VEOLIA
ENVIRONMENTAL SERVICES
Technical and Engineering Division

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT

WOODLAWN BIOREACTOR
AND
CRISPS CREEK INTERMODAL FACILITY

Reporting Period
6 September 2010 – 5 September 2011

NOVEMBER 2011

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Date: November 2011

Reference: WBAEMR1111

Status: FINAL

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Office of Environment & Heritage

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1. Background

1.1. Site Overview

Woodlawn Bioreactor (the Site) is owned and operated by Veolia Environmental Services (VES) and is located on Collector Road, approximately 7 kilometres west of Tarago in the NSW Southern Highlands. The Bioreactor forms an integral part of the Woodlawn Eco-Precinct, which covers an area of 6000 hectares (Appendix 1). Other site uses include aquaculture, horticulture, wind farm power generation and approval for Alternative Waste Technology.

The Bioreactor occupies the void of a former open cut mine (Woodlawn Mine) which has approximately 27 million cubic metres of airspace. Waste filling commenced in September 2004 and landfill gas has been actively collected for conversion into green electricity at the onsite power station since 2008.

This Annual Environmental Monitoring Report has been prepared in accordance with condition R1.10 of Environmental Protection Licence 11436 (EPL 11436) to detail the environmental performance of the Site relevant to licence conditions. VES also includes analysis of the IMF environmental performance under EPL 11455. This AEMR covers the licence reporting period from 6 September 2010 to 5 September 2011 for both sites.

1.2. Regulatory Requirements

The Bioreactor is operated under EPL 11436 which covers the operational areas of the Site mine void and evaporation dams (Appendix 2) and details the operating conditions and environmental monitoring requirements.

Special Mining Lease 20 (Crown and private Lands) (known as SML20) covers areas of Woodlawn impacted by mining operations such as the tailings dams, waste rock dump and plant area (Appendix 3). The SML20 also covers the EPL licensed areas. A separate AEMR is submitted to cover the Woodlawn Mine reporting requirements each year (VES, 2011).

This report refers to monitoring data submitted to the Office of Environment and Heritage (OEH) for this reporting period and in previous annual returns.

2. BIORECTOR OPERATIONS

2.1. Introduction

Putrescible waste is transported to Woodlawn by rail from Sydney after being containerised at Clyde Transfer Terminal (CTT) situated in western Sydney. Waste is unloaded by waste collection vehicles at CTT and compacted into shipping containers for transport by rail to Crisps Creek Intermodal Facility (IMF). Waste is transported the remaining 8 kilometres from the IMF to Woodlawn by road.

Waste is placed within the Bioreactor in progressive lifts of 5 – 10m in thickness. Waste is tipped from the trucks in a specially designed Columbia Tipper, which extracts the trailer and container from the truck and tilts upwards until the waste falls out under gravity. The waste is then pushed into position and compacted, while the empty container and trailer are lowered and connected back to the truck.

This section discusses compliance with EPL 11436 conditions.

2.2. Licence Conditions

2.2.1. Pollution of Waters

VES operate the Bioreactor as a zero discharge site, where all contaminated water is captured and managed onsite. To assist in minimising the amount of contaminated water to treat, VES have constructed and maintained drains and bunds to direct uncontaminated water away from contaminated areas. All water collecting on contaminated areas around the site are stored in dams for evaporation.

Under condition L1.3, no discharge of water from the Site is allowed except in a 1 in 100 year rainfall event over 72 hours. No water was discharged during this reporting period.

2.2.2. Waste

All waste received at the Bioreactor was putrescible solid waste which was transported from the Clyde Transfer Terminal to the IMF and onto the Bioreactor. Office waste generated from the operation of the Bioreactor was disposed of in the Bioreactor as specified in condition L5.2.

2.2.3. Noise Limits

Noise limits for the Bioreactor (condition L6.1) must not exceed 35 dB(A) $L_{Aeq\ (15\ minute)}$ at the nearest residential receiver. No noise complaints have been received since operations commenced in 2004. Therefore, no noise monitoring was undertaken during this reporting period. VES will implement a noise monitoring program in the event that a noise complaint is received.

2.2.4. Hours of Operation

Condition L7 required operational activities to be undertaken on Monday – Saturdays between 6:00am to 7:00pm. Approval from OEH was organised prior to VES operating outside these hours. VES has complied with the requirements of this condition.

2.2.5. Offensive Odour

29 odour complaints were received during this reporting period. VES is in constant communication with the local community and is actively undertaking operational trials to minimise odours. Further discussion is provided in section 2.3

2.2.6. Competency of Operations

VES operates the IMF and Bioreactor under International Organisation of Standards 14001 to ensure a high standard of environmental management. All activities carried out in accordance with EPL 11436 were carried out in a competent manner during this reporting period.

2.2.7. Maintenance of Plant and Equipment

All plant and equipment were maintained in proper order and serviced as required by qualified technicians. All VES operators hold the appropriate qualifications and licenses to operate plant and equipment used as part of Bioreactor operations.

During the reporting period VES received approval by the NSW Roads and Traffic Authority (RTA) to upgrade to quad-axle trailers. The trailer upgrade has improved the efficiency of road transport by increasing the amount of waste within each container.

2.2.8. Dust Control

All conditions specified in condition O3 have been complied with by VES. All access roads from the IMF to waste level within the Bioreactor are sealed surfaces. VES has also upgraded the haul road within the mine void by applying a spray coated sealing layer in September 2011. This initiative will further minimise dust generation from operational vehicle movements.

All waste loads transferred from the IMF to the Bioreactor are enclosed within containers.

Onsite mining of cover material was undertaken in accordance with the Mining Operations Plan to minimise dust generation. Minimal dust generation is confirmed by results of operational dust monitoring, which is discussed further in Section 3.8.

2.2.9. Closure Plan

The operational life expectancy of the Woodlawn Bioreactor is approximately 50 years at current waste input rates. VES will submit a suitable closure plan 12 months prior to this date.

2.2.10. Leachate Management

All conditions of O5 were complied with by VES during this reporting period. Groundwater gradients indicate groundwater flow towards the void (condition O5.1), while the leachate system was effective at managing leachate recirculation, storage and treatment (condition O5.2). All treated leachate is stored in evaporation dam 3.

Clay lined barriers (condition O5.3 & O5.4) were installed on the void wall to the south of Pond 2 during the reporting period. The clay lined area is detailed in Appendix 4.

No imported liquids were used within the waste (condition O5.5) and no transfer of Acid Mine Drainage (AMD) water was extracted (condition O5.6) during the reporting period.

2.2.11. Surface Water Management

Surface water management systems have been implemented to ensure compliance with all conditions of O6. Drainage and pumping networks have been previously established to direct water to the required areas (condition O6.1 – O6.3). All excess surface water collected within the void is pumped to evaporation dam 3.

The operation of mechanical evaporators is controlled by wind direction sensors to prevent the drifting of sprayed liquids from the premises (condition O6.4).

All container wash waters are collected for transport to the leachate collection system as previously reported.

2.2.12. Tracking of Mud and Waste

VES constructs temporary access roads on the waste surface to minimise contact with waste. VES also has a number of dedicated site vehicles that only operate within

the void and other operational areas. Due to the travelling distance to the top of the void all excess mud is maintained within the void.

2.2.13. Cover Material

All cover material used onsite is sourced from the borrow area identified within the MOP. Cover material is applied daily. It is anticipated that the volume of cover material available onsite is sufficient for operational purposes of the Bioreactor beyond the next reporting period (condition O8.5).

2.2.14. Screening of Waste

All waste disposed of at the Bioreactor is screened at Clyde Transfer Terminal prior to transport to Woodlawn. The procedure to ensure the correct disposal of wastes should not be disposed of under this EPL is included in Appendix 5.

2.2.15. Completion of Landfill Cells

VES will undertake final capping of the Bioreactor cells when required and in accordance with condition O10.

2.2.16. Landfill Gas Collection

VES operate the Bioreactor to maximise the generation of renewable energy and operate a landfill gas flare to provide backup emissions treatment. VES ordered the fourth landfill gas generator during this reporting period, with installation and commissioning to be undertaken in the next reporting period.

VES has submitted all manufacturers' specification for landfill gas generators and flares to the EPA for approval. All subsequent generators installed are similar make and model. The flare and generators meet the design requirements detailed in condition O11.2.

All pipe work used in the gas collection network are designed to withstand pressures associated with operations. Both steel and high density polyethylene (pressure rating PN8 – PN16) pipe work are used at the site.

2.2.17. Supervisory Licence Holder

The supervisory licence holder for the Woodlawn Bioreactor is Goulburn-Mulwaree Council. VES has granted the Council's representative weekly access to the site and provided all requested documentation and records, including the annual return for this reporting period. All instructions provided by the Council's representative were complied with by VES.

2.2.18. Sealing of Drill Holes

No drill holes were required to be sealed during this reporting period.

2.3. Complaints

As required by condition M5 VES operates a 24 hour telephone complaints line that enables the receipt of complaints from member of the public. Other complaints received were logged by Goulburn-Mulwaree Council and OEH. VES recorded a total of 29 complaints (refer to Table T-1) relating to odour during this reporting period. It has been noted that 9 complaints were received in a ten day period which was investigated and found to be a faulty extraction well.

Upon receipt of a compliant, VES recorded all details into the site complaints register as required under condition M4.

VES encourages local residents to voice their concerns with the Site and also at the Community Liaison Committee Meetings. VES have commenced operational trials to increase the amount of cover material and to increase the number of active extraction wells to minimise odour sources that are affecting local residents from time to time. Extraction of leachate from the void has also been put on hold to determine if this may be influencing odour emissions, although VES still has to finalise treatment of extracted leachate stored in evaporation dam 3, which will be completed in the next reporting period. VES will continue to investigate ways to minimise odours into the next reporting period.

2.4. Pollution Reduction Programs

2.4.1. Barrier System for Adits/Portals

No mining adits/portals were required to be sealed during this reporting period. VES will submit a sealing design to the EPA for approval prior to the sealing of the Southern Portal.

2.4.2. Groundwater Monitoring

VES has submitted a replacement program for the WM groundwater wells in March 2011 to OEH. No correspondence from OEH has been received by the end of the reporting period. VES will contact OEH for a response in the next reporting period.

2.4.3. Alternative Daily Cover Trial

No further trials were undertaken by VES during the reporting period. VES is awaiting a response from OEH on the report detailing the outcomes of the trial. VES is

continuing to utilise Concover and soil material sourced from borrow areas identified in the MOP.

2.4.4. Acid Mine Drainage

All conditions have been met previously by VES. An updated leachate management plan was submitted with a Development Application to the Department of Planning for Woodlawn Expansion Project. Refer to the previous AEMR by Earth2Water for further information (Earth2Water, 2010).

3. Environmental Monitoring

3.1. Monitoring Points

VES is required to monitor environmental performance under EPL 11436. Table 3.1 details the VES monitoring point identification, EPL monitoring point identification number, frequency and the type of monitoring undertaken at each licensed point. A monitoring location plan is included in Appendix 6.

Table 3.1: Licensed Monitoring Points

EPA ID	VES ID	Frequency	Type of Monitoring
1	GMBH1	Quarterly	Subsurface Gas
2	GMBH2		
4	GMBH4		
5	Gas Extraction Booster	Annual	Landfill Gas Input
6	Landfill Surface	Quarterly	Surface Gas
7	Landfill Gas Flare	Annual / Continuous	Air Discharge
8	Landfill Gas Engine Exhaust Point – Gen 1	Annual	Air Discharge
9	Meteorological Station	Continuous	Meteorological
10	DG28 – Pylara	Monthly	Particulates – Deposited Matter
11	DG22		
12	DG24		
13	Site 115 – Allianoyonyige Creek	Quarterly	Surface Water
14	Spring 2 – Crisps Creek		
15	Site 105 – Crisps Creek		
16	WM200 – RWD		
17	WM201 – ERC		
18	WM202 – ED3S		
19	WM203 – ED3N		
21	Pond 2		
22	Pond 3		
23	Leachate Pond	Annual	Leachate
24	Leachate Recirculation System		
25	MB1	Quarterly / Annual	Groundwater
26	MB2		
27	MB3		
28	MB4		
29	MB5		
30	MB6		
31	MB7		
32	MB8		
33	MB10		

EPA ID	VES ID	Frequency	Type of Monitoring
34	MB11		
35	MB12		
36	MB13		
37	MB14		
38	MB15	Quarterly / Annual	Groundwater
39	MB16		
40	MB17		
41	ED3B		
42	WM1		
43	WM3		
44	WM4		
45	WM5		
46	WM6		
47	WM7		
48	P38A & P38B	Quarterly	Groundwater Level
49	P44A & P44B		
50	P45A & P45B		
51	P58A & P58B		
52	P59A & P59B		
53	P100A & P100B		
54	ED3	Monthly	Surface Water Volume
55	MW8S	Quarterly / Annual	Groundwater
56	MW8D		
57	MW9S		
58	MW10S		

All monitoring data collected at the monitoring points identified in Table 3.1 during this reporting period has been tabulated. Trend graphs of data collected have been developed (refer to Figures) to assist in the assessment of trends and variability of the monitoring results.

Trend graphs of water quality indicators have been kept consistent with the graphs generated by Earth2Water for the previous AEMR (Earth2Water, 2010).

3.2. Subsurface Gas Monitoring

Monitoring of three subsurface gas monitoring locations (refer to Table 3.1) was undertaken quarterly as per EPL requirements. No methane was detected in subsurface gas monitoring locations during this reporting period. These results are consistent with results from the past three years (Table T-2). Trend graphs have not been prepared to present the non detect values.

The results show that the gas collection network is effectively capturing and controlling landfill gas within the Bioreactor. Engineered impermeable barriers and the natural subsurface of the void wall also minimise the potential movement of

landfill gas from the Bioreactor, allowing for maximum extraction through the gas collection system.

3.3. Landfill Gas Extraction Booster Monitoring

As identified in the annual return documentation, not all analytes at the landfill gas extraction booster were monitored during this reporting period. VES has undertaken monitoring at this monitoring location since the missing data was discovered, however this was completed outside the reporting period. VES has not received the final results from the laboratory at the issue of this report. VES will also undertake a second round of monitoring in the next reporting period.

These results (Table T-3) are specific to the landfill gas composition at the specific time of sampling, therefore only tabulated data is provided as trend graphs would not provide useful information for this monitoring point.

3.4. Surface Gas Monitoring

Surface gas monitoring was completed on a quarterly basis as per EPL requirements. Due to the sampling methodology for surface gas monitoring only tabulated data for this reporting period is provided (Table T-4). Methane was detected in varying amounts over the waste surface with an overall average of 0.17% for the reporting period.

The highest methane result was 4.0%, which was recorded in February 2011. This result was due to a combination of a decommissioned well and settlement cracking, which was providing an emissions pathway. Other recorded methane results that registered higher than 0.5% were also found to be caused by a combination of these factors.

After every monitoring round Site Management reviewed the results to address areas where emissions were greater than 0.5%. This included application and maintenance of cover material, commissioning and rebalancing of gas extraction wells and targeting of new gas collection infrastructure. VES also provided a submission to OEH in March 2011 which detailed the surface emissions measurement program.

VES is currently developing a site specific emissions measurement technique for the Woodlawn Bioreactor, which is based on using a hand held methane analyser. This technique will assist VES in identifying methane emissions over the waste surface and provide a baseline to further reduce surface emissions.

3.5. Landfill Gas Flare Monitoring

The landfill gas flare is manufactured to a residence time of 0.3 seconds with a destruction efficiency of 98% for methane and non methanogenic organic compounds. Temperature is recorded continuously and an annual reading of 1329.5℃ was recorded at 6:09am on 17 June 2011 (Table T-5). This meets the minimum requirements of the *UK Environment Agency Guidance for Monitoring Enclosed Landfill Gas Flares* which is referenced in condition O11.2 of the EPL.

3.6. Landfill Gas Engine Exhaust Point Monitoring

Monitoring of the landfill gas engines exhaust points was completed annually for each active generator. Only one monitoring point is provided within the EPL (for generator 1), however VES currently operates three generators for power generation. All three generators were sampled during the reporting period and the results are presented in Table T-6.1 – T6.3.

Concentration limits are for each exhaust point are specified within condition L3.3 of the EPL. All monitoring results are below the specified concentration limits. Trend graphs of the listed pollutants (Nitrogen Oxides, Hydrogen Sulfide and Sulfuric acid mist and Sulphur Trioxide (as SO_3)) have been generated (Figures 1 – 3). The graphs indicate that all pollutants are consistent with levels previously recorded.

3.7. Meteorological Station

VES operates a meteorological station to continuously record climatic data listed in condition M7.1 of the EPL. Meteorological data recorded includes (but is not limited to):

- Wind speed at 10m;
- Wind direction at 10m;
- Temperature at 2m;
- Temperature at 10m;
- Rainfall;
- Solar radiation; and
- Sigma theta at 10m

Meteorological data is recorded in 15 minute and 24 hour intervals and can be made available for the 2010/2011 reporting period upon request.

Servicing and calibration of the meteorological station is carried out quarterly by Hydrometric Consulting Services. Copies of the calibration reports are included in (Appendix 7).

3.8. Particulates / Dust Monitoring

Monitoring of three depositional dust gauges (refer to Table 3.1) was completed on a monthly basis as required under the EPL. Results are tabulated in Tables T7.1 –T7.3 and trend graphs are provided as Figure 4. Two significant dust results were recorded at the nearest residence monitoring location (DG28 – Pylara).

A value of 38.5g/m^2/month was recorded in October 2010 and 174g/m^2/month was recorded in January 2011 (Figure 4). The elevated levels recorded at this location are not reflected in the operational dust gauges located at Woodlawn. Therefore, the dust levels are likely to be influenced by localised impacts, such as wind farm activities and grass cutting that occurred during the reporting period. These dates correspond with the construction of the wind farm which greatly increased vehicle movements through the Pylara and transport of soil and clay material to construct foundations for the turbines.

Dust levels in DG24 do not reflect a significant increase from mining of cover material during this reporting period. This indicates that VES is minimising dust generation from mining activities.

VES has also recognised that additional recording of activities that occur on the Pylara property will allow VES to more accurately identify non-operational activities that may be the source of dust generation.

3.9. Surface Water Monitoring

Water quality monitoring of nine surface water locations (refer to Table T8.1 – T8.9) is required under EPL 11436. Surface water quality trend graphs have been developed to identify the key pollutants from Bioreactor operations and remnant mining areas that were identified in the previous AEMR (Earth2Water, 2010).

3.9.1. Site 115 – Allianoyonyige Creek

Site 115 is situated downstream of the evaporation dams. Quarterly monitoring events were undertaken in accordance with EPL conditions (refer to Table T8.1 and Figure 5).

pH is relatively consistent throughout the monitoring period and indicates alkaline water at an average pH 8.15. Conductivity ranges from 790 – 3500µS/cm which

indicates fresh to brackish water, while heavy metal concentrations are less than 0.1mg/L. This indicates that no contaminated runoff occurring from mining impacted land is impacting this monitoring location.

Ammonia (average 0.03mg/L) and Total Organic Carbon (average 12mg/L) concentrations recorded in this monitoring period are consistent with historical monitoring results. The presence of Total Organic Carbon and Ammonia at low concentrations reflects natural processes.

Trends at this location indicate variable sulphate, conductivity and iron concentrations during this reporting period, although the results are consistent with historical monitoring results. The variability is likely due to dilution during wet periods and evapo-concentration during drier periods which has been previously identified.

3.9.2. Spring 2

Spring 2 is located upstream of the Bioreactor and is adjacent to Crisps Creek. This location naturally overflows to Crisps Creek in wet weather events. Quarterly monitoring events were undertaken in accordance with EPL conditions. This point provides background water quality information (refer to Table T8.2 and Figure 6).

Water quality trends in Spring 2 indicate an improving water quality from historical monitoring results. pH is near neutral (average 6.95), with conductivity (average 550µS/cm) indicative of fresh water. Sulphate (average 177.5mg/L) and Zinc (average 6.9mg/L) have decreased. This result is expected due to the wet weather experienced during the reporting period to counter the declining trends from drought conditions reported in 20009/2010 (Earth2Water, 2010).

Ammonia (average 0.21mg/L) and Total Organic Carbon (average 19mg/L) concentrations recorded in this monitoring period are consistent with historical monitoring results. Fluctuations in Ammonia and Total Organic Carbon concentrations would reflect the build up from natural processes within stagnant water and release of water in wet weather events.

3.9.3. Site 105 – Crisps Creek

Site 105 is located downstream of the Bioreactor and tailings dams. Quarterly monitoring events were undertaken in accordance with EPL conditions (refer to Table T8.3 and Figure 7).

Water quality trends in Site 105 are consistent with previous monitoring results. Concentrations of heavy metals are less than 1mg/L. pH ranges from 6.4 – 8.1 while conductivity (average 2368µS/cm) which reflects brackish water. These results

indicate that runoff from contaminated areas is not impacting water quality at this location.

Total Organic Carbon (average 22.5mg/L) is consistent with historical records, while Ammonia (average 0.04mg/L) has decreased to below laboratory detection limits. There is no indication of contamination from leachate.

3.9.4. WM200 – Raw Water Dam

The Raw Water Dam is located to the west of the dolerite stockpile and collects uncontaminated water. Quarterly monitoring events were undertaken in accordance with EPL conditions (refer to Table T8.4 and Figure 8).

pH (average 7.55) indicates slightly alkaline water, while conductivity (average 1550µS/cm) indicative of fresh/brackish water. Sulphate, Ammonia, Iron and Total Organic Carbon were consistent with previous monitoring results. Zinc levels have reflected a slight rising trend to 23mg/L through the monitoring period, although the levels are still consistent with previous monitoring results.

3.9.5. WM201 – Entrance Road Culvert

The Entrance Road Culvert collects surface water runoff from the Woodlawn administration and workshop areas. Quarterly monitoring events were undertaken in accordance with EPL conditions (refer to Table T8.5 and Figure 9).

Water quality in this monitoring location indicates variable Iron, Zinc and Sulphate concentrations. pH (5.3-6.0) indicates acidic water which is consistent with previous results, while conductivity (average 395µS/cm) indicates fresh water. Water quality at this location fluctuates with runoff generated from the plant area.

Ammonia levels recorded during this reporting period indicated that the high Ammonia result (29mg/L) recorded on 12 August 2010 was a spike, with all results less than 0.06mg/L.

3.9.6. WM202 – Evaporation Dam 3 South

Evaporation Dam 3 South is a storage point to manage stormwater from the void by evaporation. Quarterly monitoring events were undertaken in accordance with EPL conditions (refer to Table T8.6 and Figure 10).

Water quality results indicate acidic water (pH 2.8) with elevated Iron (average 122mg/L), Zinc (average 612mg/L), Sulphate (average 5736mg/L) and Conductivity (average 8280µS/cm) compared with other surface water monitoring locations. These concentrations reflect AMD contaminated waters.

Ammonia concentrations appear to be stabilising (66 – 85mg/L) although further monitoring is required to confirm if this is permanent.

3.9.7. WM203 – Evaporation Dam 3 North

Evaporation Dam 3 North is a storage point to manage AMD/leachate by evaporation. Quarterly monitoring events were undertaken in accordance with EPL conditions (refer to Table T8.7 and Figure 11).

Water quality results indicate acidic water (pH 5.3-6.0) with elevated Ammonia (840 – 900mg/L) and Total Organic Carbon (140 – 550mg/L) concentrations.

Zinc (average 512mg/L), Sulphate (average 12740mg/L) and Conductivity (average 21400µS/cm) are elevated compared with other surface water monitoring locations. These concentrations reflect AMD contaminated waters.

Iron levels are quite variable, although decreased levels which were recorded in the last reporting period have continued through this reporting period. Iron levels have reduced from concentrations greater than 600mg/L to less than 22mg/L.

3.9.8. Pond 2

Pond 2 was situated within the void to manage and collect stormwater for extraction from the void (via Pond 3). Pond 2 was decommissioned in January 2011, therefore only two monitoring rounds were undertaken from this monitoring point during this reporting period (refer to Table T8.8 and Figure 12).

All water quality results were consistent with previous monitoring results. pH (average 2.75) indicates acidic water which is expected to be due to contact with the void walls. Ammonia (average 46mg/L) and Total Organic Carbon (average 21mg/L) were variable during this reporting period but are also consistent with previous reported results.

Iron (average 245mg/L) and Zinc (average 370mg/L) concentrations are reflective of water that has been in contact with the void walls.

3.9.9. Pond 3

Pond 3 is situated on a bench 740RL on the void wall. Pond 3 acts as a transfer point to extract stormwater from the void to Evaporation Dam 3. Quarterly monitoring events were undertaken in accordance with EPL conditions (refer to Table T8.9 and Figure 13).

All water quality results indicate were consistent with previous monitoring results. Water quality in Pond 3 is similar to Pond 2. Sulphate and Conductivity show similar

trends to Pond 2, although Iron is slightly more variable from this trend. Similar to Pond 2, pH (2.9) indicates acidic water while Ammonia (average 20mg/L) and Total Organic Carbon (average 33mg/L) are variable.

VES believe that the monitoring results and trends recorded from Pond 2 and Pond 3 indicates that monitoring from Pond 3 alone is sufficient to determine water quality of stormwater extracted from the void. The spike in Ammonia and Total Organic Carbon concentrations in August 2010 was identified to be caused by a leak in a pipeline located within the catchment area of Pond 3.

3.10. Leachate Monitoring

Leachate quality monitoring at two monitoring locations (refer to Tables T9.1 – T9.2) was undertaken as required by EPL 11436. The characteristics of the leachate are given to assist in contamination assessment at other water monitoring locations.

3.10.1. Leachate Pond

The leachate pond is located at the northwest rim of the void and is an aeration pond to treat leachate extracted from the void. An annual round was completed during this reporting period, which meets the requirements of the EPL. Additional monitoring of a reduced suite of analytes was also sampled during this reporting period (refer to Tables T9.1 and Figure 14).

The characteristics of the leachate are:

- Slightly acidic pH (7.6) with bicarbonate (6390mg/L) the prominent form of alkalinity;
- Levels of Ammonia (1900mg/L), Total Dissolved Solids (26000mg/L) and Total Organic Carbon (10400mg/L), which is expected within typical putrescible waste leachate;
- Levels of Zinc (60mg/L) and Conductivity (31000µS/cm) are present in the leachate which indicates minor AMD mixing;
- Aluminium (12mg/L) is the most abundant heavy metal not attributed to mining related activities. Other heavy metals are less than 1mg/L.
- Sodium (3100mg/L) and Potassium (2100mg/L) are the dominant cations, while Sulphate (5900mg/L) and Chloride (3500mg/L) are the dominant anions;
- Total Petroleum Hydrocarbons are present at all fractions (Total 71mg/L);
- Pesticides (Organo-phosphorous (OP) and Organo-chlorine (OC)) and Polycyclic Aromatic Hydrocarbons were below laboratory detection limits;

- Trace amounts of Toluene (0.048mg/L) and Xylene (0.1mg/L) were detected;
- Phenolic compounds (2.4mg/L) are present.

3.10.2. Leachate Recirculation System

The leachate recirculation system is located within the void and acts to extract leachate from saturated waste and filter through drier waste. An annual round was completed during this reporting period, which meets the requirements of the EPL (refer to Tables T9.2 and Figure 15).

The leachate characteristics are similar to the leachate pond, with the following exceptions:

- No Xylene was detected;
- Chromium (2.9mg/L) and Manganese (3.7mg/L) are present above 1mg/L;
- Phosphorous is more prevalent at 23mg/L.

3.11. Groundwater Monitoring

Groundwater quality monitoring at 27 monitoring locations (refer to Table T10.1 – T10.25) was undertaken as required by EPL 11436. One annual round and three quarterly rounds of monitoring are required to meet the requirements of the EPL.

The groundwater monitoring well networks allows for an assessment of potential impacts from the Bioreactor, evaporation dams and tailing dams. All pesticide (OP and OC) and PAH results for groundwater monitoring locations were below laboratory detection limits.

3.11.1. MB1

MB1 is located downgradient of the void. The standing water level in MB1 has continued a gradual increasing trend during this reporting period to 770RL (refer to Figure 16.1).

Water quality results (refer to Table T10.1 and Figure 17) in MB1 indicate a Calcium-Sulphate water type with near neutral pH (average 7.4) and conductivity (average 1050µS/cm) representative of fresh water. This is consistent with previously reported results (Earth2Water, 2010).

Total Petroleum Hydrocarbons (TPH) and Benzene, Toluene, Ethyl Benzene and Xylene (BTEX) have not been detected at this monitoring point. All heavy metals are less than 0.1mg/L.

Ammonia (less than 0.4mg/L) and Total Organic Carbon (less than 4mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentration and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.2. MB2

MB2 is located upstream of evaporation dam 2. The standing water level in MB2 has been consistently around 778RL (+/- 1m) since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.2 and Figure 18) in MB2 indicate a Magnesium-Sulphate water type with near neutral pH (average 7.3), with conductivity (average 6550µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

TPH and BTEX have not been detected at this monitoring point. All heavy metals are less than 0.1mg/L.

Ammonia (less than 0.2mg/L) and Total Organic Carbon (less than 5mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentration and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.3. MB3

MB3 is located upstream of the Bioreactor and mine site. The standing water level in MB3 has been consistently around 790RL (+/- 1m) since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.3 and Figure 19) in MB3 indicate a Calcium-Chloride water type with near neutral pH (average 7.5), with conductivity (average 2100µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

TPH and BTEX have not been detected at this monitoring point. All heavy metals are less than 0.1mg/L with the exception of Zinc (1.1mg/L). The Zinc result appears to represent significant anomaly as historical results indicate values no greater than 0.31mg/L. A slight rising trend is apparent, however further monitoring is required to confirm this result.

Ammonia (less than 0.4mg/L) and Total Organic Carbon (less than 5mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentration and provide an indication of background groundwater concentrations.

3.11.4. MB4

MB4 is located downstream of the Bioreactor. The standing water level in MB4 has been consistently around 774RL (+/- 1m) since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.4 and Figure 20) in MB4 indicate a Sodium-Chloride water type which is acidic (average pH 5.7) and conductivity (average 1350µS/cm) representative of freshwater. This is consistent with previously reported results (Earth2Water, 2010).

TPH and BTEX have not been detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (less than 0.1mg/L) and Total Organic Carbon (less than 3mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentration and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.5. MB5

MB5 is located upstream of the western tailings dam. The standing water level in MB5 has been consistently around 828RL (+/- 1m) since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.5 and Figure 21) in MB5 indicate a Magnesium-Sulphate water type which is acidic (average pH 3.3) and conductivity (average 8075µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

TPH and BTEX have not been detected at this monitoring point. All heavy metals are less than 1mg/L, with the exception of Aluminium (25mg/L), Manganese (25mg/L) Iron (213mg/L) and Zinc (233mg/L).

Ammonia (less than 0.4mg/L) and Total Organic Carbon (less than 6mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentration and there is no indication of contamination Bioreactor activities. There is indication of impacts from mining activities at this monitoring location although this has been ongoing prior to VES obtaining the site. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.6. MB6

MB6 is located downstream of the evaporation dam 3 and upstream of the Bioreactor. The standing water level in MB6 has been on a gradual increasing trend from 776RL to 778RL since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.6 and Figure 22) in MB6 indicate a Sodium-Chloride water type which is slightly acidic (average pH 6.1) and conductivity (average 4450µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

TPH and BTEX have not been detected at this monitoring point. All heavy metals are less than 1mg/L with the exception of Zinc (average 8.15mg/L).

Ammonia (less than 0.4mg/L) and Total Organic Carbon (less than 3mg/L) are present at low levels which reflect natural conditions.

There is no defined indication of contamination from mining or Bioreactor activities at this monitoring location. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.7. MB7

MB7 is located upstream of evaporation dam 3. The standing water level in MB6 has been fairly stable around 785RL since 2004, although some minor fluctuations are evident over time (refer to Figure 16.1).

Water quality results (refer to Table T10.7 and Figure 23) in MB7 indicate a Sodium-Chloride water type which is slightly alkaline (average pH 7.7) and conductivity (average 6925µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

TPH and BTEX have not been detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (less than 0.07mg/L) and Total Organic Carbon (less than 3mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentration and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.8. MB8

MB8 is located downstream of the Bioreactor at the nearest residence (Pylara). Only three sample rounds were undertaken during this reporting period. This was due to

The standing water level in MB8 has been fairly stable around 749RL since 2004 (refer to Figure 16.1). This groundwater well has lower groundwater levels (along with MB13) than the majority of other bores monitored at the site (approximately 20m lower than other locations).

Water quality results (refer to Table T10.8 and Figure 24) in MB8 indicate a Sodium-Chloride water type which is slightly alkaline (average pH 7.6) and conductivity (average 3733µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

TPH and BTEX have not been detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (less than 0.61mg/L) is present at low levels which reflect natural conditions. Total Organic Carbon (150mg/L) is significantly elevated from previous results (<2mg/L) and appears to be an anomalous result. This could be due to laboratory error. Further monitoring is required to establish whether this result is indicative of water quality in this area, which will be discussed further in the next AEMR.

All trends indicate fairly stable concentrations (except Total Organic Carbon) and there is no indication of contamination from mining or Bioreactor activities. The only significant exception was Total Organic Carbon, although the result appears to be an anomalous resulting from either laboratory error.

3.11.9. MB10

MB10 is located adjacent to evaporation dam 1. The standing water level in MB10 has been fairly stable around 780RL (+/- 1m) since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.9 and Figure 25) in MB10 indicate a Magnesium-Sulphate water type which is slightly alkaline (average pH 7.5) and conductivity (average 6920µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

TPH and BTEX have not been detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (average 0.79mg/L) is present at low levels which reflect natural conditions. Total Organic Carbon (16mg/L) indicates that elevated organic levels are present in this location, however this is consistent with previously reported results.

All trends indicate fairly stable concentrations and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.10. MB11

MB11 is located at evaporation dam 2 seepage collection trench. The standing water level in MB11 has been fairly stable around 777RL (+/- 1m) since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.10 and Figure 26) in MB11 indicate a Magnesium-Sulphate water type which is acidic (average pH 4.5) and conductivity (average 37000µS/cm) representative of saline water. The water type observed during this reporting period differs from previously reported results (Earth2Water, 2010) with Magnesium becoming the dominant available cation (from Calcium) in the latest monitoring round. Further monitoring is required to determine if the change in ionic balance is permanent.

BTEX was not detected at this monitoring point, although TPH (C15-C28) was recorded at 130µg/L. A number of heavy metals are greater than 1mg/L including Aluminium (260mg/L), Cadmium (17mg/L), Cobalt (8.6mg/L), Copper (average 73mg/L), Manganese (360mg/L) and Zinc (2365mg/L). Heavy metal concentrations fluctuate greatly between sample rounds which reflect seepage from the dam, although values are similar with previously reported concentrations. Seepage from this dam has been ongoing since VES assumed responsibility for the site. VES are managing the water volume in evaporation dam 2 by promoting evaporation and limiting inputs to rainfall to minimise seepage at this location.

Ammonia (average 0.69mg/L) is present at low levels which reflect natural conditions. Total Organic Carbon (15mg/L) is similar to previous levels and indicates that organic levels are present in this location.

The location of this MB11 is between evaporation dam 2 and the seepage collection trench. VES have previously installed two additional monitoring wells (MB19 and MB20) downgradient of the seepage collection trench. Monitoring results from these wells continue to indicate that contamination is managed at the seepage collection trench. Results of these wells have been tabulated and provided in Appendix 8.

The evaporation dams have been previously identified by VES for rehabilitation which will be undertaken in accordance with the MOP. There is no indication of contamination from Bioreactor activities.

3.11.11. MB12

MB12 is located at evaporation dam 2 seepage collection trench and adjacent to MB11. The standing water level in MB12 reflects water levels and trends in MB11 (refer to Figure 16.1).

Water quality results (refer to Table T10.11 and Figure 27) in MB12 indicate a Magnesium-Sulphate water type which is acidic (average pH 3.65) and conductivity (average 38000µS/cm) representative of saline water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX was not detected at this monitoring point, although TPH (C15-C28) was recorded at 120µg/L. A number of heavy metals are greater than 1mg/L including Aluminium (1100mg/L), Cadmium (40mg/L), Cobalt (21mg/L), Copper (235mg/L), Iron (average 2.83mg/L), Manganese (530mg/L) and Zinc (average 3475mg/L). Heavy metal concentrations generally fluctuate similar to MB11.

Ammonia (average 0.36mg/L) is present at low levels which reflect natural conditions. Total Organic Carbon (10mg/L) is similar to previous levels and indicates that organic levels are present in this location.

An anomalous result for Fluoride (110mg/L) was recorded in this monitoring round. Fluoride has consistently been recorded at or below laboratory detection limit (0.1mg/L) and this indicates that an error in units may have been recorded by the laboratory, although Fluoride has been detected at similar levels in MB11 in previous monitoring event.

The location of MB12 (similar to MB11) is between evaporation dam 2 and the seepage collection trench. Refer to Appendix 8 for results of groundwater downgradient of the seepage collection trench.

The evaporation dams have been previously identified by VES for rehabilitation which will be undertaken in accordance with the MOP. There is no indication of contamination from Bioreactor activities.

3.11.12. MB13

MB13 is located downstream of evaporation dam 1 and surface water monitoring point 115. The standing water level in MB13 (745RL +/- 1m) is the lowest recorded in all bores at the site and is comparable with levels in MB8 (refer to Figure 16.1).

Water quality results (refer to Table T10.12 and Figure 28) in MB13 indicate a Sodium-Chloride water type which is alkaline (average pH 7.8) and conductivity

(average 3200µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (average 0.05mg/L) is present at low levels which reflect natural conditions. Total Organic Carbon (11mg/L) is significantly higher than previous levels (1mg/L), although this could simply represent a spike in concentrations. Further commentary on this will be made in the next AEMR after additional monitoring data is available.

All trends indicate fairly stable concentrations, apart from a spike evident for Total Organic Carbon, although there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.13. MB14

MB14 is located upstream of evaporation dam 2. The standing water level in MB14 (783RL +/- 1m) and has been fairly stable since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.13 and Figure 29) in MB14 indicate a Magnesium-Sulphate water type which is alkaline (average pH 7.6) and conductivity (average 3100µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (average 0.05mg/L) and Total Organic Carbon (6mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentrations, although Conductivity and Sulphate are indicating declining trends during the reporting period. There is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.14. MB15

MB15 is located downstream of the waste rock dam. The standing water level in MB15 (764RL +/- 2m) shows minor fluctuations since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.14 and Figure 30) in MB15 indicate a Magnesium-Sulphate water type which is neutral (average pH 7.0) and conductivity



(average 8550µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L, with the exception of Iron (average 1.51mg/L), Manganese (4.5mg/L) and Zinc (maximum 2.2mg/L). Zinc is the only significantly different result and appears to reflect a spike in concentrations.

Ammonia (average 0.06mg/L) and Total Organic Carbon (12mg/L) are present at low levels which reflect natural conditions. Total Organic Carbon levels appear to fluctuate although results recorded in this reporting period are not significantly different to previously reported results.

All trends indicate fairly stable concentrations, although Total Organic Carbon, Iron and Zinc appear to fluctuate. The waste rock area has been previously identified by VES for rehabilitation which will be undertaken in accordance with the MOP. There is no indication of contamination from Bioreactor activities.

3.11.15. MB16

MB16 is located downstream of the waste rock dam. The standing water level in MB16 (769RL +/- 1m) and has been fairly stable since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.15 and Figure 31) in MB16 indicate a Magnesium-Sulphate water type which is acidic (average pH 3.35) and conductivity (average 26250µS/cm) representative of saline water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX was not detected at this monitoring point, although TPH (C15-C28) was recorded at 100µg/L. A number of heavy metals are greater than 1mg/L including Aluminium, Cadmium, Cobalt, Copper, Iron, Manganese and Zinc. Heavy metal concentrations are similar to previously reported results.

Ammonia (average 6.68mg/L) and Total Organic Carbon (23mg/L) are present at levels which are consistent with previously reported results.

The waste rock area has been previously identified by VES for rehabilitation which will be undertaken in accordance with the MOP. There is no indication of contamination from Bioreactor activities.

3.11.16. MB17

MB17 is located downstream of the waste rock dam. The standing water level in MB17 (767RL +/- 1m) and has been fairly stable since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.16 and Figure 32) in MB17 indicate a Magnesium-Sulphate water type which is neutral (average pH 7.0) and conductivity (average 10625µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L with the exception of Manganese (11mg/L) and Zinc (average 5.75mg/L). These results are consistent with previously reported figures.

Ammonia (average 0.04mg/L) is present at low levels which reflect natural conditions. Total Organic Carbon (16mg/L) is significantly higher than previous levels (4mg/L), although this could simply represent a spike in concentrations. Further commentary on this will be made in the next AEMR after additional monitoring data is available.

The waste rock area has been previously identified by VES for rehabilitation which will be undertaken in accordance with the MOP. There is no indication of contamination from Bioreactor activities.

3.11.17. ED3B

ED3B is located downstream of evaporation dam 3. The standing water level in ED3B (784RL +/- 1m) and has been fairly stable since 2004 (refer to Figure 16.1).

Water quality results (refer to Table T10.17 and Figure 33) in ED3B indicate a Sodium-Chloride water type which is near neutral (average pH 7.3) and conductivity (average 7950µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (average 0.07mg/L) is present at low levels which reflect natural conditions. Total Organic Carbon (12mg/L) is significantly higher than previous levels (3mg/L), although this could simply represent a spike in concentrations. Further commentary on this will be made in the next AEMR after additional monitoring data is available.

All trends indicate fairly stable concentrations and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.18. WM1

WM1 is located within the northeast of the mine void. The standing water level in WM1 has shown a gradual rise from 732RL to 734RL since 2004 (refer to Figure 16.2).

Water quality results (refer to Table T10.18 and Figure 34) in WM1 indicate a Calcium-Sulphate water type which is slightly alkaline (average pH 7.6) and constant conductivity (average 2100µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (average 0.67mg/L) and Total Organic Carbon (7mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentrations and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.19. WM3

WM3 is located within the south of the mine void. The standing water level in WM3 has shown a noticeable increasing trend from 678RL to 698RL since 2004 (refer to Figure 16.2).

Water quality results (refer to Table T10.19 and Figure 35) in WM3 indicate a Magnesium-Sulphate water type which is acidic (average pH 3.9) and conductivity (average 4850µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. Heavy metals are less than 1mg/L except for Aluminium (170mg/L), Cadmium (1.6mg/L), Manganese (21mg/L), Iron (130mg/L) and Zinc (390mg/L). These results are consistent with previously reported results.

Ammonia (average 1.2mg/L) and Total Organic Carbon (4mg/L) are present at low levels which reflect natural conditions.

WM3 is located in an area of known AMD impacted groundwater. No significant variations or anomalies were recorded for any analyte tested during this monitoring period, although heavy metal concentrations continue to fluctuate as expected for AMD impacted waters.

3.11.20. WM4

Only two complete sample rounds (one quarterly and one annual round) of WM4 were obtained during this reporting period as there was insufficient water available to sample during the final two sample rounds (refer to Figure 16.2).

Analysis of Nitrite was missed by the laboratory during the annual sampling round. VES has notified the laboratory of the missed analysis and an agreement has been made to ensure water samples are held until analysis of laboratory results has been completed and approved by VES.

WM4 is located within the northeast of the mine void. The standing water level in WM4 has been consistently around 631RL since 2004.

Water quality results (refer to Table T10.20 and Figure 36) in WM4 indicate a Sodium-Sulphate water type which near neutral (average pH 7.45) and conductivity (average 1800µS/cm) representative of brackish water. There has been a shift in the dominant cation from Calcium to Sodium since the previous AEMR completed by Earth2Water. Further monitoring will indicate if this shift is permanent.

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (average 0.05mg/L) and Total Organic Carbon (1mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentrations and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.21. WM5

WM5 is located to the west of the mine void near evaporation dam 3 South. The standing water level in WM5 has been consistently around 784RL +/-1m since 2004 (refer to Figure 16.2).

Water quality results (refer to Table T10.21 and Figure 37) in WM5 indicate a Sodium-Chloride water type which is slightly alkaline (average pH 7.5) and conductivity (average 3125µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (average 0.05mg/L) and Total Organic Carbon (10mg/L) are present at low levels which reflect natural conditions.

Conductivity indicates a slight decreasing trend, while sulphate indicates a slight increasing trend. All other trend are relatively consistent and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.22. WM6

WM6 is located to the west of the mine void adjacent to evaporations dam 3 North. The standing water level in WM6 has been consistently around 785RL +/-1m since 2004 (refer to Figure 16.2).

Water quality results (refer to Table T10.22 and Figure 38) in WM6 indicate a Sodium-Chloride water type which is slightly acidic (average pH 6.2) and constant conductivity (average 14000µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L.

Ammonia (average 0.05mg/L) and Total Organic Carbon (6mg/L) are present at low levels which reflect natural conditions.

An anomalous result was recorded for Sulphate of 3000mg/L in July 2011, which may be attributed to either a spike or laboratory reporting error. All other trends are relatively consistent and there is no indication of contamination from mining or Bioreactor activities.

3.11.23. WM7

No sampling of WM7 could be undertaken during the reporting period as this well was decommissioned in the previous reporting period. VES have submitted a replacement program to OEH for approval (condition U2) to replace this location. No response has been received at this time.

No tables or graphs have been included to present previously reported data at this monitoring point. Refer to the previous AEMR for discussion on trends and groundwater quality for WM7 (Earth2Water, 2010).

3.11.24. MW8S

Only one complete sample rounds (annual round) of MW8S was obtained during this reporting period as there was insufficient water available to sample from this monitoring well (well is dry) (refer to Figure 16.3).

MW8S is located northern side of evaporation dam 3 north. The base reference level of MW8S is 783.5RL and the standing water level was only recorded once during the reporting period (at 784RL). This well only flows after significant wet weather events.

Water quality results (refer to Table T10.23 and Figure 39) in MW8S indicate a Magnesium/Sodium-Sulphate water type which is near neutral (average pH 7.1) and conductivity (average 13000µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L with the exception of Manganese (3.2mg/L) and Zinc (26mg/L).

Ammonia (average 0.05mg/L) and Total Organic Carbon (7mg/L) are present at low levels which reflect natural conditions.

Trends from this well are difficult to establish due to the limited sampling possible at this well, although no significant variations or anomalies we can be seen in the trend graph. There is no indication of contamination from mining or Bioreactor activities.

3.11.25. MW8D

MW8D is located within is adjacent to MW8S. The standing water level in MW8D has decreased from 785RL to 782RL since the well was commissioned in 2007 (refer to Figure 16.3). The standing water level trends reflect those in MW8S, and justify why only one sample was able to be taken during this reporting period.

Water quality results (refer to Table T10.24 and Figure 40) in MW8D indicate a Magnesium-Sulphate water type which is near neutral (average pH 6.5) and conductivity (average 11325µS/cm) representative of brackish water. This is consistent with previously reported results (Earth2Water, 2010).

BTEX and TPH were not detected at this monitoring point. All heavy metals are less than 1mg/L with the exception of Manganese (3.3mg/L) and Zinc (23mg/L), which are similar concentrations to MW8S.

Ammonia (average 0.04mg/L) and Total Organic Carbon (8mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentrations and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.26. MW9S

MW9S is located on the northwest side of evaporation dam 3 north. The standing water level in MW9S has shown minor variations around 785RL +/-1m since the well was commissioned in 2007 and appears to show a slight increasing trend since September 2009 (refer to Figure 16.3).

