

Deloitte & Touche

Faro Mine Complex Anvil Range Pit Lakes 2008 Evaluation of In-Situ Treatment

2008/09 Task 28 - FINAL

Prepared for

Deloitte and Touche Inc.

On behalf of

Faro Mine Closure Planning Office



Prepared by

 **SRK Consulting**
Engineers and Scientists

Project Reference Number
SRK 1CD003.116

February 2009

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SRK Project Number 1CD003.116

February 2009

Executive Summary

Investigations undertaken in 2004 concluded that biological treatment should be continued in the Grum Pit and tested in the Faro Pit. The 2005 investigations in the Grum Pit concluded that biological treatment should be continued there. However, the 2005 fertilization program in the Faro Pit interfered with the performance of the Faro Mill water treatment system, and biological treatment was discontinued. Since then, water quality and physical limnological monitoring were continued in the Faro and Vangorda pits, whilst fertilization and water quality monitoring were continued for the Grum Pit lake. In addition, since 2006 the rate of fertilization of the Grum Pit lake was reduced to ensure that nutrient concentrations are essentially depleted at the end of the season. This report provides presents and discusses the results from the 2008 biological treatment program in the Grum Pit and the monitoring results from the Faro and Vangorda Pit lakes.

The monitoring results indicated that nutrient concentrations of phosphate species have essentially been depleted from the surface water in the Faro Pit. Mass balance calculations indicate that, whilst there is some annual variability, on average the annual zinc loading to the pit lake is about 48 tonnes per year, of which about 24 % (11.6 tonnes) is sourced from the Zone 2 Pit water transfer. The balance of the loading represents the combined loadings from the wall rocks and the waste rock seepage that enters the pit lake. Monitoring results for seepage from the wall rocks suggest that the majority of this loading is likely from the waste rock dumps.

The Grum Pit water again responded well to fertilization and excellent algal growth was achieved. Surface water mass balance calculations for 2004 through 2008 suggest that zinc loadings to the Grum Pit are on the order of 3000 to 4000 kg per annum. The loading appears to be associated with influx of groundwater during early to mid summer. Nonetheless, overall the depth weighted zinc concentration has decreased from in excess of 10 mg/L to about 6.5 mg/L. Overall removals are therefore exceeding net loadings to the pit lake. The biological removal effects a zinc reduction of about 4500 kg per annum. The net loading of sulphate to the pit lake is estimated to be about 100 tonnes per year. The 2008 results again demonstrated that the residual level of phosphate and other nutrients in the water column can be controlled effectively by ceasing fertilizer applications in mid to late summer.

Monitoring in the Vangorda Pit indicated increased concentrations at depth, linked to the decrease in pH values at depth, which led to an accelerated loading to the pit lake. These results confirmed the findings from the 2007 program which indicated that zinc is being dissolved from treatment sludges that had previously been deposited in the pit.

It is recommended that monitoring of both the Faro and Vangorda Pit lakes be continued in 2009. Mass balance calculations should be carried forward to verify the current estimates of metal loadings to each pit. Furthermore, based on the zinc removal rates observed for the Grum Pit and the level of control established in 2008, it is recommended that the Grum Pit fertilization program be continued in 2009.

* * *

Report Title:	Anvil Range Pit Lakes 2008 Evaluation of In-Situ Treatment
Prepared by:	SRK Consulting Project 1CD003.0116
Date Submitted:	27 February 2009
Number of Pages:	33 / 81 (Body / Total report)
Supersedes:	Anvil Range Pit Lakes 2007 Evaluation of In-Situ Treatment
Number of appendices:	2

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1 Introduction

An initial assessment of biological treatment undertaken in 2003 by Lorax Environmental Services (Lorax, 2004) indicated zinc removal from water contained in the pit lakes at the Anvil Range Complex. The initial pit lake fertilization and limno-corral testing programs carried out by Lorax Environmental Services Inc. in association with Laberge Environmental Services. Since 2004, following the initial assessment, an in-situ evaluation program has been carried out at the Grum Pit, with the annual fertilization and monitoring carried out by Laberge Environmental Services. A program of physical limnological monitoring was also initiated in 2004 and continued in 2005. The monitoring program was much reduced in subsequent years.

The findings from the previous programs (2004 to 2007) are reported elsewhere (SRK 2005, SRK 2006, SRK 2007 and SRK 2008). The results to date indicate that the Grum Pit water responds rapidly to fertilization with excellent phytoplankton growth occurring within two weeks of the first fertilization program of each summer season. Zinc removal by phytoplankton has been demonstrated to the extent that total zinc concentrations in the near surface water annually decreases to or below 0.3 mg/L.

Previous physical limnology assessments indicated that the three pit lakes exhibit different physical properties, and specifically that the stability of the layer structure varies from one pit to another. The results also indicated fresh water input is occurring to the surface of the Grum Pit through summer and early fall.

The 2007 investigations concluded that biological treatment should be continued in the Grum Pit during 2008. Consistent with the 2006 and 2007 programs, the duration of the 2008 fertilization program was limited to coincide with the active biological growth period thus minimising residual nutrients at the end of the open water season. As in 2007, the 2008 fertilization program was limited to the Grum Pit lake only and did not include either the Faro Pit or the Vangorda Pit lakes. Limited water quality monitoring continued in both the Faro and Vangorda Pit lakes during 2008.

2 Fertilization and Monitoring Program

2.1 Grum Pit

Laberge Environmental Services again completed the pit lake fertilization and monitoring programs commencing 11 June 2008, as summarised in Table 2.1. As in previous years, fertilization of the Grum Pit entailed distribution by boat of about 1.5 drums (320 L) of the fertilizer mix to the surface of the pit lake during each fertilization event. The fertilizer addition was repeated weekly until 30 July 2008.

Samples from the water column were collected at six depths from surface (1, 3, 5, 15, 30 and 40m) on 12 June, 9 July, 6 August and 2 September 2008. Water samples were submitted to Maxxam Analytics Inc. for detailed chemical analysis.

Concurrent with each water sampling event, CTD casts using a Seabird were made of the water column and in-situ measurements were completed at each water sample depth. Field parameters included measurement of pH, temperature, TDS conductivity and dissolved oxygen.

The fertilization and monitoring programs were consistent with those of 2006 and 2007.

2.2 Vangorda and Faro Pits

Neither the Vangorda nor the Faro Pit lake was fertilized during the 2007 season. However, water samples were collected from six depths in Vangorda Pit (1, 3, 5, 15, 30 and 40 m) and seven depths in Faro Pit (1, 3, 5, 15, 30, 60 and 80 m) on 12 June, 9 July, 6 August and 2 September 2008.

As with the Grum Pit lake monitoring program, CTD casts were made concurrently with the in-situ measurements conducted at each of the sample depths. Field parameters included measurement of pH, temperature, TDS conductivity and dissolved oxygen.

All water samples were submitted to Maxxam Analytics Inc. for analysis. Complete field parameter results, including field reports prepared by Laberge, are provided in Appendix A and analytical results for the water quality samples are provided in Appendix B.

Table 2.1: Summary of Fertilization and Monitoring Program for 2008

Date	Pit Lake	Fertilize	Field Parameters	Water Quality	Chlorophyll 'a'
11 &12 Jun 08	Vangorda		X	X	-
	Faro	-	X	X	-
	Grum	X	X	X	X
18 Jun 08	Vangorda	-	-	-	-
	Faro	-	-	-	-
	Grum	X	-	-	-
25 Jun 08	Vangorda	-	-	-	-
	Faro	-	-	-	-
	Grum	X	-	-	-
2 Jul 08	Vangorda	-	-	-	-
	Faro	-	-	-	-
	Grum	X	-	-	-
9 Jul 08	Vangorda	-	X	-	-
	Faro	-	X	-	-
	Grum	X	X	X	X
16 Jul 08	Vangorda	-	-	-	-
	Faro	-	-	-	-
	Grum	X	-	-	-
30 Jul 08	Vangorda	-	-	-	-
	Faro	-	-	-	-
	Grum	X	-	-	-
2 Sep 08	Vangorda	-	X	X	-
	Faro	-	X	X	-
	Grum	-	X	X	X

3 Results and Discussion

3.1 Faro Pit

3.1.1 In Situ Monitoring

In-situ monitoring results (see Figure 3.1) indicated that a thermocline developed in the Faro Pit at a depth of about 5 to 6 m below the water surface. The highest surface temperature recorded was about 13°C measured in July and August. This however may not necessarily represent the maximum temperature reached during the season since monitoring was only on a monthly basis. The EC results indicated that a chemocline continues to exist at a depth of between 15 and 30 m below surface. The results for 11 June 2008, however, suggest that the chemocline is very close to a depth of 30 m depth since, at that depth, the EC was close to the surface values initially; in later monitoring events the EC reverted to the higher values at depth. Since the samples are taken at a fixed depth from the surface of the pit lake, the change in the pit lake surface elevation could account for the change in EC values. Initially the pit lake elevation is high and the sample is taken above the absolute elevation of the chemocline. Later in the season, as the pit lake elevation is drawn down as a result of pumping from a depth of about 5 m below surface, the absolute elevation of the sample decreases to below the chemocline (even though it is taken at a fixed depth of 30 m from surface) to bridge the chemocline. Hence, the EC at this elevation transitions from the fresher surface water to more brackish deeper layer over the monitoring period.

3.1.2 Nutrients

Analytical results for total phosphorus (P) concentrations over time at various depths in the Faro Pit are shown for 2005 to 2008 in Figure 3.2. Note that the August 9, 2006 result for a depth of 30 m and the June 12, 2007 result at a depth of 80 m appear to be anomalous.

As shown in the figure, an increase in the phosphorus concentration occurred during 2005 as a result of fertilization. In 2006, concentrations in general decreased in the near surface water (to a depth of about 15 m below surface) ranging from about 0.002 to 0.004 mg/L, and a further decrease was observed in 2007, with concentrations trending below the detection limit of 0.002 mg/L by the end of summer. The concentration at depth (30 m and below) appears to have decreased as well, and has an average concentration of slightly below 0.004 mg/L. The decreasing trend was observed to continue through 2008 with concentrations at all depths at or below about 0.002 mg/L.

Analytical results for ammonia (as N) are shown in Figure 3.3. Ammonia-N was present in the pit lake prior to the fertilization event undertaken in 2005, and may have increased marginally in the surface layer (down to a depth of about 15 m) during 2006. However, during 2007, the concentrations in the near surface water (down to between 5 and 15 m) decreased significantly whereas concentrations at greater depth appear to increase. However, during 2008, the

concentrations in the near surface water down to a depth of 60 m decreased, whereas only the concentration at a depth of 80 m reached a peak similar to that observed in 2007. Overall concentrations are clearly decreasing within the pit lake.

Note that ammonia in waste rock seepage could be contributing to ammonia concentrations in the pit lake on an ongoing basis; hence the decrease in ammonia was lower than for phosphate.

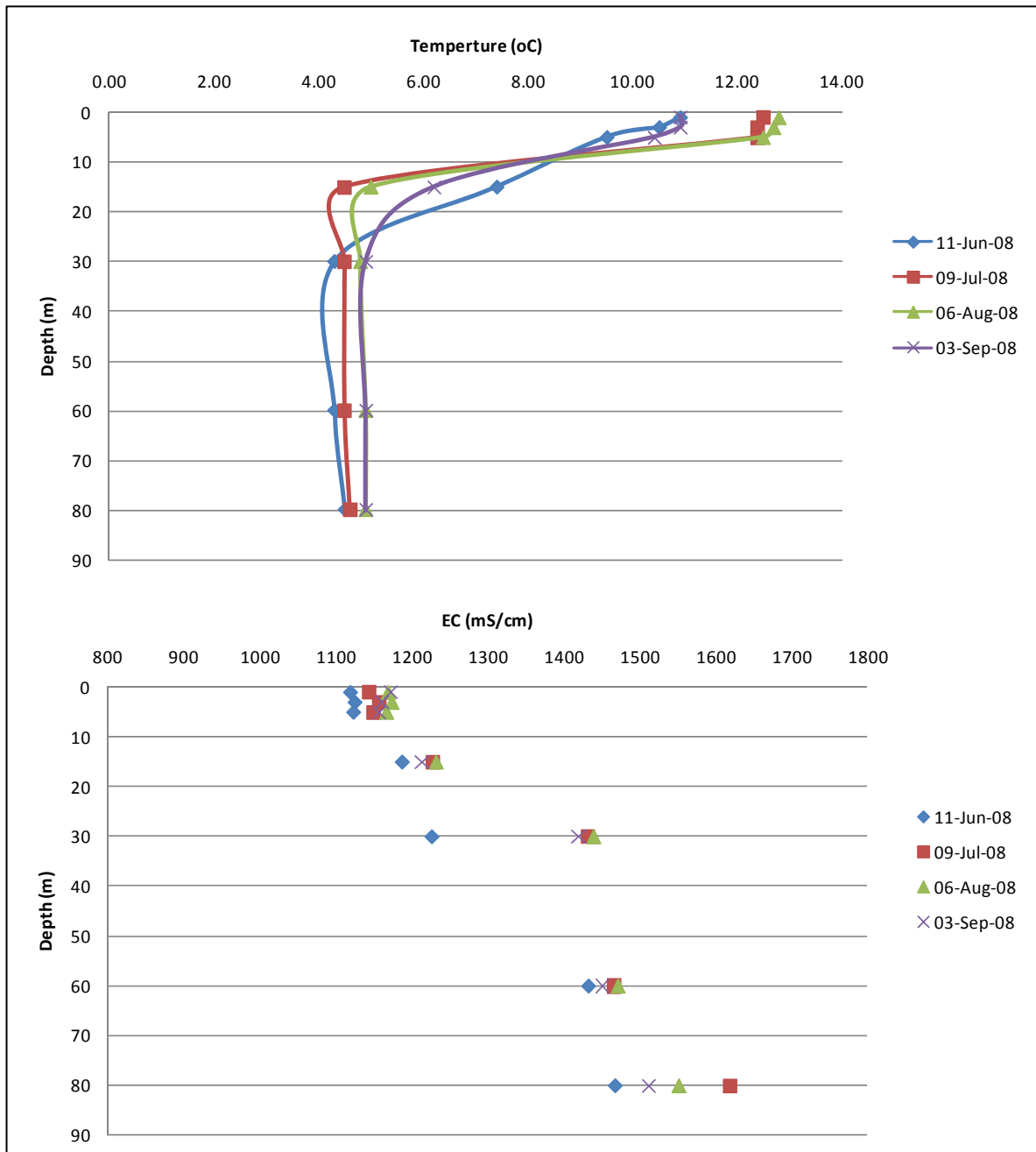


Figure 3.1: In-situ Parameters Measured in the Faro Pit

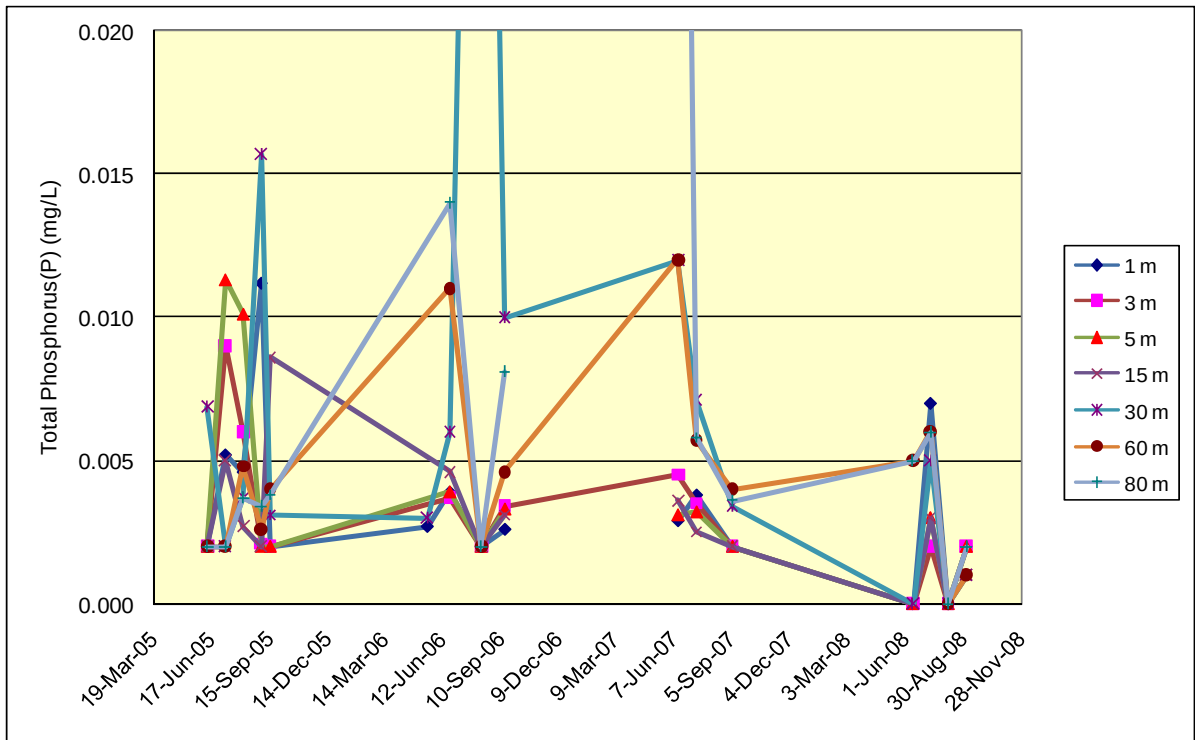


Figure 3.2: Total Phosphate-P Concentrations Measured in the Faro Pit

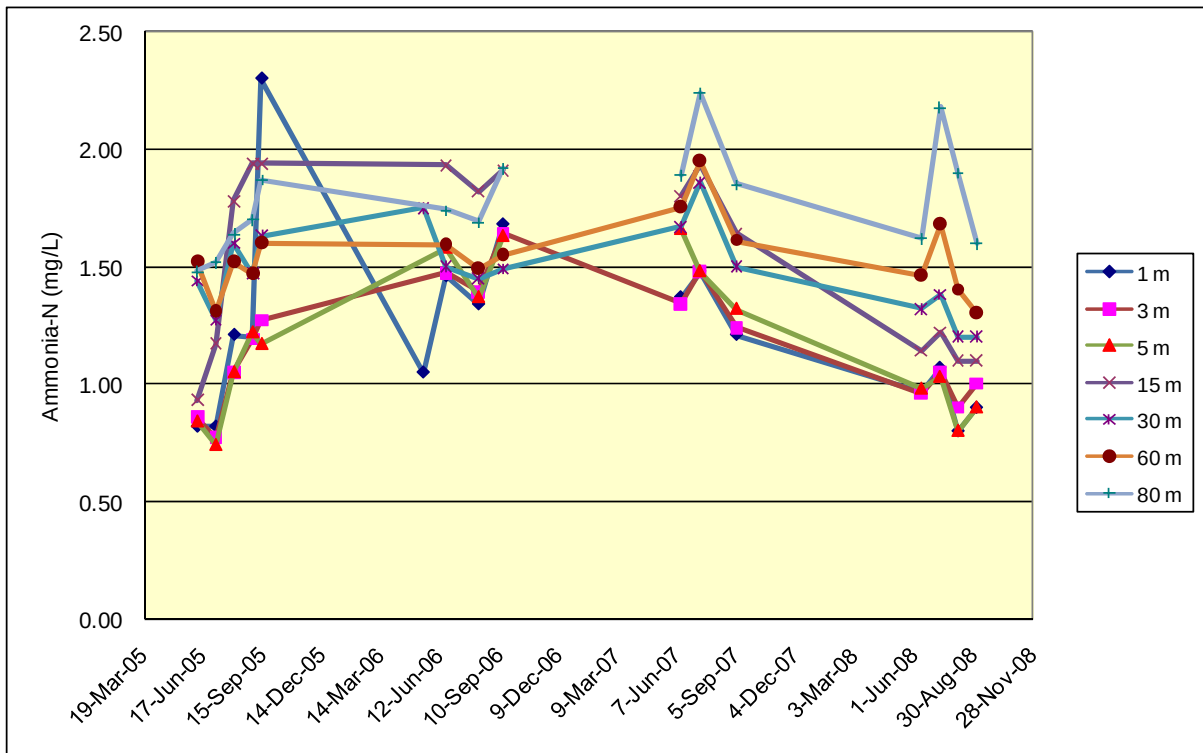


Figure 3.3: Ammonia-N Concentrations Measured in the Faro Pit

3.1.3 Algal Growth

Whilst the Faro Pit was fertilized three times in 2005, and a rapid increase in chlorophyll 'a' occurred during June and July of that year, the chlorophyll 'a' concentration has in subsequent years remained at or near the detection limit with no significant algal growth indicated during 2006 or 2007. During 2008, a single low value (0.005 ug/L) was recorded in early August for the sample taken at a depth of 1 m. Clearly algal growth is limited to non-existent due to nutrient limitations.

3.1.4 Zinc Concentrations

Total zinc concentrations at various monitoring depths over time are shown in Figure 3.4. The observed zinc concentrations confirm the presence of a chemocline, as discussed previously, in the Faro Pit at a depth between 15 and 30 m below surface.

As noted in previous assessments, the monitoring results for 2005 suggested a net removal of zinc from the near surface water layers, as was evident in the 1, 3 and 5 m results for that year. The results for 2006 showed a net increase from 2005, with no decrease in the near surface zinc concentrations over the summer period, and the results for 2007 indicated zinc concentrations in the near surface water were similar to that observed in 2006. In contrast, during 2008 there was a significant increase in the surface water zinc concentrations at all sampling depths down to 15 m.

At depth, zinc concentrations appear to be marginally increasing over time with average zinc concentrations of 2.6 mg/L in 2006, 2.7 mg/L in 2007 and 3.0 mg/L in 2008 for all samples in the 30 to 80 m range. It is noteworthy that iron concentrations are also increasing at depth, as shown in Figure 3.5. This could suggest that iron precipitates (e.g. iron oxy-hydroxides) may be dissolving and that the increase in zinc is a result of desorption from these dissolving phases. The iron precipitates may have been formed originally during tailings deposition. Subsequently, dissolved iron in acidic surface water inflows to the pit lake would have been precipitated as these inflows mixed with the pit lake water (due to the near neutral pH conditions of the pit lake) and formed iron oxy-hydroxides which would have settled to the bottom of the pit lake.

Overall these results indicate that the net zinc loading to the pit lake is increasing, in particular to the water layer above the chemocline. An approximate water and load balance has been prepared to illustrate the distribution of loadings. The results are shown in Table 3.1. As noted in the table, the average zinc concentration in the surface layer (to a depth of 15 m) decreased from about 14 mg/L, prior to fertilization, to about 12 mg/L by the end of the season. During that period, about 22 tonnes of zinc were removed by in-situ treatment.

The average concentration then increased from about 12 mg/L in September 2005 to about 15 mg/L by September 2006, remained approximately constant during 2007 and increased again to about 19.7 mg/L by September 2008. The estimated net loading to the pit lake was about 42.7 tonnes in 2005, inclusive of the estimated removal achieved by the fertilization. (This calculation assumes that the zinc concentration would have remained constant during 2005 had fertilization not been undertaken.) The net loading during 2006 is estimated to have been 50.6 tonnes.

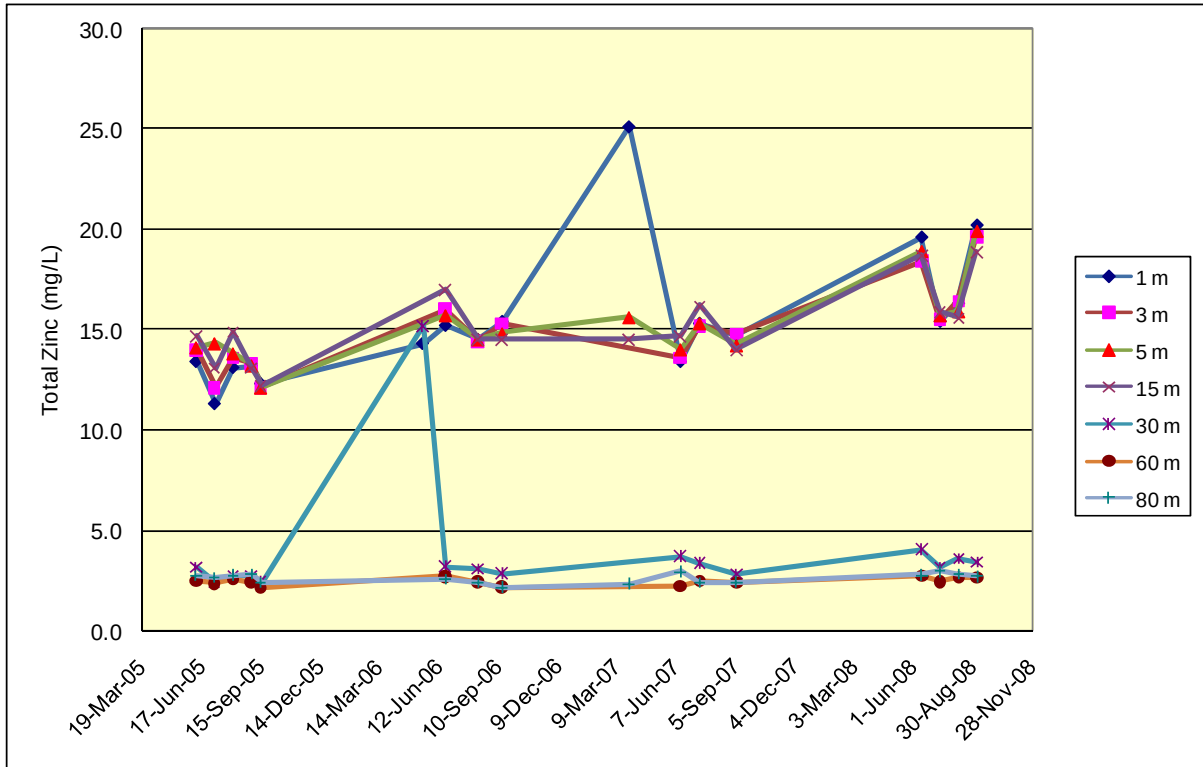


Figure 3.4: Total Zinc Concentrations Measured in the Faro Pit

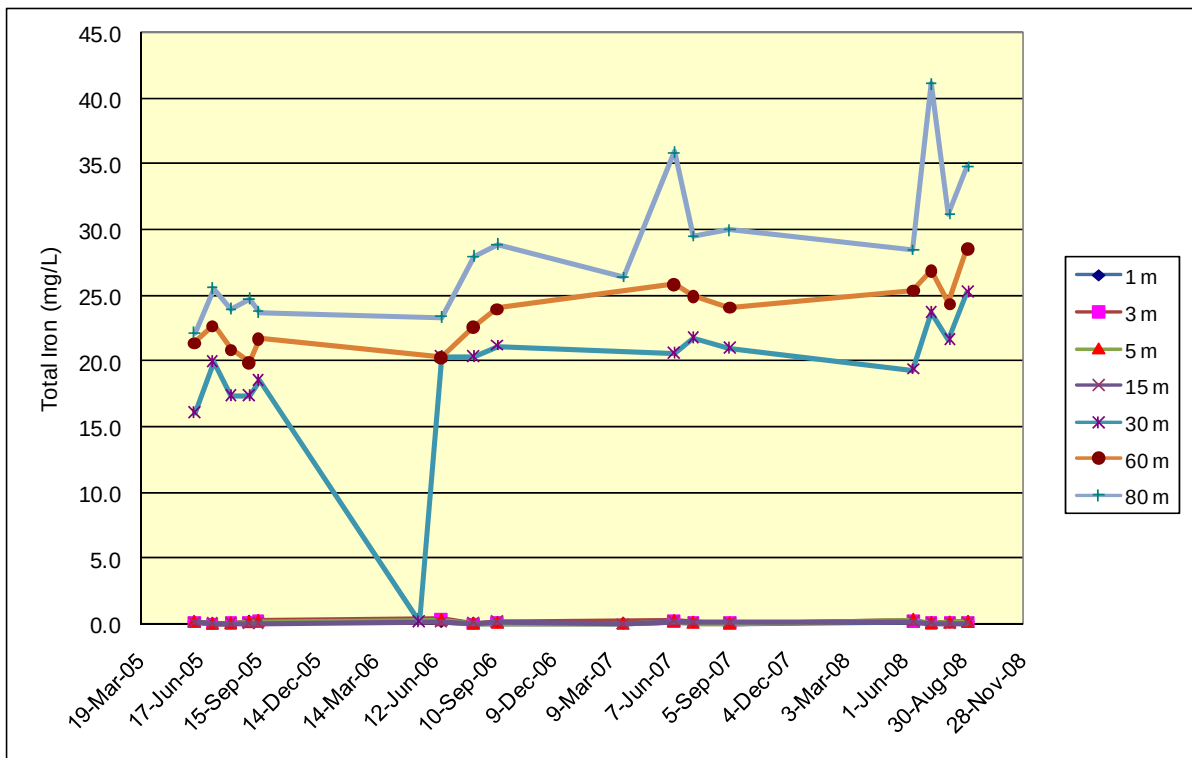


Figure 3.5: Total Iron Concentrations Measured in the Faro Pit

Table 3.1: Estimated Net Loadings to the Faro Pit

Date	Elevation m	Total Volume (m ³)	Change (m ³)	Volume to 15 m (m ³)	Zn (mg/L)	Change (Tonnes/yr)	Removed (pumped) (Tonnes/yr)	NET LOAD (Tonnes/yr)	Load from Z2 pit (Tonnes/yr)	Other sources (Tonnes/yr)
18-May-05	1176.5	5.12E+07			14.1					
19-Sep-05	1174.5	4.96E+07	1.60E+06	1.12E+07	12.1	-21.8	20.9	20.9	11.6	31.1
31-May-06	1176.1	5.08E+07			15.4					
8-Sep-06	1174.5	4.96E+07	1.20E+06	1.12E+07	15.0	32.4	18.2	50.6	11.6	39.0
22-May-07	1176.5	5.11E+07			13.9					
11-Sep-07	1174.6	4.97E+07	1.40E+06	1.12E+07	14.4	-6.4	19.8	13.4	11.6	1.8
10-Jun-08	1176.4	5.11E+07			18.9					
2-Sep-08	1174.5	4.96E+07	1.50E+06	1.12E+07	19.7	58.3	28.9	87.2	11.6	75.6
Date	Elevation m	Total Volume (m ³)	Change (m ³)	Volume to 15 m (m ³)	SO ₄ (mg/L)	Change (Tonnes/yr)	Removed (pumped) (Tonnes/yr)	NET LOAD (Tonnes/yr)	Load from Z2 pit (Tonnes/yr)	Other sources (Tonnes/yr)
18-May-05	1176.5	5.12E+07			564					
19-Sep-05	1174.5	4.96E+07	1.60E+06	1.12E+07	583	212	918	918	315	603
31-May-06	1176.1	5.08E+07			560					
8-Sep-06	1174.5	4.96E+07	1.20E+06	1.12E+07	566	-192	675	483	315	168
22-May-07	1176.5	5.11E+07			545					
11-Sep-07	1174.6	4.97E+07	1.40E+06	1.12E+07	572	73	782	855	315	540
10-Jun-08	1176.4	5.11E+07			535					
2-Sep-08	1174.5	4.96E+07	1.50E+06	1.12E+07	615	477	863	1339	315	1024

Whilst the results for 2007 suggest there was no net accumulation in the surface layer water, water was removed for treatment. Consequently the net zinc loading for that year is estimated to have been about 13.6 tonnes. The net zinc loading during 2008 is estimated to have been about 87.2 tonnes. Although the reason for the lower loading in 2007 is not understood, the results suggest that the net loading is increasing over time. Over the 4-year period, the net loading is estimated to have been about 194 tonnes, with an average annual zinc loading of about 48 tonnes.

The net loading that is entering the pit is sourced from water transferred from the Zone 2 Pit, pit wall rock runoff, and seepage from waste rock in the pit catchment. Assuming that the Zone 2 Pit loading is approximately constant as previously estimated (100,000 m³/year at 115 mg/L Zn, 3120 mg/L SO₄), on average about 24 % of the zinc loading originates from the Zone 2 Pit and 76 %, or about 37 tonnes per year, originates from the wall rock runoff and the waste rock dump seepage combined.

It is not possible to distinguish between loadings from the wall rocks and the waste rock seepage because the flows and concentrations from the Faro Valley dumps, for example, vary considerably over the season (e.g. 20 to 121 mg/L zinc, and flows ranging from 2 to >1000 L/min) and only spot measurements of flows and concentrations are available. Zinc concentrations in wall rock seeps have been noted to range from less than the detection limit to 875 mg/L; however, flows other than those associated with the Faro Valley Dumps are generally low. This suggests that the majority of the loading is likely associated with seepage from the waste rock dumps.

Similar calculations were completed for sulphate loadings and included in Table 3.1. These calculations indicate a cumulative loading to the pit lake of about 3,600 tonnes over the four year period. The average annual loading of 900 tonnes is estimated to comprise about 315 tonnes from the Zone 2 Pit and the balance originating from other sources (wall and waste rocks).

3.1.5 Summary

In summary, subsequent to fertilization in 2005, orthophosphate concentrations have remained below detection, and total phosphorus is being depleted from the surface layer to a depth of about 15 m. At depth, while there appeared to be a marginal increase in total phosphorus, a net decrease in the concentrations is occurring.

Due to the depletion of phosphorus from the surface layer, and as indicated by the very low chlorophyll “a” concentrations, no significant algal bloom has been observed since 2005 when the pit lake was briefly fertilized.

Whilst the chemocline continues to exist and is isolating the water at depth from the water near surface, it appears that there is a detectable increase in the zinc concentration at depth. This increase is occurring concurrently with an increase in iron concentration at depth which suggests that the increase in zinc is likely due to its desorption during the dissolution of the iron precipitates.

Mass balance calculations indicate that during 2005, a significant amount of zinc had been removed from the water column as a result of the algal bloom induced by fertilization. Whilst there is some annual variability in the outcomes of these calculations, they indicate that on average the annual zinc loading to the pit lake is about 48 tonnes per year, of which about 24 % (11.6 tonnes) is sourced from the Zone 2 Pit water transfer. The balance of the loading represents the combined loadings from the wall rocks and the waste rock seepage that enters the pit lake. Monitoring results for seepage from the wall rocks suggest that the majority of this loading is likely from the waste rock dumps.

3.2 Grum Pit

3.2.1 Water Level

The Grum Pit lake elevation over time is illustrated in Figure 3.6. As shown, the rate of rise increased significantly during 2008 due, in part, to the fact that this part of the Yukon experienced significantly more rain in 2008 than normal, i.e. about 2 times normal during the summer months. However, Laberge noted an increase in the rate and extent of till sloughing in some areas of the east pit wall. The effect of this is expected to be twofold; first the till sloughing into the pit lake would cause an increase in the pit lake level and second, the shift of the wall could cause a ‘narrowing’ or decrease of the planar surface area of the pit at lake level (i.e. the lake would be narrower than if the wall had remained in place). As a result, the rate of rise from the same inflow would be higher. (The flipside of this is that at some future time it may be possible that the pit lake area becomes wider than it would otherwise have been and the rate of rise could decrease.)

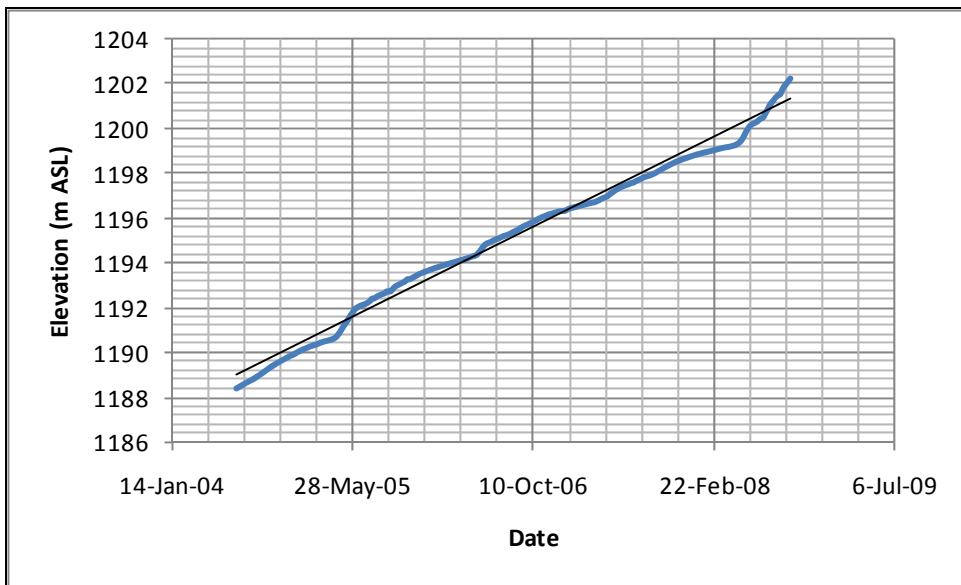


Figure 3.6: Grum Pit Lake Elevation over Time

The sloughing of the pit wall adds a complexity to the pit lake inventory (as discussed later) since the pit lake capacity curve is based on the topography of the pit before the sloughing had occurred. One way of estimating the volume of sloughing that had occurred is to assume that the net inflow to the

pit lake had not changed, and then, using the original capacity curve, the difference between the actual and projected pit lake elevation would indicate the volume slippage into the lake. On this basis it can be shown that up to approximately 500,000 to 600,000 m³ of pit wall material may have slipped into the pit lake and, if so, will need to be considered when inventories are calculated for the pit lake. There are plans to investigate the changes in the pit volume versus height in 2009.

3.2.2 In-situ Monitoring

The in-situ monitoring results, as shown in Figure 3.7, indicated a thermocline developed in the Grum Pit to a depth of about 5 m below the water surface which corresponds to previous years. A maximum surface water temperature of about 16.8°C was measured in July. The electrical conductivity (EC) profiles indicated the development of freshwater layer after ice-melt, which remained for most of the open water season. The results for August indicated a marginal increase in salinity at the surface, however by September the thermocline had deteriorated and almost the entire water column EC was constant.

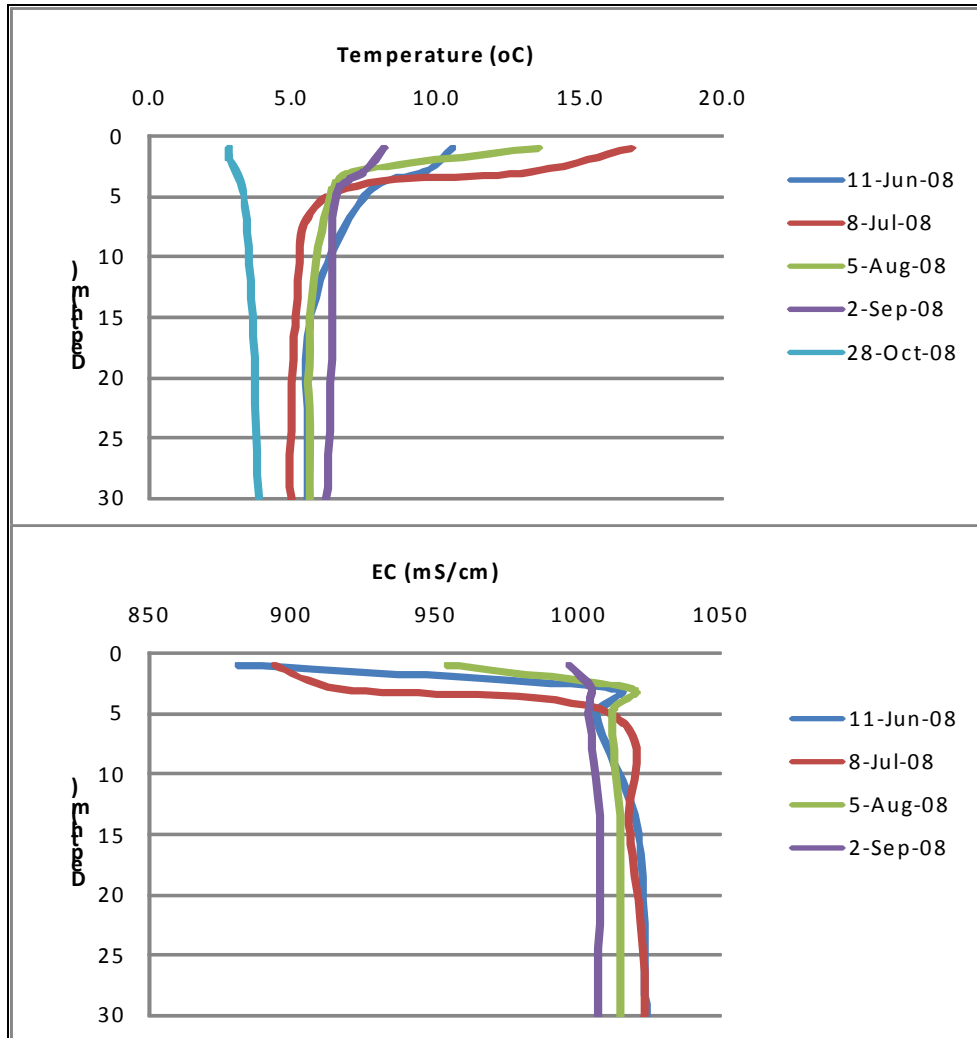


Figure 3.7: In-situ Parameters Measured in the Grum Pit

3.2.3 Nutrients

Concentrations dissolved orthophosphate-P and total phosphate-P at various depths over time are provided in Figure 3.8. The results for 2008 indicate that fertilizer addition resulted in an increase in orthophosphate concentrations to a level similar to that in 2006, but well below the preceding years. As for 2007, orthophosphate concentrations decreased to well below 5 µg/L by the end of the season. It is clear from these results that early termination of the fertilization is effective in controlling dissolved orthophosphate concentrations. Similar trends were observed for total phosphorus, with overall concentrations lower than in 2007.

Concentration profiles for ammonia-N in the Grum Pit water column are shown in Figure 3.9. As noted for orthophosphate-P, early termination of the fertilization program resulted in low ammonia-N concentrations by the end of the season. Similarly, the peak concentrations were lower in 2008 than in 2007; residual concentrations at end of season are generally at or below the detection limit.

Similar concentration plots for nitrate-N and nitrite-N are shown in Figure 3.10. Nitrite-N is generated from the partial oxidation of ammonia-N during the open water season. As shown in Figure 3.10, the maximum nitrite-N concentration detected during 2008 was about 0.008 mg/L (down from 2007) and is well below the CCME guideline of 0.197 mg/L for the protection of freshwater aquatic life. (Note that the 2008 data in the plot reflect the detection limit of 0.005 for nitrite which is higher than previous years.)

In general, nitrate-N concentrations during 2008 were similar to those in 2007, with an average concentrations ranging from 0.5 to about 1.3 mg/L at various depths. It is apparent from these results that residual nutrient levels can be controlled effectively by controlling the fertilization rate and period.

