acid base accounting testing in Table 5 indicate that samples from HC1, HC2 and HC3 fall in this range. Based on the kinetic testing, only the HC4 sample is expected to be acid generating.

CONCLUSIONS

The following conclusions can be drawn:

- Assay data indicate the lead concentrations in the Proximal regions close to the mine and mill is 2.9% and 0.02% for a surface and sub-surface sample, respectively. This suggests lead is present below the soil surface.
- The lead and zinc extractability was determined for the Proximal samples using a diagnostic leach procedure. Results indicate that approximately 0.3% of the lead is leached in the Proximal surface sample. Zinc leaching from the Proximal surface and sub-surface samples were approximately 4%.
- Kinetic testing indicates that only one sample (Triangle surface) has the potential for acidic leachates over a long time period. Low metals leaching was predicted based on the kinetic

testing. Approximately 30% of the zinc could be extracted under aggressive oxidative conditions of a humidity cell test. Preferential leaching of zinc was observed in the testing, consistent with a microbially-mediated oxidative process.

- Some metal leaching into the environment and pH modification is predicted based on the kinetic test results.

RECOMMENDATIONS

The following recommendations are offered:

1. The results above indicate mineral weathering is possible for grains under controlled laboratory conditions. Natural attenuation mechanisms may be present in the environment, however these have not been explored. A field test will be required to confirm these laboratory based results.
2. The environmental impact of this weathering has not been determined. A testing programme is required to determine the effects of the metal ion leaching on the environment surrounding Red Dog Operations.

ACKNOWLEDGEMENTS

We wish to sincerely thank SWalden for his many useful suggestions and extensive follow up work for this project especially with the leaching protocols. DBigras, RBlaskovich, HSittig, MWestphal and NMcKay were instrumental in obtaining, collating and interpreting the SEM and MLA data. Thanks also to JHarlamovs and DAshman for many helpful comments as well as for the Red Dog personnel for their support and in providing insights into the work. Finally thanks to CPicone for final report collation and issuing.

SIGNED: **ENDORSED:**

S.E. Jensen	S.Brienne	D. Ashman
Sr. Research Technologist	Sr. Research Chemist	Manager, Process Technology

REFERENCES

ASTM, 1996. Designation D5744-96 (2001) Standard Test for Accelerated Weathering of Solid Materials using a Modified Humidity Cell, American Society for Testing and Materials (ASTM).

Brienne, S.H., 2007.Mineral Weathering in Red Dog Soils, Research Report 2007RR01, January 21.

Robertson, A. MacG, Broughton, L.M., 1992. Reliability of Acid Rock Drainage Testing, Workshop on U.S. EPA Specifications for Tests to Predict Acid Generation from Non-Coal Mining Wastes, Las Vegas, Nevada, July 30-31.

EPA, 1994. US EPA Method 1312, Synthetic Precipitation Leach Procedure, Revision 0, September 1994.

EPA, 1994a. Acid Mine Drainage Prediction, EPA530-R-94-036, NTIS PB94-201829, December.

MEND, 1995. Evaluation of Static and Kinetic Prediction Test Data and Comparison with Field Monitoring Data, Mine Environment Neutral Drainage (MEND) Project 1.16.4, December.

Parker, G., Robertson, A., 1999. Acid Drainage. Australian Minerals and Energy Environment Foundation, Melbourne, Australia.

APPENDIX

Cell No.	Sample ID	Sample Type	Method Reference	Column Dimensions			
				Inner Diameter (cm)	Length (cm)	Distance from Top of column to Sample (cm)	Dry Wt. of Sample (g)
1	TT3 at 1 km Mineral	Waste Rock	MEND				488
2	TT3 at 1 km Surface	Waste Rock	MEND				152
3	Triangle Mineral	Waste Rock	MEND				1000
4	Triangle Surface	Waste Rock	MEND				1000

Column Packing		Pore Volume	Total Volume of Initial Flushings	Flushing Rate/Weekly Input*	Temp	Sampling Frequency	Start-up date	Sampling Day	Operation Procedure	Sample prep for flushings
Other Materials Used	Column Material	(mL)	(mL)	(mL)	(°C)		**2006**			
PVC perforated disk & nylon mesh	Plexiglas		800	500	20-22 °C	Weekly	30-Mar	Thursday		none
PVC perforated disk & nylon mesh	Plexiglas		1400	500	20-22 °C	Weekly	30-Mar	Thursday		none
PVC perforated disk & nylon mesh	Plexiglas		1000	500	20-22 °C	Weekly	30-Mar	Thursday		none
PVC perforated disk & nylon mesh	Plexiglas		1000	500	20-22 °C	Weekly	30-Mar	Thursday		none

HC 1 *CONFIDENTIAL*

Sample = TT3 at 1 km Mineral *DRAFT*

Date	Cycle No.	Volume mL Input	Volume mL Output		pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/	Sulphate mg/L	Sulphate by ICP mg/L	Hardness CaCO3 mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L
30-Mar-06	1	800	415		3.99	522	45	6.0	25.0	#N/A	4.4	6.3	8.7	0.712	0.0045	0.001	0.402	0.00023
06-Apr-06	2	350	220		3.89	604	115	10.0	30.5	#N/A	5.5	10.8	12	1.1	0.0073	0.0018	0.633	0.0003
13-Apr-06	3	350	235		4.07	452	102	6.0	29.0	#N/A	8.8	15	17	0.784	0.0088	0.0016	0.519	0.00029
20-Apr-06	4	350	280		4.26	580	84	3.0	24.0	#N/A	13	16.2	15	0.994	0.0067	0.0011	0.509	0.00024
27-Apr-06	5	350	265		4.05	493	75	3.5	26.5	#N/A	12	15.6	12	0.853	0.0065	0.0024	0.325	0.00023
04-May-06	6	350	270		4.31	270	100	2.2	28.8	#N/A	11	15.6	9.2	1.24	0.0061	0.001	0.27	0.00028
11-May-06	7	350	250		4.37	274	92	1.1	25.1	#N/A	19	16.8	6.9	1.02	0.0064	0.001	0.241	0.00015
18-May-06	8	350	265		4.18	290	129	2.8	29.9	#N/A	25	26.7	8.1	1.37	0.0078	0.0014	0.263	0.00021
25-May-06	9	350	235		4.47	264	150	1.0	38.0	#N/A	31	31.2	7.5	1.77	0.0088	0.002	0.223	<0.0005
01-Jun-06	10	350	260		4.55	268	141	#N/A	34.1	<1.0	28	31.2	6.7	4.97	0.0083	0.002	0.239	0.00032
08-Jun-06	11	350	265		4.57	245	416	#N/A	39.0	<1.0	32	30.6	4.9	2.31	0.0085	0.007	0.178	<0.0005
15-Jun-06	12	350	235		4.93	212	136	#N/A	33.4	1.2	<1	23.4	2.5	2.76	0.0055	0.0018	0.112	0.00027
22-Jun-06	13	350	260		4.79	231	134	#N/A	33.0	<1.0	2	26.1	3.1	2.7	0.008	0.0016	0.135	0.00028
29-Jun-06	14	350	255		4.74	266	149	#N/A	46.4	<1.0	<1	27.9	3.6	3.42	0.0095	0.0022	0.21	0.00037
06-Jul-06	15	350	230		4.84	244	148	#N/A	42.2	<1.0	<1	23.1	2.4	3.22	0.0084	0.002	0.125	0.00029
13-Jul-06	16	350	255		4.98	243	128	#N/A	36.7	2.1	19	19.2	2.2	2.77	0.0069	0.0019	0.094	0.00026
20-Jul-06	17	350	255		4.89	228	119	#N/A	37.3	<1.0	31	17.4	2	2.93	0.0079	0.002	0.104	0.00032
27-Jul-06	18	350	265		5.00	270	85	#N/A	28.3	1.4	12	11.1	0.6	1.91	0.0056	0.002	0.06	0.00025
03-Aug-06	19	350	270		5.12	215	89	#N/A	26.7	2.3	16	11.4	1.1	1.96	0.0065	0.0017	0.0847	0.00026
10-Aug-06	20	350	255		5.47	217	86	#N/A	20.9	4.7	3	9.9	0.9	2.11	0.0072	0.0016	0.049	0.0002
17-Aug-06	21	350	275		5.17	247	86	#N/A	29.0	3.1	16	9.9	1.2	2.13	0.0072	0.0018	0.0818	0.00027
24-Aug-06	22	350	275		5.15	257	79	#N/A	28.4	3.0	<1	8.7	1.8	1.99	0.0071	0.0026	0.075	0.00015
31-Aug-06	23	350	275		5.00	290	91	#N/A	29.5	1.2	4.0	9	1.4	2.49	0.0088	0.0033	0.101	0.00026
07-Sep-06	24	350	325		5.37	255	122	#N/A	31.5	6.5	3.0	11.1	1.7	3.92	0.0121	0.0043	0.141	0.00038
14-Sep-06	25	350	290		5.25	292	95	#N/A	27.5	4.8	<1	8.4	1.4	3.18	0.0096	0.0021	0.109	0.00028
21-Sep-06	26	350	270		5.42	254	91	#N/A	22.6	5.6	<1	7.5	0.9	2.62	0.0089	0.004	0.0907	0.00025
28-Sep-06	27	350	270		5.21	334	72	#N/A	23.7	3.3	<1	5.4	0.7	2.2	0.0091	0.0036	0.0648	0.00019
05-Oct-06	28	350	275		5.34	327	86	#N/A	35.9	10.3	<1	9.6	1.8	3.06	0.011	0.0018	0.104	0.0002
12-Oct-06	29	350	255		5.62	304	83	#N/A	22.9	6.9	<1	6.3	1.3	2.34	0.0116	0.0022	0.0708	0.00024
19-Oct-06	30	350	270		5.53	368	70	#N/A	20.5	5.0	<1	5.4	1.0	2.06	0.0109	0.0017	0.0767	0.00019
26-Oct-06	31	350	280		5.14	452	144	#N/A	49.1	4.7	<1	12.6	2.8	5.3	0.0302	0.0053	0.242	0.00045
02-Nov-06	32	350	270		5.38	440	69	#N/A	16.2	7.3	<1	6.3	1.2	2.27	0.0151	0.0023	0.069	0.00022
09-Nov-06	33	350	270		5.33	374	89	#N/A	25.3	4.9	5							
16-Nov-06	34	350	260		4.71	436	91	#N/A	23.4	<1.0	<1	6.3	1.5	2.74	0.0175	0.0024	0.1	0.00025
23-Nov-06	35	350	270		5.70	378	76	#N/A	22.1	6.8	<1	5.7	0.8	2.08	0.0147	0.0025	0.0771	0.00023
30-Nov-06	36	350	285		5.41	412	105	#N/A	41.4	7.1	<1	8.1	2.2	3.45	0.0252	0.003	0.163	0.00034
07-Dec-06	37	350	265		5.63	394	101	#N/A	25.9	7.1	IP							

Note: Detection limits may change for metals due to matrix interference.
Sulphate repeated for Mar 30, Apr 6 and Apr 13 by ion chromatography.
Nov 30/06 Acidity being checked.

Mass Factor 2.049

HC 1 ***CONFIDENTIAL***
Sample = TT3 at 1 km Mineral ***DRAFT***

Date	Cycle No.	Volume mL Input	Volume mL Output	Volume Factor	pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity hgCaCO3/	Sulphate mg/L	Sulphate by ICP mg/L	Hardness CaCO3 mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L
BC Water Numerical Criteria													5		0.05	1	0.1	
30-Mar-06	1	800	415	0.80	3.99	522	45	9.8	41.0	#N/A	7.2	10.3	14.3	1.2	0.0073	0.0016	0.6590	0.0004
06-Apr-06	2	350	220	0.70	3.89	604	115	14.3	43.8	#N/A	7.9	15.5	17.2	1.6	0.0104	0.0026	1.2971	0.0004
13-Apr-06	3	350	235	0.70	4.07	452	102	8.6	41.6	#N/A	12.6	21.5	24.4	1.1	0.0127	0.0023	1.0635	0.0004
20-Apr-06	4	350	280	0.70	4.26	580	84	4.3	34.4	#N/A	18.6	23.2	21.5	1.4	0.0095	0.0016	1.0430	0.0003
27-Apr-06	5	350	265	0.70	4.05	493	75	5.0	38.0	#N/A	17.2	22.4	17.2	1.2	0.0094	0.0034	0.6660	0.0003
04-May-06	6	350	270	0.70	4.31	270	100	3.1	41.3	#N/A	15.8	22.4	13.2	1.8	0.0088	0.0014	0.5533	0.0004
11-May-06	7	350	250	0.70	4.37	274	92	1.5	36.1	#N/A	27.3	24.1	9.9	1.5	0.0092	0.0014	0.4939	0.0002
18-May-06	8	350	265	0.70	4.18	290	129	4.0	42.8	#N/A	35.9	38.3	11.6	2.0	0.0111	0.0020	0.5389	0.0003
25-May-06	9	350	235	0.70	4.47	264	150	1.4	54.5	#N/A	44.5	44.8	10.8	2.5	0.0126	0.0029	0.4570	<.00005
01-Jun-06	10	350	260	0.70	4.55	268	141	#N/A	48.9	<1.0	40.2	44.8	9.6	7.1	0.0119	0.0029	0.4898	0.0005
08-Jun-06	11	350	265	0.70	4.57	245	416	#N/A	56.0	<1.0	45.9	43.9	7.0	3.3	0.0122	0.0100	0.3648	<.00005
15-Jun-06	12	350	235	0.70	4.93	212	136	#N/A	48.0	1.2		33.6	3.6	4.0	0.0079	0.0026	0.2295	0.0004
22-Jun-06	13	350	260	0.70	4.79	231	134	#N/A	47.3	<1.0	2.9	37.4	4.4	3.9	0.0114	0.0023	0.2766	0.0004
29-Jun-06	14	350	255	0.70	4.74	266	149	#N/A	66.6	<1.0		40.0	5.2	4.9	0.0136	0.0032	0.4303	0.0005
06-Jul-06	15	350	230	0.70	4.84	244	148	#N/A	60.6	<1.0		33.1	3.4	4.6	0.0120	0.0029	0.2561	0.0004
13-Jul-06	16	350	255	0.70	4.98	243	128	#N/A	52.6	2.1	27.3	27.5	3.2	4.0	0.0099	0.0027	0.1926	0.0004
20-Jul-06	17	350	255	0.70	4.89	228	119	#N/A	53.5	<1.0	44.5	25.0	2.9	4.2	0.0113	0.0029	0.2131	0.0005
27-Jul-06	18	350	265	0.70	5.00	270	85	#N/A	40.5	1.4	17.2	15.9	0.9	2.7	0.0080	0.0029	0.1230	0.0004
03-Aug-06	19	350	270	0.70	5.12	215	89	#N/A	38.3	2.3	23.0	16.4	1.6	2.8	0.0094	0.0024	0.1736	0.0004
10-Aug-06	20	350	255	0.70	5.47	217	86	#N/A	30.0	4.7	4.3	14.2	1.3	3.0	0.0103	0.0023	0.1004	0.0003
17-Aug-06	21	350	275	0.70	5.17	247	86	#N/A	41.6	3.1	23.0	14.2	1.7	3.1	0.0104	0.0026	0.1676	0.0004
24-Aug-06	22	350	275	0.70	5.15	257	79	#N/A	40.8	3.0		12.5	2.6	2.9	0.0102	0.0037	0.1537	0.0002
31-Aug-06	23	350	275	0.70	5.00	290	91	#N/A	42.3	1.2	5.7	12.9	2.0	3.6	0.0126	0.0047	0.2070	0.0004
07-Sep-06	24	350	325	0.70	5.37	255	122	#N/A	45.2	6.5	4.3	15.9	2.4	5.6	0.0174	0.0062	0.2889	0.0005
14-Sep-06	25	350	290	0.70	5.25	292	95	#N/A	39.5	4.8		12.0	2.0	4.6	0.0138	0.0030	0.2234	0.0004
21-Sep-06	26	350	270	0.70	5.42	254	91	#N/A	32.5	5.6		10.8	1.3	3.8	0.0128	0.0057	0.1859	0.0004
28-Sep-06	27	350	270	0.70	5.21	334	72	#N/A	34.0	3.3		7.7	1.0	3.2	0.0130	0.0052	0.1328	0.0003
05-Oct-06	28	350	275	0.70	5.34	327	86	#N/A	51.6	10.3		13.8	2.6	4.4	0.0158	0.0026	0.2131	0.0003
12-Oct-06	29	350	255	0.70	5.62	304	83	#N/A	32.8	6.9		9.0	1.9	3.4	0.0166	0.0032	0.1451	0.0003
19-Oct-06	30	350	270	0.70	5.53	368	70	#N/A	29.4	5.0		7.7	1.4	3.0	0.0156	0.0024	0.1572	0.0003
26-Oct-06	31	350	280	0.70	5.14	452	144	#N/A	70.4	4.7		18.1	4.0	7.6	0.0433	0.0076	0.4959	0.0006
02-Nov-06	32	350	270	0.70	5.38	440	69	#N/A	23.2	7.3		9.0	1.7	3.3	0.0217	0.0033	0.1414	0.0003
09-Nov-06	33	350	270	0.70	5.33	374	89	#N/A	36.3	4.9	7.2							
16-Nov-06	34	350	260	0.70	4.71	436	91	#N/A	33.6	<1.0		9.0	2.2	3.9	0.0251	0.0034	0.2049	0.0004
23-Nov-06	35	350	270	0.70	5.70	378	76	#N/A	31.7	6.8		8.2	1.1	3.0	0.0211	0.0036	0.1580	0.0003
30-Nov-06	36	350	285	0.70	5.41	412	105	#N/A	59.3	7.1		11.6	3.2	4.9	0.0361	0.0043	0.3340	0.0005
07-Dec-06	37	350	265	0.70	5.63	394	101	#N/A	37.2	7.1								

Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
<0.00005	0.026	0.0006	1.47	0.0009	0.0034	0.0167	1.18	0.0033	0.0033	1.23	0.0119	<0.05	3E-05	0.01	0.1	1.21	<0.0005	1.08	2E-05	1.15	0.0134	2.1
<0.00005	0.127	0.0007	2.24	<0.0002	0.0047	0.0272	1.27	0.0183	0.0044	1.67	0.0174	<0.05	0.0001	0.0128	1.7	0.681	<0.0005	4.58	<0.00001	2.86	0.0251	3.6
0.0007	0.106	0.0007	2.89	0.0021	0.0057	0.0135	1.19	0.0067	0.0047	2.4	0.0189	<0.05	7E-05	0.0146	0.5	1.54	<0.0005	6.3	3E-05	3.33	0.0255	5
<0.00005	0.069	0.0006	2.69	0.0024	0.0059	0.0135	1.29	0.0055	0.0047	2.11	0.017	<0.05	5E-05	0.0153	0.5	1.95	<0.0005	5.72	2E-05	2.64	0.0224	5.4
<0.00005	0.041	0.0004	2.18	0.0026	0.0042	0.0412	1.38	0.0093	0.0039	1.61	0.0119	<0.05	5E-05	0.0125	0.4	1.64	<0.0005	4.51	2E-05	2.43	0.0181	5.2
0.0002	0.038	0.0004	1.66	0.0046	0.0035	0.0242	1.9	0.0027	0.0041	1.23	0.0098	<0.05	0.0003	0.0106	0.4	1.61	<0.0005	2.19	5E-05	1.98	0.0132	5.2
<0.00005	0.03	0.0006	1.3	0.003	0.0027	0.0207	1.68	0.01	0.0031	0.88	0.0089	<0.05	9E-05	0.0082	0.3	1	0.001	1.37	6E-05	1.65	0.012	5.6
8E-05	0.037	0.0003	1.53	0.0031	0.0034	0.0351	2.28	0.0055	0.0029	1.04	0.0082	<0.05	8E-05	0.0113	0.4	1.48	<0.0005	2.02	6E-05	1.92	0.0131	8.9
<0.0005	0.032	0.0004	1.49	0.004	0.0032	0.038	3.33	0.0092	0.004	0.93	0.0082	<0.05	0.001	0.012	0.5	1.63	<0.005	2.33	0.0001	1.74	0.011	10.4
6E-05	0.03	0.0004	1.36	0.0093	0.0032	0.0311	5.98	0.0071	0.0037	0.8	0.0101	0.07	0.0003	0.0146	0.6	1.65	0.0008	6.93	0.0003	1.31	0.012	10.4
<0.0005	0.02	0.0004	1.08	<0.002	0.0027	0.098	4.67	0.0075	<0.002	0.54	0.005	<0.05	<0.0002	0.012	0.4	1.19	<0.005	2.92	0.0002	1.21	0.0085	10.2
<0.00005	0.018	0.0011	0.67	0.0076	0.0049	0.0904	4.54	0.0275	0.001	0.2	0.0047	<0.05	0.0002	0.0129	0.5	1.07	0.0011	2.27	0.0001	0.85	0.0041	7.8
<0.00005	0.021	0.0003	0.75	0.0068	0.0028	0.0771	5.47	0.014	0.0013	0.29	0.0035	0.06	0.0002	0.0127	0.3	0.818	0.0007	2.73	0.0001	0.77	0.0051	8.7
<0.00005	0.018	0.0004	0.87	0.0094	0.003	0.0558	7.84	0.0163	0.0012	0.35	0.005	<0.05	0.0002	0.0174	0.5	0.854	0.0012	3.19	0.0002	0.91	0.0071	9.3
<0.00005	0.018	0.0002	0.61	0.0071	0.0022	0.0403	6.72	0.0062	0.0011	0.22	0.0026	<0.05	0.0002	0.0144	0.3	0.685	0.0011	2.92	0.0001	0.66	0.0038	7.7
<0.00005	0.011	0.0002	0.56	0.0061	0.0018	0.0337	6.1	0.0071	0.0009	0.19	0.0021	<0.05	0.0003	0.0123	0.3	0.508	0.001	2.54	0.0001	0.61	0.0027	6.4
<0.00005	0.014	0.0002	0.63	0.0069	0.0019	0.0315	6.22	0.0053	0.0005	0.11	0.0018	<0.05	0.0003	0.013	0.3	0.441	0.001	2.53	0.0001	0.47	0.0028	5.8
<0.00005	0.009	0.0001	0.25	0.0051	0.001	0.0278	4.42	0.0053	0.0009	<0.05	0.0015	<0.05	0.0004	0.0085	0.2	0.292	<0.0005	1.85	5E-05	0.26	0.002	3.7
<0.00005	0.009	0.0002	0.32	0.0058	0.0014	0.0307	4.93	0.0093	0.0005	0.09	0.0017	<0.05	0.0002	0.0103	0.2	0.287	0.001	1.84	0.0001	0.33	0.0021	3.8
<0.00005	0.015	0.0001	0.22	0.0043	0.0011	0.0252	4.02	0.007	0.0003	0.08	0.0012	<0.05	0.0003	0.0088	0.1	0.291	0.0009	1.71	5E-05	0.33	0.0014	3.3
<0.00005	0.011	0.0002	0.35	0.0052	0.0013	0.032	5.36	0.0075	0.0005	0.09	0.0015	0.06	0.0002	0.0091	0.2	0.27	0.0008	2.1	8E-05	0.31	0.002	3.3
<0.00005	0.019	0.0005	0.55	0.0052	0.0014	0.0444	5.29	0.012	0.0003	0.11	0.0131	0.06	0.0002	0.0099	0.2	0.275	0.0005	1.88	0.0001	0.71	0.005	2.9
<0.00005	0.013	0.0002	0.43	0.0059	0.0016	0.0346	6.6	0.0052	0.0002	0.09	0.0016	<0.05	0.0003	0.0117	0.2	0.299	0.0008	2.27	0.0001	0.25	0.0027	3
<0.00005	0.014	0.0011	0.55	0.0085	0.0026	0.0563	9.03	0.03	0.0005	0.09	0.0027	<0.05	0.0002	0.0209	0.2	0.452	0.002	2.94	0.0001	0.42	0.0036	3.7
<0.00005	0.009	0.0002	0.43	0.0062	0.0019	0.0439	8.35	0.0198	0.0002	0.07	0.002	0.06	0.0002	0.0143	0.2	0.337	0.0009	3.33	8E-05	0.31	0.0026	2.8
<0.00005	<0.008	0.0003	0.36	0.0051	0.0016	0.0344	6.24	0.047	0.0002	<0.05	0.0022	<0.05	0.0003	0.0115	0.1	0.27	0.0008	2.31	9E-05	0.83	0.0021	2.5
<0.00005	0.012	0.0002	0.26	0.0048	0.0014	0.0314	4.88	0.0421	0.0005	<0.05	0.0016	<0.05	0.0003	0.0101	0.1	0.236	0.0008	1.79	7E-05	0.73	0.0019	1.8
<0.00005	0.014	0.0002	0.62	0.0061	0.0017	0.0302	7.47	0.0073	0.0003	0.06	0.0015	<0.05	0.0003	0.0127	0.2	0.274	0.0008	2.28	7E-05	0.95	0.0026	3.2
<0.00005	0.013	0.0001	0.37	0.0051	0.0014	0.0279	6.49	0.0057	0.0003	0.08	0.0012	<0.05	0.0003	0.0107	0.2	0.246	0.0008	2.24	5E-05	1.02	0.002	2.1
<0.00005	<0.008	0.0001	0.41	0.0051	0.0013	0.0245	5.26	0.0051	0.0003	<0.05	0.0014	<0.05	0.0003	0.0096	0.2	0.228	0.0008	1.84	9E-05	1.21	0.0021	1.8
6E-05	0.02	0.0004	0.82	0.0123	0.0035	0.0848	13.8	0.0117	0.0007	0.19	0.0051	0.06	0.0003	0.0255	0.3	0.5	0.0017	3.85	0.0002	1.13	0.007	4.2
<0.00005	0.015	0.0001	0.47	0.0062	0.0015	0.0448	6.01	0.0177	0.0003	<0.05	0.0017	<0.05	0.0004	0.0117	0.2	0.269	0.0008	2.3	7E-05	1.73	0.0022	2.1
8E-05	0.014	0.0002	0.47	0.0065	0.0018	0.0569	6.88	0.0084	0.0003	0.08	0.002	0.05	0.0005	0.0136	0.2	0.307	0.0009	2.45	8E-05	1.4	0.0031	2.1
<0.00005	<0.008	0.0001	0.31	0.005	0.0014	0.0445	6.18	0.0059	0.0002	<0.05	0.0017	<0.05	0.0003	0.0101	0.2	0.23	0.0006	2.2	6E-05	0.78	0.0022	1.9
5E-05	0.012	0.0003	0.63	0.0084	0.0023	0.0917	9.98	0.0211	0.0003	0.14	0.003	0.07	0.0003	0.0161	0.2	0.349	0.0011	3.06	0.0001	0.98	0.0039	2.7

Bi	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S
0.5	0.005	1	0.05	0.05	0.3	0.3	0.2	2.5		0.2	0.001	0.01	0.2			0.05			200			
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	0.0426	0.0009	2.4098	0.0015	0.0055	0.0274	1.9344	0.0054	0.0054	2.0164	0.0195		0.0000	0.0164	0.1639	1.9836	<0.0005	1.7705	0.0000	1.8852	0.0220	3.4426
	0.1822	0.0009	3.2131		0.0067	0.0390	1.8217	0.0263	0.0063	2.3955	0.0250		0.0002	0.0184	2.4385	0.9768	<0.0005	6.5697		4.1025	0.0360	5.1639
	0.1520	0.0009	4.1455	0.0030	0.0082	0.0194	1.7070	0.0096	0.0067	3.4426	0.0271		0.0001	0.0209	0.7172	2.2090	<0.0005	9.0369	0.0000	4.7766	0.0366	7.1721
	0.0990	0.0009	3.8586	0.0034	0.0084	0.0194	1.8504	0.0078	0.0067	3.0266	0.0244		0.0001	0.0219	0.7172	2.7971	<0.0005	8.2049	0.0000	3.7869	0.0321	7.7459
	0.0588	0.0006	3.1270	0.0037	0.0060	0.0591	1.9795	0.0134	0.0056	2.3094	0.0171		0.0001	0.0179	0.5738	2.3525	<0.0005	6.4693	0.0000	3.4857	0.0260	7.4590
	0.0545	0.0005	2.3811	0.0066	0.0050	0.0347	2.7254	0.0039	0.0059	1.7643	0.0141		0.0004	0.0152	0.5738	2.3094	<0.0005	3.1414	0.0001	2.8402	0.0189	7.4590
	0.0430	0.0008	1.8648	0.0043	0.0039	0.0297	2.4098	0.0143	0.0044	1.2623	0.0128		0.0001	0.0118	0.4303	1.4344	0.0014	1.9652	0.0001	2.3668	0.0172	8.0328
	0.0531	0.0005	2.1947	0.0044	0.0048	0.0503	3.2705	0.0078	0.0042	1.4918	0.0118		0.0001	0.0162	0.5738	2.1230	<0.0005	2.8975	0.0001	2.7541	0.0188	12.7664
	0.0459	0.0006	2.1373	0.0057	0.0046	0.0545	4.7766	0.0132	0.0057	1.3340	0.0118		0.0014	0.0172	0.7172	2.3381	<0.005	3.3422	0.0001	2.4959	0.0158	14.9180
	0.0430	0.0005	1.9508	0.0133	0.0046	0.0446	8.5779	0.0102	0.0053	1.1475	0.0145		0.0004	0.0209	0.8607	2.3668	0.0011	9.9406	0.0004	1.8791	0.0172	14.9180
	0.0287	0.0006	1.5492		0.0039	0.1406	6.6988	0.0108		0.7746	0.0072			0.0172	0.5738	1.7070	<0.005	4.1885	0.0003	1.7357	0.0122	14.6311
	0.0258	0.0016	0.9611	0.0109	0.0070	0.1297	6.5123	0.0394	0.0014	0.2869	0.0068		0.0003	0.0185	0.7172	1.5348	0.0016	3.2561	0.0002	1.2193	0.0059	11.1885
	0.0301	0.0004	1.0758	0.0098	0.0040	0.1106	7.8463	0.0201	0.0019	0.4160	0.0050		0.0003	0.0182	0.4303	1.1734	0.0010	3.9160	0.0002	1.1045	0.0073	12.4795
	0.0258	0.0005	1.2480	0.0135	0.0043	0.0800	11.2459	0.0234	0.0017	0.5020	0.0072		0.0003	0.0250	0.7172	1.2250	0.0017	4.5758	0.0003	1.3053	0.0101	13.3402
	0.0258	0.0003	0.8750	0.0102	0.0031	0.0578	9.6393	0.0089	0.0016	0.3156	0.0037		0.0003	0.0207	0.4303	0.9826	0.0016	4.1885	0.0002	0.9467	0.0055	11.0451
	0.0158	0.0003	0.8033	0.0088	0.0026	0.0483	8.7500	0.0102	0.0013	0.2725	0.0030		0.0004	0.0176	0.4303	0.7287	0.0014	3.6434	0.0001	0.8750	0.0039	9.1803
	0.0201	0.0002	0.9037	0.0099	0.0027	0.0452	8.9221	0.0075	0.0007	0.1578	0.0026		0.0004	0.0186	0.4303	0.6326	0.0014	3.6291	0.0002	0.6742	0.0040	8.3197
	0.0129	0.0002	0.3586	0.0073	0.0015	0.0399	6.3402	0.0076	0.0013	0.0400	0.0021		0.0005	0.0122	0.2869	0.4189	<0.0005	2.6537	0.0001	0.3730	0.0029	5.3074
	0.0129	0.0002	0.4590	0.0083	0.0020	0.0440	7.0717	0.0133	0.0007	0.1291	0.0025		0.0003	0.0148	0.2869	0.4117	0.0014	2.6393	0.0001	0.4734	0.0030	5.4508
	0.0215	0.0002	0.3156	0.0062	0.0016	0.0361	5.7664	0.0101	0.0004	0.1148	0.0017		0.0004	0.0126	0.1434	0.4174	0.0013	2.4529	0.0001	0.4734	0.0020	4.7336
	0.0158	0.0002	0.5020	0.0075	0.0018	0.0459	7.6885	0.0108	0.0007	0.1291	0.0021		0.0003	0.0131	0.2869	0.3873	0.0011	3.0123	0.0001	0.4447	0.0029	4.7336
	0.0273	0.0008	0.7889	0.0075	0.0020	0.0637	7.5881	0.0172	0.0004	0.1578	0.0188		0.0003	0.0142	0.2869	0.3945	0.0007	2.6967	0.0001	1.0184	0.0072	4.1598
	0.0186	0.0002	0.6168	0.0085	0.0024	0.0496	9.4672	0.0074	0.0003	0.1291	0.0023		0.0004	0.0168	0.2869	0.4289	0.0011	3.2561	0.0001	0.3586	0.0038	4.3033
	0.0201	0.0015	0.7889	0.0122	0.0038	0.0808	12.9529	0.0430	0.0007	0.1291	0.0039		0.0003	0.0300	0.2869	0.6484	0.0029	4.2172	0.0001	0.6025	0.0052	5.3074
	0.0129	0.0003	0.6168	0.0089	0.0027	0.0630	11.9775	0.0284	0.0003	0.1004	0.0029		0.0003	0.0205	0.2869	0.4834	0.0013	4.7766	0.0001	0.4447	0.0037	4.0164
		0.0005	0.5164	0.0073	0.0022	0.0493	8.9508	0.0674	0.0003	0.0400	0.0032		0.0004	0.0165	0.1434	0.3873	0.0011	3.3135	0.0001	1.1906	0.0030	3.5861
	0.0172	0.0002	0.3730	0.0069	0.0020	0.0450	7.0000	0.0604	0.0007	0.0400	0.0022		0.0004	0.0145	0.1434	0.3385	0.0011	2.5676	0.0001	1.0471	0.0028	2.5820
	0.0201	0.0002	0.8893	0.0088	0.0024	0.0433	10.7152	0.0104	0.0004	0.0861	0.0022		0.0005	0.0182	0.2869	0.3930	0.0011	3.2705	0.0001	1.3627	0.0038	4.5902
	0.0186	0.0002	0.5307	0.0073	0.0019	0.0400	9.3094	0.0081	0.0004	0.1148	0.0017		0.0005	0.0153	0.2869	0.3529	0.0011	3.2131	0.0001	1.4631	0.0028	3.0123
		0.0002	0.5881	0.0073	0.0019	0.0351	7.5451	0.0073	0.0004	0.0400	0.0020		0.0004	0.0138	0.2869	0.3270	0.0011	2.6393	0.0001	1.7357	0.0030	2.5820
	0.0287	0.0005	1.1762	0.0176	0.0051	0.1216	19.7951	0.0168	0.0010	0.2725	0.0073		0.0004	0.0366	0.4303	0.7172	0.0024	5.5225	0.0003	1.6209	0.0100	6.0246
	0.0215	0.0002	0.6742	0.0089	0.0021	0.0643	8.6209	0.0254	0.0004	0.0400	0.0024		0.0006	0.0168	0.2869	0.3859	0.0011	3.2992	0.0001	2.4816	0.0032	3.0123
	0.0201	0.0002	0.6742	0.0093	0.0026	0.0816	9.8689	0.0120	0.0004	0.1148	0.0028		0.0006	0.0195	0.2869	0.4404	0.0013	3.5143	0.0001	2.0082	0.0044	3.0123
		0.0002	0.4447	0.0072	0.0020	0.0638	8.8648	0.0084	0.0003	0.0400	0.0025		0.0004	0.0145	0.2869	0.3299	0.0009	3.1557	0.0001	1.1189	0.0031	2.7254
	0.0172	0.0004	0.9037	0.0120	0.0033	0.1315	14.3156	0.0303	0.0004	0.2008	0.0042		0.0005	0.0231	0.2869	0.5006	0.0016	4.3893	0.0002	1.4057	0.0056	3.8730