Water quality results (refer to Table T10.25 and Figure 41) in MW8D indicate a Sodium-Sulphate water type which is near neutral (average pH 6.8) and conductivity (average 9975µS/cm) representative of brackish water. There has been a shift in the dominant anion from Chloride to Sulphate since the previous AEMR completed by Earth2Water. Further monitoring will indicate if this shift is permanent.

BTEX was not detected at this monitoring point, although TPH (C10-C214) was recorded at 83µg/L. All heavy metals are less than 1mg/L.

Ammonia (average 0.04mg/L) and Total Organic Carbon (5mg/L) are present at low levels which reflect natural conditions.

All trends indicate fairly stable concentrations and there is no indication of contamination from mining or Bioreactor activities. No significant variations or anomalies were recorded for any analyte tested during this monitoring period.

3.11.27. MW10S

MW10S is located on the northeast side of evaporation dam 3 north. No sampling of MW10S could be undertaken during the reporting period as this well was continually dry (refer to Figure 16.3 for water level). This has been a consistent observation since the well was commissioned in 2007.

No data is available to produce tables or graphs for this monitoring point.

3.12. Piezometer Water Level Monitoring

Standing water level measurements are undertaken at six monitoring locations around the void in accordance with EPL 11436. Each monitoring location consists of a shallow (reference A) and deep (reference B) piezometer. The piezometers enable measurements of groundwater levels to be made in the immediate vicinity of the Bioreactor.

3.12.1. P38A & P38B

Access to the monitoring location P38 has been restricted by Site Management due to safety concerns regarding the stability of this area of the void. OEH have been notified of the geotechnical safety concerns surrounding of this area, including the monitoring point.

No tables or graphs have been included to present previously reported data at this monitoring point. Refer to the previous AEMR for discussion on trends and groundwater quality for WM7 (Earth2Water, 2010).

3.12.2. P44A & P44B

P44 is located within the east of the mine void. Standing water levels are presented in Table T11.1 and Figure 42.

Standing water level in P44A (shallow) indicated a variable standing water level from 708RL to 715RL during the reporting period. Standing water levels are consistent with historical monitoring results and indicate that the shallow aquifer is influenced by rainfall and infiltration.

Standing water level in P44B (deep) has maintained a gradual increase during this reporting period to 710.62RL. An increase of 0.14 metres occurred since the previous reporting period. This continues the increasing trend observed since 2005.

3.12.3. P45A & P45B

P45 is located within the east of the mine void, and to the south of P44. Standing water levels are presented in Table T11.2 and Figure 42.

Standing water level in P45A (shallow) showed a slight decline in standing water level from a 718RL to 715RL before rising to 717RL in the last monitoring round. These levels are consistent with historical monitoring results and still reflect a gradual rise in groundwater levels at this location since 2002.

Standing water level in P45B (deep) has followed a similar trend to P45A during this reporting period, although the water level was generally higher (up to 3m difference).

3.12.4. P58A & P58B

P58 is located within the west of the mine void. Standing water levels are presented in Table T11.3 and Figure 42.

Standing water level in P58A (shallow) is generally below the base (764.21RL) of this piezometer. One sampling round in August 2011 indicated a rise in standing water level to 772RL which indicates that the shallow aquifer is influenced by rainfall and

infiltration. As sampling is normally undertaken in dry weather this represents a spike on the trend graph (Figure 42).

Standing water level in P58B (deep) has indicates the deep aquifer is up to 20m lower than the base level of P45A. Standing water levels peaked in March 2011 at approximately 746RL before decreasing to approximately 743RL which is consistent with levels recorded at the end of the previous reporting period.

3.12.5. P59A & P59B

P59 is located within the west of the mine void and to the south of P58. Standing water levels are presented in Table T11.4 and Figure 42.

Standing water level in P59A (shallow) had a similar trend to P45 and a decrease in water level of 1m to 786.74RL was observed during the reporting period. The overall trend of this standing water level still reflects an increasing trend.

Standing water level in P59B (deep) was similar to P59A. Standing water levels in the shallow and deep piezometers have generally been similar since November 2005.

3.12.6. P100A & P100B

P100 is located within the northeast of the mine void. Standing water levels are presented in Table T11.5 and Figure 42.

Standing water level in P100A (shallow) had a decreasing trend of almost 2m to 745.28RL during the reporting period. The overall trend of standing water level at P100A still reflects an increasing trend.

P100B (deep) was recorded as dry during the reporting period. The base level of the piezometer is approximately 698.21RL. This has been a consistent trend with only spikes occurring periodically.

3.13. Volume Monitoring

VES manages the water volume in Evaporation Dam 3 well below the 323 Megalitre limit specified in EPL 11436. Water level readings were taken monthly (refer to Table T12 and Figure 43) as required by EPL 11436. The volume of water did not exceed 323 megalitres during the reporting period.

4. Crisps Creek Intermodal Facility

4.1. Introduction

VES operates the Crisps Creek Intermodal Facility (IMF) where all waste is received prior to final disposal at the Bioreactor. The IMF is comprised of a hardstand located adjacent to the regional rail network (approximately 1 kilometre south of Tarago train station) to enable transfer of waste (transported from Sydney) from rail to road (Appendix 1).

The IMF is operated under EPL 11455 which covers the operational areas of the Site and details the operating conditions and environmental monitoring requirements.

4.2. Licence Conditions

This section discusses compliance with EPL 11455 conditions.

4.2.1. Pollution of Waters

All discharged water is diverted through the first flush system. Monitoring is undertaken after rainfall ad assessed prior to discharge into the Mulwaree River.

4.2.2. Waste

All waste received at the IMF was putrescible solid waste which was transported from the Clyde Transfer Terminal. All waste was maintained in sealed containers and transported to the Bioreactor on the same day.

4.2.3. Noise Limits

Noise limits for the IMF (condition L6.1) must not exceed 35 dB(A) $L_{Aeq\ (15\ minute)}$ at the nearest residential receiver. No noise complaints have been received since operations commenced in 2004. Therefore, no noise monitoring was undertaken during this reporting period. VES will implement a noise monitoring program in the event that a noise complaint is received.

4.2.4. Hours of Operation

Condition L7 required operational activities to be undertaken on Monday – Saturdays between 6:00am to 6:00pm. Approval from OEH was organised prior to VES operating outside these hours. VES has complied with the requirements of this condition.

4.2.5. Offensive Odour

No odour complaints were received for the IMF during this reporting period. VES has complied with the requirements of this condition.

4.2.6. Competency of Operations

Refer to section 2.2.6.

4.2.7. Maintenance of Plant and Equipment

All plant and equipment were maintained in proper order and serviced as required by qualified technicians. All VES operators hold the appropriate qualifications and licenses to operate plant and equipment used as part of IMF operations.

4.2.8. Dust Control

The IMF is a hardstand site with fully paved roads to access the site. All waste movements are completed within fully enclosed containers until reaching the Bioreactor.

4.2.9. Stormwater and Wastewater Management

All conditions specified in condition O4 were developed and included within the design and construction of the IMF.

All container and vehicle washing is completed in the dedicated areas at the Bioreactor (condition O4.4). No container or vehicle washing was completed at the IMF during this reporting period.

No sewage was removed from the IMF (condition O4.5) and uncontaminated water was not utilised in vegetated areas (condition O4.6) during this reporting period

4.2.10. Tracking of Mud and Waste

As all waste movements occur within enclosed containers on a hardstand site, tracking of mud and waste from the IMF did not occur during the reporting period.

4.2.11. Waste Transportation

All containers utilised in the transportation of waste maintain carbon filters to minimise potential odour emissions. All containers have rubber seals to contain leachate during transportation.

VES last upgraded the containers in 2011 and undertakes maintenance as required to ensure efficient operation.

4.2.12. Fire Extinguishment

There were no fires at the IMF during this reporting period.

4.2.13. Fire Fighting Capability

All VES operators are trained in emergency situations, which include fire fighting. Fire extinguishers and a 20,000L water tank are maintained onsite to enable effective fire fighting capabilities for the different types of fires that could occur onsite.

Crisps Creek and Mulwaree River are located adjacent to the IMF which is an available water source for fire fighting. The Tarago fire brigade is also located approximately 1 kilometre from the site which enables fast mobilisation at the site.

4.3. IMF Environmental Monitoring

4.4. Monitoring Points

VES is required to monitor environmental performance of the IMF under EPL 11455. Table 4-1 details the VES monitoring point identification, EPL monitoring point identification number, frequency and the type of monitoring undertaken at each licensed point. A monitoring location plan is included in Appendix 6.

Table 4.4: Licensed Monitoring Points

EPA ID	VES ID	Frequency	Type of Monitoring
1	Site 110	Quarterly	Surface Water
2	Site 150		
3	IMF First Flush		
4	DG18 IMF	Annual	Dust / Particulates

VES also undertakes additional surface water quality monitoring (Site 130) to provide additional background quality information.

4.5. Surface Water Monitoring

Surface water quality monitoring at 3 monitoring locations (refer to Table 4.4) was undertaken as required by EPL 11455. Six rounds of monitoring were undertaken to meet the requirements of the EPL at each monitoring location.

4.5.1. Site 110

Site 110 is located upstream of the IMF and approximately 8 kilometres downstream of the Bioreactor.

Results at Site 110 (refer to Table T13.1 and Figure 44) indicate slightly alkaline water (average pH 7.7) and conductivity (average 1575µS/cm) representative of fresh water.

Ammonia (average 0.06mg/L) and Total Organic Carbon (average 13mg/L) are present at levels which reflect natural stream conditions. Oil and Grease was below laboratory detection limits for all sampling events.

Biological Oxygen Demand (66mg/L), Total Kjeldahl Nitrogen (25mg/L), Phosphorous (4.1mg/L) and Total Suspended Solids (4600mg/L) were all elevated in March 2011, although this sample round was undertaken in no flow conditions. Concentrations of these analytes returned to previously recorded levels during subsequent monitoring rounds under flowing conditions.

Heavy metals are generally less than 1mg/L, although Iron (310mg/L) and Zinc (8.8mg/L) were elevated in March 2011. These results were also recorded in no flow conditions (March 2011). Concentrations of these analytes returned to previously recorded levels during subsequent monitoring rounds under flowing conditions, although Iron still remains variable.

4.5.2. Site 130

Site 130 is located upstream of the IMF in the Mulwaree River.

Results at Site 130 (refer to Table T13.2 and Figure 45) indicate slightly alkaline water (average pH 7.7) and conductivity (average 478µS/cm) representative of fresh water.

Ammonia (average 0.04mg/L) and Total Organic Carbon (average 12mg/L) are present at levels which reflect natural stream conditions. Oil and Grease was below laboratory detection limits for all sampling events. These results are consistent with to Site 110.

All heavy metals are less than 1mg/L.

4.5.3. Site 150

Site 150 is located 2 kilometres downstream of the IMF on the Mulwaree River, which is also downstream of a railway bridge and Braidwood Road.

Results at Site 150 (refer to Table T13.3 and Figure 46) indicate slightly alkaline water (average pH 8.0) and conductivity (average 840µS/cm) representative of fresh water.

Ammonia (average 0.06mg/L) and Total Organic Carbon (average 12mg/L) are present at levels which reflect natural stream conditions. Oil and Grease was below laboratory detection limits for all sampling events. These levels are consistent with Site 110 and 130.

All heavy metals are less than 1mg/L

All samples undertaken at Site 150 had record of flowing water. All results and trends are consistent with previously reported results and are comparable with results from upstream locations.

4.5.4. IMF First Flush

The IMF First Flush is located at the surface water outlet point of the site, prior to runoff into Crisps Creek.

Results of the IMF First Flush system (refer to Table T13.4 and Figure 47) indicate slightly near neutral water (average pH 7.2) and conductivity (average 200µS/cm) representative of fresh water. Sampling was undertaken in nil to low flow events.

Ammonia (average 0.03mg/L) and Total Organic Carbon (average 16mg/L) are present at levels which are similar to levels recorded at Site 110 and Site 150. Oil and Grease was below 3mg/L for all sampling events.

Biological Oxygen Demand was variable over the monitoring period, ranging from 19mg/L to 110mg/L. This correlates with monitoring during nil to low flow and sampling of stagnant water.

All heavy metals are less than 1mg/L with other analytes similar to background concentrations.

4.6. Dust / Particulates Monitoring

VES undertakes onsite dust monitoring at one location within the IMF site boundary. Monitoring was undertaken monthly to meet the requirements of EPL 11455.

4.6.1. DG18 IMF

Two significant dust results were recorded in October 2010 (29.9g/m2/month) and December 2010 (10.4g/m2/month) (refer to Table T14 and Figure 48). These results do not correspond with elevated levels recorded at the nearest residence (Pylara) (Refer to section 3.8).

Due to enclosed handling of waste on a hardstand site, there does not appear to an operational source for the elevated dust levels. It is more likely that dust levels are influenced from a combination of regional air quality, presence of bugs within the sample and neighbouring cropping operations (to the north and east of the site).

VES has recognised that additional recording of activities that may influence dust generation at the IMF should be recorded to improve assessment of dust monitoring results.

5. Improvements to Environmental Performance

The following improvements are suggested to enhance the environmental performance and reporting at the Bioreactor and IMF:

- Implementation of field sheets to record specific information regarding dust/particulate sampling. This will enable a more detailed record of samples and will assist in source identification.
- Improvements to the recording of complaints within the complaints register will be made to include the recording of wind speed and direction as well as the details of operational processes that could be a potential source.
- Providing comments of sample results confirmed by the laboratory within the electronic monitoring records.
- Updating of multiple electronic files of monitoring results into a database (within Excel) that provides secure access and a central access point for all monitoring data associated with each EPL.

REFERENCES

1. Earth2Water (2010). EPL - Annual Assessment of Woodlawn Bioreactor and Intermodal Facility Monitoring Data. 30 November 2010.
2. UK Environment Agency (2010). *Guidance for Monitoring Enclosed Landfill Gas Flares*. Version 2.1.
3. VES (2011). *Annual Environmental Monitoring Report – Special Mining Lease 20 – Woodlawn Mine*. September 2011.

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FIGURES

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Figure 3 - Sulfuric Acid Mist & Sulfur Trioxide