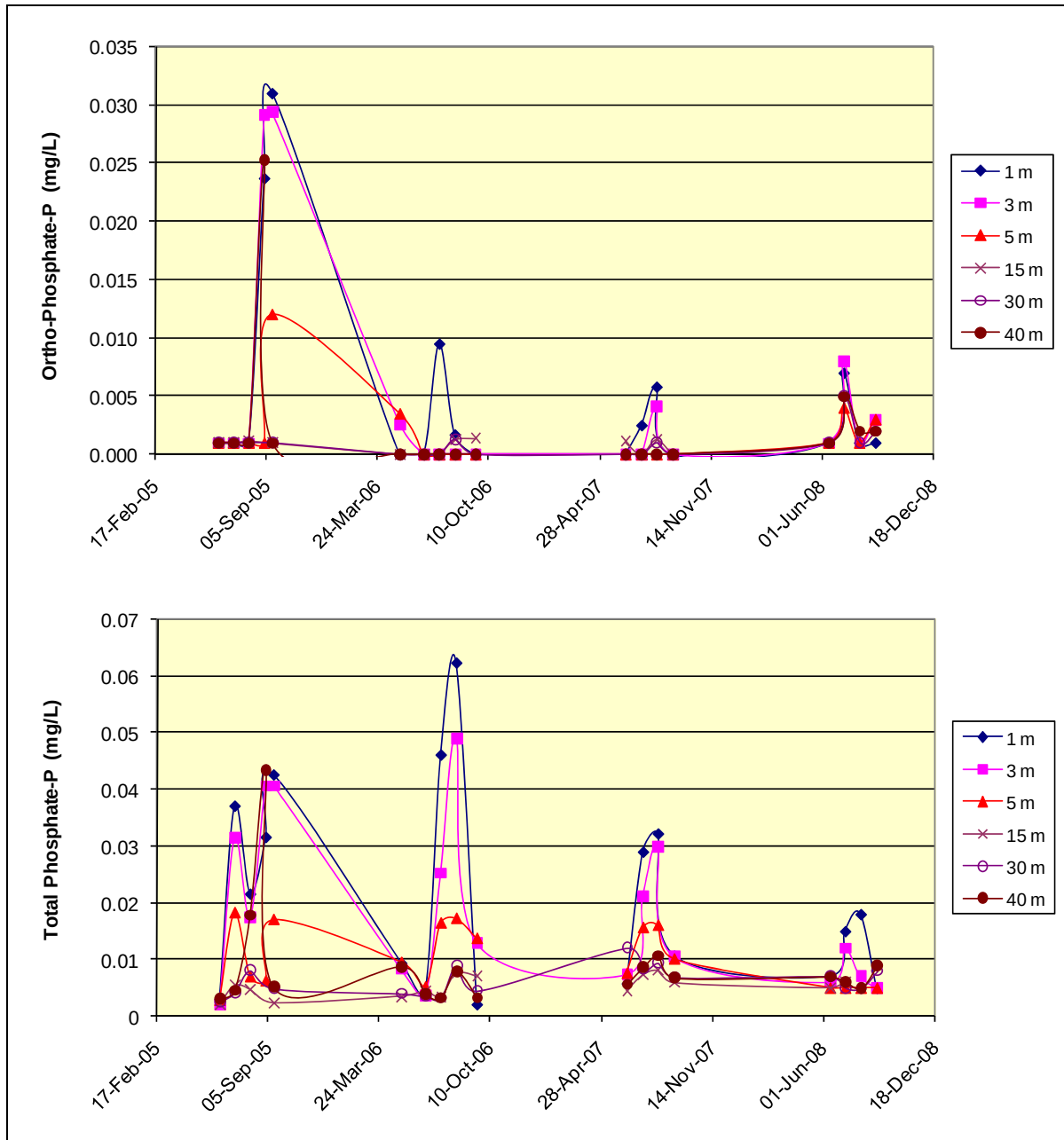


Figure 3.8: Dissolved Orthophosphate-P and Total Phosphate-P Concentrations in the Grum Pit

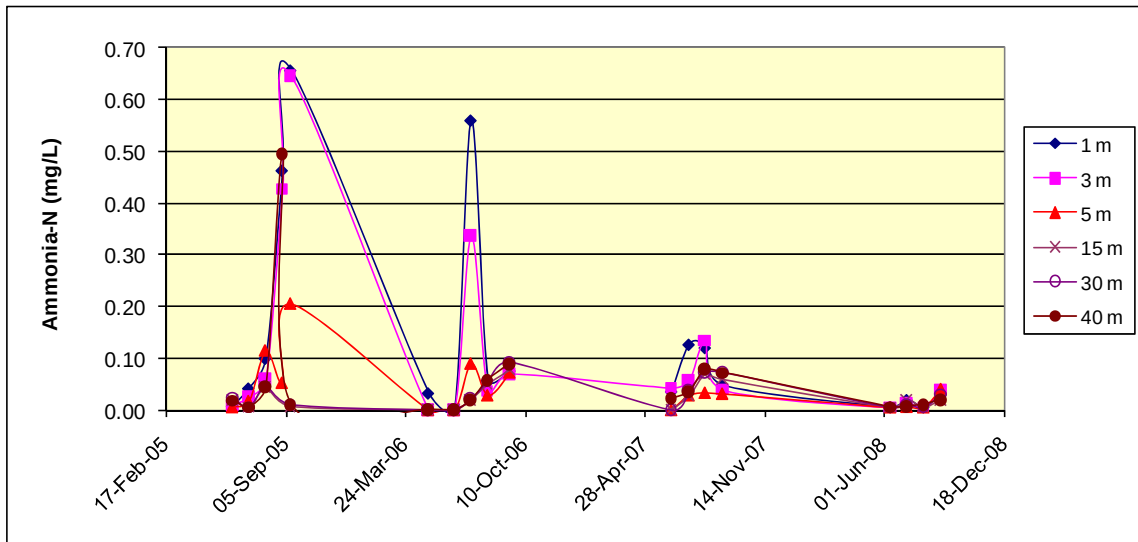


Figure 3.9: Ammonia-N Concentration at Various Depths in the Grum Pit

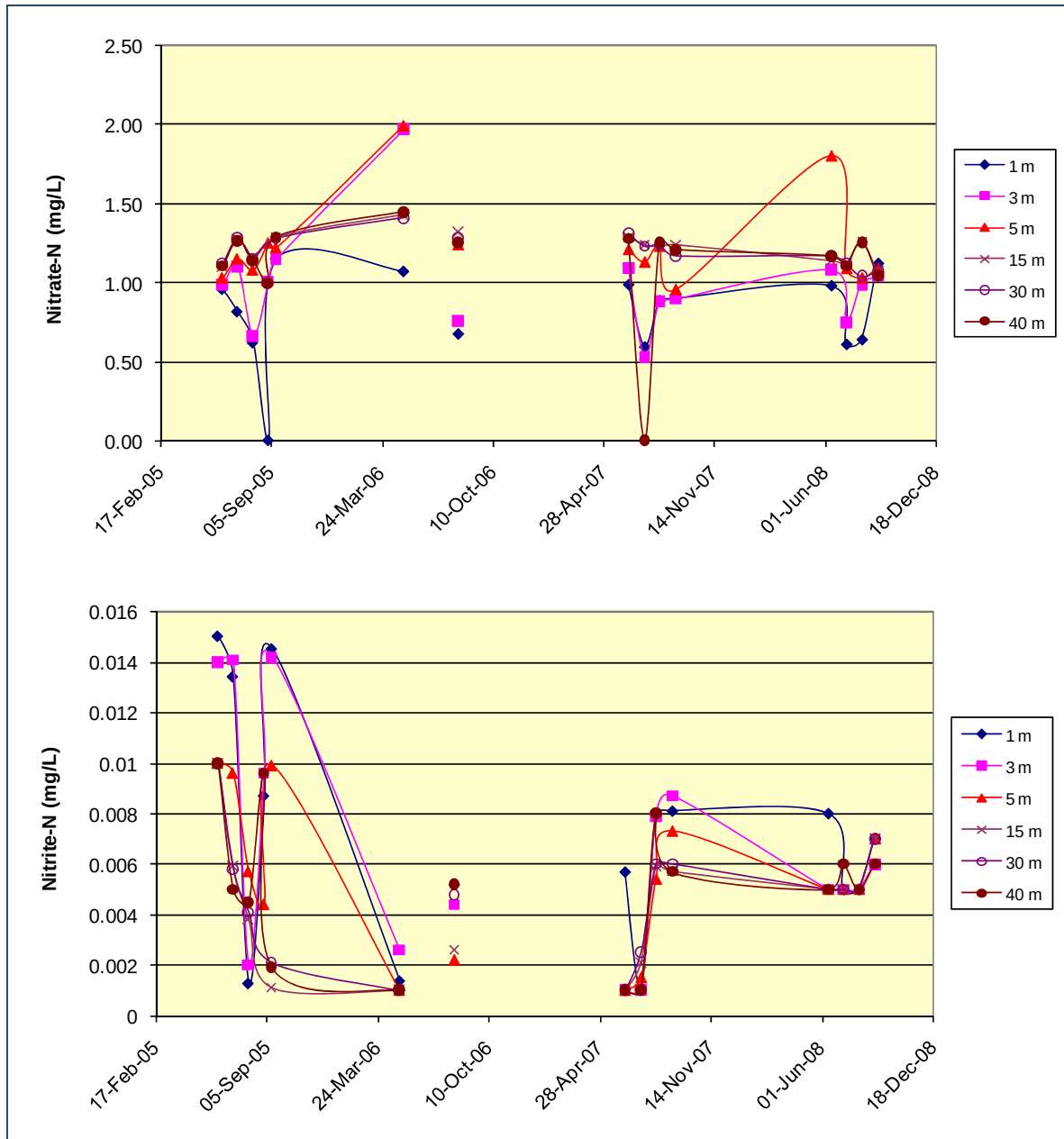


Figure 3.10: Nitrate-N and Nitrite-N Concentrations at Various Depths in the Grum Pit

3.2.4 Algal Growth

Based on visual observations made by field staff, rapid growth with high algal densities was again achieved in the Grum Pit. Whilst only limited chlorophyll 'a' analyses were completed for 2008, the results supported the visual observations. In general, based on the available results, the chlorophyll 'a' concentrations were lower than recorded in previous years.

3.2.5 Zinc Concentrations and Loadings

Total zinc concentrations in Grum Pit water at various depths between 2005 and 2008 are illustrated in Figure 3.11. For clarity, the first part of the figure shows the concentrations in the near surface water whereas the second part shows concentrations at depth. A similar comparison of dissolved zinc concentration profiles is provided in Figure 3.12.

The decrease in zinc concentrations for 2008 in the near surface water was very similar to that recorded for previous years. Whilst the lowest near surface total zinc concentration during 2008 of 0.7 mg/L was higher than in previous years (0.40 mg/L in 2007 and in 2005, and 0.27 mg/L in 2006), it should be noted that sample timing is somewhat arbitrary and may not have followed an algae bloom (i.e. after the algae had settled from the water column). Since the corresponding dissolved zinc concentration was 0.23 mg/L, it is apparent that most of the total zinc had been sorbed and would be removed from the water column as the algae settled.

The lowest dissolved concentration in 2008 (0.23 mg/L) corresponded to that in 2007 (0.2 mg/L), but was slightly higher than the 0.06 mg/L and 0.14 mg/L recorded during 2005 and 2006, respectively.

As shown in the near surface plots (1, 3 and 5 m) in Figures 3.11 and 3.12, the concentration in the surface water increases annually as the lake turns over and the 'clean' surface water mixes with deeper water at a higher concentration. In addition, zinc loadings enter the system from wall rocks and runoff. In the past the few years the rate of zinc removal in general appeared to balance or marginally exceed to the total loadings. However, for 2008 the concentration profiles indicated a noticeable downward trend in particular in the water at depth (for both dissolved and total concentrations), and that the total removal exceeds the total loading to the pit lake.

The end-of-year results for 2008 further suggest that, unlike in previous years, the pit lake had gone through a complete turn-over event by fall. The September results indicate that the zinc concentrations in the near surface water (1, 3 and 5 m) merged to a single concentration of about 6.47 mg/L. This had also occurred in October 2006 point, however unlike that year, the deeper water also 'merged' to the same concentration (average for deeper waters was 6.53 mg/L).

As during previous years, the maximum zinc concentration (both total and dissolved) at 5 m depth for the mid-summer sampling event again exceeded the concentrations at depth. Because the dissolved and total concentrations in all cases are very similar (ratio of about 0.99 of dissolved to total), the results clearly indicate that this occurrence is not due to an accumulated algae bit that there is a source of zinc at or below the surface of the pit lake. Since this increase has now been observed for three years in a row, the source is likely groundwater entering the system.

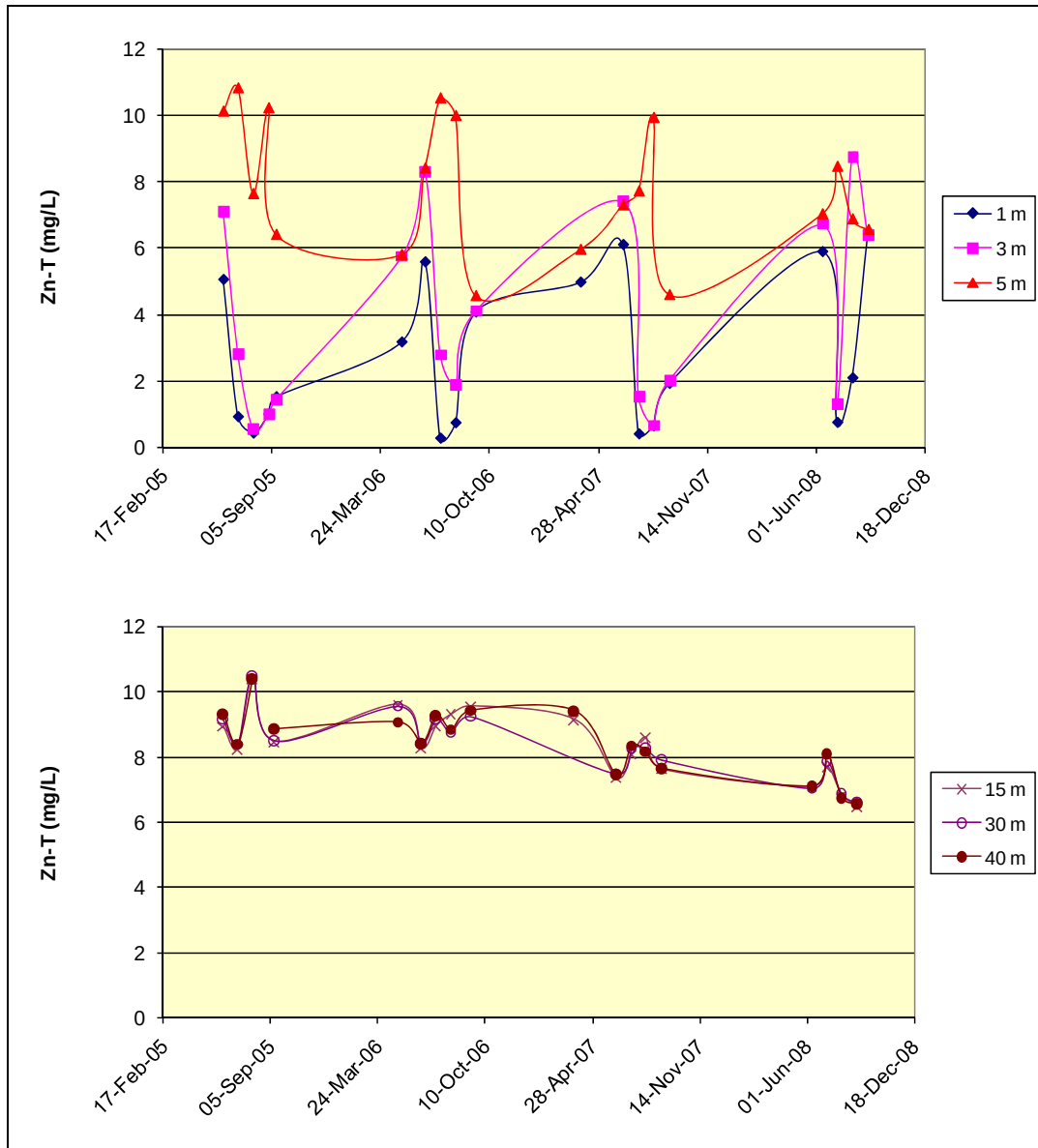


Figure 3.11: Grum Pit Total Zinc Concentration Over Time

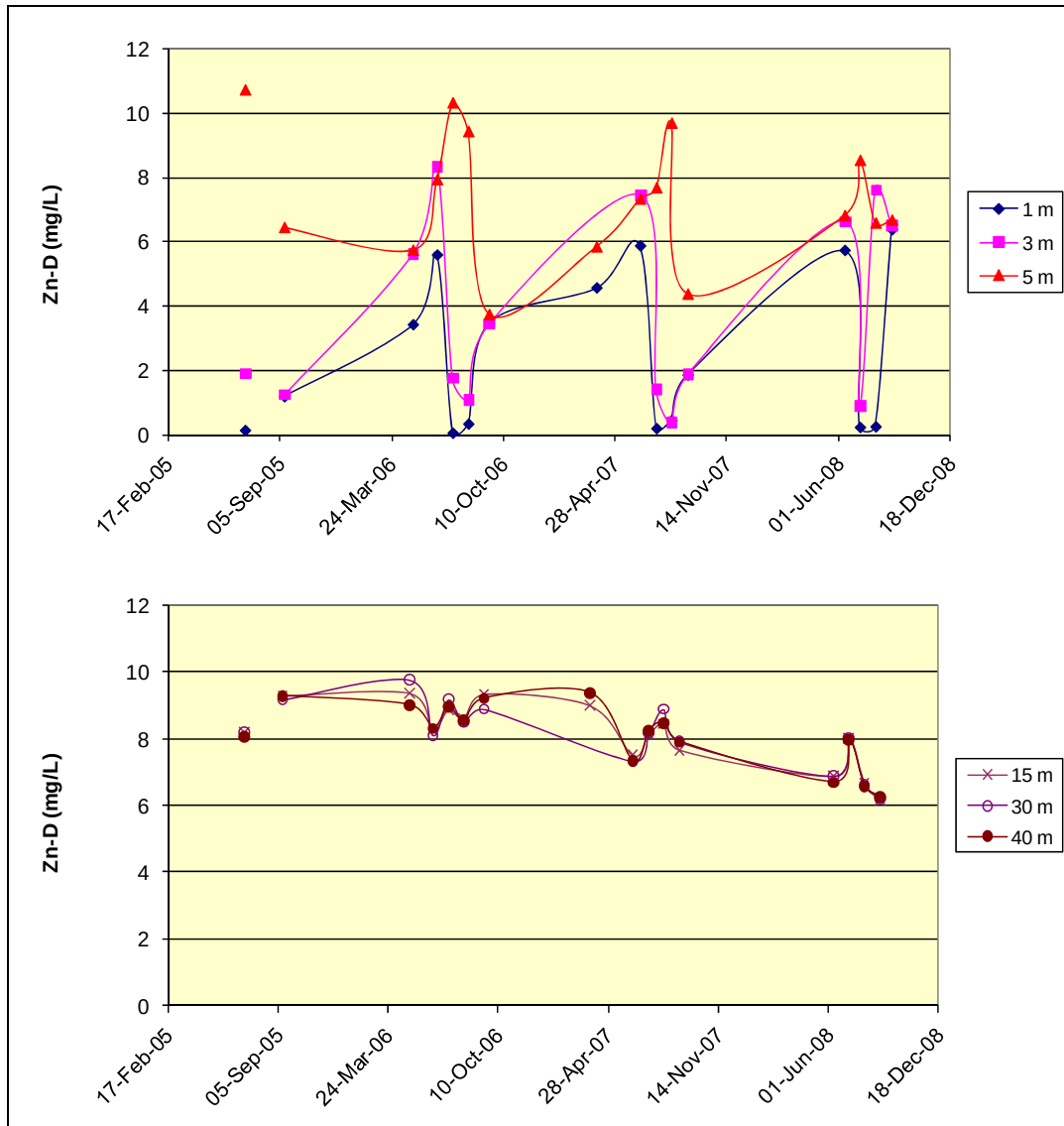


Figure 3.12: Grum Pit Dissolved Zinc Concentration Over Time

Zinc metal removal was estimated by calculating the total pit lake inventory from the water concentration profiles and the volume curve at each timestep consistent with calculations adopted in previous years. The load balance calculations for the surface layer water to a depth of 10 m (i.e. halfway between 5 and 15 m) are illustrated in Figure 3.13. For comparison, the corresponding inventory of zinc in the water below a depth of 10 m is shown in Figure 3.14.

As shown in Figure 3.13, the load contained in the surface water at the end of 2004 was about 6500 kg. Over winter and early spring of 2004/05, the inventory increased by about 2000 kg. During the summer of 2005, about 4500 kg were removed, but over winter and spring of 2005/06, a net loading of about 4000 kg raised the inventory to slightly below 9000 kg. Again, about 4500 kg were removed during the summer of 2006. The winter and early spring loading for 2006/07 was about 3000 kg to 4000 kg. During the 2007 summer, about 4000 kg of zinc were removed, but during summer 2008, only about 2000 kg appear to have been removed, with the net inventory re-

established at about 8000 kg by the end of the season. However, as noted before, unlike previous years, there had been a complete mixing event which homogenised the pit and carried zinc inventory from depth to the surface. As shown in Figure 3.14, the inventory of the water at depth decreased by about 3000 kg, which is similar to net removals from previous years.

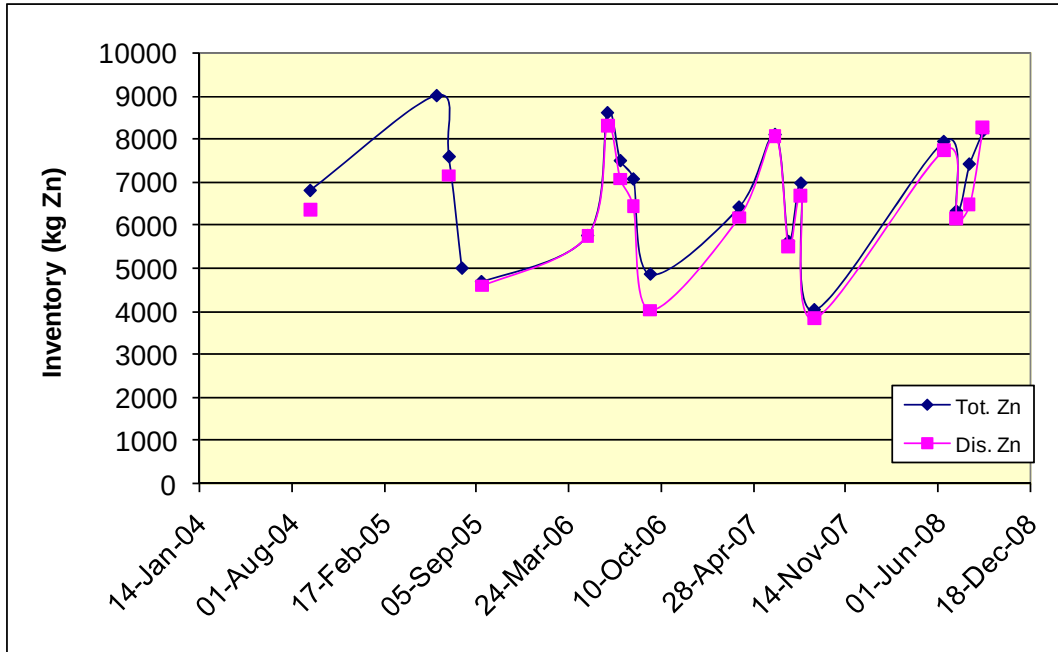


Figure 3.13: Grum Pit Zinc Inventory in Surface Water to a Depth of 10 m

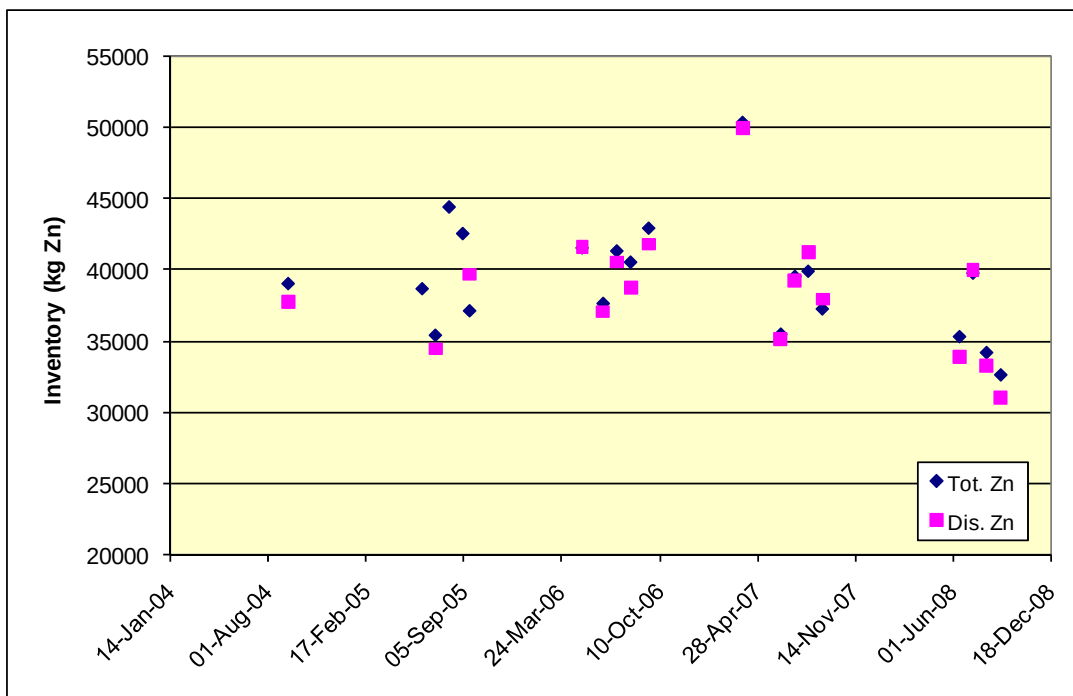


Figure 3.14: Zinc Inventory of the Grum Pit at Depth (below 10 m from Surface) with Time

3.2.6 Sulphate Concentrations and Loadings

The sulphate concentrations at various depths over time in the Grum Pit lake are shown in Figure 3.15. Apparent from the plot is that the fluctuations in the surface water coincide with the periods of zinc loading to the pit lake. The total sulphate inventory at the end of the season in the water body over time is shown in Figure 3.16. If the end-of-season inventories are compared, it appears that there is net sulphate loading on the order of about 100 tonnes entering the pit lake each year.

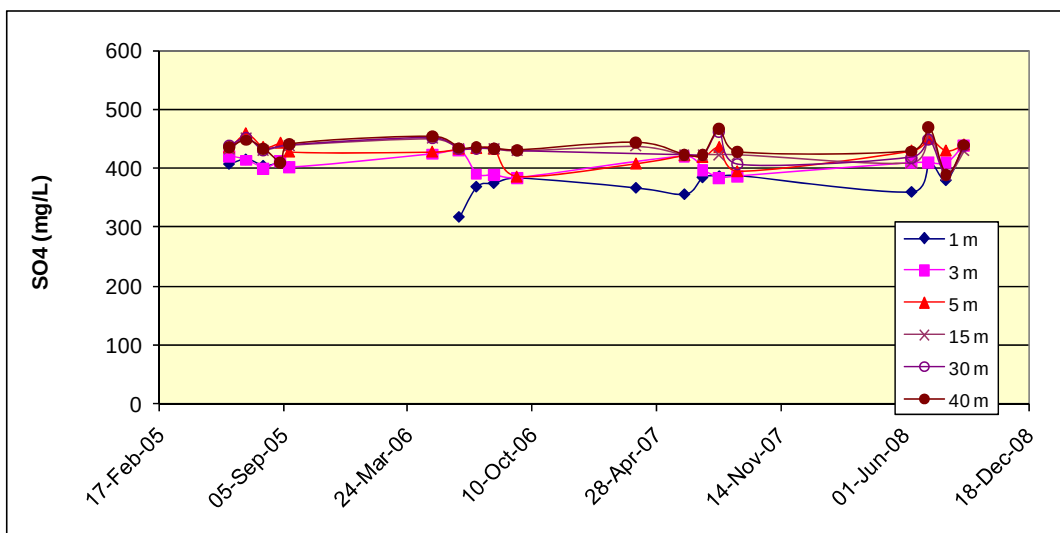


Figure 3.15: Sulphate Concentrations in the Grum Pit Lake at Various Depths

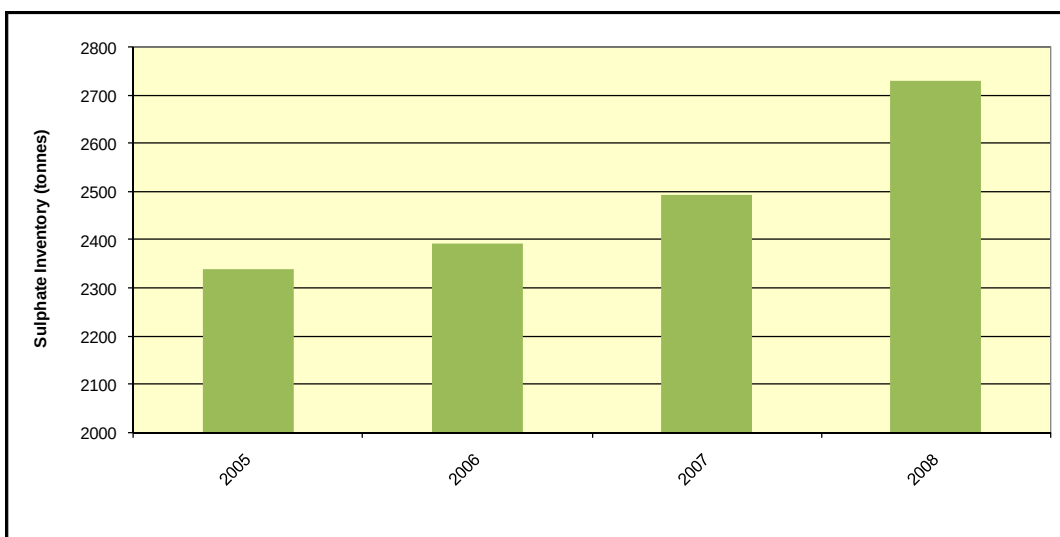


Figure 3.16: Total Sulphate Inventory in the Grum Pit Lake

Volume averaged zinc and sulphate concentrations are shown in Figure 3.17. As shown, the sulphate concentrations remain approximately constant, slightly above about 400 mg/L; in contrast, the zinc concentration has decreased from above 10 mg/L to less to slightly above 6 mg/L. It is therefore concluded that i) zinc is clearly being removed from the pit lake and ii) there are ongoing

sources of sulphate (and zinc) reporting to the pit lake since the sulphate concentration is not being diluted by fresh water inflows and direct precipitation. Total inflow could have caused a 20 % decrease in sulphate and zinc concentrations; the decrease in zinc concentration is about 40 % whereas the average annual sulphate concentration decreased by about 5 % over the same time period.

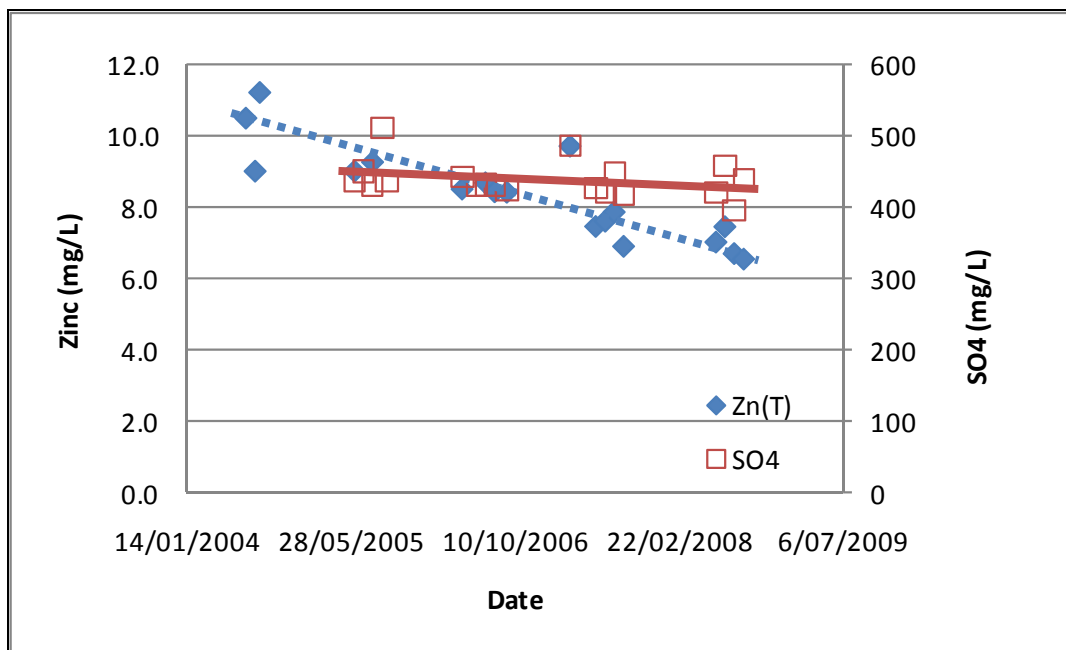


Figure 3.17: Comparison between Zinc and Sulphate Volume Weighted Average Concentrations over Time

3.2.7 Comparison of Initial Estimates and Actual Loadings

Water quality predictions previously completed for the Grum Pit lake were based on the estimated loadings presented in Table 3.2 (extracted from SRK, 2005). As discussed above, the actual zinc loadings from the wall rocks and releases from talus during inundation is about ten times higher than previously estimated (3000 to 4000 compared to 350 kg per annum). It should be noted that the higher concentrations obtained in site monitoring of the pit lake, during which samples are obtained adjacent the pit wall rocks, are consistent with dissolution of zinc from the talus when compared to the lower measurements obtained at the centre of the pit lake.

The sulphate loadings have been only marginally underestimated (65 tonnes per annum compared to actual loadings of about 100 tonnes per annum – see Table 3.2).

As a result of the initial estimates of zinc loadings underestimating the actual loading to the pit, the performance of the biological treatment system appears to have been less effective than initially expected. However, as shown above, the biological treatment system effectively removes the annual loading, and it appears that the treatment efficacy will improve as the water level increases.

Table 3.2: Initial Estimates of Net Loadings to the Grum Pit

	Initial Loading	After spill elevation reached
Parameter	Loading (kg/year)	Loading (kg/year)
Cl	83	58
SO ₄	65 000	41 000
Ca	14 000	8 800
Mg	12 000	7 800
K	350	230
Na	420	260
Al	7	5
Cd	0.6	0.3
Co	3	1
Cu	0.5	0.3
Fe	180	42
Pb	2	1
Mn	45	11
Ni	16	7
Zn	350	80

Using the original water and load balance model for Grum Pit lake, the zinc loadings were revised to represent the inferred average loading of about 4000 kg per year (before treatment) and rerun to calculate the possible zinc concentration profile in the pit lake without any remediation. The results are shown by the upper plot in Figure 3.18. The results indicate that without any treatment, the zinc concentration in the pit lake would have increased to about 14 mg/L.

The lower plot in Figure 3.18 shows the estimated zinc concentration with the net loading (i.e. net of biological treatment) and assuming that the loading net of treatment remains constant into the future. The predicted present day concentration closely approximates current concentrations in the pit lake. The green vertical line is the inferred spill concentration and as shown is predicted to be about 3.5 mg/L. The predictions assume that i) the loadings would remain constant over time (i.e. the potential for reduced loadings as the flood elevation increases have not been considered), and ii) treatment rates would remain constant into the future. However, treatment (i.e. zinc removal rates) are expected to increase into the future since the surface area of the pit lake will increase as the pit lake elevation increases and since a greater proportion of the pit lake will be exposed to sunlight. Therefore the zinc concentration at the spill elevation is likely to be lower than the estimated 3.5 mg/L. At that time, zinc concentrations suitable for discharge could be reached during the late summer (as indicated by the surface water quality monitoring results to date) and active management (i.e. pumping of the surface water) may preclude the need for active treatment of the discharge water.

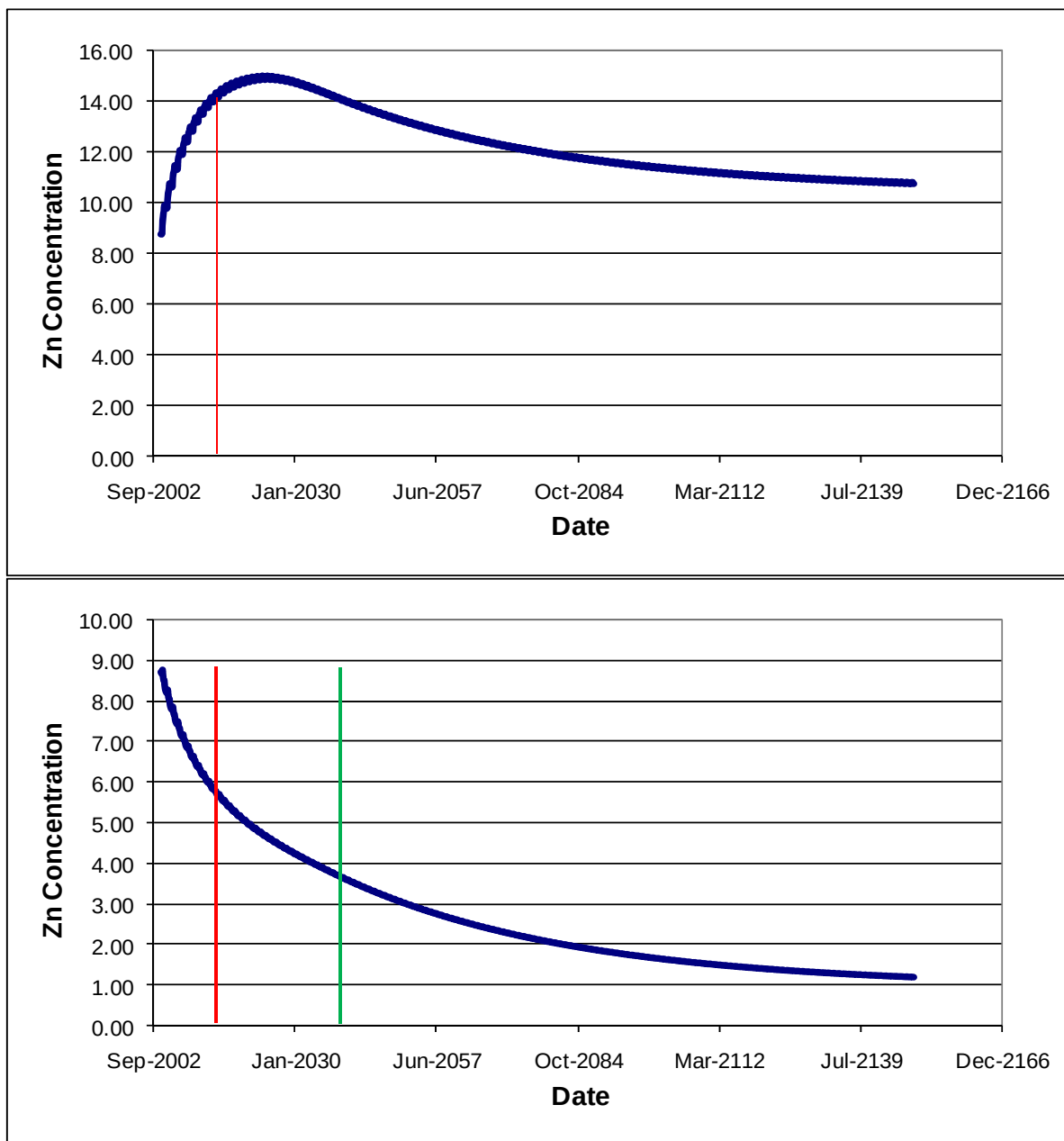


Figure 3.18: Predicted Zinc Concentrations in the Grum Pit Lake Without (Top) and With (Bottom) Biological Treatment at Revised Zinc Loadings

3.2.8 Summary

The results indicate that the Grum Pit again responded well to fertilization and that good algal growth was achieved in 2008. Elimination of late summer fertilization has consistently been shown to effectively control nutrient levels by the end of the season.

Surface water mass balance calculations for 2004 through 2008 suggest that zinc loadings to the Grum Pit are on the order of 3000 to 4000 kg per annum. The loading appears to be associated with

influx of groundwater during early to mid summer. Nonetheless, overall the depth weighted zinc concentration has decreased from in excess of 10 mg/L to about 6.5 mg/L.

The net loading of sulphate to the pit lake is estimated to be about 100 tonnes per year.

3.3 Vangorda Pit

Between about August 2005 and May 2008, the Vangorda Pit lake has been allowed to recover naturally, as shown in Figure 3.19. During this time the lake elevation rose from about 1074.5 m asl to about 1092.4 masl, for a net elevation gain of about 17.9 m. The net cumulative inflow during this period is estimated to have been about 1,062,000 m³, with an average annual inflow of about 384,000 m³. It is our understanding that site operations included pumping water from Little Creek Dam into the Vangorda Pit during this period, though no record of the volume of water transferred during this period was available.

Pumping of the pit lake commenced in June 2008 and the lake level has subsequently been lowered by 6.4 m to an elevation of about 1085.8 masl. Approximately 450,000 m³ of water was removed and treated.

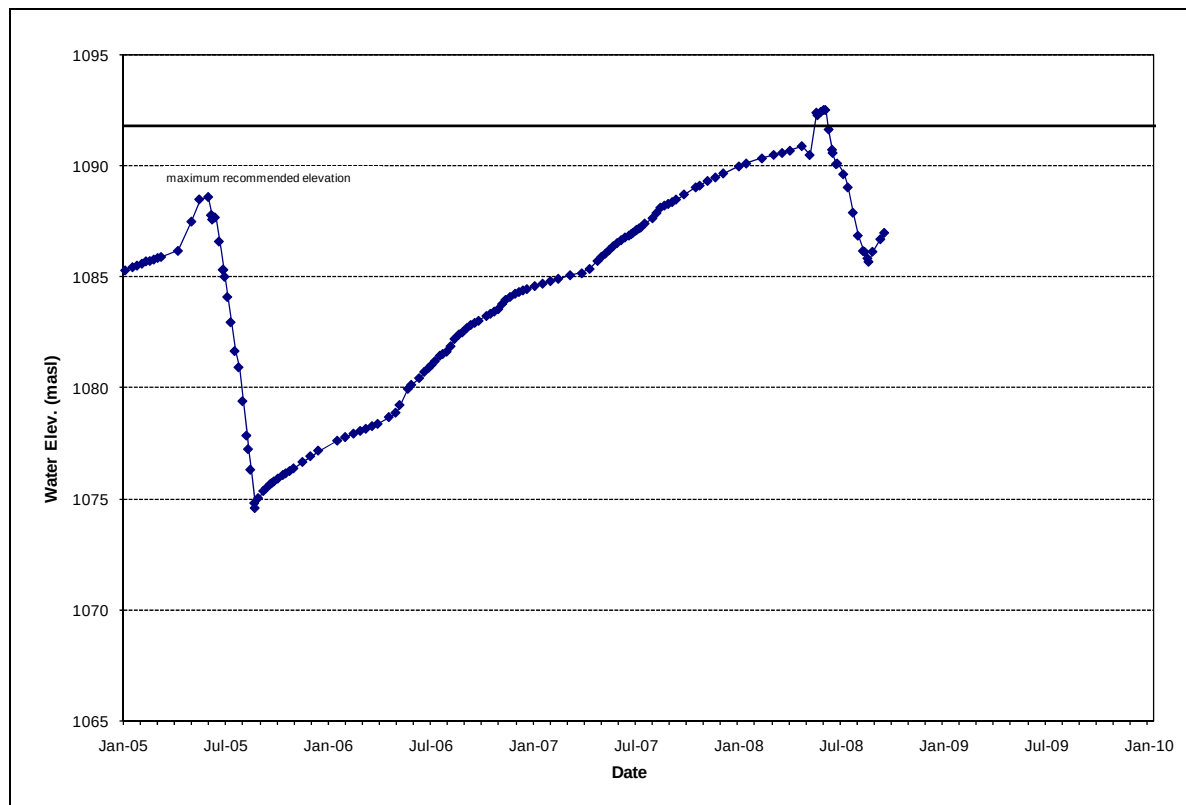


Figure 3.19: Vangorda Pit Water Elevation

3.3.1 Concentrations

As noted before, with the exception of water transfer from the Little Creek Dam, the Vangorda Pit had been allowed to develop naturally over the past approximately three-year period. The resultant water quality is indicative of the natural loadings that are being generated by the wall rocks and the in-pit dumps, and that may be associated with the Little Creek Dam water transfer.

The pH trends over time are shown in Figure 3.20 for each of the monitoring depths. The results show that the surface water acidified in early 2006 but returned to circum neutral conditions by the end of that year. During 2007 surface water again acidified however the pH did not increase again to circum neutral conditions and remained acidic through to early 2008. Throughout this period, the water at depth (15 m and deeper) remained near neutral in pH; this difference indicated that a stable chemocline existed for this period at a depth of between 5 and 15 m below surface. It appears that once pumping commenced in early 2008, the stability of the chemocline was disturbed and by late 2008, the water column mixed (overturned) resulting in the entire water column acidifying with the pH ranging from about 4 to about 3.