Tl mg/L	Sn mg/L	Ti mg/L	U mg/L	V mg/L	Zn mg/L	Zr mg/L	Major Anions	Major Cations	Diff	Diff (%)	
<0.00005	0.0002	0.0026	5E-05	0.0015	0.0679	<0.005	0.14	0.48	-0.34	-54.7%	anion balance based on sulphur value by ICP
0.00005	0.0003	0.006	0.0001	0.0018	0.0976	<0.005	0.39	0.69	-0.30	-27.9%	anion balance based on sulphur value by ICP
0.00007	0.0003	0.0081	0.0001	0.0023	0.085	<0.005	0.36	0.74	-0.38	-34.6%	anion balance based on sulphur value by ICP
0.00006	0.0002	0.0094	0.0001	0.0028	0.0638	<0.005	0.39	0.69	-0.30	-28.0%	anion balance based on sulphur value by ICP
0.00006	0.0001	0.0081	0.0003	0.0025	0.0514	<0.005	0.36	0.62	-0.26	-26.4%	anion balance based on sulphur value by ICP
0.00006	0.0005	0.0152	0.0001	0.0031	0.0409	<0.005	0.36	0.57	-0.20	-21.9%	anion balance based on sulphur value by ICP
0.00009	0.0002	0.0157	0.0002	0.003	0.0472	<0.005	0.38	0.45	-0.07	-8.8%	anion balance based on sulphur value by ICP
<0.00005	0.0001	0.0112	0.0002	0.0039	0.0444	<0.005	0.59	0.58	0.01	0.9%	anion balance based on sulphur value by ICP
<0.0005	<0.0005	0.017	0.0004	0.0059	0.046	<0.005	0.70	0.62	0.08	6.0%	anion balance based on sulphur value by ICP
0.00006	0.0003	0.121	0.0004	0.0125	0.0406	0.008	0.71	1.03	-0.32	-18.5%	anion balance based on sulphur value by ICP
<0.0005	<0.0005	0.02	0.0005	0.0065	0.049	0.005	0.68	0.63	0.04	3.2%	anion balance based on sulphur value by ICP
0.00269	0.0002	0.023	0.0004	0.0084	0.0581	0.005	0.54	0.60	-0.06	-5.5%	anion balance based on sulphur value by ICP
0.00005	0.0002	0.0228	0.0004	0.0079	0.0274	0.007	0.57	0.63	-0.06	-4.7%	anion balance based on sulphur value by ICP
0.00012	0.0002	0.0329	0.0006	0.009	0.0298	0.008	0.63	0.81	-0.18	-12.8%	anion balance based on sulphur value by ICP
<0.00005	9E-05	0.0247	0.0004	0.008	0.0212	0.006	0.51	0.71	-0.20	-16.3%	anion balance based on sulphur value by ICP
<0.00005	7E-05	0.0218	0.0004	0.007	0.0214	0.006	0.47	0.62	-0.15	-13.7%	anion balance based on sulphur value by ICP
<0.00005	8E-05	0.0237	0.0004	0.0071	0.0169	0.006	0.39	0.63	-0.24	-23.7%	anion balance based on sulphur value by ICP
0.00008	5E-05	0.0172	0.0003	0.0055	0.0116	<0.005	0.28	0.41	-0.13	-19.2%	anion balance based on sulphur value by ICP
0.00005	6E-05	0.0196	0.0003	0.0055	0.0137	<0.005	0.30	0.45	-0.14	-19.3%	anion balance based on sulphur value by ICP
<0.00005	<0.0000£	0.0162	0.0003	0.0054	0.0102	<0.005	0.31	0.42	-0.11	-15.1%	anion balance based on sulphur value by ICP
<0.00005	0.0001	0.0212	0.0003	0.0051	0.015	<0.005	0.29	0.48	-0.19	-25.1%	anion balance based on sulphur value by ICP
0.00019	6E-05	0.0197	0.0003	0.0047	0.0867	<0.005	0.26	0.50	-0.24	-31.2%	anion balance based on sulphur value by ICP
0.00007	7E-05	0.0241	0.0004	0.0057	0.0149	0.008	0.23	0.57	-0.34	-42.5%	anion balance based on sulphur value by ICP
0.00033	6E-05	0.0327	0.0005	0.0075	0.0467	0.007	0.38	0.83	-0.45	-37.2%	anion balance based on sulphur value by ICP
<0.00005	<0.0000£	0.0257	0.0003	0.0059	0.02	0.006	0.29	0.71	-0.42	-42.0%	anion balance based on sulphur value by ICP
<0.00005	7E-05	0.02	0.0003	0.0049	0.0254	<0.005	0.28	0.58	-0.30	-35.2%	anion balance based on sulphur value by ICP
0.00006	5E-05	0.017	0.0003	0.0048	0.0192	<0.005	0.19	0.48	-0.29	-43.3%	anion balance based on sulphur value by ICP
<0.00005	6E-05	0.0227	0.0003	0.0057	0.0136	<0.005	0.43	0.69	-0.27	-23.8%	anion balance based on sulphur value by ICP
<0.00005	5E-05	0.0193	0.0003	0.0055	0.0133	0.006	0.29	0.56	-0.28	-32.5%	anion balance based on sulphur value by ICP
<0.00005	7E-05	0.0216	0.0003	0.0055	0.0118	<0.005	0.23	0.50	-0.27	-36.5%	anion balance based on sulphur value by ICP
<0.00005	0.0004	0.0464	0.0006	0.0101	0.0425	0.009	0.39	1.20	-0.81	-51.3%	anion balance based on sulphur value by ICP
<0.00005	0.0002	0.0197	0.0003	0.0064	0.0165	<0.005	0.30	0.58	-0.28	-32.3%	anion balance based on sulphur value by ICP
<0.00005	0.0002	0.024	0.0004	0.0073	0.0175	0.006	0.15	0.66	-0.51	-63.0%	anion balance based on sulphur value by ICP
<0.00005	8E-05	0.0173	0.0003	0.006	0.0136	<0.005	0.27	0.51	-0.24	-30.1%	anion balance based on sulphur value by ICP
<0.00005	0.0002	0.0295	0.0005	0.0077	0.0249	0.008	0.33	0.83	-0.50	-43.0%	anion balance based on sulphur value by ICP

		0.01	0.1	1		
Tl mg/L	Sn mg/L	Ti mg/L	U mg/L	V mg/L	Zn mg/L	Zr mg/L
<0.00005	0.0004	0.0043	0.0001	0.0024	0.1113	
0.0001	0.0004	0.0086	0.0002	0.0026	0.1400	
0.0001	0.0004	0.0116	0.0002	0.0033	0.1219	
0.0001	0.0002	0.0135	0.0002	0.0040	0.0915	
0.0001	0.0002	0.0116	0.0004	0.0036	0.0737	
0.0001	0.0007	0.0218	0.0002	0.0045	0.0587	
0.0001	0.0003	0.0225	0.0002	0.0042	0.0677	
<0.00005	0.0002	0.0161	0.0003	0.0055	0.0637	
<0.0005		0.0244	0.0006	0.0085	0.0660	
0.0001	0.0004	0.1736	0.0006	0.0179	0.0582	
<0.0005		0.0287	0.0007	0.0093	0.0703	
0.0039	0.0002	0.0330	0.0006	0.0121	0.0833	
0.0001	0.0002	0.0327	0.0006	0.0114	0.0393	
0.0002	0.0002	0.0472	0.0008	0.0129	0.0427	
<0.00005	0.0001	0.0354	0.0006	0.0115	0.0304	
<0.00005	0.0001	0.0313	0.0006	0.0100	0.0307	
<0.00005	0.0001	0.0340	0.0006	0.0102	0.0242	
0.0001	0.0001	0.0247	0.0004	0.0078	0.0166	
0.0001	0.0001	0.0281	0.0005	0.0079	0.0197	
<0.00005		0.0232	0.0004	0.0078	0.0146	
<0.00005	0.0002	0.0304	0.0004	0.0073	0.0215	
0.0003	0.0001	0.0283	0.0004	0.0068	0.1244	
0.0001	0.0001	0.0346	0.0005	0.0082	0.0214	
0.0005	0.0001	0.0469	0.0007	0.0108	0.0670	
<0.00005		0.0369	0.0005	0.0084	0.0287	
<0.00005	0.0001	0.0287	0.0004	0.0070	0.0364	
0.0001	0.0001	0.0244	0.0004	0.0069	0.0275	
<0.00005	0.0001	0.0326	0.0004	0.0082	0.0195	
<0.00005	0.0001	0.0277	0.0004	0.0079	0.0191	
<0.00005	0.0001	0.0310	0.0004	0.0079	0.0169	
<0.00005	0.0006	0.0666	0.0009	0.0145	0.0610	
<0.00005	0.0002	0.0283	0.0005	0.0092	0.0237	
	0.0000	0.0000	0.0000	0.0000	0.0000	
<0.00005	0.0002	0.0344	0.0005	0.0104	0.0251	
<0.00005	0.0001	0.0248	0.0004	0.0086	0.0195	
<0.00005	0.0002	0.0423	0.0007	0.0111	0.0357	

HC 2 ***CONFIDENTIAL***

Sample = TT3 at 1 km surface ***DRAFT***

Date	Cycle No.	Volume mL Input	Volume mL Output		pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/	Sulphate mg/L	Sulphate by ICP mg/L	Hardnes CaCO3 mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L	Cd mg/L
30-Mar-06	1	1400	495		3.81	520	273	27.5	114.0	#N/A	11.2	30	57	0.504	0.0218	0.0065	0.63	0.00009	<0.00005	0.077	0.0007
06-Apr-06	2	500	455		4.02	547	251	15.5	88.5	#N/A	10	22.2	39	0.326	0.0113	0.0066	0.38	<0.00005	<0.00005	0.104	0.0006
13-Apr-06	3	300	255		4.10	546	163	10.5	71.0	#N/A	5	12.9	26	0.35	0.0222	0.005	0.288	<0.0005	<0.0005	0.111	0.0005
20-Apr-06	4	300	265		4.27	571	105	6.0	49.0	#N/A	<1	8.1	15	0.309	0.0212	0.004	0.21	<0.0005	<0.0005	0.079	0.0004
27-Apr-06	5	300	240		4.19	553	79	6.5	41.0	#N/A	<1	6.9	12	0.225	0.0236	0.005	0.155	<0.0005	<0.0005	0.057	0.0003
04-May-06	6	300	240		4.16	325	78	5.4	34.8	#N/A	<1	5.7	11	0.241	0.0196	0.002	0.133	<0.0005	<0.0005	0.059	0.0003
11-May-06	7	300	255		4.20	322	62	3.9	27.5	#N/A	<1	4.2	8	0.157	0.0121	0.002	0.111	<0.0005	<0.0005	0.038	0.0003
18-May-06	8	300	225		4.02	313	73	6.6	32.5	#N/A	<1	4.5	9.3	0.242	0.0249	0.002	0.132	<0.0005	<0.0005	0.061	0.0003
25-May-06	9	300	210		4.18	337	70	5.3	32.4	#N/A	<1	4.2	9.2	0.215	0.0279	0.001	0.13	<0.0005	<0.0005	0.051	0.0004
01-Jun-06	10	300	205		4.21	369	62	3.8	26.8	#N/A	<1	3.3	9.9	0.211	0.0263	0.0012	0.111	0.00005	<0.00005	0.041	0.0002
08-Jun-06	11	300	230		4.31	343	57	2.5	23.9	#N/A	<1	3	8	0.196	0.0269	0.002	0.104	<0.0005	<0.0005	0.047	0.0014
15-Jun-06	12	300	205		4.25	414	55	2.7	22.5	#N/A	<1	3	7	0.189	0.0213	0.0008	0.0977	<0.00005	<0.00005	0.042	0.0003
22-Jun-06	13	300	210		4.24	338	57	2.7	25.0	#N/A	2	2.7	7.9	0.191	0.0217	0.0006	0.1	<0.00005	<0.00005	0.042	0.0001
29-Jun-06	14	300	210		4.20	372	58	3.4	26.6	#N/A	<1	2.7	8.8	0.202	0.0276	0.0009	0.125	<0.00005	<0.00005	0.039	0.0003
06-Jul-06	15	300	200		4.19	366	62	3.7	27.3	#N/A	6	2.7	9.7	0.223	0.0254	0.0007	0.132	<0.00005	<0.00005	0.043	0.0002
13-Jul-06	16	300	215		4.17	396	62	4.4	27.6	#N/A	<1	2.4	11	0.22	0.0226	0.0007	0.125	<0.00005	<0.00005	0.042	0.0002
20-Jul-06	17	300	205		4.13	378	56	3.9	26.7	#N/A	1	2.4	9.5	0.214	0.0247	0.0005	0.128	<0.00005	<0.00005	0.039	0.0002
27-Jul-06	18	300	210		4.09	416	58	4.7	28.7	#N/A	3	2.1	11	0.226	0.0253	0.0009	0.15	0.00005	<0.00005	0.035	0.0002
03-Aug-06	19	300	225		4.10	362	54	1.6	26.9	#N/A	2	2.1	11	0.198	0.0234	0.0006	0.132	<0.00005	<0.00005	0.027	0.0003
10-Aug-06	20	300	200		4.10	340	59	4.5	29.6	#N/A	1	2.7	12	0.249	0.0285	0.0008	0.151	0.00006	<0.00005	0.037	0.0002
17-Aug-06	21	300	230		4.08	291	54	3.7	27.9	#N/A	4	2.1	11	0.208	0.0204	0.0006	0.132	<0.00005	<0.00005	0.031	0.0002
24-Aug-06	22	300	230		4.37	306	48	1.3	26.7	#N/A	<1	2.1	12	0.229	0.0225	0.0007	0.128	<0.00005	<0.00005	0.03	0.0002
31-Aug-06	23	300	230		4.27	297	56	1.3	29.5	#N/A	<1	2.4	13	0.232	0.0231	0.0008	0.144	<0.00005	<0.00005	0.035	0.0002
07-Sep-06	24	300	220		4.31	310	57	2.0	25.8	#N/A	<1	2.4	13	0.26	0.0263	0.0014	0.156	<0.00005	<0.00005	0.03	0.0003
14-Sep-06	25	300	240		4.30	336	52	1.0	24.7	#N/A	<1	2.4	13	0.225	0.0197	0.0004	0.126	<0.00005	<0.00005	0.028	0.0002
21-Sep-06	26	300	220		4.29	333	48	1.0	21.7	#N/A	<1	2.7	11	0.221	0.0204	0.0022	0.123	<0.00005	<0.00005	0.025	0.0003
28-Sep-06	27	300	225		4.18	431	53	3.6	27.4	#N/A	<1	2.7	13	0.27	0.0258	0.0041	0.154	<0.00005	<0.00005	0.032	0.0003
05-Oct-06	28	300	230		4.66	360	53	#N/A	31.2	#N/A	<1	4.2	16	0.271	0.0214	0.0041	0.15	<0.00005	<0.00005	0.04	0.0003
12-Oct-06	29	300	220		4.21	458	57	4.8	30.4	#N/A	2	3	18	0.286	0.0236	0.0012	0.143	0.00005	<0.00005	0.039	0.0003
19-Oct-06	30	300	240		4.22	419	57	5.3	31.4	#N/A	<1	2.7	15	0.249	0.0204	0.001	0.127	0.00005	5E-05	0.029	0.0003
26-Oct-06	31	300	215		4.19	512	59	4.4	32.2	#N/A	<1	3.3	18	0.331	0.028	0.006	0.169	<0.00005	7E-05	0.037	0.0004
02-Nov-06	32	300	210		4.31	500	54	3.1	27.2	#N/A	4	3	15	0.278	0.0255	0.0007	0.137	<0.00005	<0.00005	0.035	0.0002
09-Nov-06	33	300	230		4.32	430	63	3.1	29.0	#N/A	4										
16-Nov-06	34	300	205		4.22	451	55	1.0	24.3	#N/A	<1	3	14	0.249	0.0261	0.0037	0.118	<0.00005	<0.00005	0.034	0.0002
23-Nov-06	35	300	440		4.54	449	53	#N/A	30.0	#N/A	<1	2.7	15	0.228	0.0186	0.0013	0.129	<0.00005	<0.00005	0.032	0.0003
30-Nov-06	36	300	225		4.20	444	45	5.4	26.3	#N/A	<1	2.1	12	0.208	0.02	0.0006	0.112	<0.00005	7E-05	0.028	0.0002
07-Dec-06	37	300	215		4.29	455	56	3.6	28.1	#N/A	IP										