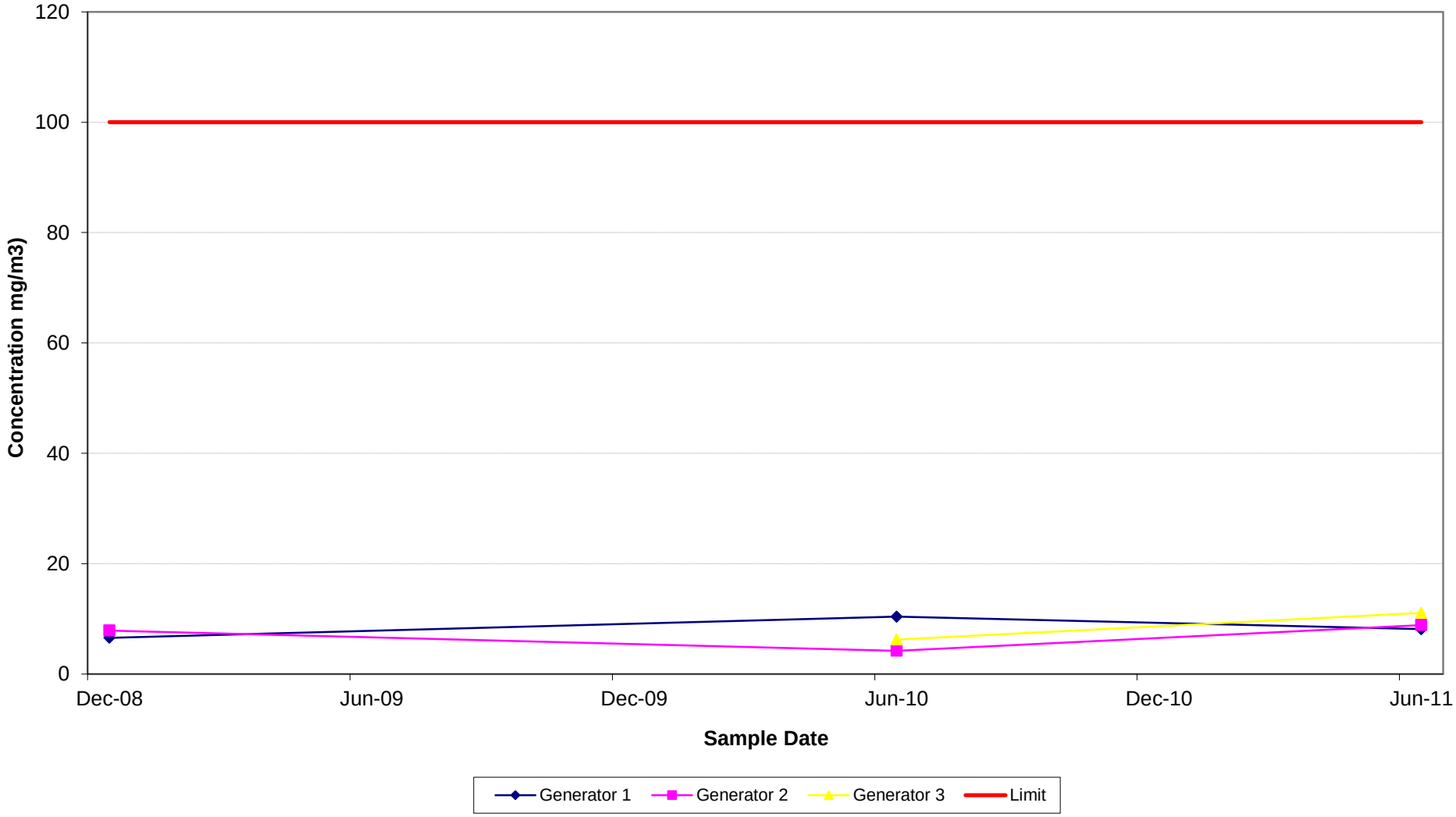


Figure 2 - Hydrogen Sulphide

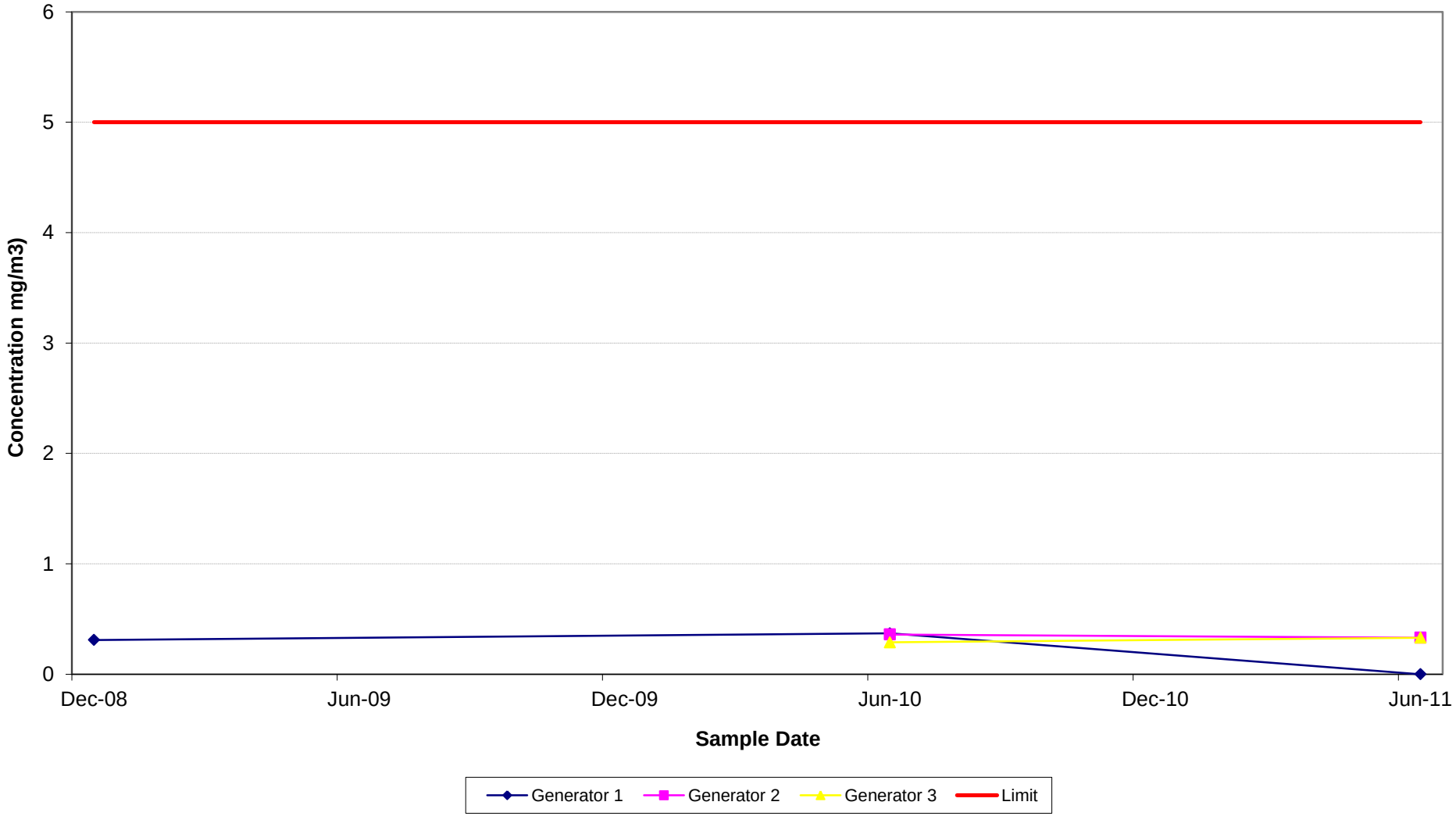


Figure 1 - Nitrogen Oxides

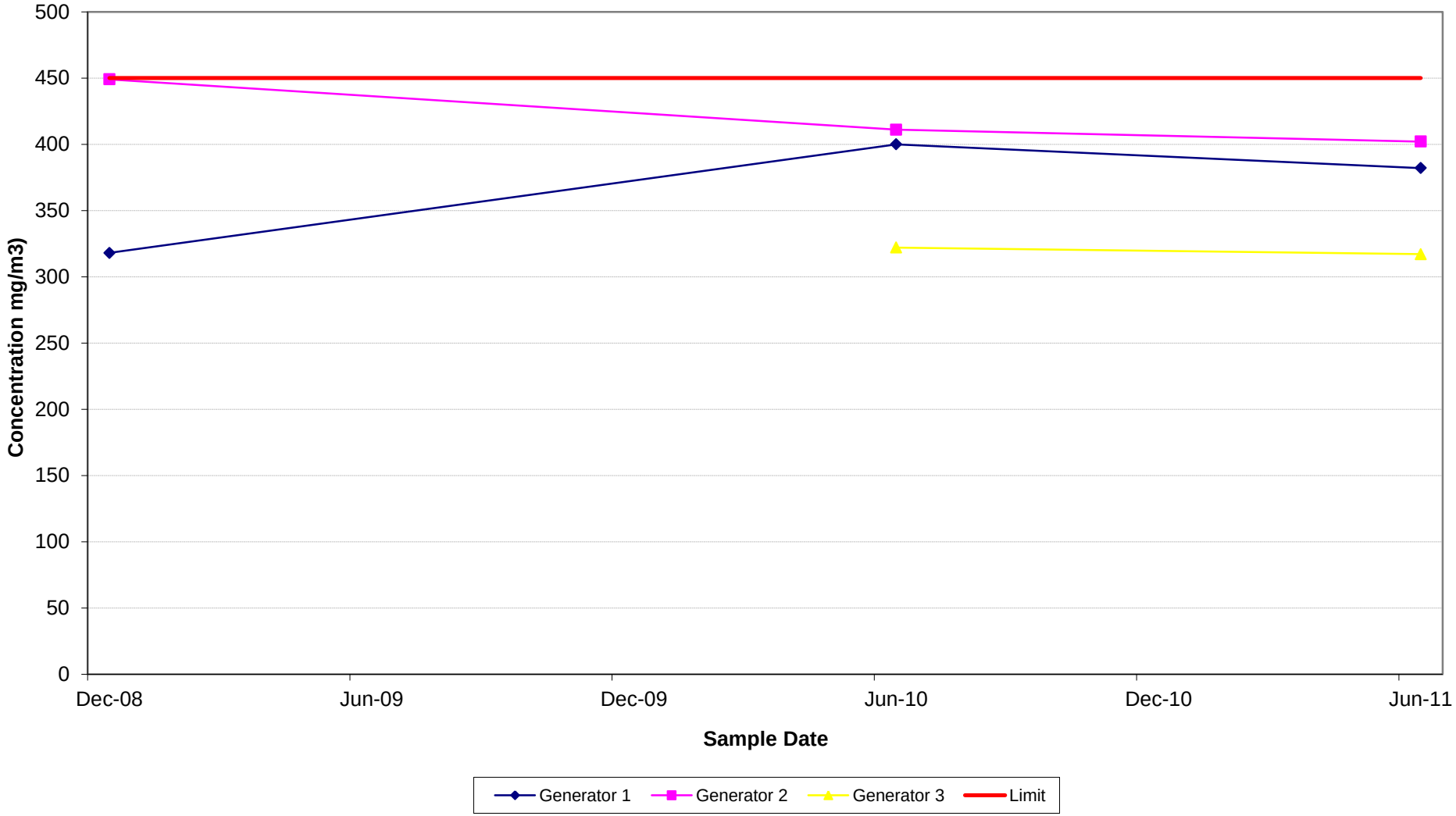


Figure 4 - Depositional Dust Levels

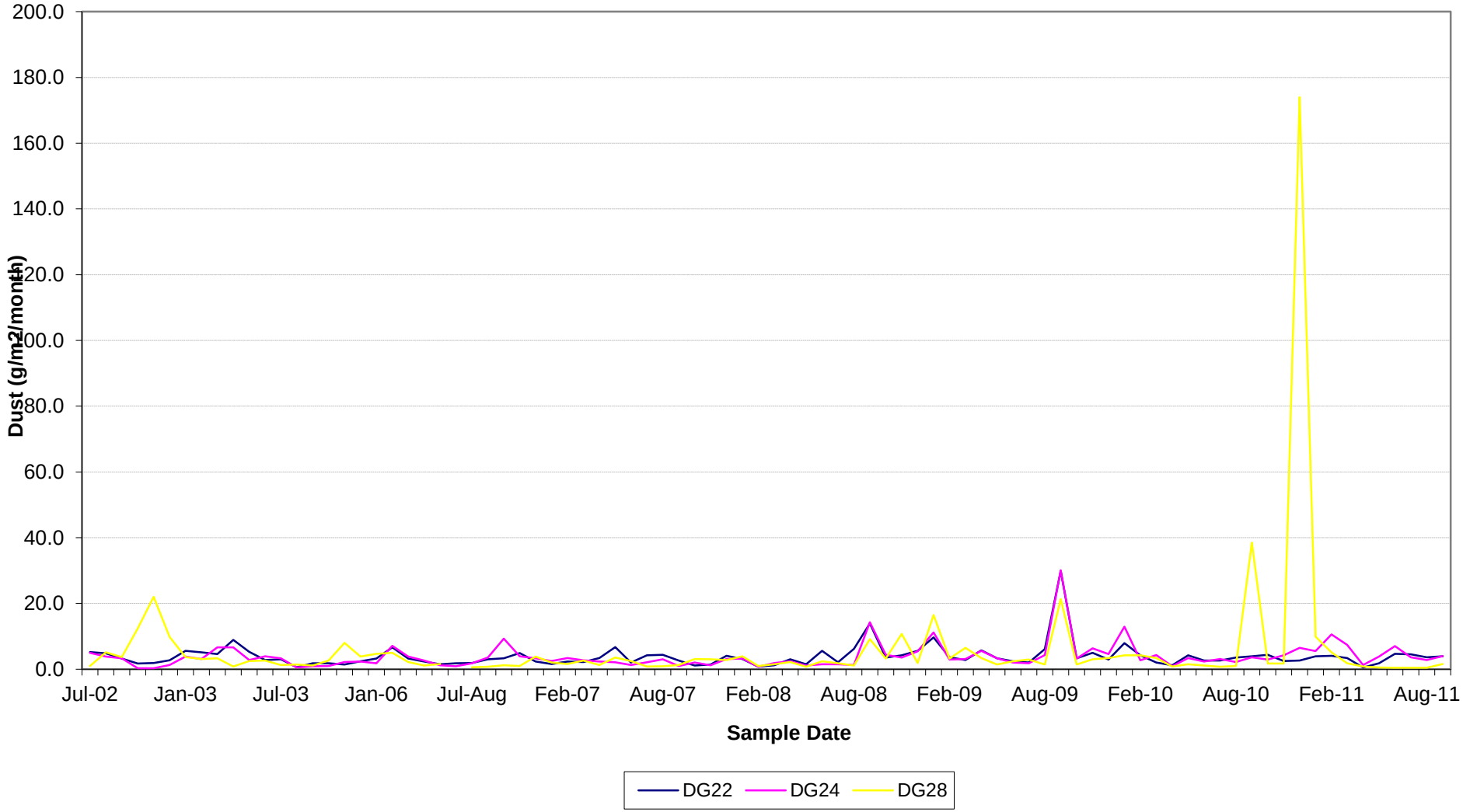


Figure 5 - Surface Water Trends - Site 115

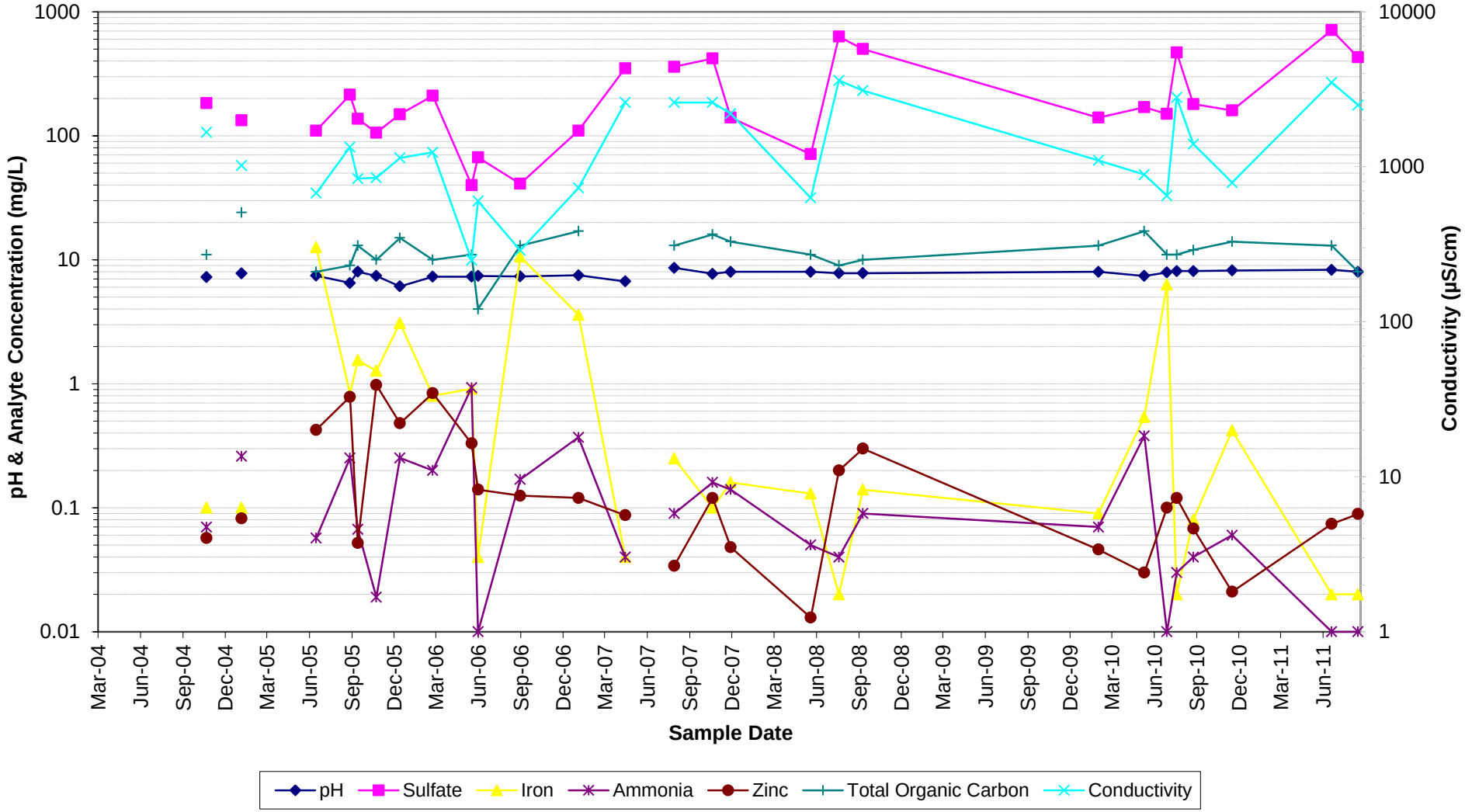


Figure 6 - Surface Water Trends - Spring 2

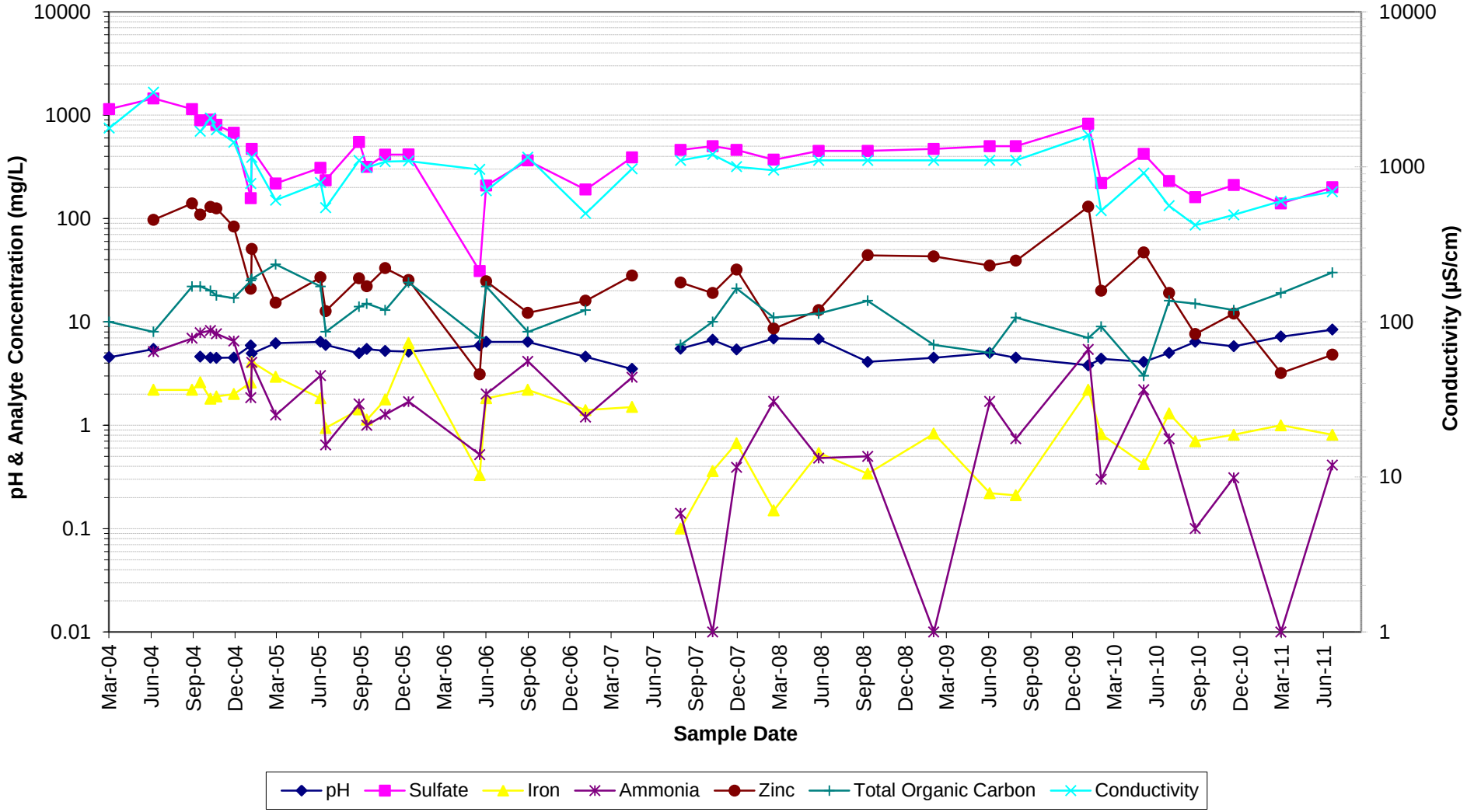


Figure 7 - Surface Water Trends - Site 105

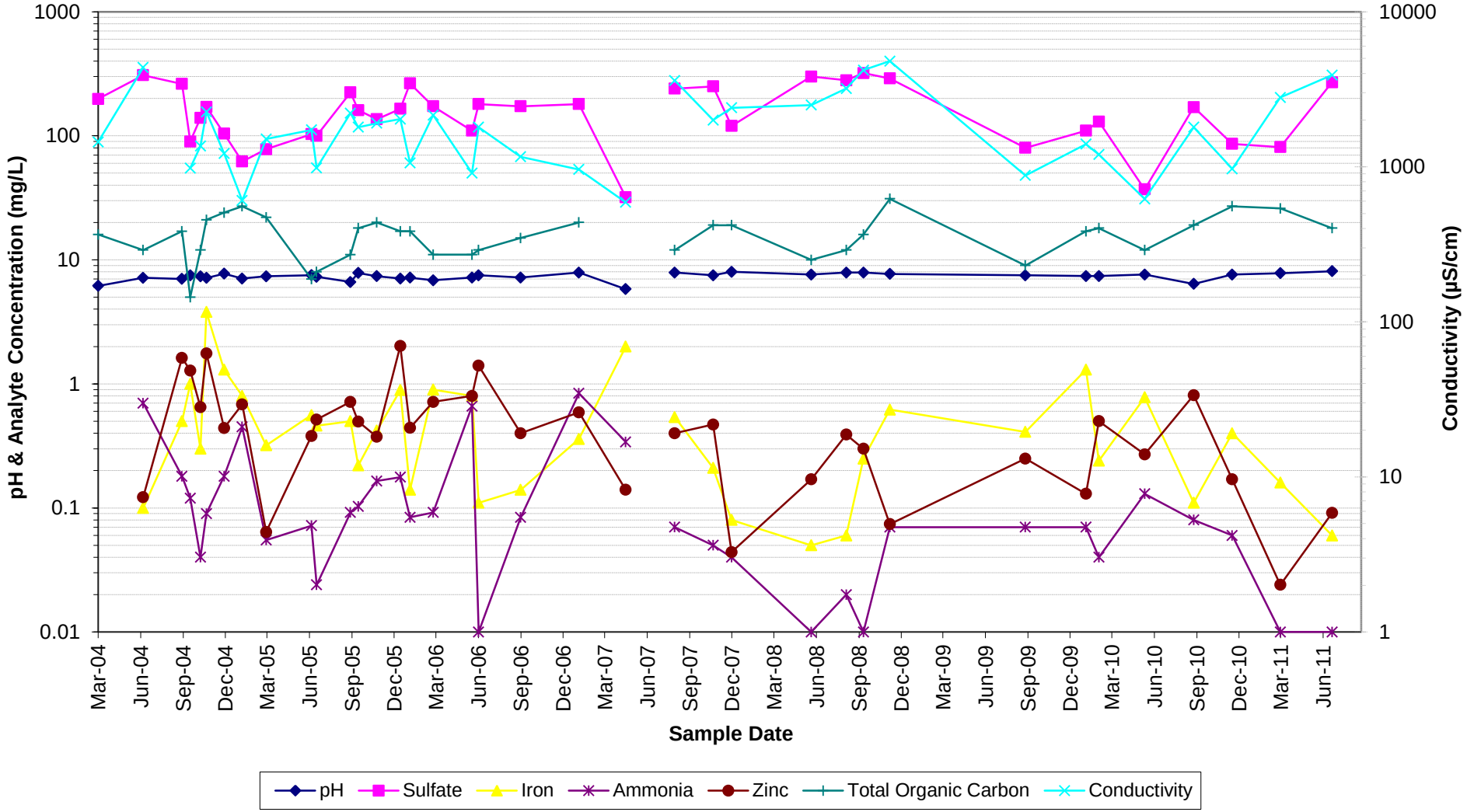


Figure 9 - Surface Water Trends - WM201

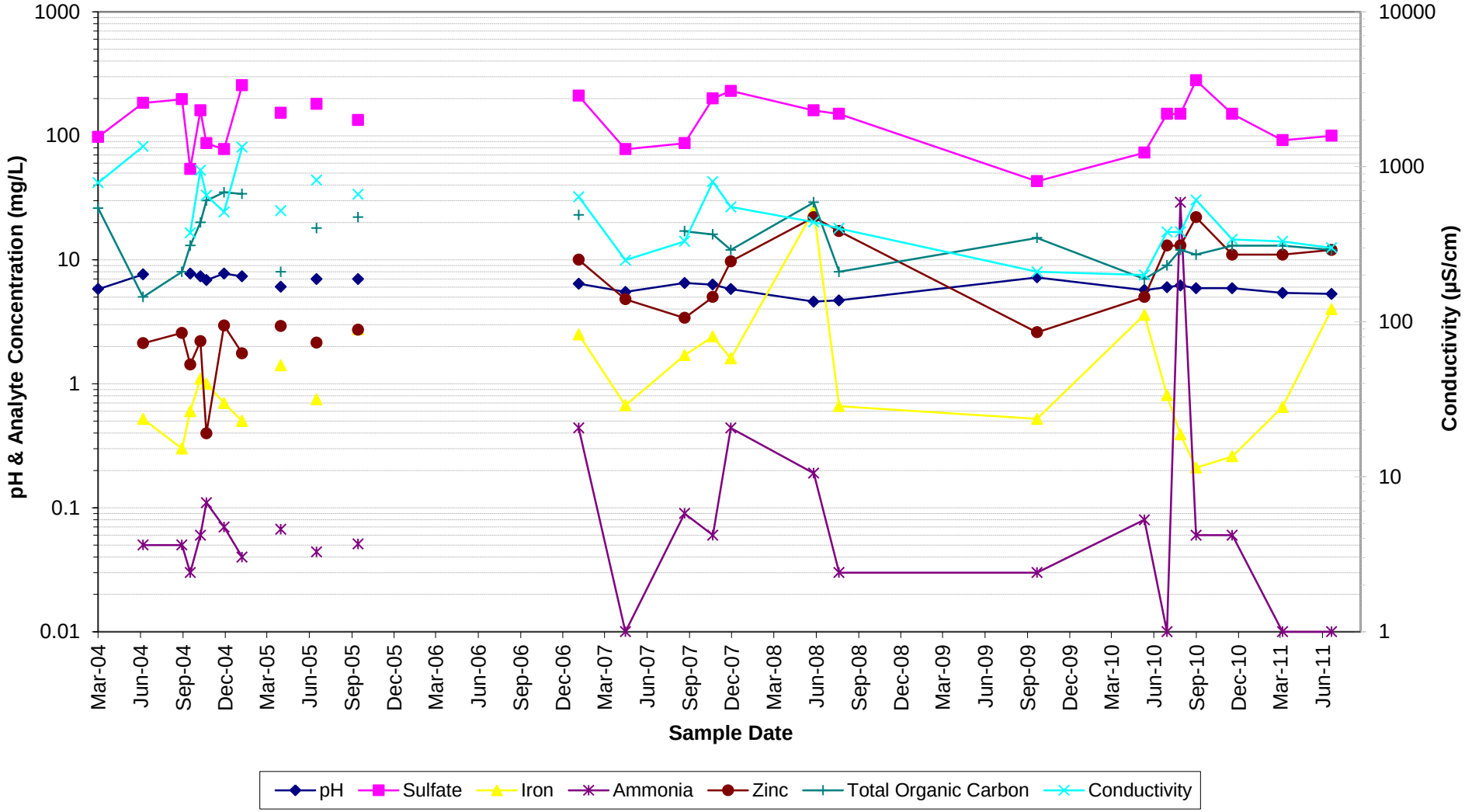


Figure 8 - Surface Water Trends - WM200

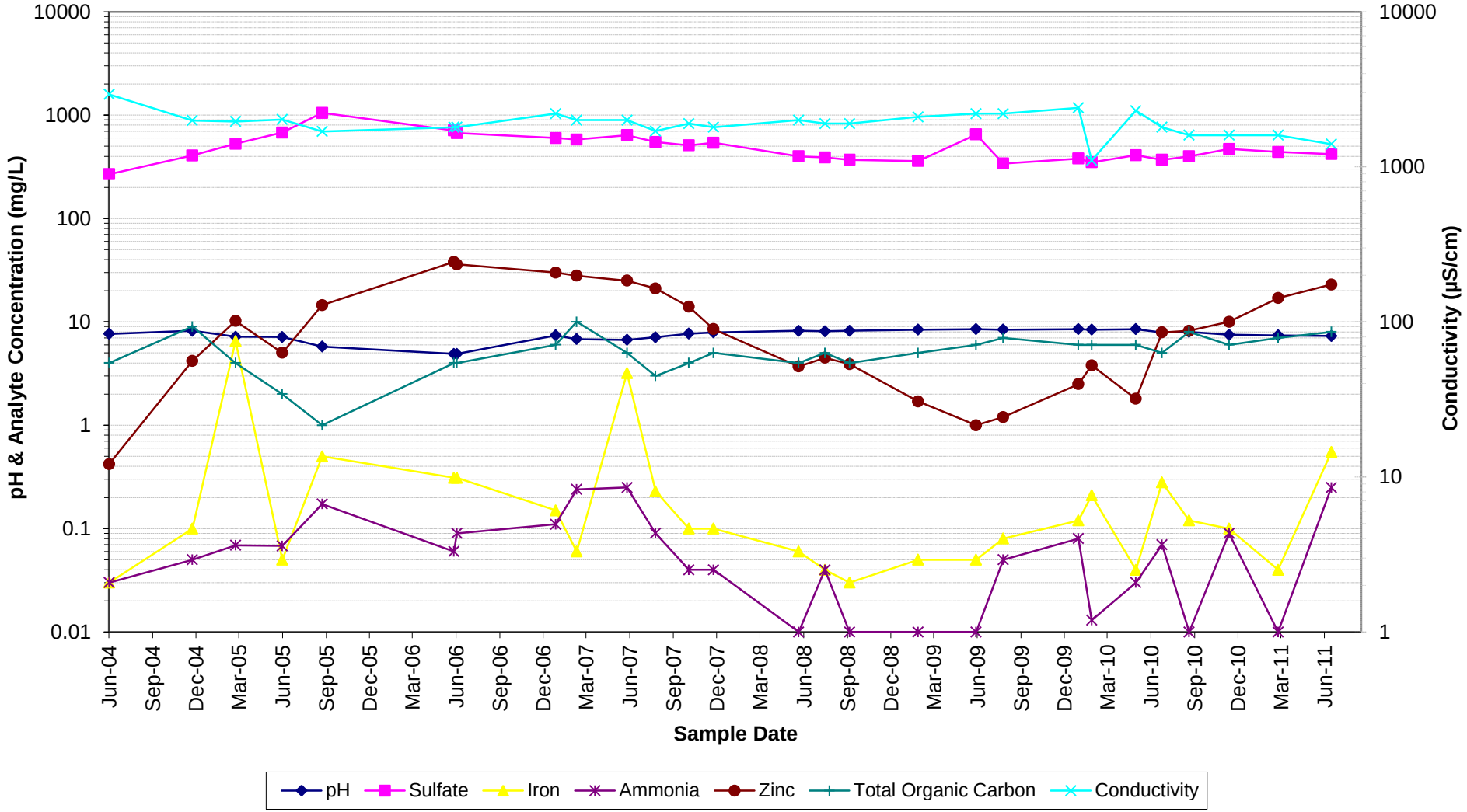


Figure 10 - Surface Water Trends - WM202

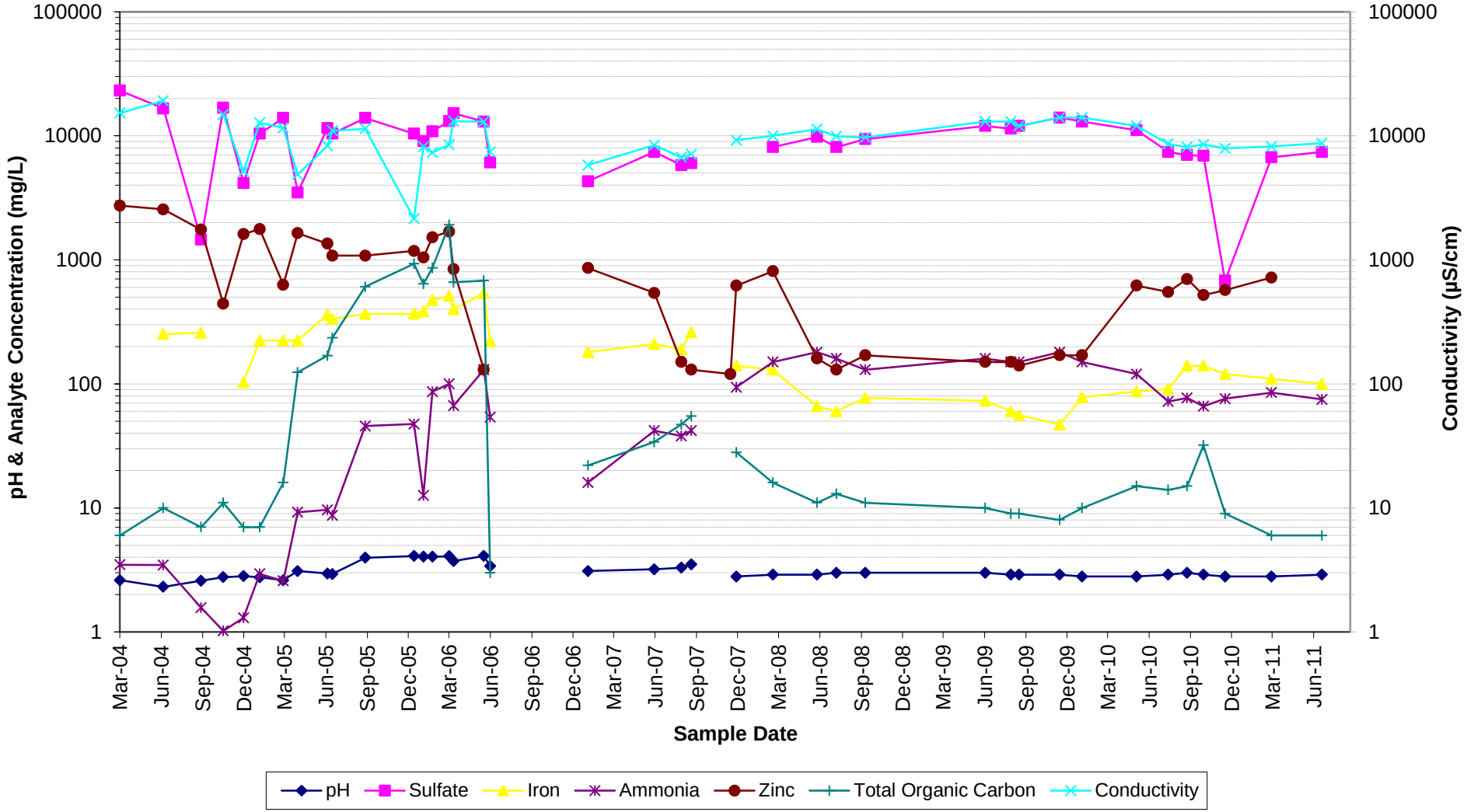


Figure 11 - Surface Water Trends - WM203

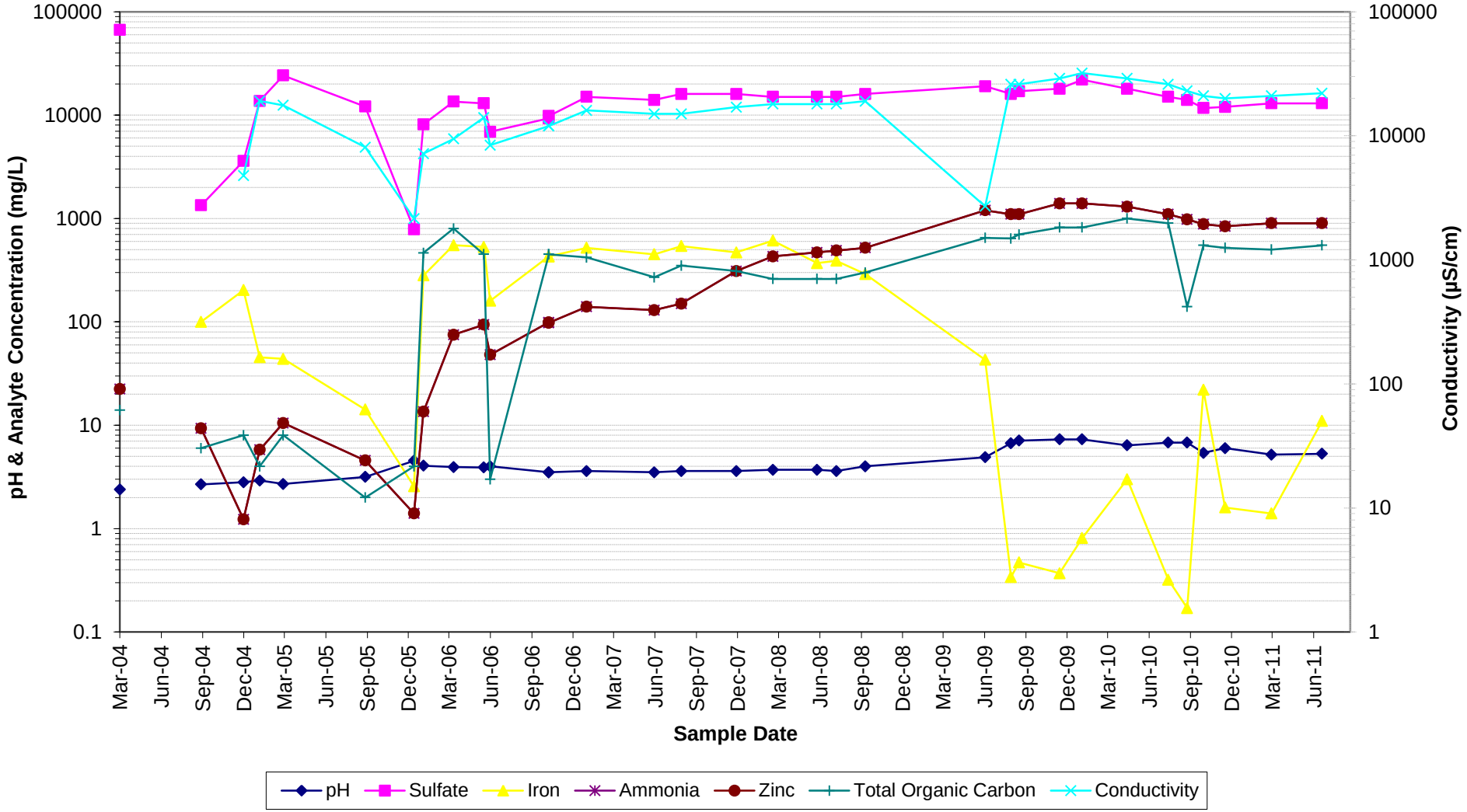


Figure 12 - Surface Water Trends - Pond 2

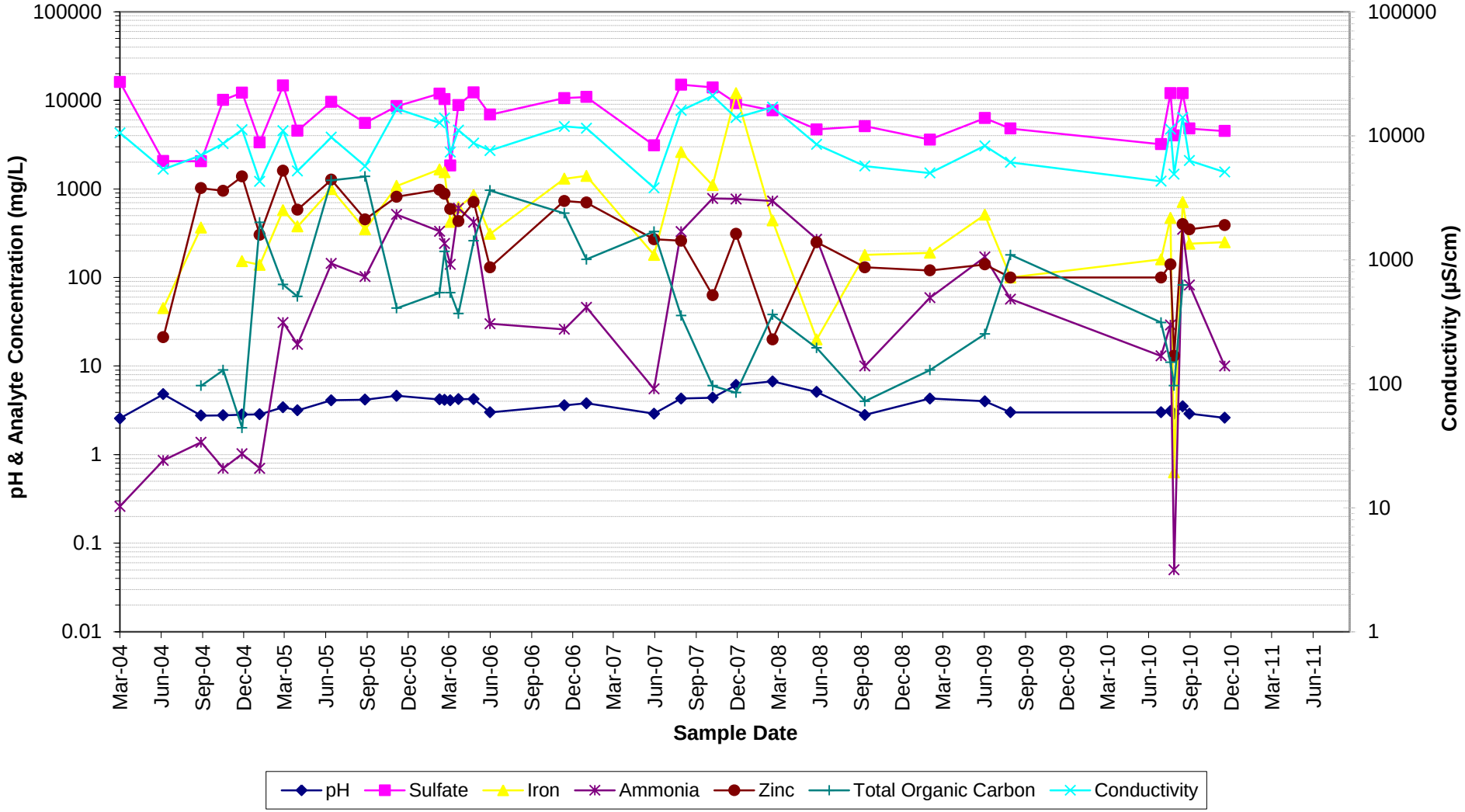


Figure 13 - Surface Water Trends - Pond 3

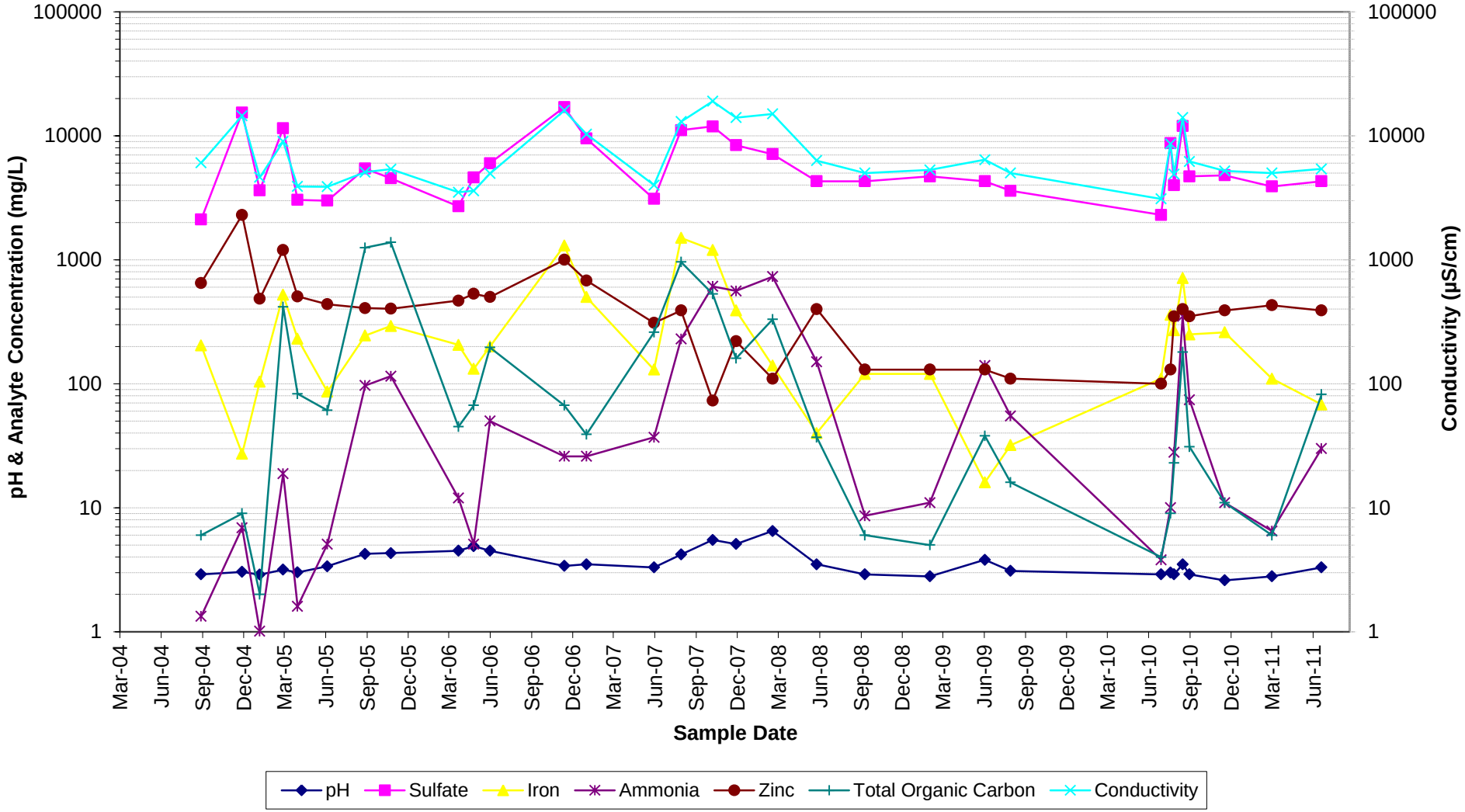


Figure 14 - Leachate Trends - Leachate Pond

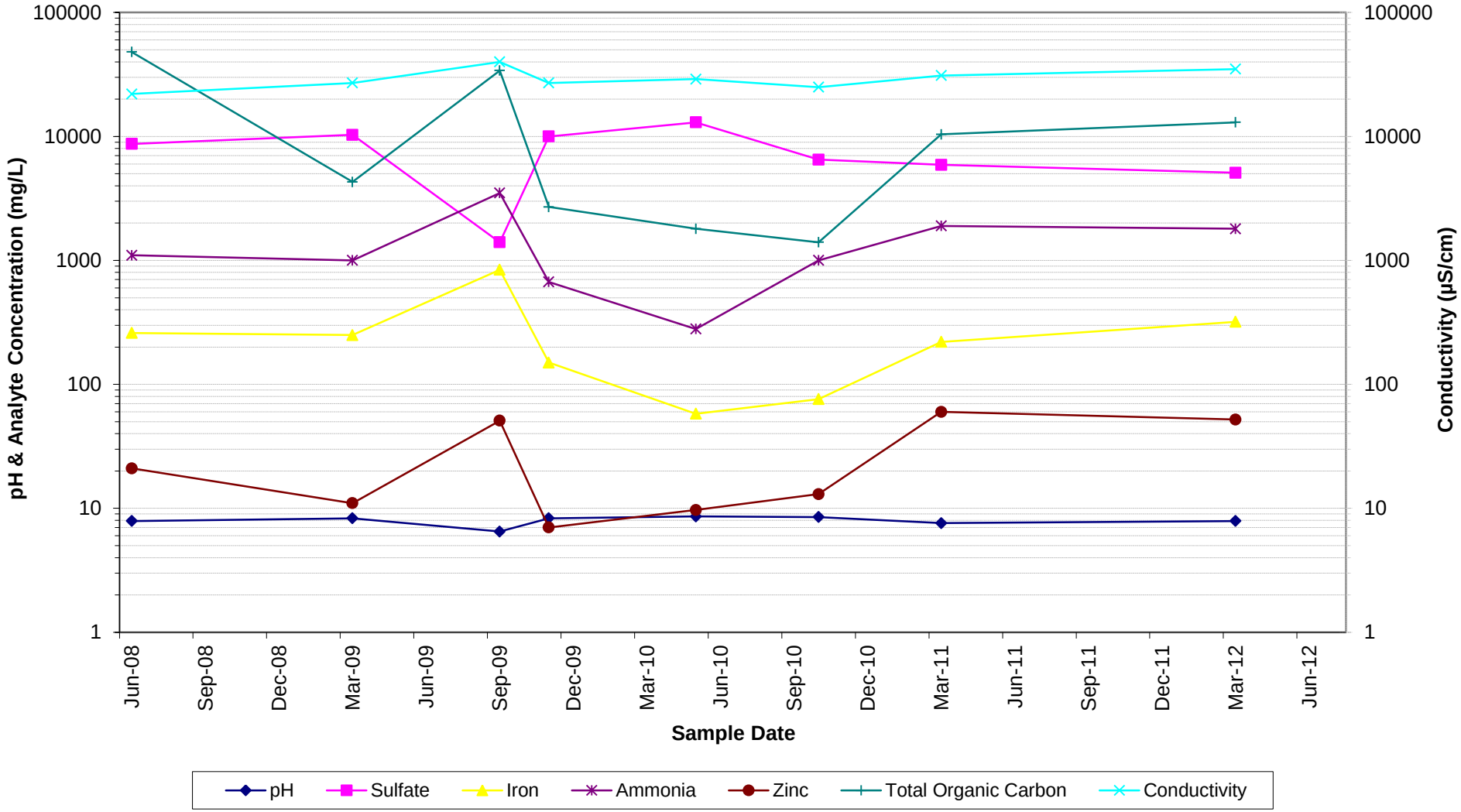


Figure 15 - Leachate Trends - Leachate Recirculation System

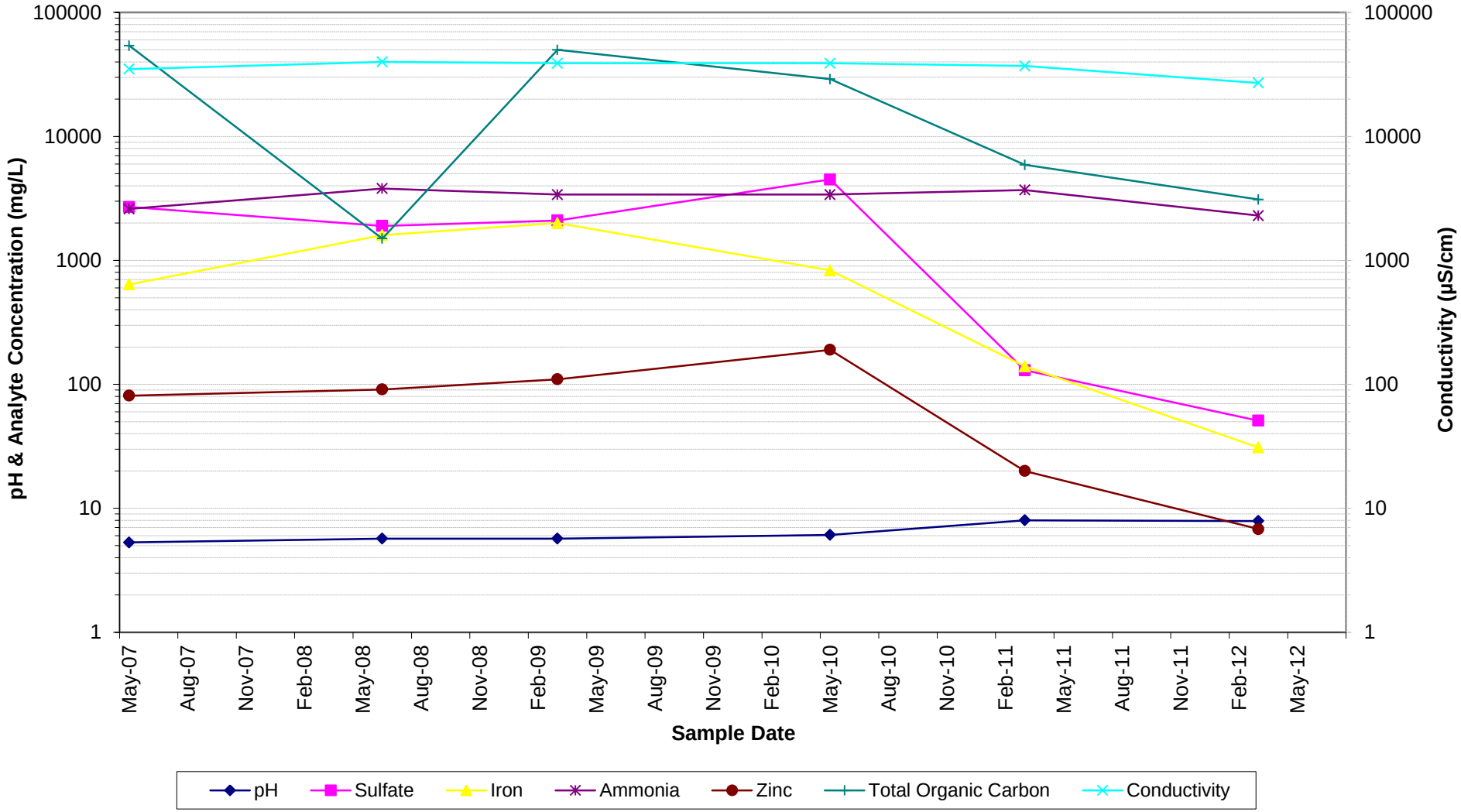


Figure 16.1 - Groundwater Levels - MB1 - MB17 & ED3B

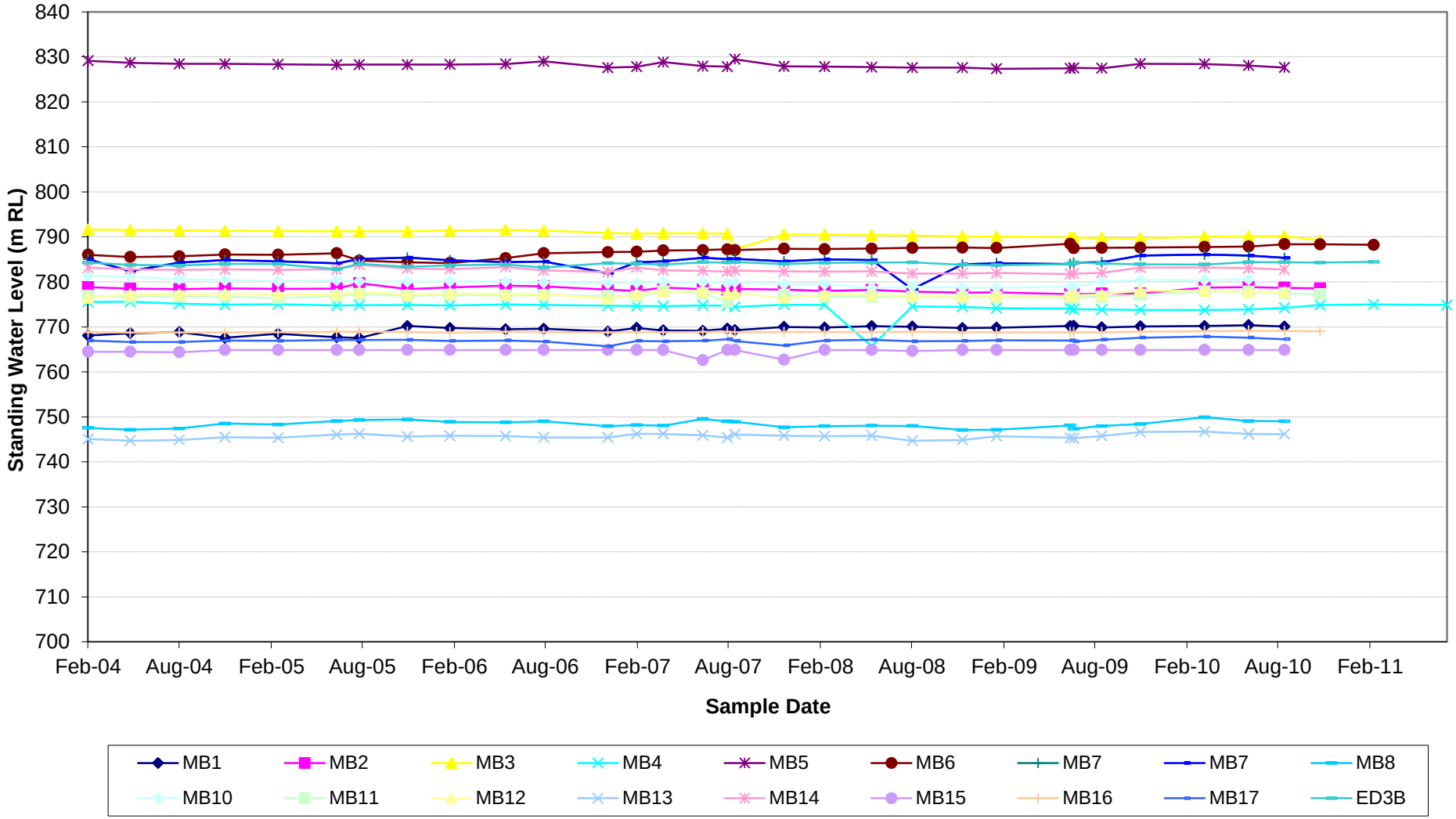


Figure 16.2 - Groundwater Levels - WM1 - WM7

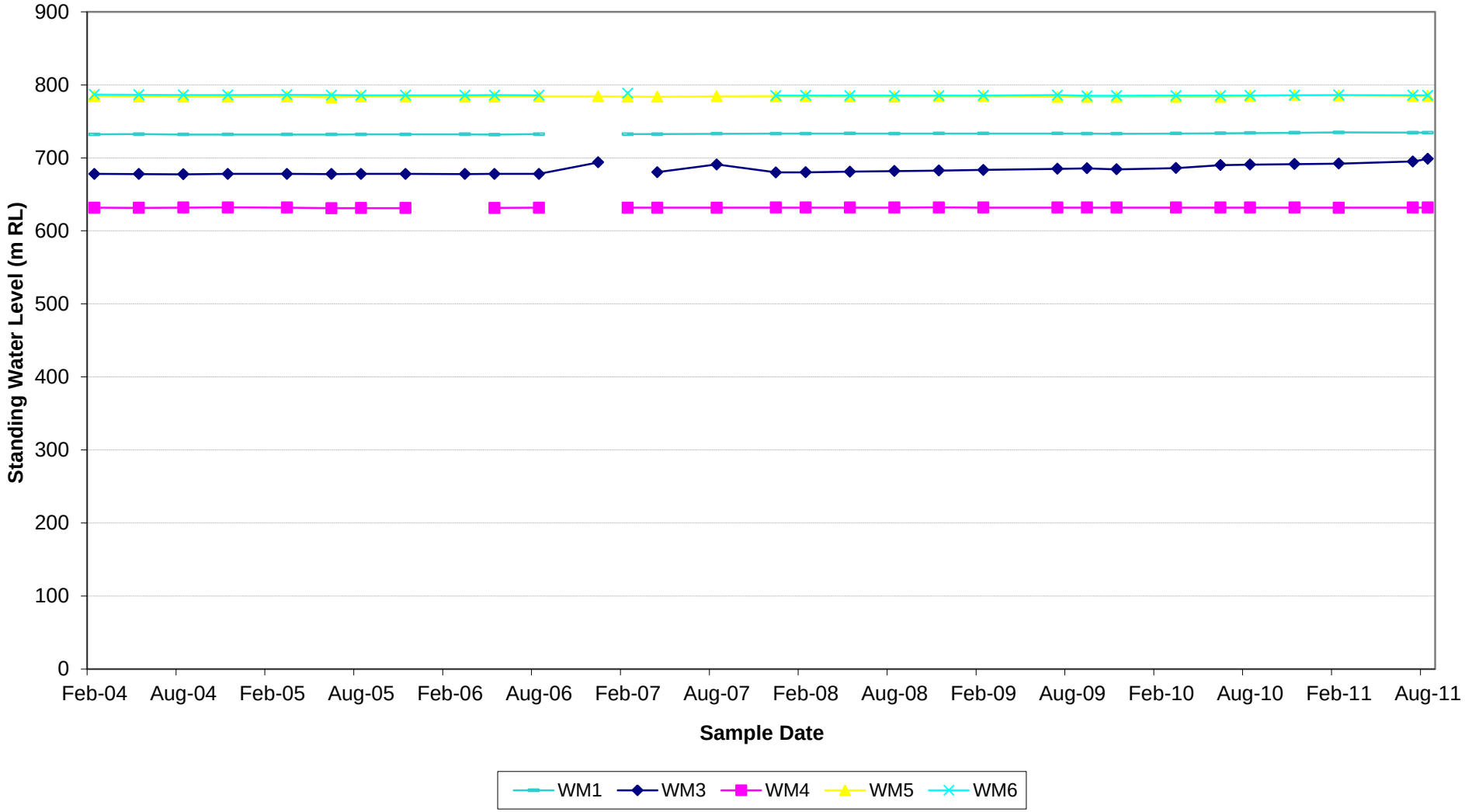


Figure 16.3 - Groundwater Levels - MW8S - MW10S

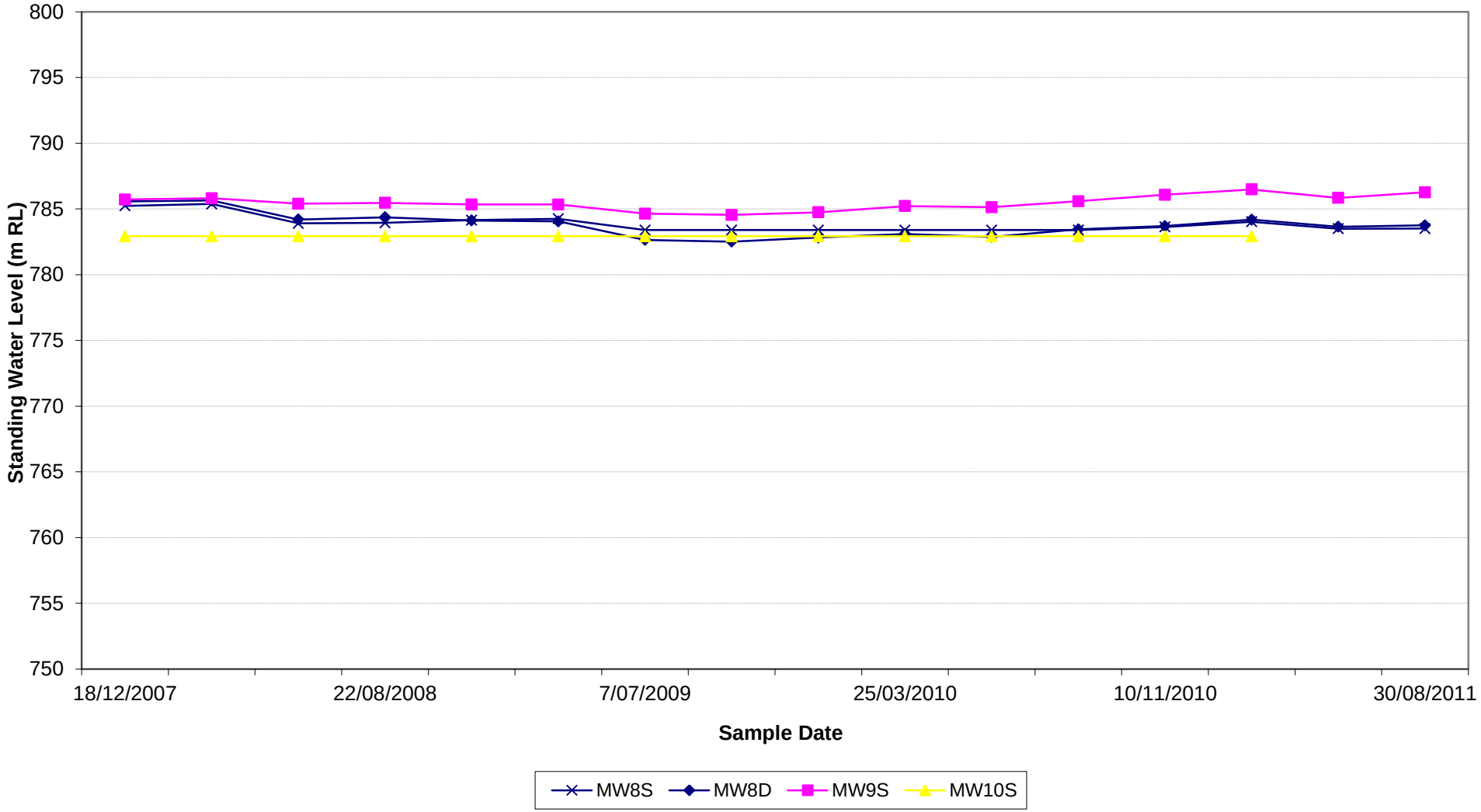


Figure 17 - Groundwater Trends - MB1

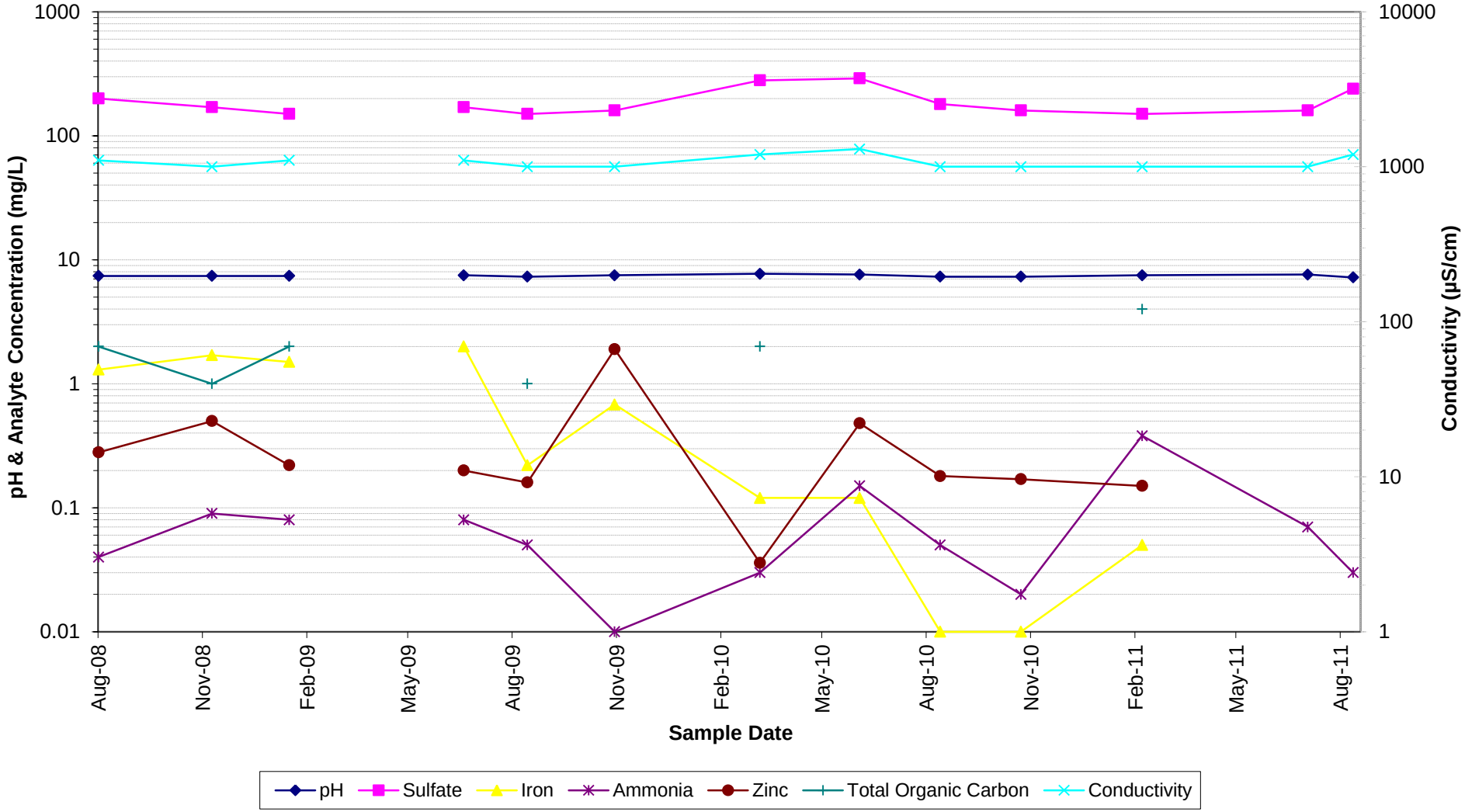


Figure 18 - Groundwater Trends - MB2

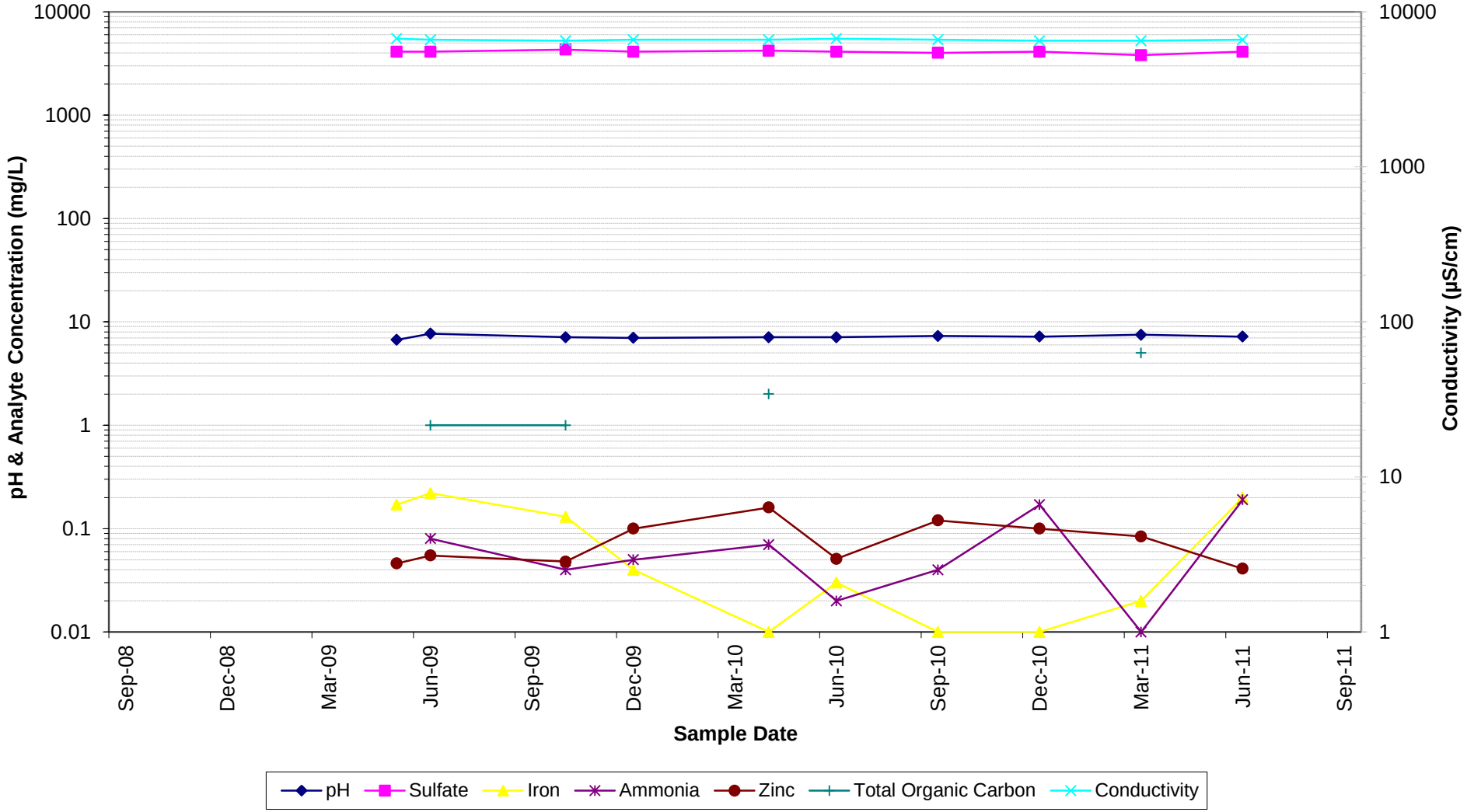


Figure 19 - Groundwater Trends - MB3

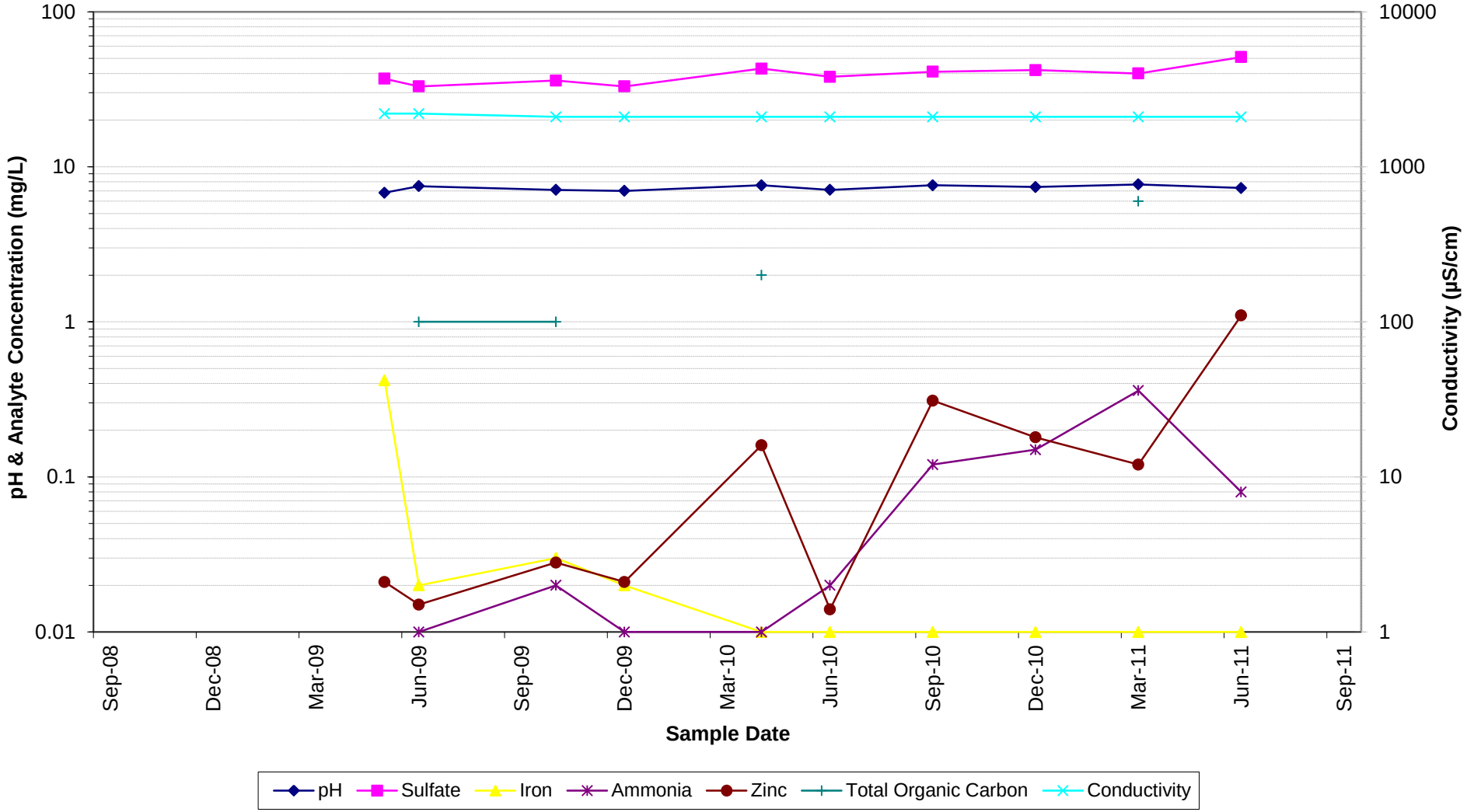


Figure 20 - Groundwater Trends - MB4

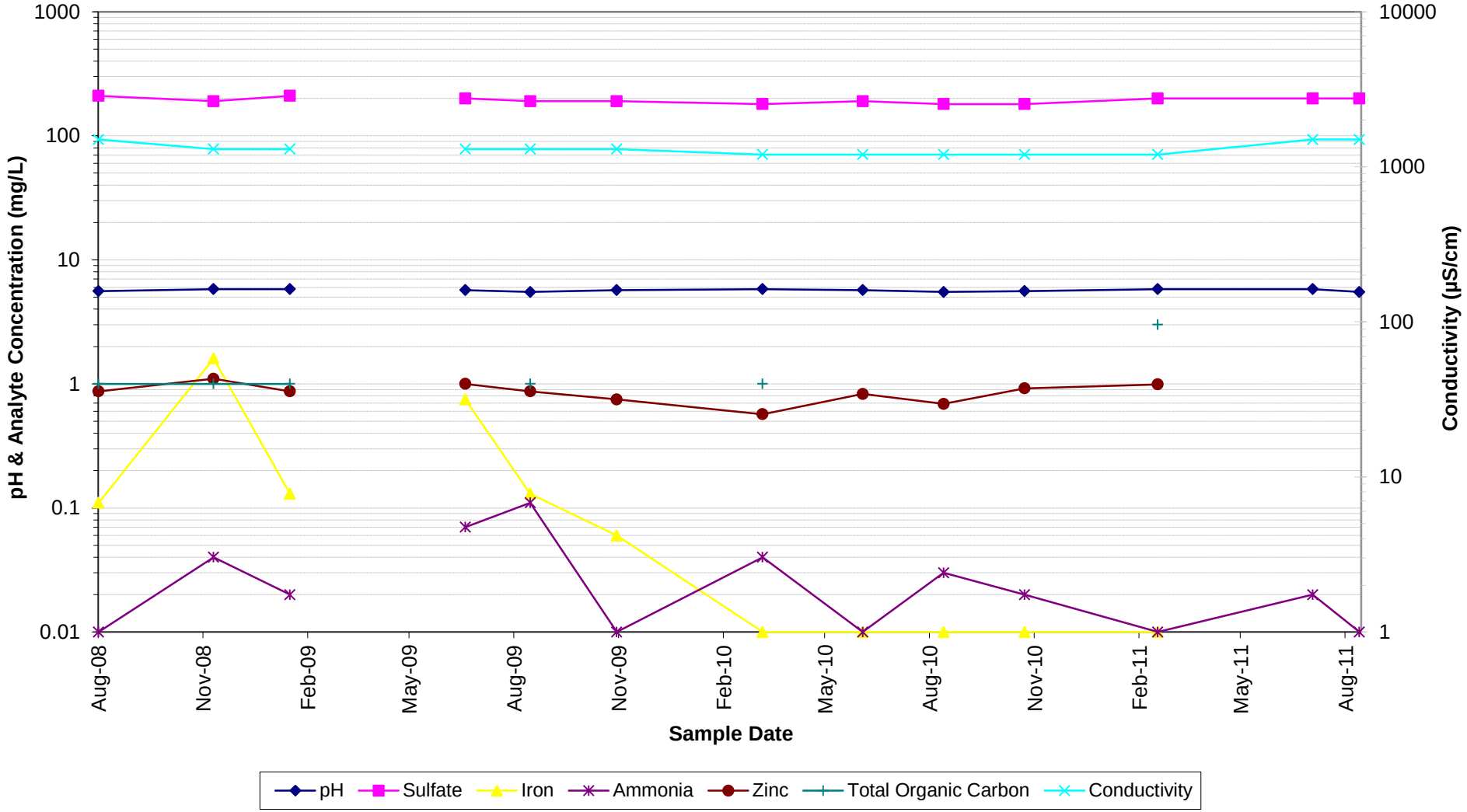


Figure 21 - Groundwater Trends - MB5

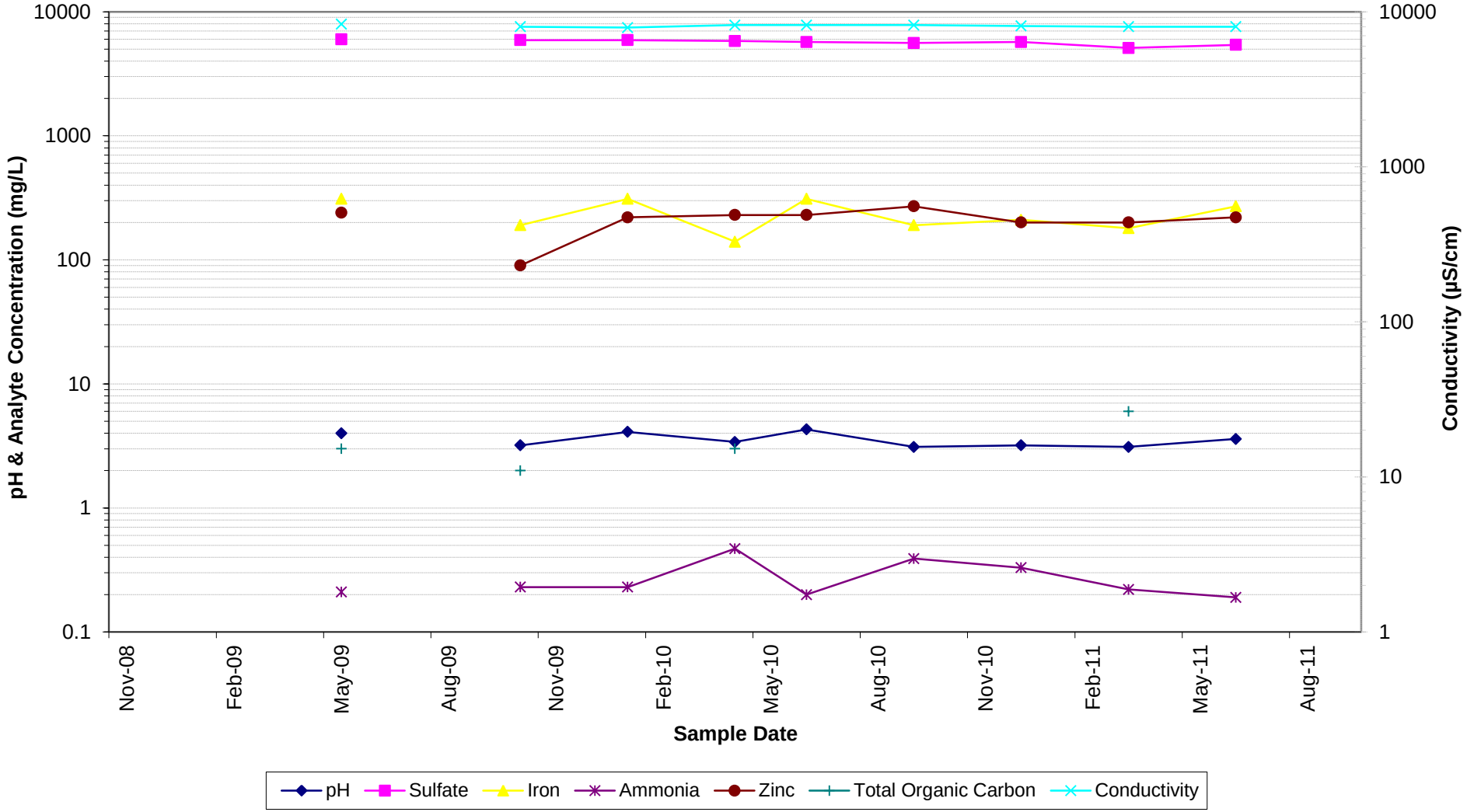


Figure 22 - Groundwater Trends - MB6

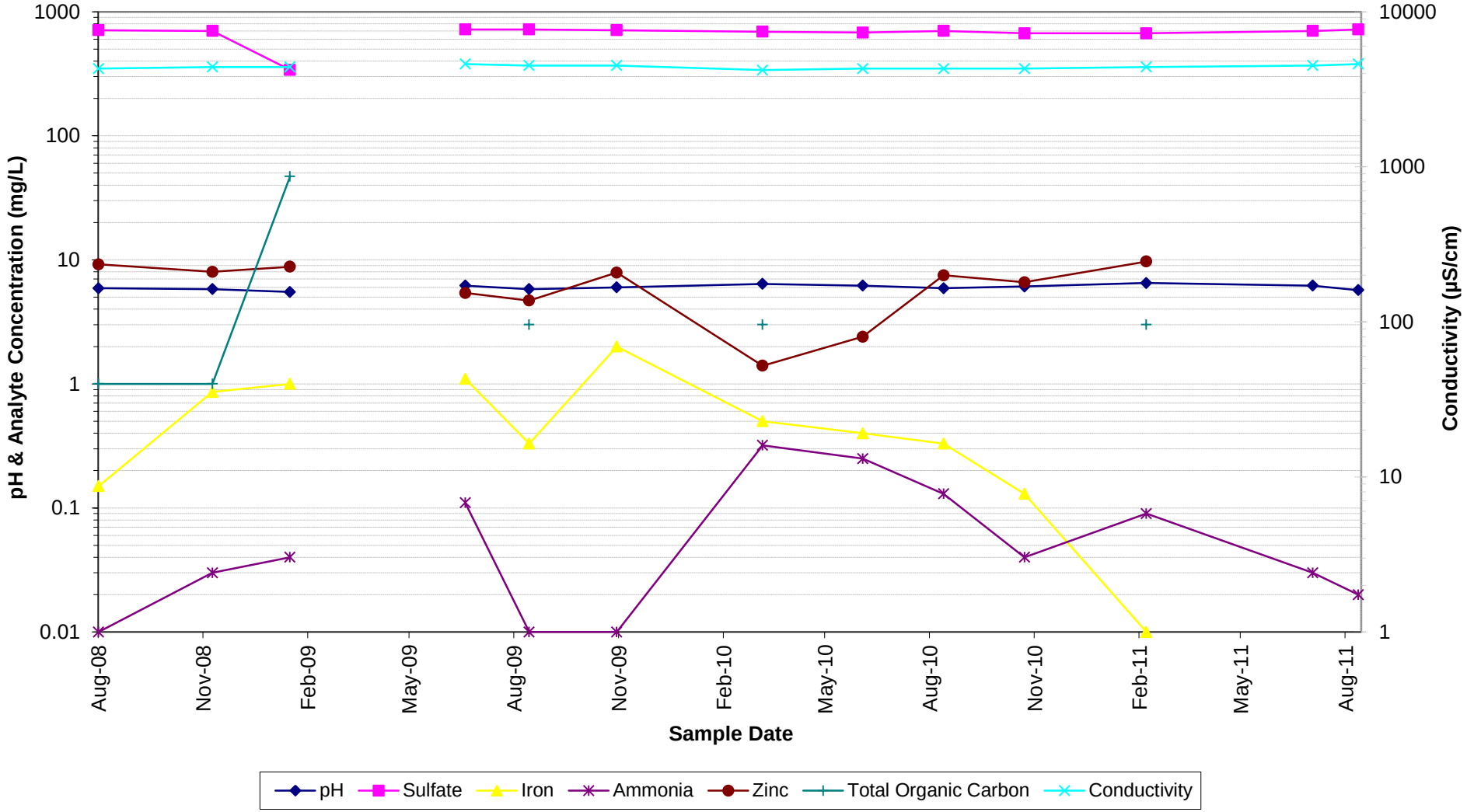


Figure 23 - Groundwater Trends - MB7

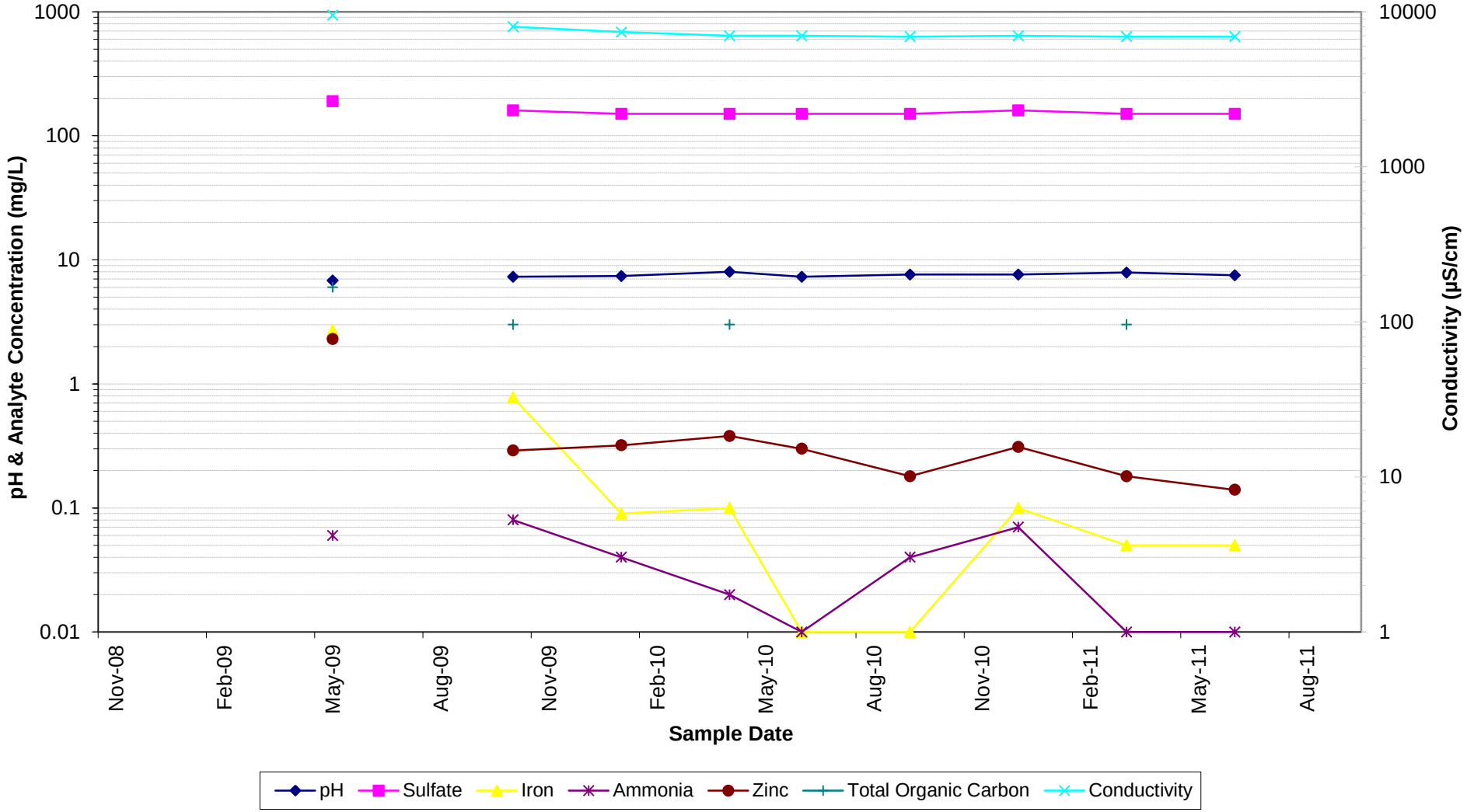


Figure 24 - Groundwater Trends - MB8

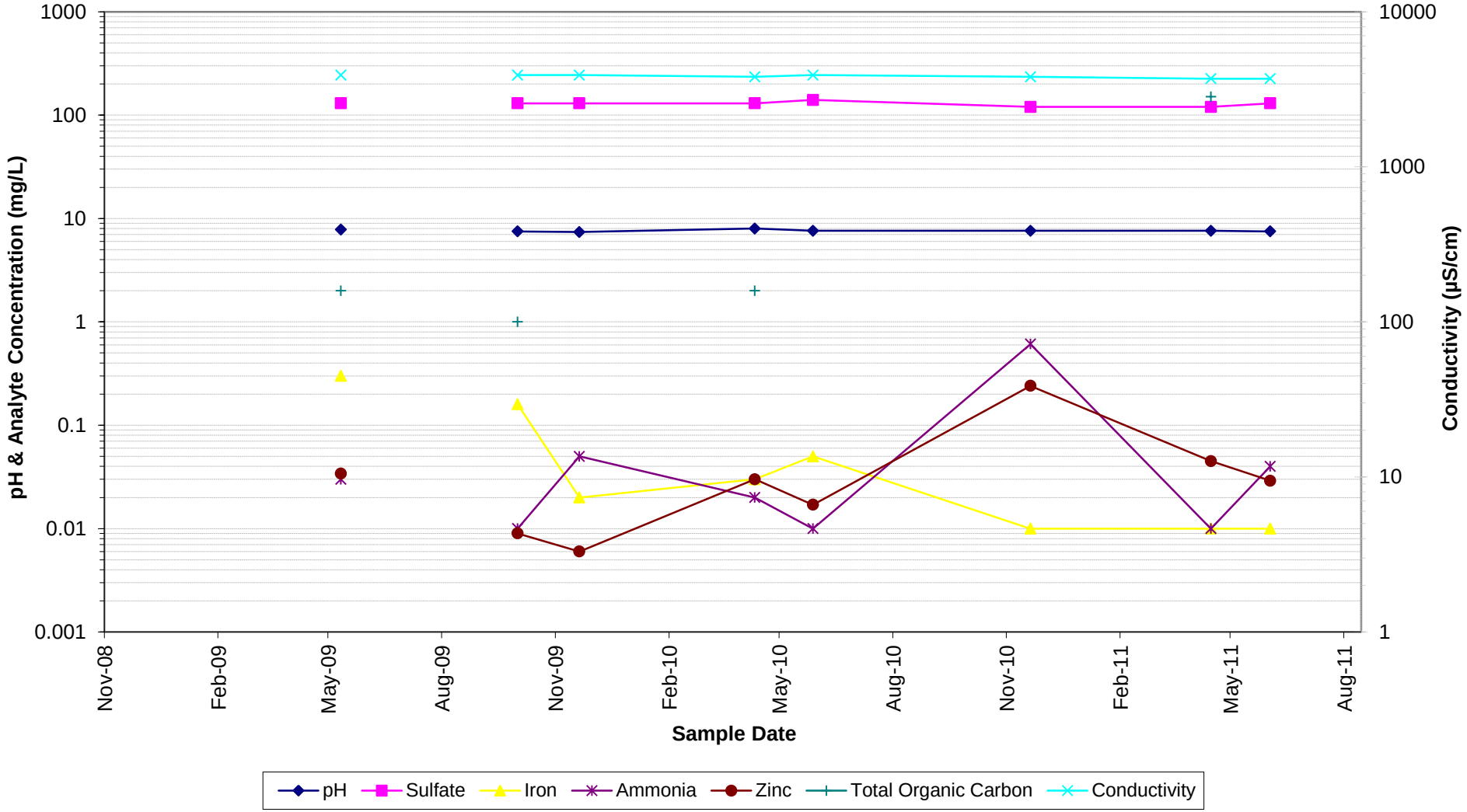


Figure 25 - Groundwater Trends - MB10

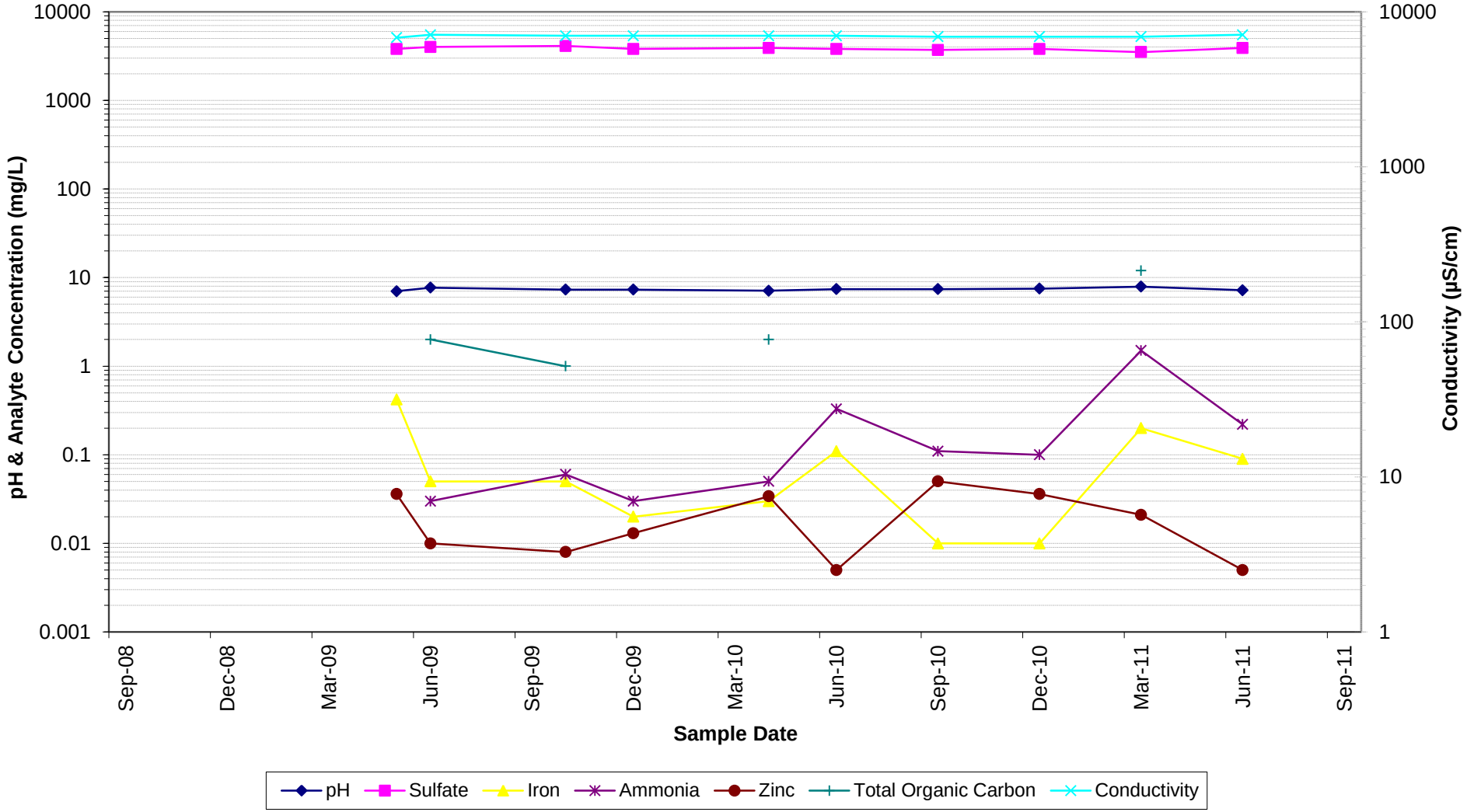


Figure 26 - Groundwater Trends - MB11

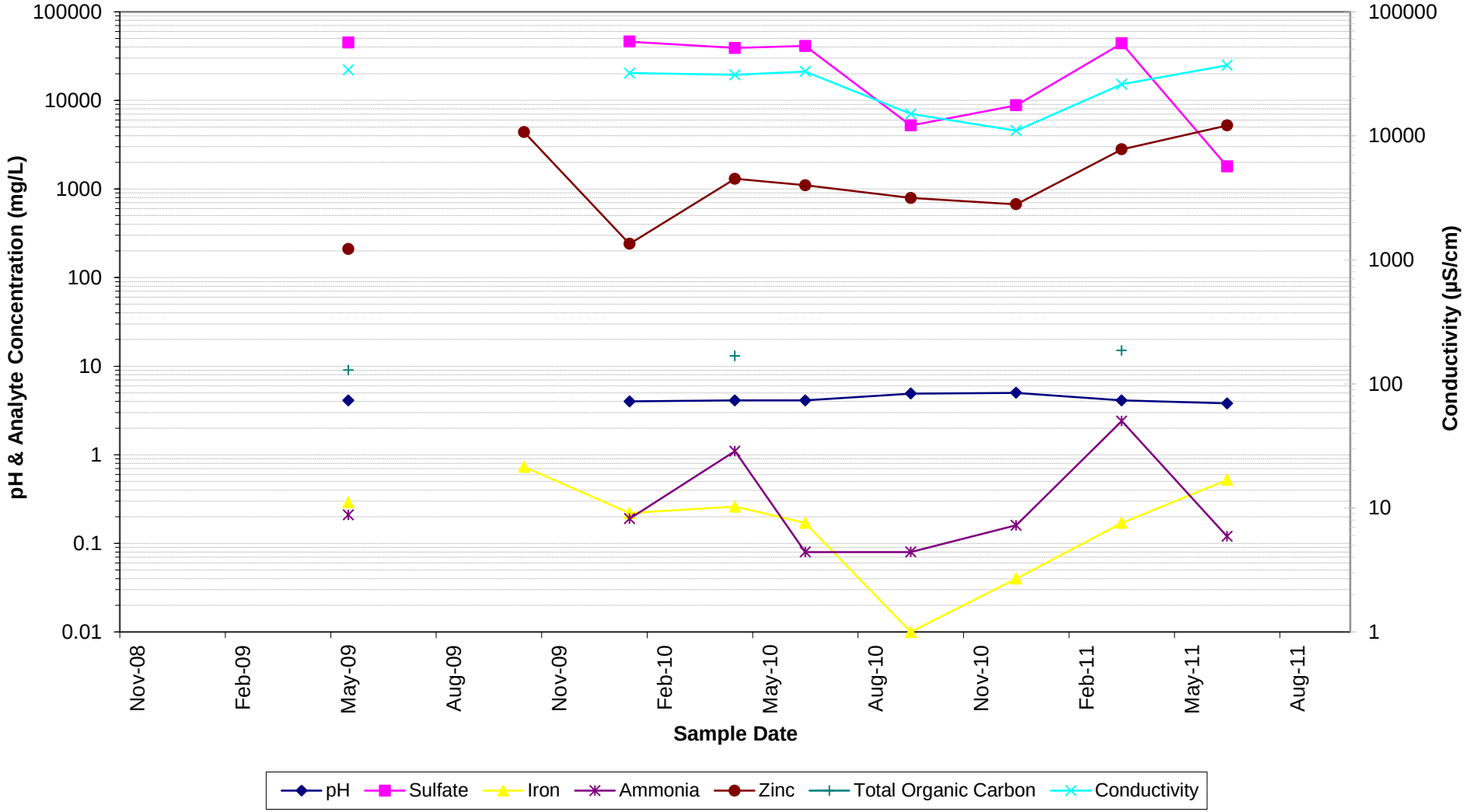


Figure 27 - Groundwater Trends - MB12

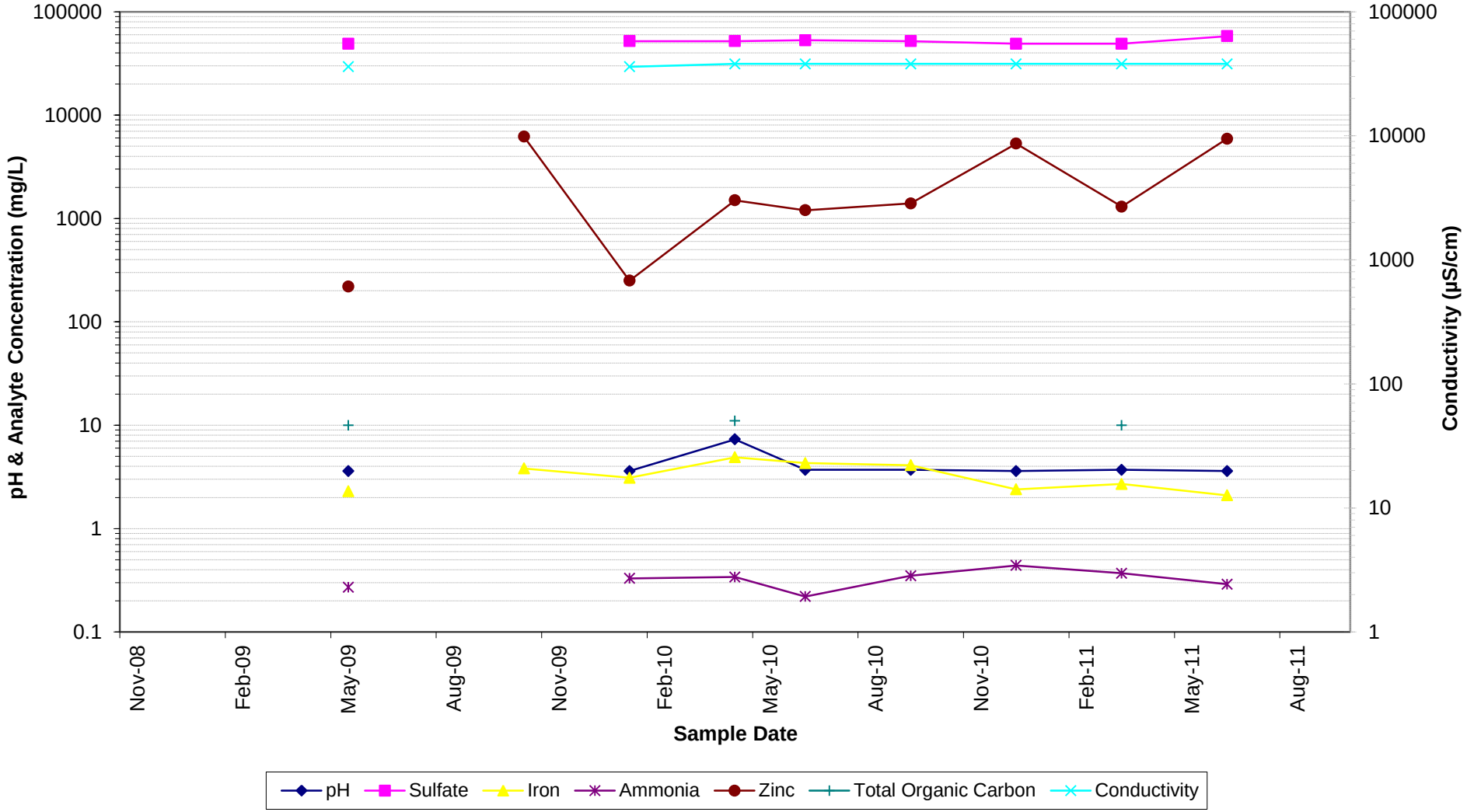


Figure 28 - Groundwater Trends - MB13

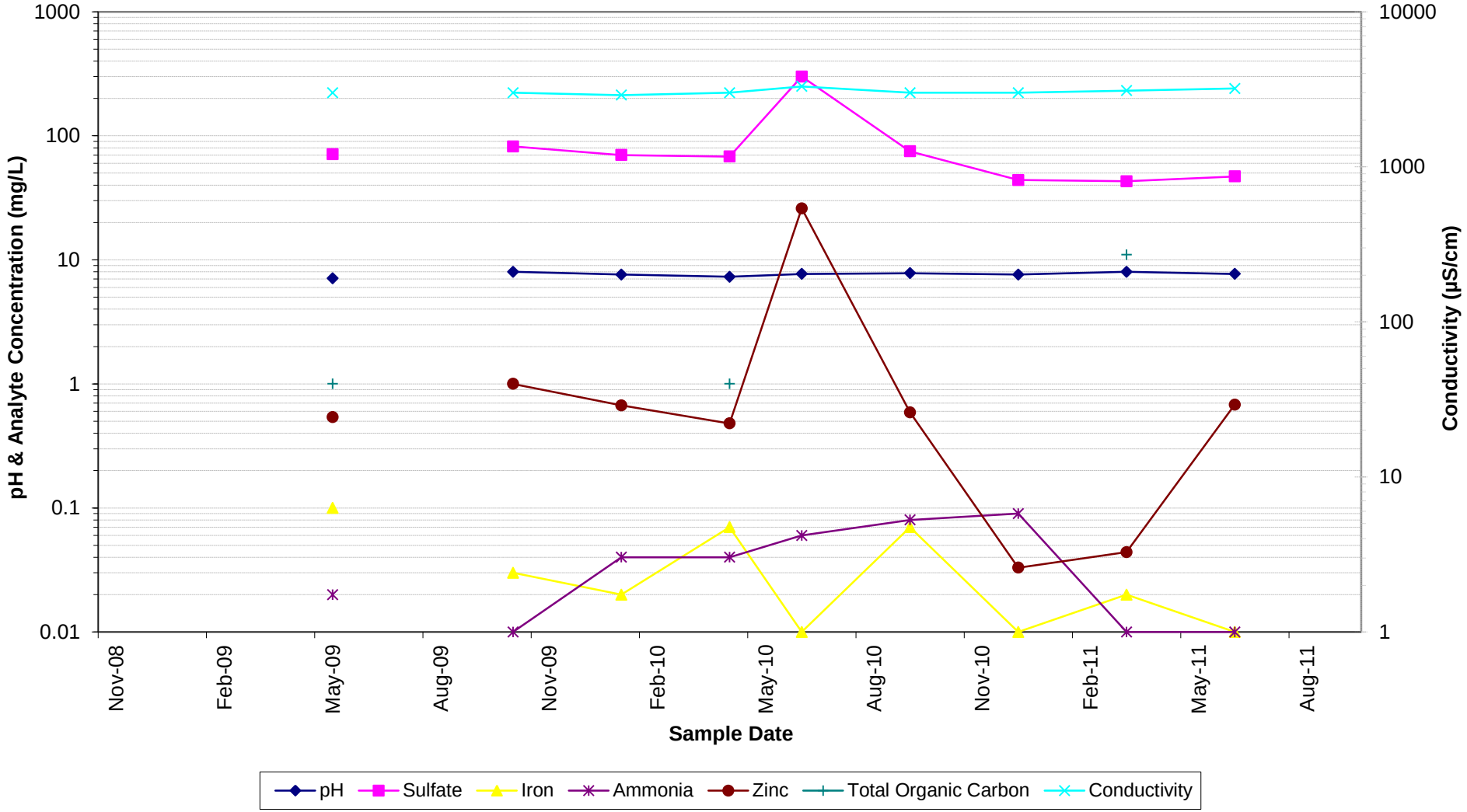


Figure 29 - Groundwater Trends - MB14

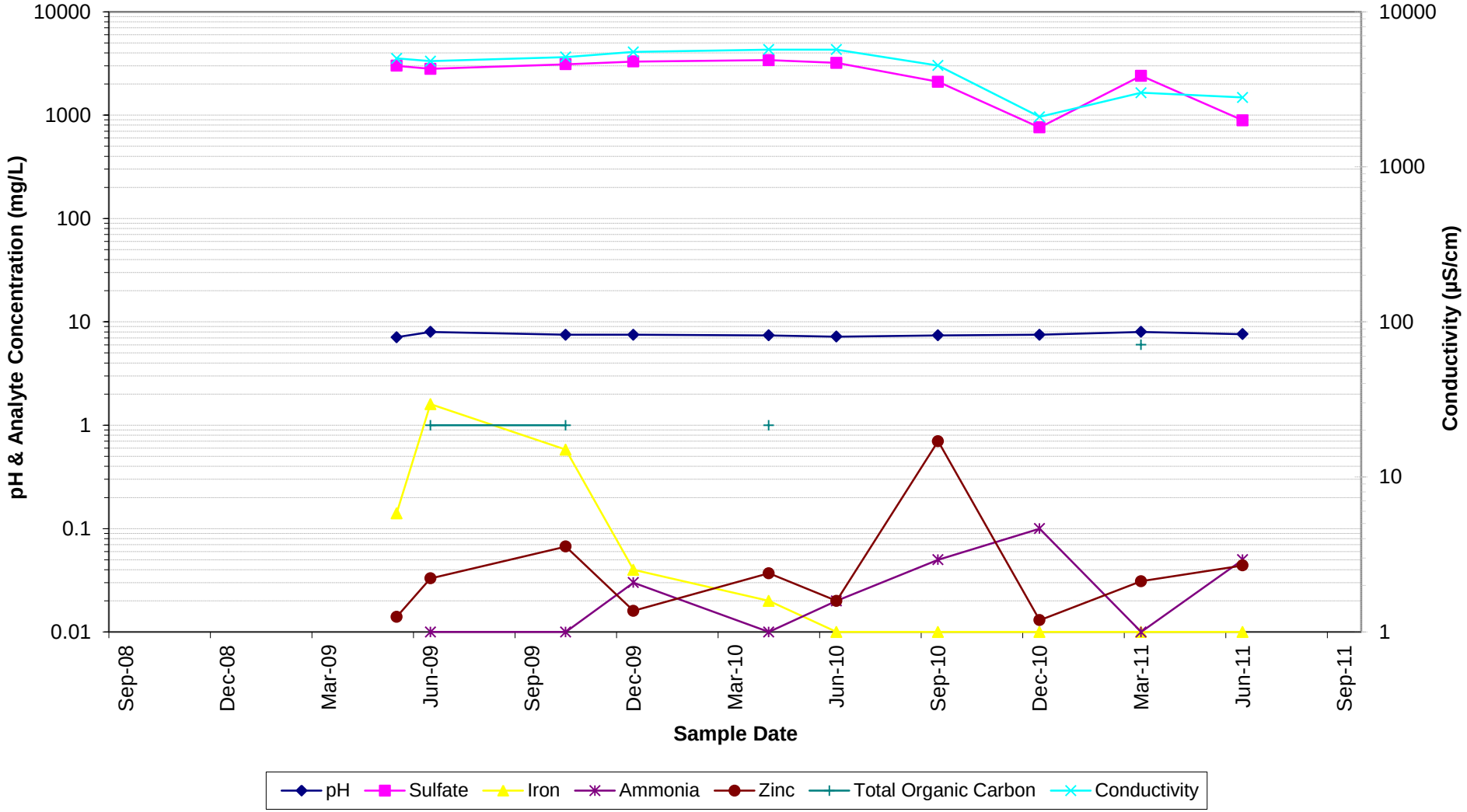


Figure 30 - Groundwater Trends - MB15

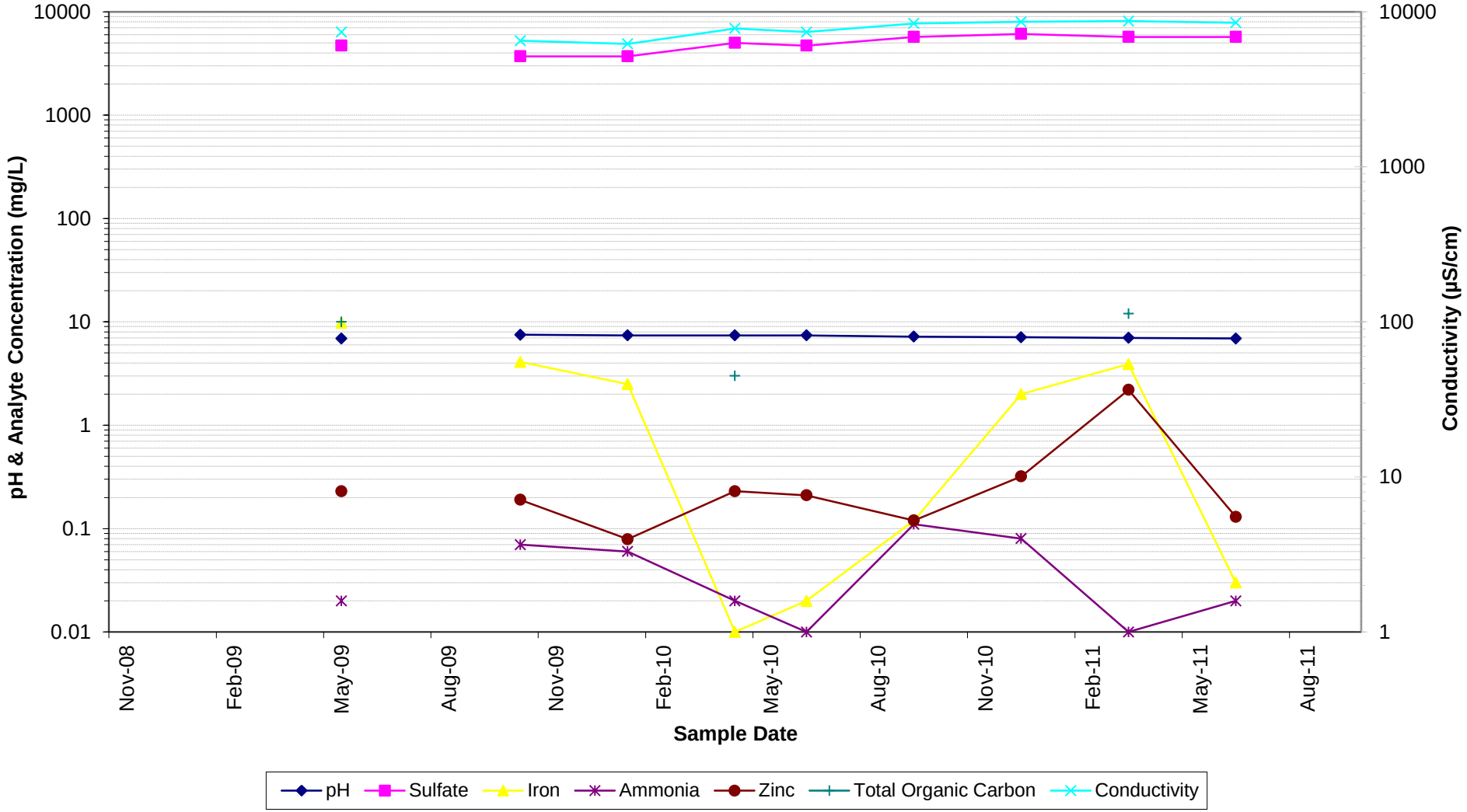


Figure 31 - Groundwater Trends - MB16

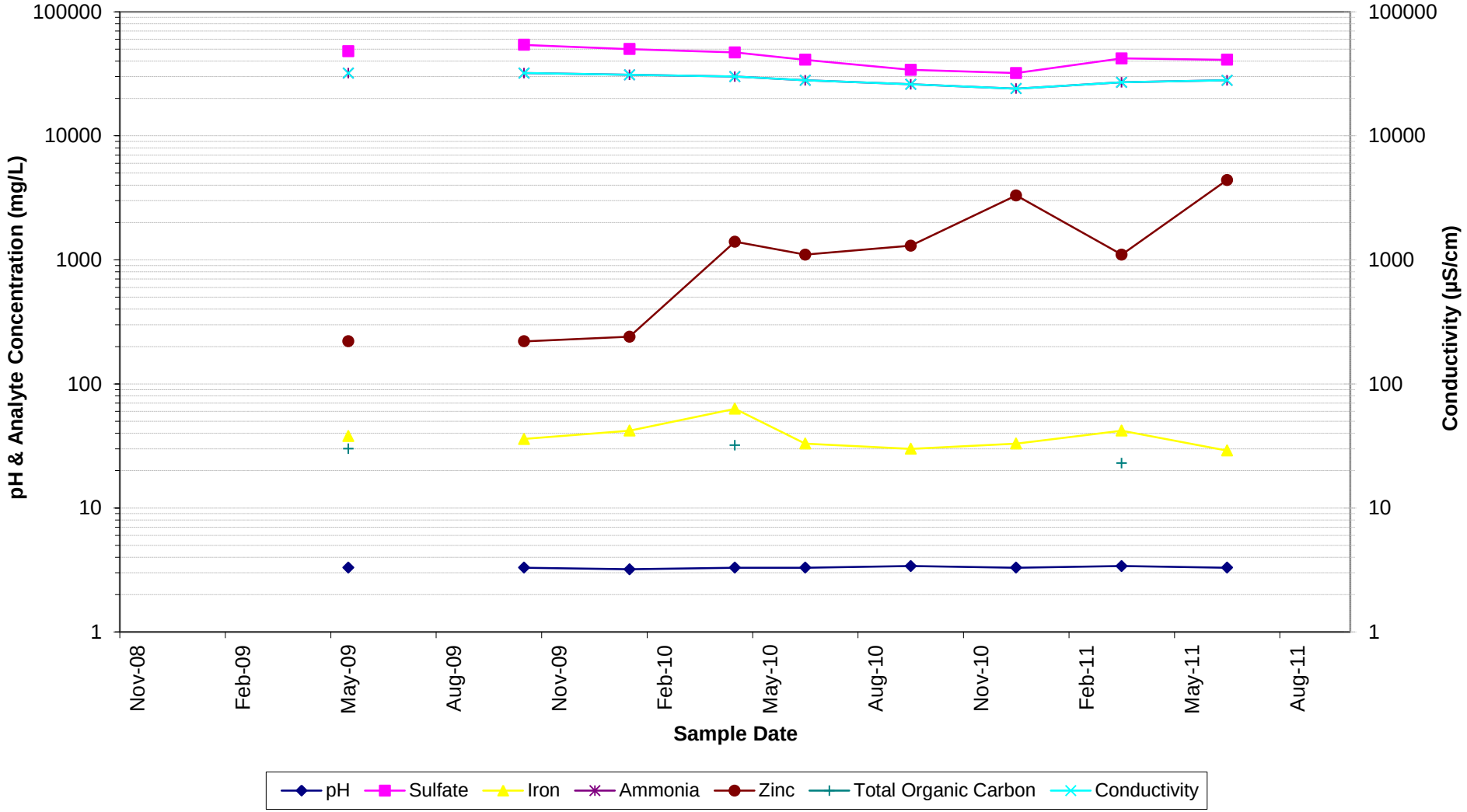


Figure 32 - Groundwater Trends - MB17

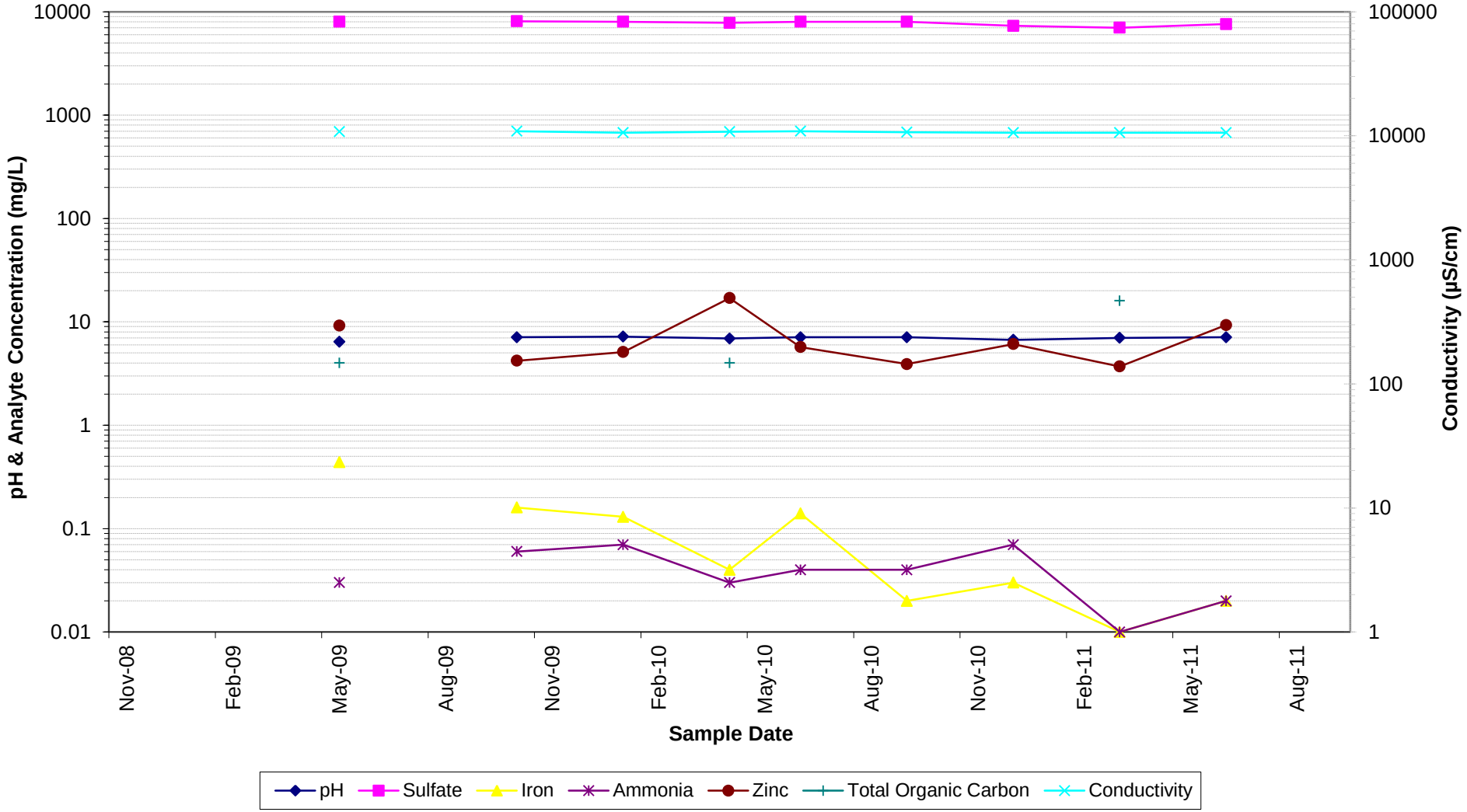


Figure 33 - Groundwater Trends - ED3B

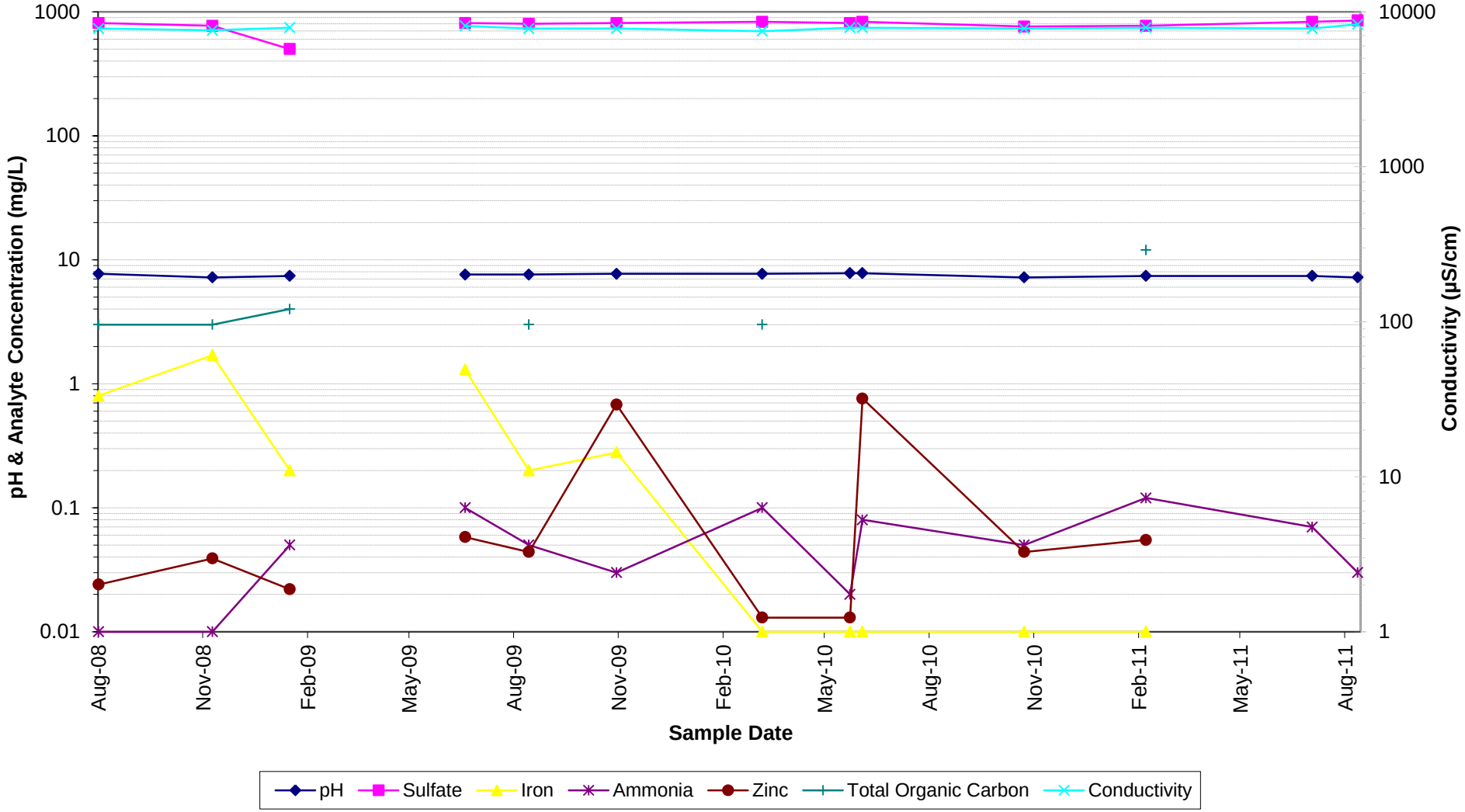


Figure 34 - Groundwater Trends - WM1

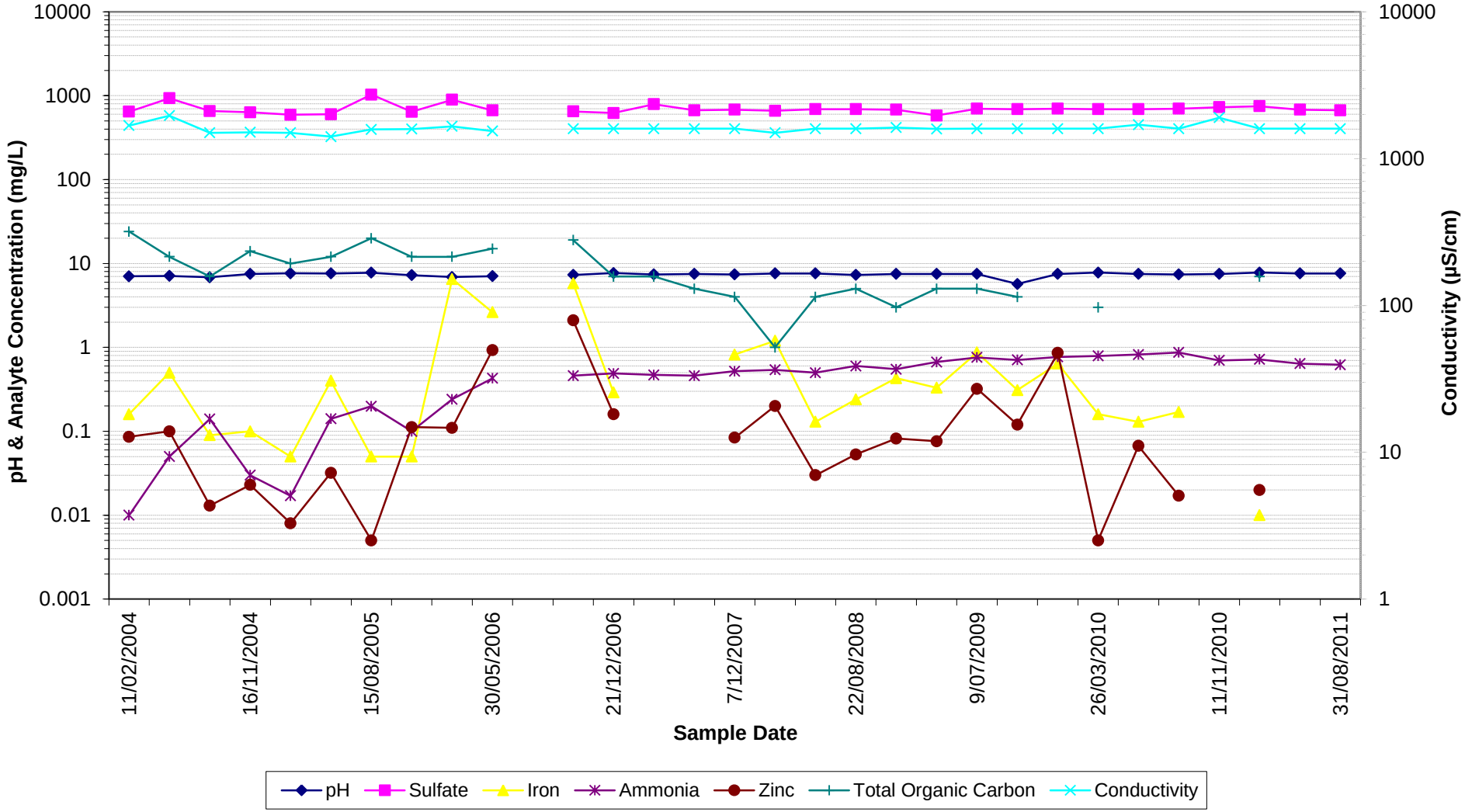


Figure 35 - Groundwater Trends - WM3

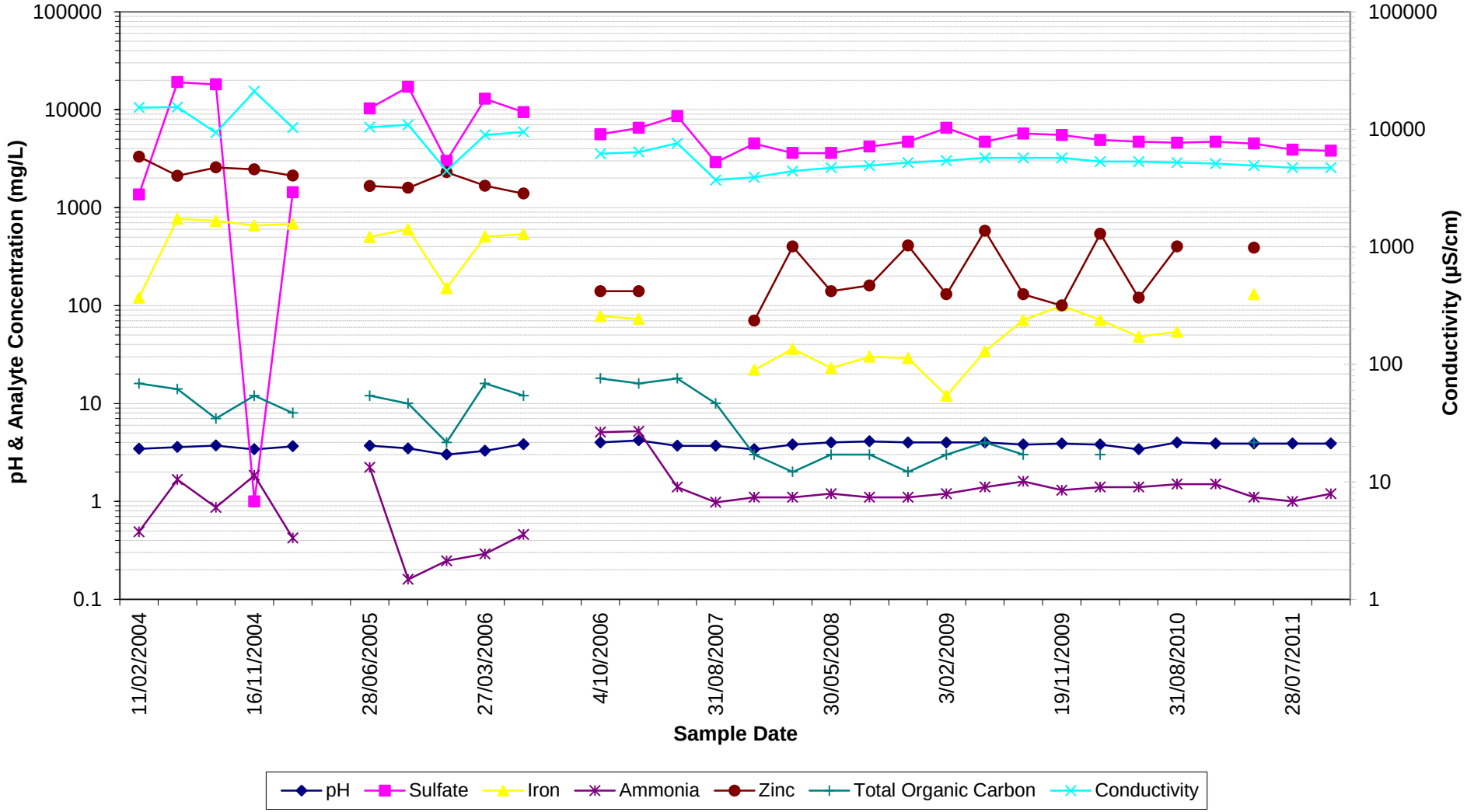


Figure 36 - Groundwater Trends - WM4

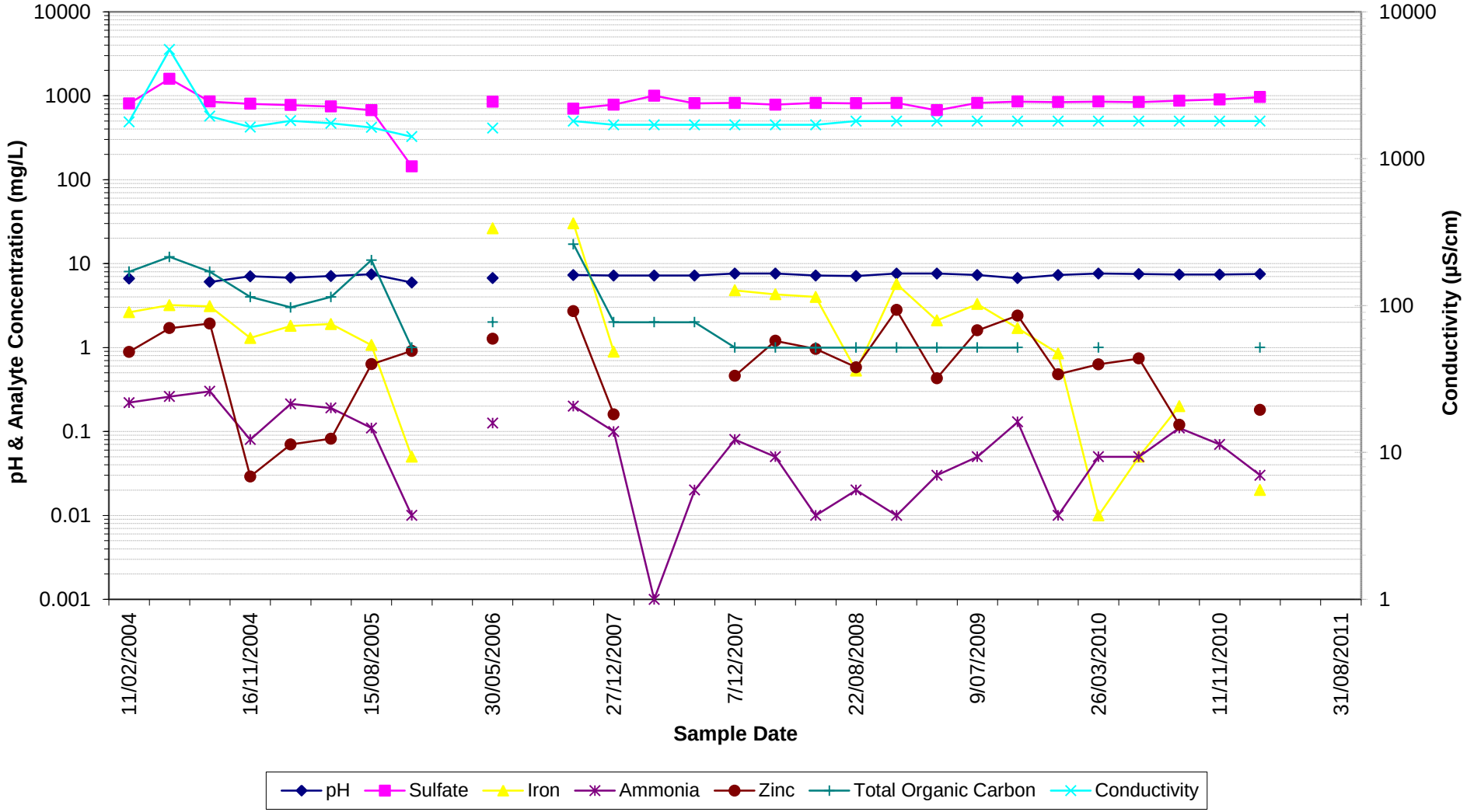


Figure 37 - Groundwater Trends - WM5

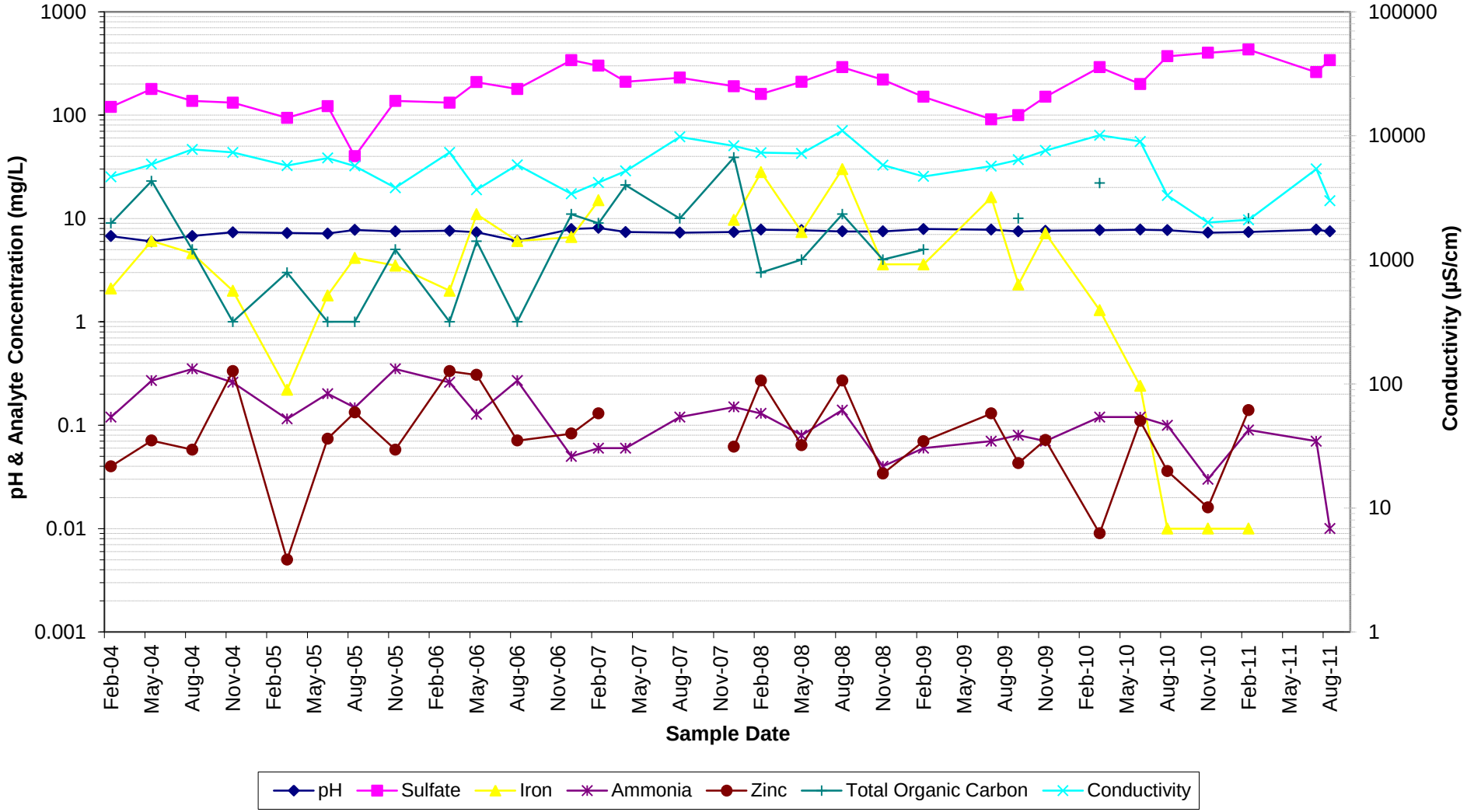


Figure 38 - Groundwater Trends - WM6

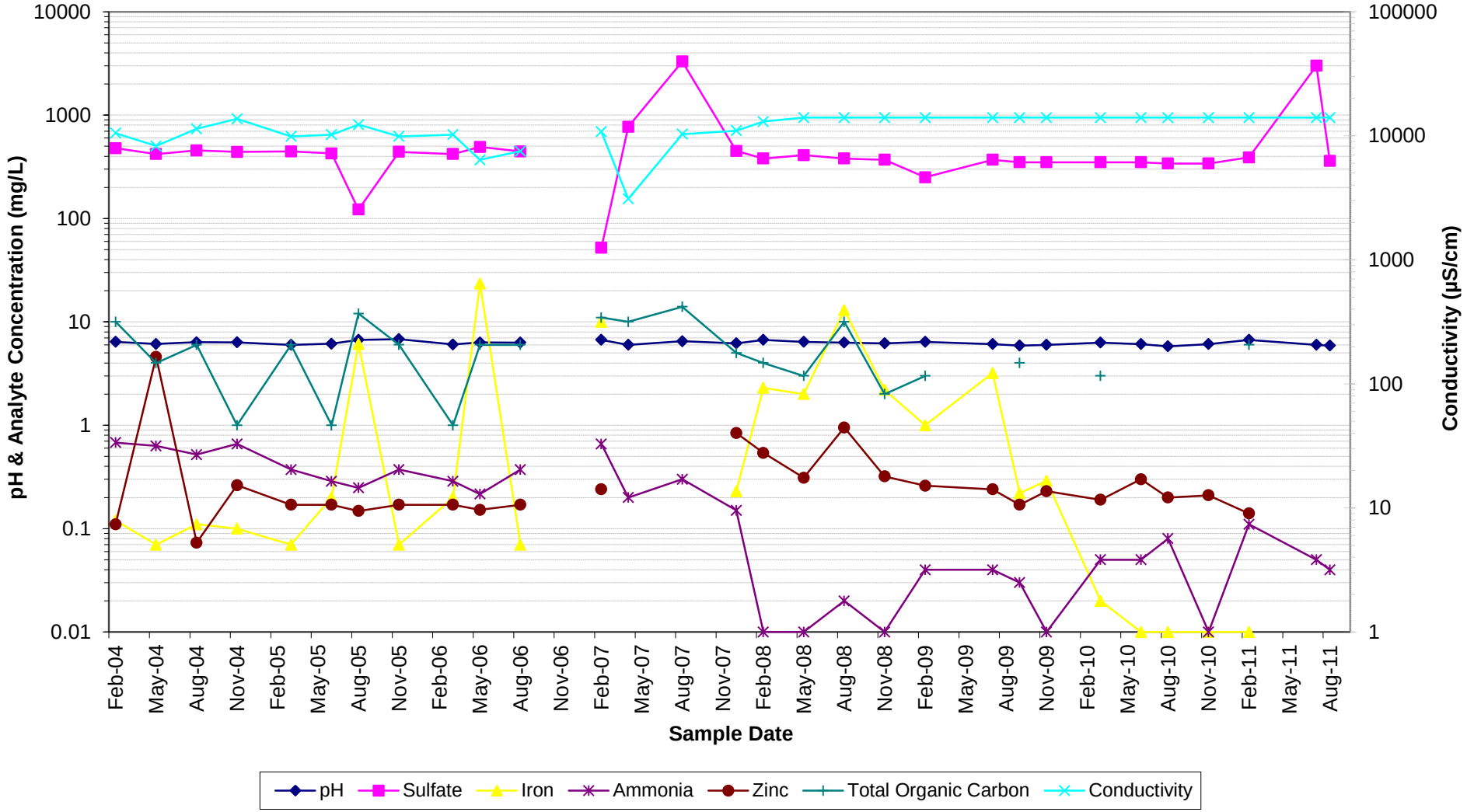


Figure 39 - Groundwater Trends - MW8S

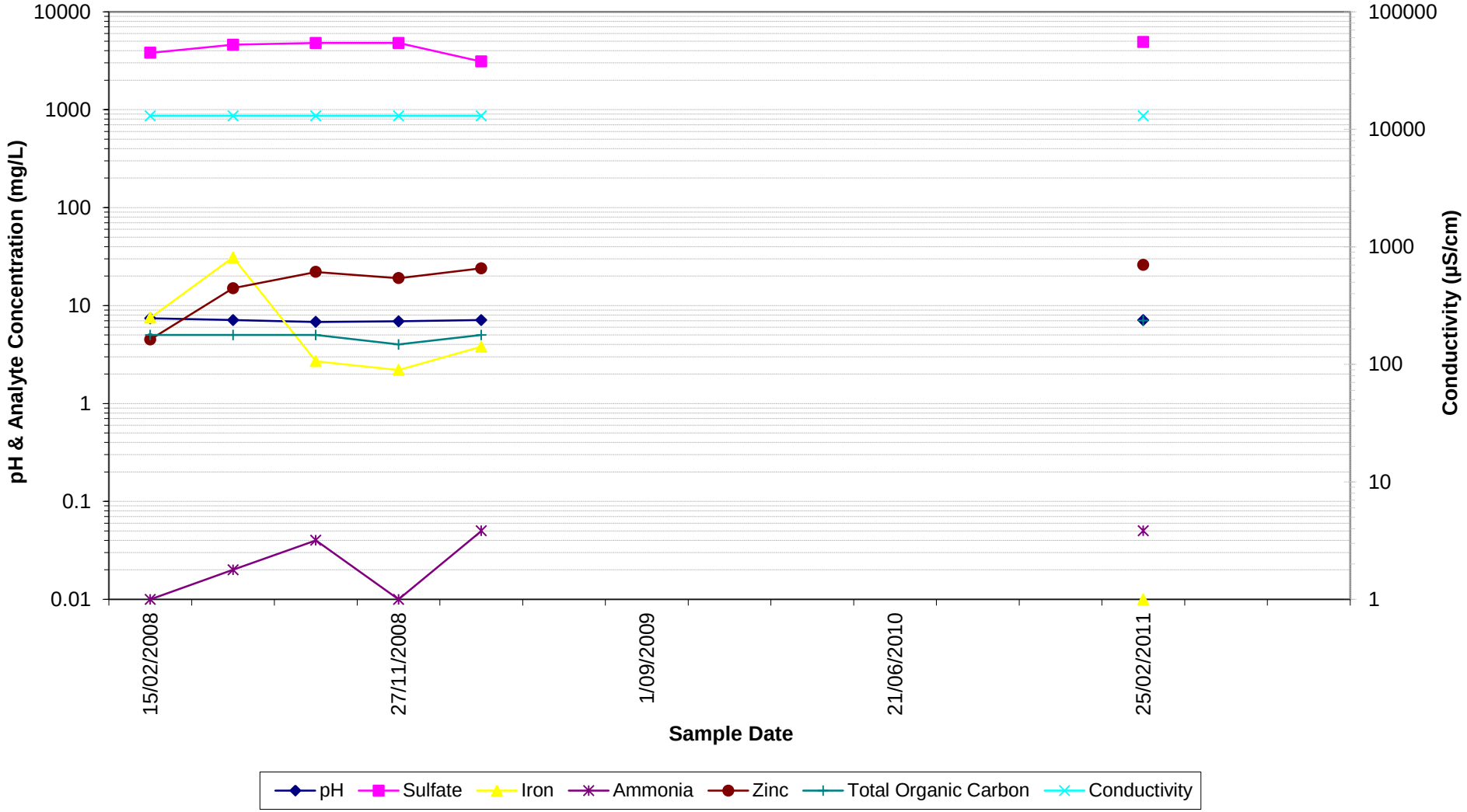


Figure 40 - Groundwater Trends - MW8D

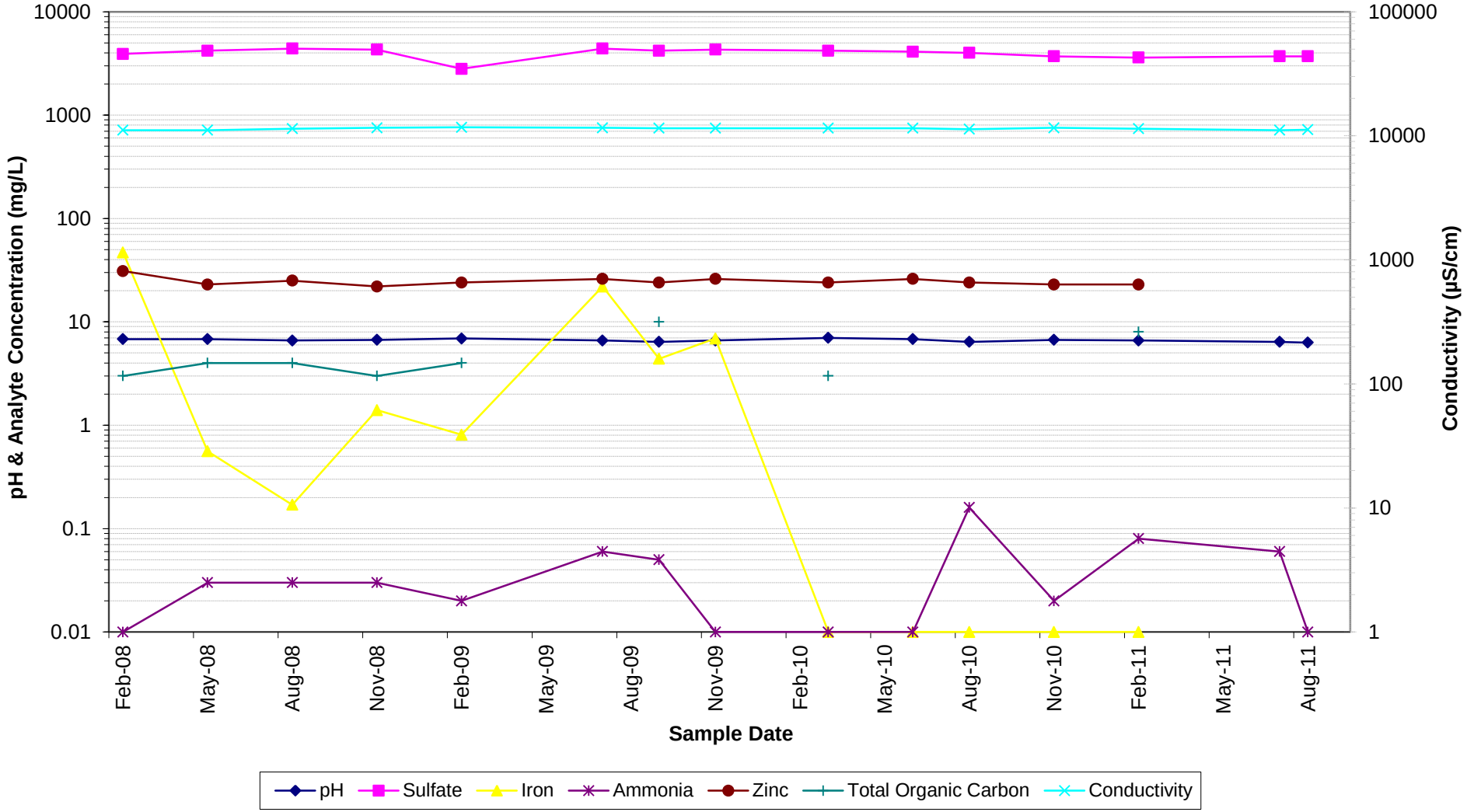


Figure 41 - Groundwater Trends - MW9S

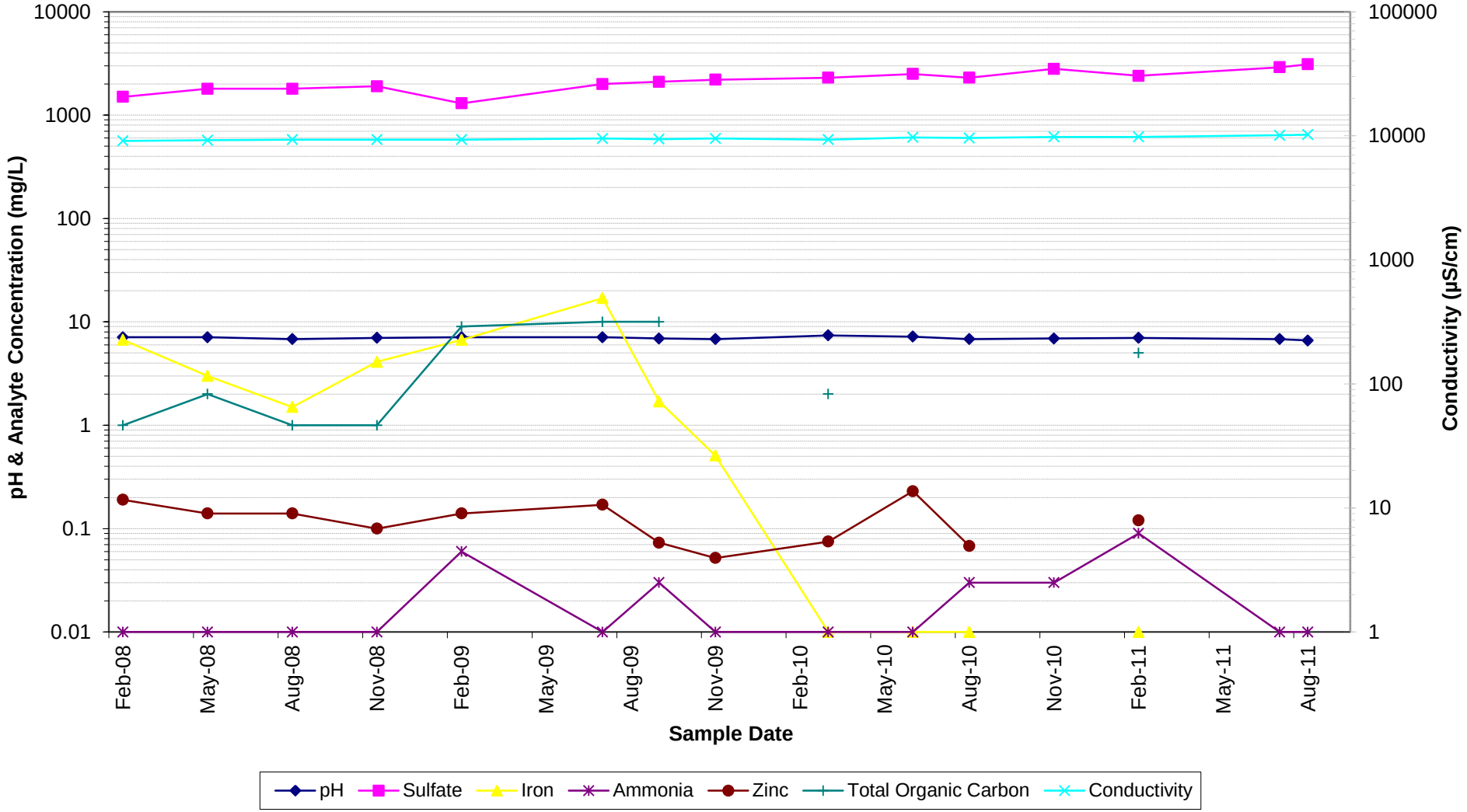


Figure 42 - Piezometer Levels - P44 - P100

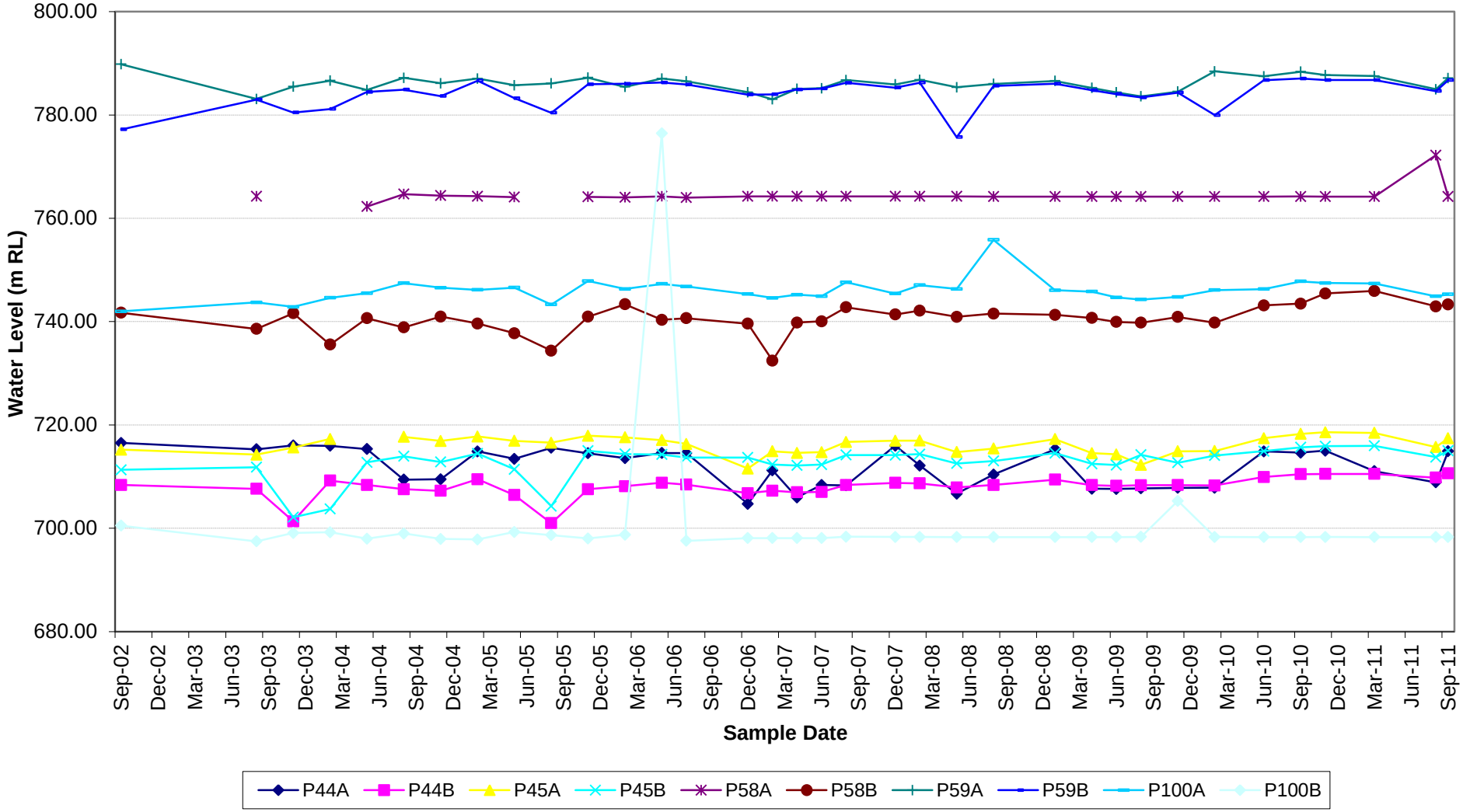


Figure 43 - Evaporation Dam 3 Volume

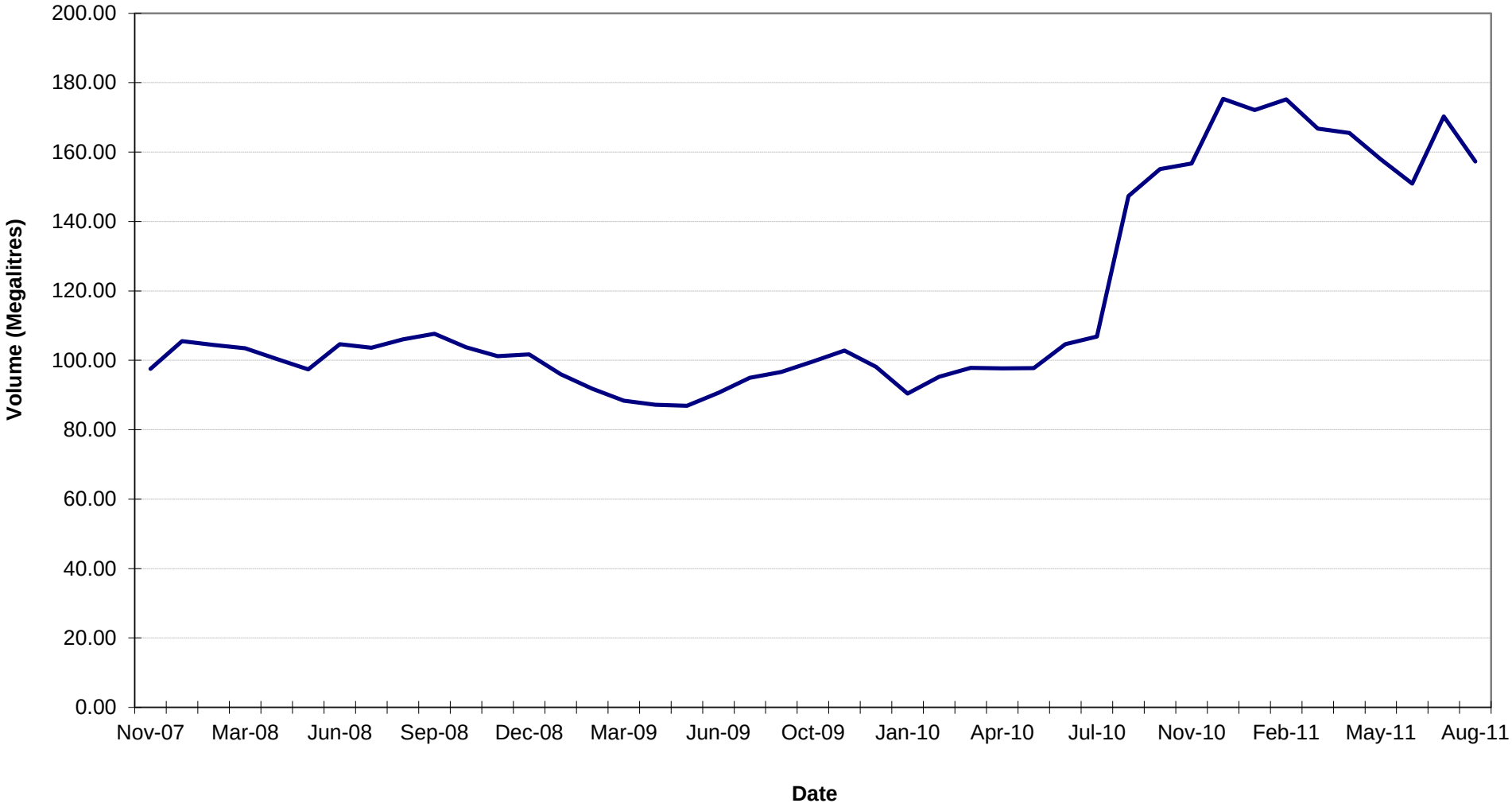


Figure 44 - IMF Surface Water Trends - Site 110

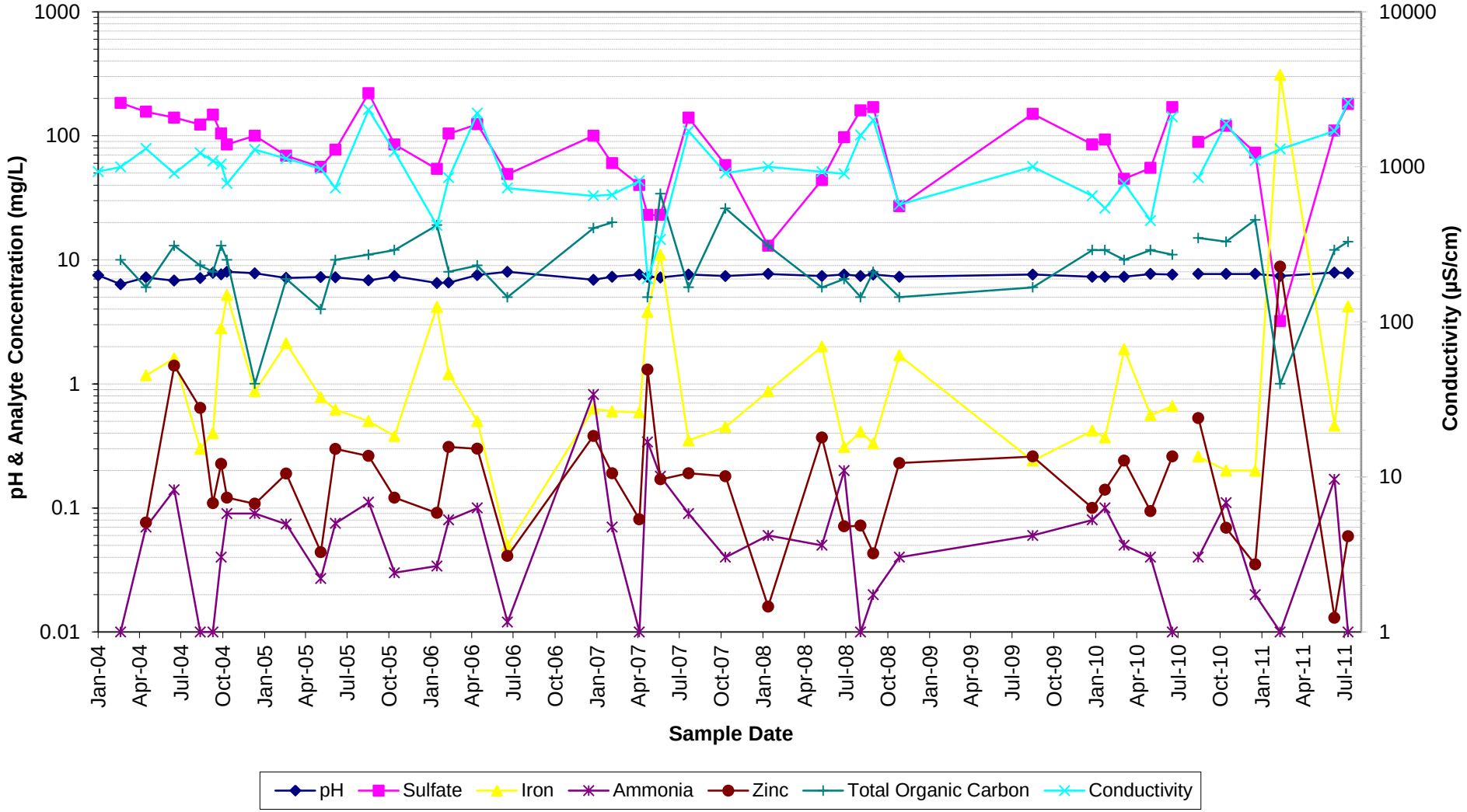


Figure 45 - IMF Surface Water Trends - Site 130

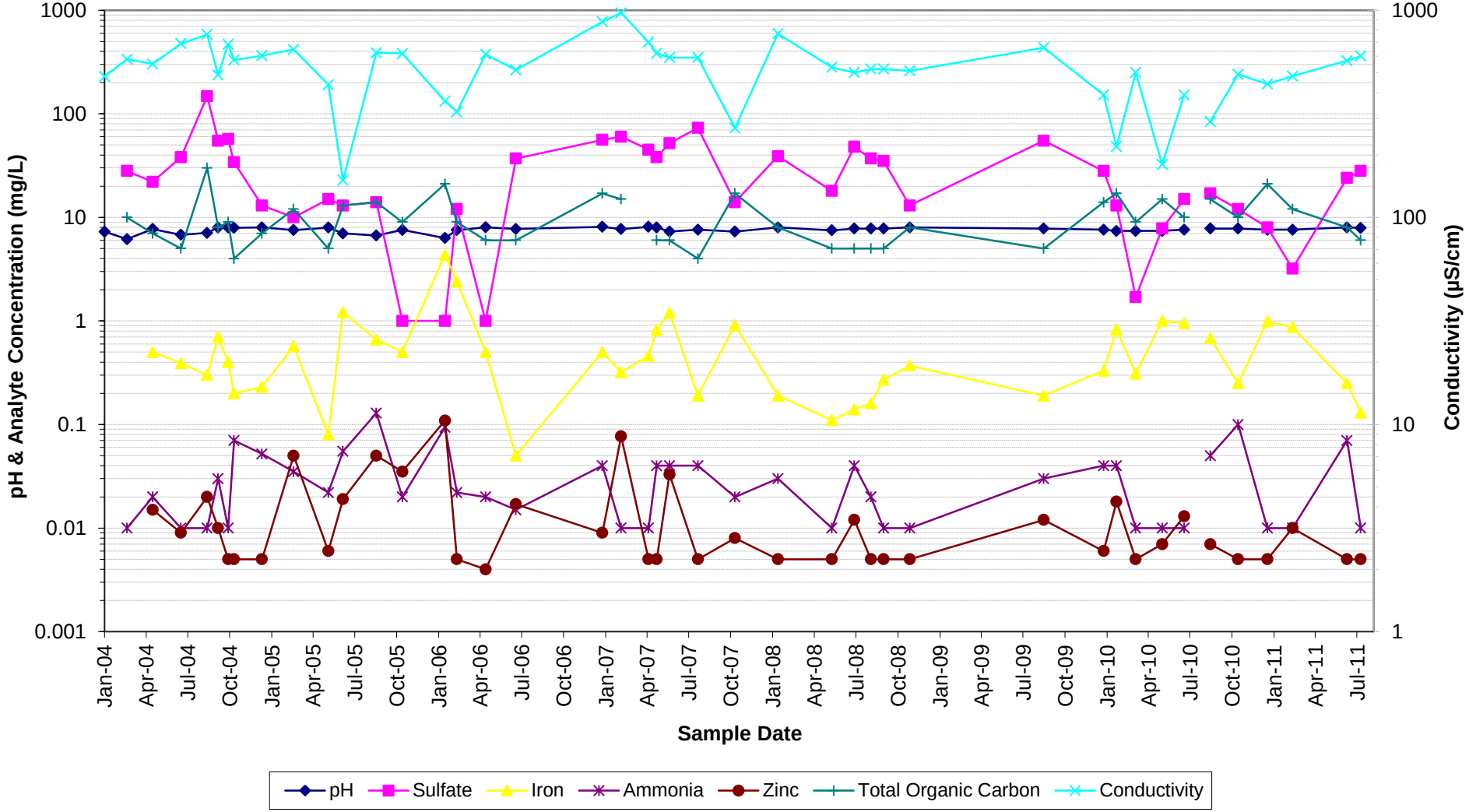


Figure 46 - IMF Surface Water Trends - Site 150

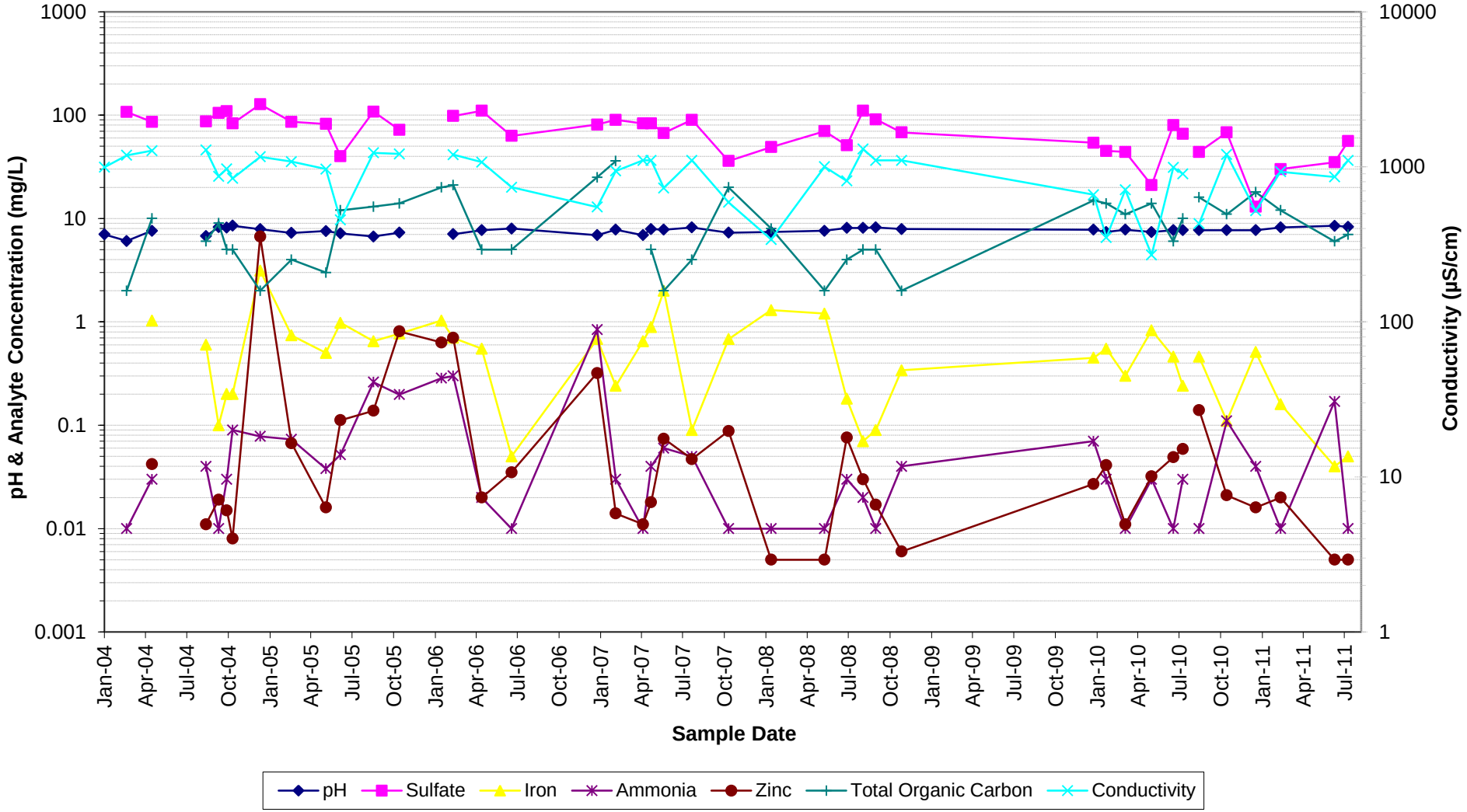


Figure 47 - IMF Surface Water Trends - First Flush

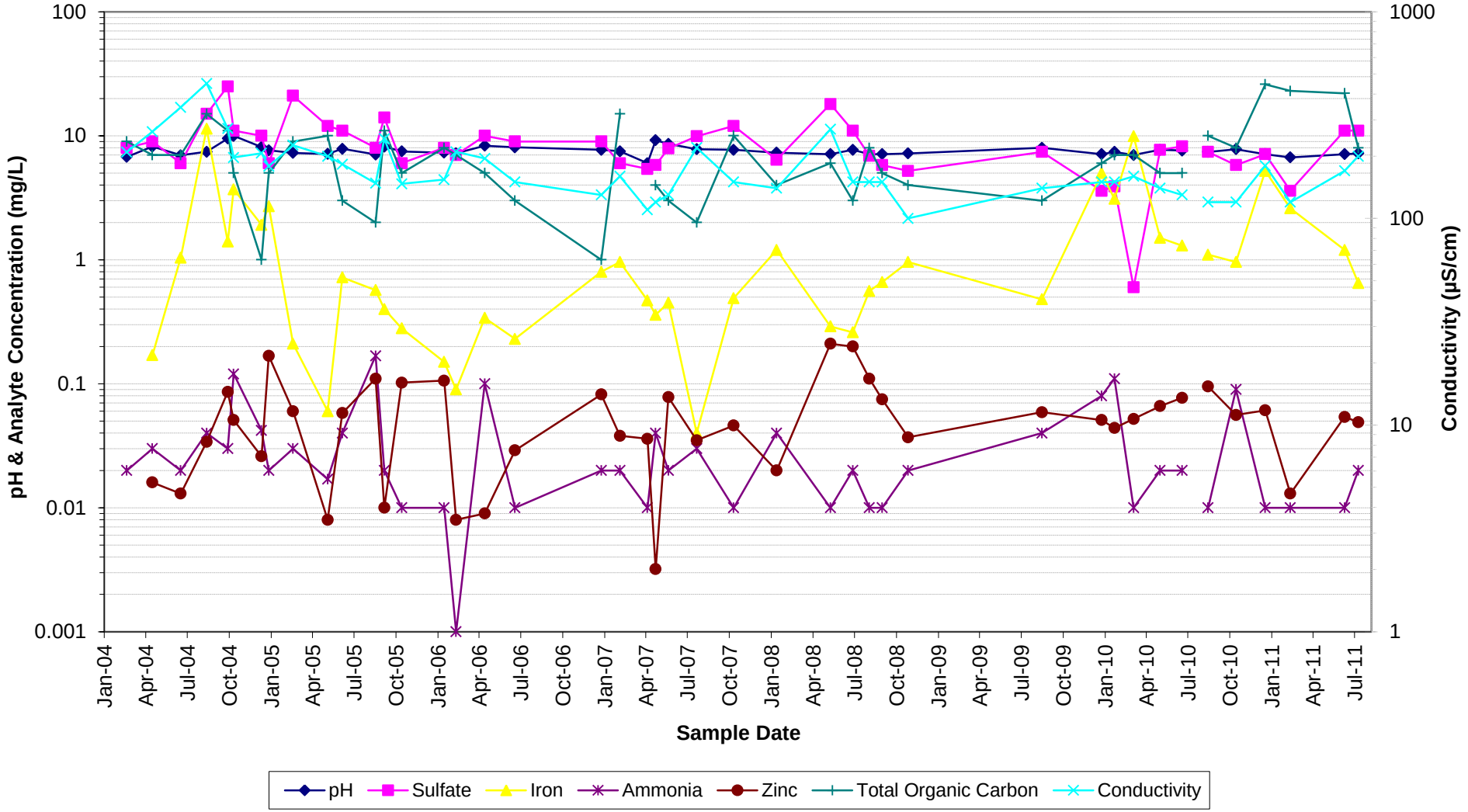
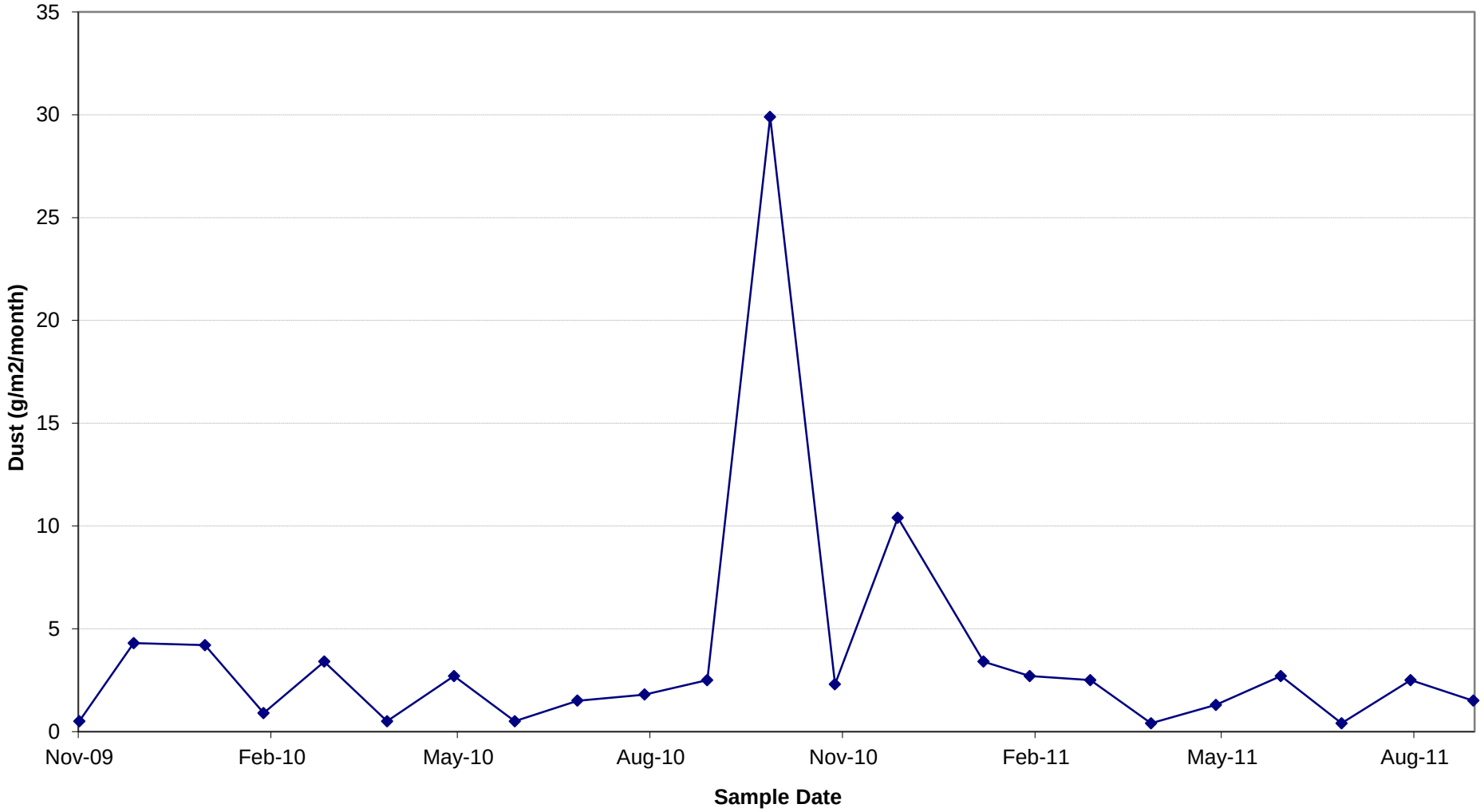


Figure 48 - IMF Depositional Dust Trends - DG18



TABLES

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T-1 - Complaints Register

No.	Date	Time	Complaint	Name of Complainant	Location	VES Response
1	13/09/2010	12.25pm	Odour			Phoned complainant
2	28/09/2010	3.52pm	Odour			Notified from EPA
3	29/09/2010	10.00pm	Odour			Phoned complainant
4	8/10/2010	12.00pm	Odour			Phoned complainant
5	18/10/2010	8.30am	Odour			Notified from EPA
6	22/10/2010	7.45am	Odour			Notified from EPA
7	16/12/2010	10.30am	Odour			Phoned complainant
8	17/12/2010	11.00am	Odour			Phoned complainant
9	31/12/2010	9.00am	Odour			Phoned complainant
10	13/01/2011	1.50pm	Odour			Phone
11	30/01/2011	7.00pm	Odour			Notified from EPA
12	2/02/2011	8.15am	Odour			Phoned complainant
13	7/02/2011	9.30am	Odour			Spoke to complainant
14	14/02/2011	7.15am	Odour			Spoke to complainant
15	20/02/2011	7.00am	Odour			Notified from EPA
16	24/02/2011	9.45am	Odour			Spoke to complainant
17	24/02/2011	7.00am	Odour			Notified from EPA
18	24/02/2011	9.40am	Odour			Spoke to complainant
19	24/02/2011	10am	Odour			Spoke to complainant
20	24/02/2011	8.30am	Odour			Spoke to complainant
21	24/02/2011	8.15am	Odour			Spoke to complainant
22	25/02/2011	9.45am	Odour			Spoke to complainant
23	13/03/2011	8.00pm	Odour			Notified from EPA
24	16/03/2011	10.00am	Odour			Spoke to complainant
25	30/03/2011	9.25am	Odour			Spoke to complainant
26	2/03/2011	2.10pm	Odour			Spoke to complainant
27	12/04/2011	9.35am	Odour			Spoke to complainant
28	2/05/2011	12.10pm	Odour			Spoke to complainant
29	28/06/2011	3.45pm	Odour			Spoke to complainant

T-2 - Subsurface Gas Results

	28/11/2008	6/01/2009	11/06/2009	20/08/2009	30/10/2009	23/02/2010	15/05/2010	30/07/2010	29/10/2010	2/02/2011	5/05/2011	4/08/2011
GMBH1*	0	0	0	0	0	0	0	0	0	0	0	0
GMBH2*	0	0	0	0	0	0	0	0	0	0	0	0
GMBH4*	0	0	0	0	0	0	0	0	0	0	0	0

	GMBH1	GMBH2	GMBH4
Min	0	0	0
Average	0	0	0
Max	0	0	0

* Note: Purged readings only

T-3 - Landfill Gas Extraction Booster Results

EPL 11436

Date	Carbon Dioxide	Dry Gas Density	Moisture Content	Molecular weight of stack gases	Oxygen	Temperature	Volatile Organic Compounds	Volumetric Flow rate	Volumetric Flow rate	Methane
	%	*%*	*%*	*mg/m3*	*%*	*Deg C*	*mg/m3*	*m3/hour*	*m3/sec*	*%*
28/10/2008	42.4	99	29.7	N/A	0	21.56	8.009	682	0.19	51.8
22/09/2009	42.05	99	25.44	N/A	0.01	24.83	9.25	928.25	0.26	47.23
1/06/2011	37.04			N/A	1.09	22.2		771.83	0.21	

OVERALL	Minimum		37.04	99	25.44	0	0	21.56	8.009	682	0.19	47.23
	Maximum		42.4	99	29.7	0	1.09	24.83	9.25	928.25	0.26	51.8
	Average		40.49667	99	27.57	#DIV/0!	0.36666667	22.86333333	8.6295	794.0266667	0.22	49.515