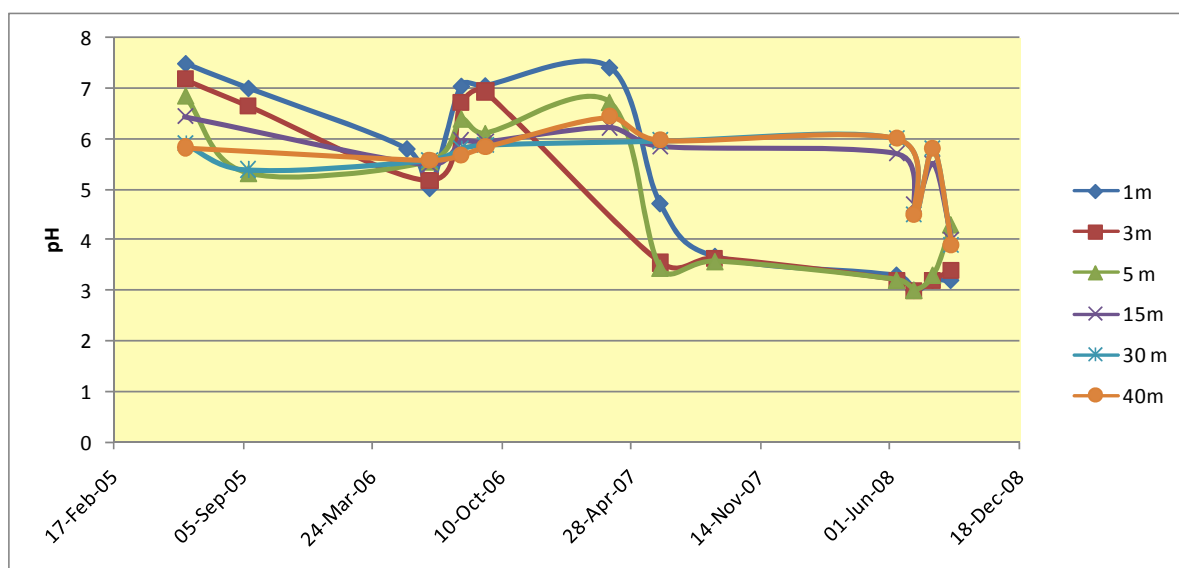


Figure 3.20: Vangorda Pit pH Trends

As with the observed pH differentiation between the surface and deeper water, a distinct difference in the make-up of the surface water and the water at depth developed during the period of natural recovery. In particular, sulphate, zinc, cobalt and nickel concentrations were lower in the surface water than at depth (see Figure 3.21 and Figure 3.22) indicating that whilst acidic, in general the concentrations of these solutes were below those that initially existed in the pit lake. In contrast, cadmium and copper concentrations were elevated above those at depth (Figure 3.23) and continued to increase during this period.

These differences in water quality between the current inflow and the water serve to confirm that quality of the water at depth is likely controlled by the sludges that had previously been deposited in the pit lake.

Whilst the flow volume and quality of water transferred from the Little Creek Dam were not available for the preparation of this report, the water transferred could have contributed to some of the observed changes and differences noted above. In future, should additional transfers occur, the volumes and quality of water transferred should be determined to enable evaluation of the impacts on the pit lake water quality by this operational strategy.

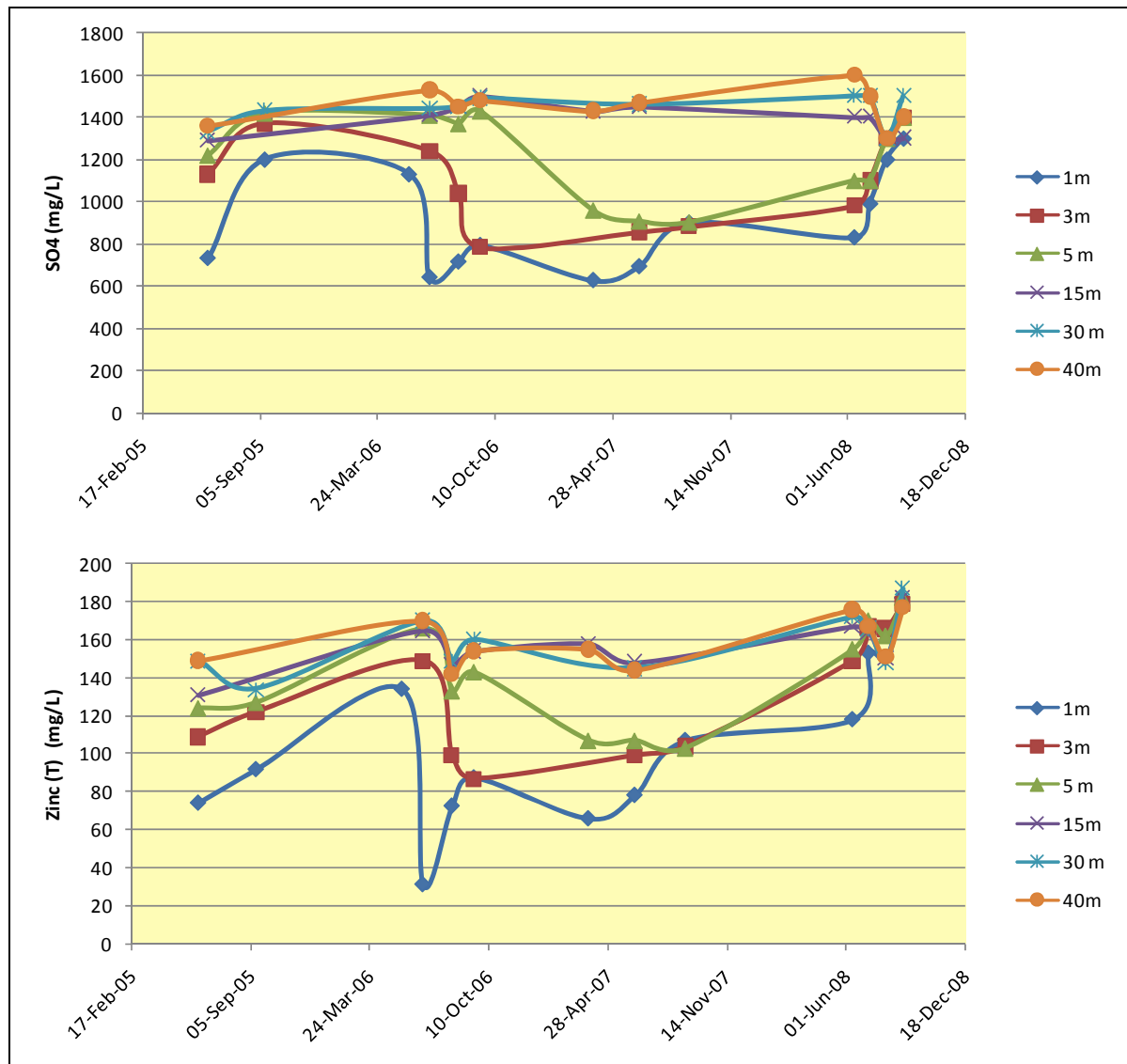


Figure 3.21: Vangorda Pit Lake Sulphate and Zinc Concentration Trends

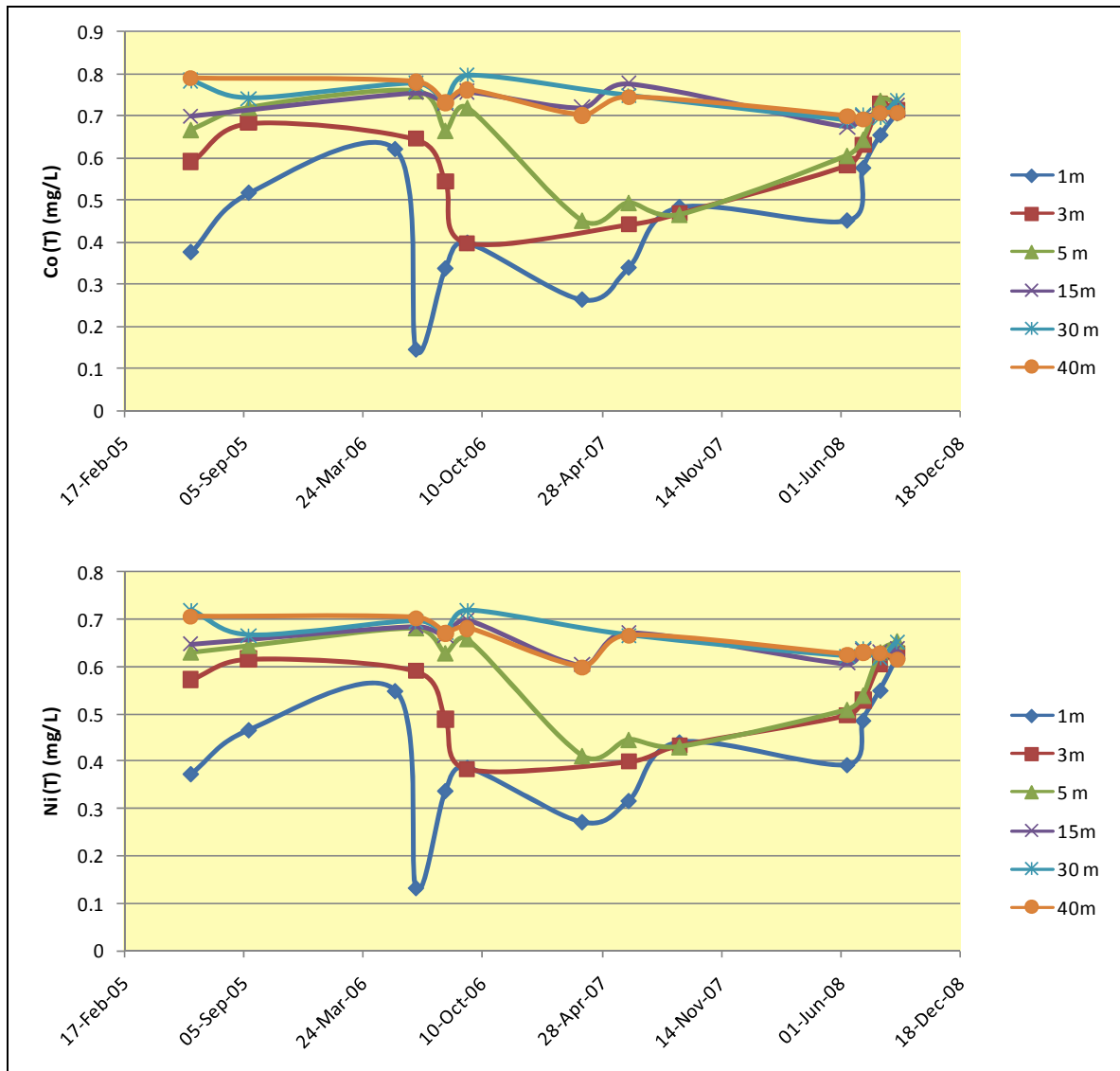


Figure 3.22: Vangorda Pit Lake Cobalt and Nickel Concentration Trends

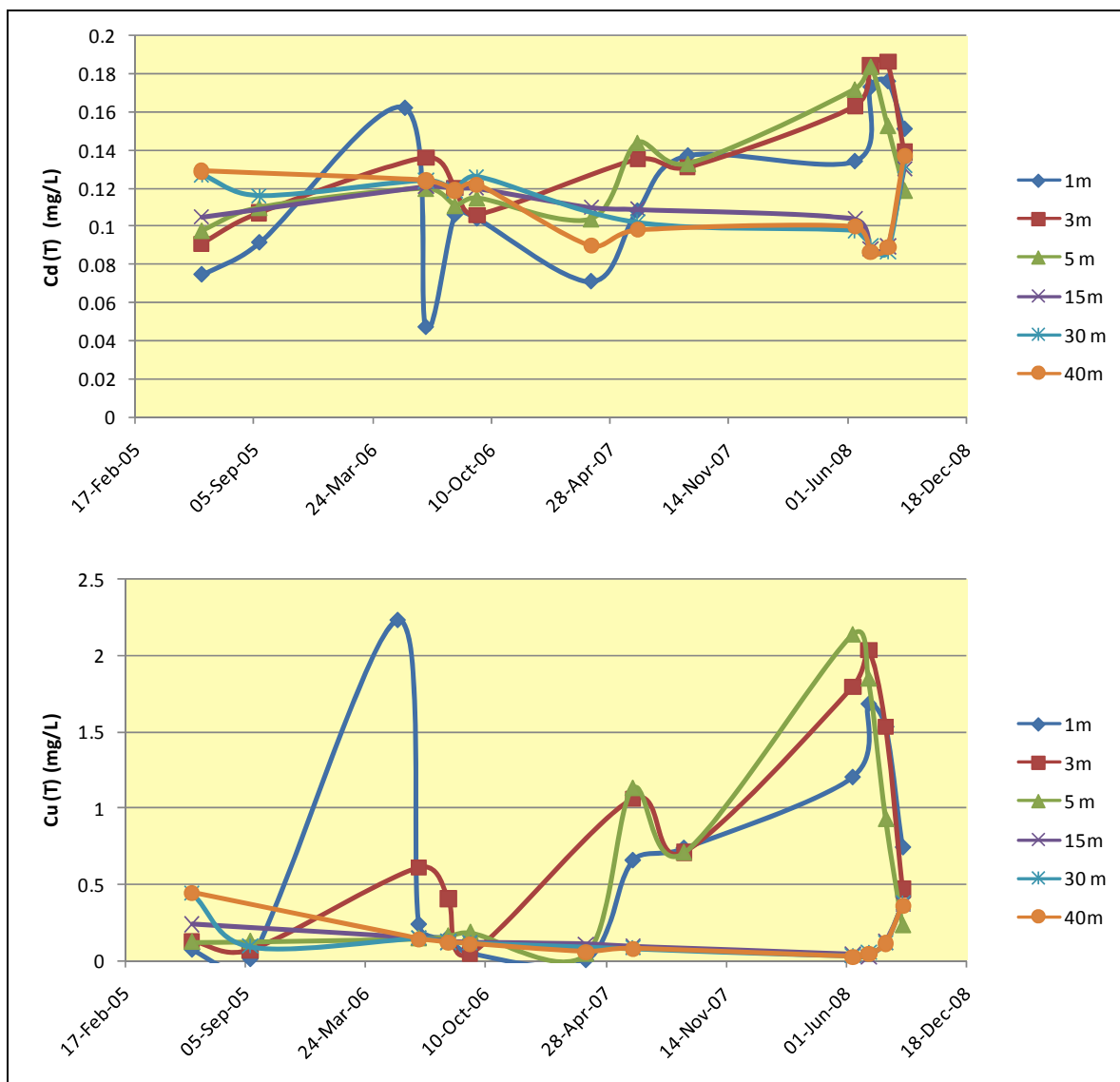


Figure 3.23: Vangorda Pit Lake Cadmium and Copper Concentration Trends

3.3.2 Loadings

As shown in Figure 3.24, conductivity measurements suggest that even though it acidified during this period, the water in the surface layer freshened rapidly in 2006, and to lesser extent during 2007. It appears that this may have been a result of water transferred from the Little Creek Dam. Since the flow and concentration of the water that was transferred were not available, overall loadings calculated from the monitoring results may not necessarily reflect the total loadings in runoff from the wall rocks and seepage waste rock within the pit lake catchment. Nevertheless, overall inventories were calculated for the pit lake as at August 2005 and June 2008 (whilst the intent was to determine the inventory before pumping commenced, monitoring data for May 2008 were not available). The results are summarised in Table 3.3

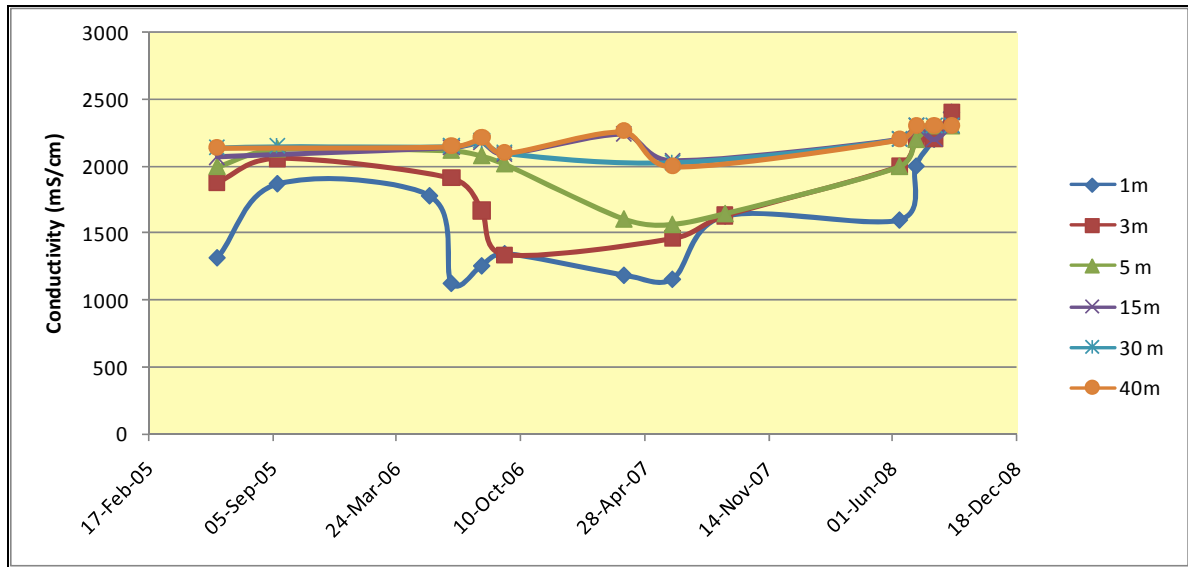


Figure 3.24: Electrical Conductivity Trends in the Vangorda Pit Lake

Table 3.3: Summary of Estimated Annual Loading to the Vangorda Pit Lake

Parameter	Inventory (tonnes)		Average Loading (tonne/year)
	Aug-05	Jun-08	
Volume (m ³)	725,816.93	1,787,986	386,147
Sulphate SO ₄	980	2208	447
Cadmium	0.078	0.230	0.055
Cobalt	0.489	1.103	0.223
Copper	0.051	1.557	0.548
Iron	22	74	19
Manganese	29	73	16
Nickel	0.442	0.969	0.192
Zinc	88	279	70

The estimated average annual loadings were determined by obtaining the difference between the estimated inventories as at August 2005 and June 2008, and then normalising the net loading to the pit to an annual rate as shown in the last column of the table.

The average annual loadings are well above previous estimates. For example, the current estimate of the zinc loading is almost twice the estimate derived in 2007. The reason for this appears to be the acidification of the water column. Acidification negates the effects of solubility controls and would cause accumulated precipitates on the pit lake floor to dissolve. This is likely to greatly enhance dissolved and total metal concentrations. Consequently, solute loadings entering the pit lake with surface runoff are likely to be below the current estimates.

4 Conclusions and Recommendations

4.1 Conclusions

The conclusions from the 2008 biological treatment program for Grum Pit lake, and the monitoring of the Faro and Vangorda Pit lakes can be summarised as follows.

4.1.1 Faro Pit

Subsequent to fertilization in 2005, orthophosphate concentrations have remained below detection, and total phosphorus is being depleted from the surface layer to a depth of about 15 m. At depth, while there appears to be a marginal increase in total phosphorus, a net decrease in the concentrations is occurring.

Due to the depletion of phosphorus from the surface layer, and as indicated by the very low chlorophyll “a” concentrations, no significant algal bloom has been observed since 2005 when the pit lake was briefly fertilized.

Whilst the chemocline continues to exist and is isolating the water at depth from the water near surface, it appears that there is a detectable increase in the zinc concentration at depth. This increase is occurring concurrently with an increase in iron concentration at depth, which suggests that the increase in zinc is likely due to its desorption during the dissolution of the iron precipitates.

Mass balance calculations indicate that, during 2005, a significant amount of zinc had been removed from the water column as a result of the algal bloom induced by fertilization. Whilst there is some annual variability in the outcomes of these calculations, they indicate that on average the annual zinc loading to the pit lake is about 48 tonnes per year, of which about 24 % (11.6 tonnes) is sourced from the Zone 2 Pit water transfer. The balance of the loading represents the combined loadings from the wall rocks and the waste rock seepage that enters the pit lake. Monitoring results for seepage from the wall rocks suggest that the majority of this loading is likely from the waste rock dumps.

4.1.2 Grum Pit

The results indicate that the Grum Pit again responded well to fertilization and that good algal growth was achieved in 2008. Elimination of late summer fertilization has consistently been shown to effectively control nutrient levels by the end of the season.

Surface water mass balance calculations for 2004 through 2008 suggest that zinc loadings to the Grum Pit are on the order of 3000 to 4000 kg per annum. The loading appears to be associated with influx of groundwater during early to mid summer. Nonetheless, overall the depth weighted zinc concentration has decreased from in excess of 10 mg/L to about 6.5 mg/L.

The net loading of sulphate to the pit lake is estimated to be about 100 tonnes per year.

4.1.3 Vangorda Pit

The monitoring results for the period between August 2005 and June 2008 during which water was not pumped from the pit (except for a small volume in June 2008), indicate that the water flowing into the pit is substantially different from the water at depth. In part this may have been as a result of water that was transferred to the pit lake from the Little Creek Dam. This caused a chemocline to develop in the pit lake that prevent mixing of the near surface and deeper waters. In general the surface water had a lower salt content, with lower sulphate, zinc cobalt and nickel concentrations. In contrast, the copper and cadmium concentrations in the surface waters were increasing above that at depth. The water at surface (down to a depth in excess of 5 m) acidified during 2007 and commencement of pumping in early 2008 appears to have disturbed the chemocline that had developed in the pit lake, and as a result, the entire water column acidified by the end of 2008. The elevated zinc concentrations, in particular the elevated zinc concentrations that resulted after mixing, even though the surface waters were at a lower zinc concentration, indicated that water at depth has been affected by the dissolution of treatment sludges that had previously been deposited in the Vangorda Pit.

Mass balance calculations indicate that the zinc loading at about 70 tonnes per year (about twice the 2007 estimate of 37 tonnes per year) is substantially higher than previous estimates and, due to the potential influence of precipitate dissolution, may not reflect actual loadings entering the pit lake in surface waters and seeps.

4.2 Recommendations

4.2.1 Faro Pit

It is recommended that profiling of the pit lake continue to be undertaken at regular intervals during 2009 and mass balance calculations be completed to verify estimates of overall current loadings and support future water quality predictions. It is further recommended that improved monitoring of the flows from the Faro Valley dump be undertaken to enable a better estimation of the total loading from this source so that the pit lake loadings can further be broken down to distinguish between waste rock and wall rock loadings. Improved monitoring of the Faro Valley dump flows would require that a regular monitoring station be established to allow weekly or fortnightly monitoring of flow and water quality.

4.2.2 Grum Pit

Based on the observed performance of biological treatment in the Grum Pit, it is recommended that the fertilization program be continued in 2009. Fertilization should again be terminated by mid-August to prevent the build-up of residual nutrients in the water column.

The higher than predicted loadings to the pit lake are likely a consequence of inundation of talus on the benches as the water level rises. To verify this, it is recommended that samples be obtained from the talus and be subjected to leach extraction tests to estimate total stored solute content.

Furthermore, near-shore sampling at shallow depths should be undertaken to verify solute release from the wall rocks. Mass balance calculations should again be completed for 2008 to verify overall loadings.

4.2.3 Vangorda Pit

At this time, it is not foreseen that the Vangorda Pit will be utilized as an ancillary treatment system. Fertilization of this pit lake is therefore not recommended. However, it is recommended that the water column water quality profile be monitored to verify the load calculations. Monitoring should be undertaken on a monthly basis, commencing at open water conditions, and should be continued to September 2009. We further recommend that in future, should additional transfers occur, the volumes and quality of water transferred should be determined to enable evaluation of the impacts on the pit lake water quality by this operational strategy.

This report, “**Faro Mine Complex, Anvil Range Pit Lakes, 2008 Evaluation of In-Situ Treatment, 2008/09 Task 28 – FINAL**”, was prepared by SRK Consulting (Canada) Inc.

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Appendix A

In Situ Monitoring Results

INSITU DATA FOR FARO PIT, SUMMER OF 2008

Week #	Date	Station	pH	Temp °C	TDS mg/L	Cond. μ S/cm	D.O. mg/L	Secchi (m)	Comments
1	2008-06-11	surface	7.22	10.9	683	1120	nm	4.6	
1	2008-06-11	F-1	7.25	10.5	687	1126	nm		F-1, Faro Pit at 1 m, is the Blind Duplicate
1	2008-06-11	F-3	7.25	9.5	687	1124	nm		
1	2008-06-11	F-5	7.24	7.4	725	1188	nm		
1	2008-06-11	F-15	7.08	4.3	753	1227	nm		
1	2008-06-11	F-30	6.94	4.3	874	1433	nm		
1	2008-06-11	F-60	6.93	4.5	897	1468	nm		
1	2008-06-11	F-80	6.80	4.5	943	1543	nm		
5	2008-07-09	F-1	6.67	12.5	699	1144	nm	5.3	
5	2008-07-09	F-3	6.63	12.4	704	1157	nm		
5	2008-07-09	F-5	6.61	12.4	701	1149	nm		
5	2008-07-09	F-15	6.52	4.5	748	1228	nm		
5	2008-07-09	F-30	6.38	4.5	874	1432	nm		
5	2008-07-09	F-60	6.26	4.5	894	1466	nm		
5	2008-07-09	F-80	6.20	4.6	987	1619	nm		
9	2008-08-06	F-1	7.01	12.8	666	1169	nm	8.9	Chlorophyll a sampled
9	2008-08-06	F-3	6.69	12.7	669	1174	nm		Total depth 89.5m
9	2008-08-06	F-5	6.76	12.5	665	1167	nm		CTD Cast ON 12:37:45
9	2008-08-06	F-15	6.74	5.0	701	1232	nm		CTD Cast OFF 12:46:15
9	2008-08-06	F-30	6.69	4.8	820	1439	nm		
9	2008-08-06	F-60	6.80	4.9	838	1471	nm		
	2008-08-06	F-80	6.81	4.9	885	1551	nm		
13	2008-09-03	F-1	7.74	10.9	672	1173	5.51	9.0	CTD Cast ON 13:46:00
13	2008-09-03	F-3	7.71	10.9	661	1161	5.42		CTD Cast OFF 13:56:22
13	2008-09-03	F-5	7.69	10.4	661	1158	4.94		
13	2008-09-03	F-15	7.66	6.2	691	1214	4.65		
13	2008-09-03	F-30	7.01	4.9	810	1420	0.65		
13	2008-09-03	F-60	7.00	4.9	828	1451	0.78		
13	2008-09-03	F-80	7.05	4.9	862	1512	0.60		

INSITU DATA FOR VANGORDA PIT, SUMMER OF 2008

Week #	Date	Station	pH	Temp °C	TDS mg/L	Cond. μ S/cm	D.O. mg/L	Secchi (m)	Comments
1	2008-06-11	Surface	3.68	13.5	978.0	1604.0	nm		
1	2008-06-11	V-1	3.47	11.4	1066	1744	nm	1.2	
1	2008-06-11	V-3	3.46	5.5	1196	1960	nm		
1	2008-06-11	V-5	3.44	4.2	1225	2010	nm		
1	2008-06-11	V-15	5.02	5.2	1379	2270	nm		
1	2008-06-11	V-30	5.60	5.2	1427	2330	nm		
1	2008-06-11	V-40	5.81	5.0	1400	2390	nm		depth 55 m
5	2008-07-09	V-1	3.07	12.7	1194	1956	nm		V-1 is the Blind Duplicate
5	2008-07-09	V-3	3.16	5.3	1264	2070	nm		
5	2008-07-09	V-5	3.11	4.2	1287	2110	nm		
5	2008-07-09	V-15	4.63	4.3	1400	2300	nm		
5	2008-07-09	V-30	5.22	4.1	1403	2300	nm		
5	2008-07-09	V-40	5.39	4.1	1393	2290	nm		depth 59 m
9	2008-08-06	V-1	2.99	13.2	1305	2006	nm	0.5	CTD Cast ON 10:01:45
9	2008-08-06	V-3	3.01	9.0	1298	2260	nm		CTD Cast OFF 10:10:35
9	2008-08-06	V-5	3.37	6.6	1307	2290	nm		Chlorophyll a sample at VL-1
9	2008-08-06	V-15	4.09	5.5	1287	2260	nm		
9	2008-08-06	V-30	5.03	5.4	1285	2260	nm		
9	2008-08-06	V-40	5.09	5.4	1273	2230	nm		
13	2008-09-03	V-1	3.20	7.4	1299	2280	4.30	0.5	CTD Cast ON: 10:00:30
13	2008-09-03	V-3	3.35	7.2	1303	2290	1.80		CTD Cast OFF: 10:06:15
13	2008-09-03	V-5	4.31	5.9	1259	2210	0.52		
13	2008-09-03	V-15	4.00	5.9	1284	2250	0.68		
13	2008-09-03	V-30	4.04	5.9	1300	2280	0.58		
13	2008-09-03	V-40	3.98	5.9	1300	2280	0.43		

INSITU DATA FOR GRUM PIT, SUMMER OF 2008

[illegible]

Appendix B
Pit lake Water Quality Monitoring Results

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	60	80
Sample ID	FP-1 FARO PIT @1m	FP-3 FARO PIT @3m	FP-5 FARO PIT @5m	FP-15 FARO PIT @15m	FP-30 FARO PIT @30m	FP-60 FARO PIT @60m	FP-80 FARO PIT @80m
Date Sampled	8-Jun-05	8-Jun-05	8-Jun-05	8-Jun-05	8-Jun-05	8-Jun-05	8-Jun-05
Time Sampled	14:45	15:00	15:08	15:15	15:20	15:30	15:45
ALS Sample ID	1	2	3	4	5	6	7
Nature	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Hardness (as CaCO3)							
Conductivity (uS/cm)	1160	1160	1170	1260	1410	1430	1480
ORP							
pH	7.60	7.73	7.80	7.42	7.34	7.32	7.29
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	36.6	44.6	49.3
Dissolved Anions							
Alkalinity-Total CaCO3	103	101	106	110	101	105	73.0
Sulphate SO4	546	544	558	608	688	708	733
Bromide (Br)							
Chloride (Cl)							
Nutrients							
Ammonia Nitrogen N	0.820	0.860	0.840	0.930	1.44	1.52	1.48
Nitrate Nitrogen N	0.257	0.193	0.200	0.192	<0.050	<0.050	<0.050
Nitrite Nitrogen N	0.014	<0.010	0.014	0.015	<0.010	<0.010	0.011
Nitrite/Nitrate Nitrogen N							
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.002	0.002	0.002	0.002	0.0069	0.002	0.002
Total Metals							
Aluminum T-Al	0.0262	0.0324	0.0353	0.0200	0.0192	0.0114	0.0129
Antimony T-Sb	0.00156	0.00165	0.00164	0.00167	<0.00020	<0.00020	<0.00020
Arsenic T-As	0.00024	0.00023	0.00022	0.00024	0.00091	0.00217	0.00172
Barium T-Ba	0.0165	0.0168	0.0167	0.0168	0.0155	0.0167	0.0164
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.0139	0.0144	0.0144	0.0150	0.00048	0.00013	0.00015
Calcium T-Ca	147	135	135	138	185	202	193
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0442	0.0460	0.0466	0.0474	0.0335	0.0326	0.0309
Copper T-Cu	0.0172	0.0183	0.0184	0.0168	0.00728	<0.0016	<0.0014
Iron T-Fe	0.154	0.167	0.185	0.136	16.1	21.4	22.2
Lead T-Pb	0.00219	0.00260	0.00251	0.00140	0.00132	0.00094	0.00122
Lithium T-Li	0.050	0.051	0.051	0.054	0.063	0.066	0.065
Magnesium T-Mg	64.3	59.4	58.8	58.6	65.3	72.1	69.0
Manganese T-Mn	2.38	2.47	2.48	2.76	3.42	3.54	3.65
Molybdenum T-Mo	0.00257	0.00258	0.00262	0.00280	0.00384	0.00333	0.00284
Nickel T-Ni	0.0989	0.103	0.106	0.106	0.0717	0.0681	0.0719
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	7.5	6.9	6.9	7.1	12.0	13.6	12.3
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	3.03	2.78	2.77	2.63	2.50	2.80	2.70
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	21.3	19.6	19.5	19.7	31.3	35.4	32.0
Strontium T-Sr	0.470	0.486	0.491	0.510	0.535	0.561	0.609
Thallium T-Tl	0.00064	0.00065	0.00067	0.00069	0.00024	0.00024	0.00024
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00275	0.00288	0.00293	0.00291	0.00282	0.00369	0.00464
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	13.4	14.0	14.1	14.7	3.12	2.48	2.73
Dissolved Metals							
Aluminum D-Al							
Antimony D-Sb							
Arsenic D-As							
Barium D-Ba							
Beryllium D-Be							
Bismuth D-Bi							
Boron D-B							
Cadmium D-Cd							
Calcium D-Ca							
Chromium D-Cr							
Cobalt D-Co							
Copper D-Cu							
Iron D-Fe							
Lead D-Pb							
Lithium D-Li							
Magnesium D-Mg							
Manganese D-Mn							
Molybdenum D-Mo							
Nickel D-Ni							
Phosphorus D-P							
Potassium D-K							
Selenium D-Se							
Silicon D-Si							
Silver D-Ag							
Sodium D-Na							
Strontium D-Sr							
Thallium D-Tl							
Tin D-Sn							
Titanium D-Ti							
Uranium D-U							
Vanadium D-V							
Zinc D-Zn							

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	15	30	60	80
Sample ID	FP-0.1m Faro Pit Sur	FP-1 Faro Pit @1m	FP-3 Faro Pit @3m	FP-5 Faro Pit @5m	FP-15 Faro Pit @15m	FP-30 Faro Pit @30m	FP-60 Faro Pit @60m	FP-80 Faro Pit @80m
Date Sampled	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05	6-Jul-05
Time Sampled	10:20	10:30	10:45	11:00	11:20	11:30	11:50	12:15
ALS Sample ID	1	2	3	4	5	6	7	8
Nature	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests								
Hardness (as CaCO3)								
Conductivity (uS/cm)	1160	1160	1160	1170	1250	1400	1420	1470
ORP								
pH	7.16	7.24	7.33	6.81	6.94	6.94	6.88	6.84
Total Suspended Solids	<3.0	<3.0	<3.0	4.8	<3.0	27.5	30.8	32.1
Dissolved Anions								
Alkalinity-Total CaCO3	97.2	96.1	101	101	105	97.6	97.4	108
Sulphate SO4	583	575	592	575	725	735	743	778
Bromide (Br)								
Chloride (Cl)								
Nutrients								
Ammonia Nitrogen N	0.800	0.820	0.770	0.740	1.17	1.27	1.31	1.52
Nitrate Nitrogen N	0.420	0.379	0.362	0.315	0.201	5.86	<0.025	<0.025
Nitrite Nitrogen N	0.0086	0.0090	0.0078	0.0095	0.0087	0.137	0.0158	0.0086
Nitrite/Nitrate Nitrogen N								
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0052	0.0052	0.0090	0.0113	0.0050	0.002	0.002	0.002
Total Metals								
Aluminum T-Al	<0.0050	<0.0050	<0.0050	0.0070	0.0117	0.0108	0.0085	0.0080
Antimony T-Sb	0.00141	0.00136	0.00135	0.00140	0.00150	<0.00020	<0.00020	<0.00020
Arsenic T-As	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00106	0.00181	0.00126
Barium T-Ba	0.0175	0.0169	0.0169	0.0169	0.0169	0.0165	0.0155	0.0164
Beryllium T-Be	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Boron T-B	<0.050	<0.050	<0.050	<0.050	<0.050	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00511	0.00522	0.00626	0.0122	0.0165	0.00077	0.00035	0.00022
Calcium T-Ca	137	139	139	136	158	189	201	202
Chromium T-Cr	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0475	0.0467	0.0463	0.0467	0.0475	0.0309	0.0301	0.0316
Copper T-Cu	0.00384	0.00392	0.00416	0.00704	0.00974	0.00462	0.00166	0.00118
Iron T-Fe	<0.030	<0.030	<0.030	0.032	0.081	20.0	22.7	25.6
Lead T-Pb	0.00094	0.00108	0.00088	0.00141	0.00129	0.00058	0.00064	0.00088
Lithium T-Li	0.048	0.050	0.050	0.049	0.054	0.059	0.059	0.066
Magnesium T-Mg	61.2	61.3	61.7	60.3	66.7	66.3	69.8	68.8
Manganese T-Mn	2.43	2.37	2.34	2.40	2.60	3.17	3.17	3.60
Molybdenum T-Mo	0.00273	0.00260	0.00235	0.00267	0.00260	0.00347	0.00291	0.00272
Nickel T-Ni	0.109	0.105	0.105	0.107	0.105	0.0657	0.0648	0.0736
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	9.0	9.2	8.9	8.7	10.8	15.1	15.7	15.4
Selenium T-Se	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Silicon T-Si	3.04	3.11	3.11	3.30	3.19	2.79	2.95	3.03
Silver T-Ag	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020
Sodium T-Na	21.0	21.3	21.0	20.3	24.6	33.3	33.4	33.5
Strontium T-Sr	0.488	0.470	0.463	0.473	0.470	0.485	0.490	0.585
Thallium T-Tl	0.00070	0.00069	0.00066	0.00066	0.00066	0.00025	0.00024	0.00026
Tin T-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00292	0.00288	0.00282	0.00270	0.00285	0.00322	0.00359	0.00484
Vanadium T-V	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Zinc T-Zn	11.6	11.3	12.1	14.3	13.1	2.41	2.36	2.66
Dissolved Metals								
Aluminum D-Al	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Antimony D-Sb	0.00142	0.00143	0.00137	0.00146	0.00150	<0.00020	<0.00020	<0.00020
Arsenic D-As	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00089	0.00140	0.00059
Barium D-Ba	0.0170	0.0170	0.0164	0.0164	0.0165	0.0159	0.0154	0.0156
Beryllium D-Be	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Boron D-B	<0.050	<0.050	<0.050	<0.050	<0.050	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00094	0.00099	0.00075	0.00116	0.00146	<0.00010	<0.00010	<0.00010
Calcium D-Ca	139	139	140	143	153	191	192	192
Chromium D-Cr	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0470	0.0469	0.0450	0.0447	0.0466	0.0308	0.0304	0.0306
Copper D-Cu	0.00187	0.00202	0.00171	0.00115	0.00161	0.00042	0.00035	0.00037
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	<0.030	19.7	20.8	23.3
Lead D-Pb	0.00040	0.00045	0.00033	0.00050	<0.00025	<0.00010	<0.00010	<0.00010
Lithium D-Li	0.050	0.050	0.047	0.047	0.053	0.056	0.058	0.064
Magnesium D-Mg	62.3	61.3	62.0	63.1	64.6	67.0	64.6	64.9
Manganese D-Mn	2.38	2.39	2.29	2.30	2.60	3.13	3.15	3.51
Molybdenum D-Mo	0.00250	0.00253	0.00243	0.00246	0.00265	0.00329	0.00294	0.00257
Nickel D-Ni	0.107	0.108	0.104	0.103	0.106	0.0656	0.0649	0.0705
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	9.0	9.0	8.9	9.4	10.9	15.6	14.9	14.8
Selenium D-Se	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Silicon D-Si	2.97	2.97	3.03	3.50	3.20	2.84	2.81	2.87
Silver D-Ag	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020
Sodium D-Na	21.1	21.1	20.9	21.7	24.8	34.2	31.7	32.7
Strontium D-Sr	0.477	0.480	0.450	0.455	0.468	0.477	0.499	0.565
Thallium D-Tl	0.00070	0.00068	0.00067	0.00066	0.00069	0.00024	0.00023	0.00024
Tin D-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00289	0.00294	0.00265	0.00256	0.00282	0.00301	0.00345	0.00459
Vanadium D-V	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Zinc D-Zn	11.2	11.2	11.1	13.4	12.3	2.36	2.35	2.52

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	15	30	60	80
Sample ID	FP_01	FP_1	FP_3	FP_5	FP_15	FP_30	FP_60	FP_80
Date Sampled	3-Aug-05	3-Aug-05	3-Aug-05	3-Aug-05	3-Aug-05	3-Aug-05	3-Aug-05	3-Aug-05
Time Sampled	14:35	14:47	14:55	15:00	15:17	15:23	15:32	15:44
ALS Sample ID	1	2	3	4	5	6	7	8
Nature	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests								
Hardness (as CaCO3)								
Conductivity (uS/cm)	1140	1140	1140	1140	1230	1370	1390	1440
ORP								
pH	7.45	7.69	7.78	7.81	7.66	7.41	7.24	7.25
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	36.7	32.0	36.7
Dissolved Anions								
Alkalinity-Total CaCO3	101	95.2	97.5	56.8	104	110	107	112
Sulphate SO4	558	562	561	557	605	691	699	733
Bromide (Br)								
Chloride (Cl)								
Nutrients								
Ammonia Nitrogen N	1.17	1.21	1.05	1.05	1.78	1.60	1.52	1.64
Nitrate Nitrogen N	0.334	0.351	0.348	0.341	0.181	<0.0050	0.0066	<0.0050
Nitrite Nitrogen N	0.0061	0.0062	0.0063	0.0063	0.0060	0.0016	0.0024	0.0022
Nitrite/Nitrate Nitrogen N								
Dissolved ortho-Phosphate P	<0.0010	<0.0010	0.0019	0.0044	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0025	0.0046	0.0060	0.0101	0.0027	0.0037	0.0048	0.0037
Total Metals								
Aluminum T-Al	0.0119	0.0137	0.0140	0.0140	0.0147	0.0108	0.0129	0.0128
Antimony T-Sb	0.00138	0.00140	0.00140	0.00142	0.00142	<0.00020	<0.00020	<0.00020
Arsenic T-As	<0.00020	<0.00020	<0.00020	0.00020	0.00022	0.00102	0.00168	0.00110
Barium T-Ba	0.0161	0.0163	0.0164	0.0164	0.0161	0.0158	0.0159	0.0160
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00302	0.00315	0.00315	0.00313	0.00968	0.00110	0.00051	0.00035
Calcium T-Ca	138	135	137	135	146	175	191	199
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0433	0.0453	0.0461	0.0472	0.0494	0.0319	0.0324	0.0317
Copper T-Cu	0.00423	0.00445	0.00472	0.00463	0.00527	0.00243	0.00093	0.00060
Iron T-Fe	0.062	0.063	0.064	0.063	0.058	17.4	20.9	24.0
Lead T-Pb	0.00184	0.00282	0.00224	0.00252	0.00191	0.00114	0.00144	0.00135
Lithium T-Li	0.049	0.052	0.052	0.054	0.058	0.063	0.066	0.068
Magnesium T-Mg	63.0	62.5	62.8	61.6	62.9	63.1	69.2	71.7
Manganese T-Mn	2.36	2.49	2.56	2.60	2.99	3.49	3.59	3.80
Molybdenum T-Mo	0.00236	0.00247	0.00249	0.00259	0.00270	0.00348	0.00304	0.00266
Nickel T-Ni	0.0959	0.0997	0.103	0.104	0.107	0.0651	0.0667	0.0715
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	6.9	6.8	6.9	6.7	7.8	13.4	13.0	12.7
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	2.94	2.90	2.93	2.87	2.72	2.39	2.67	2.79
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	19.6	19.4	19.8	18.9	21.5	33.5	32.6	32.1
Strontium T-Sr	0.480	0.504	0.514	0.521	0.539	0.525	0.566	0.617
Thallium T-Tl	0.00067	0.00069	0.00070	0.00070	0.00073	0.00025	0.00026	0.00026
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00224	0.00234	0.00237	0.00239	0.00307	0.00330	0.00379	0.00472
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	12.5	13.1	13.6	13.8	14.9	2.68	2.58	2.76
Dissolved Metals								
Aluminum D-Al								
Antimony D-Sb								
Arsenic D-As								
Barium D-Ba								
Beryllium D-Be								
Bismuth D-Bi								
Boron D-B								
Cadmium D-Cd								
Calcium D-Ca								
Chromium D-Cr								
Cobalt D-Co								
Copper D-Cu								
Iron D-Fe								
Lead D-Pb								
Lithium D-Li								
Magnesium D-Mg								
Manganese D-Mn								
Molybdenum D-Mo								
Nickel D-Ni								
Phosphorus D-P								
Potassium D-K								
Selenium D-Se								
Silicon D-Si								
Silver D-Ag								
Sodium D-Na								
Strontium D-Sr								
Thallium D-Tl								
Tin D-Sn								
Titanium D-Ti								
Uranium D-U								
Vanadium D-V								
Zinc D-Zn								