Note: Detection limits may change for metals due to matrix interference.
Sulphate repeated for Mar 30, Apr 6 and Apr 13 by ion chromatography.

Accidentally added 500 mL H2O to the cell

Note: Detection limits may change for metals due to matrix interference. Mass Factor TT3 Mineral 6.579
Sulphate repeated for Mar 30, Apr 6 and Apr 13 by ion chromatography.

HC 2 ***CONFIDENTIAL/Corrected***
Sample = TT3 at 1 km Surface ***DRAFT***

Date	Cycle No.	Volume mL Input	Volume mL Output	Volume Factor	pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/L	Sulphate mg/L	Sulphate by ICP mg/L	Hardness CaCO3 mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L	Cd mg/L
BC Water Numerical Criteria													5		0.05	1	0.1		0.5	0.005	1
30-Mar-06	1	1400	495	1.4	3.81	520	273	253.3	1050.0	#N/A	51.7	276.3	525.0	4.64	0.20	0.06	5.80			0.71	0.0068
06-Apr-06	2	500	455	1.0	4.02	547	251	102.0	582.2	#N/A	33.0	146.1	256.6	2.14	0.07	0.04	2.50			0.68	0.0041
13-Apr-06	3	300	255	0.6	4.10	546	163	41.4	280.3	#N/A	9.9	50.9	102.6	1.38	0.09	0.02	1.14			0.44	0.0020
20-Apr-06	4	300	265	0.6	4.27	571	105	23.7	193.4	#N/A	<7	32.0	59.2	1.22	0.08	0.02	0.83			0.31	0.0016
27-Apr-06	5	300	240	0.6	4.19	553	79	25.7	161.8	#N/A	<7	27.2	47.4	0.89	0.09	0.02	0.61			0.23	0.0012
04-May-06	6	300	240	0.6	4.16	325	78	21.5	137.5	#N/A	<7	22.5	43.4	0.95	0.08	0.01	0.53			0.23	0.0012
11-May-06	7	300	255	0.6	4.20	322	62	15.4	108.4	#N/A	<7	16.6	31.6	0.62	0.05	0.01	0.44			0.15	0.0012
18-May-06	8	300	225	0.6	4.02	313	73	26.0	128.3	#N/A	<7	17.8	36.7	0.96	0.10	0.01	0.52			0.24	0.0012
25-May-06	9	300	210	0.6	4.18	337	70	21.0	128.0	#N/A	<7	16.6	36.3	0.85	0.11	0.00	0.51			0.20	0.0016
01-Jun-06	10	300	205	0.6	4.21	369	62	15.0	105.8	#N/A	<7	13.0	39.1	0.83	0.10	0.00	0.44			0.16	0.0006
08-Jun-06	11	300	230	0.6	4.31	343	57	9.8	94.2	#N/A	<7	11.8	31.6	0.77	0.11	0.01	0.41			0.19	0.0055
15-Jun-06	12	300	205	0.6	4.25	414	55	10.7	88.7	#N/A	<2	11.8	27.6	0.75	0.08	0.00	0.39			0.17	0.0013
22-Jun-06	13	300	210	0.6	4.24	338	57	10.7	98.6	#N/A	4.0	10.7	31.2	0.75	0.09	0.00	0.39			0.17	0.0005
29-Jun-06	14	300	210	0.6	4.20	372	58	13.3	105.1	#N/A	<2	10.7	34.7	0.80	0.11	0.00	0.49			0.15	0.0010
06-Jul-06	15	300	200	0.6	4.19	366	62	14.5	107.7	#N/A	<2	10.7	38.3	0.88	0.10	0.00	0.52			0.17	0.0007
13-Jul-06	16	300	215	0.6	4.17	396	62	17.4	108.8	#N/A	<7	9.5	43.4	0.87	0.09	0.00	0.49			0.17	0.0008
20-Jul-06	17	300	205	0.6	4.13	378	56	15.4	105.6	#N/A	2.0	9.5	37.5	0.84	0.10	0.00	0.51			0.15	0.0006
27-Jul-06	18	300	210	0.6	4.09	416	58	18.5	113.2	#N/A	5.9	8.3	43.4	0.89	0.10	0.00	0.59			0.14	0.0008
03-Aug-06	19	300	225	0.6	4.10	362	54	6.4	106.0	#N/A	4.0	8.3	43.4	0.78	0.09	0.00	0.52			0.11	0.0010
10-Aug-06	20	300	200	0.6	4.10	340	59	17.6	116.8	#N/A	2.0	10.7	47.4	0.98	0.11	0.00	0.60			0.15	0.0009
17-Aug-06	21	300	230	0.6	4.08	291	54	14.7	110.0	#N/A	7.9	8.3	43.4	0.82	0.08	0.00	0.52			0.12	0.0008
24-Aug-06	22	300	230	0.6	4.37	306	48	5.2	105.4	#N/A	<1	8.3	47.4	0.90	0.09	0.00	0.51			0.12	0.0009
31-Aug-06	23	300	230	0.6	4.27	297	56	4.9	116.4	#N/A	<1	9.5	51.3	0.92	0.09	0.00	0.57			0.14	0.0008
07-Sep-06	24	300	220	0.6	4.31	310	57	8.1	101.7	#N/A	<1	9.5	51.3	1.03	0.10	0.01	0.62			0.12	0.0011
14-Sep-06	25	300	240	0.6	4.30	336	52	3.9	97.5	#N/A	<1	9.5	51.3	0.89	0.08	0.00	0.50			0.11	0.0009
21-Sep-06	26	300	220	0.6	4.29	333	48	3.9	85.7	#N/A	<1	10.7	43.4	0.87	0.08	0.01	0.49			0.10	0.0012
28-Sep-06	27	300	225	0.6	4.18	431	53	14.2	108.0	#N/A	<1	10.7	51.3	1.07	0.10	0.02	0.61			0.13	0.0012
05-Oct-06	28	300	230	0.6	4.66	360	53		123.1	#N/A	<1	16.6	63.2	1.07	0.08	0.02	0.59			0.16	0.0011
12-Oct-06	29	300	220	0.6	4.21	458	57	19.1	119.9	#N/A	6.6	11.8	71.1	1.13	0.09	0.00	0.56			0.15	0.0010
19-Oct-06	30	300	240	0.6	4.22	419	57	21.1	124.1	#N/A	<1	10.7	59.2	0.98	0.08	0.00	0.50			0.11	0.0010
26-Oct-06	31	300	215	0.6	4.19	512	59	17.4	127.0	#N/A	<1	13.0	71.1	1.31	0.11	0.02	0.67			0.15	0.0014
02-Nov-06	32	300	210	0.6	4.31	500	54	12.0	107.4	#N/A	13.2	11.8	59.2	1.10	0.10	0.00	0.54			0.14	0.0009
09-Nov-06	33	300	230	0.6	4.32	430	63	12.2	114.6	#N/A											
16-Nov-06	34	300	205	0.6	4.22	451	55	3.9	95.8	#N/A	<1	11.8	55.3	0.98	0.10	0.01	0.47			0.13	0.0009
23-Nov-06	35	300	440	0.6	4.54	449	53		118.4	#N/A	<1	10.7	59.2	0.90	0.07	0.01	0.51			0.13	0.0012
30-Nov-06	36	300	225	0.6	4.20	444	45	21.3	103.9	#N/A	<1	8.3	47.4	0.82	0.08	0.00	0.44			0.11	0.0008
07-Dec-06	37	300	215	0.6	4.29	455	56	14.4	110.9	#N/A	IP										

Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
9.8	0.002	0.0026	0.0155	0.455	0.017	0.002	7.88	0.642	<0.05	0.0003	0.0079	20.5	55.1	<0.0005	4.38	3E-05	3.28	0.0319	10	0.00023	######	0.0042	######
6.63	<0.01	0.0024	0.0186	0.366	0.0203	0.0019	5.36	0.473	<0.05	0.0002	0.0066	15.7	45.4	<0.0005	3.72	5E-05	2.9	0.0246	7.4	0.00026	######	0.004	######
4.55	0.004	0.0016	0.012	0.527	0.0094	<0.002	3.56	0.32	0.15	<0.0002	0.007	8.6	30.6	<0.005	2.53	<0.0001	2.43	0.0146	4.3	<0.0005	<0.0005	0.005	<0.0001
2.78	<0.002	0.0012	0.015	0.547	0.0088	<0.002	2.05	0.206	<0.05	0.0002	0.011	3.3	24.8	<0.005	1.39	<0.0001	1.57	0.0095	2.7	<0.0005	<0.0005	<0.005	<0.0001
2.21	<0.002	0.0009	0.012	0.52	0.0057	<0.002	1.6	0.157	0.09	0.0002	<0.005	1.8	19.3	<0.005	1.44	<0.0001	1.43	0.0076	2.3	<0.0005	<0.0005	<0.005	<0.0001
2.02	<0.002	0.0008	0.014	0.498	0.0113	<0.002	1.4	0.139	0.07	<0.0002	<0.005	1.3	17.2	<0.005	1.61	<0.0001	1.19	0.0082	1.9	<0.0005	<0.0005	0.005	<0.0001
1.58	<0.002	0.0007	0.015	0.385	0.007	<0.002	0.99	0.101	0.06	<0.0002	<0.005	1.0	9.99	<0.005	1.27	<0.0001	0.93	0.0061	1.4	<0.0005	<0.0005	<0.005	<0.0001
1.74	<0.002	0.0007	0.033	0.518	0.042	<0.002	1.19	0.122	0.07	<0.0002	<0.005	0.8	14.2	<0.005	1.78	<0.0001	0.95	0.0056	1.5	<0.0005	<0.0005	<0.005	######
1.71	<0.002	0.0007	0.01	0.499	0.0174	0.002	1.21	0.119	0.08	0.0004	<0.005	0.6	13.4	<0.005	1.73	<0.0001	1.08	0.0055	1.4	<0.0005	<0.0005	<0.005	<0.0001
2.22	0.0009	0.0007	0.0124	0.474	0.0042	0.0008	1.06	0.101	<0.05	0.0002	0.0041	0.2	12.2	<0.0005	1.66	1E-05	0.73	0.0057	1.1	0.00011	######	0.0029	######
1.53	<0.002	0.0006	0.047	0.467	0.021	0.003	1	0.0986	<0.05	<0.0002	<0.005	0.2	12.4	<0.005	1.76	<0.0001	0.75	0.0056	1	0.00130	<0.0005	<0.005	<0.0001
1.35	0.0016	0.0006	0.0084	0.447	0.0098	0.0007	0.89	0.0968	0.05	0.0001	0.0031	0.1	11.8	<0.0005	1.61	<0.00001	0.59	0.0051	1	0.00015	######	0.0026	######
1.53	0.001	0.0006	0.0146	0.432	0.0035	0.0007	0.99	0.101	<0.05	0.0001	0.0029	0.1	10.1	<0.0005	1.65	<0.00001	0.53	0.0051	0.9	0.00009	######	0.0024	######
1.64	0.0007	0.0008	0.0073	0.475	0.0058	0.0008	1.15	0.108	<0.05	0.0001	0.0032	0.1	11.5	<0.0005	1.86	<0.00001	0.65	0.0056	0.9	0.00019	######	0.0024	######
1.84	0.0008	0.0006	0.0084	0.481	0.0051	0.0007	1.25	0.123	0.05	0.0001	0.0031	0.1	11.3	<0.0005	1.9	<0.00001	0.57	0.0063	0.9	0.00010	######	0.0025	######
2.04	0.0006	0.0006	0.0171	0.534	0.0086	0.0007	1.41	0.126	<0.05	0.0001	0.0034	0.1	10.8	<0.0005	1.91	<0.00001	0.68	0.0061	0.8	0.00020	######	0.0024	######
1.78	0.0007	0.0006	0.0058	0.427	0.0032	0.0004	1.22	0.123	<0.05	9E-05	0.0031	<0.1	8.59	<0.0005	1.66	<0.00001	0.5	0.0063	0.8	0.00009	######	0.0024	######
2.06	0.0009	0.0006	0.0115	0.462	0.0054	0.0011	1.43	0.136	<0.05	0.0002	0.0033	<0.1	9.38	<0.0005	1.79	<0.00001	0.41	0.0072	0.7	0.00007	######	0.0027	######
2	0.0005	0.0006	0.011	0.406	0.0074	0.0006	1.37	0.124	<0.05	5E-05	0.0033	<0.1	9.38	<0.0005	1.52	3E-05	0.41	0.0065	0.7	0.00013	######	0.0023	######
2.29	0.0008	0.0007	0.0177	0.428	0.0117	0.0006	1.56	0.161	<0.05	0.0001	0.0036	<0.1	9.19	<0.0005	1.49	<0.00001	0.45	0.0075	0.9	0.00008	######	0.0031	######
2.01	0.0004	0.0005	0.0283	0.402	0.0071	0.0006	1.45	0.124	<0.05	7E-05	0.0029	<0.1	7.9	<0.0005	1.34	1E-05	0.38	0.0064	0.7	<0.00005	######	0.0024	######
2.14	0.0007	0.0007	0.0358	0.406	0.0144	0.0006	1.52	0.13	0.07	8E-05	0.0032	<0.1	7.87	<0.0005	1.33	2E-05	0.35	0.0066	0.7	<0.00005	######	0.0023	######
2.36	0.0004	0.0005	0.0093	0.422	0.0046	0.0004	1.66	0.133	<0.05	7E-05	0.0033	<0.1	8.69	<0.0005	1.28	1E-05	0.28	0.0072	0.8	<0.00005	######	0.0026	######
2.35	0.0003	0.0005	0.0121	0.446	0.0124	0.0006	1.68	0.129	<0.05	9E-05	0.0034	<0.1	7.95	<0.0005	1.21	2E-05	0.33	0.0082	0.8	0.00013	######	0.0026	######
2.36	<0.0002	0.0004	0.015	0.422	0.0072	0.0007	1.65	0.109	0.05	7E-05	0.0031	<0.1	6.6	<0.0005	1.7	<0.00001	0.23	0.0069	0.8	0.00007	######	0.002	######
2.14	0.0005	0.0005	0.0151	0.401	0.0185	0.0004	1.44	0.101	<0.05	0.0001	0.0032	<0.1	5.54	<0.0005	1.35	2E-05	1.3	0.0071	0.9	<0.00005	######	0.0022	######
2.39	0.0006	0.0005	0.0239	0.459	0.105	0.0009	1.69	0.146	<0.05	0.0002	0.0038	<0.1	5.84	<0.0005	1.32	<0.00001	0.87	0.0094	0.9	<0.00005	######	0.0032	######
3.06	0.0004	0.0006	0.0138	0.527	0.01	0.0005	2.1	0.168	<0.05	0.0001	0.0041	<0.1	6.03	<0.0005	1.62	<0.00001	0.81	0.0085	1.4	0.00007	######	0.0025	######
3.29	<0.0002	0.0005	0.0121	0.467	0.0035	0.0006	2.32	0.153	<0.05	0.0001	0.004	<0.1	5.6	<0.0005	1.49	<0.00001	1.04	0.009	1	<0.00005	######	0.0029	######
2.71	0.0009	0.0006	0.012	0.415	0.0085	0.0006	1.9	0.139	0.05	0.0001	0.0034	<0.1	5.55	<0.0005	1.19	<0.00001	0.43	0.0075	0.9	<0.00005	######	0.0025	######
3.33	0.0007	0.0007	0.0499	0.504	0.0212	0.0007	2.28	0.199	<0.05	0.0002	0.0053	0.1	5.62	<0.0005	1.3	3E-05	1.15	0.0131	1.1	<0.00005	######	0.0029	######
2.86	0.0008	0.0005	0.0256	0.381	0.0042	0.0003	1.91	0.161	<0.05	0.0001	0.004	<0.1	4.27	<0.0005	1.21	<0.00001	2.1	0.0089	1	<0.00005	######	0.0026	######
2.76	0.0005	0.0006	0.0263	0.422	0.0107	0.0004	1.64	0.16	<0.05	0.0001	0.0038	<0.1	4.4	<0.0005	1.1	1E-05	1.56	0.013	1	<0.00005	######	0.0022	######
2.68	0.0003	0.0006	0.0387	0.394	0.0182	0.0006	1.92	0.167	0.06	0.0001	0.0035	<0.1	3.53	<0.0005	1.18	1E-05	0.79	0.0087	0.9	<0.00005	######	0.0021	######
2.2	0.0005	0.0005	0.0495	0.338	0.0076	0.0004	1.55	0.132	0.07	7E-05	0.0028	<0.1	3.11	<0.0005	0.86	<0.00001	0.62	0.0069	0.7	<0.00005	######	0.0017	######

Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn	Ti	U
0.05	0.05	0.3	0.3	0.2	2.5		0.2	0.001	0.01	0.2			0.05			200						0.01	0.1
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
90.3	0.018	0.024	0.143	4.2	0.157	0.018	72.6	5.913		0.0027	0.073	188.8	507.5		40.3	0.000	30.2	0.294	92.1	0.0021	0.0019	0.039	0.0006
43.6		0.016	0.122	2.4	0.134	0.013	35.3	3.112		0.0015	0.043	103.3	298.7		24.5	0.000	19.1	0.162	48.7	0.0017	0.0015	0.026	0.0003
18.0	0.016	0.006	0.047	2.1	0.037		14.1	1.263	0.592		0.028	33.9	120.8		10.0		9.6	0.058	17.0			0.020	
11.0		0.005	0.059	2.2	0.035		8.1	0.813		0.0008	0.043	13.0	97.9		5.5		6.2	0.038	10.7				
8.7		0.004	0.047	2.1	0.023		6.3	0.620	0.355	0.0008		7.1	76.2		5.7		5.6	0.030	9.1				
8.0		0.003	0.055	2.0	0.045		5.5	0.549	0.276			5.1	67.9		6.4		4.7	0.032	7.5			0.020	
6.2		0.003	0.059	1.5	0.028		3.9	0.399	0.237			3.9	39.4		5.0		3.7	0.024	5.5				
6.9		0.003	0.130	2.0	0.166		4.7	0.482	0.276			3.2	56.1		7.0		3.8	0.022	5.9				0.0004
6.8		0.003	0.039	2.0	0.069	0.008	4.8	0.470	0.316	0.0016		2.4	52.9		6.8		4.3	0.022	5.5				
8.8	0.004	0.003	0.049	1.9	0.017	0.003	4.2	0.399		0.0008	0.016	0.8	48.2		6.6	0.000	2.9	0.022	4.3	0.0004	0.0008	0.011	0.0002
6.0		0.002	0.186	1.8	0.083	0.012	3.9	0.389				0.8	48.9		6.9		3.0	0.022	3.9	0.0051			
5.3	0.006	0.002	0.033	1.8	0.039	0.003	3.5	0.382	0.197	0.0005	0.012	0.4	46.6		6.4		2.3	0.020	3.9	0.0006	0.0007	0.010	0.0002
6.0	0.004	0.002	0.058	1.7	0.014	0.003	3.9	0.399		0.0005	0.011	0.4	39.9		6.5		2.1	0.020	3.6	0.0004	0.0006	0.009	0.0004
6.5	0.003	0.003	0.029	1.9	0.023	0.003	4.5	0.426		0.0004	0.013	0.4	45.4		7.3		2.6	0.022	3.6	0.0008	0.0008	0.009	0.0002
7.3	0.003	0.002	0.033	1.9	0.020	0.003	4.9	0.486	0.197	0.0004	0.012	0.4	44.6		7.5		2.3	0.025	3.6	0.0004	0.0005	0.010	0.0001
8.1	0.002	0.002	0.068	2.1	0.034	0.003	5.6	0.497		0.0004	0.013	0.4	42.6		7.5		2.7	0.024	3.2	0.0008	0.0006	0.009	0.0002
7.0	0.003	0.002	0.023	1.7	0.013	0.002	4.8	0.486		0.0004	0.012		33.9		6.6		2.0	0.025	3.2	0.0004	0.0004	0.009	0.0001
8.1	0.004	0.002	0.045	1.8	0.021	0.004	5.6	0.537		0.0006	0.013		37.0		7.1		1.6	0.028	2.8	0.0003	0.0005	0.011	0.0003
7.9	0.002	0.002	0.043	1.6	0.029	0.002	5.4	0.489		0.0002	0.013		37.0		6.0	0.000	1.6	0.026	2.8	0.0005	0.0004	0.009	0.0001
9.0	0.003	0.003	0.070	1.7	0.046	0.002	6.2	0.636		0.0004	0.014		36.3		5.9		1.8	0.030	3.6	0.0003	0.0006	0.012	0.0002
7.9	0.002	0.002	0.112	1.6	0.028	0.002	5.7	0.489		0.0003	0.011		31.2		5.3	0.000	1.5	0.025	2.8		0.0004	0.009	0.0002
8.4	0.003	0.003	0.141	1.6	0.057	0.002	6.0	0.513	0.276	0.0003	0.013		31.1		5.3	0.000	1.4	0.026	2.8		0.0004	0.009	0.0004
9.3	0.002	0.002	0.037	1.7	0.018	0.002	6.6	0.525		0.0003	0.013		34.3		5.1	0.000	1.1	0.029	3.2		0.0004	0.010	0.0001
9.3	0.001	0.002	0.048	1.8	0.049	0.002	6.6	0.509		0.0004	0.013		31.4		4.8	0.000	1.3	0.032	3.2	0.0005	0.0003	0.010	0.0002
9.3		0.002	0.059	1.7	0.028	0.003	6.5	0.430	0.197	0.0003	0.012		26.1		6.7		0.9	0.027	3.2	0.0003	0.0002	0.008	0.0001
8.4	0.002	0.002	0.060	1.6	0.073	0.002	5.7	0.399		0.0004	0.013		21.9		5.3	0.000	5.1	0.028	3.6		0.0004	0.009	0.0002
9.4	0.002	0.002	0.094	1.8	0.414	0.004	6.7	0.576		0.0006	0.015		23.1		5.2		3.4	0.037	3.6		0.0007	0.013	0.0005
12.1	0.002	0.002	0.054	2.1	0.039	0.002	8.3	0.663		0.0006	0.016		23.8		6.4		3.2	0.033	5.5	0.0003	0.0004	0.010	0.0006
13.0		0.002	0.048	1.8	0.014	0.002	9.2	0.604		0.0004	0.016		22.1		5.9		4.1	0.035	3.9		0.0004	0.011	0.0001
10.7	0.004	0.002	0.047	1.6	0.034	0.002	7.5	0.549	0.197	0.0004	0.013		21.9		4.7		1.7	0.030	3.6		0.0005	0.010	0.0002
13.1	0.003	0.003	0.197	2.0	0.084	0.003	9.0	0.786		0.0007	0.021	0.4	22.2		5.1	0.000	4.5	0.052	4.3		0.0009	0.011	0.0003
11.3	0.003	0.002	0.101	1.5	0.017	0.001	7.5	0.636		0.0004	0.016		16.9		4.8		8.3	0.035	3.9		0.0008	0.010	0.0003
10.9	0.002	0.002	0.104	1.7	0.042	0.002	6.5	0.632		0.0004	0.015		17.4		4.3	0.000	6.2	0.051	3.9		0.0014	0.009	0.0004
10.6	0.001	0.002	0.153	1.6	0.072	0.002	7.6	0.659	0.237	0.0004	0.014		13.9		4.7	0.000	3.1	0.034	3.6		0.0007	0.008	0.0002
8.7	0.002	0.002	0.195	1.3	0.0	0.002	6.1	0.521	0.276	0.0	0.011		12.3		3.4		2.4	0.027	2.8		0.0008	0.007	0.0002

V	Zn	Zr	Major Anions	Major Cations	Diff	Diff (%)	
mg/L	mg/L	mg/L					
0.0024	0.229	<0.005	2.6089	2.92	-0.32	-5.7%	anion balance based on sulphur value by ICP
0.0019	0.138	<0.005	1.9819	2.21	-0.23	-5.4%	anion balance based on sulphur value by ICP
0.0018	0.115	<0.005	1.1010	1.55	-0.45	-16.9%	anion balance based on sulphur value by ICP
0.0013	0.085	<0.005	0.4881	1.12	-0.63	-39.3%	anion balance based on sulphur value by ICP
0.0009	0.066	<0.005	0.3179	0.91	-0.59	-48.1%	anion balance based on sulphur value by ICP
0.0011	0.063	<0.005	0.2446	0.82	-0.58	-54.2%	anion balance based on sulphur value by ICP
0.001	0.052	<0.005	0.1843	0.55	-0.37	-50.0%	anion balance based on sulphur value by ICP
0.0008	0.07	<0.005	0.1712	0.73	-0.56	-62.1%	anion balance based on sulphur value by ICP
0.0008	0.062	<0.005	0.1456	0.68	-0.54	-64.9%	anion balance based on sulphur value by ICP
0.0008	0.0474	<0.005	0.0881	0.65	-0.56	-76.0%	anion balance based on sulphur value by ICP
0.0006	0.084	<0.005	0.0819	0.60	-0.52	-75.9%	anion balance based on sulphur value by ICP
0.0007	0.0462	<0.005	0.0722	0.56	-0.49	-77.3%	anion balance based on sulphur value by ICP
0.0005	0.0452	<0.005	0.0659	0.53	-0.47	-78.0%	anion balance based on sulphur value by ICP
0.0006	0.0467	<0.005	0.0659	0.60	-0.54	-80.3%	anion balance based on sulphur value by ICP
0.0006	0.053	<0.005	0.0659	0.62	-0.55	-80.7%	anion balance based on sulphur value by ICP
0.0006	0.0539	<0.005	0.0597	0.64	-0.58	-82.9%	anion balance based on sulphur value by ICP
0.0004	0.0536	<0.005	0.0500	0.55	-0.50	-83.2%	anion balance based on sulphur value by ICP
0.0005	0.0554	<0.005	0.0438	0.60	-0.56	-86.5%	anion balance based on sulphur value by ICP
0.0005	0.0617	<0.005	0.0438	0.59	-0.54	-86.2%	anion balance based on sulphur value by ICP
0.0005	0.0656	<0.005	0.0563	0.62	-0.57	-83.4%	anion balance based on sulphur value by ICP
0.0003	0.0552	<0.005	0.0438	0.56	-0.52	-85.5%	anion balance based on sulphur value by ICP
0.0005	0.096	<0.005	0.0438	0.53	-0.49	-84.9%	anion balance based on sulphur value by ICP
0.0005	0.0606	<0.005	0.0500	0.59	-0.54	-84.3%	anion balance based on sulphur value by ICP
0.0005	0.0763	<0.005	0.0500	0.57	-0.52	-83.9%	anion balance based on sulphur value by ICP
0.0005	0.059	<0.005	0.0500	0.52	-0.47	-82.6%	anion balance based on sulphur value by ICP
0.0005	0.0625	<0.005	0.0563	0.52	-0.46	-80.4%	anion balance based on sulphur value by ICP
0.0006	0.0824	<0.005	0.0563	0.56	-0.51	-81.8%	anion balance based on sulphur value by ICP
0.0006	0.0668	<0.005	0.0875	0.59	-0.50	-74.1%	anion balance based on sulphur value by ICP
0.0006	0.0709	<0.005	0.0625	0.66	-0.59	-82.6%	anion balance based on sulphur value by ICP
0.0006	0.0574	<0.005	0.0563	0.56	-0.50	-81.7%	anion balance based on sulphur value by ICP
0.001	0.0771	<0.005	0.0688	0.67	-0.60	-81.4%	anion balance based on sulphur value by ICP
0.0006	0.0634	<0.005					
0.0009	0.0637	<0.005	0.0625	0.56	-0.50	-79.9%	anion balance based on sulphur value by ICP
0.0007	0.0603	<0.005	0.0563	0.49	-0.43	-79.3%	anion balance based on sulphur value by ICP
0.0004	0.0476	<0.005	0.0438	0.44	-0.40	-82.1%	anion balance based on sulphur value by ICP

1

V mg/L	Zn mg/L	Zr mg/L					
0.0217	2.1						
0.0122	0.9						
0.0071	0.5						
0.0051	0.3						
0.0036	0.3						
0.0043	0.2						
0.0039	0.2						
0.0032	0.3						
0.0032	0.2						
0.0032	0.2						
0.0024	0.3						
0.0028	0.2						
0.0021	0.2						
0.0024	0.2						
0.0024	0.2						
0.0022	0.2						
0.0017	0.2						
0.0021	0.2						
0.0020	0.2						
0.0021	0.3						
0.0013	0.2						
0.0020	0.4		0.1727	1.98	-1.81	-84.0%	anion balance based on sulphur value by ICP
0.0021	0.2		0.1974	2.15	-1.95	-83.2%	anion balance based on sulphur value by ICP
0.0021	0.3		0.1974	2.10	-1.91	-82.9%	anion balance based on sulphur value by ICP
0.0018	0.2		0.1974	1.92	-1.73	-81.4%	anion balance based on sulphur value by ICP
0.0021	0.2		0.2220	1.89	-1.66	-78.9%	anion balance based on sulphur value by ICP
0.0024	0.3		0.2220	2.03	-1.80	-80.2%	anion balance based on sulphur value by ICP
0.0024	0.3		0.3454	2.26	-1.91	-73.5%	anion balance based on sulphur value by ICP
0.0023	0.3		0.2467	2.41	-2.16	-81.4%	anion balance based on sulphur value by ICP
0.0024	0.2		0.2220	2.02	-1.80	-80.2%	anion balance based on sulphur value by ICP
0.0039	0.3		0.2714	2.45	-2.18	-80.1%	anion balance based on sulphur value by ICP
0.0024	0.3						
0.0034	0.3		0.2467	2.03	-1.78	-78.3%	anion balance based on sulphur value by ICP
0.0029	0.2		0.2220	1.84	-1.61	-78.4%	anion balance based on sulphur value by ICP
0.0017	0.2		0.1727	1.57	-1.39	-80.1%	anion balance based on sulphur value by ICP