	StdDev		2.998672	0	3.012274888	#DIV/0!	0.626445	1.732983939	0.87751952	124.6165504	0.03	3.23147799
	Count		3	2	2	0	3	3	2	3	3.00	2

T-4 - Surface Gas Results

25/02/2011

Transect	Time	No of measurements	Min Methane (%)	Max Methane (%)	Average Methane (%)
1	9:10:00 AM	15	0	0.1	0.013
2		22	0	2	0.1
3		22	0	0.3	0.014
4		22	0	0.1	0.005
5		20	0	4	0.2
6		21	0	0.9	0.048
7		24	0	0.1	0.004
8		23	0	0	0
9		18	0	0	0
10		7	0	0	0
11	▼	7	0	0	0
12	12:20:00 PM	5	0	0	0
				Site Averag	**0.032**

12/05/2011

Transect	Time	No of measurements	Min Methane (%)	Max Methane (%)	Average Methane (%)
1	10:00:00 AM	13	0	2.3	0.41
2		26	0	0.7	0.027
3		28	0	0	0
4		30	0	0.1	0.006
5		34	0	1.3	0.054
6		26	0	0	0
7		30	0	1.5	0.05
8		27	0	0	0
9		24	0	0	0
10		16	0	0	0
11		13	0	0	0
12		11	0	0	0
13	▼	8	0	0	0
14	12:15:00 PM	7	0	0.2	0.029
				Site Averag	**0.041**

19/07/2011

Transect	Time	No of measurements	Min Methane (%)	Max Methane (%)	Average Methane (%)
1	12:30:00 PM	18	0.0085	2.5	0.41
2		28	0.0022	0.2	0.020
3		27	0.002	0.05	0.008
4		22	0.001	0.08	0.012
5		27	0.001	0.04	0.012
6		20	0.002	0.05	0.015
7		23	0.002	1.8	0.084
8		15	0.004	2.0	0.238
9		12	0.002	1.0	0.097
10		16	0.002	0.03	0.011
11	▼	8	0.007	0.04	0.014
12	2:30:00 PM	7	0.004	0.01	0.006
				Site Averag	**0.077**

22/08/2011

Transect	Time	No of measurements	Min Methane (%)	Max Methane (%)	Average Methane (%)
1	1:30:00 PM	18	0.004	0.06	0.04
2		15	0.006	0.16	0.030
3		13	0.002	0.16	0.05
4		12	0.001	0.07	0.02
5		12	0.003	0.02	0.01
6		8	0.003	0.07	0.02
7		8	0.006	0.03	0.01
8		8	0.002	0.04	0.01
9		11	0.002	0.07	0.03
10		9	0.002	0.1	0.02
11		8	0.002	0.03	0.01
12	▼	7	0.004	0.01	0.008
14	3:30:00 PM	6	0.006	0.02	0.009
				Site Averag	**0.021**

2010/2011

Max	0.077
Min	0.021
Mean	0.170926
St Dev	0.024507

T-5 - Landfill Gas Flare Results

Measurement	Units	Reading
Temperature	°C	1329.5
Residence Time	Seconds	0.3

T-6.1 - Landfill Gas Flare Results - Generator 1

								EPL Limit		EPL Limit						EPL Limit
								450		100						5
EPL 11436		Date	Carbon Dioxide	Carbon Monoxide	Dry Gas Density	Moisture Content	Molcular Weight Of Stack Gases	Nitrogen Oxides	Oxygen	Sulfuric Acid Mist & Sulfur Trioxides S03	Sulphur Dioxide	Temperature	Velocity	Volatile Organic Compounds	Volumetric Flowrate	Hydrogen Sulphide
			%	*mg/m3*	*kg/m3*	*%*	*gr/gr mole*	*mg/m3*	*%*	*mg/m3*	*mg/m3*	*Deg C*	*m/sec*	*mg/m3*	*m3/sec*	*mg/m3*
	Generator 1	3/04/2009	11.6	962	1.35	5.6	30.2	318	8.2	6.58	21	455	50.5	3.62	1.71	0.31
		10/02/2010	13.3	1073	1.36	5.3	30.472	400	8.2	10.4	3	475	46.4	1.74	1.59	0.37
		30/06/2011	10.4	1011	1.34	3.3	30.032	382	9.2	8.13	56	418	42.9	4.14	1.6	0.34
OVERALL	Minimum		10.4	962	1.34	3.3	30.032	318	8.2	6.58	3	418	42.9	1.74	1.59	0.31
	Maximum		13.3	1073	1.36	5.6	30.472	400	9.2	10.4	56	475	50.5	4.14	1.71	0.37
	Average		11.77	1015.33	1.35	4.73	30.23	366.67	8.53	8.37	26.67	449.33	46.60	3.17	1.63	0.34
	StdDev		1.46	55.63	0.01	1.25	0.22	43.10	0.58	1.92	26.95	28.92	3.80	1.26	0.07	0.03
	Count		3	3	3	3	3	3	3	3	3	3	3	3	3	3

Note: A TAN coloured cell indicates that the indicated value is LESS THAN (<) indicated

T-6.2 - Landfill Gas Flare Results - Generator 2

								EPL Limit		EPL Limit						EPL Limit
								450		100						5
EPL 11436		Date	Carbon Dioxide	Carbon Monoxide	Dry Gas Density	Moisture Content	Molcular Weight Of Stack Gases	Nitrogen Oxides	Oxygen	Sulfuric Acid Mist & Sulfur Trioxides S03	Sulphur Dioxide	Temperature	Velocity	Volatile Organic Compounds	Volumetric Flowrate	Hydrogen Sulphide
			%	mg/m3	kg/m3	%	gr/gr mole	mg/m3	%	mg/m3	mg/m3	Deg C	m/sec	mg/m3	m3/sec	mg/m3
	Generator 2	8/12/2008	9.3	674	1.31	6.2	29.4	449	10	7.88	10	437	44.7	4.17	1.55	
		23/06/2010	13.4	799	1.36	5.4	30.48	411	8.4	4.23	3	368	41.7	0.086	1.61	0.36
		30/06/2011	11.4	750	1.35	4.8	30.152	402	8.2	8.89	109	415	43.6	4.1	1.59	0.33
OVERALL	Minimum		9.30	674.00	1.31	4.80	29.40	402.00	8.20	4.23	3.00	368.00	41.70	0.09	1.55	0.33
	Maximum		13.40	799.00	1.36	6.20	30.48	449.00	10.00	8.89	109.00	437.00	44.70	4.17	1.61	0.36
	Average		11.37	741.00	1.34	5.47	30.01	420.67	8.87	7.00	40.67	406.67	43.33	2.79	1.58	0.35
	StdDev		2.05	62.98	0.03	0.70	0.55	24.95	0.99	2.45	59.28	35.25	1.52	2.34	0.03	0.02
	Count		3	3	3	3	3	3	3	3	3	3	3	3	3	2

Note: A TAN coloured cell indicates that the indicated value is LESS THAN (<) indicated

T-6.3 - Landfill Gas Flare Results - Generator 3

								EPL Limit		EPL Limit						EPL Limit
								450		100						5
EPL 11436		Date	Carbon Dioxide	Carbon Monoxide	Dry Gas Density	Moisture Content	Molcular Weight Of Stack Gases	Nitrogen Oxides	Oxygen	Sulfuric Acid Mist & Sulfur Trioxides S03	Sulphur Dioxide	Temperature	Velocity	Volatile Organic Compounds	Volumetric Flowrate	Hydrogen Sulphide
			%	*mg/m3*	*kg/m3*	%	*gr/gr mole*	*mg/m3*	%	*mg/m3*	*mg/m3*	*Deg C*	*m/sec*	*mg/m3*	*m3/sec*	*mg/m3*
	Generator 3	8/04/2010	7.5	304	1.35	6	30.138	322	14.7	6.25	3	345	46.2	0.09	1.89	0.288
		30/06/2011	10.5	869	1.34	3.8	30.04	317	9	11.1	120	438	48.7	25	1.75	0.33
	OVERALL	Minimum	7.50	304.00	1.34	3.80	30.04	317.00	9.00	6.25	3.00	345.00	46.20	0.09	1.75	0.29
		Maximum	10.50	869.00	1.35	6.00	30.14	322.00	14.70	11.10	120.00	438.00	48.70	25.00	1.89	0.33
		Average	9.00	586.50	1.35	4.90	30.09	319.50	11.85	8.68	61.50	391.50	47.45	12.55	1.82	0.31
		StdDev	2.12	399.52	0.01	1.56	0.07	3.54	4.03	3.43	82.73	65.76	1.77	17.61	0.10	0.03
		Count	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Note: A TAN coloured cell indicates that the indicated value is LESS THAN (<) indicated

T-7.1 - Dust Deposition Results - DG22

Site Name	ALS Batch Code	Date	Total Solids	Soluble Matter	Insoluble Solids	Combustibles	Ash Residue	Calculated Rainfall
			g/m2/mth	g/m2/mth	g/m2/mth	g/m2/mth	g/m2/mth	mm
DG22	EN1002509	Sep-10	3.9	0.2	3.7	0.2	3.5	82
DG22	EN1002728	Oct-10	4.4	1.3	3.1	0.5	2.6	99
DG22	EN1002952	Nov-10	2.5	1.6	0.9	0.1	0.8	118
DG22	EN1100159	Dec-10	2.6	0.4	2.2	0.2	2	114
DG22	EN1100361	Jan-11	3.9	2.7	1.2	0.1	1.1	27
DG22	EN1100559	Feb-11	4.1	2.5	1.6	0.2	1.4	88
DG22	EN1100805	Mar-11	3.4	2.6	0.8	0.1	0.8	60
DG22	EN1101031	Apr-11	0.5	0.1	0.5	0.1	0.5	24
DG22	EN1101473	May-11	1.8	0.9	0.9	0.1	0.8	37
DG22	EN1101764	Jun-11	4.7	2.7	2	0.2	1.8	33
DG22	EN1102786	Jul-11	4.5	2.6	1.9	0.1	1.8	36
DG22	EN1102787	Aug-11	3.6	2.5	1.1	0.1	1.1	85
2010/2011		Min	0.5	0.1	0.5	0.1	0.5	24
		Avg	3.33	1.68	1.66	0.17	1.52	66.92
		Max	4.7	2.7	3.7	0.5	3.5	118
		stDev	1.25	1.05	0.98	0.12	0.88	34.82

T-7.2 - Dust Deposition Results - DG24

Site Name	ALS Batch Code	Date	Total Solids	Soluble Matter	Insoluble Solids	Combustibles	Ash Residue	Calculated Rainfall
			g/m2/mth	g/m2/mth	g/m2/mth	g/m2/mth	g/m2/mth	mm
DG24	EN1002509	Sep-10	3.6	1.6	2	0.3	1.7	73
DG24	EN1002728	Oct-10	2.9	0.6	2.3	0.5	1.8	97
DG24	EN1002952	Nov-10	4.2	3.3	0.9	0.2	0.7	109