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.05	0.1	1	3	5	15	30	60
Sample ID	FP_SURFACE	FP_SURFACE	FP_1	FP_3	FP_5	FP_15	FP_30	FP_60
Date Sampled	31-Aug-05	31-Aug-05	31-Aug-05	31-Aug-05	31-Aug-05	31-Aug-05	31-Aug-05	31-Aug-05
Time Sampled	10:15	15:15	16:00	16:15	16:22	16:35	16:49	17:15
ALS Sample ID	9	1	2	3	4	5	6	7
Nature	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests								
Hardness (as CaCO3)								
Conductivity (uS/cm)	0899	1140	1140	1140	1140	1230	1360	1380
ORP								
pH	8.41	7.27	7.46	7.57	7.69	7.51	7.34	7.16
Total Suspended Solids	7.1	<3.0	<3.0	<3.0	3.3	<3.0	60.0	30.6
Dissolved Anions								
Alkalinity-Total CaCO3	124	102	101.0	100	102	110	104	107
Sulphate SO4	412	569	582	567	573	631	712	724
Bromide (Br)								
Chloride (Cl)								
Nutrients								
Ammonia Nitrogen N	0.45	1.07	1.20	1.19	1.22	1.94	1.47	1.47
Nitrate Nitrogen N	1.010	0.356	0.410	0.365	0.371	0.197	<0.025	<0.025
Nitrite Nitrogen N	0.0098	0.0308	0.0255	0.0159	0.0091	0.0167	0.0067	0.0060
Nitrite/Nitrate Nitrogen N								
Dissolved ortho-Phosphate P	0.0363	<0.0010	0.0072	<0.0010	<0.0010	<0.0010	0.0016	0.0017
Total Phosphate P	0.0540	0.0025	0.0112	0.0021	0.002	0.0020	0.0157	0.0026
Total Metals								
Aluminum T-Al	0.0700	0.0109	0.0155	0.0118	0.0107	0.0069	0.0098	0.0096
Antimony T-Sb	0.00520	0.00126	0.00135	0.00138	0.00132	0.00112	<0.00020	<0.00020
Arsenic T-As	0.000087	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00092	0.00162
Barium T-Ba	0.0317	0.0153	0.0159	0.0155	0.0156	0.0145	0.0155	0.0150
Beryllium T-Be	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010
Boron T-B	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.020	<0.020
Cadmium T-Cd	0.00077	0.00313	0.00324	0.00323	0.00328	0.00408	0.00087	0.00029
Calcium T-Ca	098	144	142	143	135	146	173	180
Chromium T-Cr	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010
Cobalt T-Co	0.0136	0.0426	0.0420	0.0435	0.0431	0.0429	0.0302	0.0290
Copper T-Cu	0.00140	0.00423	0.00464	0.00442	0.00433	0.00132	<0.0020	<0.0010
Iron T-Fe	0.124	0.162	0.183	0.160	0.148	00.0	17.4	19.9
Lead T-Pb	0.00168	0.00264	0.00373	0.00278	0.00265	0.00105	0.00074	0.00067
Lithium T-Li	0.023	0.049	0.049	0.047	0.050	0.054	0.063	0.064
Magnesium T-Mg	64.4	66.0	64.2	63.0	59.6	60.0	60.7	62.1
Manganese T-Mn	0.19	2.22	2.19	2.25	2.24	2.50	3.18	3.17
Molybdenum T-Mo	0.00332	0.00217	0.00219	0.00223	0.00212	0.00214	0.00317	0.00269
Nickel T-Ni	0.1120	0.0941	0.0955	0.0963	0.0969	0.0945	0.0630	0.0617
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.2	7.7	7.4	7.3	7.0	08.2	12.0	12.5
Selenium T-Se	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020
Silicon T-Si	2.48	3.22	3.15	3.16	2.95	2.74	2.47	2.55
Silver T-Ag	<0.000020	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020
Sodium T-Na	09.6	21.9	21.4	20.8	19.9	22.3	30.4	31.2
Strontium T-Sr	0.607	0.478	0.475	0.483	0.485	0.483	0.522	0.541
Thallium T-Tl	0.00119	0.00063	0.00062	0.00062	0.00062	0.00058	0.00022	0.00022
Tin T-Sn	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00402	0.00195	0.00193	0.00192	0.00196	0.00240	0.00319	0.00374
Vanadium T-V	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020
Zinc T-Zn	01.0	13.2	13.2	13.3	13.2	13.10	2.69	2.43
Dissolved Metals								
Aluminum D-Al								
Antimony D-Sb								
Arsenic D-As								
Barium D-Ba								
Beryllium D-Be								
Bismuth D-Bi								
Boron D-B								
Cadmium D-Cd								
Calcium D-Ca								
Chromium D-Cr								
Cobalt D-Co								
Copper D-Cu								
Iron D-Fe								
Lead D-Pb								
Lithium D-Li								
Magnesium D-Mg								
Manganese D-Mn								
Molybdenum D-Mo								
Nickel D-Ni								
Phosphorus D-P								
Potassium D-K								
Selenium D-Se								
Silicon D-Si								
Silver D-Ag								
Sodium D-Na								
Strontium D-Sr								
Thallium D-Tl								
Tin D-Sn								
Titanium D-Ti								
Uranium D-U								
Vanadium D-V								
Zinc D-Zn								

Faro Pit - 2005 to 2008 Monitoring Results
RESULTS OF ANALYSIS

Depth (m)	80	0.1	1	3	5	15	30	60	80
Sample ID	FP_80	FP-0.1	FP-1	FP-3	FP-5	FP-15	FP-30	FP-60	FP-80
Date Sampled	31-Aug-05	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05
Time Sampled	17:45	19:00	19:07	19:12	19:16	19:25	19:40	19:55	20:15
ALS Sample ID	8	1	2	3	4	5	6	7	8
Nature	Water	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests									
Hardness (as CaCO3)									
Conductivity (uS/cm)	1440	1180	1180	1180	1190	1250	1390	1410	1460
ORP									
pH	7.02	6.69	6.86	7.03	7.12	7.20	7.32	7.22	7.14
Total Suspended Solids	37.6	<3.0	<3.0	<3.0	<3.0	<3.0	31.2	34.5	39.8
Dissolved Anions									
Alkalinity-Total CaCO3	118	90.0	93.4	96.7	107	97.7	83.4	90.0	93.2
Sulphate SO4	761	569	570	572	572	632	711	720	761
Bromide (Br)									
Chloride (Cl)									
Nutrients									
Ammonia Nitrogen N	1.700	1.33	2.30	1.27	1.17	1.94	1.63	1.60	1.87
Nitrate Nitrogen N	<0.025	0.344	0.351	0.346	0.349	0.199	<0.025	<0.025	<0.025
Nitrite Nitrogen N	0.0082	0.0052	0.0052	0.0051	0.0054	0.0093	0.0075	0.0056	0.0051
Nitrite/Nitrate Nitrogen N									
Dissolved ortho-Phosphate P	0.0017	<0.0010	<0.0010	<0.0010	<0.0010	0.0085	0.0026	0.0029	0.0027
Total Phosphate P	0.0034	0.002	0.002	0.002	0.002	0.0086	0.0031	0.0040	0.0038
Total Metals									
Aluminum T-Al	0.0205	0.0179	0.0143	0.0105	0.0100	0.0068	0.0079	0.0092	0.0138
Antimony T-Sb	<0.00020	0.00133	0.00147	0.00145	0.00142	0.00134	<0.00020	<0.00020	<0.00020
Arsenic T-As	0.00136	0.00023	0.00025	0.00021	0.00021	<0.00020	0.00128	0.00163	0.00154
Barium T-Ba	0.0166	0.0160	0.0173	0.0165	0.0162	0.0167	0.0156	0.0155	0.0182
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00016	0.00346	0.00351	0.00340	0.00345	0.00284	0.00073	0.00024	0.00022
Calcium T-Ca	202.0	153	152	147	154	164	188	203	205
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0322	0.0429	0.0449	0.0446	0.0445	0.0454	0.0307	0.0301	0.0307
Copper T-Cu	<0.0010	0.00493	0.00537	0.00499	0.00478	<0.0020	<0.0018	<0.0012	<0.0012
Iron T-Fe	24.800	0.224	0.243	0.216	0.230	0.072	18.6	21.7	23.8
Lead T-Pb	0.00284	0.00261	0.00403	0.00283	0.00286	0.00115	0.00067	0.00072	0.00289
Lithium T-Li	0.072	0.047	0.050	0.049	0.047	0.053	0.059	0.060	0.065
Magnesium T-Mg	70.1	67.6	67.4	65.4	68.0	67.2	65.5	68.9	68.1
Manganese T-Mn	3.720	2.36	2.49	2.49	2.46	2.84	3.36	3.45	3.77
Molybdenum T-Mo	0.00264	0.00234	0.00244	0.00238	0.00235	0.00251	0.00337	0.00286	0.00267
Nickel T-Ni	0.074	0.0952	0.0994	0.0991	0.0980	0.0994	0.0630	0.0624	0.0705
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	13.2	7.7	7.6	7.4	7.8	9.1	12.3	13.4	13.0
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	2.91	3.27	3.28	3.18	3.32	3.00	2.60	2.77	2.81
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	33.8	21.3	20.9	20.4	21.3	24.1	29.8	32.0	31.1
Strontium T-Sr	0.661	0.470	0.492	0.487	0.487	0.496	0.503	0.525	0.604
Thallium T-Tl	0.00023	0.00066	0.00067	0.00066	0.00067	0.00064	0.00023	0.00023	0.00021
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00515	0.00200	0.00211	0.00209	0.00202	0.00256	0.00329	0.00369	0.00504
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	2.84	11.8	12.3	12.1	12.1	12.2	2.37	2.15	2.40
Dissolved Metals									
Aluminum D-Al	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Antimony D-Sb	0.00140	0.00139	0.00139	0.00136	0.00138	0.00138	<0.00020	<0.00020	<0.00020
Arsenic D-As	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Barium D-Ba	0.0159	0.0160	0.0161	0.0161	0.0158	0.0149	0.0145	0.0137	
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00337	0.00348	0.00353	0.00361	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Calcium D-Ca	151	148	149	147	161	194	192	209	
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0438	0.0445	0.0441	0.0443	0.0451	0.0312	0.0305	0.0306	
Copper D-Cu	0.00289	0.00300	0.00295	0.00295	<0.00060	<0.00040	<0.00040	<0.00060	
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	<0.030	1.70	1.71	1.96	
Lead D-Pb	0.00014	0.00024	0.00016	0.00016	<0.00010	<0.00010	<0.00010	<0.00010	
Lithium D-Li	0.047	0.046	0.047	0.047	0.051	0.058	0.059	0.064	
Magnesium D-Mg	66.7	65.1	65.7	64.3	64.7	67.1	65.3	69.2	
Manganese D-Mn	2.45	2.49	2.50	2.48	2.90	3.54	3.59	3.83	
Molybdenum D-Mo	0.00231	0.00230	0.00242	0.00237	0.00243	0.00017	<0.00010	<0.00010	
Nickel D-Ni	0.101	0.101	0.102	0.103	0.103	0.0675	0.0658	0.0731	
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	
Potassium D-K	7.6	7.4	7.5	7.3	8.9	12.7	12.4	12.9	
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Silicon D-Si	3.23	3.13	3.17	3.09	2.88	2.32	2.28	2.46	
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
Sodium D-Na	20.8	20.2	20.5	20.2	23.4	31.3	30.2	30.6	
Strontium D-Sr	0.493	0.506	0.513	0.508	0.519	0.544	0.568	0.650	
Thallium D-Tl	0.00064	0.00063	0.00062	0.00061	0.00060	0.00021	<0.00020	<0.00020	
Tin D-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Uranium D-U	0.00187	0.00188	0.00192	0.00193	0.00239	0.00114	0.00122	0.00157	
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Zinc D-Zn	12.1	12.4	12.6	12.5	12.4	2.00	1.84	2.04	

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	10	30	1	3	5	15	30	60	80
Sample ID	FARO PIT 1m	FARO PIT 10m	FARO PIT 30m	FP 1m Faro Pit @	FP 3m Faro Pit @	FP 5m Faro Pit @	FP 15m Faro Pit @	FP 30m Faro Pit @	FP 60m Faro Pit @	FP 80m Faro Pit @
Date Sampled	17-May-06	17-May-06	17-May-06	21-Jun-06	21-Jun-06	21-Jun-06	21-Jun-06	21-Jun-06	21-Jun-06	21-Jun-06
Time Sampled	10:00	10:30	11:00	16:00	16:15	16:20	16:35	16:45	17:00	17:20
ALS Sample ID	01	02	03	07	08	09	10	11	12	13
Nature	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests										
Hardness (as CaCO3)										
Conductivity (uS/cm)	0956	1250	1250	1090	1100	1140	1280	1410	1430	1490
ORP										
pH	7.16	7.45	7.53	6.96	7.20	7.33	7.39	7.35	7.25	7.15
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	28	33.3	40
Dissolved Anions										
Alkalinity-Total CaCO3	84.3	105	111	097	98.0	097	104	102.0	107.0	116.0
Sulphate SO4	452	614	614	528	533	556	628	714	721	755
Bromide (Br)										
Chloride (Cl)										
Nutrients										
Ammonia Nitrogen N	1.05	1.66	1.75	1.46	1.47	1.58	1.93	1.50	1.59	1.74
Nitrate Nitrogen N	0.271	0.314	0.317	0.329	0.328	0.334	0.314	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N										
Nitrite/Nitrate Nitrogen N										
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	0.0012	<0.0010	<0.0010	0.0013	0.0011	<0.010
Total Phosphate P	0.0027	0.0026	0.003	0.0039	0.004	0.0039	0.0046	<0.0060	0.0110	0.0140
Total Metals										
Aluminum T-Al	0.0529	0.0325	0.0646	0.0188	0.0211	0.0232	0.0280	0.0187	0.0123	0.0120
Antimony T-Sb	0.00066	0.00130	0.00128	0.00096	0.00098	0.00105	0.00124	<0.00020	<0.00020	<0.00020
Arsenic T-As	<0.00020	0.00025	0.00024	<0.00020	<0.00020	<0.00020	0.00022	0.00104	0.00157	0.00139
Barium T-Ba	0.0169	0.0167	0.0162	0.0170	0.0178	0.0175	0.0184	0.0170	0.0163	0.0160
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00798	0.00215	0.00259	0.00525	0.00546	0.00471	0.00371	0.00019	<0.00010	<0.00010
Calcium T-Ca	103	156	155	113	145	121	148	205	175	179
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0336	0.0472	0.0459	0.0424	0.0450	0.0451	0.0501	0.0348	0.0345	0.0319
Copper T-Cu	0.0284	0.00720	0.01290	0.01340	0.01440	0.01410	0.00709	<0.0010	<0.0010	<0.00020
Iron T-Fe	0.346	0.172	0.201	0.164	0.04	0.03	0.02	20.400	20.300	23.400
Lead T-Pb	0.00302	0.00133	0.00185	0.00188	0.00192	0.00174	0.00134	0.00069	0.00065	0.00093
Lithium T-Li	0.036	0.057	0.052	0.045	0.050	0.050	0.058	0.067	0.070	0.073
Magnesium T-Mg	48.7	68.6	68.1	58.2	66.5	56.1	66.2	72.6	62.7	63.8
Manganese T-Mn	1.80	2.80	2.65	2.58	2.78	2.77	3.32	4.13	4.34	4.42
Molybdenum T-Mo	0.00136	0.00245	0.00211	0.00170	0.00182	0.00183	0.00226	0.00332	0.00299	0.00272
Nickel T-Ni	0.079	0.111	0.107	0.096	0.1020	0.1060	0.1120	0.0728	0.072	0.074
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.60	<0.30	<0.30	<0.60	<0.30	<0.30
Potassium T-K	5.6	9.3	9.4	5.3	06.7	06.6	08.4	12.6	11.8	12.0
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	3.35	3.43	3.40	2.70	3.11	2.82	3.14	2.65	2.52	2.62
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000035	0.000057	<0.000020
Sodium T-Na	13.7	22.9	23.1	17.7	20.6	19.3	23.7	35.7	30.4	30.8
Strontium T-Sr	0.385	0.589	0.529	0.503	0.543	0.541	0.631	0.638	0.671	0.745
Thallium T-Tl	0.00042	0.00065	0.00060	0.00054	0.00058	0.00057	0.00066	0.00025	0.00022	<0.00020
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.020	<0.010	<0.010
Uranium T-U	0.00151	0.00245	0.00244	0.00205	0.00221	0.00221	0.00250	0.00349	0.00409	0.00556
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	14.3	16.6	15.2	15.2	16.00	15.70	17.00	03.2	02.7	02.6
Dissolved Metals										
Aluminum D-Al	0.0065	0.0089	0.0124	<0.0020	0.0034	0.0042	0.0084	0.0088	0.0043	0.0042
Antimony D-Sb	0.00064	0.00125	0.00120	0.00094	0.00096	0.00099	0.00118	<0.00020	<0.00020	<0.00020
Arsenic D-As	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00095	0.00062	0.00043
Barium D-Ba	0.0164	0.0167	0.0160	0.0168	0.0170	0.0173	0.0175	0.0169	0.0155	0.0152
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00771	0.00204	0.00258	0.00528	0.00535	0.00479	0.00357	<0.00010	<0.00010	<0.00010
Calcium D-Ca	104	155	156	114	137	125	145	203	165	169
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0339	0.0477	0.0457	0.0434	0.0440	0.0470	0.0481	0.0358	0.0323	0.0328
Copper D-Cu	0.0198	0.00199	0.00425	0.00954	0.00899	0.00907	0.00217	<0.00050	<0.00050	<0.00020
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	<0.060	<0.030	<0.030	20.1	18.8	22.2
Lead D-Pb	<0.00010	0.00014	0.00021	0.00022	0.00011	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Lithium D-Li	0.037	0.057	0.051	0.048	0.048	0.051	0.057	0.069	0.065	0.072
Magnesium D-Mg	49.1	68.2	68.4	59.8	63.3	57.6	64.8	71.8	59.1	60.2
Manganese D-Mn	1.80	2.83	2.66	2.67	2.69	2.88	3.17	4.24	4.07	4.50
Molybdenum D-Mo	0.00131	0.00247	0.00219	0.00169	0.00169	0.00183	0.00213	0.00340	0.00283	0.00278
Nickel D-Ni	0.079	0.113	0.105	0.098	0.0992	0.1090	0.1090	0.0744	0.0679	0.075
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.60	<0.30	<0.30	<0.60	<0.30	<0.30
Potassium D-K	5.6	9.4	9.3	5.9	06.4	06.5	07.8	12.4	11.4	11.4
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon D-Si	3.30	3.35	3.38	2.69	2.94	2.87	3.03	2.62	2.35	2.46
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000061	0.000057	0.000045
Sodium D-Na	14.0	22.8	22.8	18.1	19.4	18.9	21.8	35.1	29.0	29.9
Strontium D-Sr	0.390	0.595	0.530	0.515	0.523	0.557	0.602	0.653	0.649	0.762
Thallium D-Tl	0.00041	0.00063	0.00061	0.00056	0.00054	0.00059	0.00066	0.00023	0.00021	<0.00020
Tin D-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.020	<0.010	<0.010	<0.020	<0.010	<0.010
Uranium D-U	0.00139	0.00243	0.00236	0.00207	0.00212	0.00228	0.00236	0.00352	0.00395	0.00563
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc D-Zn	14.4	16.8	15.2	15.3	15.40	16.00	16.50	03.2	02.5	02.6

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	60	80
Sample ID	FP_1 Faro Pit @1m	FP_3 Faro Pit @3m	FP_5 Faro Pit @5m	FP_15 Faro Pit @15m	FP_30 Faro Pit @30m	FP_60 Faro Pit @60m	FP_80 Faro Pit @80m
Date Sampled	9-Aug-06	9-Aug-06	9-Aug-06	9-Aug-06	9-Aug-06	9-Aug-06	9-Aug-06
Time Sampled	17:00	17:20	17:35	17:45	18:00	18:15	18:30
ALS Sample ID	13	14	15	16	17	18	19
Nature	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Hardness (as CaCO3)							
Conductivity (uS/cm)	1160	1150	1150	1280	1400	1420	1490
ORP							
pH	6.84	7.26	7.37	7.37	7.50	7.48	7.43
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	25.7	25	31
Dissolved Anions							
Alkalinity-Total CaCO3	075	102	103	111	96.6	110	140
Sulphate SO4	549	552	552	619	679	700	720
Bromide (Br)							
Chloride (Cl)							
Nutrients							
Ammonia Nitrogen N	1.34	1.39	1.37	1.82	1.45	1.49	1.69
Nitrate Nitrogen N	0.335	0.338	0.34	0.22	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N	0.003	0.0037	0.0038	0.0038	<0.0010	<0.0010	<0.0010
Nitrite/Nitrate Nitrogen N	0.338	0.342	0.344	0.223	<0.0050	<0.0050	<0.0050
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	<0.0020	<0.0020	<0.0020	<0.0020	0.0580	<0.0020	<0.0020
Total Metals							
Aluminum T-Al	0.0092	0.0044	0.0049	0.0138	0.0186	0.0126	0.0105
Antimony T-Sb	0.00110	0.00101	0.00104	0.00112	<0.00020	<0.00020	<0.00020
Arsenic T-As	0.00023	<0.00020	<0.00020	<0.00020	0.00087	0.00123	0.00098
Barium T-Ba	0.0174	0.0168	0.0171	0.0174	0.0166	0.0157	0.0158
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00556	0.00539	0.00529	0.00308	0.00014	<0.00010	<0.00010
Calcium T-Ca	135	137	137	149	192	191	207
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0439	0.0440	0.0445	0.0473	0.0351	0.0332	0.0320
Copper T-Cu	0.01230	0.00611	0.00612	0.00377	0.0012	0.00081	0.0007
Iron T-Fe	0.044	00.0	00.0	00.1	20.400	22.600	28.000
Lead T-Pb	0.00099	0.00074	0.00087	0.00078	0.00062	0.00063	0.00072
Lithium T-Li	0.054	0.055	0.056	0.065	0.073	0.074	0.079
Magnesium T-Mg	62.8	63.8	64.1	64.8	68.6	67.5	72.7
Manganese T-Mn	2.37	2.58	2.60	3.19	4.06	4.05	4.27
Molybdenum T-Mo	0.00168	0.00171	0.00186	0.00214	0.00334	0.00290	0.00271
Nickel T-Ni	0.109	0.1080	0.1100	0.1090	0.0735	0.069	0.073
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	7.2	07.3	07.2	09.0	13.5	13.1	13.6
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	3.08	3.12	3.14	2.84	2.65	2.62	2.92
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	20.0	20.2	20.1	24.3	34.5	33.9	35.6
Strontium T-Sr	0.501	0.575	0.577	0.632	0.673	0.684	0.759
Thallium T-Tl	0.00059	0.00057	0.00058	0.00059	0.00023	0.00022	<0.00020
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00236	0.00230	0.00235	0.00228	0.00354	0.00399	0.00535
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	14.5	14.40	14.50	14.50	03.0	02.4	02.4
Dissolved Metals							
Aluminum D-Al	0.0024	0.0061	0.0022	0.0060	0.0063	0.0053	0.0038
Antimony D-Sb	0.00107	0.00102	0.00102	0.00105	<0.00020	<0.00020	<0.00020
Arsenic D-As	0.0002	<0.00020	<0.00020	<0.00020	0.00075	0.00085	0.00062
Barium D-Ba	0.0169	0.0166	0.0168	0.0164	0.0157	0.0155	0.0149
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00548	0.00531	0.00536	0.00295	<0.00010	<0.00010	<0.00010
Calcium D-Ca	137	132	136	151	192	190	208
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0434	0.0431	0.0453	0.0449	0.0337	0.0330	0.0311
Copper D-Cu	0.01140	0.00525	0.0054	0.00105	0.0006	0.00057	0.00052
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	20.3	22.6	27.9
Lead D-Pb	0.00026	0.0003	0.00032	0.00012	<0.00010	<0.00010	0.00012
Lithium D-Li	0.053	0.055	0.055	0.061	0.069	0.074	0.077
Magnesium D-Mg	63.3	61.6	63.0	65.7	68.4	67.2	72.3
Manganese D-Mn	2.33	2.55	2.63	3.03	3.91	4.05	4.19
Molybdenum D-Mo	0.00165	0.00176	0.00183	0.00198	0.00332	0.00288	0.00252
Nickel D-Ni	0.107	0.1090	0.1100	0.1020	0.0709	0.068	0.072
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	7.4	07.2	07.2	09.1	13.3	13.3	13.7
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon D-Si	3.12	3.01	3.06	2.88	2.64	2.60	2.89
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium D-Na	20.3	19.9	20.1	24.3	34.5	34.5	35.5
Strontium D-Sr	0.495	0.567	0.582	0.598	0.637	0.678	0.740
Thallium D-Tl	0.00059	0.00057	0.00058	0.00056	0.00022	0.00021	<0.00020
Tin D-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00233	0.00226	0.00232	0.00213	0.00328	0.00388	0.00524
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc D-Zn	14.3	14.10	14.50	13.60	02.9	02.4	02.3

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	60	80
Sample ID	FP_1 (Faro @1m)	FP_3 (Faro @3m)	FP_5 (Faro @5m)	FP_15 (Faro @15m)	FP_30 (Faro @30m)	FP_60 (Faro @60m)	FP_80 (Faro @80m)
Date Sampled	15-Sep-06	15-Sep-06	15-Sep-06	15-Sep-06	15-Sep-06	15-Sep-06	15-Sep-06
Time Sampled	17:35	17:45	18:00	18:15	18:32	18:50	19:05
ALS Sample ID	14	15	16	17	18	19	20
Nature	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Hardness (as CaCO3)							
Conductivity (uS/cm)	1140	1150	1150	1250	1360	1380	1440
ORP							
pH	7.78	7.80	7.82	7.68	7.34	7.25	7.17
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	31.2	32.6	36.6
Dissolved Anions							
Alkalinity-Total CaCO3	101	96.9	103	105	106	108	118
Sulphate SO4	549	553	554	607	682	695	699
Bromide (Br)							
Chloride (Cl)							
Nutrients							
Ammonia Nitrogen N	1.68	1.64	1.63	1.91	1.49	1.55	1.92
Nitrate Nitrogen N	0.330	0.328	0.328	0.211	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N							
Nitrite/Nitrate Nitrogen N							
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0026	0.0034	0.0033	0.0031	0.0100	0.0046	0.0081
Total Metals							
Aluminum T-Al	0.0048	0.0049	0.0045	0.0062	0.0080	0.0095	0.0175
Antimony T-Sb	0.00102	0.00103	0.00101	0.00099	<0.00020	<0.00020	<0.00020
Arsenic T-As	<0.00020	<0.00020	<0.00020	<0.00020	0.00086	0.00124	0.00126
Barium T-Ba	0.0178	0.0178	0.0175	0.0177	0.0162	0.0160	0.0157
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00515	0.00508	0.00480	0.00336	<0.00010	<0.00010	<0.00010
Calcium T-Ca	146	144	144	161	193	196	207
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0459	0.0461	0.0446	0.0478	0.0338	0.0334	0.0320
Copper T-Cu	0.00573	0.00594	0.00566	0.00248	0.00118	0.00098	0.00091
Iron T-Fe	0.104	0.098	0.100	0.167	21.2	24.0	28.9
Lead T-Pb	0.00098	0.00099	0.00098	0.00089	0.00063	0.00060	0.00065
Lithium T-Li	0.055	0.055	0.053	0.059	0.066	0.067	0.075
Magnesium T-Mg	67.4	66.6	66.3	69.7	68.2	68.3	71.4
Manganese T-Mn	2.64	2.65	2.52	3.07	3.74	3.86	4.12
Molybdenum T-Mo	0.00179	0.00186	0.00184	0.00193	0.00309	0.00274	0.00260
Nickel T-Ni	0.113	0.115	0.111	0.109	0.0721	0.0709	0.0768
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	9.3	9.2	9.1	11.1	15.3	15.4	15.3
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	3.40	3.36	3.31	3.17	2.79	2.85	3.08
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	22.4	22.1	21.9	26.2	34.3	34.2	34.5
Strontium T-Sr	0.570	0.593	0.565	0.601	0.613	0.659	0.743
Thallium T-Tl	0.00063	0.00059	0.00060	0.00058	0.00022	0.00022	0.00020
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00244	0.00250	0.00245	0.00221	0.00342	0.00407	0.00559
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	15.4	15.3	14.8	14.5	2.80	2.17	2.16
Dissolved Metals							
Aluminum D-Al	<0.0020	<0.0020	<0.0020	0.0062	0.0030	0.0042	0.0033
Antimony D-Sb	0.00098	0.00094	0.00101	0.00097	<0.00020	<0.00020	<0.00020
Arsenic D-As	<0.00020	<0.00020	<0.00020	<0.00020	0.00075	0.00104	0.00100
Barium D-Ba	0.0172	0.0171	0.0173	0.0170	0.0162	0.0151	0.0152
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00498	0.00478	0.00487	0.00327	<0.00010	<0.00010	<0.00010
Calcium D-Ca	144	142	144	159	189	192	204
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0451	0.0437	0.0441	0.0461	0.0346	0.0317	0.0317
Copper D-Cu	0.00472	0.00443	0.00444	0.00088	0.00105	0.00088	0.00080
Iron D-Fe	<0.030	<0.030	<0.030	0.066	20.6	23.0	28.4
Lead D-Pb	0.00017	0.00023	0.00014	<0.00010	0.00013	0.00010	<0.00010
Lithium D-Li	0.055	0.052	0.052	0.057	0.066	0.067	0.073
Magnesium D-Mg	66.2	65.7	66.6	69.3	66.7	66.6	70.2
Manganese D-Mn	2.59	2.52	2.52	2.92	3.79	3.70	4.02
Molybdenum D-Mo	0.00185	0.00182	0.00178	0.00194	0.00316	0.00267	0.00251
Nickel D-Ni	0.111	0.109	0.110	0.105	0.0730	0.0681	0.0746
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	9.0	9.1	9.0	11.2	14.9	14.7	15.1
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon D-Si	3.31	3.31	3.30	3.16	2.71	2.72	3.00
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium D-Na	21.9	22.0	22.0	26.1	33.3	32.7	34.3
Strontium D-Sr	0.570	0.560	0.567	0.581	0.633	0.632	0.717
Thallium D-Tl	0.00059	0.00057	0.00059	0.00057	0.00023	0.00021	<0.00020
Tin D-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00240	0.00238	0.00237	0.00209	0.00348	0.00393	0.00545
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc D-Zn	15.0	14.6	14.4	13.8	2.79	2.07	2.08

Faro Pit - 2005 to 2008 Monitoring Results
RESULTS OF ANALYSIS

Depth (m)	1	5	15	80	1	3	5	15	30	60	80
Sample ID	F1 FARO @1M	F-5 FARO @5M	F-15 FARO @15M	F-80 FARO @80M	FPL-1M	FPL-3M	FPL-5M	FPL-15M	FPL-30M	FPL-60M	FPL-80M
Date Sampled	26-Mar-07	26-Mar-07	26-Mar-07	26-Mar-07	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07
Time Sampled	15:20	15:48	15:59	16:45	17:45	18:05	18:15	18:30	18:40	18:55	19:20
ALS Sample ID	L491616-5	L491616-6	L491616-7	L491616-8	L518525-14	L518525-15	L518525-16	L518525-17	L518525-18	L518525-19	L518525-20
Nature	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests											
Hardness (as CaCO3)					568	574	656	726	829	812	862
Conductivity (uS/cm)	1010	1270	1270	1490	1000	1000	1130	1180	1310	1320	1340
ORP					120	120	120	130	130	-10	-30
pH	7.73	7.90	7.90	7.85	7.85	7.85	7.79	7.75	7.17	7.11	7.15
Total Suspended Solids	<3.0	<3.0	<3.0	47.2	<3.0	<3.0	<3.0	<3.0	30	30.7	135
Dissolved Anions											
Alkalinity-Total CaCO3											
Sulphate SO4	487	606	605	734	502	503	571	604	687	710	733
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.52	1.19	1.21	1.44	0.95	0.9	1.03	1.11	1.28	1.29	1.31
Nutrients											
Ammonia Nitrogen N					1.37	1.34	1.66	1.80	1.67	1.75	1.89
Nitrate Nitrogen N					0.327	0.331	0.377	0.421	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N					0.0022	0.003	0.003	0.0029	<0.0010	<0.0010	<0.0010
Nitrite/Nitrate Nitrogen N					0	0	0	0.424	<0.0050	<0.0050	<0.0050
Dissolved ortho-Phosphate P					<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P					0.0029	0.0045	0.0031	0.0036	0.0120	0.0120	0.0600
Total Metals											
Aluminum T-Al	<0.20	<0.20	<0.20	<0.20	0.0318	0.0347	0.0306	0.0282	0.0166	0.0097	0.8590
Antimony T-Sb	<0.20	<0.20	<0.20	<0.20	0.00068	0.00066	0.00086	0.00082	<0.00050	<0.00050	0.00233
Arsenic T-As	<0.20	<0.20	<0.20	<0.20	<0.00050	<0.00050	<0.00050	<0.00050	0.00062	0.00179	0.0545
Barium T-Ba	0.0140	0.0170	0.0170	0.0240	0.0171	0.0167	0.0175	0.0171	0.0160	0.0151	0.5410
Beryllium T-Be	<0.0050	<0.0050	<0.0050	<0.0050	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Bismuth T-Bi	<0.20	<0.20	<0.20	<0.20	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Boron T-B	<0.10	<0.10	<0.10	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium T-Cd	0.02800	<0.010	<0.010	<0.010	0.00784	0.00829	0.00656	0.00664	0.00086	<0.00025	0.00098
Calcium T-Ca	112	163	160	206	134	131	152	169	209	219	226
Chromium T-Cr	<0.010	<0.010	<0.010	<0.010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cobalt T-Co	0.0330	0.0460	0.0460	0.0310	0.0417	0.0422	0.0460	0.0478	0.0378	0.0344	0.0356
Copper T-Cu	0.04000	<0.010	<0.010	<0.010	0.0189	0.01950	0.01330	0.01040	0.00232	0.00069	0.03320
Iron T-Fe	0.043	0.033	<0.030	26.400	0.2	0.2	0.3	0.231	20.600	25.900	35.900
Lead T-Pb	<0.050	<0.050	<0.050	<0.050	0.00223	0.00190	0.00191	0.00112	0.00069	0.00084	0.27200
Lithium T-Li	0.038	0.056	0.059	0.067	0.050	0.048	0.056	0.062	0.074	0.074	0.080
Magnesium T-Mg	60.0	69.6	69.1	68.1	62.4	60.1	68.5	75.3	74.0	75.1	77.2
Manganese T-Mn	1.74	2.74	2.81	3.88	2.13	2.14	2.40	2.58	3.67	3.75	3.89
Molybdenum T-Mo	<0.030	<0.030	<0.030	<0.030	0.00132	0.00132	0.00152	0.00160	0.00305	0.00250	0.00264
Nickel T-Ni	0.111	0.111	0.109	0.067	0.0980	0.0989	0.1090	0.115	0.078	0.070	0.076
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	4.6	10.3	10.3	14.8	6.8	6.7	8.0	9.2	13.9	14.5	15.5
Selenium T-Se	<0.20	<0.20	<0.20	<0.20	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silicon T-Si	6.96	3.63	3.51	2.96	3.03	2.94	3.15	3.32	2.74	2.82	4.21
Silver T-Ag	<0.010	<0.010	<0.010	<0.010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	0.000449
Sodium T-Na	10.7	22.0	22.4	31.2	17.0	16.8	20.1	22.9	31.9	32.6	34.5
Strontium T-Sr	0.397	0.611	0.616	0.679	0.462	0.459	0.529	0.567	0.597	0.629	0.656
Thallium T-Tl	<0.20	<0.20	<0.20	<0.20	<0.00050	<0.00050	0.00054	0.00057	<0.00050	<0.00050	<0.00050
Tin T-Sn	<0.030	<0.030	<0.030	<0.030	0.00076	0.00215	0.00296	0.00248	0.00284	0.00091	0.00406
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.033
Uranium T-U					0.00201	0.00198	0.00239	0.00239	0.00325	0.00430	0.00579
Vanadium T-V	<0.030	<0.030	<0.030	<0.030	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Zinc T-Zn	25.1	15.6	14.5	2.3	13.40	13.60	14.00	14.7	3.7	2.2	2.9
Dissolved Metals											
Aluminum D-Al	<0.20	<0.20	<0.20	<0.20	0.0079	0.0081	0.0541	0.0052	0.0073	0.0056	0.0184
Antimony D-Sb	<0.20	<0.20	<0.20	<0.20	0.00063	0.00064	0.00083	0.00081	<0.00050	<0.00050	<0.00050
Arsenic D-As	<0.20	<0.20	<0.20	<0.20	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00162	0.00169
Barium D-Ba	0.0130	0.0160	0.0160	0.0130	0.0157	0.0165	0.0172	0.0171	0.0154	0.0149	0.0142
Beryllium D-Be	<0.0050	<0.0050	<0.0050	<0.0050	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Bismuth D-Bi	<0.20	<0.20	<0.20	<0.20	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Boron D-B	<0.10	<0.10	<0.10	<0.10	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Cadmium D-Cd	0.02700	<0.010	<0.010	<0.010	0.0077	0.00784	0.00673	0.00655	0.00088	<0.00025	<0.00025
Calcium D-Ca	112	159	152	203	129	131	150	168	210	207	221
Chromium D-Cr	<0.010	<0.010	<0.010	<0.010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Cobalt D-Co	0.0340	0.0450	0.0440	0.0310	0.0404	0.0425	0.0461	0.0479	0.0361	0.0341	0.0316
Copper D-Cu	0.03800	<0.010	<0.010	<0.010	0.0126	0.0128	0.00892	0.00761	<0.00050	<0.00050	<0.00050
Iron D-Fe	<0.030	<0.030	<0.030	25.9	<0.030	<0.030	<0.030	<0.030	20.5	24.4	28.1
Lead D-Pb	<0.050	<0.050	<0.050	<0.050	<0.00025	<0.00025	<0.00025	<0.00025	0.00213	<0.00025	0.00103
Lithium D-Li	0.038	0.055	0.053	0.070	0.046	0.048	0.056	0.058	0.066	0.073	0.075
Magnesium D-Mg	59.7	67.3	65.0	67.6	59.7	60.1	68.1	74.7	74.1	71.4	75.2
Manganese D-Mn	1.73	2.70	2.66	3.92	2.06	2.17	2.45	2.61	3.51	3.71	3.74
Molybdenum D-Mo	<0.030	<0.030	<0.030	<0.030	0.00119	0.00129	0.00156	0.00164	0.00274	0.00256	0.00231
Nickel D-Ni	0.110	0.107	0.104	0.067	0.0952	0.0996	0.1090	0.115	0.073	0.069	0.069
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	4.6	10.1	9.7	15.0	6.6	6.7	7.9	9.1	13.8	14.1	14.7
Selenium D-Se	<0.20	<0.20	<0.20	<0.20	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silicon D-Si	6.89	3.57	3.31	2.95	2.90	2.91	3.12	3.30	2.73	2.68	2.87
Silver D-Ag	<0.010	<0.010	<0.010	<0.010	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Sodium D-Na	10.6	21.7	21.2	31.5	16.5	16.9	19.9	22.7	31.5	32.4	33.2
Strontium D-Sr	0.396	0.598	0.578	0.689	0.450	0.479	0.534	0.577	0.574	0.624	0.650
Thallium D-Tl	<0.20	<0.20	<0.20	<0.20	<0.00050	<0.00050	0.00052	0.00054	<0.00050	<0.00050	<0.00050
Tin D-Sn	<0.030	<0.030	<0.030	<0.030	0.0018	0.00248	0.00124	0.00266	0.00235	0.00084	0.00197
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U					0.00188	0.00198	0.00232	0.00242	0.00308	0.00409	0.00513
Vanadium D-V	<0.030	<0.030	<0.030	<0.030	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Zinc D-Zn	24.7	15.2	14.6	2.4	12.80	13.50	14.10	14.7	3.5	2.2	2.2

Faro Pit - 2005 to 2008 Monitoring Results
RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	60	80
Sample ID	FPL-1M	FPL-3M	FPL-5M	FPL-15M	FPL-30M	FPL-60M	FPL-80M
Date Sampled	11-Jul-07	11-Jul-07	11-Jul-07	11-Jul-07	11-Jul-07	11-Jul-07	11-Jul-07
Time Sampled	10:33	10:27	10:22	10:15	10:07	09:55	10:55
ALS Sample ID	L529776-7	L529776-8	L529776-9	L529776-10	L529776-11	L529776-12	L529776-13
Nature	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Hardness (as CaCO3)	651	617	613	715	788	766	820
Conductivity (uS/cm)	1100	1100	1100	1230	1370	1380	1430
ORP	60	70	80	100	-20	-30	-20
pH	7.70	7.80	7.84	7.62	7.06	7.02	6.94
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	29	29	37
Dissolved Anions							
Alkalinity-Total CaCO3							
Sulphate SO4	533	535	535	608	692	707	734
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	0.93	0.93	0.92	1.06	1.22	1.24	1.27
Nutrients							
Ammonia Nitrogen N	1.48	1.48	1.48	1.93	1.86	1.95	2.24
Nitrate Nitrogen N	0.381	0.371	0.388	0.405	<0.0050	<0.0050	<0.0050
Nitrite Nitrogen N	0.0067	0.0045	0.0051	0.0058	0.0012	<0.0010	<0.0010
Nitrite/Nitrate Nitrogen N	0.388	0.375	0.393	0.41	<0.0050	<0.0050	<0.0050
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0038	0.0035	0.0032	0.0025	0.0071	0.0057	0.0058
Total Metals							
Aluminum T-Al	0.0128	0.0119	0.0134	0.0158	0.0130	0.0116	0.0126
Antimony T-Sb	0.00065	0.00061	0.00064	0.00086	<0.00020	<0.00020	<0.00020
Arsenic T-As	<0.00050	<0.00050	<0.00050	<0.00050	0.00061	0.00126	0.00103
Barium T-Ba	0.0166	0.0164	0.0167	0.0172	0.0149	0.0141	0.0140
Beryllium T-Be	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Boron T-B	<0.050	<0.050	<0.050	<0.050	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00808	0.00774	0.00807	0.00634	0.00027	<0.00010	<0.00010
Calcium T-Ca	145	140	143	166	204	206	208
Chromium T-Cr	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0434	0.0429	0.0437	0.0470	0.0333	0.0311	0.0292
Copper T-Cu	0.00873	0.00855	0.00895	0.0093	0.0020	<0.00080	<0.00060
Iron T-Fe	0.1	0.1	0.1	0.146	21.800	25.000	29.500
Lead T-Pb	0.00102	0.00096	0.00094	0.00111	0.00083	0.00093	0.00102
Lithium T-Li	0.052	0.050	0.051	0.062	0.067	0.068	0.071
Magnesium T-Mg	70.2	66.0	68.6	74.8	75.2	73.0	74.8
Manganese T-Mn	2.20	2.18	2.22	2.59	3.38	3.39	3.59
Molybdenum T-Mo	0.00125	0.00119	0.00129	0.00154	0.00277	0.00244	0.00224
Nickel T-Ni	0.1080	0.1050	0.1080	0.1170	0.0703	0.064	0.067
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	7.7	7.2	7.3	9.0	13.9	14.2	13.7
Selenium T-Se	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Silicon T-Si	3.32	3.21	3.26	3.37	2.80	2.81	2.92
Silver T-Ag	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020
Sodium T-Na	19.1	17.9	18.2	21.8	32.3	32.7	32.0
Strontium T-Sr	0.503	0.503	0.510	0.585	0.576	0.585	0.663
Thallium T-Tl	0.00054	0.00052	0.00053	0.00059	0.00022	0.00021	<0.00020
Tin T-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00204	0.00200	0.00201	0.00262	0.00330	0.00392	0.00540
Vanadium T-V	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Zinc T-Zn	15.30	15.20	15.30	16.2	3.4	2.5	2.4
Dissolved Metals							
Aluminum D-Al	<0.0050	<0.0050	<0.0050	<0.0050	0.0041	0.0039	0.0021
Antimony D-Sb	0.0006	0.0006	0.00066	0.00082	<0.00020	<0.00020	<0.00020
Arsenic D-As	<0.00050	<0.00050	<0.00050	<0.00050	0.0005	0.0008	0.00021
Barium D-Ba	0.0163	0.0165	0.0167	0.0168	0.0147	0.0138	0.0135
Beryllium D-Be	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Boron D-B	<0.050	<0.050	<0.050	<0.050	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00803	0.00781	0.00811	0.00617	0.00017	<0.00010	<0.00010
Calcium D-Ca	146	138	138	163	199	193	205
Chromium D-Cr	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0426	0.0432	0.0438	0.0467	0.0333	0.0312	0.0289
Copper D-Cu	0.00644	0.00621	0.0064	0.0066	<0.00040	<0.00040	<0.00040
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	20.7	23.8	29.1
Lead D-Pb	<0.00025	<0.00025	<0.00025	<0.00025	<0.00010	0.00015	<0.00010
Lithium D-Li	0.050	0.052	0.053	0.061	0.066	0.067	0.071
Magnesium D-Mg	69.8	66.0	65.0	74.8	70.8	68.8	74.7
Manganese D-Mn	2.20	2.22	2.24	2.60	3.39	3.39	3.60
Molybdenum D-Mo	0.00127	0.00123	0.00125	0.00162	0.00266	0.00248	0.00226
Nickel D-Ni	0.1050	0.1060	0.1070	0.1160	0.0703	0.064	0.068
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	7.4	7.2	7.1	8.8	13.1	13.0	13.7
Selenium D-Se	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Silicon D-Si	3.30	3.14	3.10	3.31	2.70	2.64	2.87
Silver D-Ag	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000020	<0.000020
Sodium D-Na	18.8	17.7	17.5	21.4	30.6	30.4	32.0
Strontium D-Sr	0.502	0.507	0.511	0.572	0.576	0.592	0.665
Thallium D-Tl	<0.00050	0.00053	0.00052	0.00059	0.00022	<0.00020	<0.00020
Tin D-Sn	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00192	0.00197	0.00201	0.00249	0.00317	0.00389	0.00539
Vanadium D-V	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0020	<0.0020
Zinc D-Zn	15.20	15.30	15.20	15.9	3.3	2.2	2.2