HC 3 *CONFIDENTIAL*

Sample = Triangle Mineral ***DRAFT***

Date	Cycle No.	Volume mL Input	Volume mL Output	pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/L	Sulphate mg/L	Sulphate by ICP mg/L	Hardness CaCO3 mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L
BC Water Numerical Criteria													5		0.05	1	0.1		0.5
30-Mar-06	1	1000	510	3.50	530	512	42.3	196.0	#N/A	223	211	63	11.6	0.0086	0.0039	0.264	0.0039	<0.00005	0.037
06-Apr-06	2	500	450	3.80	571	417	11.5	98.5	#N/A	165	142	37	4.67	0.008	0.002	0.0991	0.00176	<0.00005	0.069
13-Apr-06	3	500	415	3.86	584	240	7.8	56.3	#N/A	89	84	23	2.24	0.006	0.0015	0.0923	0.00093	0.00007	0.049
20-Apr-06	4	500	430	4.05	585	186	5.0	38.0	#N/A	55	66	17	1.59	0.0057	0.001	0.0948	0.00076	<0.00005	0.032
27-Apr-06	5	500	430	3.76	550	156	6.5	29.5	#N/A	56	50	12	0.889	0.0057	0.001	0.113	0.00048	<0.00005	0.022
04-May-06	6	500	425	3.92	395	126	4.4	22.3	#N/A	48	41	8.9	0.654	0.0054	0.0007	0.092	0.00041	<0.00005	0.021
11-May-06	7	500	410	3.99	415	119	3.8	19.5	#N/A	44	37	8	0.476	0.0051	0.0006	0.13	0.00031	<0.00005	0.014
18-May-06	8	500	405	3.88	402	146	4.8	23.7	#N/A	53	48	9.8	0.613	0.0063	0.0006	0.111	0.00036	<0.00005	0.025
25-May-06	9	500	425	3.93	398	149	4.1	25.8	#N/A	51	49	10	0.64	0.0074	0.0006	0.0998	0.00042	<0.00005	0.02
01-Jun-06	10	500	430	3.89	423	159	4.5	26.9	#N/A	56	52	11	0.793	0.0097	0.0008	0.112	0.00036	<0.00005	0.022
08-Jun-06	11	500	440	4.00	406	117	3.3	16.8	#N/A	41	40	**30**	0.386	0.0105	0.0007	0.12	0.00034	0.00006	0.016
15-Jun-06	12	500	425	3.96	432	125	3.2	18.2	#N/A	47	38	7.2	0.467	0.0121	0.0009	0.121	0.00029	<0.00005	0.018
22-Jun-06	13	500	415	4.10	395	81	1.6	12.7	#N/A	33	24	4.4	0.234	0.0061	0.0005	0.0991	0.00019	0.00008	0.012
29-Jun-06	14	500	420	4.19	405	57	0.8	10.1	#N/A	23	17	2.9	0.154	0.0047	0.0004	0.11	0.00015	<0.00005	<0.008
06-Jul-06	15	500	410	4.07	425	80	1.8	13.2	#N/A	29	24	4.3	0.224	0.0064	0.0005	0.111	0.00017	<0.00005	0.016
13-Jul-06	16	500	420	4.11	442	74	1.5	11.8	#N/A	23	23	4.1	0.212	0.0063	0.0005	0.111	0.00015	<0.00005	<0.008
20-Jul-06	17	500	430	3.99	431	98	2.6	16.3	#N/A	37	32	5.8	0.327	0.0099	0.0006	0.126	0.00023	<0.00005	0.024
27-Jul-06	18	500	435	4.30	430	94	1.0	11.7	#N/A	28	22	3.9	0.212	0.0082	0.0006	0.115	0.00016	<0.00005	0.014
03-Aug-06	19	500	430	4.09	415	60	1.0	11.4	#N/A	21	19	3.2	0.161	0.0071	0.0006	0.104	0.00014	<0.00005	0.01
10-Aug-06	20	500	420	4.14	479	69	1.0	11.6	#N/A	24	21	3.7	0.227	0.0089	0.0006	0.115	0.00016	<0.00005	0.012
17-Aug-06	21	500	440	4.34	317	52	1.0	11.5	#N/A	19	18	3.1	0.152	0.0094	0.0006	0.104	0.00013	<0.00005	0.013
24-Aug-06	22	500	450	4.17	371	63	1.4	13.6	#N/A	27	21	3.7	0.179	0.0162	0.0011	0.124	0.00011	<0.00005	0.018
31-Aug-06	23	500	445	4.43	410	40	#N/A	11.0	#N/A	12	11	2	0.11	0.0065	0.0015	0.107	0.00008	<0.00005	<0.008
07-Sep-06	24	500	435	4.87	424	37	#N/A	5.5	<1.0	12	11	2	0.105	0.0076	0.0005	0.105	0.00012	<0.00005	0.009
14-Sep-06	25	500	450	4.70	417	31	#N/A	7.4	<1.0	22	11	1.7	0.0948	0.006	0.0005	0.0957	0.00007	<0.00005	<0.008
21-Sep-06	26	500	440	4.70	409	33	#N/A	5.6	<1.0	8	10	1.8	0.0942	0.0072	0.0006	0.096	0.00006	<0.00005	0.009
28-Sep-06	27	500	435	4.73	425	33	#N/A	7.0	<1.0	9	10	1.7	0.0938	0.0076	0.0006	0.102	0.00008	<0.00005	0.01
05-Oct-06	28	500	435	4.73	352	28	#N/A	11.6	<1.0	8	10	1.6	0.0863	0.0059	0.0005	0.103	<0.00005	<0.00005	0.009
12-Oct-06	29	500	435	4.41	488	44	1.0	8.8	#N/A	17	15	2.7	0.14	0.011	0.0009	0.0988	0.00011	<0.00005	0.011
19-Oct-06	30	500	445	5.46	392	38	#N/A	6.4	<1.0	12	14	2.2	0.116	0.0155	0.0009	0.102	0.00007	<0.00005	0.011
26-Oct-06	31	500	430	4.47	533	29	#N/A	6.7	#N/A	9	8	1.5	0.0944	0.0057	0.0008	0.136	0.00005	<0.00005	0.009
02-Nov-06	32	500	425	4.04	516	24	1.0	10.6	#N/A	7	8	1.3	0.0684	0.0061	0.0006	0.106	0.00008	<0.00005	<0.008
09-Nov-06	33	500	430	5.70	357	88	#N/A	30.7	8.1	9									
16-Nov-06	34	500	420	4.89	458	59	#N/A	9.8	1.0	22	17	2.6	0.163	0.0252	0.0009	0.15	0.00009	<0.00005	0.018
23-Nov-06	35	500	420	5.06	397	42	#N/A	8.8	<1.0	13	13	1.8	0.106	0.0172	0.0006	0.117	0.00008	<0.00005	0.013
30-Nov-06	36	500	445	5.15	348	43	#N/A	9.9	2.6	14	14	2.3	0.161	0.0185	0.0009	0.13	0.00007	<0.00005	0.008
07-Dec-06	37	500	425	4.55	387	45	#N/A	8.3	<1.0	IP									

Note: Detection limits may change for metals due to matrix interference.
June 8/06 Ca and Fe repeated and confirmed.

0.005	1	0.05	0.05	0.3	0.3	0.2	2.5		0.2	0.001	0.01	0.2			0.05			200				
Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0.7	10.6	0.0075	0.118	0.182	3.15	1.48	0.0768	8.8	7.08	<0.05	0.00006	0.0772	0.8	4.21	0.0043	5.6	0.00004	3.21	0.0422	70.3	0.0013	0.00012
0.406	5.96	0.0016	0.118	0.0756	0.447	0.802	0.0582	5.49	7.98	<0.05	0.00003	0.0547	0.4	2.16	0.002	8.46	0.00003	2.13	0.0285	47.4	0.0014	0.00013
0.23	3.71	0.002	0.0718	0.0441	0.199	0.583	0.0313	3.32	4.91	<0.05	<0.00002	0.033	0.1	1.68	0.0012	4.74	0.00002	1.23	0.0194	28.1	0.001	0.00011
0.182	2.78	0.0014	0.0591	0.0328	0.129	0.489	0.0245	2.44	4.17	<0.05	<0.00002	0.0264	<0.1	1.52	0.0009	3.52	0.00002	0.72	0.0152	21.9	0.0009	0.0001
0.132	2.02	0.0009	0.0416	0.0295	0.104	0.405	0.0185	1.74	2.86	<0.05	<0.00002	0.0185	<0.1	1.25	0.0009	2.93	0.00003	0.62	0.0129	16.6	0.0009	0.00007
0.101	1.53	0.0009	0.0311	0.0246	0.082	0.316	0.0161	1.22	2.12	<0.05	0.00002	0.0146	<0.1	1.14	0.0006	2.47	0.00004	0.43	0.0107	13.7	0.0008	0.0001
0.0956	1.36	0.0007	0.0278	0.0187	0.065	0.269	0.0142	1.13	2.08	<0.05	<0.00002	0.0129	<0.1	0.745	<0.0005	2.16	0.00003	0.47	0.011	12.2	0.0006	0.00009
0.0998	1.67	0.0003	0.0343	0.0196	0.082	0.321	0.0157	1.38	2.6	<0.05	<0.00002	0.0155	<0.1	1.14	0.0007	3.01	0.00005	0.45	0.0116	15.9	0.0007	<0.00005
0.112	1.72	0.0006	0.0392	0.0238	0.085	0.324	0.0158	1.49	2.87	<0.05	0.00005	0.0169	<0.1	1.19	0.0007	3.03	0.00006	0.55	0.0111	16.4	0.0007	<0.00005
0.128	1.85	0.001	0.0434	0.0267	0.084	0.339	0.0189	1.5	3.28	<0.05	0.00005	0.0193	<0.1	1.33	0.0006	3.42	0.00007	0.49	0.0136	17.4	0.0007	<0.00005
0.0773	**10.2**	0.0007	0.0274	0.0149	**0.597**	0.233	0.0131	1.1	2.05	<0.05	0.00005	0.0125	<0.1	1.26	<0.0005	3.02	0.00005	0.53	0.0132	13.2	0.0006	0.00007
0.0852	1.28	0.0011	0.0309	0.0201	0.111	0.246	0.0156	0.97	2.13	<0.05	<0.00002	0.0139	<0.1	1.25	0.0013	3.27	0.00005	0.42	0.0096	12.8	0.0006	<0.00005
0.046	0.82	0.0007	0.0165	0.0137	0.055	0.15	0.0092	0.58	1.09	<0.05	<0.00002	0.0075	<0.1	3.5	<0.0005	2.03	0.0128	0.23	0.0061	7.9	0.0004	<0.00005
0.032	0.49	0.0003	0.0113	0.009	0.047	0.108	0.0079	0.4	0.744	<0.05	<0.00002	0.0054	<0.1	0.555	<0.0005	1.67	0.00002	0.25	0.0047	5.8	0.0004	0.00006
0.0456	0.72	0.0007	0.0164	0.0114	0.059	0.138	0.01	0.6	1.1	<0.05	<0.00002	0.0075	<0.1	0.677	<0.0005	2.09	0.00003	0.31	0.0059	8	0.0004	<0.00005
0.0438	0.71	0.0004	0.0153	0.011	0.063	0.134	0.0091	0.57	1.1	<0.05	0.00003	0.0071	<0.1	0.675	<0.0005	2.32	0.00004	0.4	0.0057	7.8	0.0004	0.00007
0.0643	1.04	0.0006	0.023	0.017	0.075	0.206	0.0133	0.79	1.62	<0.05	<0.00002	0.0106	<0.1	0.808	<0.0005	3.55	0.00003	0.44	0.008	10.6	0.0006	<0.00005
0.0411	0.72	0.0008	0.015	0.0094	0.063	0.117	0.0107	0.52	1.03	<0.05	0.00004	0.007	<0.1	1.23	<0.0005	2.38	0.00007	0.26	0.0063	7.4	0.0003	<0.00005
0.0361	0.57	0.0003	0.0133	0.0115	0.054	0.112	0.008	0.44	0.854	<0.05	<0.00002	0.0061	<0.1	0.543	<0.0005	2.12	0.00004	0.26	0.005	6.3	0.0003	<0.00005
0.0442	0.62	0.0004	0.0159	0.0119	0.063	0.132	0.0087	0.52	1.12	<0.05	<0.00002	0.0072	<0.1	0.643	<0.0005	2.33	0.00003	0.33	0.0059	7	0.0004	0.00009
0.0329	0.52	0.0006	0.0121	0.0097	0.06	0.103	0.0076	0.44	0.881	<0.05	<0.00002	0.0055	<0.1	0.526	<0.0005	2.2	0.00004	0.25	0.0049	5.9	0.0003	<0.00005
0.0402	0.62	0.0004	0.0151	0.0135	0.073	0.115	0.0094	0.51	1.03	<0.05	<0.00002	0.0069	<0.1	0.669	<0.0005	2.83	0.00005	0.36	0.006	7.1	0.0003	<0.00005
0.0215	0.36	<0.0002	0.0079	0.0076	0.046	0.0756	0.0054	0.28	0.545	<0.05	0.00002	0.0037	<0.1	0.402	<0.0005	1.78	0.00003	0.16	0.0035	3.7	0.0002	<0.00005
0.0229	0.35	<0.0002	0.008	0.0241	0.046	0.073	0.0057	0.26	0.534	<0.05	<0.00002	0.0039	<0.1	0.372	<0.0005	1.62	0.00004	0.25	0.0037	3.7	0.0002	<0.00005
0.0182	0.34	<0.0002	0.0069	0.0187	0.045	0.0682	0.005	0.21	0.449	<0.05	<0.00002	0.0033	<0.1	0.296	<0.0005	3.41	0.00004	0.14	0.0034	3.6	0.0002	<0.00005
0.017	0.35	0.0003	0.0064	0.0183	0.042	0.0603	0.0045	0.23	0.451	<0.05	0.00003	0.0032	<0.1	0.341	<0.0005	1.68	0.00003	0.43	0.0036	3.4	0.0002	<0.00005
0.0194	0.32	0.0003	0.0072	0.0252	0.046	0.0665	0.0056	0.21	0.522	<0.05	0.00003	0.0036	<0.1	0.334	<0.0005	1.74	0.00004	0.44	0.004	3.3	0.0002	<0.00005
0.0162	0.34	<0.0002	0.006	0.0162	0.041	0.0599	0.0046	0.19	0.457	<0.05	<0.00002	0.0032	<0.1	0.266	<0.0005	1.77	0.00003	0.24	0.0033	3.2	0.0002	<0.00005
0.026	0.47	<0.0002	0.0097	0.0102	0.061	0.0812	0.0071	0.37	0.653	<0.05	0.00002	0.0046	<0.1	0.407	<0.0005	2.59	0.00003	0.53	0.0046	5	0.0002	<0.00005
0.0226	0.44	0.0005	0.0089	0.0196	0.057	0.0746	0.0063	0.27	0.587	<0.05	<0.00002	0.0042	<0.1	0.424	<0.0005	2.47	0.00002	0.54	0.004	4.5	0.0002	0.00005
0.0165	0.26	0.0009	0.0059	0.0086	0.041	0.0602	0.0048	0.2	0.391	<0.05	<0.00002	0.0031	<0.1	0.271	<0.0005	1.67	0.00004	0.33	0.0039	2.8	0.0002	<0.00005
0.0128	0.25	0.0003	0.0048	0.0093	0.034	0.0466	0.0036	0.18	0.311	<0.05	<0.00002	0.0024	<0.1	0.209	<0.0005	1.29	0.00003	0.3	0.0028	2.5	0.0001	<0.00005
0.0306	0.46	0.0004	0.0123	0.015	0.072	0.0983	0.0086	0.36	0.808	<0.05	0.00003	0.006	<0.1	0.599	<0.0005	3.37	0.00006	0.53	0.0053	5.8	0.0003	<0.00005
0.0184	0.32	0.0003	0.0072	0.008	0.07	0.0725	0.0064	0.23	0.486	0.05	0.00003	0.0036	<0.1	0.382	<0.0005	2.37	0.00005	0.49	0.0037	4.3	0.0002	0.0001
0.0213	0.43	0.0004	0.0084	0.012	0.11	0.0859	0.0065	0.31	0.563	0.06	<0.00002	0.004	<0.1	0.459	<0.0005	2.72	0.00005	0.45	0.004	4.5	0.0003	<0.00005