DG24	EN1100159	Dec-10	6.5	1.6	4.9	0.8	4.1	114
DG24	EN1100361	Jan-11	5.5	3.3	2.2	0.6	1.6	19
DG24	EN1100559	Feb-11	10.6	7.8	2.8	0.4	2.4	88
DG24	EN1100805	Mar-11	7.4	5.7	1.7	0.2	1.5	67
DG24	EN1101031	Apr-11	1.3	0.4	0.9	0.1	0.9	22
DG24	EN1101473	May-11	3.8	2.8	1	0.2	0.8	36
DG24	EN1101764	Jun-11	7	5.7	1.3	0.3	1	35
DG24	EN1102786	Jul-11	3.6	2.8	0.8	0.1	0.8	25
DG24	EN1102787	Aug-11	2.8	2.2	0.6	0.1	0.5	71

2010/2011	Min	1.3	0.4	0.6	0.1	0.5	19
	Avg	4.93	3.15	1.78	0.32	1.48	63.00
	Max	10.6	7.8	4.9	0.8	4.1	114
	stDev	2.57	2.23	1.21	0.22	1.00	34.71

T-7.3 - Dust Deposition Results - DG28 Pylara

Site Name	ALS Batch Code	Date	Total Solids	Soluble Matter	Insoluble Solids	Combustibles	Ash Residue	Calculated Rainfall
			g/m2/mth	g/m2/mth	g/m2/mth	g/m2/mth	g/m2/mth	mm
DG28	EN1002509	Sep-10	38.5	1	37.3	0.8	36.5	61
DG28	EN1002728	Oct-10	1.7	0.1	1.6	0.7	0.9	92
DG28	EN1002952	Nov-10	1.7	1.5	0.2	0.1	0.2	105
DG28	EN1100159	Dec-10	174	0.6	173	5.4	168	115
DG28	EN1100361	Jan-11	9.9	3.5	6.4	0.4	6	29
DG28	EN1100559	Feb-11	5.1	2.1	3	0.4	2.6	86
DG28	EN1100805	Mar-11	1.8	1	0.8	0.1	0.8	63
DG28	EN1101031	Apr-11	0.8	0.1	0.8	0.1	0.8	17
DG28	EN1101473	May-11	0.5	0.1	0.5	0.1	0.4	25
DG28	EN1101764	Jun-11	0.4	0.1	0.3	0.1	0.2	24
DG28	EN1102786	Jul-11	0.4	0.1	0.4	0.1	0.3	18
DG28	EN1102787	Aug-11	0.4	0.2	0.2	0.1	0.2	75

2010/2011	Min	0.4	0.1	0.2	0.1	0.2	17
	Avg	19.60	0.87	18.71	0.70	18.08	59.17
	Max	174	3.5	173	5.4	168	115
	stDev	49.80	1.06	49.70	1.50	48.32	35.77

T-8.1 - Surface Water Results - Site 115

Statistics	Field Information										Analytical Information													
EPL 11436	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Flow	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Nitrogen (ammonia)
						uS/cm							mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	9/09/2010	115	9.55	TH	6.91	1362	10.9	10.72	195.1		801636	8.1	180	1400	870	12	2	1.3	0.004	0.08	0.0003	0.068	0.04
	2/12/2010	115	12.08	TH	7.01	810	23.6	8.28	126.3	w, 92mm in las	813154	8.2	160	790	570	14	2	2.4	0.006	0.42	0.0003	0.021	0.06
	5/07/2011	115	13.31	TH	6.47	3500	7.7	11.74	0	low flow	844808	8.3	710	3500	2500	13	2	2.2	0.004	0.02	0.0002	0.074	0.01
	31/08/2011	115	10.41	TH	6.4	2470	11.4	9.19	11.6	No Flow	852472	8	430	2500	1700	8	2	1.7	0.005	0.02	0.0005	0.089	0.01
2010/11	Minimum				6.4	810	7.7	8.28	0			8	160	790	570	8	2	1.3	0.004	0.02	0.0002	0.021	0.01
	Maximum				7.01	3500	23.6	11.74	195.1			8.3	710	3500	2500	14	2	2.4	0.006	0.42	0.0005	0.089	0.06
	Average				6.6975	2035.5	13.4	9.9825	83.25			8.15	370	2047.5	1410	11.75	2	1.9	0.0048	0.14	0.0003	0.063	0.03
	StdDev				0.30718	1195.68711	6.99475994	1.54481	93.86			0.1291	257.8113	1199.315777	869.7509	2.629956	0	0.4966555	0.001	0.19	0.0001	0.0294	0.0244949
	Count				4	4	4	4	4			4	4	4	4	4	4	4	4	4	4	4	4

T-8.2 - Surface Water Results - Spring 2

Statistics	Field Information										Analytical Information													
EPL 11436	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Flow	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potasssium	Total Copper	Total Iron	Total Lead	Total Zinc	Nitrogen (ammonia)
						uS/cm							mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	9/09/2010	Spring 2	11.08	TH	7.3	852	9.8	9.44	186.3		801634	6.4	160	420	350	15	4	2.1	0.28	0.7	0.01	7.6	0.1
	2/12/2010	Spring 2	9.53	TH	6.37	498	16.3	7.26	202	low, 92mm in la	813155	5.8	210	490	430	13	2	5	0.43	0.81	0.016	12	0.31
	15/03/2011	Spring 2	11.17	TH	7.1	601	18	4.55	121.4	10mm	828876	7.2	140	600	460	19	7	16	0.13	1	0.0045	3.2	0.01
	5/07/2011	Spring 2	14.16	TH	5.2	688	7	12.28	0	no flow in or ou	844809	8.4	200	690	450	30	12	19	0.23	0.81	0.011	4.8	0.41
2010/11	Minimum				5.2	498	7	4.55	0			5.8	140	420	350	13	2	2.1	0.13	0.7	0.0045	3.2	0.01
	Maximum				7.3	852	18	12.28	202			8.4	210	690	460	30	12	19	0.43	1	0.016	12	0.41
	Average				6.4925	659.75	12.775	8.3825	127.4			6.95	177.5	550	422.5	19.25	6.25	10.525	0.2675	0.83	0.0104	6.9	0.2075
	StdDev				0.94986	149.858544	5.22581732	3.27907	91.84			1.12398	33.04038	119.1637529	49.9166	7.588368	4.35	8.232203	0.125	0.12	0.0047	3.8557	0.18445867
	Count				4	4	4	4	4			4	4	4	4	4	4	4	4	4	4	4	4

T-8.3 - Surface Water Results - Site 105

Statistics	Field Information										Analytical Information													
EPL 11436	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Flow	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Nitrogen (ammonia)
						uS/cm							mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	9/09/2010	105	10.52	TH	7.01	1832	11	9.69	173		801635	6.4	170	1800	1400	19	2	0.7	0.013	0.11	0.0004	0.81	0.08
	1/12/2010	105	10.09	TH	6.74	982	17	7.35	176.8	w, 92mm in las	813152	7.6	86	970	730	27	2	2	0.024	0.4	0.0021	0.17	0.06
	15/03/2011	105	11.36	TH	7.65	2860	17.5	4.25	161.4	10mm	828874	7.8	81	2800	2200	26	4	1.3	0.018	0.16	0.0003	0.024	0.01
	5/07/2011	105	11.29	TH	7.92	3910	6.5	11.36	0	Medium flow	844807	8.1	270	3900	2600	18	3	4.1	0.005	0.06	0.0006	0.091	0.01
2010/11	Minimum				6.74	982	6.5	4.25	0			6.4	81	970	730	18	2	0.7	0.005	0.06	0.0003	0.024	0.01
	Maximum				7.92	3910	17.5	11.36	176.8			8.1	270	3900	2600	27	4	4.1	0.024	0.4	0.0021	0.81	0.08
	Average				7.33	2396	13	8.1625	127.8			7.475	151.75	2367.5	1732.5	22.5	2.75	2.025	0.015	0.18	0.0009	0.2738	0.04
	StdDev				0.54803	1268.19872	5.24404424	3.08356	85.45			0.74554	88.77828	1266.316838	834.0014	4.654747	0.96	1.4818344	0.008	0.15	0.0008	0.3624	0.03559026
	Count				4	4	4	4	4			4	4	4	4	4	4	4	4	4	4	4	4

T-8.4 - Surface Water Results - Raw Water Dam

Statistics	Field Information									Analytical Information												
SML20	Date	Site Code	Sampler	Time	pH	Conductivity	Flow	Temp	Dissolved Oxygen	Redox	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Nitrogen (ammonia)
EPL 11436						uS/cm							mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	9/09/2010	WM200	TH	9.15	7.32	1686		10.4	10.89	172.3	801631	8	400	1600	1200	8	2	4.6	0.079	0.12	0.007	8.2	0.01
	2/12/2010	WM200	TH	11.14	6.8	1607		18	9.26	130.7	813157	7.5	470	1600	1200	6	2	4.2	0.15	0.1	0.0038	10	0.09
	15/03/2011	WM200	TH	9.13	7.02	1600		17.2	8.76	201	828879	7.4	440	1600	1200	7	2	4.9	0.12	0.04	0.0015	17	0.01
	5/07/2011	WM200	TH	13.15	4.58	1448		7.5	11.73	0	844811	7.3	420	1400	980	8	2	3.5	0.1	0.55	0.0075	23	0.25
2010/11	Minimum				4.58	1448	0	7.5	8.76	0		7.3	400	1400	980	6	2	3.5	0.079	0.04	0.0015	8.2	0.01
	Maximum				7.32	1686	0	18	11.73	201		8	470	1600	1200	8	2	4.9	0.15	0.55	0.0075	23	0.25
	Average				6.43	1585.25	#DIV/0!	13.275	10.16	126		7.55	432.5	1550	1145	7.25	2	4.3	0.1123	0.2	0.005	14.55	0.09
	StdDev				1.25161	99.4631423	#DIV/0!	5.14288	1.387	88.81963		0.31091	29.86079	100	110	0.957427	0	0.6055301	0.0302	0.23	0.0028	6.7929	0.11313708
	Count				4	4	0	4	4	4		4	4	4	4	4	4	4	4	4	4	4	4

T-8.5 - Surface Water Results - Entrance Road Culvert