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	60	80
Sample ID	P-1 FARO PIT@1M-P-3 FARO PIT@3M-P-5 FARO PIT@5M-P-15 FARO PIT@15M-P-30 FARO PIT@30M-P-60 FARO PIT@60M-P-80 FARO PIT@80M						
Date Sampled	5-Sep-07	5-Sep-07	5-Sep-07	5-Sep-07	5-Sep-07	5-Sep-07	5-Sep-07
Time Sampled	17:35	17:45	18:10	18:25	18:40	18:50	19:00
ALS Sample ID	L551912-5	L551912-6	L551912-7	L551912-8	L551912-9	L551912-10	L551912-21
Nature	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Hardness (as CaCO3)	634	634	640	707	765	795	846
Conductivity (uS/cm)	1180	1180	1180	1290	1430	1460	1530
ORP	110	110	110	130	-10	-10	10
pH	7.91	7.94	7.96	7.79	7.46	7.44	7.37
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	24.4	27.8	23.8
Dissolved Anions							
Alkalinity-Total CaCO3							
Sulphate SO4	562	556	561	610	716	744	776
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<1.0	<0.50	<0.50
Chloride (Cl)	1.06	1.05	1.06	1.16	<10	<5.0	<5.0
Nutrients							
Ammonia Nitrogen N	1.21	1.24	1.32	1.64	1.5	1.61	1.85
Nitrate Nitrogen N	0.433	0.43	0.435	0	<0.10	<0.050	<0.050
Nitrite Nitrogen N	0.0061	0.0076	0.0074	0	<0.020	0	0
Nitrite/Nitrate Nitrogen N							
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.002	0.002	0.002	0	0.0034	0.0040	0.0036
Total Metals							
Aluminum T-Al	0.0203	<0.0050	<0.0050	0.0088	0.0064	0.0066	0.0364
Antimony T-Sb	0.00072	0.00069	0.00075	0.00076	<0.00020	<0.00050	<0.00050
Arsenic T-As	<0.00050	<0.00050	<0.00050	<0.00050	0.00068	0.00093	0.00117
Barium T-Ba	0.0179	0.0180	0.017	0.017	0.015	0.015	0.015
Beryllium T-Be	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0025	<0.0025
Bismuth T-Bi	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0025	<0.0025
Boron T-B	<0.050	<0.050	<0.050	<0.050	<0.020	<0.050	<0.050
Cadmium T-Cd	0.00820	0.00808	0.00801	0.006	0.00015	<0.00025	<0.00025
Calcium T-Ca	140	142	138	156	189	197	211
Chromium T-Cr	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0025	<0.0025
Cobalt T-Co	0.0456	0.0449	0.0446	0.049	0.034	0.034	0.030
Copper T-Cu	0.00679	0.00657	0.0064	0.007	<0.0010	0.00065	0.00059
Iron T-Fe	0.1	0.1	0.1	0.160	21.000	24.1	30.0
Lead T-Pb	0.00094	0.00097	0.001	0.00068	0.00051	0.00071	0.00119
Lithium T-Li	0.055	0.054	0.056	0.061	0.068	0.071	0.074
Magnesium T-Mg	67.3	69.0	66.3	71.4	68.5	70.5	73.7
Manganese T-Mn	2.25	2.23	2.20	2.61	3.37	3.48	3.49
Molybdenum T-Mo	0.00134	0.00150	0.00129	0.00139	0.00273	0.00242	0.00188
Nickel T-Ni	0.1150	0.1140	0.1140	0.118	0.071	0.070	0.073
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	8.6	8.9	8.3	10.3	14.4	15.0	14.7
Selenium T-Se	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0050	<0.0050
Silicon T-Si	3.44	3.56	3.38	3.26	2.75	2.85	3.12
Silver T-Ag	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000050	<0.000050
Sodium T-Na	19.2	20.0	18.9	22.9	29.9	30.8	30.5
Strontium T-Sr	0.522	0.522	0.506	0.562	0.555	0.591	0.640
Thallium T-Tl	0.00058	0.00057	0.00056	0.00054	0.00021	<0.00050	<0.00050
Tin T-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00200	0.00199	0.00199	0.00225	0.00369	0.00427	0.00575
Vanadium T-V	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0050	<0.0050
Zinc T-Zn	14.70	14.80	14.20	14.0	2.8	2.4	2.43
Dissolved Metals							
Aluminum D-Al	<0.0050	<0.0050	<0.0050	<0.0050	0.0021	<0.0050	0.0099
Antimony D-Sb	0.00065	0.00066	0.00072	0.00072	<0.00020	<0.00050	<0.00050
Arsenic D-As	<0.00050	<0.00050	<0.00050	<0.00050	0.00069	0.00081	0.00092
Barium D-Ba	0.0174	0.0173	0.0173	0.017	0.015	0.014	0.014
Beryllium D-Be	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0025	<0.0025
Bismuth D-Bi	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0025	<0.0025
Boron D-B	<0.050	<0.050	<0.050	<0.050	<0.020	<0.050	<0.050
Cadmium D-Cd	0.00826	0.00805	0.00802	0.006	<0.00010	<0.00025	<0.00025
Calcium D-Ca	142	142	144	162	191	201	215
Chromium D-Cr	<0.0025	<0.0025	<0.0025	<0.0025	<0.0010	<0.0025	<0.0025
Cobalt D-Co	0.0450	0.0449	0.0451	0.049	0.034	0.034	0.031
Copper D-Cu	0.00544	0.00555	0.00536	0.003	<0.00020	<0.00050	<0.00050
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	21.1	24.4	30.5
Lead D-Pb	0.00025	<0.00025	<0.00025	<0.00025	<0.00010	<0.00025	<0.00025
Lithium D-Li	0.055	0.054	0.056	0.063	0.067	0.071	0.075
Magnesium D-Mg	68.2	68.0	68.3	73.4	69.8	71.2	75.3
Manganese D-Mn	2.21	2.21	2.24	2.68	3.32	3.44	3.58
Molybdenum D-Mo	0.00144	0.00134	0.00129	0.00146	0.00271	0.00236	0.00197
Nickel D-Ni	0.1130	0.1120	0.1140	0.121	0.070	0.069	0.076
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	8.6	8.7	8.6	10.6	14.8	15.2	15.4
Selenium D-Se	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0050	<0.0050
Silicon D-Si	3.48	3.52	3.50	3.36	2.80	2.89	3.26
Silver D-Ag	<0.000050	<0.000050	<0.000050	<0.000050	<0.000020	<0.000050	<0.000050
Sodium D-Na	19.4	19.9	19.2	23.4	30.4	31.4	32.8
Strontium D-Sr	0.517	0.509	0.514	0.570	0.551	0.580	0.656
Thallium D-Tl	0.00056	0.00054	0.00054	0.00056	0.00023	<0.00050	<0.00050
Tin D-Sn	<0.00050	<0.00050	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00195	0.00198	0.00199	0.00227	0.00348	0.00408	0.00592
Vanadium D-V	<0.0050	<0.0050	<0.0050	<0.0050	<0.0020	<0.0050	<0.0050
Zinc D-Zn	14.60	14.40	14.50	14.5	2.8	2.4	2.51

Depth (m)	1	3	5	15	30	60	80	1	3	5	15	30	60	80
Sample ID	K23513	K23515	K23516	K23517	K23518	K23519	K23520	F-1	F-3	F-5	F-15	F-30	F-60	F-80
Date Sampled	11/6/08	11/6/08	11/6/08	11/6/08	11/6/08	11/6/08	11/6/08	9/07/08	9/07/08	9/07/08	9/07/08	9/07/08	9/07/08	9/07/08
Time Sampled	F112778	F112778	F112778	F112778	F112778	F112778	F112778	F113737	F113737	F113737	F113737	F113737	F113737	F113737
ALS Sample ID	F-1	F-3	F-5	F-15	F-30	F-60	F-80							
Nature	Water	Water	Water	Water	Water	Water	Water							
Physical Tests														
Hardness (as CaCO3)	633	594	619	649	697	716	713	614	638	641	712	787	830	909
Conductivity (uS/cm)								1200	1200	1200	1300	1500	1500	1600
ORP														
pH	7.6	7.6	7.6	7.5	7.1	7.1	7	7.6	7.7	7.7	7.7	7.8	7.7	7.6
Total Suspended Solids	ND	ND	ND	ND	27	33	31	ND	ND	ND	ND	19	23	60
Dissolved Anions														
Alkalinity-Total	80	79	88	91	90	92	97	84	87	84	95	97	100	110
Sulphate	510	530	560	540	700	690	660	560	550	530	600	660	810	790
Bromide (Br)								0.45	0.46	0.46	0.49	0.56	0.59	0.74
Chloride (Cl)	1.3	1.4	1.4	1.8	7.2	7.5	7.1	1.8	1.7	1.6	2.2	8	7.9	7.1
Nutrients														
Ammonia Nitrogen	0.97	0.96	0.98	1.14	1.32	1.46	1.62	1.07	1.05	1.03	1.22	1.38	1.68	2.18
Nitrate Nitrogen	0.51	10.1	0.69	0.43	0.02	0.17	0.12	0.45	0.45	0.44	0.47	ND	ND	ND
Nitrite Nitrogen	ND	ND	ND	0.005	ND	ND	ND	0.005	0.005	0.005	0.005	ND	ND	ND
Nitrite/Nitrate Nitrogen	0.51	10.1	0.69	0.44	0.02	0.17	0.12	0.46	0.45	0.45	0.47	ND	ND	ND
Dissolved ortho-Phosphate	ND	ND	ND	ND	ND	ND	ND	0.007	0.002	0.003	0.003	0.005	0.006	0.006
Total Phosphate	ND	ND	ND	ND	ND	0.005	0.005	0.019	ND	ND	ND	0.005	0.006	0.018
Total Metals														
Aluminum	0.04	0.038	0.036	0.025	0.014	0.017		0.0025	0.0207	0.0191	0.0156	0.0211	0.0195	0.197
Antimony	0.0006	0.0006	0.0007	0.0007	ND	ND	ND	0.0053	0.0059	0.0053	0.0057	0.0005	0.0007	0.00011
Arsenic	0.0002	0.0002	0.0002	0.0003	0.0005	0.0014	0.0015	0.00018	0.0002	0.00017	0.00019	0.00059	0.00125	0.00337
Barium	0.0188	0.0174	0.0179	0.019	0.016	0.0158	0.0155	0.017	0.0169	0.0166	0.0171	0.0152	0.0144	0.0293
Beryllium	0.0001	0.0001	0.0001	0.00007	0.00008	0.00008	0.00008	0.00006	0.00006	0.00006	0.00007	0.00007	0.00014	0.00014
Bismuth	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.000021
Boron	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	0.0128	0.0123	0.0115	0.0108	0.00039	0.00008	0.00009	0.0109	0.0114	0.0113	0.00948	0.000194	0.00009	0.000381
Calcium	143	134	141	149	179	186	186	140	146	146	167	207	219	242
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0005
Cobalt	0.0472	0.0443	0.046	0.0445	0.0332	0.0317	0.0284	0.0472	0.0482	0.0493	0.0503	0.036	0.0357	0.0321
Copper	0.0213	0.0203	0.0181	0.0144	0.0034	0.0004	0.0006	0.00927	0.00984	0.0102	0.0135	0.00313	0.00085	0.00571
Iron	0.214	0.209	0.35	0.205	19.4	25.4	28.5	0.101	0.088	0.084	0.099	23.7	26.9	41.1
Lead	0.002	0.00204	0.00179	0.00175	0.00085	0.00134	0.00243	0.002	0.00241	0.0018	0.000902	0.000636	0.00113	0.0203
Lithium	0.059	0.056	0.062	0.065	0.073	0.079	0.082	0.0554	0.0539	0.0537	0.0578	0.0671	0.0699	0.0787
Magnesium	67.2	63.1	65.1	67	61	61.2	60.3	64.1	66.4	67	71.8	65.6	68.8	74.3
Manganese	2.5	2.32	2.43	2.61	3.64	3.71	3.72	2.48	2.53	2.51	2.86	3.9	3.96	4.33
Molybdenum	0.0011	0.0011	0.0012	0.0011	0.0024	0.0024	0.0022	0.00114	0.00111	0.0011	0.00121	0.00278	0.0025	0.00213
Nickel	0.114	0.107	0.116	0.11	0.0726	0.0665	0.0677	0.115	0.117	0.12	0.121	0.0737	0.0733	0.0842
Phosphorus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Potassium	8	7.74	7.87	8.94	12.7	13.2	12.7	7.85	8.49	8.44	10.2	14.9	15.4	15.8
Selenium	0.0006	0.0004	0.0004	0.0004	0.0003	0.0003	0.0002	0.00013	0.00013	0.00014	0.00013	0.00017	0.00009	ND
Silicon	3.43	3.41	3.57	3.47	2.84	2.96	3.12	3.39	3.88	3.88	3.82	3.36	3.5	4.29
Silver	ND	ND	ND	ND	ND	ND	ND	0.000011	0.000014	0.000013	0.00001	0.000006	0.000009	0.000017
Sodium	18.1	17	17.9	19.5	26.1	26.7	25.4	18.2	19.2	19.3	23.1	31.4	32.5	33.6
Strontium	0.584	0.538	0.581	0.599	0.616	0.634	0.708	0.587	0.609	0.6	0.631	0.638	0.669	0.816
Thallium	0.00054	0.0005	0.00054	0.00054	0.00021	0.00021	0.0002	0.000508	0.000512	0.000502	0.000524	0.000221	0.000204	0.000267
Tin	ND	ND	ND	ND	ND	ND	ND	0.00014	0.00027	0.00009	0.00006	0.00002	0.00004	0.0001
Titanium	0.004	0.003	0.003	0.003	0.005	0.008	0.004	ND	ND	ND	ND	0.0008	0.0007	0.0076
Uranium	0.00211	0.002	0.00229	0.00212	0.00343	0.00431	0.00605	0.00202	0.00199	0.00196	0.00216	0.00367	0.00426	0.0076
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0004
Zinc	19.6	18.4	18.9	18.7	4.01	2.73	2.77	15.4	15.5	15.7	15.9	3.13	2.45	2.97
Dissolved Metals														
Aluminum	0.003	0.004	0.006	0.007	0.002	0.006	0.002	0.0017	0.0015	0.0021	0.0057	0.0093	0.0085	0.0102
Antimony	0.0005	0.0005	0.0006	0.0006	ND	ND	ND	0.00053	0.00054	0.00058	0.00058	0.00008	0.00008	0.00009
Arsenic	0.0002	0.0001	0.0002	0.0002	0.0003	0.0007	0.0006	0.00016	0.00013	0.00014	0.00015	0.00053	0.0007	0.00102
Barium	0.0167	0.0172	0.017	0.0173	0.0163	0.0173	0.0142	0.0163	0.0164	0.0162	0.0167	0.015	0.014	0.0131
Beryllium	ND	0.00007	ND	ND	0.00006	0.00006	0.00006	0.00005	0.00004	0.00004	0.00006	0.00006	0.00007	0.00009
Bismuth	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium	0.0105	0.0104	0.00984	0.00946	0.00032	0.00006	0.00005	0.0109	0.011	0.011	0.00897	0.000168	0.000046	0.000057
Calcium	115	115	124	137	184	194	195	144	145	143	158	205	205	224
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	0.0397	0.0397	0.0417	0.0412	0.0342	0.0326	0.0289	0.0463	0.0469	0.0471	0.0467	0.0365	0.0337	0.0302
Copper	0.0117	0.0113	0.0096	0.0107	ND	ND	ND	0.0063	0.0064	0.00655	0.0108	0.00024	0.00007	0.00011
Iron	ND	0.017	ND	0.013	18.6	23.1	26.8	0.007	0.003	0.003	0.005	25.1	26.7	40.2
Lead	0.00013	0.0003	0.00013	0.00012	0.00039	0.00103	0.00014	0.000487	0.000578	0.000484	0.000226	0.000145	0.000068	0.00029
Lithium	0.047	0.048	0.051	0.054	0.066	0.069	0.071	0.0533	0.0519	0.052	0.0584	0.0666	0.0688	0.0769
Magnesium	53.4	53.8	58	60.9	62.6	63.6	63.9	65.6	65.8	65.2	68.6	67.9	66.2	71.4
Manganese	1.97	1.97	2.11	2.35	3.55	3.63	3.63	2.5	2.5	2.46	2.75	4.01	3.91	4.18
Molybdenum	0.0009	0.0009	0.001	0.001	0.0021	0.0022	0.0018	0.00108	0.00107	0.00108	0.00121	0.00272	0.00244	0.00199
Nickel	0.0959	0.0966	0.106	0.102	0.075	0.0688	0.0687	0.112	0.114	0.114	0.112	0.0745	0.0694	0.0794
Phosphorus	0	0	0	0	0	0	0	8.12	8.08	8	9.48	14.9	14.5	15.1
Potassium	6.7	6.71	7.33	8.43	13.7	14.2	13.8	0.00012	0.00013	0.00012	0.00012	0.00024	0.00014	0.00009
Selenium	ND	ND	0.0002	0.0003	0.0004	0.0003	0.0003	3.83	3.91	3.9	3.94	3.56	3.35	3.86
Silicon	2.84	2.96	3.02	3.08	2.7	2.81	2.93	ND	0.000007	0.000008	0.000006	0.000007	0.000008	0.000011
Silver	ND	ND	ND	0.00006	ND	ND	ND	18.9	19	18.9	21.7	32	31.2	32.2
Sodium	15.9	16.8	17.2	19.5	29.8	29.8	29.4	0.565	0.566	0.565	0.602	0.62	0.627	0.743
Strontium	0.483	0.487	0.529	0.546	0.629	0.653	0.715	0.000497	0.000503	0.000494	0.000515	0.00021	0.000201	0.000227
Thallium	0.0005	0.00048	0.0005	0.00053	0.00023	0.00022	0.0002	ND	0.00001	0.00002	ND	ND	ND	0.00001
Tin	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0005
Titanium	ND	ND	ND	0.003	ND	0.003	ND	ND	ND	ND	ND	ND	ND	0.0005
Uranium	0.00187	0.00186	0.0021	0.002	0.00323	0.00406	0.00552	0.00187	0.00183	0.0018	0.00207	0.00355	0.0042	0.00705
Vanadium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	15.2	15.2	15.7	16	3.7	2.52	2.52	15.3	15.3	15.4	15.2	3.2	2.36	2.72

Faro Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	60	80	1	3	5	15	30	60	80
Sample ID	FL-1	FL-3	FL-5	FL-15	FL-30	FL-60	FL-80	FL-1	FL-3	FL-5	FL-15	FL-30	FL-60	FL-80
Date Sampled	6/08/2008	6/08/2008	6/08/2008	6/08/2008	6/08/2008	6/08/2008	6/08/2008	3/09/08	3/09/08	3/09/08	3/09/08	3/09/08	3/09/08	3/09/08
Time Sampled														
ALS Sample ID	L05915	L05916	L05917	L05918	L05919	L05920	L05921	L47684	L47685	L47686	L47687	L47688	L47689	L47690
Nature														
Physical Tests														
Hardness (as CaCO3)	624	631	611	660	780	795	809	630	623	628	672	814	844	868
Conductivity (uS/cm)	1200	1200	1200	1300	1500	1500	1600	1200	1200	1200	1300	1500	1500	1500
ORP														
pH	7.7	7.8	7.8	7.6	7.1	7	7	7.6	7.7	7.7	7.6	7.1	7	7
Total Suspended Solids	1	1	ND	ND	14	16	16	ND	ND	1	ND	22	29	30
Dissolved Anions														
Alkalinity-Total CaCO3														
Sulphate SO4	560	470	540	510	730	690	690	630	620	600	610	720	740	700
Bromide (Br)	0.4	0.3	0.3	0.4	1.2	1.2	1.1	0.3	0.3	0.2	0.4	1.1	1.1	0.8
Chloride (Cl)	1.4	1.5	1.5	2	7.3	7.4	7	1.4	1.4	1.4	2	7.3	7	6.6
Nutrients														
Ammonia Nitrogen N	0.8	0.9	0.8	1.1	1.2	1.4	1.9	0.9	1	0.9	1.1	1.2	1.3	1.6
Nitrate Nitrogen N	0.49	0.46	0.47	0.44	ND	ND	ND	0.48	0.48	0.49	0.45	ND	ND	ND
Nitrite Nitrogen N	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (1)	ND
Nitrite/Nitrate Nitrogen N	0.49	0.46	0.47	0.44	ND	ND	ND	0.48	0.48	0.49	0.45	ND	ND	ND
Dissolved ortho-Phosphate P	ND	ND	ND	ND	ND	ND	ND	0.002	0.002	0.002	0.001	0.001	0.001	0.002
Total Phosphate P	ND	ND	ND	ND	ND	0.006	0.006	ND	ND	ND	ND	ND	0.009	0.009
Total Metals														
Aluminum T-Al	0.0217	0.023	0.0232	0.0148	0.0173	0.0191	0.0178	0.024	0.029	0.026	0.014	0.0171	0.0195	0.016
Antimony T-Sb	0.00053	0.00054	0.00048	0.00055	0.00007	0.00008	0.00007	0.0004	0.0004	0.0004	0.0005	0.00005	0.00006	0.00005
Arsenic T-As	0.00021	0.00021	0.00016	0.00019	0.00075	0.00075	0.00071	0.0002	0.0002	0.0002	0.0003	0.00043	0.00081	0.00078
Barium T-Ba	0.018	0.0184	0.0172	0.0164	0.0153	0.0145	0.0141	0.0162	0.0153	0.0155	0.0157	0.0134	0.0148	0.0134
Beryllium T-Be	0.00006	0.00007	0.00006	0.00008	0.00008	0.00008	0.00009	ND	0.00006	ND	0.00008	0.00007	0.00007	0.00008
Bismuth T-Bi	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron T-B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium T-Cd	0.0128	0.0128	0.0124	0.00951	0.000221	0.000126	0.000149	0.0143	0.0144	0.0144	0.0111	0.000209	0.000084	0.00008
Calcium T-Ca	142	143	138	153	202	208	210	138	137	138	152	213	221	228
Chromium T-Cr	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0002	ND
Cobalt T-Co	0.0489	0.0492	0.0482	0.0475	0.0377	0.0359	0.0328	0.0508	0.0492	0.0491	0.0479	0.0369	0.0367	0.0345
Copper T-Cu	0.00884	0.00871	0.00857	0.0133	0.00338	0.0012	0.00084	0.0098	0.0099	0.0101	0.0123	0.00293	0.00094	0.00083
Iron T-Fe	0.12	0.119	0.114	0.086	21.7	24.4	31.2	0.163	0.172	0.175	0.118	25.3	28.6	34.8
Lead T-Pb	0.00241	0.0023	0.0017	0.00109	0.000855	0.00143	0.00144	0.00134	0.0013	0.00153	0.00092	0.000874	0.00216	0.00143
Lithium T-Li	0.0563	0.0558	0.056	0.058	0.0705	0.0745	0.0782	0.056	0.055	0.055	0.06	0.0694	0.0744	0.0777
Magnesium T-Mg	65.7	66.6	64.7	67.5	67	66.9	69	69.4	68.4	68.8	70.9	68.4	71.1	72.4
Manganese T-Mn	2.41	2.43	2.35	2.61	3.8	3.83	3.89	2.52	2.54	2.53	2.76	3.96	4.06	4.18
Molybdenum T-Mo	0.0011	0.00106	0.00107	0.00115	0.00268	0.00247	0.00221	0.001	0.0009	0.0009	0.001	0.00236	0.00227	0.00212
Nickel T-Ni	0.118	0.118	0.116	0.117	0.0786	0.0741	0.0775	0.123	0.119	0.12	0.119	0.0764	0.0762	0.0791
Phosphorus T-P														
Potassium T-K	7.66	7.81	7.66	9.09	14.3	14.5	14.1	7.66	7.64	7.7	9.1	15.5	15.7	15.7
Selenium T-Se	0.00011	0.00011	0.00012	0.00011	0.00018	0.00008	0.00008	ND	ND	ND	ND	0.00021	0.00013	0.00014
Silicon T-Si	4.06	3.83	3.79	3.64	2.87	2.79	3.85	3.19	3.27	3.42	3.32	3.11	2.8	3.01
Silver T-Ag	0.000015	0.000017	0.000015	0.000007	0.000011	0.000012	0.00001	ND	ND	ND	ND	0.000012	0.000009	ND
Sodium T-Na	18	18.1	17.8	20.8	30.9	30.7	31	19.1	18.7	18.7	21.5	31.9	33.4	33.8
Strontium T-Sr	0.582	0.588	0.578	0.568	0.6	0.626	0.712	0.598	0.583	0.571	0.614	0.654	0.668	0.747
Thallium T-Tl	0.000539	0.00054	0.000518	0.000513	0.00022	0.000212	0.000187	0.00055	0.00053	0.00053	0.00054	0.000212	0.000213	0.000203
Tin T-Sn	0.00006	0.00004	0.00001	ND	ND	0.00002	0.00002	ND	ND	ND	ND	ND	ND	ND
Titanium T-Ti	ND	ND	ND	ND	ND	ND	ND	ND	0.004	0.003	ND	0.0007	0.0006	ND
Uranium T-U	0.00137	0.00141	0.00134	0.00198	0.00366	0.00444	0.00642	0.0009	0.00088	0.00087	0.00138	0.00306	0.00408	0.00518
Vanadium T-V	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc T-Zn	16.3	16.4	15.9	15.6	3.53	2.65	2.82	20.2	19.6	19.9	18.9	3.38	2.64	2.7
Dissolved Metals														
Aluminum D-Al	0.0014	0.0062	0.0052	0.005	0.0084	0.0089	0.0074	0.005	0.003	0.004	0.004	0.0061	0.0077	0.0078
Antimony D-Sb	0.00048	0.0005	0.00047	0.00054	0.00005	0.00005	0.00005	0.0005	0.0005	0.0005	0.0006	0.00005	0.00005	0.00005
Arsenic D-As	0.00014	0.00014	0.00015	0.00017	0.00037	0.00038	0.00032	0.0002	0.0002	0.0002	0.0002	0.00038	0.0004	0.00046
Barium D-Ba	0.0174	0.0176	0.0174	0.0168	0.0153	0.0145	0.0134	0.0171	0.0168	0.0171	0.0171	0.0152	0.0136	0.0136
Beryllium D-Be	0.00004	0.00005	0.00004	0.00007	0.00007	0.00006	0.00007	ND	ND	ND	0.00008	0.00006	0.00006	0.00007
Bismuth D-Bi	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron D-B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium D-Cd	0.0129	0.0128	0.0128	0.00989	0.000071	0.000021	0.000029	0.0148	0.0148	0.0156	0.0111	0.000084	0.00003	0.000041
Calcium D-Ca	144	146	147	166	199	207	227	132	130	137	149	200	205	214
Chromium D-Cr	ND	0.0002	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt D-Co	0.0468	0.0471	0.0474	0.0476	0.0348	0.0337	0.0315	0.0477	0.0467	0.0494	0.0464	0.0369	0.0358	0.0337
Copper D-Cu	0.00523	0.00528	0.00538	0.0114	0.00026	0.00016	0.00019	0.0057	0.0055	0.0059	0.0099	0.0001	0.00011	ND
Iron D-Fe	0.007	0.006	0.009	0.004	23.4	26.8	34.1	0.014	0.014	0.01	0.012	23.6	28.2	32.5
Lead D-Pb	0.000357	0.000356	0.000513	0.000195	0.000069	0.00008	0.000126	0.00014	0.00019	0.00015	0.00016	0.000082	0.000165	0.000142
Lithium D-Li	0.0552	0.0555	0.0551	0.0563	0.0702	0.0734	0.0748	0.058	0.058	0.058	0.061	0.0698	0.0718	0.0751
Magnesium D-Mg	64.5	65.1	66.2	69.8	64.2	65.1	69.8	67.3	67.4	70.9	71.9	70.1	71.2	73.3
Manganese D-Mn	2.4	2.42	2.4	2.7	3.67	3.75	3.98	2.53	2.5	2.6	2.76	3.93	3.98	4.08
Molybdenum D-Mo	0.00103	0.00111	0.00104	0.00114	0.00262	0.0024	0.00205	0.001	0.001	0.001	0.0011	0.00269	0.00244	0.00233
Nickel D-Ni	0.111	0.112	0.113	0.116	0.0728	0.0693	0.0745	0.117	0.115	0.121	0.118	0.0786	0.0755	0.0786
Phosphorus D-P														
Potassium D-K	8.07	8.06	8.1	9.83	14	14.6	15.2	7.35	7.28	7.59	8.85	14.6	14.8	14.8
Selenium D-Se	0.00009	0.00009	0.00008	0.00008	0.00021	0.00014	0.0001	ND	ND	ND	ND	0.00025	0.00018	0.00016
Silicon D-Si	3.23	3.1	3.07	3	2.41	2.4	2.77	4	3.98	4.06	3.89	3.19	3.01	3.12
Silver D-Ag	0.000012	0.000014	0.000014	0.000008	0.000009	0.000012	0.000012	ND	ND	ND	ND	0.000005	0.000006	0.000008
Sodium D-Na	17.6	17.9	18	21.2	29.1	29.5	30.9	18.3	18	19.1	21.9	33.3	34	34.9
Strontium D-Sr	0.58	0.59	0.573	0.576	0.615	0.633	0.698	0.567	0.569	0.568	0.57	0.646	0.66	0.713
Thallium D-Tl	0.000535	0.000542	0.000532	0.000508	0.000218	0.000205	0.000184	0.00051	0.00052	0.00052	0.00052	0.000207	0.000197	0.000194
Tin D-Sn	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00001	ND
Titanium D-Ti	ND	ND	ND	ND	ND	ND	ND	0.004	ND	ND	ND	0.0007	0.0007	0.0006</

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	10	15	30	40
Sample ID	GP-1 GRUM PIT @1m	GP-3 GRUM PIT @3m	GP-5 GRUM PIT @5m	GP-10 GRUM PIT @10m	GP-15 GRUM PIT @15m	GP-30 GRUM PIT @30m	GP-40 GRUM PIT @40m
Date Sampled	9/06/2005	9/06/2005	9/06/2005	9/06/2005	9/06/2005	9/06/2005	9/06/2005
Time Sampled	11:40	11:50	12:00	12:10	12:15	23:30	12:45
ALS Sample ID	8	9	10	11	12	13	14
Nature	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Hardness (as CaCO3)							
Conductivity (uS/cm)	1000	1030	1080	1070	1070	1070	1030
ORP							
pH	8.07	8.07	7.99	7.99	8.00	8.11	8.01
Total Suspended Solids	3.3	3.9	4.6	3.9	<3.0	11.3	<3.0
Dissolved Anions							
Alkalinity-Total CaCO3	157	164	187	172	179	176	172
Sulphate SO4	408	421	435	437	433	440	436
Chloride (Cl)							
Fluoride (F)							
Bromide (Br)							
Nutrients							
Ammonia Nitrogen N	0.0067	0.0100	0.0053	0.0153	0.0200	0.0240	0.0180
Nitrate Nitrogen N	0.958	0.989	1.03	1.07	1.10	1.12	1.11
Nitrite Nitrogen N	0.015	0.014	<0.010	<0.010	<0.010	<0.010	<0.010
Nitrite/Nitrate Nitrogen N							
Dissolved ortho-Phosphate P	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Phosphate P	0.0031	0.002	0.0029	0.0039	0.0021	0.0025	0.0031
Total Metals							
Aluminum T-Al	0.0331	0.0353	0.0340	0.0261	0.0216	0.0291	0.0217
Antimony T-Sb	0.00602	0.00697	0.00772	0.00758	0.00751	0.00772	0.00786
Arsenic T-As	0.00069	0.00073	0.00077	0.00106	0.00097	0.00145	0.00213
Barium T-Ba	0.0410	0.0442	0.0460	0.0461	0.0458	0.0466	0.0474
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00525	0.00585	0.00668	0.00673	0.00656	0.00678	0.00674
Calcium T-Ca	114	122	127	126	125	123	119
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0206	0.0231	0.0251	0.0245	0.0240	0.0250	0.0256
Copper T-Cu	0.00140	0.00173	0.00322	0.00350	0.00324	0.00328	0.00326
Iron T-Fe	0.050	0.053	0.044	0.038	0.042	0.087	0.132
Lead T-Pb	0.00128	0.00155	0.00157	0.00173	0.00119	0.00147	0.00135
Lithium T-Li	0.022	0.025	0.025	0.024	0.025	0.025	0.025
Magnesium T-Mg	66.8	70.8	72.0	71.3	70.0	68.9	66.0
Manganese T-Mn	0.387	0.438	0.500	0.489	0.487	0.505	0.528
Molybdenum T-Mo	0.00312	0.00330	0.00345	0.00333	0.00345	0.00346	0.00369
Nickel T-Ni	0.173	0.195	0.215	0.209	0.207	0.213	0.220
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.3	2.4	2.5	2.5	2.5	2.2	2.4
Selenium T-Se	<0.0020	<0.0020	<0.0020	0.0020	<0.0020	0.0020	<0.0020
Silicon T-Si	2.67	2.91	3.07	3.02	2.96	2.95	2.81
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	9.0	9.8	10.3	10.4	10.2	9.2	9.7
Strontium T-Sr	0.691	0.750	0.780	0.772	0.775	0.784	0.814
Thallium T-Tl	0.00093	0.00103	0.00094	0.00095	0.00094	0.00102	0.00100
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00423	0.00396	0.00517	0.0126	0.00862	0.00873	0.00922
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	5.05	7.07	10.1	9.38	8.93	9.15	9.32
Dissolved Metals							
Aluminum D-Al							
Antimony D-Sb							
Arsenic D-As							
Barium D-Ba							
Beryllium D-Be							
Bismuth D-Bi							
Boron D-B							
Cadmium D-Cd							
Calcium D-Ca							
Chromium D-Cr							
Cobalt D-Co							
Copper D-Cu							
Iron D-Fe							
Lead D-Pb							
Lithium D-Li							
Magnesium D-Mg							
Manganese D-Mn							
Molybdenum D-Mo							
Nickel D-Ni							
Phosphorus D-P							
Potassium D-K							
Selenium D-Se							
Silicon D-Si							
Silver D-Ag							
Sodium D-Na							
Strontium D-Sr							
Thallium D-Tl							
Tin D-Sn							
Titanium D-Ti							
Uranium D-U							
Vanadium D-V							
Zinc D-Zn							
Organic Parameters							
Chlorophyll a (a,b)							

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	10	15	30	40
Sample ID	GP-0.1 Grum Surface	GP-1 Grum Pit @ 1m	GP-3 Grum Pit @ 3m	GP-5 Grum Pit @ 5m	GP-10 Grum Pit @ 10m	GP-15 Grum Pit @ 15m	GP-30 Grum Pit @ 30m	GP-40 Grum Pit @ 40m
Date Sampled	6/07/2005	6/07/2005	6/07/2005	6/07/2005	6/07/2005	6/07/2005	6/07/2005	6/07/2005
Time Sampled	15:00	15:10	15:15	15:30	15:50	16:05	16:45	17:00
ALS Sample ID	9	10	11	12	13	14	15	16
Nature	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests								
Hardness (as CaCO3)								
Conductivity (uS/cm)	970	972	1010	1050	1060	1060	1060	1060
ORP								
pH	8.40	8.64	8.32	7.82	7.66	7.66	7.68	7.68
Total Suspended Solids	6.8	8.1	6.1	4.1	<3.0	<3.0	<3.0	<3.0
Dissolved Anions								
Alkalinity-Total CaCO3	152	152	169	174	173	171	167	183
Sulphate SO4	430	416	415	459	457	453	453	448
Chloride (Cl)								
Fluoride (F)								
Bromide (Br)								
Nutrients								
Ammonia Nitrogen N	0.0470	0.0413	0.0250	0.0170	0.0100	< 0.005	< 0.005	< 0.005
Nitrate Nitrogen N	0.821	0.816	1.10	1.15	1.27	1.28	1.28	1.27
Nitrite Nitrogen N	0.0126	0.0134	0.0141	0.0096	0.0060	0.0059	0.0058	<0.0050
Nitrite/Nitrate Nitrogen N								
Dissolved ortho-Phosphate P	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Total Phosphate P	0.0398	0.0371	0.0314	0.0182	0.0089	0.0054	0.0041	0.0046
Total Metals								
Aluminum T-Al	0.0207	0.0264	0.0126	0.0187	0.0176	0.0096	0.0112	0.0112
Antimony T-Sb	0.00584	0.00582	0.00605	0.00740	0.00773	0.00754	0.00747	0.00760
Arsenic T-As	0.00044	0.00045	0.00048	0.00055	0.00093	0.00101	0.00198	0.00262
Barium T-Ba	0.0430	0.0429	0.0415	0.0457	0.0459	0.0447	0.0446	0.0448
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00280	0.00268	0.00466	0.00761	0.00711	0.00666	0.00676	0.00677
Calcium T-Ca	111	113	118	117	122	127	131	117
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0196	0.0193	0.0207	0.0255	0.0251	0.0240	0.0246	0.0244
Copper T-Cu	0.00069	0.00109	0.00086	0.00169	0.00250	0.00269	0.00257	0.00249
Iron T-Fe	<0.040	0.036	0.047	0.050	<0.030	0.037	0.142	0.179
Lead T-Pb	0.00091	0.00092	0.00128	0.00144	0.00130	0.00131	0.00134	0.00146
Lithium T-Li	0.023	0.022	0.023	0.026	0.025	0.026	0.025	0.026
Magnesium T-Mg	65.0	65.5	67.9	65.6	67.8	70.5	71.1	66.2
Manganese T-Mn	0.296	0.289	0.342	0.503	0.493	0.477	0.488	0.492
Molybdenum T-Mo	0.00338	0.00327	0.00325	0.00386	0.00336	0.00326	0.00336	0.00324
Nickel T-Ni	0.161	0.156	0.171	0.217	0.216	0.209	0.213	0.216
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	3.1	3.1	3.3	3.2	3.3	3.5	3.5	3.2
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	2.33	2.37	2.72	3.42	3.22	3.32	3.37	3.10
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	10.2	10.1	10.6	10.8	10.9	11.4	11.7	10.9
Strontium T-Sr	0.658	0.648	0.633	0.719	0.715	0.707	0.714	0.721
Thallium T-Tl	0.00109	0.00107	0.00117	0.00105	0.00099	0.00098	0.00107	0.00115
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00446	0.00442	0.00368	0.00248	0.0104	0.00923	0.00939	0.00944
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	0.943	0.919	2.78	10.8	9.37	8.24	8.39	8.38
Dissolved Metals								
Aluminum D-Al	0.0054	<0.0020	<0.0020	0.0097	<0.0020	0.0030	<0.0020	<0.0020
Antimony D-Sb	0.00601	0.00583	0.00606	0.00756	0.00749	0.00738	0.00728	0.00729
Arsenic D-As	0.00037	0.00033	0.00034	0.00034	0.00073	0.00075	0.00061	0.00066
Barium D-Ba	0.0425	0.0414	0.0416	0.0442	0.0444	0.0439	0.0434	0.0430
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00152	0.00082	0.00353	0.00674	0.00689	0.00665	0.00669	0.00666
Calcium D-Ca	115	112	113	118	120	125	116	119
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0188	0.0179	0.0210	0.0242	0.0240	0.0240	0.0240	0.0236
Copper D-Cu	0.00050	0.00025	0.00034	0.00658	0.00139	0.00213	0.00199	0.00181
Iron D-Fe	<0.030	<0.030	<0.030	0.063	<0.030	<0.030	<0.030	<0.030
Lead D-Pb	0.00043	0.00020	0.00047	0.00181	0.00063	0.00073	<0.00010	<0.00010
Lithium D-Li	0.022	0.021	0.024	0.025	0.025	0.025	0.025	0.025
Magnesium D-Mg	67.4	65.8	65.0	67.3	66.7	68.3	67.2	67.5
Manganese D-Mn	0.269	0.248	0.338	0.477	0.476	0.477	0.480	0.475
Molybdenum D-Mo	0.00337	0.00324	0.00340	0.00334	0.00321	0.00329	0.00330	0.00333
Nickel D-Ni	0.155	0.147	0.175	0.207	0.204	0.207	0.209	0.206
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	3.2	3.1	3.2	3.3	3.2	3.4	3.2	3.3
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon D-Si	2.34	2.23	2.46	3.45	3.17	3.25	3.05	3.11
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium D-Na	10.6	10.3	10.4	11.2	10.7	11.1	11.0	11.0
Strontium D-Sr	0.667	0.642	0.658	0.695	0.697	0.704	0.711	0.697
Thallium D-Tl	0.00110	0.00105	0.00116	0.00100	0.00094	0.00096	0.00105	0.00110
Tin D-Sn	<0.00020	<0.00020	<0.00020	0.00058	<0.00020	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00445	0.00431	0.00380	0.00263	0.00999	0.00922	0.00923	0.00915
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc D-Zn	0.431	0.144	1.90	10.7	8.98	8.19	8.19	8.06
Organic Parameters								
Chlorophyll a (a,b)	GP-0.1 Grum Surface	GP-1 Grum Pit @ 1m	GP-3 Grum Pit @ 3m	GP-5 Grum Pit @ 5m	GP-10 Grum Pit @ 10m	GP-15 Grum Pit @ 15m	GP-30 Grum Pit @ 30m	GP-40 Grum Pit @ 40m
	24.1	20.3	9.65	30.3	3.34	2.99	0.196	0.333