	0.01	0.1	1						
Ti	U	V	Zn	Zr	Major Anions	Major Cations	Diff	Diff (%)	
mg/L	mg/L	mg/L	mg/L	mg/L					
0.0087	0.00207	0.00201	50.2	<0.005	4.47	4.78	-0.31	-3.4%	anion balance based on sulphur value by ICP
0.0024	0.00081	0.00061	30.1	<0.005	3.00	2.53	0.47	8.6%	anion balance based on sulphur value by ICP
0.0015	0.00046	0.00029	18.2	<0.005	1.76	1.52	0.24	7.3%	anion balance based on sulphur value by ICP
0.001	0.00038	0.00018	13.8	<0.005	1.37	1.11	0.26	10.4%	anion balance based on sulphur value by ICP
0.0007	0.00028	0.00011	8.25	<0.005	1.04	0.84	0.20	10.6%	anion balance based on sulphur value by ICP
0.001	0.0002	0.00014	6.16	<0.005	0.86	0.62	0.24	16.4%	anion balance based on sulphur value by ICP
0.0005	0.00018	0.00013	5.91	<0.005	0.76	0.54	0.22	16.7%	anion balance based on sulphur value by ICP
<0.0005	0.0002	0.00014	7.15	<0.005	0.99	0.67	0.32	19.3%	anion balance based on sulphur value by ICP
<0.0005	0.00026	0.00014	7.53	<0.005	1.03	0.69	0.33	19.4%	anion balance based on sulphur value by ICP
0.0006	0.0002	0.00016	7.84	<0.005	1.09	0.74	0.35	19.3%	anion balance based on sulphur value by ICP
0.0012	0.00018	0.00011	5.36	<0.005	0.83	0.99	-0.16	-8.9%	anion balance based on sulphur value by ICP
<0.0005	0.00018	0.00016	5.22	<0.005	0.80	0.52	0.28	20.9%	anion balance based on sulphur value by ICP
<0.0005	0.00013	<0.00005	2.79	<0.005	0.49	0.38	0.11	12.5%	anion balance based on sulphur value by ICP
<0.0005	0.00011	0.00005	1.93	<0.005	0.36	0.23	0.13	22.9%	anion balance based on sulphur value by ICP
<0.0005	0.00013	0.00007	2.97	<0.005	0.50	0.32	0.18	21.8%	anion balance based on sulphur value by ICP
0.0005	0.00012	0.00008	2.78	<0.005	0.49	0.31	0.18	22.5%	anion balance based on sulphur value by ICP
<0.0005	0.00016	<0.00005	4.08	<0.005	0.66	0.43	0.24	21.7%	anion balance based on sulphur value by ICP
<0.0005	0.0001	0.00009	2.58	<0.005	0.46	0.28	0.18	24.9%	anion balance based on sulphur value by ICP
<0.0005	0.0001	0.00007	2.31	<0.005	0.39	0.26	0.13	19.9%	anion balance based on sulphur value by ICP
<0.0005	0.00012	<0.00005	2.73	<0.005	0.44	0.29	0.15	20.2%	anion balance based on sulphur value by ICP
<0.0005	0.00011	<0.00005	2.15	<0.005	0.37	0.22	0.15	25.4%	anion balance based on sulphur value by ICP
<0.0005	0.00012	0.00006	2.49	<0.005	0.44	0.27	0.17	23.7%	anion balance based on sulphur value by ICP
<0.0005	0.00009	<0.00005	1.34	<0.005	0.23	0.15	0.08	20.9%	anion balance based on sulphur value by ICP
<0.0005	0.00009	0.00006	1.37	<0.005	0.23	0.13	0.10	28.3%	anion balance based on sulphur value by ICP
<0.0005	0.00008	0.00005	1.1	<0.005	0.23	0.12	0.11	32.3%	anion balance based on sulphur value by ICP
<0.0005	0.00011	<0.00005	1.13	<0.005	0.21	0.13	0.08	23.6%	anion balance based on sulphur value by ICP
0.0009	0.00013	0.00008	1.42	<0.005	0.21	0.14	0.07	20.5%	anion balance based on sulphur value by ICP
<0.0005	0.00007	0.00006	0.971	<0.005	0.20	0.11	0.09	28.9%	anion balance based on sulphur value by ICP
<0.0005	0.00011	<0.00005	1.61	<0.005	0.31	0.19	0.12	23.2%	anion balance based on sulphur value by ICP
0.0005	0.00011	0.00012	1.32	<0.005	0.28	0.14	0.14	33.9%	anion balance based on sulphur value by ICP
0.0034	0.00009	0.00005	0.911	<0.005	0.18	0.13	0.05	16.5%	anion balance based on sulphur value by ICP
<0.0005	0.00006	0.00005	0.79	<0.005	0.16	0.17	-0.01	-4.4%	anion balance based on sulphur value by ICP
<0.0005	0.00015	0.0001	1.75	<0.005	0.36	0.18	0.18	33.7%	anion balance based on sulphur value by ICP
<0.0005	0.0001	<0.00005	1.07	<0.005	0.27	0.12	0.15	37.2%	anion balance based on sulphur value by ICP
0.0006	0.00014	0.00006	1.28	<0.005	0.28	0.15	0.13	31.0%	anion balance based on sulphur value by ICP

HC 4 ***CONFIDENTIAL***
Sample = Triangle Surface ***DRAFT***

Date	Cycle No.	Volume mL Input	Volume mL Output	pH	Redox mV	Cond. umhos/cm	Acidity (pH 4.5) mgCaCO3/L	Acidity (pH 8.3) mgCaCO3/L	Alkalinity mgCaCO3/L	Sulphate mg/L	Sulphate by ICP mg/L	Hardness CaCO3 mg/L	Al mg/L	Sb mg/L	As mg/L	Ba mg/L	Be mg/L	Bi mg/L	B mg/L
BC Water Numerical Criteria													5		0.05	1	0.1		0.5
30-Mar-06	1	1000	370	2.95	413	1904	143.5	754.0	#N/A	916	897	150	14.7	0.058	0.017	0.0416	0.005	<0.001	0.035
06-Apr-06	2	500	430	3.00	590	2210	125.0	684.0	#N/A	1038	885	170	18.5	0.0359	0.0227	0.0205	0.006	<0.00005	0.049
13-Apr-06	3	500	395	3.00	605	1860	103.0	628.0	#N/A	904	798	160	18	0.025	0.016	0.0204	0.005	<0.001	0.041
20-Apr-06	4	500	430	3.10	605	1604	118.0	556.0	#N/A	754	723	120	18.8	0.018	0.014	0.0218	0.004	<0.001	0.034
27-Apr-06	5	500	410	2.99	554	1654	138.0	599.0	#N/A	762	720	110	18	0.02	0.019	0.0178	0.006	<0.001	0.029
04-May-06	6	500	390	2.85	506	1528	165.2	581.5	#N/A	704	714	95	20.4	0.021	0.016	0.017	0.005	<0.001	0.035
11-May-06	7	500	420	2.87	519	1438	164.0	550.4	#N/A	663	648	82	15.1	0.02	0.02	0.0228	0.003	<0.001	0.027
18-May-06	8	500	395	2.79	566	1424	154.3	546.5	#N/A	656	636	82	16.3	0.017	0.011	0.0229	0.002	<0.001	0.037
25-May-06	9	500	420	2.81	542	1311	143.9	505.9	#N/A	570	591	72	14.9	0.017	0.008	0.0196	0.002	<0.001	0.031
01-Jun-06	10	500	415	2.82	543	1231	138.4	439.0	#N/A	567	534	62	11.8	0.0147	0.0074	0.0205	0.002	<0.00005	0.019
08-Jun-06	11	500	425	2.90	511	1145	128.3	407.4	#N/A	546	510	56	11.9	0.014	0.006	0.0268	0.002	<0.001	0.025
15-Jun-06	12	500	415	2.83	517	1209	153.6	465.0	#N/A	598	516	54	12.7	0.0148	0.0056	0.0216	0.0017	<0.00005	0.028
22-Jun-06	13	500	420	2.83	504	1128	132.2	385.7	#N/A	447	438	46	9.82	0.0136	0.005	0.0321	0.0018	<0.0005	0.022
29-Jun-06	14	500	430	2.84	504	998	140.6	403.7	#N/A	541	432	47	7.48	0.0153	0.007	0.0324	0.0012	<0.00005	0.021
06-Jul-06	15	500	410	2.82	563	1053	118.6	359.0	#N/A	489	411	52	9.11	0.0142	0.0054	0.0274	0.0012	<0.00005	0.033
13-Jul-06	16	500	425	2.87	580	935	96.1	311.8	#N/A	362	378	50	8.63	0.0117	0.0046	0.0343	0.0011	<0.00005	0.027
20-Jul-06	17	500	425	2.86	570	860	89.7	284.2	#N/A	351	330	45	7.32	0.0113	0.0039	0.036	0.0012	<0.00005	0.028
27-Jul-06	18	500	415	2.87	579	830	89.5	284.7	#N/A	360	339	50	7.35	0.01	0.0034	0.036	0.0012	<0.00005	0.018
03-Aug-06	19	500	435	2.83	548	869	91.6	296.7	#N/A	410	354	53	6.42	0.0111	0.0036	0.0271	0.0011	<0.00005	0.015
10-Aug-06	20	500	415	3.00	594	759	68.0	223.8	#N/A	276	280	40	7	0.0089	0.0031	0.0339	0.0011	<0.00005	0.017
17-Aug-06	21	500	445	2.88	518	736	83.3	249.7	#N/A	317	282	41	5.58	0.0079	0.0033	0.0398	0.0009	<0.00005	0.014
24-Aug-06	22	500	440	2.91	524	651	80.7	233.6	#N/A	279	255	36	4.83	0.0066	0.0057	0.0407	0.0007	<0.00005	0.019
31-Aug-06	23	500	440	2.89	#N/A	739	89.5	245.2	#N/A	303	268	38	5.24	0.0072	0.0034	0.0403	0.0006	<0.00005	0.018
07-Sep-06	24	500	425	3.04	537	679	68.1	204.5	#N/A	244	246	36	5.07	0.0083	0.0034	0.0491	0.0006	<0.00005	0.017
14-Sep-06	25	500	450	3.00	#N/A	723	79.6	239.5	#N/A	280	309	45	5.6	0.0085	0.0031	0.0402	0.0007	<0.00005	0.02
21-Sep-06	26	500	440	2.95	495	784	86.0	257.6	#N/A	278	287	43	6.28	0.0087	0.0043	0.0283	0.0008	<0.00005	0.021
28-Sep-06	27	500	430	2.96	560	655	67.4	205.3	#N/A	220	221	34	4.74	0.0081	0.003	0.048	0.0007	<0.00005	0.023
05-Oct-06	28	500	430	3.03	507	628	68.7	199.4	#N/A	229	225	35	4.98	0.007	0.003	0.054	0.0005	<0.00005	0.022
12-Oct-06	29	500	445	2.98	#N/A	628	70.0	193.0	#N/A	242	232	37	4.08	0.0083	0.0032	0.044	0.0005	<0.00005	0.023
19-Oct-06	30	500	445	3.00	524	595	62.5	172.0	#N/A	222	196	31	3.73	0.0073	0.0028	0.0507	0.0005	<0.00005	0.016
26-Oct-06	31	500	435	2.97	#N/A	674	61.7	195.8	#N/A	246	220	37	4.32	0.0093	0.0041	0.0358	0.0006	<0.00005	0.027
02-Nov-06	32	500	435	3.15	538	559	39.7	148.5	#N/A	207	189	31	3.24	0.0069	0.0038	0.0595	0.0005	<0.00005	0.014
09-Nov-06	33	500	435	3.22	#N/A	560	40.2	144.0	#N/A	223									
16-Nov-06	34	500	425	3.10	547	521	45.0	139.7	#N/A	189	170	30	3.14	0.0073	0.0026	0.0583	0.0005	<0.00005	0.016
23-Nov-06	35	500	440	3.12	#N/A	550	54.9	160.6	#N/A	155	188	32	2.94	0.007	0.0032	0.0491	0.0005	<0.00005	0.023
30-Nov-06	36	500	450	3.11	518	525	48.7	150.6	#N/A	152	170	31	3.05	0.007	0.0027	0.0465	0.0004	<0.00005	0.016
07-Dec-06	37	500	425	3.10	468	573	53.6	154.3	#N/A	IP									

Note: Detection limits may change for metals due to matrix interference.