Statistics	Field Information										Analytical Information													
EPL 11436	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Flow	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Nitrogen (ammonia)
						uS/cm							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	15/09/2010	WM201	10.24	TH	5.47	593	12	10.31	350.1	1mm in last 24	802352	5.9	280	610	480	11	2	2.7	0.32	0.21	0.024	22	0.06
	2/12/2010	WM201	9.22	TH	6.46	391	16.4	8.38	162.4	low, 92mm in la	813158	5.9	150	340	290	13	2	2.6	0.3	0.26	0.026	11	0.06
	21/03/2011	WM201	9.33	TH	4.52	110.8	18.1	2.9	161.6	9mm	830072	5.4	92	330	260	13	2	3.3	0.64	0.65	0.071	11	0.01
	5/07/2011	WM201	14.26	TH	5.35	282	6.3	11.28	0	low flow	844812	5.3	100	300	220	12	2	2.9	1.2	4	0.23	12	0.01
2010/11	Minimum				4.52	110.8	6.3	2.9	0			5.3	92	300	220	11	2	2.6	0.3	0.21	0.024	11	0.01
	Maximum				6.46	593	18.1	11.28	350.1			5.9	280	610	480	13	2	3.3	1.2	4	0.23	22	0.06
	Average				5.45	344.2	13.2	8.2175	168.5			5.625	155.5	395	312.5	12.25	2	2.875	0.615	1.28	0.0878	14	0.035
	StdDev				0.79486	202.019867	5.26940857	3.74431	143.1			0.32016	86.87731	144.3375673	115.2895	0.957427	0	0.3095696	0.42	1.82	0.0973	5.3541	0.02886751
	Count				4	4	4	4	4			4	4	4	4	4	4	4	4	4	4	4	4

T-8.6 - Surface Water Results - Evaporation Dam 3 South

Statistics	Field Information										Analytical Information														
EPL 11436	Date	Site Code	Sampler	Time	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Comment	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Copper	Total Iron	Total Potassium	Total Lead	Total Zinc	Nitrogen (ammonia)	VFA
						uS/cm		mg/L					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L
	15/10/2010	WM202	TH	10.36	4.59	8390	16.5	9.98			806342	2.9	6900	8500	11000	32	2	68	140	21	0.11	700	66	10
	2/12/2010	WM202	TH	10.56	4.12	7830	16.9	9.2	545.4	in, 92mm in la	813159	2.8	680	7900	10000	9	2	67	120	19	0.43	520	76	9
	15/03/2011	WM202	TH	8.52	4.66	8230	15.8	4.9	534.8	10mm	828881	2.8	6700	8200	11000	6	2	66	110	19	0.14	570	85	
	5/07/2011	WM202	TH	13.08	2.66	8580	7.3	11.76	0.7	no flow	844813	2.9	7400	8700	11000	6	2	78	100	13	0.095	720	75	
2010/11	Minimum				2.66	7830	7.3	4.9	0.7			2.8	680	7900	10000	6	2	66	100	13	0.095	520	66	10
	Maximum				4.66	8580	16.9	11.76	545.4			2.9	7400	8700	11000	32	2	78	140	21	0.43	720	85	10
	Average				4.0075	8257.5	14.125	8.96	360.3			2.85	5420	8325	10750	13.25	2	69.75	117.5	18	0.1938	627.5	75.5	10
	StdDev				0.92978	318.891309	4.57265423	2.91099	311.5			0.05774	3173.683	350	500	12.57975	0	5.5602758	17.078	3.46	0.1586	97.767	7.76745347	#DIV/0!
	Count				4	4	4	4	3			4	4	4	4	4	4	4	4	4	4	4	4	1

T-8.7 - Surface Water Results - Evaporation Dam 3 North

Statistics	Field Information										Analytical Information														
EPL 11436	Date	Site Code	Time	Sampler	pH	Temperature	Conductivity	Disolved Oxygen	Redox	Comment	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Nitrogen (ammonia)	VFA's
							uS/cm	mg/L					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
	09/09/2010	WM203	9.28	TH	6.76	10.9	22600	9.91	200.4		801633	6.8	14000	23000	23000	140	790	870	9.6	0.17	0.0032	490	980	
	15/10/2010	WM203	10.12	TH	6.43	16.5	20170	6.82			806341	5.4	11700	21000	20000	550	600	710	9.3	22	0.02	520	880	430
	02/12/2010	WM203	11.05	TH	5.64	18.3	19780	8.69	268.4	in, 92mm in la	813160	6	12000	20000	19000	520	510	690	9.5	1.6	0.0095	410	840	
	15/03/2011	WM203	9.02	TH	6.03	16.8	20800	7.22	290	10mm	828882	5.2	13000	21000	22000	500	420	840	18	1.4	0.074	540	900	
	05/07/2011	WM203	13.47	TH	5.25	7	21250	11.25	0	no flow	844814	5.3	13000	22000	22000	550	490	680	18	11	0.12	610	900	
2010/11	Minimum				5.25	7	19780	6.82	0			5.2	11700	20000	19000	140	420	680	9.3	0.17	0.0032	410	840	430
	Maximum				6.76	18.3	22600	11.25	290			6.8	14000	23000	23000	550	790	870	18	22	0.12	610	980	430
	Average				6.022	13.9	20920	8.778	189.7			5.74	12740	21400	21200	452	562	758	12.88	7.23	0.0453	512	900	430
	StdDev				0.60272	4.77336359	1096.3348	1.84804	132.1			0.66933	915.4234	1140.175425	1643.168	175.6986	143	89.833179	4.6751	9.33	0.0502	73.959	50.9901951	#DIV/0!
	Count				5	5	5	5	4			5	5	5	5	5	5	5	5	5	5	5	5	1

T-8.8 - Surface Water Results - Pond 2

Statistics	Field Information										Analytical Information													
EPL 11436	Date	Site Code	Time	Sampler	pH	Temperature	Conductivity	Dissolved Oxygen	Redox	Comment	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Nitrogen (ammonia)
							uS/cm	mg/L					mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	12/08/2010	Pond 2	12.05	TH	3.19	8.6	5006	11	450.2		797976	2.9	4000	4900	6100	24	28	2.7	0.22	0.63	0.023	13	0.05
	31/08/2010	Pond 2	12.12	TH	4.79	14.7	14060	2.81	168		800564	3.5	12000	14000	19000	180	70	210	39	710	0.18	400	350
	15/09/2010	Pond 2	9.58	TH	4.46	12.5	6440	0.63	326.2		802353	2.9	4800	6300	7500	32	14	48	45	240	0.69	350	82
	2/12/2010	Pond 2	12.33	TH	3.7	21.1	6760	8.79	537.5	in, 92mm in la	813161	2.6	4500	5100	6700	9	6	5.9	60	250	0.42	390	10
2010/11	Minimum				3.7	12.5	6440	0.63	326.2			2.6	4500	5100	6700	9	6	5.9	45	240	0.42	350	10
	Maximum				4.46	21.1	6760	8.79	537.5			2.9	4800	6300	7500	32	14	48	60	250	0.69	390	82
	Average				4.08	16.8	6600	4.71	431.9			2.75	4650	5700	7100	20.5	10	26.95	52.5	245	0.555	370	46
	StdDev				0.5374	6.08111832	226.27417	5.76999	149.4			0.21213	212.132	848.5281374	565.6854	16.26346	5.66	29.769195	10.607	7.07	0.1909	28.284	50.9116882
	Count				2	2	2	2	2			2	2	2	2	2	2	2	2	2	2	2	2

T-8.9 - Surface Water Results - Pond 3

Statistics	Field Information										Analytical Information													
EPL 11436	Date	Site Code	Time	Sampler	pH	Temperature	Conductivity	Dissolved Oxygen	Redox	Comment	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Nitrogen (ammonia)
							uS/cm	mg/L					mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	15/09/2010	Pond 3	10.07	TH	4.16	12.5	6280	0.61	445.5		802354	2.9	4700	6200	7300	31	12	43	46	250	0.7	350	74
	2/12/2010	Pond 3	12.45	TH	3.58	20.6	5990	8.98	530.2	w in, 92mm in	813162	2.6	4800	5200	6900	11	6	6.7	60	260	0.44	390	11
	17/03/2011	Pond 3	9.36	TH	2.79	18.4	5060	6.37	553.6	5mm	829335	2.8	3900	5000	6500	6	2	1.8	42	110	0.46	430	6.5
	5/07/2011	Pond 3	14.01	TH	3.21	7.9	5450	6.52	0	no flow	844810	3.3	4300	5400	6600	82	57	24	39	68	0.24	390	30
2010/11	Minimum				2.79	7.9	5060	0.61	0			2.6	3900	5000	6500	6	2	1.8	39	68	0.24	350	6.5
	Maximum				4.16	20.6	6280	8.98	553.6			3.3	4800	6200	7300	82	57	43	60	260	0.7	430	74
	Average				3.435	14.85	5695	5.62	382.3			2.9	4425	5450	6825	32.5	19.3	18.875	46.75	172	0.46	390	30.375
	StdDev				0.58118	5.75876144	545.435606	3.54787	259.1			0.29439	411.2988	525.9911279	359.3976	34.72271	25.5	18.691063	9.2871	97.4	0.1883	32.66	30.814972
	Count				4	4	4	4	4			4	4	4	4	4	4	4	4	4	4	4	4