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	10	15	30	40
Sample ID	GP_0.1	GP_1	GP_3	GP_5	GP_10	GP_15	GP_30	GP_40
Date Sampled	3/08/2005	3/08/2005	3/08/2005	3/08/2005	3/08/2005	3/08/2005	3/08/2005	3/08/2005
Time Sampled	10:00	10:08	10:18	10:28	10:38	10:48	11:00	11:08
ALS Sample ID	9	10	11	12	13	14	15	16
Nature	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests								
Hardness (as CaCO3)								
Conductivity (uS/cm)	897	894	897	1040	1050	1050	1050	1060
ORP								
pH	8.72	8.80	8.80	7.97	7.93	7.95	7.98	7.50
Total Suspended Solids	10.7	9.3	9.3	4.0	<3.0	<3.0	4.7	9.3
Dissolved Anions								
Alkalinity-Total CaCO3	113	108	117	171	174	173	176	178
Sulphate SO4	407	405	401	436	439	432	433	433
Chloride (Cl)								
Fluoride (F)								
Bromide (Br)								
Nutrients								
Ammonia Nitrogen N	0.127	0.0993	0.0600	0.114	0.0407	0.0427	0.0453	0.0453
Nitrate Nitrogen N	0.616	0.621	0.664	1.08	1.20	1.16	1.15	1.14
Nitrite Nitrogen N	0.0014	0.0013	0.0020	0.0057	0.0041	0.0038	0.0041	0.0045
Nitrite/Nitrate Nitrogen N								
Dissolved ortho-Phosphate P	0.001	0.001	0.001	0.001	0.0015	0.0012	0.001	0.001
Total Phosphate P	0.0215	0.0216	0.0174	0.0070	0.0063	0.0047	0.0081	0.0179
Total Metals								
Aluminum T-Al	0.0630	0.0551	0.0672	0.0363	0.0151	0.0139	0.0674	0.0961
Antimony T-Sb	0.00513	0.00514	0.00497	0.00747	0.00832	0.00835	0.00833	0.00845
Arsenic T-As	0.00069	0.00069	0.00067	0.00092	0.00155	0.00170	0.00222	0.00248
Barium T-Ba	0.0257	0.0254	0.0249	0.0462	0.0498	0.0494	0.0498	0.0511
Beryllium T-Be	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.010	<0.010	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.000562	0.000598	0.000713	0.00579	0.00781	0.00755	0.00746	0.00786
Calcium T-Ca	97.1	95.5	96.5	121	128	127	128	130
Chromium T-Cr	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0153	0.0153	0.0147	0.0242	0.0256	0.0258	0.0261	0.0262
Copper T-Cu	0.00096	0.00133	0.00091	0.00143	0.00188	0.00202	0.00198	0.00216
Iron T-Fe	0.084	0.083	0.089	0.117	0.097	0.117	0.226	0.320
Lead T-Pb	0.000837	0.000964	0.000940	0.00168	0.00136	0.00149	0.00166	0.00204
Lithium T-Li	0.0243	0.0239	0.0234	0.026	0.027	0.028	0.027	0.028
Magnesium T-Mg	69.1	68.2	68.3	69.4	72.5	71.5	74.2	73.9
Manganese T-Mn	0.218	0.222	0.223	0.484	0.531	0.530	0.546	0.556
Molybdenum T-Mo	0.00344	0.00339	0.00324	0.00358	0.00364	0.00361	0.00359	0.00374
Nickel T-Ni	0.123	0.121	0.119	0.206	0.228	0.227	0.231	0.230
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.2	2.2	2.2	2.3	2.4	2.5	2.6	2.5
Selenium T-Se	0.0017	0.0019	0.0016	<0.0020	<0.0020	0.0021	<0.0020	0.0022
Silicon T-Si	2.35	2.31	2.31	2.83	3.00	2.95	3.05	3.09
Silver T-Ag	<0.000010	<0.000010	<0.000010	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	9.2	9.1	9.1	9.4	10.2	10.3	10.4	10.2
Strontium T-Sr	0.582	0.587	0.567	0.739	0.792	0.796	0.810	0.821
Thallium T-Tl	0.00114	0.00114	0.00111	0.00116	0.00108	0.00109	0.00114	0.00114
Tin T-Sn	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00384	0.00383	0.00366	0.00512	0.00980	0.00989	0.00986	0.00991
Vanadium T-V	<0.0010	<0.0010	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	0.421	0.427	0.526	7.62	10.3	10.4	10.5	10.4
Dissolved Metals								
Aluminum D-Al								
Antimony D-Sb								
Arsenic D-As								
Barium D-Ba								
Beryllium D-Be								
Bismuth D-Bi								
Boron D-B								
Cadmium D-Cd								
Calcium D-Ca								
Chromium D-Cr								
Cobalt D-Co								
Copper D-Cu								
Iron D-Fe								
Lead D-Pb								
Lithium D-Li								
Magnesium D-Mg								
Manganese D-Mn								
Molybdenum D-Mo								
Nickel D-Ni								
Phosphorus D-P								
Potassium D-K								
Selenium D-Se								
Silicon D-Si								
Silver D-Ag								
Sodium D-Na								
Strontium D-Sr								
Thallium D-Tl								
Tin D-Sn								
Titanium D-Ti								
Uranium D-U								
Vanadium D-V								
Zinc D-Zn								
Organic Parameters								
Chlorophyll a (a,b)	13.5	25.0	19.5	3.35	1.25	0.220	1.18	

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	4	5	7	10	20	40
Sample ID	GP_1	GP_3	GP_40	GP_5	GP_7	GP_10	GP_20	GP_40
Date Sampled	31/08/2005	31/08/2005	31/08/2005	31/08/2005	31/08/2005	31/08/2005	31/08/2005	31/08/2005
Time Sampled	10:30	10:40	12:10	10:55	11:15	11:30	11:45	12:10
ALS Sample ID	10	11	16	12	13	14	15	16
Nature	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests								
Hardness (as CaCO3)								
Conductivity (uS/cm)	901	898	904	1040	1030	1040	1040	904
ORP								
pH	8.51	8.55	8.48	7.82	7.83	7.34	7.60	8.48
Total Suspended Solids	6.4	5.7	5.7	<3.0	5.7	<3.0	6.4	5.7
Dissolved Anions								
Alkalinity-Total CaCO3	120	118	120	185	178	176	180	120
Sulphate SO4	410	413	411	443	443	442	449	411
Chloride (Cl)								
Fluoride (F)								
Bromide (Br)								
Nutrients								
Ammonia Nitrogen N	0.463	0.427	0.497	0.0520	0.0473	0.0247	0.0347	0.497
Nitrate Nitrogen N	0.005	1.01	0.998	1.25	1.27	1.29	1.26	0.998
Nitrite Nitrogen N	0.0087	0.0096	0.0096	0.0044	0.0061	0.0104	0.0092	0.0096
Nitrite/Nitrate Nitrogen N								
Dissolved ortho-Phosphate P	0.0237	0.0291	0.0253	0.001	0.0013	0.001	0.0033	0.0253
Total Phosphate P	0.0316	0.0406	0.0435	0.0063	0.0071	0.0036	0.0078	0.0435
Total Metals								
Aluminum T-Al	0.0397	0.0514	0.0283	0.0308	0.0280	0.0165	0.0757	0.0283
Antimony T-Sb	0.00516	0.00509	0.00536	0.00653	0.00645	0.00659	0.00681	0.00536
Arsenic T-As	0.00090	0.00087	0.00093	0.00088	0.00086	0.00135	0.00160	0.00093
Barium T-Ba	0.0313	0.0304	0.0322	0.0429	0.0424	0.0426	0.0434	0.0322
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00083	0.00077	0.00084	0.00331	0.00366	0.00624	0.00630	0.00084
Calcium T-Ca	99.3	100	102	133	139	137	127	102
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0137	0.0129	0.0142	0.0238	0.0232	0.0229	0.0237	0.0142
Copper T-Cu	0.00127	0.00116	0.00124	0.00102	0.00099	0.00129	0.00118	0.00124
Iron T-Fe	0.076	0.081	0.068	0.106	0.099	0.115	0.213	0.068
Lead T-Pb	0.00159	0.00139	0.00156	0.00186	0.00159	0.00157	0.00138	0.00156
Lithium T-Li	0.023	0.022	0.025	0.025	0.024	0.026	0.026	0.025
Magnesium T-Mg	65.0	66.5	64.5	72.6	75.7	73.0	68.8	64.5
Manganese T-Mn	0.189	0.179	0.199	0.489	0.475	0.480	0.513	0.199
Molybdenum T-Mo	0.00331	0.00323	0.00340	0.00305	0.00292	0.00295	0.00293	0.00340
Nickel T-Ni	0.112	0.106	0.117	0.208	0.202	0.202	0.206	0.117
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.2	2.3	2.3	2.7	2.8	2.9	2.6	2.3
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	2.46	2.54	2.44	3.34	3.45	3.29	3.11	2.44
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000023	<0.000020
Sodium T-Na	9.4	9.8	9.5	11.4	11.7	11.3	10.7	9.5
Strontium T-Sr	0.610	0.583	0.628	0.779	0.763	0.780	0.801	0.628
Thallium T-Tl	0.00119	0.00116	0.00122	0.00105	0.00104	0.00106	0.00110	0.00122
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00386	0.00373	0.00390	0.00753	0.00788	0.00906	0.00898	0.00390
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	0.996	0.976	1.08	10.2	9.82	9.96	10.0	
Dissolved Metals								
Aluminum D-Al	-	-	-	-	-	-	-	-
Antimony D-Sb								
Arsenic D-As								
Barium D-Ba								
Beryllium D-Be								
Bismuth D-Bi								
Boron D-B								
Cadmium D-Cd								
Calcium D-Ca								
Chromium D-Cr								
Cobalt D-Co								
Copper D-Cu								
Iron D-Fe								
Lead D-Pb								
Lithium D-Li								
Magnesium D-Mg								
Manganese D-Mn								
Molybdenum D-Mo								
Nickel D-Ni								
Phosphorus D-P								
Potassium D-K								
Selenium D-Se								
Silicon D-Si								
Silver D-Ag								
Sodium D-Na								
Strontium D-Sr								
Thallium D-Tl								
Tin D-Sn								
Titanium D-Ti								
Uranium D-U								
Vanadium D-V								
Zinc D-Zn								
Organic Parameters								
Chlorophyll a (a,b)	GP_SURFACE	GP_1		GP_3	GP_5	GP_7	GP_10	
	0.639	1.01		0.847	2.64	3.06	3.91	

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	10	15	30	40
Sample ID	GP-0.1	GP-1	GP-3	GP-5	GP-10	GP-15	GP-30	GP-40
Date Sampled	14/09/2005	14/09/2005	14/09/2005	14/09/2005	14/09/2005	14/09/2005	14/09/2005	14/09/2005
Time Sampled	11:45	12:07	12:14	12:20	12:27	12:31	12:45	13:15
ALS Sample ID	9	10	11	12	13	14	15	16
Nature	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests								
Hardness (as CaCO3)								
Conductivity (uS/cm)	938	937	945	1060	1080	1070	1070	1070
ORP								
pH	7.93	7.97	8.07	7.79	7.61	7.66	7.68	7.72
Total Suspended Solids	3.8	3.8	<3.0	5.2	4.5	3.2	6.5	7.8
Dissolved Anions								
Alkalinity-Total CaCO3	128	123	127	173	171	209	182	193
Sulphate SO4	403	403	402	428	439	440	441	441
Chloride (Cl)								
Fluoride (F)								
Bromide (Br)								
Nutrients								
Ammonia Nitrogen N	0.530	0.657	0.647	0.204	0.0107	0.0067	0.0107	0.0107
Nitrate Nitrogen N	1.16	1.15	1.15	1.22	1.33	1.29	1.28	1.29
Nitrite Nitrogen N	0.0134	0.0145	0.0142	0.0099	0.0021	0.0011	0.0021	0.0019
Nitrite/Nitrate Nitrogen N								
Dissolved ortho-Phosphate P	0.0297	0.0310	0.0294	0.0120	0.001	0.001	0.001	0.001
Total Phosphate P	0.0436	0.0426	0.0406	0.0170	0.0042	0.0023	0.0049	0.0052
Total Metals								
Aluminum T-Al	0.0476	0.0501	0.0487	0.0585	<0.0020	0.0711	0.137	0.156
Antimony T-Sb	0.00554	0.00553	0.00527	0.00651	0.00694	0.00697	0.00684	0.00704
Arsenic T-As	0.00103	0.00101	0.00095	0.00082	0.00041	0.00157	0.00188	0.00215
Barium T-Ba	0.0335	0.0338	0.0323	0.0422	0.0480	0.0431	0.0442	0.0458
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00107	0.00116	0.00109	0.00312	0.00489	0.00618	0.00621	0.00640
Calcium T-Ca	106	102	98.1	128	131	129	125	120
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.0140	0.0143	0.0137	0.0217	0.0150	0.0226	0.0229	0.0235
Copper T-Cu	0.00136	0.00144	0.00125	0.00110	<0.00060	0.00120	0.00123	0.00134
Iron T-Fe	0.104	0.094	0.093	0.132	<0.030	0.223	0.346	0.371
Lead T-Pb	0.00180	0.00196	0.00181	0.00247	0.00025	0.00136	0.00157	0.00166
Lithium T-Li	0.022	0.023	0.022	0.024	0.024	0.024	0.023	0.024
Magnesium T-Mg	65.6	62.7	60.9	68.8	70.6	69.0	67.0	64.1
Manganese T-Mn	0.224	0.231	0.213	0.479	0.524	0.520	0.537	0.559
Molybdenum T-Mo	0.00345	0.00350	0.00324	0.00327	0.00381	0.00308	0.00308	0.00314
Nickel T-Ni	0.115	0.117	0.110	0.184	0.108	0.196	0.195	0.203
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.4	2.2	2.2	2.6	2.6	2.5	2.4	2.3
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	2.56	2.47	2.36	3.10	3.06	3.09	3.09	2.98
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	9.3	8.5	8.6	10.0	11.0	10.4	10.3	9.7
Strontium T-Sr	0.583	0.590	0.559	0.707	0.855	0.727	0.729	0.756
Thallium T-Tl	0.00121	0.00123	0.00116	0.00116	0.00110	0.00108	0.00111	0.00115
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00408	0.00408	0.00385	0.00445	0.00377	0.00875	0.00882	0.00916
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	1.50	1.52	1.42	6.39	1.56	8.47	8.50	8.85
Dissolved Metals								
Aluminum D-Al	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Antimony D-Sb	0.00513	0.00531	0.00537	0.00612	0.00665	0.00713	0.00699	0.00709
Arsenic D-As	0.00064	0.00069	0.00069	0.00042	0.00029	0.00047	0.00048	0.00050
Barium D-Ba	0.0321	0.0326	0.0328	0.0408	0.0463	0.0447	0.0434	0.0437
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00081	0.00075	0.00077	0.00261	0.00622	0.00651	0.00637	0.00639
Calcium D-Ca	100	96.5	96.8	124	133	128	123	114
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0133	0.0137	0.0137	0.0214	0.0201	0.0238	0.0233	0.0236
Copper D-Cu	<0.0010	<0.0010	<0.0010	<0.0010	<0.00060	<0.0010	<0.0010	<0.0010
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead D-Pb	0.00029	0.00032	0.00035	0.00053	<0.00010	<0.00010	<0.00010	0.00029
Lithium D-Li	0.021	0.021	0.021	0.023	0.023	0.023	0.022	0.023
Magnesium D-Mg	61.1	60.0	59.9	65.5	70.2	68.0	65.6	61.2
Manganese D-Mn	0.196	0.197	0.200	0.469	0.544	0.555	0.560	0.580
Molybdenum D-Mo	0.00337	0.00350	0.00356	0.00325	0.00351	0.00333	0.00325	0.00328
Nickel D-Ni	0.111	0.115	0.116	0.187	0.157	0.214	0.209	0.213
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	2.2	<2.0	2.1	2.5	2.6	2.5	2.4	2.2
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon D-Si	2.30	2.23	2.25	2.86	3.07	2.94	2.84	2.65
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium D-Na	8.5	8.0	8.2	9.7	10.9	10.5	10.2	9.2
Strontium D-Sr	0.604	0.615	0.624	0.754	0.840	0.799	0.790	0.812
Thallium D-Tl	0.00113	0.00111	0.00117	0.00109	0.00105	0.00111	0.00112	0.00114
Tin D-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00395	0.00397	0.00392	0.00420	0.00144	0.00931	0.00916	0.00915
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc D-Zn	1.18	1.19	1.24	6.44	2.07	9.28	9.17	9.29
Organic Parameters								
Chlorophyll a (a,b)	GP-0.1	GP-1	GP-3	GP-5	GP-7	GP-10		
	0.136	0.0006	0.240	0.152	0.0416	0.0335		

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

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Grum Pit - 2005 -2008 Monitoring Results
RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40	1	3	5	15	30	40
Sample ID	GL_1 (Grum@ 1m)	GL_3 (Grum@ 3m)	GL_5 (Grum@ 5m)	GL_15 (Grum@ 15m)	GL_30 (Grum@ 30m)	GL_40 (Grum@ 40m)	GL_1 (GRUM@ 1m)	GL_3 (GRUM@ 3m)	GL_5 (GRUM@ 5m)	GL_15 (GRUM@ 15m)	GL_30 (GRUM@ 30m)	GL_40 (GRUM@ 40m)
Date Sampled	12/07/2006	12/07/2006	12/07/2006	12/07/2006	12/07/2006	12/07/2006	9/08/2006	9/08/2006	9/08/2006	9/08/2006	9/08/2006	9/08/2006
Time Sampled	13:15	13:45	14:00	14:30	14:45	15:10	10:00	10:20	10:40	10:55	11:10	11:30
ALS Sample ID	1	2	3	4	5	6	1	2	3	4	5	6
Nature	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests												
Hardness (as CaCO3)												
Conductivity (uS/cm)	820	0920	1030	1030	1040	1030	892	938	1070	1060	1070	1070
ORP												
pH	8.00	8.06	7.91	7.90	7.91	7.89	7.91	8.05	7.51	7.54	7.61	7.66
Total Suspended Solids	6.4	8.4	3.8	<3.0	<3.0	3.8	3.7	6.3	<3.0	<3.0	<3.0	3.0
Dissolved Anions												
Alkalinity-Total CaCO3	107	151	176	169	176	179	128	140	176	171	174	175
Sulphate SO4	369	391	434	435	435	436	375	389	433	434	434	434
Chloride (Cl)												
Fluoride (F)												
Bromide (Br)												
Nutrients												
Ammonia Nitrogen N	0.56	0.337	0.089	0.02	0.0213	0.0193	0.0570	0.037	0.028	0.05	0.055	0.058
Nitrate Nitrogen N							0.68	0.76	1.24	1.32	1.28	1.26
Nitrite Nitrogen N							0.0052	0.0044	0.0022	0.0026	0.0048	0.0052
Nitrite/Nitrate Nitrogen N	0.179	0.86	1.33	1.44	1.44	1.43	0.0681	0.767	1.24	1.32	1.28	1.26
Dissolved ortho-Phosphate P	0.0095	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0017	<0.0010	<0.0010	0.0013	0.0013	<0.0010
Total Phosphate P	0.0461	0.0252	0.0164	0.0034	0.0032	0.0033	0.0623	0.0490	0.0172	0.0076	0.0089	0.0080
Total Metals												
Aluminum T-Al	0.0426	0.0314	0.0179	0.0232	0.0214	0.0403	0.0052	0.0042	<0.0020	0.007	0.0182	0.0185
Antimony T-Sb	0.00439	0.00471	0.00605	0.00588	0.00599	0.00606	0.00521	0.00551	0.00683	0.00681	0.00655	0.00661
Arsenic T-As	0.00086	0.00059	0.00080	0.00107	0.00110	0.00163	0.00077	0.00069	0.00069	0.00099	0.00157	0.00137
Barium T-Ba	0.0277	0.0408	0.0497	0.0470	0.0472	0.0476	0.037	0.040	0.051	0.048	0.047	0.047
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00090	0.00300	0.00494	0.00432	0.00448	0.00457	0.00055	0.00098	0.00224	0.00464	0.00436	0.00437
Calcium T-Ca	88.5	110	123	121	121	115	102.0	105	126	124	127	122
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.00525	0.00647	0.00814	0.00771	0.00783	0.00823	0.006	0.006	0.009	0.00864	0.00857	0.00868
Copper T-Cu	0.00109	0.00086	0.00093	0.00102	0.00126	0.00118	0.00086	0.00065	0.001	0.00086	0.00098	0.00086
Iron T-Fe	0.063	0.048	0.047	0.071	0.065	0.128	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead T-Pb	0.00075	0.00089	0.00103	0.00114	0.00105	0.00109	0.00066	0.00061	0.00059	0.00042	0.00082	0.00056
Lithium T-Li	0.021	0.021	0.025	0.026	0.025	0.025	0.023	0.026	0.027	0.028	0.028	0.027
Magnesium T-Mg	61.9	67.0	72.5	71.1	70.9	67.2	65.2	65.3	72.5	72.1	73.6	70.8
Manganese T-Mn	0.088	0.125	0.181	0.170	0.173	0.186	0.069	0.095	0.199	0.1820	0.2240	0.2330
Molybdenum T-Mo	0.00256	0.00262	0.00286	0.00284	0.00285	0.00280	0.00307	0.00312	0.00301	0.0031	0.00299	0.0033
Nickel T-Ni	0.123	0.151	0.205	0.194	0.197	0.202	0.123	0.141	0.215	0.210	0.195	0.200
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.2	2.3	2.7	2.6	2.6	2.5	2.5	2.5	2.8	2.8	2.9	2.8
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	2.16	2.52	3.15	2.93	2.94	2.81	2.48	2.52	3.05	3.02	3.11	3.01
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	8.8	09.3	10.5	10.0	09.8	09.5	09.7	10.0	10.9	11.2	11.2	10.9
Strontium T-Sr	0.590	0.749	0.882	0.847	0.858	0.870	0.659	0.700	0.850	0.917	0.872	0.872
Thallium T-Tl	0.00084	0.00095	0.00107	0.00099	0.00100	0.00105	0.00095	0.00102	0.00113	0.00109	0.0011	0.00111
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00317	0.00271	0.00667	0.01050	0.01040	0.01070	0.00363	0.00354	0.00808	0.011	0.0106	0.0104
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	0.27	2.77	10.50	8.95	9.16	9.27	0.74	1.85	9.97	9.30	8.75	8.83
Dissolved Metals												
Aluminum D-Al	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0025	0.0024	<0.0020	<0.0020	<0.0020	<0.0020
Antimony D-Sb	0.00440	0.00449	0.00599	0.00581	0.00583	0.00584	0.00501	0.0052	0.00649	0.00637	0.00632	0.00648
Arsenic D-As	0.00054	0.00039	0.00059	0.00068	0.00073	0.00091	0.0007	0.00056	0.00051	0.00076	0.00072	0.00072
Barium D-Ba	0.0261	0.0376	0.0479	0.0452	0.0460	0.0453	0.036	0.038	0.048	0.045	0.045	0.043
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00013	0.00158	0.00445	0.00426	0.00424	0.00428	0.00028	0.00067	0.00176	0.00433	0.00431	0.00421
Calcium D-Ca	88.6	104	121	122	122	116	97.0	101	119	121	119	116
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.00471	0.00601	0.00805	0.00756	0.00776	0.00809	0.005	0.006	0.008	0.00809	0.00835	0.00843
Copper D-Cu	0.00031	0.00034	0.00068	0.00069	0.00074	0.00072	0.00079	0.00058	0.00052	0.00075	0.00075	0.00071
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead D-Pb	<0.00010	0.00035	0.00034	0.00025	0.00028	<0.00010	0.00037	0.00036	0.00037	0.0002	0.00011	<0.00010
Lithium D-Li	0.020	0.020	0.024	0.024	0.024	0.024	0.023	0.024	0.027	0.026	0.027	0.027
Magnesium D-Mg	62.2	64.0	71.4	71.3	70.8	68.1	61.3	62.8	68.7	69.3	68.0	67.4
Manganese D-Mn	0.074	0.113	0.177	0.167	0.171	0.181	0.061	0.084	0.189	0.173	0.194	0.2260
Molybdenum D-Mo	0.00271	0.00260	0.00293	0.00274	0.00292	0.00284	0.00301	0.00293	0.00284	0.00299	0.00293	0.00333
Nickel D-Ni	0.111	0.139	0.201	0.192	0.197	0.196	0.116	0.131	0.203	0.197	0.193	0.196
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	2.2	2.2	2.6	2.7	2.7	2.5	2.3	2.5	2.6	2.7	2.6	2.7
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon D-Si	2.09	2.28	3.07	2.91	2.90	2.79	2.24	2.36	3.07	3.01	2.95	2.92
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium D-Na	8.9	08.8	10.2	10.3	10.1	09.9	09.1	09.7	10.4	10.7	10.3	10.4
Strontium D-Sr	0.579	0.661	0.871	0.832	0.854	0.845	0.638	0.668	0.797	0.863	0.857	0.873
Thallium D-Tl	0.00081	0.00083	0.00103	0.00097	0.00100	0.00101	0.00095	0.001	0.00108	0.00102	0.00106	0.0011
Tin D-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00305	0.00273	0.00653	0.01010	0.01030	0.01010	0.00352	0.00353	0.00643	0.0104	0.0103	0.0102
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc D-Zn	0.06	1.75	10.30	8.87	9.17	8.96	0.34	1.08				

Grum Pit - 2005 -2008 Monitoring Results
RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	15	30	40	1	5	15	40
Sample ID	GRUM_SURFACE	GL_1 (GRUM @1m)	GL_3 (GRUM @3m)	GL_5 (GRUM @5m)	GL_15 (GRUM @15m)	GL_30 (GRUM @30m)	GL_40 (GRUM @40m)	GL-1 GRUM @1M	G-5 GRUM @5M	G-15 GRUM @15M	G-40 GRUM @40M
Date Sampled	15/09/2006	15/09/2006	15/09/2006	15/09/2006	15/09/2006	15/09/2006	15/09/2006	26-Mar-07	26-Mar-07	26-Mar-07	26-Mar-07
Time Sampled	10:10	10:15	10:20	10:30	10:47	10:59	11:15	10:40	12:30	12:40	13:05
ALS Sample ID	13	1	2	3	4	5	6	L491616-1	L491616-2	L491616-3	L491616-4
Nature	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests											
Hardness (as CaCO3)											
Conductivity (uS/cm)	914	912	913	924	1030	1040	1040	964	1020	1080	1100
ORP											
pH	7.97	7.90	8.08	8.09	7.90	7.90	7.91	8.01	8.09	8.02	8.05
Total Suspended Solids	<3.0	4.8	4.6	5.2	<3.0	3.9	3.9	7.9	<3.0	<3.0	<3.0
Dissolved Anions											
Alkalinity-Total CaCO3	144	146	145	146	174	174	171	367	408	438	444
Sulphate SO4	377	384	384	386	430	431	431	<0.50	<0.50	<0.50	<0.50
Chloride (Cl)											
Fluoride (F)								<0.050	<0.050	<0.050	<0.050
Bromide (Br)											
Nutrients											
Ammonia Nitrogen N	0.0713	0.0753	0.0700	0.0720	0.0780	0.0913	0.0893				
Nitrate Nitrogen N											
Nitrite Nitrogen N											
Nitrite/Nitrate Nitrogen N	0.783	0.824	0.823	0.849	1.30	1.24	1.24				
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	0.0014	<0.0010	<0.0010				
Total Phosphate P	0.0125	2.13	0.0129	0.0137	0.0071	0.0045	0.0033				
Total Metals											
Aluminum T-Al	0.0771	0.0793	0.0766	0.0900	0.0227	0.0456	0.0444	<0.20	<0.20	<0.20	<0.20
Antimony T-Sb	0.00476	0.00489	0.00501	0.00506	0.00633	0.00609	0.00618	<0.20	<0.20	<0.20	<0.20
Arsenic T-As	0.00108	0.00109	0.00106	0.00110	0.00132	0.00178	0.00176	<0.20	<0.20	<0.20	<0.20
Barium T-Ba	0.0416	0.0424	0.0425	0.0435	0.0490	0.0479	0.0480	0.059	0.047	0.044	0.041
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.20	<0.20	<0.20	<0.20
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.10	<0.10	<0.10	<0.10
Cadmium T-Cd	0.00103	0.00098	0.00099	0.00102	0.00441	0.00417	0.00433	<0.010	<0.010	<0.010	<0.010
Calcium T-Ca	114	110	110	111	124	125	125	115	125	131	134
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	<0.010	<0.010	<0.010
Cobalt T-Co	0.00679	0.00663	0.00673	0.00692	0.00863	0.00912	0.00908	<0.010	<0.010	<0.010	<0.010
Copper T-Cu	0.00147	0.00198	0.00177	0.00185	0.00121	0.00115	0.00119	<0.010	<0.010	<0.010	<0.010
Iron T-Fe	0.161	0.148	0.143	0.145	0.080	0.176	0.156	0.19	0.07	0.051	0.128
Lead T-Pb	0.00239	0.00256	0.00239	0.00239	0.00115	0.00106	0.00104	<0.050	<0.050	<0.050	<0.050
Lithium T-Li	0.023	0.023	0.023	0.024	0.026	0.026	0.026	0.019	0.023	0.023	0.024
Magnesium T-Mg	69.1	67.2	67.1	68.2	72.5	72.6	72.3	61	69.6	70.5	73.2
Manganese T-Mn	0.122	0.120	0.117	0.127	0.212	0.256	0.254	0.152	0.149	0.0287	0.0457
Molybdenum T-Mo	0.00276	0.00286	0.00280	0.00288	0.00285	0.00276	0.00290	<0.030	<0.030	<0.030	<0.030
Nickel T-Ni	0.146	0.146	0.144	0.151	0.209	0.202	0.205	0.133	0.159	0.192	0.195
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	3.3	3.2	3.2	3.3	3.5	3.5	3.4	3.1	3.4	3.5	3.5
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.20	<0.20	<0.20	<0.20
Silicon T-Si	3.07	2.99	2.97	3.02	3.06	3.18	3.11	4.2	3.5	3.25	3.26
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.010	<0.010	<0.010	<0.010
Sodium T-Na	11.6	11.4	11.3	11.5	11.7	12.0	11.6	10.7	10.8	10.9	11
Strontium T-Sr	0.732	0.716	0.727	0.750	0.892	0.870	0.878	0.747	0.798	0.863	0.881
Thallium T-Tl	0.00103	0.00102	0.00103	0.00103	0.00110	0.00116	0.00117	<0.20	<0.20	<0.20	<0.20
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.030	<0.030	<0.030	<0.030
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00498	0.00489	0.00483	0.00527	0.0105	0.0104	0.0103				
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.030	<0.030	<0.030	<0.030
Zinc T-Zn	4.19	4.07	4.09	4.55	9.55	9.24	9.42	4.97	5.94	9.14	9.41
Dissolved Metals											
Aluminum D-Al	0.0200	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.20	<0.20	<0.20	<0.20
Antimony D-Sb	0.00490	0.00484	0.00480	0.00497	0.00614	0.00588	0.00606	<0.20	<0.20	<0.20	<0.20
Arsenic D-As	0.00097	0.00068	0.00065	0.00070	0.00081	0.00061	0.00065	<0.20	<0.20	<0.20	<0.20
Barium D-Ba	0.0460	0.0404	0.0401	0.0411	0.0476	0.0452	0.0472	0.061	0.046	0.043	0.04
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.20	<0.20	<0.20	<0.20
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.10	<0.10	<0.10	<0.10
Cadmium D-Cd	0.00091	0.00079	0.00084	0.00086	0.00411	0.00394	0.00399	<0.010	<0.010	<0.010	<0.010
Calcium D-Ca	110	109	107	109	120	124	122	110	125	128	135
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.010	<0.010	<0.010	<0.010
Cobalt D-Co	0.00645	0.00642	0.00636	0.00657	0.00837	0.00869	0.00893	<0.010	<0.010	<0.010	<0.010
Copper D-Cu	0.00155	0.00143	0.00128	0.00138	0.00081	0.00075	0.00074	<0.010	<0.010	<0.010	<0.010
Iron D-Fe	0.121	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead D-Pb	0.00578	0.00095	0.00098	0.00097	0.00027	<0.00010	<0.00010	<0.050	<0.050	<0.050	<0.050
Lithium D-Li	0.023	0.022	0.022	0.023	0.025	0.023	0.025	0.019	0.021	0.024	0.024
Magnesium D-Mg	66.2	66.1	65.7	67.1	69.3	71.9	70.2	57.5	68.6	70.3	72.6
Manganese D-Mn	0.108	0.109	0.107	0.114	0.204	0.244	0.249	0.141	0.147	<0.0050	0.0184
Molybdenum D-Mo	0.00278	0.00307	0.00284	0.00286	0.00299	0.00284	0.00297	<0.030	<0.030	<0.030	<0.030
Nickel D-Ni	0.140	0.141	0.140	0.144	0.201	0.196	0.197	0.122	0.156	0.189	0.196
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	3.2	3.1	3.2	3.2	3.4	3.5	3.4	2.9	3.3	3.4	3.6
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.20	<0.20	<0.20	<0.20
Silicon D-Si	2.81	2.72	2.74	2.80	3.01	3.09	3.01	4.05	3.43	3.17	3.25
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.010	<0.010	<0.010	<0.010
Sodium D-Na	11.1	11.1	11.3	11.4	11.6	11.9	11.6	10.3	10.8	10.8	11
Strontium D-Sr	0.706	0.713	0.712	0.750	0.871	0.847	0.872	0.718	0.794	0.857	0.873
Thallium D-Tl	0.00101	0.00100	0.00100	0.00102	0.00107	0.00111	0.00116	<0.20	<0.20	<0.20	<0.20
Tin D-Sn	0.00264	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.030	<0.030	<0.030	<0.030
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00478	0.00490	0.00484	0.00509	0.0102	0.0100	0.0103				
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.030	<0.030	<0.030	<0.030
Zinc D-Zn	3.48	3.46	3.43	3.75	9.33	8.89	9.22	4.56	5.84	8.99	9.38
Organic Parameters											
Chlorophyll a (a,b)	-	-	-	-	-	-	-				

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40	1	3	5	15	30	40
Sample ID												
Date Sampled	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	11-Jul-07	11-Jul-07	11-Jul-07	11-Jul-07	11-Jul-07	11-Jul-07
Time Sampled	14:15	14:30	14:40	14:55	15:00	15:20	13:05	13:15	13:35	13:48	14:05	14:15
ALS Sample ID	L518525-7	L518525-8	L518525-9	L518525-10	L518525-11	L518525-12	L529776-14	L529776-15	L529776-16	L529776-17	L529776-18	L529776-19
Nature	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests												
Hardness (as CaCO3)	558	673	645	654	648	645	543	577	596	606	592	581
Conductivity (uS/cm)	839	976	978	981	993	993	900	953	1020	1030	1030	1030
ORP	50	70	80	90	90	90	20	40	80	80	80	80
pH	8.1	8.07	8.03	8	7.96	7.95	8.87	8.64	7.85	7.84	7.83	7.76
Total Suspended Solids	8	5.3	6	4	4.7	5.3	<3.0	5.7	<3.0	3	4.3	5
Dissolved Anions												
Alkalinity-Total CaCO3												
Sulphate SO4	356	421	422	423	424	423	385	398	419	424	424	424
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Fluoride (F)												
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nutrients												
Ammonia Nitrogen N	0.035	0.043	<0.020	<0.020	<0.020	0.022	0.126	0.057	0.028	0.027	0.039	0.035
Nitrate Nitrogen N	0.987	1.09	1.21	1.29	1.31	1.28	0.594	0.529	1.13	1.24	1.23	<0.0050
Nitrite Nitrogen N	0.0057	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	0.0015	0.0021	0.0025	<0.0010
Nitrite/Nitrate Nitrogen N	0.993	1.09	1.21	1.29	1.31	1.28	0.595	0.529	1.13	1.24	1.23	<0.0050
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	0.0011	<0.0010	<0.0010	0.0025	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0058	0.0074	0.0076	0.0045	0.0121	0.0057	0.029	0.0212	0.0156	0.0073	0.0082	0.0087
Total Metals												
Aluminum T-Al	0.0776	0.063	0.0503	0.0493	0.102	0.0929	0.0272	0.0354	0.0281	0.0429	0.0594	0.0814
Antimony T-Sb	0.00415	0.00499	0.00506	0.00497	0.00505	0.00494	0.00386	0.00416	0.00464	0.00484	0.00488	0.00481
Arsenic T-As	0.00076	0.00078	0.00076	0.00076	0.00081	0.00095	0.00048	0.00051	0.00076	0.0008	0.001	0.00106
Barium T-Ba	0.0406	0.0464	0.0471	0.0471	0.048	0.0484	0.0424	0.0455	0.0458	0.0465	0.0468	0.048
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00251	0.00298	0.00292	0.00294	0.00293	0.00289	0.00127	0.00216	0.0027	0.00282	0.00277	0.00275
Calcium T-Ca	107	127	140	132	141	125	112	115	124	124	123	118
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.00413	0.00401	0.00391	0.00396	0.00404	0.00413	0.00378	0.00401	0.00417	0.00414	0.00435	0.00456
Copper T-Cu	0.00198	0.00151	0.00101	0.00095	0.00108	0.00104	0.00091	0.00067	0.00091	0.00079	0.00084	0.00092
Iron T-Fe	0.137	0.112	0.099	0.088	0.128	0.159	0.043	0.036	0.063	0.083	0.133	0.128
Lead T-Pb	0.00236	0.00179	0.00117	0.00097	0.00103	0.00119	0.001	0.00109	0.00108	0.00098	0.00137	0.00132
Lithium T-Li	0.021	0.025	0.026	0.025	0.026	0.025	0.022	0.023	0.023	0.025	0.025	0.025
Magnesium T-Mg	61.4	72	79.1	75.9	80.1	71.1	66.8	69.5	72	73.5	70.9	70.2
Manganese T-Mn	0.0931	0.1	0.102	0.102	0.107	0.108	0.0619	0.0911	0.11	0.115	0.124	0.127
Molybdenum T-Mo	0.00216	0.00256	0.0026	0.00254	0.00252	0.00254	0.00242	0.00257	0.00261	0.00257	0.00257	0.00253
Nickel T-Ni	0.152	0.176	0.176	0.178	0.177	0.178	0.117	0.146	0.174	0.178	0.181	0.183
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.3	2.9	3.1	2.9	3.1	2.7	2.4	2.6	2.7	2.7	2.7	2.6
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	2.56	2.98	3.26	3.1	3.27	2.94	2.45	2.62	3.07	3.06	3.04	2.94
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	8	10.2	10.7	10.2	10.9	9.6	8.7	9.2	9.7	9.9	9.6	9.5
Strontium T-Sr	0.64	0.769	0.769	0.77	0.764	0.766	0.682	0.743	0.76	0.771	0.775	0.781
Thallium T-Tl	0.00078	0.00091	0.00085	0.00084	0.00088	0.00087	0.00081	0.00085	0.00088	0.00088	0.00088	0.00091
Tin T-Sn	0.00103	0.00024	0.00069	0.00058	0.00089	0.00089	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00834	0.0097	0.00981	0.00981	0.00976	0.00978	0.00411	0.00302	0.00954	0.0106	0.0106	0.0107
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	6.1	7.39	7.28	7.36	7.48	7.45	0.401	1.51	7.7	8.07	8.26	8.34
Dissolved Metals												
Aluminum D-Al	0.0034	<0.0030	0.0027	<0.0020	0.0139	0.0041	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0046
Antimony D-Sb	0.00416	0.00513	0.00502	0.00516	0.00504	0.00501	0.00387	0.00418	0.00472	0.00478	0.00487	0.00484
Arsenic D-As	0.0005	0.0006	0.00062	0.00063	0.00061	0.00069	0.00039	0.00039	0.0006	0.00062	0.00063	0.00064
Barium D-Ba	0.0388	0.0457	0.0458	0.0464	0.047	0.0465	0.0418	0.0451	0.0453	0.0455	0.0454	0.0462
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00259	0.00293	0.00284	0.00294	0.00286	0.00289	0.00034	0.00152	0.0023	0.00275	0.00262	0.00278
Calcium D-Ca	115	139	133	135	134	133	110	115	122	124	121	118
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.004	0.00388	0.00391	0.00388	0.00399	0.00404	0.00366	0.00398	0.00409	0.00413	0.00429	0.00435
Copper D-Cu	0.00125	0.00121	0.0008	0.00076	0.00079	0.00076	0.00037	0.00026	0.00047	0.00047	0.00044	0.00047
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead D-Pb	0.00093	0.00083	0.00049	0.00039	0.00036	0.00034	0.00042	0.00034	0.00045	0.0003	0.00015	0.00015
Lithium D-Li	0.021	0.026	0.025	0.025	0.025	0.026	0.021	0.024	0.024	0.025	0.024	0.025
Magnesium D-Mg	65.8	79.2	76.1	77	76.6	75.6	65.1	70.4	71	72	70.6	69.2
Manganese D-Mn	0.088	0.0993	0.101	0.102	0.104	0.106	0.0526	0.0891	0.108	0.115	0.122	0.125
Molybdenum D-Mo	0.00221	0.00271	0.00267	0.00278	0.00271	0.0026	0.00246	0.00267	0.00253	0.00257	0.00255	0.00257
Nickel D-Ni	0.15	0.18	0.175	0.18	0.177	0.176	0.114	0.146	0.174	0.18	0.178	0.182
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	2.5	3.1	2.9	3	2.9	2.9	2.4	2.5	2.7	2.7	2.7	2.6
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon D-Si	2.64	3.2	3.03	3.06	3.05	3.02	2.36	2.63	2.96	2.99	2.91	2.86
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium D-Na	8.6	11	10.2	10.6	10.4	10.3	8.6	9.3	9.7	9.9	9.6	9.3
Strontium D-Sr	0.636	0.771	0.773	0.78	0.763	0.763	0.677	0.748	0.756	0.775	0.761	0.776
Thallium D-Tl	0.00076	0.00092	0.00087	0.00086	0.00087	0.00085	0.00082	0.00083	0.00088	0.00088	0.00085	0.00089
Tin D-Sn	0.00037	0.00038	0.00045	0.00094	0.00093	0.00087	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.0081	0.00984	0.00985	0.00982	0.00987	0.00967	0.00405	0.00286	0.00935	0.0107	0.0104	0.0105
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc D-Zn	5.86	7.44	7.32	7.5	7.33	7.34	0.2	1.4	7.			