0.005	1	0.05	0.05	0.3	0.3	0.2	2.5		0.2	0.001	0.01	0.2			0.05			200				
Cd	Ca	Cr	Co	Cu	Fe	Pb	Li	Mg	Mn	Hg	Mo	Ni	P	K	Se	Si	Ag	Na	Sr	S	Tl	Sn
mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2.18	17.8	0.036	0.27	0.611	77.8	2.51	0.194	25.3	12	0.14	0.0009	0.291	0.5	5.81	0.02	7.91	0.0002	4.43	0.0634	299	0.035	<0.001
2.24	23.7	0.0428	0.347	0.536	17.3	2.81	0.261	28	25.7	0.41	0.0006	0.29	0.5	1.72	0.0179	25.9	0.0006	3.89	0.0736	295	0.0331	0.0004
2.01	21.4	0.03	0.344	0.572	8.54	2.47	0.182	25.4	22.4	0.23	<0.0005	0.314	0.2	1.06	0.012	26	0.0004	2.91	0.0723	266	0.034	<0.001
1.78	17.6	0.017	0.298	0.607	18.5	2.86	0.13	19.3	18.3	0.09	<0.0005	0.29	<0.1	1.43	0.011	22.1	0.0005	1.89	0.0671	241	0.035	<0.001
1.75	15.2	0.015	0.256	0.628	26.6	3.11	0.117	16.8	14.7	0.12	<0.0005	0.261	<0.1	1.87	0.014	24.6	0.0006	1.78	0.0673	240	0.043	<0.001
1.7	13.1	0.014	0.229	0.691	28.3	3.02	0.117	15.2	12.4	0.15	<0.0005	0.256	<0.1	1.9	<0.01	27.7	0.0006	1.6	0.0665	238	0.039	<0.001
1.53	10.9	0.014	0.194	0.598	33.7	2.59	0.103	13.3	11.1	0.11	<0.0005	0.207	<0.1	1.52	<0.01	26.9	0.0005	1.5	0.0679	216	0.033	<0.001
1.29	10.6	0.034	0.174	0.603	20.7	2.91	0.105	13.4	9.28	0.07	<0.0005	0.209	<0.1	1.54	<0.01	30.6	0.0005	1.57	0.0642	212	0.032	<0.001
1.31	8.77	0.008	0.151	0.564	22.5	2.83	0.097	12.1	7.21	0.06	0.0005	0.19	<0.1	1.2	<0.01	26.8	0.0005	1.51	0.0561	197	0.026	<0.001
1.18	7.1	0.0094	0.116	0.442	23.4	3.11	0.0901	10.8	5.46	0.06	0.0002	0.157	<0.1	1.16	0.0083	24.9	0.0006	1.32	0.0475	178	0.0251	0.0001
0.963	5.94	<0.005	0.103	0.444	40.1	2.97	0.085	9.89	4.22	0.05	<0.0005	0.153	<0.1	1.39	<0.01	26.6	0.0008	1.24	0.0475	170	0.025	<0.001
0.961	5.25	0.01	0.0929	0.409	41.3	2.9	0.092	10	3.81	0.09	0.0002	0.139	<0.1	1.55	0.0078	30	0.001	1.46	0.0429	172	0.0261	0.00013
0.817	4.25	0.008	0.0773	0.353	37.3	3.01	0.079	8.72	2.95	0.15	0.0002	0.118	<0.1	1.44	0.007	23.9	0.001	1.26	0.0393	146	0.0264	<0.0005
0.662	3.79	0.0072	0.063	0.268	44.9	2.97	0.0817	9.04	2.55	0.26	0.0004	0.101	<0.1	1.32	0.0063	26.5	0.0011	1.41	0.0337	144	0.0242	0.00019
0.747	4.05	0.0074	0.0668	0.289	18.9	3.12	0.0916	10.2	2.88	0.09	0.0002	0.109	<0.1	1.64	0.0069	28.1	0.0009	1.66	0.038	137	0.0239	0.0001
0.674	3.71	0.0061	0.0595	0.251	14.2	3.34	0.0791	10	2.48	0.08	0.0002	0.0999	<0.1	1.69	0.0074	26.2	0.0008	1.62	0.0351	126	0.0212	0.00018
0.626	3.17	0.0055	0.0568	0.235	12.8	3.54	0.081	9	2.16	0.06	0.0002	0.0975	<0.1	1.41	0.0045	25.5	0.0009	1.33	0.0348	110	0.019	0.00009
0.556	3.28	0.0057	0.0531	0.206	13.2	2.72	0.0934	10.1	1.98	0.07	0.0001	0.0967	0.3	1.96	0.0031	25.9	0.0009	1.53	0.0373	113	0.0146	0.00009
0.615	3.3	0.0062	0.0573	0.215	16.2	3.33	0.0858	10.8	1.91	0.07	8E-05	0.11	<0.1	1.75	0.0041	25.8	0.0009	1.49	0.0396	118	0.0163	0.00023
0.576	2.44	0.0043	0.0488	0.196	8.52	3.54	0.0937	8.18	1.58	<0.05	7E-05	0.0897	<0.1	1.46	0.0042	22.3	0.0008	1.29	0.0328	93.2	0.0127	0.00011
0.453	2.42	0.004	0.0425	0.148	16.5	3.08	0.0661	8.54	1.4	0.07	9E-05	0.0818	<0.1	1.42	0.0023	22.3	0.0007	1.2	0.0314	94.1	0.0111	0.00014
0.39	2.08	0.005	0.037	0.144	15.1	3.07	0.0565	7.43	1.09	0.09	0.0001	0.0696	<0.1	1.4	0.0045	21.3	0.0008	1.16	0.0276	85.1	0.0124	0.00018
0.393	2.09	0.0036	0.0368	0.142	20.2	3.35	0.0622	7.94	1.25	0.07	0.0001	0.0737	<0.1	1.71	0.0028	22.7	0.0006	1.22	0.0289	89.4	0.0117	0.00015
0.405	1.89	0.0036	0.0364	0.142	11.9	3.48	0.0622	7.59	1.18	0.07	0.0001	0.0716	<0.1	1.58	0.0027	20.6	0.0007	1.27	0.0283	82.1	0.012	0.00013
0.395	2.3	0.0036	0.0399	0.131	24.9	3.51	0.0732	9.44	1.35	0.14	0.0001	0.0778	<0.1	1.94	0.0033	25.5	0.0008	1.37	0.0319	103	0.015	0.00013
0.367	2.23	0.0041	0.0398	0.157	23.5	3.9	0.0755	9.04	1.44	<0.05	0.0001	0.0832	<0.1	2.4	0.0031	25.7	0.0003	1.71	0.0342	95.6	0.0179	0.00014
0.409	1.76	0.0036	0.0353	0.177	9.07	4.49	0.062	7.16	1.31	<0.05	0.0001	0.0702	<0.1	1.92	0.0038	20.8	0.0002	1.47	0.0349	73.6	0.0142	0.00014
0.302	1.8	0.0029	0.0324	0.134	11.8	4.35	0.0521	7.48	1.22	<0.05	0.0001	0.0675	<0.1	2.09	0.0034	21.3	0.0002	1.24	0.0284	75	0.0153	0.00009
0.307	1.82	0.0027	0.0295	0.117	14.3	3.79	0.0515	7.9	1	<0.05	0.0001	0.0641	<0.1	2	0.0024	20.8	0.0003	1.36	0.03	77.4	0.0152	0.0001
0.266	1.51	0.0029	0.0286	0.102	10.3	3.9	0.0495	6.53	0.926	<0.05	8E-05	0.0577	<0.1	2.1	0.0031	19.1	0.0002	1.44	0.0289	65.4	0.0138	0.00011
0.325	1.67	0.0039	0.0352	0.107	11.8	3.72	0.0635	7.94	1.24	<0.05	0.0001	0.0819	<0.1	2.74	0.0037	23.4	0.0002	1.39	0.0376	73.4	0.0196	0.0003
0.249	1.39	0.0025	0.0278	0.0911	9.08	3.74	0.0513	6.79	0.967	<0.05	9E-05	0.0618	<0.1	2.13	0.0035	21	0.0003	1.23	0.03	63	0.0168	0.00012
0.253	1.27	0.0022	0.0274	0.0828	6.25	3.95	0.0514	6.45	0.91	<0.05	8E-05	0.0619	<0.1	2.43	0.0026	19.5	0.0002	1.13	0.03	56.6	0.0164	0.00014
0.236	1.32	0.0021	0.0259	0.0818	7.54	4.26	0.054	7.07	0.855	<0.05	8E-05	0.0592	<0.1	2.39	0.002	22.4	0.0002	1.38	0.0308	62.7	0.0194	0.0001
0.234	1.22	0.002	0.0253	0.0773	6.04	4.3	0.0439	6.79	0.818	0.07	0.0001	0.0579	<0.1	2.44	0.0022	19.9	0.0003	1.17	0.0306	56.7	0.0194	0.00009

Ti	U	V	Zn	Zr	Major Anions	Major Cations	Diff	Diff (%)	
	0.01	0.1	1						
mg/L	mg/L	mg/L	mg/L	mg/L					
<0.01	0.0623	0.008	298	<0.005	18.74	18.02	0.72	2.0%	anion balance based on sulphur value by ICP
0.0006	0.0455	0.00149	260	<0.005	18.49	15.38	3.10	9.2%	anion balance based on sulphur value by ICP
<0.01	0.0569	0.001	249	<0.005	16.64	14.28	2.36	7.6%	anion balance based on sulphur value by ICP
<0.01	0.0567	<0.001	209	<0.005	15.06	12.58	2.48	9.0%	anion balance based on sulphur value by ICP
<0.01	0.0632	<0.001	217	<0.005	15.00	12.94	2.06	7.4%	anion balance based on sulphur value by ICP
0.011	0.0592	<0.001	210	<0.005	14.88	13.21	1.67	5.9%	anion balance based on sulphur value by ICP
<0.01	0.0584	<0.001	199	<0.005	13.50	12.11	1.39	5.4%	anion balance based on sulphur value by ICP
<0.01	0.0551	<0.001	192	<0.005	13.25	11.85	1.40	5.6%	anion balance based on sulphur value by ICP
<0.01	0.0486	<0.001	186	<0.005	12.31	11.27	1.04	4.4%	anion balance based on sulphur value by ICP
<0.0005	0.035	0.00026	169	<0.005	11.13	10.21	0.92	4.3%	anion balance based on sulphur value by ICP
<0.01	0.0407	<0.001	151	<0.005	10.63	9.90	0.72	3.5%	anion balance based on sulphur value by ICP
<0.0005	0.0337	0.00029	136	<0.005	10.75	9.78	0.97	4.7%	anion balance based on sulphur value by ICP
<0.005	0.0313	<0.0005	132	<0.005	9.13	9.04	0.08	0.5%	anion balance based on sulphur value by ICP
<0.0005	0.0239	0.00037	119	<0.005	9.00	8.60	0.40	2.3%	anion balance based on sulphur value by ICP
<0.0005	0.0251	0.00021	114	<0.005	8.56	7.89	0.67	4.1%	anion balance based on sulphur value by ICP
<0.0005	0.0191	0.00018	115	<0.005	7.88	7.53	0.34	2.2%	anion balance based on sulphur value by ICP
<0.0005	0.0188	0.00005	104	<0.005	6.88	6.91	-0.03	-0.2%	anion balance based on sulphur value by ICP
<0.0005	0.0158	0.00014	104	<0.005	7.06	6.99	0.07	0.5%	anion balance based on sulphur value by ICP
<0.0005	0.0167	0.00013	104	<0.005	7.38	7.17	0.21	1.4%	anion balance based on sulphur value by ICP
<0.0005	0.0176	0.00006	93.4	<0.005	5.83	5.90	-0.08	-0.7%	anion balance based on sulphur value by ICP
<0.0005	0.0121	<0.00005	82.8	<0.005	5.88	6.02	-0.14	-1.2%	anion balance based on sulphur value by ICP
<0.0005	0.0111	0.00009	73.3	<0.005	5.32	5.42	-0.10	-1.0%	anion balance based on sulphur value by ICP
<0.0005	0.012	0.00009	71.9	<0.005	5.59	5.70	-0.11	-1.0%	anion balance based on sulphur value by ICP
<0.0005	0.0118	0.0001	71.3	<0.005	5.13	4.97	0.16	1.6%	anion balance based on sulphur value by ICP
<0.0005	0.011	0.00014	77.1	<0.005	6.44	5.95	0.49	3.9%	anion balance based on sulphur value by ICP
<0.0005	0.0122	0.00012	72.1	<0.005	5.98	5.93	0.05	0.4%	anion balance based on sulphur value by ICP
<0.0005	0.0105	0.00013	77.3	<0.005	4.60	5.18	-0.58	-5.9%	anion balance based on sulphur value by ICP
<0.0005	0.009	0.0001	60.6	<0.005	4.69	4.66	0.03	0.3%	anion balance based on sulphur value by ICP
<0.0005	0.0087	0.00009	60.3	<0.005	4.84	4.78	0.06	0.6%	anion balance based on sulphur value by ICP
0.0012	0.0078	0.00016	52.1	<0.005	4.09	4.17	-0.09	-1.1%	anion balance based on sulphur value by ICP
0.0039	0.0099	0.00017	58	<0.005	4.59	4.68	-0.09	-0.9%	anion balance based on sulphur value by ICP
0.0008	0.0074	0.00011	47.5	<0.005	3.94	3.65	0.28	3.7%	anion balance based on sulphur value by ICP
<0.0005	0.0067	0.00012	44.3	<0.005	3.54	3.50	0.03	0.5%	anion balance based on sulphur value by ICP
<0.0005	0.0064	0.00007	49.6	<0.005	3.92	3.72	0.20	2.6%	anion balance based on sulphur value by ICP
<0.0005	0.0057	<0.00005	45.7	<0.005	3.54	3.55	0.00	0.0%	anion balance based on sulphur value by ICP

EPA 1312 leach
Red Dog Leaching

Leaching solution deionized water (pH 4.97)
Mass of sample 100 g
Volume of reagent 2000 mL

						Corrected for Blank(filtered)	
				T/Pb [mg/L]	T/Zn [mg/L]	T/Pb [mg/L]	T/Zn [mg/L]
TE99	20061109	1086	Blank (unfiltered)	0.008	< 0.001		
TE99	20061109	1087	Blank (filtered)	< 0.001	0.065		
TE99	20061109	1088	Surface	4.9	27	4.9	26.935
TE99	20061109	1089	Surface	4.9	28	4.9	27.935
TE99	20061109	1090	Subsurface	0.018	2.8	0.018	2.735
TE99	20061109	1091	Subsurface	0.013	2.4	0.013	2.335

Head assay on -9.5mm (leached) fraction

				Pb [%]	Zn [%]
TE99	20061122	1094	RDTS Head	2.8	1.4
TE99	20061122	1095	RDTS -50	3.8	2.2
TE99	20061122	1096	RDTSS Head	0.04	0.16
TE99	20061122	1097	RDTSS -50	0.04	0.14

Head assay on whole sample(unscreened)

				Pb [%]	Zn [%]
TE99	20061220	1434	Triangle Surface	2.9	1.3
TE99	20061221	1435	Triangle Subsurface	0.02	0.12

	Leached Pb [mg/g]	**Leached Zn [mg/g]**
Triangle Surface	0.098	0.54
duplicate	0.098	0.56
Triangle SubSurface	0.00036	0.05
duplicate	0.00026	0.05

Unscreened sample (puck and ring)			**Screened (-9.5mm fraction)Head**	
	Leached Pb (%)	**Leached Zn(%)**	**Leached Pb (%)**	**Leached Zn(%)**
Triangle Surface	0.34	4.22	0.35	2.49
Triangle SubSurface	0.16	4.23	0.08	3.62

Distribution of elements in the New Samples

9.5 mm Fraction

Sample Type	Sample Date	Lot/Time	Sample	Size	Mass	%	Fe (%)	Pb(%)	Zn(%)	Distribution Fe [%]	Pb [%]	Zn [%]
TE99	20061122		1094 RDTS Head	-9.5mm	379.19	94.80	4.40	2.80	1.40	94.8	91.5	102.1
				+9.5mm	20.81	5.20	4.40	4.72	0.00	5.2	8.5	-2.1
TE99	20061220	1434	Triangle Surface	Head	400	100.00	4.40	2.90	1.30	100.0	100.0	100.0
TE99	20061122		1096 RDTSS Head	-9.5mm	284.5	94.83	5.30	0.04	0.16	96.7	189.7	126.4
				+9.5mm	15.5	5.17	3.36	-0.35	-0.61	3.3	-89.7	-26.4
TE99	20061221	1435	Triangle Subsurface	Head	300	100.00	5.20	0.02	0.12	100.0	100.0	100.0

0.3 mm Fraction

Sample Type	Sample Date	Lot/Time	Sample	Size	Mass	%	Fe (%)	Pb(%)	Zn(%)	Fe [%]	Pb [%]	Zn [%]
TE99	20061122		1095 RDTS -50	-300um	51.45	49.88	3.90	3.80	2.20	44.2	67.7	78.4
				+300um	51.7	50.12	4.90	1.80	0.60	55.8	32.3	21.6
TE99	20061122		1094 TS -9.5 Head	Head	103.15	100.00	4.40	2.80	1.40	100.0	100.0	100.0
TE99	20061122		1097 RDTSS -50	-300um	12.78	23.53	4.60	0.04	0.14	20.4	23.5	20.6
				+300um	41.53	76.47	5.52	0.04	0.17	79.6	76.5	79.4
TE99	20061122		1096 TSS -9.5 Head	Head	54.31	100.00	5.30	0.04	0.16	100.0	100.0	100.0

All elements

Sample Type	Sample Date	Lot/Time	Sample	Size	Mass	%	Fe (%)	Pb(%)	Zn(%)	Fe [%]	Pb [%]	Zn [%]
TE99	20061122		1094 Triangle Surface	-300	189.14	47.3	3.90	3.80	2.20	41.9	62.0	78.4
				-9500 +300	190.1	47.5	4.90	1.80	0.60	52.9	29.6	21.6
				+9500	20.81	5.2	4.40	4.72	0.00	5.2	8.5	0.0
TE99	20061220		1434	Head	400	100.0	4.40	2.90	1.30	100.0	100.0	100.0
TE99	20061122		1096 Triangle Subsurface	-300	66.9	22.32	4.60	0.04	0.14	19.7	23.5	20.6
				-9500 +300	217.6	72.52	5.52	0.04	0.17	76.9	76.5	79.4
				+9500	15.5	5.17	3.36	0.00	0.00	3.3	0.0	0.0
TE99	20061221		1435	Head	300	100.00	5.20	0.02	0.12	100.0	100.0	100.0

Sample Type	Sample Date	Lot/Time	
TE99	20061220	1434	Triangle Surface
TE99	20061221	1435	Triangle Subsurface

Total Weights (g)

	Triangle Surface	Triangle Subsurface
	4.33kg	6.54kg

Screening 9.5mm

	Triangle Surface	Triangle Subsurface
weight taken	400	300
weight recovered	379.19	284.5

Screening 300um (used -9.5mm fraction as Head)

	Triangle Surface	Triangle Subsurface
weight taken	103.16	54.31
weight recovered	51.45	12.78

Fe [%]	Pb [%]	Zn [%]
4.4	2.8	1.4
4.4	2.9	1.3
5.3	0.04	0.16
5.2	0.02	0.12
3.9	3.8	2.2
4.4	2.8	1.4
4.6	0.04	0.14
5.3	0.04	0.16

Sample Type	Sample Date	Lot/Time		As [%]	Bi [%]	Cd [%]	Co [%]	Cr [%]	Cu [%]	Fe [%]	In [%]	MgO [%]
TE99	20061220	1434	Triangle Surface	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	4.4	< 0.01	0.8
TE99	20061221	1435	Triangle Subsurface	< 0.01	< 0.01	< 0.01	< 0.01	0.01	< 0.01	5.2	< 0.01	2

Mn [%]	Mo [%]	Ni [%]	Pb [%]	Sb [%]	Se [%]	SiO2 [%]	Sn [%]	Te [%]	Tl [%]	Zn [%]
0.04	0.01	0.01	2.9	0.02	< 0.01	40	< 0.01	< 0.01	0.01	1.3
0.25	< 0.01	0.01	0.02	< 0.01	< 0.01	52	< 0.01	< 0.01	0.01	0.12