'<' removed from <LOR values

T9.1 - Leachate Results - Leachate Pond

Monitoring Point Identification		10/06/2008	17/03/2009	29/09/2009	30/11/2009	20/05/2010	15/10/2010	17/03/2011	30/03/2012
FIELD MEASUREMENTS									
Time	AM/PM	#########			9:03:00 AM	#########		#########	10.37
Sampler	Initials	TH	TH		TH	TH	TH	TH	TH
pH	pH	6.93			7.54	6.51		7.94	7.8
Conductivity	µS/cm	16070				28500		30700	34300
Temperature	°C	11.4			15	9		17.5	16.8
Oxidation-Reduction Potential	mV					168.4		-25.6	0
Dissolved Oxygen	mg/L	0.48			3.5	0.52		0.23	0.19
Volatile Fatty Acid's	mg/L	486			594			10986	
Chemical Oxygen Demand	mg/L	5005			8538			36672	
LABORATORY ANALYSIS									
Laboratory Sample Code		637401	683181	715550	725749	756357	806345	829336	882567
Alkalinity (as CaCO3)	mg/L	2300	3300	17000		1500		6390	9710
Nitrogen (ammonia)	mg/L	1100	1000	3500	670	280	1000	1900	1800
Chloride	mg/L	2200	3400	4300		4600		3500	5400
Chromium (Hex)	mg/L	0.05	0.5			0.18		0.024	0.1
Conductivity	µS/cm	22000	27000	40000	27000	29000	25000	31000	35000
Fluoride	mg/L		17	670		4		2	0.26
Nitrate	mg/L	0.1	0.01	0.22		0.1		1.6	6.9
Nitrite	mg/L	0.05	0.08	0.22		1		0.01	0.23
Organo-chlorine pesticides	µg/L	0.0001	0.00001			0.0001		0.0001	2.5
Organo-phosphate pesticides	µg/L	0.5	0.5			1		2	2.5
Polycyclic Aromatic Hydrocarbons	µg/L	0.001	0.001			0.001		0.001	10
TPH C6-C9	µg/L	250	250			250		1100	190
TPH C10-C14	µg/L	4400	4800			1000		37000	348000
TPH C15- C28	µg/L	8500	12000			3000		29000	21200
TPH C29-C36	µg/L	100	760			200		3900	50
Benzene	µg/L	10	10			40		40	1
Toluene	µg/L	10	10			40		48	5
Ethyl Benzene	µg/L	10	10			40		40	2
Xylene	µg/L	20	20			80		100	2
pH	pH	7.9	8.3	6.5	8.3	8.6	8.5	7.6	7.9
Sulphate	mg/L	8700	10300	1400	10000	13000	6500	5900	5100
Total Suspended Solids	mg/L	770	2100	2500	1500	390		2000	3400
Total Dissolved Solids	mg/L	17000	24490	66000	24000	30000	19000	26000	31000
Total Organic Carbon	mg/L	48000	4300	34000	2700	1800	1400	10400	13000
Total Phosphorous	mg/L	1.5	3.1	25		1.1		5	7.5
Total Aluminium	mg/L	2.2	6.3	50		4.5		12	17
Total Arsenic	mg/L	0.024	0.098	0.58		0.11		0.18	0.188
Total Barium	mg/L	0.05	0.052			0.048		0.045	0.067
Total Cadmium	mg/L	0.0055	0.0093	0.012		0.032		0.16	0.055
Total Calcium	mg/L	220	200	4000		190		730	660
Total Chromium	mg/L	0.095	0.22			0.18		0.35	0.41
Total Cobalt	mg/L	0.24	0.17	0.28		0.16		0.36	0.15
Total Lead	mg/L	0.055	0.08	0.52	0.07	0.062	0.087	0.06	0.17
Total Magnesium	mg/L	1200	1400	530		1900		1100	1400
Total Manganese	mg/L	9.6	2.1	24		2.2		0.82	0.91
Total Mercury	mg/L	0.0001	0.0009			0.0011		0.0003	0.0012
Total Phenols	mg/L	0.12	0.1			0.01		2.4	1.57
Total Potassium	mg/L	1000	1600	2400	2000	2200	1800	2100	2900
Total Sodium	mg/L	1700	2700	3400		3300		3100	4400
Total Zinc	mg/L	21	11	51	7	9.7	13	60	52

T9.2 - Leachate Results - Leachate Recirculation S

Monitoring Point Identification		9/05/2007	10/06/2008	17/03/2009	20/05/2010
FIELD MEASUREMENTS					
Time	AM/PM	1pm	11.05am		10.1
Sampler	Initials	HG	TM	TM	TM
pH	pH	5.75	5.43		6.12
Conductivity	µS/cm		3140		39100
Temperature	°C	41.8	22.1		17
Oxidation-Reduction Potential	mV	-57			
Dissolved Oxygen	mg/L	0.2	0.41		0.75
LABORATORY ANALYSIS					
Laboratory Sample Code		567272	637402	683182	756358
Alkalinity (as CaCO3)	mg/L	11000	16000	17000	13000
Nitrogen (ammonia)	mg/L	2600	3800	3400	3400
Chloride	mg/L		4500	5000	3800
Chromium (Hex)	mg/L	0.005	0.05	1.5	0.73
Conductivity	µS/cm	35000	40000	39000	39000
Fluoride	mg/L			1600	7
Nitrate	mg/L		0.1	0.15	0.1
Nitrite	mg/L	0.77	0.05	0.28	1
Organo-chlorine pesticides	µg/L	0.0001	0.001	0.0001	0.0001
Organo-phosphate pesticides	µg/L	0.001	0.01	0.1	0.01
Polycyclic Aromatic Hydrocarbons	µg/L	20	5	5	1
TPH C6-C9	µg/L	5300	8100	1900	6400
TPH C10-C14	µg/L	1100000	730000	820000	350000
TPH C15- C28	µg/L	240000	180000	120000	40000
TPH C29-C36	µg/L	39000	110	940	100
Benzene	µg/L	1	10	10	40
Toluene	µg/L	310	120	130	90
Ethyl Benzene	µg/L	66	100	10	40
Xylene	µg/L	230	110	20	80
pH	pH	5.3	5.7	5.7	6.1
Sulphate	mg/L	2700	1900	2100	4500
Total Suspended Solids	mg/L	260	1700	230	3900
Total Dissolved Solids	mg/L	86000	66000	78263	44000
Total Organic Carbon	mg/L	54000	1500	50000	29000
Total Phosphorous	mg/L	64	29	30	20
Total Aluminium	mg/L	57	66	100	41
Total Arsenic	mg/L	0.5	0.12	400	0.21
Total Barium	mg/L	0.35	0.44	360	0.19
Total Cadmium	mg/L	0.037	0.0047	0.0042	0.1
Total Calcium	mg/L	6000	4900	5600	2300
Total Chromium	mg/L	1	0.86	1.1	0.73
Total Cobalt	mg/L	0.73	0.56	0.64	0.44
Total Lead	mg/L	1.5	1	0.74	0.41
Total Magnesium	mg/L	710	710	550	630
Total Manganese	mg/L	19	38	38	27
Total Mercury	mg/L	0.025	0.0033	0.012	0.0059
Total Phenols	mg/L	22000	58000	32000	47
Total Sodium	mg/L	3900	4100	3700	2500
Total Zinc	mg/L	81	91	110	190
Total Potassium	mg/L	3000	2600	2500	1900

System

17/03/2011	30/03/2012
9.54	10.51
TH	TH
7.69	7.77
39800	28500
28.4	28.8
-36.2	0
0.25	0.22
829337	882680
16900	12600
3700	2300
3400	2500
0.05	0.1
37000	27000
1.5	1.1
0.89	0.01
0.07	0.17
0.0001	2
0.001	2
2	5
550	780
13000	27100
42000	37300
4100	610
40	2
49	73
40	22
80	77
8	7.9
130	51
720	160
16000	12000
5900	3100
23	2.34
35	3.5
0.29	0.217
0.41	0.16
0.016	0.016
370	110
2.9	0.41
0.4	0.061
0.25	0.063
930	360
3.7	1
0.0092	0.001
0.88	2.34
11400	2300
20	6.8
7800	1300

T-10.1 - Groundwater Results - MB 1

EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temp	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm
10/11/2010	MB1	9.58	TH	7.46	1645	17.3	2.48		27.42	770.09	809744	7.3	232	232	0.1		93	160	1000
25/02/2011	MB1	8.4	TH	7.04	1039	16.5	5.92		27.32	770.19	826206	7.5	246	246	0.1	0.5	89	150	1000
21/07/2011	MB1	11	TH	6.53	1146	13.2	2.46		27.14	770.37	847174	7.6	239	239	0.1		93	160	1000
30/08/2011	MB1	10.23	TH	6.83	1195	14.2	3.41		27.44	770.07	852260	7.2	282	282	0.1		96	240	1200
2010/11 Minimum				6.53	1039	13.2	2.46	0	27.14	770.07		7.2	232	232	0.1	0.5	89	150	1000
Maximum				7.46	1645	17.3	5.92	0	27.44	770.37		7.6	282	282	0.1	0.5	96	240	1200
Average				6.965	1256.25	15.3	3.5675	#DIV/0!	27.33	770.18		7.4	249.75	249.75	0.1	0.5	92.75	177.5	1050
StdDev				0.390768474	267.22696	1.9200694	1.629752026	#DIV/0!	0.137113092	0.137113092		0.18	22.246723	22.2467226	0	#DIV/0!	2.87228	41.93248542	100
Count				4	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Nitrogen (ammonia)	Diss Calcium	Diss Copper	Diss Iron	Diss Lead	Diss Magnesium	Diss Potassium	Diss Sodium	Diss Zinc	Total Dissolved Solids	Chromium (Hex)	Diss Aluminium	Diss Arsenic	Diss Cadmium	Diss Cobalt	Diss Manganese	Diss Mercury	Nitrate	Nitrite	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs	TPH C6-C9	TPH 10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Nitrate + Nitrite (oxidised nitrogen)	Total Organic Carbon	Total Barium	Total Chromium	Total Phenol
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
10/11/2010	0.02	99	0.002	0.01	0.00016	59	5	39	0.17	800																									
25/02/2011	0.38	90	0.0025	0.05	0.00034	52	5.2	35	0.15	650	0.005	0.02	0.001	0.0007	0.0018	0.32	0.0001	0.04	0.01	0.00001	0.0001	1	25	25	100	100	1	1	1	2	0.04	4	0.091	0.002	0.001
21/07/2011	0.07	96				54	4.7	38		710																									
30/08/2011	0.03	120				69	4.6	45		850																									
2010/11 Minimum	0.02	90	0.002	0.01	0.00016	52	4.6	35	0.15	650	0.005	0.02	0.001	0.0007	0.0018	0.32	0.0001	0.04	0.01	0.00001	0.0001	1	25	25	100	100	1	1	1	2	0.04	4	0.091	0.002	0.001
Maximum	0.38	120	0.0025	0.05	0.00034	69	5.2	45	0.17	850	0.005	0.02	0.001	0.0007	0.0018	0.32	0.0001	0.04	0.01	0.00001	0.0001	1	25	25	100	100	1	1	1	2	0.04	4	0.091	0.002	0.001
Average	0.125	101.25	0.00225	0.03	0.00025	58.5	4.875	39.25	0.16	752.5	0.005	0.02	0.001	0.0007	0.0018	0.32	0.0001	0.04	0.01	0.00001	0.0001	1	25	25	100	100	1	1	1	2	0.04	4	0.091	0.002	0.001
StdDev	0.1713671	13.048	0.000354	0.028284	0.0001273	7.593857167	0.2753785	4.19325	0.014142	89.5824	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	4	2	2	2	4	4	4	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.2 - Groundwater Results - MB 2

SML20 / EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m					mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm
21/09/2010	MB2	10.16	TH	6.32	6380	14.2	7.05		3.16	778.70	803082	7.3	209	209	0.1		520	4000	6600
7/12/2010	MB2	10.58	TH	7.39	6390	15.9	5.64		3.05	778.81	813898	7.2	198	198	0.1		540	4100	6500
28/03/2011	MB2	10.4	TH	6.75	6480	15.6	4.24		3.19	778.67	830986	7.5	199	199	0.1	0.4	480	3800	6500
20/06/2011	MB2	13.35	SB	-	6610	13.3	2.25		3.31	778.55	842906	7.2	211	211	0.1		520	4100	6600
2010/11 Minimum				6.32	6380	13.3	2.25	0	3.05	778.55		7.2	198	198	0.1	0.4	480	3800	6500
Maximum				7.39	6610	15.9	7.05	0	3.31	778.81		7.5	211	211	0.1	0.4	540	4100	6600
Average				6.82	6465	14.75	4.795	#DIV/0!	3.1775	778.6825		7.3	204.25	204.25	0.1	0.4	515	4000	6550
StdDev				0.538423625	106.61457	1.2179217	2.048096677	#DIV/0!	0.106887792	0.106887792		0.14	6.7019898	6.70198975	0	#DIV/0!	25.1661	141.4213562	57.735027
Count				3	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Nitrogen (ammonia)	Diss Calcium	Diss Copper	Diss Iron	Diss Lead	Diss Magnesium	Diss Potassium	Diss Sodium	Diss Zinc	Total Dissolved Solids	Chromium (Hex)	Diss Aluminium	Diss Arsenic	Diss Cadmium	Diss Cobalt	Diss Manganese	Diss Mercury	Nitrate	Nitrite	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Nitrate + Nitrite (oxidised nitrogen)	Total Organic Carbon	Total Barium	Total Chromium	Total Phenolics
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L
21/09/2010	0.04	530	0.0056	0.01	0.001	820	2.4	260	0.12	7200																									
7/12/2010	0.17	460	0.0066	0.01	0.0011	710	2.3	250	0.1	6900																									
28/03/2011	0.01	490	0.007	0.02	0.00094	760	2.4	260	0.084	6900	0.005	0.00002	0.001	0.03	0.0013	0.035	0.0001	0.27	0.01	0.00001	0.0001	1	25	25	100	100	1	1	1	2	0.27	5	0.02	0.002	0.001
20/06/2011	0.19	490	0.0033	0.2	0.00005	740	1.5	240	0.041	7100																									
2010/11 Minimum	0.01	460	0.0033	0.01	0.00005	710	1.5	240	0.041	6900	0.005	0.00002	0.001	0.03	0.0013	0.035	0.0001	0.27	0.01	0.00001	0.0001	1	25	25	100	100	1	1	1	2	0.27	5	0.02	0.002	0.001
Maximum	0.19	530	0.007	0.2	0.0011	820	2.4	260	0.12	7200	0.005	0.00002	0.001	0.03	0.0013	0.035	0.0001	0.27	0.01	0.00001	0.0001	1	25	25	100	100	1	1	1	2	0.27	5	0.02	0.002	0.001
Average	0.1025	492.5	0.005625	0.06	0.0007725	757.5	2.15	252.5	0.08625	7025	0.005	0.00002	0.001	0.03	0.0013	0.035	0.0001	0.27	0.01	0.00001	0.0001	1	25	25	100	100	1	1	1	2	0.27	5	0.02	0.002	0.001
StdDev	0.0906918	28.7228	0.001658	0.093452	0.0004862	46.45786622	0.4358899	9.57427	0.03357	150	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	4	4	4	4	4	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.3 - Groundwater Results - MB 3

SML20 / EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
21/09/2010	MB3	10.02	TH	6.36	2114	14.40	7.76		3.16	790.04	803083	7.6	252	252	0.1		520	41	2100
7/12/2010	MB3	10.37	TH	6.81	2230	17.30	3.77		3.06	790.14	813899	7.4	244	244	0.1		550	42	2100
28/03/2011	MB3	10.16	TH	6.84	2240	17.10	2.62		3.03	790.17	830987	7.7	250	250	0.1	0.2	510	40	2100
20/06/2011	MB3	12.45	SB	0.00	2133	13.00	2.53		3.90	789.30	842907	7.3	259	259	0.1		520	51	2100
2010/11 Minimum				0	2114	13	2.53	0	3.03	789.3		7.3	244	244	0.1	0.2	510	40	2100
Maximum				6.84	2240.00	17.30	7.76	0.00	3.90	790.17		7.70	259.00	259.00	0.10	0.20	550.00	51.00	2100.00
Average				5.00	2179.25	15.45	4.17	#DIV/0!	3.29	789.91		7.50	251.25	251.25	0.10	0.20	525.00	43.50	2100.00
StdDev				3.342218575	64.968582	2.1015867	2.459010641	#DIV/0!	0.412098289	0.412098289		0.18	6.1846584	6.18465844	0	#DIV/0!	17.3205	5.066228051	0
Count				4	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Copper	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs
	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
21/09/2010	1700														150	120	80	2.1		0.0018				0.01			0.00027	0.31	0.12						
7/12/2010	1400														140	110	78	2.2		0.0031				0.01			0.00057	0.18	0.15						
28/03/2011	1500	6	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.036	150	120	78	2.4	0.0004	0.0013	0.0005	0.005	0.002	0.01	0.0001	0.008	0.00028	0.12	0.36	0.09	0.74	0.83	0.00001	0.0001	1
20/06/2011	1500														130	110	71	1.6		0.0072				0.01			0.00036	1.1	0.08						
2010/11 Minimum	1400	6	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.036	130	110	71	1.6	0.0004	0.0013	0.0005	0.005	0.002	0.01	0.0001	0.008	0.00027	0.12	0.08	0.09	0.74	0.83	0.00001	0.0001	1
Maximum	1700.00	6.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.02	0.00	0.04	150.00	120.00	80.00	2.40	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01	0.00	1.10	0.36	0.09	0.74	0.83	0.00	0.00	1.00
Average	1525.00	6.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.02	0.00	0.04	142.50	115.00	76.75	2.08	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.43	0.18	0.09	0.74	0.83	0.00	0.00	1.00
StdDev	125.83057	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	9.574271	5.77350269	3.94757309	0.340342964	#DIV/0!	0.00268	#DIV/0!	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	0.00014	0.45529	0.125	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	4	1	1	1	4	1	1	4	4	4	1	1	1	1	1	1

T-10.4 - Groundwater Results - MB 4

EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temp	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L		mg/L	mg/L	mg/L	uS/cm
10/11/2010	MB4	9.39	TH	7.12	2145	16.7	4.5		12.27	774.23	809745	5.6	15	15.1	0.1		240	180	1200
7/03/2011	MB4	9.50	TH	5.48	1258	15.3	4.96		11.64	774.86	827746	5.8	13	13.5	0.1	0.2	280	200	1200
21/07/2011	MB4	13.20	TH	6.43	1429	13.4	5.13		11.53	774.97	847175	5.8	13	13.2	0.1		330	200	1500
31/08/2011	MB4	9.32	TH	5.78	1758	14.1	4.23		11.64	774.86	852478	5.5	14	14	0.1		330	200	1500
2010/11 Minimum				5.48	1258	13.4	4.23	0	11.53	774.23		5.5	13	13.2	0.1	0.2	240	180	1200
Maximum				7.12	2145	16.7	5.13	0	12.27	774.97		5.8	15	15.1	0.1	0.2	330	200	1500
Average				6.2025	1647.5	14.875	4.705	#DIV/0!	11.77	774.73		5.68	13.75	13.95	0.1	0.2	295	195	1350
StdDev				0.728943299	391.22415	1.4476993	0.413642358	#DIV/0!	0.337342556	0.337342556		0.15	0.9574271	0.8346656	0	#DIV/0!	43.589	10	173.20508
Count				4	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAH's	Organo-chlorine pesticides	Organo-phosphate pesticides
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
10/11/2010	820		7.8	63	150	1.9	0.051	0.01	0.0064	0.92	0.02																								
7/03/2011	1600	3	7	59	140	2	0.058	0.01	0.0093	0.99	0.01	1	25	25	100	100	1	1	1	2	0.14	0.002	0.027	0.0022	0.024	0.005	0.001	0.0001	0.041	0.01	0.43	0.43	1	0.00001	0.0001
21/07/2011	740		7.7	77	140	2					0.02																								
31/08/2011	890		8.2	83	150	1.9					0.01																								
2010/11 Minimum	740	3	7	59	140	1.9	0.051	0.01	0.0064	0.92	0.01	1	25	25	100	100	1	1	1	2	0.14	0.002	0.027	0.0022	0.024	0.005	0.001	0.0001	0.041	0.01	0.43	0.43	1	0.00001	0.0001
Maximum	1600	3	8.2	83	150	2	0.058	0.01	0.0093	0.99	0.02	1	25	25	100	100	1	1	1	2	0.14	0.002	0.027	0.0022	0.024	0.005	0.001	0.0001	0.041	0.01	0.43	0.43	1	0.00001	0.0001
Average	1012.5	3	7.675	70.5	145	1.95	0.0545	0.01	0.00785	0.955	0.015	1	25	25	100	100	1	1	1	2	0.14	0.002	0.027	0.0022	0.024	0.005	0.001	0.0001	0.041	0.01	0.43	0.43	1	0.00001	0.0001
StdDev	396.432	#DIV/0!	0.499166	11.35782	5.7735027	0.057735027	0.0049497	0	0.002051	0.0495	0.0057735	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	1	4	4	4	4	2	2	2	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.5 - Groundwater Results - MB 5

SML20 / EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm
28/09/2010	MB5	11.14	TH	4.5	8070	14	2.37		5.5	828.48	803864	3.1	1	0.1	0.1		550	5600	8200
7/12/2010	MB5	12.06	TH	5.52	7970	15.8	3.95		5.56	828.42	813900	3.2	1	0.1	0.1		570	5700	8100
28/03/2011	MB5	13.16	TH	3.27	7810	18.2	2.87		5.89	828.09	830991	3.1	1	0.1	0.1	5.7	520	5100	8000
28/06/2011	MB5	12.3	TH	4.01	7950	15.4	2.45		6.35	827.63	843861	3.6	1	0.1	0.1		540	5400	8000
2010/11 Minimum				3.27	7810	14	2.37	0	5.5	827.63		3.1	1	0.1	0.1	5.7	520	5100	8000
Maximum				5.52	8070	18.2	3.95	0	6.35	828.48		3.6	1	0.1	0.1	5.7	570	5700	8200
Average				4.325	7950	15.85	2.91	#DIV/0!	5.825	828.155		3.25	1	0.1	0.1	5.7	545	5450	8075
StdDev				0.943557099	107.08252	1.7464249	0.727186359	#DIV/0!	0.389743505	0.389743505		0.24	0	0	0	#DIV/0!	20.8167	264.5751311	95.742711
Count				4	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs
	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
28/09/2010	9400														210	1000	540	6.6					0.1	190			0.0029	270	0.39						
7/12/2010	9100														180	860	430	5.5					0.041	210			0.01	200	0.33						
28/03/2011	9300	6	0.001	25	25	100	100	1	1	1	2	25	0.001	0.0028	150	910	460	7.2	0.18	1.3	0.005	0.002	0.015	180	0.0001	25	0.002	200	0.22	0.01	0.02	0.02	0.00001	0.0001	1
28/06/2011	9100														160	980	460	6.6					0.011	270			0.00033	220	0.19						
2010/11 Minimum	9100	6	0.001	25	25	100	100	1	1	1	2	25	0.001	0.0028	150	860	430	5.5	0.18	1.3	0.005	0.002	0.011	180	0.0001	25	0.00033	200	0.19	0.01	0.02	0.02	0.00001	0.0001	1
Maximum	9400	6	0.001	25	25	100	100	1	1	1	2	25	0.001	0.0028	210	1000	540	7.2	0.18	1.3	0.005	0.002	0.1	270	0.0001	25	0.01	270	0.39	0.01	0.02	0.02	0.00001	0.0001	1
Average	9225	6	0.001	25	25	100	100	1	1	1	2	25	0.001	0.0028	175	937.5	472.5	6.475	0.18	1.3	0.005	0.002	0.04175	212.5	0.0001	25	0.00381	222.5	0.2825	0.01	0.02	0.02	0.00001	0.0001	1
StdDev	150	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	26.45751	64.4851404	47.1699057	0.708872344	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.04105	40.3113	#DIV/0!	#DIV/0!	0.00426	33.0404	0.09359	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	4	1	1	1	1	1	1

T-10.6 - Groundwater Results - MB 6

EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temp	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L		mg/L	mg/L	mg/L	uS/cm
10/11/2010	MB6	10.14	TH	7.08	6940	16.5	7.11		8.35	787.86	809746	6.1	38	37.9	0.1		1000	670	4300
25/02/2011	MB6	9.15	TH	5.9	4430	15.9	5.77		7.85	788.36	826207	6.5	34	34.2	0.1	0.6	1000	670	4400
21/07/2011	MB6	11.18	TH	6.08	4600	13.7	4.09		7.88	788.33	847176	6.2	32	32.3	0.1		1100	700	4500
30/08/2011	MB6	10.38	TH	5.98	4580	14.5	4.01		7.98	788.23	852261	5.7	34	33.8	0.1		1200	720	4600
2010/11 Minimum				5.9	4430	13.7	4.01	0	7.85	787.86		5.7	32	32.3	0.1	0.6	1000	670	4300
Maximum				7.08	6940	16.5	7.11	0	8.35	788.36		6.5	38	37.9	0.1	0.6	1200	720	4600
Average				6.26	5137.5	15.15	5.245	#DIV/0!	8.015	788.195		6.13	34.5	34.55	0.1	0.6	1075	690	4450
StdDev				0.551603722	1204.0591	1.2793227	1.484710971	#DIV/0!	0.230144882	0.230144882		0.33	2.5166115	2.3783748	0	#DIV/0!	95.7427	24.49489743	129.09944
Count				4	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenolics	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAH's	Organo-chlorine pesticides	Organo-phosphate pesticides
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
10/11/2010	3300		38	330	410	21	0.012	0.13	0.0014	6.6	0.04																								
25/02/2011	2600	3	30	320	380	15	0.008	0.01	0.0013	9.7	0.09	0.001	25	25	100	100	1	1	1	2	0.12	0.001	0.029	0.0034	0.0025	0.0050	0.002	0.0001	0.62	0.01	0.50	0.5	1	0.00001	0.0001
21/07/2011	3100		30	300	380	15					0.03																								
30/08/2011	3300		32	340	390	16					0.02																								
2010/11 Minimum	2600	3	30	300	380	15	0.0079	0.01	0.0013	6.6	0.02	0.001	25	25	100	100	1	1	1	2	0.12	0.001	0.029	0.0034	0.0025	0.005	0.002	0.0001	0.62	0.01	0.5	0.5	1	0.00001	0.0001
Maximum	3300	3	38	340	410	21	0.012	0.13	0.0014	9.7	0.09	0.001	25	25	100	100	1	1	1	2	0.12	0.001	0.029	0.0034	0.0025	0.005	0.002	0.0001	0.62	0.01	0.5	0.5	1	0.00001	0.0001
Average	3075	3	32.5	322.5	390	16.75	0.00995	0.07	0.00135	8.15	0.045	0.001	25	25	100	100	1	1	1	2	0.12	0.001	0.029	0.0034	0.0025	0.005	0.002	0.0001	0.62	0.01	0.5	0.5	1	0.00001	0.0001
StdDev	330.40379	#DIV/0!	3.785939	17.07825	14.142136	2.872281323	0.0028991	0.08485	7.07E-05	2.19203	0.0310913	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	1	4	4	4	4	2	2	2	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.7 - Groundwater Results - MB 7

SML20 / EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm
21/09/2010	MB7	11.44	TH	6.89	6760	14.9	7.24		3.22	785.85	803084	7.6	582	582	0.1		2000	150	6900
7/12/2010	MB7	13.34	TH	7.06	7080	17.7	6.39		3.01	786.06	813901	7.6	568	568	0.1		2100	160	7000
28/03/2011	MB7	13.41	TH	7.17	6810	17.8	6.01		3.23	785.84	830992	7.9	569	569	0.1	0.4	1900	150	6900
28/06/2011	MB7	11.12	TH	7.47	6910	17.7	7.5		3.73	785.34	843862	7.5	577	577	0.1		2100	150	6900
2010/11 Minimum				6.89	6760.00	14.90	6.01	0.00	3.01	785.34		7.50	568.00	568.00	0.10	0.40	1900.00	150.00	6900.00
Maximum				7.47	7080.00	17.80	7.50	0.00	3.73	786.06		7.90	582.00	582.00	0.10	0.40	2100.00	160.00	7000.00
Average				7.15	6890.00	17.03	6.79	#DIV/0!	3.30	785.77		7.65	574.00	574.00	0.10	0.40	2025.00	152.50	6925.00
StdDev				0.243909136	141.18546	1.4174508	0.701165696	#DIV/0!	0.305655034	0.305655034		0.17	6.6833126	6.68331255	0	#DIV/0!	95.7427	5	50
Count				4	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs
	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
21/09/2010	5100														280	460	480	13					0.0041	0.01			0.00057	0.18	0.04						
7/12/2010	5400														240	400	470	13					0.0025	0.1			0.00005	0.31	0.07						
28/03/2011	5500	3	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.14	260	440	490	14	0.0005	0.0009	0.005	0.004	0.0026	0.05	0.0001	0.013	0.00005	0.18	0.01	0.01	0.1	0.1	0.00001	0.0001	1
28/06/2011	4900														240	400	480	10					0.0023	0.05			0.00008	0.14	0.01						
2010/11 Minimum	4900.00	3.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.02	0.00	0.14	240.00	400.00	470.00	10.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.14	0.01	0.01	0.10	0.10	0.00	0.00	1.00
Maximum	5500.00	3.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.02	0.00	0.14	280.00	460.00	490.00	14.00	0.00	0.00	0.01	0.00	0.00	0.10	0.00	0.01	0.00	0.31	0.07	0.01	0.10	0.10	0.00	0.00	1.00
Average	5225.00	3.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.02	0.00	0.14	255.00	425.00	480.00	12.50	0.00	0.00	0.01	0.00	0.00	0.05	0.00	0.01	0.00	0.20	0.03	0.01	0.10	0.10	0.00	0.00	1.00
StdDev	275.37853	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	19.14854	30	8.16496581	1.732050808	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00083	0.03686	#DIV/0!	#DIV/0!	0.00026	0.07411	0.02872	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	4	1	1	1	1	1	1

T-10.8 - Groundwater Results - MB 8

SML20 / EPL 11436 — Statistics / Field Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm
8/12/2010	MB8	12.16	TH	5.42	3720	17	2.85		2.65	749.92	814209	7.6	637	637	0.1		810	120	3800
3/05/2011	MB8	11.23	TH	7.15	14510	15.6	4.1		3.5	749.07	836014	7.6	633	633	0.1	0.9	800	120	3700
20/06/2011	MB8	14	SB	0	3780	13.9	3.64		3.54	749.03	842908	7.5	650	650	0.1		830	130	3700
2010/11 Minimum				0	3720	13.9	2.85	0	2.65	749.03		7.5	633	633	0.1	0.9	800	120	3700
Maximum				7.15	14510	17	4.1	0	3.54	749.92		7.6	650	650	0.1	0.9	830	130	3800
Average				4.19	7336.6667	15.5	3.53	#DIV/0!	3.23	749.34		7.57	640	640	0.1	0.9	813.333	123.3333333	3733.3333
StdDev				3.730321702	6212.3613	1.5524175	0.632218317	#DIV/0!	0.502692749	0.502692749		0.06	8.8881944	8.88819442	1.7E-17	#DIV/0!	15.2753	5.773502692	57.735027
Count				3	3	3	3	0	3	3		3	3	3	3	1	3	3	3

Date	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs
	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
8/12/2010	2100														110	150	460	3.5					0.0098	0.01			0.0024	0.24	0.61						
3/05/2011	2200	150	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.094	110	150	460	2.2	0.00015	0.0003	0.005	0.001	0.0057	0.01	0.0001	0.001	0.011	0.045	0.01	0.04	4.6	4.6	0.00001	0.0001	1
20/06/2011	2200														96	140	430	1.9					0.0029	0.01			0.0034	0.029	0.04						
2010/11 Minimum	2100	150	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.094	96	140	430	1.9	0.00015	0.0003	0.005	0.001	0.0029	0.01	0.0001	0.001	0.0024	0.029	0.01	0.04	4.6	4.6	0.00001	0.0001	1
Maximum	2200	150	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.094	110	150	460	3.5	0.00015	0.0003	0.005	0.001	0.0098	0.01	0.0001	0.001	0.011	0.24	0.61	0.04	4.6	4.6	0.00001	0.0001	1
Average	2166.6667	150	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.094	105.3333	146.666667	450	2.533333333	0.00015	0.0003	0.005	0.001	0.00613	0.01	0.0001	0.001	0.0056	0.10467	0.22	0.04	4.6	4.6	0.00001	0.0001	1
StdDev	57.735027	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	8.082904	5.77350269	17.3205081	0.850490055	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00347	0	#DIV/0!	#DIV/0!	0.0047	0.11747	0.33808	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	3	1	1	1	1	1	1	1	1	1	1	1	1	1	3	3	3	3	1	1	1	1	3	3	1	1	3	3	3	1	1	1	1	1	1

T-10.9 - Groundwater Results - MB 10

SML20 / EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm
21/09/2010	MB10	10.30	TH	6.68	6780	14.80	7.21		3.76	780.04	803085	7.4	256	265	0.1		650	3700	6900
7/12/2010	MB10	11.14	TH	7.37	6930	16.80	4.56		3.37	780.43	813902	7.5	258	258	0.1		670	3800	6900
28/03/2011	MB10	11.12	TH	7.08	6790	16.00	3.13		3.38	780.42	830988	7.9	269	269	0.1	0.4	620	3500	6900
20/06/2011	MB10	14.15	SB	0	7030	13.20	2.71		3.25	780.55	842909	7.2	251	251	0.1		710	3900	7100
2010/11 Minimum				0	6780	13.2	2.71	0	3.25	780.04		7.2	251	251	0.1	0.4	620	3500	6900
Maximum				7.37	7030	16.8	7.21	0	3.76	780.55		7.9	269	269	0.1	0.4	710	3900	7100
Average				5.2825	6882.5	15.2	4.4025	#DIV/0!	3.44	780.36		7.5	258.5	260.75	0.1	0.4	662.5	3725	6950
StdDev				3.533009812	119.82626	1.566312	2.0322955	#DIV/0!	0.221359436	0.221359436		0.29	7.5938572	7.93200269	0	#DIV/0!	37.7492	170.7825128	100
Count				4	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs
	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
21/09/2010	7000														540	710	450	1.7					0.007	0.01			0.0003	0.05	0.11						
7/12/2010	6800														470	620	440	1.6					0.0076	0.01			0.00037	0.036	0.1						
28/03/2011	6900	12	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.0075	510	670	440	2.3	0.00005	0.0030	0.0050	0.0020	0.0079	0.2	0.0001	0.31	0.00008	0.021	1.5	0.01	0.03	0.03	0.00001	0.0001	1
20/06/2011	7000														490	680	430	1.1					0.0057	0.09			0.00005	0.005	0.22						
2010/11 Minimum	6800	12	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.0075	470	620	430	1.1	0.00005	0.003	0.005	0.002	0.0057	0.01	0.0001	0.31	0.00005	0.005	0.1	0.01	0.03	0.03	0.00001	0.0001	1
Maximum	7000	12	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.0075	540	710	450	2.3	0.00005	0.003	0.005	0.002	0.0079	0.2	0.0001	0.31	0.00037	0.05	1.5	0.01	0.03	0.03	0.00001	0.0001	1
Average	6925	12	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.0075	502.5	670	440	1.675	0.00005	0.003	0.005	0.002	0.00705	0.0775	0.0001	0.31	0.0002	0.028	0.4825	0.01	0.03	0.03	0.00001	0.0001	1
StdDev	95.742711	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	29.86079	37.4165739	8.16496581	0.49244289	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00097	0.08995	#DIV/0!	#DIV/0!	0.00016	0.01937	0.68051	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	4	1	1	1	1	1	1

T-10.10 - Groundwater Results - MB 11

SML20 / EPL 11436 — Statistics / Field Information / Analytical Information

Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity
					uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm
21/09/2010	MB11	12.01	TH	6.67	7270	12.7	6.75		1.1	777.87	803086	4.9	12	22.1	0.1		370	5200	15000
8/12/2010	MB11	10.39	TH	4.53	9160	17	3.23		1.19	777.78	814212	5	11	17.6	0.1		580	8800	11000
30/03/2011	MB11	10.29	TH	4.12	35000	17.6	3.67		1.51	777.46	831582	4.1	1	0.1	0.1	80	1500	44000	26000
21/06/2011	MB11	11.45	SB	0	34500	13	5.25		1.71	777.26	842990	3.8	1	0.1	0.1		50000	1800	37000
2010/11 Minimum				0	7270	12.7	3.23	0	1.1	777.26		3.8	1	0.1	0.1	80	370	1800	11000
Maximum				6.67	35000	17.6	6.75	0	1.71	777.87		5	12	22.1	0.1	80	50000	44000	37000
Average				3.83	21482.5	15.075	4.725	#DIV/0!	1.3775	777.5925		4.45	6.25	9.975	0.1	80	13112.5	14950	22250
StdDev				2.787388264	15340.766	2.5837634	1.604607948	#DIV/0!	0.283004711	0.283004711		0.59	6.0759087	11.5497114	0	#DIV/0!	24596.6	19576.43141	11701.14
Count				4	4	4	4	0	4	4		4	4	4	4	1	4	4	4

Date	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs
	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
21/09/2010	21000														360	2300	780	2					24	0.01			0.0042	790	0.08						
8/12/2010	14000														330	1500	530	1.6					12	0.04			0.0033	670	0.16						
30/03/2011	47000	15	0.002	25	25	130	100	1	1	1	2	260	0.001	0.021	360	4200	1100	3.6	17	8.6	0.000009	0.044	96	0.17	0.0001	360	0.018	2800	2.4	0.01	0.02	0.02	0.00002	0.0001	1
21/06/2011	77000														470	7900	1700	5.3					160	0.52			0.03	5200	0.12						
2010/11 Minimum	14000	15	0.002	25	25	130	100	1	1	1	2	260	0.001	0.021	330	1500	530	1.6	17	8.6	0.000009	0.044	12	0.01	0.0001	360	0.0033	670	0.08	0.01	0.02	0.02	0.00002	0.0001	1
Maximum	77000	15	0.002	25	25	130	100	1	1	1	2	260	0.001	0.021	470	7900	1700	5.3	17	8.6	0.000009	0.044	160	0.52	0.0001	360	0.03	5200	2.4	0.01	0.02	0.02	0.00002	0.0001	1
Average	39750	15	0.002	25	25	130	100	1	1	1	2	260	0.001	0.021	380	3975	1027.5	3.125	17	8.6	0.000009	0.044	73	0.185	0.0001	360	0.01388	2365	0.69	0.01	0.02	0.02	0.00002	0.0001	1
StdDev	28605.069	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	61.64414	2851.16935	505.395884	1.687947472	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	68.8477	0.23388	#DIV/0!	#DIV/0!	0.01268	2127.6	1.14047	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Count	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	4	1	1	1	1	1	1

'<' removed from <LOR values

T-10.11 - Groundwater Results - MB 12

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organochlorine pesticides	Organophosphate pesticides	PAHs
SML20 EPL 11436							uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		21/09/2010	MB12	12.1	TH	4.64	35900	13.3	5.54		1.92	778.03	803087	3.7	1	0.1	0.1		1700	52000	38000	83000														420	6900	6200	13					200	4.1			1	1400	0.35						
		8/12/2010	MB12	10.52	TH	3.6	36500	17.1	5.4		1.96	777.99	814213	3.6	1	0.1	0.1		1700	49000	38000	82000														420	6500	1700	3.2					220	2.4			0.81	5300	0.44						
		30/03/2011	MB12	10.44	TH	3.87	37100	17.9	5.62		2.18	777.77	831583	3.7	1	0.1	0.1	110	1600	49000	38000	84000	10	0.002	25	25	120	100	1	1	1	2	1100	0.001	0.01	450	7200	2400	13	40	21	0.000014	0.054	260	2.7	0.0001	530	0.33	1300	0.37	0.01	0.01	0.01	0.00002	0.0001	1
		21/06/2011	MB12	12	SB	0	37400	12.2	8.55		2.28	777.67	842991	3.6	1	0.1	0.1		1900	58000	38000	84000														480	7400	2000	11					260	2.1			0.36	5900	0.29						
2010/11	Minimum					0.00	35900.00	12.20	5.40	0.00	1.92	777.67		3.60	1.00	0.10	0.10	110.00	1600.00	49000.00	38000.00	82000.00	10.00	0.00	25.00	25.00	120.00	100.00	1.00	1.00	1.00	2.00	1100.00	0.00	0.01	420.00	6500.00	1700.00	3.20	40.00	21.00	0.00	0.05	200.00	2.10	0.00	530.00	0.33	1300.00	0.29	0.01	0.01	0.01	0.00	0.00	1.00
	Maximum					4.64	37400.00	17.90	8.55	0.00	2.28	778.03		3.70	1.00	0.10	0.10	110.00	1900.00	58000.00	38000.00	84000.00	10.00	0.00	25.00	25.00	120.00	100.00	1.00	1.00	1.00	2.00	1100.00	0.00	0.01	480.00	7400.00	6200.00	13.00	40.00	21.00	0.00	0.05	260.00	4.10	0.00	530.00	1.00	5900.00	0.44	0.01	0.01	0.01	0.00	0.00	1.00
	Average					3.03	36725.00	15.13	6.28	#DIV/0!	2.09	777.87		3.65	1.00	0.10	0.10	110.00	1725.00	52000.00	38000.00	83250.00	10.00	0.00	25.00	25.00	120.00	100.00	1.00	1.00	1.00	2.00	1100.00	0.00	0.01	442.50	7000.00	3075.00	10.05	40.00	21.00	0.00	0.05	235.00	2.83	0.00	530.00	0.63	3475.00	0.36	0.01	0.01	0.01	0.00	0.00	1.00
	StdDev					2.07	665.21	2.80	1.52	#DIV/0!	0.17	0.17		0.06	0.00	0.00	0.00	#DIV/0!	125.83	4242.64	0.00	957.43	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	28.72	391.58	2102.97	4.66	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	30.00	0.88	#DIV/0!	#DIV/0!	0.33	2466.27	0.06	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	4	0	4	4		4	4	4	4	1	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	4	1	1	1	1	1	1

T-10.12 - Groundwater Results - MB 13

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organochlorine pesticides	Organophosphate pesticides	PAHs
SML20 EPL 11436							uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		28/09/2010	MB13	10.01	TH	6.96	3000	14.00	7.25		2.03	746.63	803865	7.8	599	599	0.1		630	75	3000	2100														120	150	270	3.6					0.02	0.07			0.00074	0.59	0.08						
		7/12/2010	MB13	13.56	TH	7.43	3020	17.10	2.86		1.92	746.74	813903	7.6	596	596	0.1		660	44	3000	1900														120	150	270	3.4					0.0048	0.01			0.00039	0.033	0.09						
		28/03/2011	MB13	14.07	TH	7.15	3090	17.80	3.55		2.47	746.19	830993	8	603	603	0.1	0.6	630	43	3100	1900	11	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.024	130	160	290	3.6	0.00012	0.0003	0.005	0.002	0.0015	0.02	0.0001	0.005	0.00005	0.044	0.01	0.01	1.1	1.1	0.00001	0.0001	1
		28/06/2011	MB13	11.1	TH	7.03	3650	13.70	7.86		2.5	746.16	843863	7.7	597	597	0.1		700	47	3200	2000														130	170	300	3					0.016	0.01			0.0011	0.68	0.01						
2010/11	Minimum					6.96	3000	13.7	2.86	0	1.92	746.16		7.6	596	596	0.1	0.6	630	43	3000	1900	11	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.024	120	150	270	3	0.00012	0.0003	0.005	0.002	0.0015	0.01	0.0001	0.005	0.00005	0.033	0.01	0.01	1.1	1.1	0.00001	0.0001	1
	Maximum					7.43	3650	17.8	7.86	0	2.5	746.74		8	603	603	0.1	0.6	700	75	3200	2100	11	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.024	130	170	300	3.6	0.00012	0.0003	0.005	0.002	0.02	0.07	0.0001	0.005	0.0011	0.68	0.09	0.01	1.1	1.1	0.00001	0.0001	1
	Average					7.1425	3190	15.65	5.38	#DIV/0!	2.23	746.43		7.78	598.75	598.75	0.1	0.6	655	52.25	3075	1975	11	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.024	125	157.5	282.5	3.4	0.00012	0.0003	0.005	0.002	0.01058	0.0275	0.0001	0.005	0.00057	0.33675	0.0475	0.01	1.1	1.1	0.00001	0.0001	1
	StdDev					0.207103034	309.08467	2.1015867	2.539461885	#DIV/0!	0.298105127	0.298105127		0.17	3.0956959	3.09569594	0	#DIV/0!	33.1662	15.2616076	95.742711	95.742711	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5.773503	9.57427108	15	0.282842712	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00883	0.02872	#DIV/0!	#DIV/0!	0.00045	0.34637	0.04349	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	4	0	4	4		4	4	4	4	1	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	4	1	1	1	1	1	1

T-10.13 - Groundwater Results - MB 14

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	Organochlorine pesticides	Organophosphate pesticides	PAHs
SML20 EPL 11436							uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		21/09/2010	MB14	10.57	TH	6.74	3810	16	4.67		9.22	783.15	803088	7.4	266	266	0.1		180	2100	4500	4600														400	460	220	3.2					0.0330	0.01			0.00044	0.7	0.05						
		7/12/2010	MB14	11.34	TH	7.72	2101	16.7	7.33		9.18	783.19	813904	7.5	325	325	0.1		79	760	2100	1700														110	150	160	2					0.0026	0.01			0.00015	0.013	0.1						
		28/03/2011	MB14	11.34	TH	7.05	4450	16.3	3.32		9.32	783.05	830990	8	296	296	0.1	0.9	230	2400	3000	2700	6	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.0095	210	240	180	2.5	0.00006	0.0006	0.0050	0.0040	0.0031	0.01	0.0001	0.004	0.00005	0.031	0.01	0.01	11	11	0.00001	0.0001	1
		20/06/2011	MB14	15.15	SB	0	3780	13.2	3.19		9.63	782.74	842910	7.6	321	321	0.1		86	890	2800	2400														180	220	160	1.8					0.0030	0.01			0.00011	0.044	0.05						
2010/11	Minimum					0	2101	13.2	3.19	0	9.18	782.74		7.4	266	266	0.1	0.9	79	760	2100	1700	6	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.0095	110	150	160	1.8	0.00006	0.0006	0.005	0.004	0.0026	0.01	0.0001	0.004	0.00005	0.013	0.01	0.01	11	11	0.00001	0.0001	1
	Maximum					7.72	4450	16.7	7.33	0	9.63	783.19		8	325	325	0.1	0.9	230	2400	4500	4600	6	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.0095	400	460	220	3.2	0.00006	0.0006	0.005	0.004	0.033	0.01	0.0001	0.004	0.00044	0.7	0.1	0.01	11	11	0.00001	0.0001	1
	Average					5.3775	3535.25	15.55	4.6275	#DIV/0!	9.3375	783.0325		7.63	302	302	0.1	0.9	143.75	1537.5	3100	2850	6	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.0095	225	267.5	180	2.375	0.00006	0.0006	0.005	0.004	0.01043	0.01	0.0001	0.004	0.00019	0.197	0.0525	0.01	11	11	0.00001	0.0001	1
	StdDev					3.608253271	1004.86	1.5926916	1.921915277	#DIV/0!	0.203695033	0.203695033		0.26	27.215192	27.2151918	0	#DIV/0!	73.6676	833.4816535	1009.9505	1239.6236	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	123.9624	134.008706	28.2842712	0.623832242	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.01505	0	#DIV/0!	#DIV/0!	0.00017	0.33557	0.03686	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	4	0	4	4		4	4	4	4	1	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	4	1	1	1	1	1	1