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	15	30	40
Sample ID	GL-0.1	GL-1	GL-3	GL-5	GL-15	GL-30	GL-40
Date Sampled	7-Aug-07	7-Aug-07	7-Aug-07	7-Aug-07	7-Aug-07	7-Aug-07	7-Aug-07
Time Sampled	09:15	09:30	09:50	10:30	11:00	11:30	12:00
ALS Sample ID	L540525-1	L540525-2	L540525-3	L540525-4	L540525-5	L540525-6	L540525-7
Nature	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Hardness (as CaCO ₃)	553	572	558	648	610	619	605
Conductivity (uS/cm)	943	944	943	1070	1070	1070	1070
ORP	200	200	190	200	200	190	190
pH	8.57	8.57	8.59	7.98	7.99	7.98	8
Total Suspended Solids	6.2	6.2	5.5	6.2	<3.0	4.9	6.2
Dissolved Anions							
Alkalinity-Total CaCO ₃	441	387	384	436	424	464	467
Sulphate SO ₄	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloride (Cl)	0.341	0.335	0.33	0.371	0.364	0.363	0.365
Fluoride (F)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Bromide (Br)							
Nutrients							
Ammonia Nitrogen N	0.197	0.12	0.134	0.033	0.069	0.073	0.079
Nitrate Nitrogen N	0.939	0.886	0.884	1.23	1.23	1.24	1.26
Nitrite Nitrogen N	0.0073	0.0079	0.0079	0.0054	0.0059	0.006	0.008
Nitrite/Nitrate Nitrogen N							
Dissolved ortho-Phosphate P	0.007	0.0058	0.0041	<0.0010	0.0013	0.001	<0.0010
Total Phosphate P	0.0331	0.0322	0.0298	0.016	0.0081	0.0094	0.0107
Total Metals							
Aluminum T-Al	0.0752	0.085	0.0974	0.0494	0.0521	0.0571	0.0497
Antimony T-Sb	0.00375	0.00392	0.00379	0.00482	0.00483	0.00467	0.00474
Arsenic T-As	0.001	0.00099	0.00096	0.00092	0.00092	0.00119	0.00129
Barium T-Ba	0.0372	0.0381	0.038	0.048	0.0466	0.0467	0.047
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium T-Cd	0.00078	0.00074	0.00075	0.0025	0.00257	0.00251	0.00243
Calcium T-Ca	118	120	120	129	138	134	133
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt T-Co	0.00364	0.00382	0.00364	0.00467	0.00443	0.00505	0.00501
Copper T-Cu	0.00149	0.00187	0.00156	0.00086	0.00069	0.00077	0.00078
Iron T-Fe	0.122	0.127	0.14	0.084	0.098	0.15	0.155
Lead T-Pb	0.00152	0.00163	0.00148	0.00162	0.00109	0.00125	0.00126
Lithium T-Li	0.022	0.022	0.022	0.025	0.025	0.025	0.025
Magnesium T-Mg	64.5	65.7	64.2	76.6	68.6	68.1	66.8
Manganese T-Mn	0.0547	0.0625	0.0564	0.135	0.129	0.154	0.155
Molybdenum T-Mo	0.00238	0.00243	0.00246	0.00257	0.00254	0.00262	0.00255
Nickel T-Ni	0.101	0.105	0.103	0.188	0.18	0.182	0.179
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.6	2.7	2.6	3.3	2.9	2.9	2.9
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon T-Si	2.62	2.64	2.68	3.12	3.07	2.98	2.97
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium T-Na	9.4	9.7	9.6	10.8	10.4	10.5	10.4
Strontium T-Sr	0.609	0.618	0.625	0.778	0.771	0.777	0.782
Thallium T-Tl	0.00086	0.00089	0.00087	0.00094	0.00092	0.00089	0.0009
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00384	0.00392	0.00385	0.0105	0.0107	0.0107	0.0106
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc T-Zn	0.602	0.643	0.639	9.91	8.58	8.26	8.15
Dissolved Metals							
Aluminum D-Al	0.0034	0.0039	0.0035	0.0033	0.0438	0.0038	0.0042
Antimony D-Sb	0.00392	0.00393	0.00327	0.00477	0.00464	0.00474	0.00466
Arsenic D-As	0.00061	0.00066	0.00053	0.00052	0.00058	0.00053	0.00057
Barium D-Ba	0.0364	0.0364	0.0306	0.0467	0.0444	0.0473	0.0457
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cadmium D-Cd	0.00051	0.00054	0.00035	0.00236	0.00248	0.00245	0.00227
Calcium D-Ca	117	121	118	131	134	136	132
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Cobalt D-Co	0.0033	0.00346	0.0028	0.0045	0.00438	0.00505	0.00496
Copper D-Cu	0.00093	0.00115	0.00076	0.00046	0.00041	0.00039	0.0004
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Lead D-Pb	0.00038	0.0004	0.00031	0.00049	0.00019	0.00012	<0.00010
Lithium D-Li	0.022	0.022	0.019	0.025	0.024	0.025	0.025
Magnesium D-Mg	63.2	65.6	64	77.7	66.6	67.6	66.7
Manganese D-Mn	0.0355	0.0417	0.0296	0.128	0.127	0.163	0.155
Molybdenum D-Mo	0.00251	0.00268	0.00216	0.00261	0.00254	0.0026	0.00251
Nickel D-Ni	0.0933	0.0952	0.0783	0.185	0.178	0.184	0.183
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	2.6	2.6	2.6	3.4	2.8	2.8	2.7
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Silicon D-Si	2.47	2.55	2.49	3.11	2.91	2.97	2.88
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Sodium D-Na	9.3	9.5	9.6	11.1	10.2	10.4	10.3
Strontium D-Sr	0.621	0.626	0.524	0.774	0.755	0.783	0.78
Thallium D-Tl	0.00088	0.00088	0.00072	0.00091	0.00087	0.0009	0.00089
Tin D-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00382	0.0038	0.00321	0.00856	0.0103	0.0109	0.0108
Vanadium D-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Zinc D-Zn	0.442	0.458	0.362	9.67	8.44	8.88	8.49
Organic Parameters							
Chlorophyll a (a,b)	0.72	1.61	0.913	3.11	0.73	-	-

Grum Pit - 2005 - 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	15	30	40	1	3	5	15	30	40
Sample ID	GL-0.1 GRUMLAKE NEAR SURFACE	GL-1 GRUMLAKE@ 1M	GL-3 GRUMLAKE@ 3M	GL-5 GRUMLAKE@ 5M	GL-15 GRUMLAKE@ 15M	GL-30 GRUMLAKE@ 30M	GL-40 GRUMLAKE@ 40M	K23501 11/6/08 F112779	K23502 11/6/08 F112779	K23503 11/6/08 F112779	K23504 11/6/08 F112779	K23505 11/6/08 F112779	K23506 11/6/08 F112779
Date Sampled	5-Sep-07	5-Sep-07	5-Sep-07	5-Sep-07	5-Sep-07	5-Sep-07	5-Sep-07						
Time Sampled	10:00	10:20	10:30	10:45	11:00	11:30	12:00						
ALS Sample ID	L551912-11	L551912-12	L551912-13	L551912-14	L551912-15	L551912-16	L551912-17	G-1	G-3	G-5	G-15	G-30	G-40
Nature	Water	Water	Water	Water	Water	Water	Water						
Physical Tests													
Hardness (as CaCO3)	556	565	563	586	612	615	612	523	579	604	603	598	598
Conductivity (uS/cm)	976	969	967	1000	1070	1070	1070						
ORP	50	60	60	70	80	90	90						
pH	8.37	8.39	8.4	8.26	8.02	8.07	8.01	8	7.9	7.9	7.8	7.8	7.7
Total Suspended Solids	<3.0	<3.0	<3.0	<3.0	3.8	<3.0	3.8	ND	ND	ND	ND	ND	ND
Dissolved Anions													
Alkalinity-Total CaCO3	390	388	387	395	424	408	428	140	160	170	170	170	180
Sulphate SO4	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	360	410	430	410	420	430
Chloride (Cl)								1.4	0.8	0.9	0.9	1	0.9
Fluoride (F)													
Bromide (Br)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050						
Nutrients													
Ammonia Nitrogen N	0.06	0.047	0.04	0.031	0.059	0.072	0.072	ND	ND	ND	ND	ND	ND
Nitrate Nitrogen N	0.91	0.9	0.897	0.957	1.24	1.17	1.21	0.98	1.08	1.8	1.14	1.17	1.17
Nitrite Nitrogen N	0.0087	0.0081	0.0087	0.0073	0.0057	0.006	0.0057	0.008	ND	ND	ND	ND	ND
Nitrite/Nitrate Nitrogen N								0.99	1.08	1.8	1.14	1.17	1.17
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	ND	ND	ND	ND	ND	ND
Total Phosphate P	0.0121	0.0107	0.0105	0.0101	0.0059	0.0069	0.0068	0.007	0.006	0.005	0.005	0.007	0.007
Total Metals													
Aluminum T-Al	0.0279	0.0183	0.0284	0.0282	0.0377	0.0681	0.0446	0.0612	0.067	0.0475	0.0397	0.0542	0.0679
Antimony T-Sb	0.00413	0.00403	0.00426	0.0045	0.0049	0.00493	0.00483	0.00359	0.00406	0.00427	0.00423	0.00426	0.00422
Arsenic T-As	0.00086	0.00081	0.00087	0.00085	0.00102	0.00156	0.00164	0.00068	0.00074	0.00067	0.0007	0.0008	0.00084
Barium T-Ba	0.0417	0.0419	0.0427	0.0446	0.0469	0.0479	0.0478	0.0414	0.0456	0.0477	0.0477	0.0483	0.0487
Beryllium T-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	ND	ND	ND	ND	ND	ND
Bismuth T-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	ND	ND	ND	ND	ND	ND
Boron T-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	ND	ND	ND	ND	ND	ND
Cadmium T-Cd	0.00104	0.00101	0.00113	0.00142	0.00243	0.00255	0.00258	0.00193	0.00216	0.00225	0.00221	0.00227	0.00224
Calcium T-Ca	113	112	114	119	127	127	126	112	124	129	130	130	130
Chromium T-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	ND	ND	ND	ND	ND	ND
Cobalt T-Co	0.00409	0.00416	0.00428	0.00455	0.00483	0.00551	0.00569	0.00311	0.00305	0.00285	0.00303	0.00317	0.00314
Copper T-Cu	0.00135	0.00164	0.00142	0.00129	0.00068	0.00079	0.0008	0.0022	0.00201	0.0017	0.00166	0.00169	0.00162
Iron T-Fe	0.056	0.045	0.057	0.055	0.091	0.2	0.185	0.111	0.129	0.09	0.077	0.114	0.129
Lead T-Pb	0.00142	0.00145	0.00149	0.00155	0.00105	0.00122	0.00133	0.00203	0.00208	0.00118	0.00101	0.00156	0.00137
Lithium T-Li	0.023	0.023	0.024	0.024	0.024	0.025	0.026	0.0216	0.0245	0.0261	0.0261	0.0254	0.0261
Magnesium T-Mg	68.5	68.6	70.3	71.8	73.3	74.3	71.8	59.2	65.2	68.2	68	66.5	66.5
Manganese T-Mn	0.0719	0.0694	0.0702	0.101	0.151	0.184	0.19	0.0646	0.0713	0.0714	0.0752	0.0791	0.0811
Molybdenum T-Mo	0.00257	0.00268	0.00254	0.00261	0.00244	0.00257	0.00246	0.00212	0.00237	0.00247	0.00254	0.0025	0.00249
Nickel T-Ni	0.117	0.117	0.119	0.145	0.181	0.185	0.184	0.139	0.159	0.164	0.166	0.165	0.165
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0	0	0	0	0	0
Potassium T-K	3	3	3.1	3.2	3.4	3.4	3.2	2.81	3.17	3.26	3.32	3.27	3.29
Selenium T-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.00099	0.00114	0.00119	0.00117	0.00116	0.00111
Silicon T-Si	2.88	2.86	2.94	3.08	3.26	3.31	3.17	2.76	3.28	3.46	3.37	3.36	3.34
Silver T-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	0.000008	0.000008	0.000006	0.000005	0.000007	ND
Sodium T-Na	9.9	10	10.3	10.4	11	11.1	10.4	8.45	9.57	10.1	10.1	9.93	9.73
Strontium T-Sr	0.636	0.634	0.647	0.683	0.713	0.728	0.734	0.655	0.74	0.782	0.793	0.791	0.779
Thallium T-Tl	0.00094	0.00094	0.00097	0.00095	0.00088	0.00094	0.00096	0.000731	0.000804	0.000804	0.000817	0.000827	0.000827
Tin T-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00003	0.00002	0.00001	0.00001	0.00002	ND
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.0033	0.0033	0.0023	0.0019	0.0025	0.003
Uranium T-U	0.00423	0.00417	0.00425	0.00498	0.0104	0.0107	0.0107	0.00911	0.0102	0.0106	0.0106	0.0106	0.0106
Vanadium T-V	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	ND	ND	ND	ND	ND	ND
Zinc T-Zn	1.96	1.92	2	4.58	7.62	7.91	7.64	5.89	6.7	7.01	7.08	7.04	7.09
Dissolved Metals													
Aluminum D-Al	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.0031	0.0012	0.0009	0.0007	0.0007	0.0109
Antimony D-Sb	0.00399	0.00423	0.00418	0.00443	0.00476	0.00492	0.00492	0.00366	0.00418	0.00445	0.0044	0.00445	0.00432
Arsenic D-As	0.00059	0.00061	0.00065	0.00059	0.00059	0.00049	0.00052	0.00042	0.00046	0.00045	0.00044	0.00046	0.00048
Barium D-Ba	0.0404	0.0416	0.0418	0.0443	0.0459	0.0469	0.0466	0.0425	0.0474	0.051	0.0506	0.0507	0.0493
Beryllium D-Be	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	ND	ND	ND	ND	ND	ND
Bismuth D-Bi	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	ND	ND	ND	ND	ND	ND
Boron D-B	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	ND	ND	ND	ND	ND	ND
Cadmium D-Cd	0.00097	0.00102	0.00108	0.00135	0.00248	0.00256	0.00247	0.00196	0.00216	0.00222	0.00228	0.00229	0.00227
Calcium D-Ca	111	113	112	118	125	126	126	98.2	111	115	114	115	112
Chromium D-Cr	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	ND	ND	ND	ND	ND	ND
Cobalt D-Co	0.00397	0.00406	0.004	0.0044	0.00486	0.00557	0.00557	0.00292	0.00294	0.0027	0.00277	0.00291	0.00283
Copper D-Cu	0.00104	0.00122	0.00104	0.00096	0.00038	0.0004	0.00043	0.00151	0.00151	0.00135	0.00133	0.00128	0.0012
Iron D-Fe	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.005	0.002	0.003	0.002	0.002	0.003
Lead D-Pb	0.00071	0.0007	0.00074	0.00072	0.00012	<0.00010	<0.00010	0.000971	0.00075	0.000549	0.000359	0.000381	0.000307
Lithium D-Li	0.022	0.022	0.023	0.024	0.025	0.026	0.025	0.0192	0.0218	0.0243	0.0233	0.0232	0.0227
Magnesium D-Mg	67.7	69	69	70.6	72.7	72.8	72.5	54.2	59.4	62.6	61.7	61.5	60.5
Manganese D-Mn	0.0623	0.0629	0.0639	0.0932	0.15	0.181	0.188	0.0571	0.0642	0.0654	0.0686	0.0721	0.0722
Molybdenum D-Mo	0.00261	0.00275	0.00258	0.00261	0.00244	0.00263	0.00263	0.00224	0.00248	0.00269	0.00267	0.0027	0.00256
Nickel D-Ni	0.111	0.116	0.116	0.144	0.181	0.186	0.186	0.132	0.151	0.156	0.157	0.158	0.154
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	0	0	0	0	0	0
Potassium D-K	3	3.1	3	3.1	3.3	3.3	3.2	2.56	2.87	2.98	2.99	2.98	2.91
Selenium D-Se	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.00091	0.001	0.00111	0.00104	0.00103	0.00106
Silicon D-Si	2.81	2.83	2.82	2.99	3.13	3.14	3.14	2.44	2.81	2.83	2.81	2.73	2.9
Silver D-Ag	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	ND	ND	ND	ND	ND	ND
Sodium D-Na	10	10.2	10.1	10.3	10.7	10.7	10.7	8.08	9.17	11	9.59	9.76	9.62
Strontium D-Sr	0.625	0.644	0.641	0.686	0.713	0.739	0.738	0.652	0.738	0.776	0.755	0.767	0.745
Thallium D-Tl	0.00092	0.00095	0.00091	0.00096	0.00087	0.00092	0.00095	0.000744	0.000822	0.000848	0.000834	0.000869	0.00084
Tin D-Sn	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.00004	0.00002	0.00002	0.00002	0.00001	ND

Grum Pit - 2005 -2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40						
Sample ID	K64662	K64664	K64665	K64666	K64667	K64668	GL-1	GL-3	GL-5	GL-15	GL-30	GL-40
Date Sampled	8/07/08	8/07/08	8/07/08	8/07/08	8/07/08	8/07/08	5/08/08	5/08/08	5/08/08	5/08/08	5/08/08	5/08/08
Time Sampled												
ALS Sample ID	F113736	F113736	F113736	F113736	F113736	F113736	L05899	L05900	L05901	L05902	L05903	L05904
Nature	G-1	G-3	G-5	G-15	G-30	G-40						
Physical Tests												
Hardness (as CaCO3)		555	559	624	622	614	654	641	630	623	627	598
Conductivity (uS/cm)		990	980	1100	1100	1100	1000	1100	1100	1100	1100	1100
ORP												
pH		8.5	8.5	8	8.1	8.1	8.8	8	7.9	7.8	7.9	7.9
Total Suspended Solids		10	8	ND	ND	4	150	4	2	2	2	12
Dissolved Anions												
Alkalinity-Total CaCO3		150	150	170	170	170						
Sulphate SO4		410	410	450	460	450	380	410	430	390	390	390
Chloride (Cl)		0.9	1	12	2.2	1.1	0.6	1	1.2	0.6	0.6	0.8
Fluoride (F)		0.31	0.32	0.36	0.36	0.36						
Bromide (Br)							0.1	ND	ND	ND	ND	
Nutrients												
Ammonia Nitrogen N		0.019	0.015	0.006	0.02	0.01	ND	ND	ND	ND	ND	0.01
Nitrate Nitrogen N		0.61	0.75	1.09	1.12	1.12	0.64	0.99	1.03	1.26	1.04	1.26
Nitrite Nitrogen N	ND	ND	ND	ND		0.005	ND	0.005	0.005	0.005	ND	0.005
Nitrite/Nitrate Nitrogen N		0.61	0.75	1.09	1.12	1.12	0.64	1	1.04	1.27	1.04	1.27
Dissolved ortho-Phosphate P		0.007	0.008	0.004	0.005	0.005	ND	ND	ND	ND	0.001	0.002
Total Phosphate P		0.015	0.012	ND	0.006	ND	0.018	0.007	ND	ND	ND	ND
Total Metals												
Aluminum T-Al		0.0535	0.0858	0.0431	0.046	0.0654	0.0462	0.0423	0.0338	0.0455	0.0744	0.104
Antimony T-Sb		0.00342	0.0034	0.00441	0.00448	0.00442	0.00372	0.00414	0.00428	0.00413	0.00412	0.0041
Arsenic T-As		0.00047	0.00051	0.00072	0.00086	0.00086	0.00052	0.00086	0.00058	0.00058	0.00062	0.00062
Barium T-Ba		0.0436	0.0439	0.0478	0.0476	0.048	0.046	0.0556	0.0622	0.0607	0.0611	0.0636
Beryllium T-Be	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00001
Bismuth T-Bi	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.000007
Boron T-B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium T-Cd	0.00144	0.00166	0.00252	0.00235	0.00229	0.00239	0.00149	0.00223	0.002	0.00199	0.00199	0.00195
Calcium T-Ca	116	117	132	133	130	134	133	133	133	129	130	127
Chromium T-Cr	0.0002	0.0002	ND	0.0001	0.0002	0.0002	0.0002	0.0002	ND	ND	0.0004	0.0002
Cobalt T-Co	0.00394	0.00411	0.00376	0.00366	0.00376	0.00382	0.0056	0.0048	0.00439	0.00441	0.00459	0.00454
Copper T-Cu	0.00273	0.00158	0.00172	0.0016	0.00151	0.00154	0.00408	0.00327	0.00106	0.00086	0.00095	0.00115
Iron T-Fe	0.132	0.184	0.108	0.116	0.15	0.208	0.098	0.089	0.065	0.076	0.113	0.174
Lead T-Pb	0.00123	0.0014	0.00147	0.00163	0.00147	0.00161	0.00155	0.00229	0.00111	0.00087	0.00113	0.00141
Lithium T-Li	0.0238	0.0233	0.0266	0.0255	0.0262	0.027	0.0239	0.0254	0.0258	0.0251	0.0254	0.0263
Magnesium T-Mg	64.5	64.9	71.2	70.7	70	71.6	78.3	74.9	72.5	73.1	73.6	67.9
Manganese T-Mn	0.0644	0.0701	0.0961	0.097	0.1	0.105	0.103	0.135	0.137	0.138	0.147	0.146
Molybdenum T-Mo	0.00269	0.0025	0.00265	0.00261	0.00265	0.0026	0.00266	0.00261	0.00268	0.00259	0.00255	0.00255
Nickel T-Ni	0.112	0.119	0.183	0.175	0.174	0.18	0.131	0.175	0.167	0.168	0.17	0.166
Phosphorus T-P	0	0	0	0	0	0						
Potassium T-K	2.97	2.96	3.35	3.33	3.29	3.37	3.25	3.21	3.22	3.16	3.17	3.09
Selenium T-Se	0.00125	0.00118	0.00134	0.00136	0.00137	0.00138	0.00115	0.00117	0.00122	0.00119	0.00116	0.00115
Silicon T-Si	2.88	2.78	3.48	3.09	3.2	3.24	2.95	3.67	3.86	3.46	3.38	3.7
Silver T-Ag	ND	ND	0.000006	0.000007	0.000008	0.000008	0.000007	0.000006	ND	ND	ND	0.000007
Sodium T-Na	9.48	9.5	10.8	10.8	10.7	10.9	10.6	10.9	10.7	10.7	10.9	10.2
Strontium T-Sr	0.713	0.714	0.824	0.831	0.839	0.84	0.748	0.802	0.828	0.827	0.805	0.786
Thallium T-Tl	0.000727	0.000751	0.000864	0.00086	0.000861	0.000869	0.000686	0.000627	0.000552	0.000533	0.000529	0.00051
Tin T-Sn	0.00002	0.00001	ND	ND	ND	0.00001	0.00005	0.00003	0.00002	0.00001	0.00001	0.00001
Titanium T-Ti	0.0028	0.0035	0.002	0.0018	0.0024	0.0039	0.0023	0.0021	0.0014	0.0022	0.0033	0.0046
Uranium T-U	0.00499	0.0048	0.0112	0.0116	0.0117	0.0119	0.00864	0.0132	0.0118	0.0116	0.0116	0.0118
Vanadium T-V	0.0004	0.0004	0.0002	0.0003	0.0003	0.0003	0.0005	0.0003	0.0003	0.0003	0.0003	0.0005
Zinc T-Zn	0.748	1.28	8.44	7.7	7.88	8.09	2.09	8.72	6.86	6.82	6.86	6.74
Dissolved Metals												
Aluminum D-Al		0.004	0.0014	0.0012	0.0012	0.0013	0.005	0.0025	0.0026	0.0041	0.0038	0.0033
Antimony D-Sb		0.00357	0.00356	0.00455	0.00449	0.00442	0.00362	0.00409	0.00429	0.00409	0.00419	0.00419
Arsenic D-As		0.00036	0.00034	0.00053	0.00055	0.00052	0.0003	0.00049	0.00045	0.00047	0.00047	0.00046
Barium D-Ba		0.0439	0.0434	0.0473	0.047	0.0463	0.0459	0.0556	0.0641	0.0609	0.0625	0.0627
Beryllium D-Be	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bismuth D-Bi	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron D-B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium D-Cd	0.000844	0.00133	0.00241	0.00235	0.00231	0.00232	0.000817	0.00201	0.0019	0.00195	0.00192	0.0019
Calcium D-Ca	115	119	133	133	132	132	129	130	132	133	134	133
Chromium D-Cr	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt D-Co	0.00364	0.00403	0.00371	0.00363	0.0037	0.00379	0.00464	0.00428	0.00421	0.0043	0.00436	0.00434
Copper D-Cu	0.00083	0.00036	0.00114	0.00133	0.00133	0.00112	0.00161	0.00138	0.00057	0.0005	0.00061	0.00054
Iron D-Fe	0.01	0.002	0.002	0.002	0.003	0.017	0.008	0.003	0.008	0.002	0.004	0.005
Lead D-Pb	0.00053	0.000337	0.000557	0.000538	0.000339	0.000615	0.000619	0.000609	0.000388	0.000374	0.000426	0.000371
Lithium D-Li	0.0226	0.0241	0.0267	0.0269	0.0272	0.0268	0.0234	0.0251	0.0262	0.0247	0.0252	0.0249
Magnesium D-Mg	62.3	64.9	70.5	70.6	69.8	70.1	72.1	70.7	71.6	72.4	72.7	72
Manganese D-Mn	0.0555	0.0661	0.0967	0.0967	0.102	0.104	0.0811	0.123	0.131	0.135	0.141	0.142
Molybdenum D-Mo	0.00249	0.00259	0.00277	0.0027	0.00267	0.00273	0.00273	0.00263	0.00277	0.0026	0.00267	0.00269
Nickel D-Ni	0.101	0.116	0.184	0.182	0.181	0.182	0.108	0.159	0.162	0.164	0.164	0.162
Phosphorus D-P												
Potassium D-K	3.05	3.01	3.37	3.37	3.31	3.33	3.45	3.18	3.26	3.27	3.3	3.28
Selenium D-Se	0.00117	0.00119	0.00134	0.00131	0.00137	0.00135	0.00132	0.00132	0.00136	0.00134	0.00136	0.0014
Silicon D-Si	2.63	3.05	3.7	3.61	3.62	3.56	2.18	2.85	2.76	2.66	2.67	2.69
Silver D-Ag	0.000005	ND	ND	ND	ND	ND	0.000016	ND	ND	ND	ND	ND
Sodium D-Na	9.19	9.67	10.9	10.9	10.9	10.8	9.74	10.2	10.6	10.6	10.7	10.4
Strontium D-Sr	0.718	0.737	0.861	0.849	0.845	0.853	0.736	0.797	0.828	0.812	0.819	0.814
Thallium D-Tl	0.000724	0.000732	0.000857	0.000855	0.000855	0.000866	0.000639	0.000607	0.000553	0.00054	0.000544	0.000515
Tin D-Sn	0.00003	0.00001	ND	0.00002	ND	ND	0.00004	0.00002	ND	ND	ND	ND
Titanium D-Ti	0.0006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Uranium D-U	0.00509	0.00488	0.0115	0.0119	0.0119	0.0119	0.00878	0.0113	0.0118	0.0114	0.0117	0.0116
Vanadium D-V	ND		0.0002	ND	ND	ND	0.0003	ND	ND	ND	ND	ND
Zinc D-Zn		0.237	0.891	8.52	8.01	8.03	0.257	7.6	6.58	6.67	6.62	6.59
Organic Parameters												
Chlorophyll a (a,b)							0.014	0.017	ND	ND	0	0

Grum Pit - 2005 -2008 Monitoring Results
RESULTS OF ANALYSIS

Depth (m)						
Sample ID	GL-1	GL-3	GL-5	GL-15	GL-30	GL-40
Date Sampled	3/09/08	3/09/08	3/09/08	3/09/08	3/09/08	3/09/08
Time Sampled	F112784	F112784	F112784	F112784	F112784	F112784
ALS Sample ID	L47631	L47632	L47633	L47634	L47635	L47636
Nature						
Physical Tests						
Hardness (as CaCO ₃)	637	637	649	643	644	642
Conductivity (uS/cm)	1100	1100	1100	1100	1100	1100
ORP						
pH	8	8	7.9	7.9	8	7.9
Total Suspended Solids	2	2	3	3	8	23
Dissolved Anions						
Alkalinity-Total CaCO ₃						
Sulphate SO ₄	440	440	440	430	440	440
Chloride (Cl)	1.1	1	0.8	1.1	1	1.1
Fluoride (F)						
Bromide (Br)	ND	ND	ND	ND	0.1 ND	ND
Nutrients						
Ammonia Nitrogen N	ND	ND	ND	0	0	0
Nitrate Nitrogen N	0.03	0.04	0.04	0.02	0.03	0.02
Nitrite Nitrogen N	1.12	1.04	1.09	1.07	1.07	1.05
Nitrite/Nitrate Nitrogen N	0.007	0.006	0.007	0.007	0.007	0.006
Dissolved ortho-Phosphate P	1.13	1.05	1.1	1.08	1.08	1.05
Total Phosphate P	ND	0.003	0.003	0.002	0.002	0.002
	ND	ND	ND	0.008	0.008	0.009
Total Metals						
Aluminum T-Al	0.0506	0.0476	0.0456	0.0656	0.124	0.246
Antimony T-Sb	0.00383	0.00382	0.00382	0.00385	0.00399	0.00384
Arsenic T-As	0.00063	0.00062	0.00064	0.00061	0.00066	0.00081
Barium T-Ba	0.0658	0.0654	0.0666	0.0715	0.0769	0.0779
Beryllium T-Be	ND	ND	ND	ND	ND	0.00001
Bismuth T-Bi	ND	ND	ND	ND	0.000007	0.000012
Boron T-B	ND	ND	ND	ND	ND	ND
Cadmium T-Cd	0.00185	0.00178	0.00183	0.00183	0.00184	0.00185
Calcium T-Ca	136	135	138	136	136	136
Chromium T-Cr	0.0001	ND	ND	0.0001	0.0003	0.0005
Cobalt T-Co	0.00538	0.00536	0.00549	0.00539	0.00556	0.00575
Copper T-Cu	0.00278	0.00244	0.00208	0.00115	0.00133	0.00196
Iron T-Fe	0.121	0.123	0.109	0.106	0.198	0.414
Lead T-Pb	0.0016	0.00154	0.00124	0.00098	0.00143	0.00213
Lithium T-Li	0.0265	0.0261	0.0263	0.0253	0.0273	0.0277
Magnesium T-Mg	72.5	72.9	74.2	73.5	73.9	73.3
Manganese T-Mn	0.173	0.172	0.176	0.18	0.186	0.192
Molybdenum T-Mo	0.00251	0.00245	0.00246	0.00246	0.00255	0.00235
Nickel T-Ni	0.161	0.162	0.167	0.166	0.169	0.168
Phosphorus T-P						
Potassium T-K	3.36	3.3	3.35	3.3	3.37	3.35
Selenium T-Se	0.00134	0.00144	0.00132	0.00137	0.00136	0.00125
Silicon T-Si	3.43	3.54	3.26	3.29	3.27	3.14
Silver T-Ag	ND	ND	ND	ND	ND	ND
Sodium T-Na	10.9	10.9	11.2	11	11.2	11.1
Strontium T-Sr	0.846	0.852	0.871	0.862	0.872	0.837
Thallium T-Tl	0.000476	0.000474	0.00045	0.000414	0.000439	0.000434
Tin T-Sn	0.00002	0.00002	ND	0.00003	0.00003	0.00002
Titanium T-Ti	0.0025	0.0021	0.0022	0.0028	0.0066	0.0129
Uranium T-U	0.0103	0.0104	0.0105	0.0107	0.0111	0.0109
Vanadium T-V	0.0002	ND	0.0002	0.0003	0.0005	0.0008
Zinc T-Zn	6.48	6.38	6.54	6.47	6.59	6.54
Dissolved Metals						
Aluminum D-Al	0.0023	0.0014	0.0009	0.0025	0.0013	0.0019
Antimony D-Sb	0.0041	0.00411	0.00404	0.00428	0.00399	0.00413
Arsenic D-As	0.00043	0.00045	0.00048	0.00053	0.00053	0.00056
Barium D-Ba	0.0688	0.0694	0.0687	0.0776	0.0732	0.0757
Beryllium D-Be	ND	ND	ND	ND	ND	ND
Bismuth D-Bi	ND	ND	ND	ND	ND	ND
Boron D-B	ND	ND	ND	ND	ND	ND
Cadmium D-Cd	0.00178	0.00183	0.00187	0.00174	0.00176	0.00179
Calcium D-Ca	137	139	139	129	128	129
Chromium D-Cr	ND	ND	ND	ND	ND	0.0001
Cobalt D-Co	0.00532	0.00546	0.00537	0.00515	0.00516	0.00521
Copper D-Cu	0.002	0.00175	0.00145	0.00075	0.00079	0.00074
Iron D-Fe	0.027	0.002	0.002	0.002	0.002	0.004
Lead D-Pb	0.000474	0.000386	0.000327	0.000313	0.000297	0.000259
Lithium D-Li	0.0248	0.0252	0.0247	0.0257	0.0244	0.0248
Magnesium D-Mg	72.3	72.9	73.1	67.9	67.8	68.5
Manganese D-Mn	0.173	0.174	0.177	0.172	0.173	0.177
Molybdenum D-Mo	0.00275	0.00276	0.00266	0.00285	0.00272	0.00277
Nickel D-Ni	0.159	0.163	0.166	0.155	0.156	0.159
Phosphorus D-P						
Potassium D-K	3.37	3.38	3.43	3.19	3.2	3.24
Selenium D-Se	0.00154	0.00158	0.00164	0.0016	0.00158	0.00168
Silicon D-Si	3.49	3.44	3.41	3.29	3.27	3.28
Silver D-Ag	0.000005	ND	ND	ND	ND	ND
Sodium D-Na	11	11.1	11.2	10.5	10.6	10.6
Strontium D-Sr	0.799	0.801	0.812	0.855	0.827	0.835
Thallium D-Tl	0.000447	0.000447	0.000425	0.000402	0.000393	0.000393
Tin D-Sn	0.00001	ND	ND	ND	ND	ND
Titanium D-Ti	ND	ND	ND	ND	ND	ND
Uranium D-U	0.0114	0.0116	0.0113	0.0121	0.0117	0.0119
Vanadium D-V	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004
Zinc D-Zn	6.36	6.51	6.67	6.16	6.2	6.27
Organic Parameters						
Chlorophyll a (a,b)	0	0	0	0	0	0

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40
Sample ID	VP-1 VGDA PIT @1m	VP-3 VGDA PIT @3m	VP-5 VGDA PIT @5m	VP-15 VGDA PIT @15m	VP-30 VGDA PIT @30m	VP-40 VGDA PIT @40m
Date Sampled	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05	9-Jun-05
Time Sampled	17:00	17:10	17:15	17:20	17:30	17:40
ALS Sample ID	15	16	17	18	19	20
Nature	Water	Water	Water	Water	Water	Water
Physical Tests						
Hardness (as CaCO3)						
Conductivity (uS/cm)	1320	1880	2000	2070	2140	2140
ORP						
pH	7.49	7.17	6.86	6.44	5.90	5.82
Total Suspended Solids	4.6	22.9	41.9	56.9	61.9	66.9
Dissolved Anions						
Alkalinity-Total CaCO3	24.8	42.0	18.0	13.2	10.4	10.7
Sulphate SO4	732	1130	1220	1290	1330	1360
Bromide (Br)						
Chloride (Cl)						
Nutrients						
Ammonia Nitrogen N	0.180	0.420	0.470	0.500	0.590	0.550
Nitrate Nitrogen N	0.184	0.055	<0.050	<0.050	<0.050	<0.050
Nitrite Nitrogen N	<0.010	<0.010	<0.010	0.015	<0.010	<0.010
Nitrite/Nitrate Nitrogen N						
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	0.0038	<0.0060	<0.030	<0.030	<0.030	<0.030
Total Metals						
Aluminum T-Al	0.036	0.068	0.056	0.077	0.214	0.271
Antimony T-Sb	<0.0020	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050
Arsenic T-As	<0.0020	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050
Barium T-Ba	0.0510	0.0347	0.0278	0.0254	0.0284	0.0310
Beryllium T-Be	<0.010	<0.010	<0.010	<0.010	<0.025	<0.025
Bismuth T-Bi	<0.010	<0.010	<0.010	<0.010	<0.025	<0.025
Boron T-B	<0.20	<0.20	<0.20	<0.20	<0.50	<0.50
Cadmium T-Cd	0.0746	0.0909	0.0979	0.105	0.127	0.129
Calcium T-Ca	156	237	252	240	250	248
Chromium T-Cr	<0.010	<0.010	<0.010	<0.010	<0.025	<0.025
Cobalt T-Co	0.376	0.590	0.666	0.699	0.784	0.789
Copper T-Cu	0.0692	0.132	0.120	0.237	0.439	0.445
Iron T-Fe	0.428	4.81	18.4	24.0	37.7	46.8
Lead T-Pb	0.0115	0.0107	0.0052	0.0045	0.0421	0.0432
Lithium T-Li	<0.10	<0.10	<0.10	<0.10	<0.25	<0.25
Magnesium T-Mg	66.7	93.2	99.9	97.8	106	101
Manganese T-Mn	23.0	33.0	37.1	39.5	43.8	43.9
Molybdenum T-Mo	<0.0010	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025
Nickel T-Ni	0.373	0.572	0.630	0.648	0.719	0.706
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	<2.0	2.5	3.0	2.7	2.8	3.5
Selenium T-Se	<0.020	<0.020	<0.020	<0.020	<0.050	<0.050
Silicon T-Si	2.46	2.99	3.18	3.06	3.32	3.31
Silver T-Ag	<0.00020	<0.00020	<0.00020	<0.00020	<0.00050	<0.00050
Sodium T-Na	3.0	4.6	5.3	4.7	4.8	5.9
Strontium T-Sr	0.803	1.14	1.21	1.23	1.36	1.34
Thallium T-Tl	<0.0020	0.0020	0.0022	0.0023	<0.0050	<0.0050
Tin T-Sn	<0.0020	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00059	0.00043	0.00034	0.00036	0.00060	0.00074
Vanadium T-V	<0.020	<0.020	<0.020	<0.020	<0.050	<0.050
Zinc T-Zn	74.0	109	124	131	149	149
Dissolved Metals						
Aluminum D-Al						
Antimony D-Sb						
Arsenic D-As						
Barium D-Ba						
Beryllium D-Be						
Bismuth D-Bi						
Boron D-B						
Cadmium D-Cd						
Calcium D-Ca						
Chromium D-Cr						
Cobalt D-Co						
Copper D-Cu						
Iron D-Fe						
Lead D-Pb						
Lithium D-Li						
Magnesium D-Mg						
Manganese D-Mn						
Molybdenum D-Mo						
Nickel D-Ni						
Phosphorus D-P						
Potassium D-K						
Selenium D-Se						
Silicon D-Si						
Silver D-Ag						
Sodium D-Na						
Strontium D-Sr						
Thallium D-Tl						
Tin D-Sn						
Titanium D-Ti						
Uranium D-U						
Vanadium D-V						
Zinc D-Zn						

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	0.1	1	3	5	10	20	30
Sample ID	VP-0.1	VP-1	VP-3	VP-5	VP-10	VP-20	VP-30
Date Sampled	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05	14-Sep-05
Time Sampled	15:20	15:30	15:38	15:42	15:46	15:50	16:00
ALS Sample ID	17	18	19	20	21	22	23
Nature	Water	Water	Water	Water	Water	Water	Water
Physical Tests							
Hardness (as CaCO3)							
Conductivity (uS/cm)	1880	1870	2060	2130	2150	2150	2150
ORP							
pH	7.05	7.00	6.65	5.32	5.36	5.37	5.38
Total Suspended Solids	10.5	10.5	38.5	47.2	45.2	43.2	45.8
Dissolved Anions							
Alkalinity-Total CaCO3	12.8	12.8	9.0	8.1	8.2	7.2	7.8
Sulphate SO4	1190	1200	1370	1420	1420	1420	1430
Bromide (Br)							
Chloride (Cl)							
Nutrients							
Ammonia Nitrogen N	0.490	0.460	0.590	0.640	0.620	0.630	0.590
Nitrate Nitrogen N	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nitrite Nitrogen N	<0.010	0.013	<0.010	0.016	0.019	0.010	0.011
Nitrite/Nitrate Nitrogen N							
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	0.0010
Total Phosphate P	<0.0020	0.0029	0.0020	0.0024	0.0027	0.0032	0.0022
Total Metals							
Aluminum T-Al	0.023	0.030	0.027	<0.050	<0.050	<0.050	<0.050
Antimony T-Sb	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic T-As	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Barium T-Ba	0.0193	0.0208	0.0165	0.0137	0.0153	0.0164	0.0148
Beryllium T-Be	<0.010	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Bismuth T-Bi	<0.010	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Boron T-B	<0.20	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50
Cadmium T-Cd	0.0854	0.0914	0.107	0.110	0.114	0.124	0.116
Calcium T-Ca	240	245	255	255	271	280	281
Chromium T-Cr	<0.010	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Cobalt T-Co	0.491	0.517	0.683	0.719	0.761	0.801	0.742
Copper T-Cu	0.0063	0.0073	0.0745	0.124	0.0903	0.0992	0.0899
Iron T-Fe	3.37	3.52	31.8	40.7	49.4	45.3	40.3
Lead T-Pb	0.0096	0.0114	0.0100	0.0056	0.0180	0.0208	0.0223
Lithium T-Li	<0.10	<0.10	<0.10	<0.25	<0.25	<0.25	<0.25
Magnesium T-Mg	86.9	89.7	104	104	109	113	110
Manganese T-Mn	31.3	32.8	40.8	41.3	44.6	47.0	43.4
Molybdenum T-Mo	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025
Nickel T-Ni	0.443	0.466	0.616	0.644	0.691	0.733	0.666
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.7	2.6	2.9	3.1	3.6	3.3	3.0
Selenium T-Se	<0.020	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Silicon T-Si	2.38	2.45	3.28	3.35	3.53	3.62	3.45
Silver T-Ag	<0.00020	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050
Sodium T-Na	5.4	5.4	5.4	5.3	6.7	5.8	5.0
Strontium T-Sr	1.17	1.25	1.18	1.23	1.31	1.38	1.28
Thallium T-Tl	0.0022	0.0023	0.0023	<0.0050	<0.0050	<0.0050	<0.0050
Tin T-Sn	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00023	0.00034	0.00027	<0.00050	<0.00050	<0.00050	<0.00050
Vanadium T-V	<0.020	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Zinc T-Zn	87.8	91.7	122	127	137	145	134
Dissolved Metals							
Aluminum D-Al	<0.020	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Antimony D-Sb	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic D-As	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Barium D-Ba	0.0152	0.0146	0.0145	0.0125	0.0116	0.0114	0.0112
Beryllium D-Be	<0.010	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Bismuth D-Bi	<0.010	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Boron D-B	<0.20	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50
Cadmium D-Cd	0.0935	0.0899	0.115	0.120	0.116	0.117	0.111
Calcium D-Ca	251	238	270	260	279	293	272
Chromium D-Cr	<0.010	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Cobalt D-Co	0.502	0.494	0.698	0.735	0.748	0.727	0.722
Copper D-Cu	0.0074	0.0071	0.0642	0.109	0.0717	0.0765	0.0747
Iron D-Fe	0.437	0.396	16.3	18.8	20.7	22.2	19.6
Lead D-Pb	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025
Lithium D-Li	<0.10	<0.10	<0.10	<0.25	<0.25	<0.25	<0.25
Magnesium D-Mg	92.9	85.1	108	105	113	117	107
Manganese D-Mn	32.8	32.5	42.8	44.1	44.2	43.5	42.8
Molybdenum D-Mo	<0.0010	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025
Nickel D-Ni	0.469	0.461	0.646	0.686	0.682	0.670	0.659
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	2.8	2.5	3.2	3.0	3.3	3.5	3.1
Selenium D-Se	<0.020	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Silicon D-Si	2.45	2.24	3.26	3.22	3.43	3.63	3.24
Silver D-Ag	<0.00020	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050
Sodium D-Na	5.7	5.2	5.9	5.3	6.0	6.1	5.2
Strontium D-Sr	1.29	1.27	1.32	1.33	1.33	1.30	1.30
Thallium D-Tl	0.0021	0.0022	0.0023	<0.0050	<0.0050	<0.0050	<0.0050
Tin D-Sn	<0.0020	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	<0.00020	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050
Vanadium D-V	<0.020	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Zinc D-Zn	94.0	92.5	133	139	138	136	134

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	7	1	3	5	15	30	40
Sample ID	VANGORDA PIT 1m	VANGORDA PIT 7m	VP 1m Vangorda Pit	VP 3m Vangorda @ 3r	VP 5m Vangorda @ 5r	VP 15m Vangorda @ 15r	VP 30m Vangorda @ 30r	VP 40m Vangorda @ 40r
Date Sampled	17-May-06	17-May-06	21-Jun-06	21-Jun-06	21-Jun-06	21-Jun-06	21-Jun-06	21-Jun-06
Time Sampled	13:30	14:20	11:50	12:10	12:20	12:35	12:45	13:00
ALS Sample ID	4	5	1	02	03	04	5	6
Nature	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests								
Hardness (as CaCO ₃)								
Conductivity (uS/cm)	1780	2110	1130	1910	2120	2140	2150	2150
ORP								
pH	5.80	5.89	5.02	5.17	5.55	5.48	5.57	5.57
Total Suspended Solids	17.3	32.0	04.7	14.7	30.7	35.3	37.3	34.0
Dissolved Anions								
Alkalinity-Total CaCO ₃	04.0	<2.0	24.8	30.4	47.4	47.8	37.0	33.0
Sulphate SO ₄	1130	1390	0641	1240	1410	1410	1440	1530
Bromide (Br)								
Chloride (Cl)								
Nutrients								
Ammonia Nitrogen N	0.360	0.580	0.167	0.407	0.560	0.551	0.532	0.531
Nitrate Nitrogen N								
Nitrite Nitrogen N								
Nitrite/Nitrate Nitrogen N	0.0600	<0.025	0.0714	0.038	<0.025	<0.025	<0.025	<0.025
Dissolved ortho-Phosphate P	<0.0010	<0.0010	0.0026	0.0013	0.0011	0.0012	0.0014	0.0015
Total Phosphate P	0.0094	0.011	0.0051	0.0049	0.0084	0.0088	0.0138	0.0069
Total Metals								
Aluminum T-Al	1.970	0.127	0.161	0.503	0.162	0.133	<0.40	0.148
Antimony T-Sb	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic T-As	0.0297	0.0022	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Barium T-Ba	0.0385	0.0259	0.0118	0.0272	0.0273	0.0262	0.0257	0.0252
Beryllium T-Be	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth T-Bi	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Boron T-B	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium T-Cd	0.162	0.120	0.047	0.136	0.120	0.121	0.1240	0.124
Calcium T-Ca	202	269	121	209	231	263	246	299
Chromium T-Cr	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt T-Co	0.621	0.797	0.144	0.645	0.758	0.755	0.777	0.781
Copper T-Cu	2.230	0.091	0.235	0.612	0.143	0.146	0.146	0.144
Iron T-Fe	30.500	34.50	06.8	23.4	28.5	35.0	34.20	38.2
Lead T-Pb	0.0975	0.0123	0.0204	0.0455	0.0155	0.0178	0.0270	0.0281
Lithium T-Li	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium T-Mg	86.2	110.0	048	087	098	111	104.0	121.0
Manganese T-Mn	34.8	47.8	07.9	43.2	51.4	49.7	52.30	52.2
Molybdenum T-Mo	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel T-Ni	0.549	0.725	0.131	0.590	0.681	0.685	0.696	0.704
Phosphorus T-P	<0.60	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.60
Potassium T-K	<4.0	3.5	<2.0	2.3	2.7	3.0	2.8	<4.0
Selenium T-Se	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Silicon T-Si	3.36	3.61	2.43	3.11	3.14	3.56	3.36	3.59
Silver T-Ag	<0.00020	<0.00020	<0.00020	0.00098	0.00092	0.00049	0.00084	0.00080
Sodium T-Na	6.5	6.1	2.7	4.5	4.9	5.3	5.2	6.0
Strontium T-Sr	1.320	1.48	0.31	1.33	1.53	1.46	1.510	1.52
Thallium T-Tl	0.0022	0.0023	<0.0020	0.0026	0.0024	0.0023	0.0023	0.0024
Tin T-Sn	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Titanium T-Ti	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
Uranium T-U	0.00430	0.00054	0.00051	0.00170	0.00044	0.00056	0.00058	0.00060
Vanadium T-V	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc T-Zn	134.0	162.0	031	149	166	165	170.0	170
Dissolved Metals								
Aluminum D-Al	0.899	0.060	0.110	0.455	0.117	0.112	0.116	0.114
Antimony D-Sb	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic D-As	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Barium D-Ba	0.0375	0.0245	0.0112	0.0260	0.0258	0.0252	0.0247	0.0242
Beryllium D-Be	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth D-Bi	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Boron D-B	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium D-Cd	0.156	0.116	0.046	0.131	0.116	0.122	0.1240	0.123
Calcium D-Ca	211	270	121	213	235	258	249	259
Chromium D-Cr	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt D-Co	0.647	0.785	0.141	0.615	0.733	0.780	0.772	0.767
Copper D-Cu	1.370	0.081	0.221	0.609	0.136	0.145	0.140	0.138
Iron D-Fe	23.8	31.10	05.7	22.9	27.0	34.4	32.00	32.6
Lead D-Pb	0.03410	<0.0010	0.0125	0.0326	0.0049	0.0092	0.0159	0.0173
Lithium D-Li	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium D-Mg	87.9	109.0	49.1	089	096	108	103.0	104.0
Manganese D-Mn	36.8	47.0	07.6	40.7	49.4	51.7	51.40	51.1
Molybdenum D-Mo	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel D-Ni	0.587	0.729	0.128	0.556	0.655	0.699	0.685	0.684
Phosphorus D-P	<0.60	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.60
Potassium D-K	<4.0	3.5	<2.0	2.4	2.5	2.9	2.9	<4.0
Selenium D-Se	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Silicon D-Si	3.23	3.56	2.42	3.19	3.08	3.45	3.27	3.06
Silver D-Ag	<0.00020	<0.00020	<0.00020	0.00057	0.00118	0.00063	0.00098	0.00100
Sodium D-Na	5.4	6.1	2.7	4.7	4.6	5.3	5.3	5.0
Strontium D-Sr	1.390	1.45	0.30	1.26	1.47	1.49	1.470	1.47
Thallium D-Tl	0.0023	0.0024	<0.0020	0.0024	0.0023	0.0023	0.0024	0.0023
Tin D-Sn	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Titanium D-Ti	<0.020	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.020
Uranium D-U	0.00253	0.00036	0.00042	0.00164	0.00040	0.00046	0.00052	0.00054
Vanadium D-V	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc D-Zn	138.0	161.0	030	140	161	168	167.0	167

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40
Sample ID	VP_1 Vangorda @1m VP_3 Vangorda @3m VP_5 Vangorda @5m VP_15M Vangorda @15m VP_30M Vangorda @30m VP_40 Vangorda @40m					
Date Sampled	9-Aug-06	9-Aug-06	9-Aug-06	9-Aug-06	9-Aug-06	9-Aug-06
Time Sampled	14:05	14:20	14:35	14:45	14:55	15:10
ALS Sample ID	7	8	9	10	11	12
Nature	Water	Water	Water	Water	Water	Water
Physical Tests						
Hardness (as CaCO ₃)						
Conductivity (uS/cm)	1260	1670	2080	2180	2190	2210
ORP						
pH	7.04	6.70	6.40	5.96	5.81	5.67
Total Suspended Solids	<3.0	10.3	22.3	33.7	32.3	33.7
Dissolved Anions						
Alkalinity-Total CaCO ₃	16.8	11.1	12.7	12.6	11.5	13.1
Sulphate SO ₄	0715	1040	1370	1450	1450	1450
Bromide (Br)						
Chloride (Cl)						
Nutrients						
Ammonia Nitrogen N	0.174	0.271	0.505	0.502	0.522	0.519
Nitrate Nitrogen N	0.049	0.032	<0.12	<0.12	<0.12	<0.12
Nitrite Nitrogen N	0.002	0.002	<0.025	<0.025	<0.025	<0.025
Nitrite/Nitrate Nitrogen N	0.0514	0.0337	<0.12	<0.12	<0.12	<0.12
Dissolved ortho-Phosphate P	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Total Phosphate P	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Total Metals						
Aluminum T-Al	0.053	0.176	0.171	0.164	0.17	0.176
Antimony T-Sb	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic T-As	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Barium T-Ba	0.0249	0.0259	0.0226	0.0218	0.0208	0.0213
Beryllium T-Be	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth T-Bi	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010
Boron T-B	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium T-Cd	0.106	0.120	0.111	0.120	0.119	0.119
Calcium T-Ca	137	174	245	249	253	247
Chromium T-Cr	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt T-Co	0.337	0.544	0.664	0.731	0.733	0.733
Copper T-Cu	0.149	0.408	0.159	0.123	0.12	0.1220
Iron T-Fe	00.6	10.0	29.9	41.0	45.3	42.0
Lead T-Pb	0.0117	0.0371	0.0210	0.0373	0.0410	0.0438
Lithium T-Li	<0.050	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium T-Mg	58.9	077	103	105	108.0	106
Manganese T-Mn	22.6	31.3	44.0	47.1	48.1	47.9
Molybdenum T-Mo	0.00264	<0.0010	0.0029	0.0023	0.0017	0.0021
Nickel T-Ni	0.337	0.488	0.628	0.664	0.672	0.671
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	<2.0	2.2	3.0	2.9	3.1	2.9
Selenium T-Se	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020
Silicon T-Si	2.74	2.90	3.38	3.34	3.40	3.30
Silver T-Ag	<0.00010	0.00066	<0.00020	<0.00020	<0.00020	<0.00020
Sodium T-Na	3.3	4.0	5.4	5.2	5.7	5.2
Strontium T-Sr	0.88	1.06	1.40	1.45	1.45	1.44
Thallium T-Tl	0.0029	0.0026	0.0023	0.0023	0.0023	0.0023
Tin T-Sn	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00041	0.00168	0.00056	0.00054	0.00050	0.00053
Vanadium T-V	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc T-Zn	072	099	133	147	149	142
Dissolved Metals						
Aluminum D-Al	<0.010	0.105	0.095	0.100	0.099	0.096
Antimony D-Sb	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Arsenic D-As	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Barium D-Ba	0.0225	0.0246	0.0224	0.0208	0.0206	0.0199
Beryllium D-Be	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010
Bismuth D-Bi	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010
Boron D-B	<0.10	<0.20	<0.20	<0.20	<0.20	<0.20
Cadmium D-Cd	0.106	0.119	0.109	0.117	0.116	0.113
Calcium D-Ca	136	170	242	251	251	247
Chromium D-Cr	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010
Cobalt D-Co	0.344	0.523	0.670	0.726	0.724	0.707
Copper D-Cu	0.107	0.372	0.153	0.120	0.12	0.1120
Iron D-Fe	<0.030	07.6	28.6	42.2	42.5	41.4
Lead D-Pb	0.0009	0.0130	0.0135	0.0312	0.0361	0.0356
Lithium D-Li	<0.050	<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium D-Mg	58.7	076	099	107	108.0	103
Manganese D-Mn	23.0	30.6	43.8	47.3	47.7	46.0
Molybdenum D-Mo	0.00206	<0.0010	0.0027	0.0022	0.0018	0.0014
Nickel D-Ni	0.355	0.478	0.623	0.663	0.663	0.650
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	<2.0	2.1	2.8	3.1	3	2.9
Selenium D-Se	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020
Silicon D-Si	2.67	2.83	3.21	3.37	3.37	3.20
Silver D-Ag	<0.00010	0.00066	<0.00020	<0.00020	<0.00020	<0.00020
Sodium D-Na	3.2	4.0	5.2	5.5	5.3	5.0
Strontium D-Sr	0.89	1.03	1.42	1.42	1.43	1.39
Thallium D-Tl	0.0028	0.0026	0.0022	0.0022	0.0023	0.0021
Tin D-Sn	<0.0010	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00016	0.00121	0.00050	0.00050	0.00048	0.00051
Vanadium D-V	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020
Zinc D-Zn	073	095	134	148	139	136

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40
Sample ID	VP_1 (vngrda @1m)	VP_3 (vngrda @3m)	VP_5 (vngrda @5m)	VP_15 (vngrda @15m)	VP_30 (vngrda @30m)	VP_40 (vngrda @40m)
Date Sampled	15-Sep-06	15-Sep-06	15-Sep-06	15-Sep-06	15-Sep-06	15-Sep-06
Time Sampled	14:15	14:20	14:26	14:36	14:50	15:15
ALS Sample ID	7	8	9	10	11	12
Nature	Water	Water	Water	Water	Water	Water
Physical Tests						
Hardness (as CaCO3)						
Conductivity (uS/cm)	1350	1340	2020	2090	2100	2100
ORP						
pH	7.05	6.92	6.11	5.94	5.88	5.83
Total Suspended Solids	5.2	4.6	33.9	36.6	39.9	39.9
Dissolved Anions						
Alkalinity-Total CaCO3	13.6	13.7	14.1	13.1	14.5	13.7
Sulphate SO4	794	785	1430	1500	1490	1480
Bromide (Br)						
Chloride (Cl)						
Nutrients						
Ammonia Nitrogen N	0.189	0.189	0.603	0.604	0.594	0.567
Nitrate Nitrogen N						
Nitrite Nitrogen N						
Nitrite/Nitrate Nitrogen N	0.0489	0.0466	<0.0050	<0.0050	<0.0050	<0.0050
Dissolved ortho-Phosphate P	<0.0010	0.0029	<0.0010	0.0032	<0.0010	<0.0010
Total Phosphate P	<0.0020	<0.0020	0.0369	0.0047	0.0151	2.13
Total Metals						
Aluminum T-Al	0.070	0.049	0.131	0.189	0.130	0.133
Antimony T-Sb	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic T-As	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Barium T-Ba	0.0230	0.0225	0.0243	0.0225	0.0222	0.0223
Beryllium T-Be	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Bismuth T-Bi	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Boron T-B	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50
Cadmium T-Cd	0.104	0.106	0.115	0.120	0.126	0.122
Calcium T-Ca	155	154	267	269	269	263
Chromium T-Cr	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Cobalt T-Co	0.398	0.398	0.718	0.757	0.796	0.762
Copper T-Cu	0.0494	0.0498	0.183	0.117	0.116	0.111
Iron T-Fe	1.31	1.28	31.2	41.8	42.5	41.9
Lead T-Pb	0.0074	0.0077	0.0077	0.0208	0.0285	0.0294
Lithium T-Li	<0.10	<0.10	<0.25	<0.25	<0.25	<0.25
Magnesium T-Mg	74.7	73.8	110	113	114	110
Manganese T-Mn	26.2	26.7	43.4	46.2	48.0	45.8
Molybdenum T-Mo	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025
Nickel T-Ni	0.386	0.383	0.658	0.698	0.718	0.682
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.4	2.5	3.9	4.0	3.9	3.8
Selenium T-Se	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Silicon T-Si	2.90	2.87	3.50	3.61	3.58	3.50
Silver T-Ag	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050
Sodium T-Na	4.4	4.4	6.8	6.8	6.7	6.4
Strontium T-Sr	0.879	0.877	1.40	1.37	1.42	1.38
Thallium T-Tl	0.0028	0.0027	<0.0050	<0.0050	<0.0050	<0.0050
Tin T-Sn	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	<0.00020	0.00020	0.00061	<0.00050	0.00050	0.00050
Vanadium T-V	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Zinc T-Zn	87.3	87.0	143	154	160	154
Dissolved Metals						
Aluminum D-Al	<0.020	0.020	0.112	0.107	0.129	0.058
Antimony D-Sb	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic D-As	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Barium D-Ba	0.0226	0.0213	0.0237	0.0226	0.0215	0.0219
Beryllium D-Be	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Bismuth D-Bi	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Boron D-B	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50
Cadmium D-Cd	0.104	0.104	0.114	0.121	0.116	0.116
Calcium D-Ca	151	151	260	268	263	271
Chromium D-Cr	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025
Cobalt D-Co	0.389	0.387	0.746	0.773	0.752	0.756
Copper D-Cu	0.0296	0.0292	0.184	0.114	0.110	0.109
Iron D-Fe	0.309	0.165	29.9	40.4	40.9	42.6
Lead D-Pb	<0.0010	<0.0010	<0.0025	0.0074	0.0129	0.0140
Lithium D-Li	<0.10	<0.10	<0.25	<0.25	<0.25	<0.25
Magnesium D-Mg	72.8	72.8	108	114	111	115
Manganese D-Mn	26.3	26.0	44.7	46.4	46.0	45.5
Molybdenum D-Mo	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025
Nickel D-Ni	0.372	0.379	0.682	0.710	0.682	0.690
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	2.4	2.4	3.8	3.9	3.8	4.0
Selenium D-Se	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Silicon D-Si	2.79	2.79	3.43	3.50	3.46	3.59
Silver D-Ag	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050
Sodium D-Na	4.3	4.3	6.8	6.7	6.4	6.8
Strontium D-Sr	0.868	0.856	1.42	1.39	1.35	1.36
Thallium D-Tl	0.0026	0.0027	<0.0050	<0.0050	<0.0050	<0.0050
Tin D-Sn	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	<0.00020	<0.00020	0.00066	0.00050	<0.00050	<0.00050
Vanadium D-V	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050
Zinc D-Zn	85.7	85.0	149	156	154	153

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	5	15	40
Sample ID	V-1 VANGORDA @1M	V-5 VANGORDA @5M	V-15 VANGORDA @15M	V-40 VANGORDA @40M
Date Sampled	26-Mar-07	26-Mar-07	26-Mar-07	26-Mar-07
Time Sampled	10:00	10:12	10:25	10:40
ALS Sample ID	L491616-9	L491616-10	L491616-11	L491616-12
Nature	Water	Water	Water	Water
Physical Tests				
Hardness (as CaCO3)				
Conductivity (uS/cm)	1190	1610	2240	2260
ORP				
pH	7.41	6.73	6.23	6.43
Total Suspended Solids	<3.0	<3.0	39.9	58.5
Dissolved Anions				
Alkalinity-Total CaCO3				
Sulphate SO4	627	959	1430	1430
Bromide (Br)	<0.050	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50
Nutrients				
Ammonia Nitrogen N				
Nitrate Nitrogen N				
Nitrite Nitrogen N				
Nitrite/Nitrate Nitrogen N				
Dissolved ortho-Phosphate P				
Total Phosphate P				
Total Metals				
Aluminum T-Al	<0.20	<0.20	<0.20	<0.20
Antimony T-Sb	<0.20	<0.20	<0.20	<0.20
Arsenic T-As	<0.20	<0.20	<0.20	<0.20
Barium T-Ba	0.0280	0.0170	0.0160	0.0130
Beryllium T-Be	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth T-Bi	<0.20	<0.20	<0.20	<0.20
Boron T-B	<0.10	<0.10	<0.10	<0.10
Cadmium T-Cd	0.071	0.104	0.110	0.090
Calcium T-Ca	140	178	271	291
Chromium T-Cr	<0.010	<0.010	<0.010	<0.010
Cobalt T-Co	0.263	0.452	0.719	0.703
Copper T-Cu	<0.010	0.041	0.106	0.059
Iron T-Fe	0.1	13.0	48.6	50.80
Lead T-Pb	<0.050	<0.050	<0.050	<0.050
Lithium T-Li	0.025	0.032	0.047	0.049
Magnesium T-Mg	55.8	78.9	111.0	115.0
Manganese T-Mn	18.2	30.6	46.4	46.9
Molybdenum T-Mo	<0.030	<0.030	<0.030	<0.030
Nickel T-Ni	0.271	0.412	0.604	0.600
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30
Potassium T-K	2.2	2.5	3.7	3.9
Selenium T-Se	<0.20	<0.20	<0.20	<0.20
Silicon T-Si	4.12	3.12	3.63	3.78
Silver T-Ag	<0.010	<0.020	<0.020	<0.020
Sodium T-Na	4.2	4.5	5.8	6.0
Strontium T-Sr	0.884	0.998	1.330	1.410
Thallium T-Tl	<0.20	<0.50	<0.50	<0.50
Tin T-Sn	<0.030	<0.030	<0.030	<0.030
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010
Uranium T-U				
Vanadium T-V	<0.030	<0.030	<0.030	<0.030
Zinc T-Zn	66	107	158	155.0
Dissolved Metals				
Aluminum D-Al	<0.20	<0.20	<0.20	<0.20
Antimony D-Sb	<0.20	<0.20	<0.20	<0.20
Arsenic D-As	<0.20	<0.20	<0.20	<0.20
Barium D-Ba	0.0280	0.0170	0.0170	0.0130
Beryllium D-Be	<0.0050	<0.0050	<0.0050	<0.0050
Bismuth D-Bi	<0.20	<0.20	<0.20	<0.20
Boron D-B	<0.10	<0.10	<0.10	<0.10
Cadmium D-Cd	0.073	0.110	0.120	0.096
Calcium D-Ca	137	183	285	290
Chromium D-Cr	<0.010	<0.010	<0.010	<0.010
Cobalt D-Co	0.259	0.457	0.742	0.685
Copper D-Cu	<0.010	0.045	0.112	0.053
Iron D-Fe	<0.030	13.5	49.6	49.40
Lead D-Pb	<0.050	<0.050	<0.050	<0.050
Lithium D-Li	0.025	0.036	0.054	0.049
Magnesium D-Mg	57.1	82.8	119.0	117.0
Manganese D-Mn	18.4	31.3	48.5	46.5
Molybdenum D-Mo	<0.030	<0.030	<0.030	<0.030
Nickel D-Ni	0.276	0.429	0.646	0.611
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30
Potassium D-K	2.3	2.7	4.1	3.9
Selenium D-Se	<0.20	<0.20	<0.20	<0.20
Silicon D-Si	4.31	3.43	4.10	3.96
Silver D-Ag	<0.020	<0.020	<0.020	<0.020
Sodium D-Na	4.2	4.6	6.1	5.9
Strontium D-Sr	0.870	1.020	1.380	1.360
Thallium D-Tl	<0.40	<0.40	<0.40	<0.40
Tin D-Sn	<0.030	<0.030	<0.030	<0.030
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010
Uranium D-U				
Vanadium D-V	<0.030	<0.030	<0.030	<0.030
Zinc D-Zn	66	111	166	153.0

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40	1	3	5
Sample ID	VPL-1M	VPL-3M	VPL-5M	VPL-15M	VPL-30M	VPL-40M	VP-1 VANGORDA PIT LAKE @1M	VP-3 VANGORDA PIT LAKE @3M	VP-5 VANGORDA PIT LAKE @5M
Date Sampled	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	12-Jun-07	5-Sep-07	5-Sep-07	5-Sep-07
Time Sampled	10:55	11:05	11:20	11:35	11:45	12:00	13:00	13:15	13:25
ALS Sample ID	L518525-1	L518525-2	L518525-3	L518525-4	L518525-5	L518525-6	L551912-18	L551912-19	L551912-20
Nature	Water	Water	Water	Water	Water	Water	Water	Water	Water
Physical Tests									
Hardness (as CaCO ₃)	588	697	720	1200	1190	1200	719	706	709
Conductivity (uS/cm)	1160	1460	1570	2040	2030	2000	1630	1630	1650
ORP	260	480	540	180	170	160	430	430	420
pH	4.72	3.55	3.44	5.85	5.96	5.97	3.67	3.63	3.57
Total Suspended Solids	<3.0	6.7	6.0	34.0	44.7	43.3	3.1	3.1	3.8
Dissolved Anions									
Alkalinity-Total CaCO ₃									
Sulphate SO ₄	693	856	907	1450	1460	1470	900	881	902
Bromide (Br)	<0.050	<0.050	<0.050	<1.0	<1.0	<1.0	<0.050	<0.050	<0.050
Chloride (Cl)	<0.50	<0.50	<0.50	<10	<10	<10	<0.50	<0.50	<0.50
Nutrients									
Ammonia Nitrogen N	0.164	0.161	0.164	0.582	0.606	0.608	0.127	0.131	0.124
Nitrate Nitrogen N	-	-	-	-	-	-	-	-	-
Nitrite Nitrogen N	-	-	-	-	-	-	-	-	-
Nitrite/Nitrate Nitrogen N	-	-	-	-	-	-	-	-	-
Dissolved ortho-Phosphate P	-	-	-	-	-	-	-	-	-
Total Phosphate P	-	-	-	-	-	-	-	-	-
Total Metals									
Aluminum T-Al	1.01	1.65	1.880	0.617	0.056	0.062	1.51	1.44	1.46
Antimony T-Sb	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic T-As	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Barium T-Ba	0.0243	0.0232	0.0229	0.0181	0.0153	0.015	0.022	0.022	0.021
Beryllium T-Be	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Bismuth T-Bi	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Boron T-B	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium T-Cd	0.108	0.135	0.144	0.109	0.1020	0.098	0.137	0.131	0.133
Calcium T-Ca	135	158	166	279	286	292	153	156	157
Chromium T-Cr	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Cobalt T-Co	0.339	0.442	0.494	0.777	0.748	0.745	0.483	0.469	0.466
Copper T-Cu	0.66	1.06	1.1300	0.0900	0.0777	0.0792	0.735	0.712	0.707
Iron T-Fe	8.66	7.3	10.3	47.9	51.0	51.600	15.9	16.0	16.2
Lead T-Pb	0.089	0.125	0.151	<0.0025	0.0042	0.0054	0.278	0.269	0.269
Lithium T-Li	<0.10	<0.10	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium T-Mg	61.2	74.9	80	120	121	124.0	77.7	78	79
Manganese T-Mn	20.1	26.2	28.6	45.3	45.2	45.3	28.2	27.0	27.2
Molybdenum T-Mo	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Nickel T-Ni	0.316	0.399	0.446	0.672	0.666	0.666	0.440	0.433	0.431
Phosphorus T-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium T-K	<2.0	<2.0	<2.0	3.4	3.3	3.5	2.2	2.2	2.2
Selenium T-Se	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silicon T-Si	2.76	3.13	3.19	3.58	3.57	3.66	3.69	3.71	3.77
Silver T-Ag	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Sodium T-Na	2.9	3.4	3.5	5.5	5.5	5.6	3.8	3.8	3.8
Strontium T-Sr	0.704	0.780	0.86	1.36	1.37	1.370	0.837	0.81	0.81
Thallium T-Tl	<0.0020	0.0023	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tin T-Sn	0.0093	0.0050	0.0222	0.0269	0.0254	0.0278	<0.0050	<0.0050	<0.0050
Titanium T-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium T-U	0.00250	0.00337	0.00359	<0.00050	<0.00050	<0.00050	0.00357	0.00346	0.00345
Vanadium T-V	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Zinc T-Zn	78.1	99	107	148	145	144.0	107	104	103
Dissolved Metals									
Aluminum D-Al	0.80	1.64	1.690	0.054	0.105	0.06	1.49	1.57	1.41
Antimony D-Sb	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Arsenic D-As	<0.0020	<0.0020	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Barium D-Ba	0.0219	0.0231	0.0213	0.0172	0.0146	0.015	0.023	0.021	0.021
Beryllium D-Be	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Bismuth D-Bi	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Boron D-B	<0.20	<0.20	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cadmium D-Cd	0.100	0.135	0.134	0.110	0.103	0.101	0.138	0.132	0.127
Calcium D-Ca	135	157	161	280	282	281	157	155	156
Chromium D-Cr	<0.010	<0.010	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Cobalt D-Co	0.321	0.441	0.458	0.746	0.759	0.741	0.480	0.466	0.453
Copper D-Cu	0.63	1.08	1.0500	0.0871	0.0783	0.0763	0.736	0.707	0.702
Iron D-Fe	8.45	6.54	8.9	46.7	50.0	50.4	15.6	15.3	15.5
Lead D-Pb	0.083	0.126	0.14	<0.0025	0.0028	0.0034	0.277	0.268	0.263
Lithium D-Li	<0.10	<0.10	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium D-Mg	60.9	73.9	77	121	119	120.0	79.6	78	77
Manganese D-Mn	19.2	26.7	26.7	43.8	45.8	45.4	28.1	26.6	26.3
Molybdenum D-Mo	<0.0010	<0.0010	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Nickel D-Ni	0.303	0.401	0.411	0.652	0.662	0.657	0.443	0.429	0.422
Phosphorus D-P	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Potassium D-K	<2.0	<2.0	<2.0	3.3	3.3	3.3	2.3	2.1	2.1
Selenium D-Se	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silicon D-Si	2.73	3.06	3.11	3.57	3.50	3.52	3.75	3.69	3.69
Silver D-Ag	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Sodium D-Na	2.9	3.4	3.5	5.5	5.5	5.5	4.0	3.7	3.6
Strontium D-Sr	0.685	0.797	0.81	1.36	1.37	1.350	0.84	0.80	0.79
Thallium D-Tl	<0.0020	0.0021	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Tin D-Sn	0.0045	0.0081	0.0212	0.0225	0.0270	0.0271	<0.0050	<0.0050	<0.0050
Titanium D-Ti	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium D-U	0.00224	0.00359	0.0032	<0.00050	<0.00050	<0.00050	0.00341	0.00355	0.0032
Vanadium D-V	<0.020	<0.020	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Zinc D-Zn	73.9	100.0	100	143	147	143.0	107	103	101

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40	1	3	5	15	30	40
Sample ID	K23507	K23508	K23509	K23510	K23511	K23512	K64669	K64670	K64671	K64672	K64673	K64674
Date Sampled	11/6/08	11/6/08	11/6/08	11/6/08	11/6/08	11/6/08	8/07/08	8/07/08	8/07/08	8/07/08	8/07/08	8/07/08
Time Sampled												
ALS Sample ID	F112779	F112779	F112779	F112779	F112779	F112779	F113736	F113736	F113736	F113736	F113736	F113736
Nature												
Physical Tests												
Hardness (as CaCO3)	650	813	811	1170	1210	1230	726	788	818	1190	1180	1180
Conductivity (uS/cm)	1600	2000	2000	2200	2200	2200	2000	2200	2200	2300	2300	2300
ORP												
pH	3.3	3.2	3.2	5.7	6	6	3	3	3	4.7	4.5	4.5
Total Suspended Solids	12	6	ND	26	31	34	8	8	6	32	36	33
Dissolved Anions												
Alkalinity-Total CaCO3	ND	ND	ND	1.1	3.9	2.9	ND	ND	ND	10	6.7	7.8
Sulphate SO4	830	980	1100	1400	1500	1600	990	1100	1100	1400	1500	1500
Bromide (Br)							0.31	0.29	0.29	0.11	0.11	0.12
Chloride (Cl)	0.9	ND	ND	ND	ND	0.6	0.6	ND	0.5	0.7	0.6	1.3
Nutrients												
Ammonia Nitrogen N	0.114	0.16	0.171	0.42 (1)	0.41 (1)	0.45 (1)	0.181	0.19	0.229	0.58	0.57	0.57
Nitrate Nitrogen N	1.19	0.16	0.08	ND	ND	ND	0.1	0.07	0.07	ND	ND	ND
Nitrite Nitrogen N	ND	0.008	ND	0.007	0.009	0.009	0.009	0.01	0.008	ND	ND	0.005
Nitrite/Nitrate Nitrogen N	1.19	0.17	0.08	ND	ND	0.03	0.11	0.08	0.08	ND	ND	ND
Dissolved ortho-Phosphate P	0.001	0.002	0.002	ND	ND	0.003	0.011	0.011	0.016	0.01	0.009	0.006
Total Phosphate P	ND	0.005	0.007	ND	ND	ND	0.023	0.02	0.023	0.015	0.019	0.007
Total Metals												
Aluminum T-Al	2.37	3.12	3.51	0.081	0.014	0.014	3.13	3.43	3.23	0.018	0.039	0.022
Antimony T-Sb	ND	ND	ND	ND	0.0004	ND	0.00028	0.00014	0.00018	ND	0.0002	ND
Arsenic T-As	0.0026	0.0054	0.0061	0.0008	0.0009	0.0012	0.00312	0.00477	0.00455	0.0008	0.0011	0.0009
Barium T-Ba	0.0347	0.0328	0.031	0.0156	0.0142	0.0147	0.0297	0.0314	0.0292	0.0139	0.0137	0.0134
Beryllium T-Be	0.0005	0.0007	0.0007	ND	ND	ND	0.00057	0.00064	0.00054	ND	ND	ND
Bismuth T-Bi	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron T-B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium T-Cd	0.134	0.163	0.172	0.104	0.0978	0.1	0.173	0.184	0.184	0.0885	0.0895	0.0866
Calcium T-Ca	142	180	179	281	290	296	158	173	180	286	282	283
Chromium T-Cr	ND	ND	ND	ND	ND	ND	0.0016	0.0021	0.0016	ND	ND	ND
Cobalt T-Co	0.451	0.583	0.605	0.673	0.69	0.701	0.576	0.631	0.643	0.699	0.703	0.694
Copper T-Cu	1.2	1.79	2.14	0.038	0.03	0.028	1.68	2.03	1.85	0.0269	0.0516	0.0448
Iron T-Fe	21.5	31.8	36.5	47.4	55.3	55.7	35.6	43.1	45.1	54.9	58.9	56.3
Lead T-Pb	0.316	0.337	0.338	0.0074	0.0059	0.0082	0.404	0.363	0.358	0.0031	0.00726	0.00747
Lithium T-Li	0.032	0.041	0.04	0.054	0.057	0.06	0.041	0.0438	0.0428	0.055	0.055	0.056
Magnesium T-Mg	71.7	88.5	88.4	114	118	120	80.6	86.2	89.6	115	115	114
Manganese T-Mn	28.4	35.9	37.2	45.7	48.1	48.3	34.7	38.2	39.1	46.8	47.3	46.6
Molybdenum T-Mo	ND	ND	ND	ND	ND	ND	0.00031	0.00012	0.00011	ND	ND	ND
Nickel T-Ni	0.392	0.497	0.509	0.607	0.622	0.626	0.486	0.528	0.539	0.635	0.636	0.631
Phosphorus T-P	0	0	0	0	0	0	0	0	0	0	0	0
Potassium T-K	1.9	2.4	2.3	3.3	3.4	3.4	2.09	2.25	2.35	3.47	3.42	3.41
Selenium T-Se	ND	ND	ND	0.0015	0.0017	0.0022	0.00035	0.00045	0.00041	ND	ND	ND
Silicon T-Si	3.82	4.52	4.46	3.57	3.78	3.85	3.77	3.6	3.46	2.98	3.17	2.97
Silver T-Ag	ND	ND	ND	ND	ND	ND	0.000147	0.00009	0.000101	0.00009	0.00008	0.00008
Sodium T-Na	2.9	3.8	3.7	5.3	5.5	5.5	3.56	3.77	3.85	5.68	5.67	5.58
Strontium T-Sr	0.668	0.89	0.882	1.37	1.43	1.46	0.771	0.846	0.868	1.28	1.33	1.34
Thallium T-Tl	0.00121	0.00165	0.00172	0.00226	0.00224	0.00233	0.00144	0.00178	0.0019	0.00227	0.00225	0.00227
Tin T-Sn	ND	ND	ND	ND	ND	ND	0.00038	0.00008	0.00012	ND	ND	ND
Titanium T-Ti	0.021	0.018	0.022	ND	0.013	0.016	0.0058	0.0034	0.0041	ND	0.011	ND
Uranium T-U	0.00572	0.00669	0.00715	0.00009	ND	ND	0.00709	0.00712	0.00675	0.0001	0.00021	0.00015
Vanadium T-V	ND	ND	ND	ND	ND	ND	0.0005	ND	ND	ND	ND	ND
Zinc T-Zn	118	149	155	167	172	176	153	167	170	164	166	167
Dissolved Metals												
Aluminum D-Al	2.52	2.95	3.34	162 (1)	ND	ND	3.01	3.36	3.03	54 (1)	0.02	0.013
Antimony D-Sb	ND	ND	ND	ND	ND	ND	0.0008	0.0005	0.0006	1.1 (1)	0.0004	0.0002
Arsenic D-As	0.0019	0.0039	0.0047	0.0005	0.0007	0.0007	0.002	0.0038	0.0038	0.0005	0.0009	0.0008
Barium D-Ba	0.0323	0.0306	0.0308	0.0145	0.0126	0.0126	0.0276	0.0277	0.0276	0.0142	0.0138	0.0128
Beryllium D-Be	0.0004	0.0006	0.0007	ND	ND	ND	0.00055	0.00061	0.0006	ND	ND	ND
Bismuth D-Bi	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron D-B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium D-Cd	0.14	0.156	0.171	0.0945	0.0876	0.0895	0.169	0.181	0.178	0.0894	0.0879	0.0852
Calcium D-Ca	146	163	167	258	271	279	154	170	172	272	274	270
Chromium D-Cr	ND	ND	ND	ND	ND	ND	0.0017	0.0017	0.001	ND	ND	ND
Cobalt D-Co	0.47	0.546	0.578	0.637	0.663	0.671	0.572	0.627	0.598	0.656	0.668	0.658
Copper D-Cu	1.28	1.68	2.05	101 (1)	0.027	0.025	1.63	1.97	1.71	45.6 (1)	0.0427	0.041
Iron D-Fe	21.7	27.7	33.2	41.8	50.2	50.4	31.9	38.9	39.3	49.6	53.4	55.2
Lead D-Pb	0.325	0.335	0.351	10.6 (1)	0.0029	0.003	0.387	0.349	0.336	4.45 (1)	0.00409	0.00452
Lithium D-Li	0.032	0.035	0.039	0.051	0.052	0.051	0.039	0.042	0.04	0.051	0.051	0.049
Magnesium D-Mg	69.9	77.6	80.6	106	110	113	76.1	82.4	86	109	112	111
Manganese D-Mn	29.9	33.8	35.2	41.8	45.2	46.2	34.4	37.5	37.1	44	45.2	44.7
Molybdenum D-Mo	ND	ND	ND	ND	ND	ND	0.0004	ND	ND	ND	ND	ND
Nickel D-Ni	0.405	0.463	0.484	0.57	0.596	0.612	0.482	0.521	0.504	0.595	0.607	0.596
Phosphorus D-P	0	0	0	0	0	0						
Potassium D-K	1.9	2.6	2.1	3.6	3.7	3.8	2.13	2.2	2.2	3.3	3.35	3.29
Selenium D-Se	0.0011	0.001	0.001	0.0009	0.0011	0.0008	0.0003	0.0003	ND	ND	ND	ND
Silicon D-Si	3.45	3.78	3.82	3.25	3.39	3.43	4.22	4.07	3.68	3.23	3.26	3.38
Silver D-Ag	ND	ND	ND	ND	ND	ND	0.00007	0.00006	0.00009	0.00008	0.00007	0.00007
Sodium D-Na	3.2	3.6	5.0 (1)	5.5	5.4	5.5	3.62	3.75	3.73	5.53	5.53	5.43
Strontium D-Sr	0.669	0.87	0.869	1.34	1.36	1.36	0.775	0.847	0.81	1.25	1.28	1.25
Thallium D-Tl	0.00133	0.00147	0.00154	0.00221	0.00228	0.00221	0.00135	0.00176	0.00175	0.00219	0.0022	0.00216
Tin D-Sn	ND	ND	ND	ND	ND	ND	0.0001	0.00006	ND	ND	ND	ND
Titanium D-Ti	0.011	ND	ND	ND	0.01	0.014	ND	0.004	0.006	0.007	0.006	ND
Uranium D-U	0.00582	0.00639	0.00718	0.27 (1)	0.00005	0.00005	0.00714	0.00725	0.0064	0.19 (1)	0.00016	0.00014
Vanadium D-V	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc D-Zn	126	142	150	146	154	157	147	159	162	161	163	160

Vangorda Pit - 2005 to 2008 Monitoring Results

RESULTS OF ANALYSIS

Depth (m)	1	3	5	15	30	40	1	3	5	15	30	40
Sample ID	VL-1	VL-3	VL-5	VL-15	VL-30	VL-40	VL-1	VL-3	VL-5	VL-15	VL-30	VL-40
Date Sampled	6/08/2008	6/08/2008	6/08/2008	6/08/2008	6/08/2008	6/08/2008	3/09/08	3/09/08	3/09/08	3/09/08	3/09/08	3/09/08
Time Sampled												
ALS Sample ID	L05907	L05908	L05909	L05910	L05911	L05914	F112783	F112783	F112783	F112783	F112783	F112783
Nature												
Physical Tests												
Hardness (as CaCO3)	812	911	1010	1150	1140	1150	1080	1120	1200	1170	1190	1130
Conductivity (uS/cm)	2200	2200	2300	2200	2300	2300	2400	2400	2300	2300	2300	2300
ORP												
pH	3.2	3.2	3.3	5.5	5.8	5.8	3.2	3.4	4.3	4	3.9	3.9
Total Suspended Solids	10	9	7	28	30	31	22	29	13	8	10	12
Dissolved Anions												
Alkalinity-Total CaCO3	0	0	0	0	0	0	0	0	0	0	0	0
Sulphate SO4	1200	1300	1300	1300	1300	1300	1300	1400	1400	1300	1500	1400
Bromide (Br)	ND	ND	ND	ND	ND	ND	ND	ND (1)	ND	ND	ND	ND
Chloride (Cl)	ND	ND	0.6	0.7	0.6	0.6	0.6	ND	1.6	1.5	0.5	ND
Nutrients												
Ammonia Nitrogen N	0.1	0.21	0.2	0.48	0.47	0.48	0.3	0.39	0.42	0.45	0.42	0.44
Nitrate Nitrogen N	0.06	0.05	0.04	ND	ND	ND	0.04	ND	ND	ND	ND	ND
Nitrite Nitrogen N	0.005	0.006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite/Nitrate Nitrogen N	0.07	0.06	0.04	ND	ND	ND	0.04	ND	ND	ND	ND	ND
Dissolved ortho-Phosphate P	0.004	0.003	0.004	0.002	ND	0.002	0.003	0.003	0.003	0.004	0.004	0.004
Total Phosphate P	0.005	0.007	ND	ND	ND	ND	0.006	0.005	ND	ND	ND	ND
Total Metals												
Aluminum T-Al	3.35	3.15	1.85	0.057	0.08	0.071	1.78	1.05	0.278	0.622	0.679	0.682
Antimony T-Sb	0.0003	0.0002	0.0001	0.0001	0.0001	ND	ND	ND	ND	ND	ND	ND
Arsenic T-As	0.0039	0.0036	0.0026	0.0008	0.0011	0.001	0.0045	0.0036	0.0017	0.002	0.0026	0.0028
Barium T-Ba	0.0282	0.0263	0.0209	0.0172	0.0169	0.0164	0.0203	0.0188	0.0187	0.0177	0.0193	0.0181
Beryllium T-Be	0.0006	0.0006	0.00033	ND	0.00005	0.00006	0.0003	ND	ND	ND	ND	ND
Bismuth T-Bi	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron T-B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium T-Cd	0.176	0.186	0.153	0.0897	0.0865	0.0892	0.151	0.139	0.119	0.13	0.132	0.137
Calcium T-Ca	181	203	234	276	273	276	243	255	280	272	274	259
Chromium T-Cr	0.0018	0.0015	0.0008	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt T-Co	0.654	0.727	0.735	0.704	0.696	0.708	0.706	0.712	0.728	0.725	0.737	0.708
Copper T-Cu	1.53	1.53	0.927	0.124	0.114	0.115	0.74	0.471	0.229	0.362	0.376	0.365
Iron T-Fe	36.8	50.7	50.4	49.7	51.7	52	36.1	40.1	48	42.8	51.7	48.4
Lead T-Pb	0.397	0.361	0.208	0.00322	0.00966	0.00971	0.186	0.0974	0.0102	0.0445	0.0567	0.058
Lithium T-Li	0.044	0.049	0.049	0.052	0.052	0.052	0.049	0.05	0.053	0.05	0.052	0.052
Magnesium T-Mg	87.7	98	104	111	111	113	115	117	122	121	123	118
Manganese T-Mn	38.3	43.3	44.5	45.2	45.2	45.5	46.6	47.6	49.2	49.2	50.2	48.3
Molybdenum T-Mo	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel T-Ni	0.55	0.606	0.63	0.629	0.618	0.629	0.619	0.627	0.653	0.637	0.652	0.616
Phosphorus T-P												
Potassium T-K	2.35	2.58	2.93	3.37	3.31	3.31	3	3.1	3.5	3.3	3.4	3.2
Selenium T-Se	0.0003	0.0003	0.0002	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silicon T-Si	4.68	4.34	4.27	3.64	3.61	3.65	3.31	3.09	3.43	3.12	3.71	3.39
Silver T-Ag	0.00011	0.00012	0.00011	0.00011	0.00009	0.00009	ND	ND	ND	ND	ND	ND
Sodium T-Na	3.95	4.3	4.96	5.59	5.5	5.53	4.7	4.9	5.3	5.1	5.2	4.9
Strontium T-Sr	0.883	0.995	1.11	1.26	1.3	1.29	1.21	1.25	1.38	1.28	1.32	1.3
Thallium T-Tl	0.00171	0.00214	0.00216	0.00219	0.0021	0.00216	0.00214	0.00219	0.00219	0.00215	0.00227	0.00217
Tin T-Sn	0.00027	0.00005	0.00006	ND	ND	ND	ND	ND	ND	ND	ND	ND
Titanium T-Ti	0.003	0.004	ND	0.003	ND	ND	ND	ND	ND	ND	ND	0.013
Uranium T-U	0.00732	0.00682	0.00382	0.00024	0.0003	0.0003	0.00334	0.00208	0.00068	0.00131	0.00142	0.00146
Vanadium T-V	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc T-Zn	150	166	162	150	148	151	182	179	182	182	187	177
Dissolved Metals												
Aluminum D-Al	3.27	2.87	1.7	0.051	0.062	0.065	1.64	0.973	0.275	0.621	0.68	0.675
Antimony D-Sb	0.0001	ND	ND	ND	ND	0.0001	ND	ND	ND	ND	ND	ND
Arsenic D-As	0.003	0.0031	0.0021	0.0006	0.0007	0.0008	0.003	0.0026	0.0008	0.0009	0.001	0.0011
Barium D-Ba	0.0277	0.0242	0.0194	0.0175	0.0175	0.0181	0.0208	0.0196	0.0202	0.0201	0.0202	0.0197
Beryllium D-Be	0.00059	0.00053	0.00028	ND	ND	ND	0.0003	0.0002	ND	ND	ND	ND
Bismuth D-Bi	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron D-B	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium D-Cd	0.184	0.19	0.154	0.09	0.09	0.091	0.157	0.139	0.116	0.128	0.134	0.13
Calcium D-Ca	191	214	241	282	287	287	241	250	260	256	264	257
Chromium D-Cr	0.0015	0.0016	0.0006	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt D-Co	0.656	0.722	0.715	0.685	0.691	0.699	0.683	0.693	0.707	0.71	0.729	0.702
Copper D-Cu	1.54	1.53	0.914	0.12	0.11	0.111	0.71	0.452	0.227	0.367	0.382	0.375
Iron D-Fe	31.8	49.5	46.1	49.7	53	52.5	33.8	39.7	44.5	44.1	45.1	45.6
Lead D-Pb	0.399	0.334	0.197	0.0013	0.00714	0.00839	0.173	0.0888	0.0077	0.0424	0.0542	0.0541
Lithium D-Li	0.046	0.047	0.045	0.053	0.054	0.056	0.048	0.049	0.052	0.054	0.055	0.053
Magnesium D-Mg	90.4	99.5	103	111	113	113	111	112	120	119	122	119
Manganese D-Mn	39.7	44	44.3	45.3	46.6	46.2	46.6	47.1	47.9	48.2	49.6	47.9
Molybdenum D-Mo	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel D-Ni	0.546	0.597	0.609	0.61	0.618	0.618	0.597	0.613	0.65	0.64	0.653	0.634
Phosphorus D-P												
Potassium D-K	2.49	2.75	3.08	3.48	3.52	3.51	2.8	3	3.2	3.1	3.2	3.1
Selenium D-Se	ND	ND	ND	ND	ND	ND	0.002	0.0019	ND	ND	ND	ND
Silicon D-Si	3.29	3.38	3.11	2.86	2.91	2.84	3.49	3.32	3.64	3.76	3.87	3.87
Silver D-Ag	0.0001	0.00008	0.00008	0.00008	0.00008	0.0001	ND	ND	ND	ND	ND	ND
Sodium D-Na	3.95	4.33	4.84	5.51	5.55	5.55	4.6	4.8	5.2	4.9	5	4.8
Strontium D-Sr	0.903	0.951	1.01	1.29	1.37	1.4	1.1	1.19	1.28	1.25	1.3	1.24
Thallium D-Tl	0.00169	0.00197	0.00202	0.00217	0.00225	0.00234	0.0021	0.00204	0.00212	0.00213	0.00228	0.00215
Tin D-Sn	0.00006	0.00006	0.00006	0.00005	ND	0.00006	0.0003	0.0003	0.0003	ND	ND	ND
Titanium D-Ti	ND	ND	ND	ND	ND	0.003	0.012	ND	0.019	ND	ND	0.01
Uranium D-U	0.00695	0.00596	0.00348	0.00021	0.00028	0.00028	0.0035	0.00211	0.00069	0.00142	0.00155	0.00158
Vanadium D-V	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc D-Zn	153	164	158	147	149	150	183	181	182	184	190	185