T-10.14 - Groundwater Results - MB 15

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrate	Nitrite	Ammonia	Nitrate + Nitrite (oxidised nitrogen)	Organochlorine pesticides	Organophosphate pesticides	PAHs
SML20 EPL 11436							uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		28/09/2010	MB15	10.54	TH	6.1	8180	14.2	4.81		0	764.86	803866	7.2	518	518	0.1		450	5700	8400	9900														470	1200	330	27					0.0059	0.12			0.00005	0.12			0.11				
		8/12/2010	MB15	9.48	TH	5.29	8330	16.9	3.92		0	764.86	814210	7.1	506	506	0.1		450	6100	8600	9900														480	1300	360	16					0.01	2			0.00013	0.32			0.08				
		30/03/2011	MB15	10.03	TH	6.72	8690	16.9	4.36		0	764.86	831584	7	510	510	0.1	0.5	420	5700	8700	10000	12	0.002	25	25	100	100	1	1	1	2	0.05	0.001	0.021	440	1200	350	16	0.005	0.019	0.000005	0.004	0.044	3.9	0.0001	4.5	0.00023	2.2	0.01	0.01	0.01	0.01	0.00001	0.0001	1
		28/06/2011	MB15	12.05	TH	6.97	8270	12	5.33		0	764.86	843864	6.9	509	509	0.1		450	5700	8500	9500														450	1200	350	17					0.0054	0.03			0.00005	0.13			0.02				
2010/11	Minimum					5.29	8180.00	12.00	3.92	0.00	0.00	764.86		6.90	506.00	506.00	0.10	0.50	420.00	5700.00	8400.00	9500.00	12.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.05	0.00	0.02	440.00	1200.00	330.00	16.00	0.01	0.02	0.00	0.00	0.01	0.03	0.00	4.50	0.00	0.12	0.01	0.01	0.01	0.01	0.00	0.00	1.00
	Maximum					6.97	8690.00	16.90	5.33	0.00	0.00	764.86		7.20	518.00	518.00	0.10	0.50	450.00	6100.00	8700.00	10000.00	12.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.05	0.00	0.02	480.00	1300.00	360.00	27.00	0.01	0.02	0.00	0.00	0.04	3.90	0.00	4.50	0.00	2.20	0.01	0.01	0.11	0.01	0.00	0.00	1.00
	Average					6.27	8367.50	15.00	4.61	#DIV/0!	0.00	764.86		7.05	510.75	510.75	0.10	0.50	442.50	5800.00	8550.00	9825.00	12.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.05	0.00	0.02	460.00	1225.00	347.50	19.00	0.01	0.02	0.00	0.00	0.02	1.51	0.00	4.50	0.00	0.69	0.01	0.01	0.06	0.01	0.00	0.00	1.00
	StdDev					0.75	223.66	2.37	0.60	#DIV/0!	0.00	0.00		0.13	5.12	5.12	0.00	#DIV/0!	15.00	200.00	129.10	221.74	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	18.26	50.00	12.58	5.35	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.02	1.83	#DIV/0!	#DIV/0!	0.00	1.01	#DIV/0!	#DIV/0!	0.05	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	4	0	4	4		4	4	4	4	1	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	1	1	4	1	1	1	1

T-10.15 - Groundwater Results - MB 16

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Total Cobalt	Chromium (HEX)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrate	Nitrite	Ammonia	Nitrate + Nitrite (oxidised nitrogen)	Organochlorine pesticides	Organophosphate pesticides	PAHs
SML20 EPL 11436							uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		28/09/2010	MB16	10.36	TH	4.69	23900	13.6	2.52		2.35	769.04	803867	3.4	1	0.1	0.1		360	34000	26000	57000														370	4700	760	5.2					97	30			0.45	1300			6.8				
		8/12/2010	MB16	9.3	TH	3.83	23000	16.5	2.36		2.24	769.15	814210	3.3	1	0.1	0.1		320	32000	24000	49000														360	4100	260	0.6					83	33			0.33	3300			6.8				
		30/03/2011	MB16	9.34	TH	3.31	30100	16.5	4.46		2.32	769.07	831585	3.4	1	0.1	0.1	82	300	42000	27000	58000	23	0.002	25	25	100	100	1	1	1	2	1300	0.001	0.01	380	4900	360	5.3	20	15	0.000021	0.066	100	42	0.0001	350	0.57	1100	2.8	0.01	8.1	2.8	0.00002	0.0001	1
		28/06/2011	MB16	11.3	TH	3.41	24800	13.4	8.47		2.36	769.03	843865	3.3	1	0.1	0.1		280	41000	28000	60000														410	4900	310	7.7					90	29			0.49	4400			5				
2010/11	Minimum					3.31	23000.00	13.40	2.36	0.00	2.24	769.03		3.30	1.00	0.10	0.10	82.00	280.00	32000.00	24000.00	49000.00	23.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	1300.00	0.00	0.01	360.00	4100.00	260.00	0.60	20.00	15.00	0.00	0.07	83.00	29.00	0.00	350.00	0.33	1100.00	2.80	0.01	5.00	2.80	0.00	0.00	1.00
	Maximum					4.69	30100.00	16.50	8.47	0.00	2.36	769.15		3.40	1.00	0.10	0.10	82.00	360.00	42000.00	28000.00	60000.00	23.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	1300.00	0.00	0.01	410.00	4900.00	760.00	7.70	20.00	15.00	0.00	0.07	100.00	42.00	0.00	350.00	0.57	4400.00	2.80	0.01	8.10	2.80	0.00	0.00	1.00
	Average					3.81	25450.00	15.00	4.45	#DIV/0!	2.32	769.07		3.35	1.00	0.10	0.10	82.00	315.00	37250.00	26250.00	56000.00	23.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	1300.00	0.00	0.01	380.00	4650.00	422.50	4.70	20.00	15.00	0.00	0.07	92.50	33.50	0.00	350.00	0.46	2525.00	2.80	0.01	6.68	2.80	0.00	0.00	1.00
	StdDev					0.63	3185.91	1.73	2.84	#DIV/0!	0.05	0.05		0.06	0.00	0.00	0.00	#DIV/0!	34.16	4991.66	1707.83	4830.46	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	21.60	378.59	228.67	2.97	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.59	5.92	#DIV/0!	#DIV/0!	0.10	1596.61	#DIV/0!	#DIV/0!	1.27	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	4	0	4	4		4	4	4	4	1	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	1	1	4	1	1	1	1

T-10.16 - Groundwater Results - MB 17

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (HEX)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrate	Nitrite	Ammonia	Nitrate + Nitrite (oxidised nitrogen)	Organochlorine pesticides	Organophosphate pesticides	PAHs
SML20 EPL 11436							uS/cm	oC	ppm	mV	m				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		28/09/2010	MB17	10.25	TH	6.84	10390	13.9	3.97		3.46	767.61	803868	7.1	535	535	0.1		560	8000	10700	13000														460	1700	590	35					0.025	0.02			0.0011	3.9			0.04				
		8/12/2010	MB17	9.17	TH	5.72	10460	16.3	3.89		3.22	767.85	814220	6.7	539	539	0.1		560	7300	10600	13000														450	1600	580	20					0.031	0.03			0.001	6.1			0.07				
		30/03/2011	MB17	9.14	TH	6.64	10520	17.2	4.67		3.46	767.61	831586	7	557	557	0.1	0.6	530	7000	10600	13000	16	0.002	25	25	100	100	1	1	1	2	0.09	0.0005	0.017	470	1700	570	18	0.011	0.017	0.000005	0.058	0.035	0.01	0.0001	11	0.0011	3.7	0.06	0.01	0.01	0.06	0.00001	0.0001	1
		28/06/2011	MB17	11.45	TH	6.47	10620	15.2	6.82		3.81	767.26	843866	7.1	560	560	0.1		570	7600	10600	12000														460	1700	550	21					0.038	0.02			0.00047	9.3			0.02				
2010/11	Minimum					5.72	10390.00	13.90	3.89	0.00	3.22	767.26		6.70	535.00	535.00	0.10	0.60	530.00	7000.00	10600.00	12000.00	16.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.09	0.00	0.02	450.00	1600.00	550.00	18.00	0.01	0.02	0.00	0.06	0.03	0.01	0.00	11.00	0.00	3.70	0.06	0.01	0.01	0.06	0.00	0.00	1.00
	Maximum					6.84	10620.00	17.20	6.82	0.00	3.81	767.85		7.10	560.00	560.00	0.10	0.60	570.00	8000.00	10700.00	13000.00	16.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.09	0.00	0.02	470.00	1700.00	590.00	35.00	0.01	0.02	0.00	0.06	0.04	0.03	0.00	11.00	0.00	9.30	0.06	0.01	0.07	0.06	0.00	0.00	1.00
	Average					6.42	10497.50	15.65	4.84	#DIV/0!	3.49	767.58		6.98	547.75	547.75	0.10	0.60	555.00	7475.00	10625.00	12750.00	16.00	0.00	25.00	25.00	100.00	100.00	1.00	1.00	1.00	2.00	0.09	0.00	0.02	460.00	1675.00	572.50	23.50	0.01	0.02	0.00	0.06	0.03	0.02	0.00	11.00	0.00	5.75	0.06	0.01	0.04	0.06	0.00	0.00	1.00
	StdDev					0.49	97.43	1.42	1.37	#DIV/0!	0.24	0.24		0.19	12.58	12.58	0.00	#DIV/0!	17.32	427.20	50.00	500.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	8.16	50.00	17.08	7.77	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.01	0.01	#DIV/0!	#DIV/0!	0.00	2.60	#DIV/0!	#DIV/0!	0.03	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	4	0	4	4		4	4	4	4	1	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	4	4	1	1	4	4	1	1	4	1	1	1	1

T-10.17 - Groundwater Results - ED3B

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Dissolved Oxygen	Redox	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Total Phenolics	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrate	Nitrite	Nitrogen (ammonia)	Nitrate + Nitrite (oxidised nitrogen)	Organochlorine pesticides	Organophosphate pesticides	PAHs
EPL 11436 SML20							uS/cm	ppm	mV		m				mg/L	mg/L		mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		10/11/2010	ED3B	10.31	TH	6.96	1246	3.34		15.6	2.42	784.38	809747	7.2	546	546	0.1		1900	760	7800	5200														86	400	1100	0.7					0.002	0.01			0.00005	0.044			0.05				
		25/02/2011	ED3B	10.23	TH	6.69	8000	3.03		19.1	2.45	784.35	826208	7.4	554	554	0.1	0.6	1900	770	7900	4900	12	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.047	80	360	1300	0.8	0.00077	0.0039	0.005	0.002	0.0035	0.01	0.0001	0.6	0.00027	0.055	0.01	0.01	0.12	0.01	0.00001	0.0001	1
		21/07/2011	ED3B	11.46	TH	7.27	8020	7.81		10	2.52	784.28	847181	7.4	536	536	0.1		2000	830	7800	5100														83	360	1000	0.7													0.07				
		30/08/2011	ED3B	10.54	TH	6.84	8220	8.31		11.1	2.35	784.45	852262	7.2	349	349	0.1		2300	850	8300	5600														69	380	1200	1													0.03				
2010/11	Minimum					6.69	1246	3.03	0	10	2.35	784.28		7.2	349	349	0.1	0.6	1900	760	7800	4900	12	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.047	69	360	1000	0.7	0.00077	0.0039	0.005	0.002	0.002	0.01	0.0001	0.6	0.00005	0.044	0.01	0.01	0.03	0.01	0.00001	0.0001	1
	Maximum					7.27	8220	8.31	0	19.1	2.52	784.45		7.4	554	554	0.1	0.6	2300	850	8300	5600	12	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.047	86	400	1300	1	0.00077	0.0039	0.005	0.002	0.0035	0.01	0.0001	0.6	0.00027	0.055	0.01	0.01	0.12	0.01	0.00001	0.0001	1
	Average					6.94	6371.5	5.6225	#DIV/0!	13.95	2.435	784.365		7.3	496.25	496.25	0.1	0.6	2025	802.5	7950	5200	12	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.047	79.5	375	1150	0.8	0.00077	0.0039	0.005	0.002	0.00275	0.01	0.0001	0.6	0.00016	0.0495	0.01	0.01	0.0675	0.01	0.00001	0.0001	1
	StdDev					0.246170673	3418.4435	2.8248112	#DIV/0!	4.20198	0.070474582	0.070474582		0.12	98.442454	98.4424536	0	#DIV/0!	189.297	44.25306016	238.04761	294.39203	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	7.416198	19.1485422	129.099445	0.141421356	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00106	0	#DIV/0!	#DIV/0!	0.00016	0.00778	#DIV/0!	#DIV/0!	0.038622101	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	0	4	4	4		4	4	4	4	1	4	4	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1	2	2	1	1	2	2	1	1	4	1	1	1	1

T-10.18 - Groundwater Results - WM1

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Redox	Dissolved Oxygen	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Acidity	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAH's	Organochlorine pesticide	Organophosphate pesticide
EPL 11436							uS/cm	mV	mg/L		m				mg	mg/L	mg/L		mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
		11/11/2010	WM1	10.59	TH	6.29	3410		3.09	18.1	46.97	734.30	810056	7.5	0.1	219	219	0.1		210	730	2100	1900		230	120	80	4.8					0.7																								
		7/03/2011	WM1	10.14	TH	7.14	1017		3.27	16	46.45	734.82	827747	7.8		220	220	0.1	0.6	210	750	2100	1600	7	220	110	74	4.3	0.0016	0.01	0.0001	0.02	0.72	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.037	0.00005	0.0005	0.005	0.001	0.0001	0.52	0.01	0.5	0.05	1	0.00001	0.0001
		28/07/2011	WM1	9.32	TH	6.97	2320		3.01	11.8	46.81	734.46	848039	7.6	0.1	223	223	0.1		200	680	2100	1600		240	120	81	4.5					0.64																								
		31/08/2011	WM1	9.51	TH	6.72	2130		3.2	14.6	46.89	734.38	852494	7.6		224	224	0.1		190	670	2100	1600		240	120	80	4.4					0.62																								
2010/11	Minimum					6.29	1017	0	3.01	11.8	46.45	734.3		7.5	0.1	219	219	0.1	0.6	190	670	2100	1600	7	220	110	74	4.3	0.0016	0.01	0.0001	0.02	0.62	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.037	0.00005	0.0005	0.005	0.001	0.0001	0.52	0.01	0.5	0.05	1	0.00001	0.0001
	Maximum					7.14	3410	0	3.27	18.1	46.97	734.82		7.8	0.1	224	224	0.1	0.6	210	750	2100	1900	7	240	120	81	4.8	0.0016	0.01	0.0001	0.02	0.72	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.037	0.00005	0.0005	0.005	0.001	0.0001	0.52	0.01	0.5	0.05	1	0.00001	0.0001
	Average					6.78	2219.25	#DIV/0!	3.1425	15.125	46.78	734.49		7.63	0.1	221.5	221.5	0.1	0.6	202.5	707.5	2100	1675	7	232.5	117.5	78.75	4.5	0.0016	0.01	0.0001	0.02	0.67	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.037	0.00005	0.0005	0.005	0.001	0.0001	0.52	0.01	0.5	0.05	1	0.00001	0.0001
	StdDev					0.36941395	980.03516	#DIV/0!	0.115289491	2.64244	0.229492193	0.229492193		0.13	0	2.38047614	2.3804761	0	#DIV/0!	9.574271078	38.622101	0	150	#DIV/0!	9.574271	5	3.201562119	0.2160247	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0476095	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	0	4	4	4	4		4	2	4	4	4	1	4	4	4	4	1	4	4	4	4	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.19 - Groundwater Results - WM3

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Redox	Dissolved Oxygen	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Acidity	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAH's	Organochlorine pesticide	Organophosphate pesticide
EPL 11436							uS/cm	mV	mg/L		m				mg	mg/L	mg/L		mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
		11/11/2010	WM3	11.39	TH	4.23	8190		3.8	19.3	15.51	692.11	810057	3.9	2300	1	0.1	0.1		78	4700	5100	7100		270	370	100	11					1.5																								
		7/03/2011	WM3	11.24	TH	4.09	4920		3.67	17.7	12.63	694.99	827748	3.9		1	0.1	0.1	11	76	4500	4900	6500	4	310	360	51	9.4	0.32	130	0.85	390	1.1	0.001	25	25	100	100	1	1	1	2	170	0.014	0.02	1.6	0.8	0.005	0.036	0.0001	21	0.01	0.03	0.03	1	0.00001	0.0001
		28/07/2011	WM3	10.21	TH	4.01	4700		2.79	15.2	9.03	698.59	848040	3.9	1800	1	0.1	0.1		66	3900	4700	6100		250	310	55	11					1																								
		31/08/2011	WM3	10.17	TH	4.07	4600		3.96	15.5	8.85	698.77	852495	3.9		1	0.1	0.1		67	3800	4700	6100		270	340	60	11					1.2																								
2010/11	Minimum					4.01	4600	0	2.79	15.2	8.85	692.11		3.9	1800	1	0.1	0.1	11	66	3800	4700	6100	4	250	310	51	9.4	0.32	130	0.85	390	1	0.001	25	25	100	100	1	1	1	2	170	0.014	0.02	1.6	0.8	0.005	0.036	0.0001	21	0.01	0.03	0.03	1	0.00001	0.0001
	Maximum					4.23	8190	0	3.96	19.3	15.51	698.77		3.9	2300	1	0.1	0.1	11	78	4700	5100	7100	4	310	370	100	11	0.32	130	0.85	390	1.5	0.001	25	25	100	100	1	1	1	2	170	0.014	0.02	1.6	0.8	0.005	0.036	0.0001	21	0.01	0.03	0.03	1	0.00001	0.0001
	Average					4.1	5602.5	#DIV/0!	3.555	16.925	11.505	696.115		3.9	2050	1	0.1	0.1	11	71.75	4225	4850	6450	4	275	345	66.5	10.6	0.32	130	0.85	390	1.2	0.001	25	25	100	100	1	1	1	2	170	0.014	0.02	1.6	0.8	0.005	0.036	0.0001	21	0.01	0.03	0.03	1	0.00001	0.0001
	StdDev					0.093094934	1730.171	#DIV/0!	0.523609269	1.93628	3.187491176	3.187491176		0	353.55339	0	0	0	#DIV/0!	6.130524719	442.5306	191.48542	472.582	#DIV/0!	25.16611	26.457513	22.6347815	0.8	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.2160247	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	0	4	4	4	4		4	2	4	4	4	1	4	4	4	4	1	4	4	4	4	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.20 - Groundwater Results - WM4

	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Redox	Dissolved Oxygen	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Acidity	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAH's	Organochlorine pesticide	Organophosphate pesticide
EPL 11436							uS/cm	mV	mg/L		m				mg	mg/L	mg/L		mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L
		11/11/2010	WM4	11.25	TH	6.24	2920		4.96	19.1	102.02	631.90	810058	7.4	47	41	40.5	0.1		52	900	1800	1400		170	29	230	2.3					0.07																								
		7/03/2011	WM4	10.55	TH	7.5	1880		3.08	17.8	102.18	631.74	827749	7.5		42	42	0.1	0.7	52	960	1800	1400	1	170	27	220	2.3	0.0018	0.02	0.00005	0.18	0.03	0.001	25	25	100	100	1	1	1	2	0.02	0.002	0.057	0.0006	0.0015	0.005	0.005	0.0001	0.079	0.01		0.09	1	0.00001	0.0001
	Insufficient Sample	28/07/2011	WM4	10.05	TH	7.26	1928		4.67	13.9	102.12	631.80	848041												170	29	210	5.1																													
	Insufficient Sample	31/08/2011	WM4	10.05	TH	0	0		0	0	102.11	631.81																																													
2010/11	Minimum					0	0	0	0	0	102.02	631.74		7.4	47	41	40.5	0.1	0.7	52	900	1800	1400	1	170	27	210	2.3	0.0018	0.02	0.00005	0.18	0.03	0.001	25	25	100	100	1	1	1	2	0.02	0.002	0.057	0.0006	0.0015	0.005	0.005	0.0001	0.079	0.01	0	0.09	1	0.00001	0.0001
	Maximum					7.5	2920	0	4.96	19.1	102.18	631.9		7.5	47	42	42	0.1	0.7	52	960	1800	1400	1	170	29	230	5.1	0.0018	0.02	0.00005	0.18	0.07	0.001	25	25	100	100	1	1	1	2	0.02	0.002	0.057	0.0006	0.0015	0.005	0.005	0.0001	0.079	0.01	0	0.09	1	0.00001	0.0001
	Average					5.25	1682	#DIV/0!	3.1775	12.7	102.1075	631.8125		7.45	47	41.5	41.25	0.1	0.7	52	930	1800	1400	1	170	28.333333	220	3.2333333	0.0018	0.02	0.00005	0.18	0.05	0.001	25	25	100	100	1	1	1	2	0.02	0.002	0.057	0.0006	0.0015	0.005	0.005	0.0001	0.079	0.01	#DIV/0!	0.09	1	0.00001	0.0001
	StdDev					3.542372087	1219.4928	#DIV/0!	2.273827537	8.75024	0.066017674	0.066017674		0.07	#DIV/0!	0.70710678	1.0606602	0	#DIV/0!	0	42.426407	0	0	#DIV/0!	0	1.1547005	10	1.6165808	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0282843	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	0	4	4	4	4		2	1	2	2	2	1	2	2	2	2	1	3	3	3	3	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1

'<' removed from <LOR values

T-10.21 - Groundwater Results - WM5

Statistics | Field Information | Analytical Information

EPL 11436	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Redox	Dissolved Oxygen	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAHs	Organochlorine pesticides	Organophosphate pesticides
							uS/cm	mV	mg/L		m				mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
		10/11/2010	WM5	10.48	TH	7.59	3180		8.54	15.7	1.10	785.63	809748	7.3	57	57.1	0.1		320	400	2000	1300		13	41	390	1.5	0.003	0.01	0.00005	0.016	0.03																								
		25/02/2011	WM5	10.07	TH	6.79	2240		3.82	18.4	1.15	785.58	826210	7.4	90	89.5	0.1	0.4	310	430	2100	1300	10	12	32	380	1.9	0.003	0.01	0.00005	0.14	0.09	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.26	0.00016	0.0003	0.005	0.004	0.0001	0.005	0.01	0.21	0.21	1	0.00001	0.0001
		21/07/2011	WM5	11.32	TH	7.18	4800		3.93	12	1.96	784.77	847177	7.8	550	550	0.1		1300	260	5400	3200		71	200	770	2.5					0.07																								
		30/08/2011	WM5	11.06	TH	7.5	2560		5.59	11.2	1.76	784.97	852263	7.5	260	260	0.1		610	340	3000	1800		26	80	490	1.6					0.01																								
2010/11	Minimum					6.79	2240	0	3.82	11.2	1.1	784.77		7.3	57	57.1	0.1	0.4	310	260	2000	1300	10	12	32	380	1.5	0.003	0.01	0.00005	0.016	0.01	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.26	0.00016	0.0003	0.005	0.004	0.0001	0.005	0.01	0.21	0.21	1	0.00001	0.0001
	Maximum					7.59	4800	0	8.54	18.4	1.96	785.63		7.8	550	550	0.1	0.4	1300	430	5400	3200	10	71	200	770	2.5	0.003	0.01	0.00005	0.14	0.09	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.26	0.00016	0.0003	0.005	0.004	0.0001	0.005	0.01	0.21	0.21	1	0.00001	0.0001
	Average					7.265	3195	#DIV/0!	5.47	14.325	1.4925	785.2375		7.5	239.25	239.15	0.1	0.4	635	357.5	3125	1900	10	30.5	88.25	507.5	1.875	0.003	0.01	0.00005	0.078	0.05	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.26	0.00016	0.0003	0.005	0.004	0.0001	0.005	0.01	0.21	0.21	1	0.00001	0.0001
	StdDev					0.362261416	1138.9322	#DIV/0!	2.201014917	3.35	0.432617999	0.432617999		0.22	225.45269	225.536228	0	#DIV/0!	464.65	75	1581.9292	898.14624	#DIV/0!	27.74287	77.35793	181.91115	0.45	0	0	0	0.08768	0.0365148	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	0	4	4	4	4		4	4	4	4	1	4	4	4	4	1	4	4	4	4	2	2	2	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.22 - Groundwater Results - WM6

EPL 11436		Date	Site Code	Time	Sampler	pH	Conductivity	Redox	Dissolved Oxygen	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAHs	Organochlorine pesticides	Organophosphate pesticides
							uS/cm	mV	mg/L		m				mg/L	mg/L		mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
		10/11/2010	WM6	11.05	TH	6.6	22400		4.95	16.8	4.69	785.65	809749	6.1	34	34	0.1		4700	340	14000	10000		130	540	2300	3.4	0.008	0.01	0.027	0.21	0.01																								
		25/02/2011	WM6	9.42	TH	5.91	13770		4.95	16.5	4.25	786.09	826211	6.7	70	70.3	0.1	0.5	4600	390	14000	8000	6	120	460	2400	3.8	0.0064	0.01	0.026	0.14	0.11	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.058	0.0033	0.041	0.005	0.003	0.0001	0.43	0.01	12	12	1	0.00001	0.0001
		21/07/2011	WM6	12	TH	6.52	14260		5.79	13.4	4.61	785.73	847178	6	41	40.6	0.1		2100	3000	14000	8900		120	400	1700	3.1					0.05																								
		30/08/2011	WM6	11.22	TH	6.27	13850		6.24	14	4.78	785.56	852264	5.9	38	38.3	0.1		4800	360	14000	9200		120	480	2000	4.6					0.04																								
2010/11	Minimum					5.91	13770	0	4.95	13.4	4.25	785.56		5.9	34	34	0.1	0.5	2100	340	14000	8000	6	120	400	1700	3.1	0.0064	0.01	0.026	0.14	0.01	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.058	0.0033	0.041	0.005	0.003	0.0001	0.43	0.01	12	12	1	0.00001	0.0001
	Maximum					6.6	22400	0	6.24	16.8	4.78	786.09		6.7	70	70.3	0.1	0.5	4800	3000	14000	10000	6	130	540	2400	4.6	0.008	0.01	0.027	0.21	0.11	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.058	0.0033	0.041	0.005	0.003	0.0001	0.43	0.01	12	12	1	0.00001	0.0001
	Average					6.325	16070	#DIV/0!	5.4825	15.175	4.5825	785.7575		6.18	45.75	45.8	0.1	0.5	4050	1022.5	14000	9025	6	122.5	470	2100	3.725	0.0072	0.01	0.0265	0.175	0.0525	0.001	25	25	100	100	1	1	1	2	0.02	0.001	0.058	0.0033	0.041	0.005	0.003	0.0001	0.43	0.01	12	12	1	0.00001	0.0001
	StdDev					0.310322413	4225.4546	#DIV/0!	0.641735927	1.72506	0.232289331	0.232289331		0.36	16.418993	16.5607971	0	#DIV/0!	1302.56	1318.493458	0	826.13558	#DIV/0!	5	57.73503	316.22777	0.65	0.0011314	0	0.000707	0.0495	0.0419325	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	0	4	4	4	4		4	4	4	4	1	4	4	4	4	1	4	4	4	4	2	2	2	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.23 - Groundwater Results - MW8S

Statistics | Field Information | Analytical Information

EPL 11436	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Dissolved Oxygen	Redox	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAH's	Organochlorine pesticides	Organophosphate pesticides
							uS/cm	ppm	mV		m				mg/L	mg/L		mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
		10/11/2010	MW8S	Dry	TH	0	0	0	0	0	7.02	783.63																																												
		25/02/2011	MW8S	11.16	TH	6.24	12540	5.75		17	6.62	784.03	826212	7.1	155	155	0.1	0.6	2400	4900	13000	12000	7	430	1300	1300	9.9	0.02	0.01	0.0033	26	0.05	0.001	25	25	100	100	1	1	1	2	0.03	0.001	0.021	0.55	0.033	0.005	0.005	0.0021	3.2	0.01	1.2	1.2	1	0.00001	0.0001
		21/07/2011	MW8S	Damp	TH	0	0	0	0	0	7.15	783.50																																												
		30/08/2011	MW8S	Dry	TH	0	0	0	0	0	7.14	783.51																																												
2010/11	Minimum					0	0	0	0	0	6.62	783.495		7.1	155	155	0.1	0.6	2400	4900	13000	12000	7	430	1300	1300	9.9	0.02	0.01	0.0033	26	0.05	0.001	25	25	100	100	1	1	1	2	0.03	0.001	0.021	0.55	0.033	0.005	0.005	0.0021	3.2	0.01	1.2	1.2	1	0.00001	0.0001
	Maximum					6.24	12540	5.75	0	17	7.15	784.025		7.1	155	155	0.1	0.6	2400	4900	13000	12000	7	430	1300	1300	9.9	0.02	0.01	0.0033	26	0.05	0.001	25	25	100	100	1	1	1	2	0.03	0.001	0.021	0.55	0.033	0.005	0.005	0.0021	3.2	0.01	1.2	1.2	1	0.00001	0.0001
	Average					1.56	3135	1.4375	0	4.25	6.9825	783.6625		7.1	155	155	0.1	0.6	2400	4900	13000	12000	7	430	1300	1300	9.9	0.02	0.01	0.0033	26	0.05	0.001	25	25	100	100	1	1	1	2	0.03	0.001	0.021	0.55	0.033	0.005	0.005	0.0021	3.2	0.01	1.2	1.2	1	0.00001	0.0001
	StdDev					3.12	6270	2.875	0	8.5	0.248780358	0.248780358		####	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	3	4	4	4		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.24 - Groundwater Results - MW8D

Statistics | Field Information | Analytical Information

EPL 11436	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Dissolved Oxygen	Redox	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAH's	Organochlorine pesticides	Organophosphate pesticides
							uS/cm	ppm	mV		m				mg/L	mg/L		mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
		10/11/2010	MW8D	11.25	TH	6.84	18330	5.6		17.8	6.85	783.70	809750	6.7	151	151	0.1		2400	3700	11600	11000		400	1200	1000	7.8	0.012	0.01	0.0071	23	0.02																								
		25/02/2011	MW8D	11.36	TH	6.18	11220	4.44		16.9	6.36	784.19	826213	6.6	159	159	0.1	0.5	2400	3600	11400	9600	8	390	1200	970	7.5	0.023	0.01	0.0058	23	0.08	0.001	25	25	100	100	1	1	1	2	0.03	0.001	0.022	0.29	0.088	0.005	0.003	0.0007	3.3	0.01	0.37	0.37	1	0.00001	0.0001
		21/07/2011	MW8D	12.37	TH	6.34	11590	4.09		13.1	6.9	783.65	847179	6.4	130	130	0.1		2300	3700	11100	9900		330	970	800	7.1					0.06																								
		30/08/2011	MW8D	11.53	TH	6.24	11260	4.25		14.8	6.8	783.75	852265	6.3	136	136	0.1		2400	3700	11200	10000		360	1100	880	7.9					0.01																								
2010/11	Minimum					6.18	11220	4.09	0	13.1	6.36	783.648		6.3	130	130	0.1	0.5	2300	3600	11100	9600	8	330	970	800	7.1	0.012	0.01	0.0058	23	0.01	0.001	25	25	100	100	1	1	1	2	0.03	0.001	0.022	0.29	0.088	0.005	0.003	0.0007	3.3	0.01	0.37	0.37	1	0.00001	0.0001
	Maximum					6.84	18330	5.6	0	17.8	6.9	784.188		6.7	159	159	0.1	0.5	2400	3700	11600	11000	8	400	1200	1000	7.9	0.023	0.01	0.0071	23	0.08	0.001	25	25	100	100	1	1	1	2	0.03	0.001	0.022	0.29	0.088	0.005	0.003	0.0007	3.3	0.01	0.37	0.37	1	0.00001	0.0001
	Average					6.4	13100	4.595	#DIV/0!	15.65	6.7275	783.8205		6.5	144	144	0.1	0.5	2375	3675	11325	10125	8	370	1117.5	912.5	7.575	0.0175	0.01	0.00645	23	0.0425	0.001	25	25	100	100	1	1	1	2	0.03	0.001	0.022	0.29	0.088	0.005	0.003	0.0007	3.3	0.01	0.37	0.37	1	0.00001	0.0001
	StdDev					0.300665928	3490.6064	0.6851034	#DIV/0!	2.11424	0.248378072	0.248378072		0.18	13.341664	13.3416641	0	#DIV/0!	50	50	221.73558	607.59087	#DIV/0!	31.62278	109.0489	90.691786	0.359397644	0.0077782	0	0.000919	0	0.0330404	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	0	4	4	4		4	4	4	4	1	4	4	4	4	1	4	4	4	4	2	2	2	2	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-10.25 - Groundwater Results - MW10S

Statistics | Field Information | Analytical Information

EPL 11436	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Dissolved Oxygen	Redox	Temp	Depth to Water	RL Water Level	Laboratory Sample Code	pH	Acidity	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Copper	Diss Iron	Diss Lead	Diss Zinc	Nitrogen (ammonia)	Total Phenol	PTH C6-C9	PTH C10-C14	PTH C15-C28	PTH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene	Diss Aluminium	Diss Arsenic	Total Barium	Diss Cadmium	Diss Cobalt	Chromium (Hex)	Total Chromium	Diss Mercury	Diss Manganese	Nitrite	Nitrate	Nitrate + Nitrite (oxidised nitrogen)	PAH's	Organochlorine pesticides	Organophosphate pesticides
							uS/cm	ppm	mV		m				mg	mg/L	mg/L		mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L
		11/11/2010	MW9S	10.34	TH	5.51	1519	3.54		16.3	3.47	786.07	810059	6.9	68	225	225	0.1		2300	2800	9800	7800		260	650	1300	3.7					0.03																								
		25/02/2011	MW9S	11.59	TH	6.59	9660	4.92		18	3.06	786.48	826214	7		229	229	0.1	0.8	1800	2400	9800	7600	5	260	640	1300	3.3	0.0079	0.01	0.043	0.12	0.09	0.001	25	83	100	100	1	1	1	2	0.03	0.001	0.018	0.00088	0.012	0.005	0.005	0.0004	0.013	0.01	2.6	2.6	1	0.00001	0.0001
		21/07/2011	MW9S	12.57	TH	6.76	10310	5.96		13.1	3.70	785.84	847180	6.8	33	222	222	0.1		2000	2900	10100	8400		260	640	1100	3.2					0.01																								
		30/08/2011	MW9S	11.35	TH	6.54	10140	4.38		13.8	3.28	786.26	852266	6.6	44	223	223	0.1		2000	3100	10200	8300		290	710	1200	3.6					0.01																								
2010/11	Minimum					5.51	1519	3.54	0	13.1	3.06	785.844		6.6	33	222	222	0.1	0.8	1800	2400	9800	7600	5	260	640	1100	3.2	0.0079	0.01	0.043	0.12	0.01	0.001	25	83	100	100	1	1	1	2	0.03	0.001	0.018	0.00088	0.012	0.005	0.005	0.0004	0.013	0.01	2.6	2.6	1	0.00001	0.0001
	Maximum					6.76	10310	5.96	0	18	3.7	786.484		7	68	229	229	0.1	0.8	2300	3100	10200	8400	5	290	710	1300	3.7	0.0079	0.01	0.043	0.12	0.09	0.001	25	83	100	100	1	1	1	2	0.03	0.001	0.018	0.00088	0.012	0.005	0.005	0.0004	0.013	0.01	2.6	2.6	1	0.00001	0.0001
	Average					6.35	7907.25	4.7	#DIV/0!	15.3	3.3775	786.1665		6.83	48.333333	224.75	224.75	0.1	0.8	2025	2800	9975	8025	5	267.5	660	1225	3.45	0.0079	0.01	0.043	0.12	0.035	0.001	25	83	100	100	1	1	1	2	0.03	0.001	0.018	0.00088	0.012	0.005	0.005	0.0004	0.013	0.01	2.6	2.6	1	0.00001	0.0001
	StdDev					0.567861485	4267.718	1.0139033	#DIV/0!	2.26421	0.272564977	0.272564977		0.17	17.897858	3.09569594	3.0956959	0	#DIV/0!	206.1552813	294.39203	206.15528	386.221	#DIV/0!	15	33.665016	95.74271078	0.2380476	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.0378594	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count					4	4	4	0	4	4	4		4	3	4	4	4	1	4	4	4	4	1	4	4	4	4	1	1	1	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

T-11.1 - Piezometer Water Level Results - P44A & P44B

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P44A	16.03	715.02	TH
		7/03/2011	P44A	20.00	711.05	TH
		3/08/2011	P44A	22.17	708.88	TH
		5/09/2011	P44A	16.15	714.9	TH
2010/11	Minimum			16.03	708.88	
	Maximum			22.17	715.02	
	Average			18.59	712.46	
	StdDev			3.017266	3.017266	
	Count			4	4	

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P44B	20.54	710.51	TH
		7/03/2011	P44B	20.52	710.53	TH
		3/08/2011	P44B	21.25	709.8	TH
		5/09/2011	P44B	20.43	710.62	TH
2010/11	Minimum			20.43	709.80	
	Maximum			21.25	710.62	
	Average			20.69	710.37	
	StdDev			0.379693	0.379693	
	Count			4	4	

T-11.2 - Piezometer Water Level Results - P45A & P45B

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P45A	12.57	718.59	TH
		7/03/2011	P45A	12.70	718.46	TH
		3/08/2011	P45A	15.44	715.72	TH
		5/09/2011	P45A	13.73	717.43	TH
2010/11	Minimum			12.57	715.72	
	Maximum			15.44	718.59	
	Average			13.61	717.55	
	StdDev			1.32577	1.32577	
	Count			4	4	

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P45B	15.22	715.89	TH
		7/03/2011	P45B	15.14	715.97	TH
		3/08/2011	P45B	17.34	713.77	TH
		5/09/2011	P45B	16.11	715	TH
2010/11	Minimum			15.14	713.77	
	Maximum			17.34	715.97	
	Average			15.95	715.16	
	StdDev			1.024154	1.024154	
	Count			4	4	

T-11.3 - Piezometer Water Level Results - P58A & P58B

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler	Comments
		18/11/2010	P58A	42.05	764.20	TH	Wet clay @ bottom
		7/03/2011	P58A	42.04	764.21	TH	Wet clay @ bottom
		3/08/2011	P58A	34.04	772.21	TH	DRY
		5/09/2011	P58A	42.04	764.21	TH	
2010/11	Minimum			34.04	764.2		
	Maximum			42.05	772.21		
	Average			40.0425	766.2075		
	StdDev			4.001669	4.001669		
	Count			4	4		

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P58B	60.80	745.45	TH
		7/03/2011	P58B	60.31	745.94	TH
		3/08/2011	P58B	63.30	742.95	TH
		5/09/2011	P58B	62.93	743.32	TH
2010/11	Minimum			60.31	742.95	
	Maximum			63.30	745.94	
	Average			61.84	744.42	
	StdDev			1.50	1.50	
	Count			4	4	

T-11.4 - Piezometer Water Level Results - P59A & P59B

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P59A	16.97	787.73	TH
		7/03/2011	P59A	17.18	787.52	TH
		3/08/2011	P59A	19.71	784.99	TH
		5/09/2011	P59A	17.56	787.14	TH
2010/11	Minimum			16.97	784.99	
	Maximum			19.71	787.73	
	Average			17.855	786.845	
	StdDev			1.260542	1.260542	
	Count			4	4	

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P59B	17.94	786.76	TH
		7/03/2011	P59B	17.93	786.77	TH
		3/08/2011	P59B	20.09	784.61	TH
		5/09/2011	P59B	17.96	786.74	TH
2010/11	Minimum			17.93	784.61	
	Maximum			20.09	786.77	
	Average			18.48	786.22	
	StdDev			1.073406	1.073406	
	Count			4	4	

T-11.5 - Piezometer Water Level Results - P100A & P100B

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P100A	28.95	747.48	TH
		7/03/2011	P100A	29.06	747.37	TH
		3/08/2011	P100A	31.54	744.89	TH
		5/09/2011	P100A	31.15	745.28	TH
2010/11	Minimum			28.95	744.89	
	Maximum			31.54	747.48	
	Average			30.175	746.255	
	StdDev			1.36109	1.36109	
	Count			4	4	

EPL 11436	Statistics	Date	Site Code	Depth to Water m	RL water level	Sampler
		18/11/2010	P100B	78.12	698.31	TH
		7/03/2011	P100B	78.14	698.29	TH
		3/08/2011	P100B	78.14	698.29	TH
		5/09/2011	P100B	78.14	698.29	TH
2010/11	Minimum			78.12	698.29	
	Maximum			78.14	698.31	
	Average			78.14	698.30	
	StdDev			0.01	0.01	
	Count			4	4	

T-12 - Water Volume Results - Evaporation Dam 3

Date	ED3S	ED3N	ED3N Lagoon 1	ED3N Lagoon 2	ED3N Lagoon 3	ED3N Lagoon 4	Total Volume ED3 System
	Volume ML	Volume ML	Volume ML	Volume ML	Volume ML	Volume ML	
Sep-10	80	67.29	16.53	5.70	9.05	36.01	147.29
Oct-10	85	70.08	16.29	0.52	9.76	43.50	155.08
Nov-10	80	76.74	16.85	0.13	9.54	50.22	156.74
Dec-10	90	85.33	17.08	0.57	16.14	51.54	175.33
Jan-11	93	79.13	11.70	2.63	15.88	48.92	172.13
Feb-11	97	78.21	11.12	2.49	15.36	49.24	175.21
Mar-11	93	73.78	10.55	2.10	14.80	46.34	166.78
Apr-11	93	72.49	10.34	1.91	14.54	45.70	165.49
May-11	90	67.89	8.61	1.67	14.11	43.50	157.89
Jun-11	85	65.94	8.00	1.58	13.80	42.57	150.94
Jul-11	105	65.31	7.53	1.63	13.74	42.42	170.31
Aug-11	85	72.30	7.86	5.39	13.98	45.07	157.30
Minimum	80	65.31	7.53	0.13	9.05	36.01	147.29
Mean	89.67	72.87	11.87	2.19	13.39	45.42	163.02
Maximum	105	57.9	13.3	13.3	13.3	13.3	175.33

T-13.1 - IMF Surface Water Results - Site 110

	Statistics	Field Information										Analytical Information																		
EPL 11455		Date	Site Code	Time	Sampler	pH	Conductivity	Temperature oC	Dissolved Oxygen	Redox	Flow	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Ammonia (Nitrogen)	Total Kjeldahl Nitrogen	Phosphorus Reactive	Total Suspended Solids	Oil & Grease
							uS/cm							mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		9/09/2010	110	11.08	TH	7.3	852	9.8	9.44	186.3		801647	7.7	89	850	610	15	2	2.1	0.01	0.26	0.0006	0.53	0.04	1.1	0.03	4	2
		9/11/2010	110	10.1	TH	6.26	1931	15.1	6.75	235.9	low flow, 8mm	809589	7.7	120	1900	1300	14	2	1.3	0.004	0.2	0.0005	0.069	0.11	0.9	0.02	4	2
		12/01/2011	110	13.46	TH	7.43	1073	20.1	5.2	103.5	odium flow, 34n	818615	7.7	73	1100	790	21	2	2.3	0.003	0.2	0.0004	0.035	0.02	1.2	0.04	2	2
		8/03/2011	110	9.48	TH	7.24	1269	14.2	2.2	99.6	no flow	827742	7.4	3.2	1300	1100	1	66	3	0.37	310	0.26	8.8	0.01	25	4.1	4600	2
		5/07/2011	110	10.15	TH	6.95	1695	9.6	9.12	-51.2	low flow	844815	7.9	110	1700	870	12	5	5.4	0.01	0.46	0.0002	0.013	0.17	0.6	0.02	3	1
		4/08/2011	110	9.56	TH	6.93	2670	7.9	9.4	8.4	low flow	848730	7.8	180	2600	1800	14	4	5.8	0.004	4.2	0.0005	0.059	0.01	0.9	0.08	34	2
2010/11	Minimum					6.26	852	7.9	2.2	-51.2			7.4	3.2	850	610	1	2	1.3	0.003	0.2	0.0002	0.013	0.01	0.6	0.02	2	1
	Maximum					7.43	2670	20.1	9.44	235.9			7.9	180	2600	1800	21	66	5.8	0.37	310	0.26	8.8	0.17	25	4.1	4600	2
	Average					7.0183	1581.66667	12.7833333	7.018333	97.083			7.7	95.86667	1575	1078.333	12.83333	13.5	3.32	0.066833	52.55	0.0437	1.584	0.06	4.95	0.715	774.5	1.833333
	StdDev					0.4208	664.569535	4.55605824	2.917138	106.89			0.167	58.33992	632.2578588	428.0849	6.554896	25.75	1.85	0.148554	126.1	0.105965013	3.54	0.0657267	9.824612	1.6584541	1874.1451	0.408248
	Count					6	6	6	6	6			6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

T-13.2 - IMF Surface Water Results - Site 130

	Statistics	Field Information										Analytical Information																		
EPL 11455		Date	Site Code	Time	Sampler	pH	Conductivity	Temperature oC	Dissolved Oxygen	Redox	Flow	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Ammonia (Nitrogen)	Total Kjeldahl Nitrogen	Phosphorus Reactive	Total Suspended Solids	Oil & Grease
							uS/cm							mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		9/09/2010	130	11.52	TH	7.58	282	11.1	11.76	130.9		801649	7.8	17	290	190	15	2	2	0.002	0.68	0.0004	0.007	0.05	1.1	0.03	3	2
		9/11/2010	130	10.47	TH	6.55	491	18.4	9.61	116.1	low flow, 8mm	809591	7.8	12	490	310	10	2	1.6	0.001	0.25	0.0002	0.005	0.1	0.6	0.01	2	2
		12/01/2011	130	14.14	TH	7.43	436	21.7	7.22	102.6	odium flow, 34n	818617	7.6	8	440	300	21	2	3.3	0.001	0.99	0.0002	0.005	0.01	1.2	0.03	2	2
		8/03/2011	130	9.32	TH	7.12	477	14.6	3.27	85.3	low flow	827744	7.6	3.2	480	310	12	2	2.4	0.001	0.87	0.0002	0.01	0.01	0.6	0.01	4	1
		5/07/2011	130	10.44	TH	7.27	569	7.7	12.45	-21.7	low flow	844817	8	24	570	340	8	2	3.1	0.001	0.25	0.0002	0.005	0.07	0.4	0.01	10	1
		4/08/2011	130	10.17	TH	7.17	593	8.1	8.77	10.6	low flow	848732	7.9	28	600	350	6	2	2.5	0.001	0.13	0.0002	0.005	0.01	0.3	0.01	3	2
		11/11/2011	130	10.08	TH	7.29	420	17.3	5.94	-158.9	low, 36mm in 48hrs																	
2010/11	Minimum					6.55	282	7.7	3.27	-158.9			7.6	3.2	290	190	6	2	1.6	0.001	0.13	0.0002	0.005	0.01	0.3	0.01	2	1
	Maximum					7.58	593	21.7	12.45	130.9			8	28	600	350	21	2	3.3	0.002	0.99	0.0004	0.01	0.1	1.2	0.03	10	2
	Average					7.2014	466.857143	14.1285714	8.431429	37.843			7.783	15.36667	478.3333333	300	12	2	2.48	0.001167	0.528	0.000233333	0.006	0.0416667	0.7	0.01666667	4	1.666667
	StdDev					0.3266	103.562266	5.36492134	3.241581	103.46			0.16	9.4914	109.8028536	57.27128	5.403702	0	0.64	0.000408	0.365	8.16497E-05	0.002	0.0381663	0.368782	0.01032796	3.0331502	0.516398
	Count					7	7	7	7	7			6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

T-13.3 - IMF Surface Water Results - Site 150

	Statistics	Field Information										Analytical Information																		
EPL 11455		Date	Site Code	Time	Sampler	pH	Conductivity	Temperature oC	Dissolved Oxygen	Redox	Flow	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Ammonia (Nitrogen)	Total Kjeldahl Nitrogen	Phosphorus Reactive	Total Suspended Solids	Oil & Grease
							uS/cm							mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		9/09/2010	150	11.24	TH	7.51	517	10.9	9.23	170.5		801648	7.7	44	430	360	16	2	2.2	0.006	0.46	0.0006	0.14	0.01	1.4	0.03	3	2
		9/11/2010	150	11.07	TH	6.47	1246	18.5	2.44	112.2	edium flow, 8m	809590	7.7	68	1200	750	11	2	2	0.002	0.11	0.0002	0.021	0.11	0.7	0.02	2	2
		12/01/2011	150	14.36	TH	7.57	516	21.9	7.07	98.3	odium flow, 34n	818616	7.7	13	520	360	18	2	3.2	0.03	0.51	0.0003	0.016	0.04	1.1	0.03	3	2
		8/03/2011	150	8.55	TH	7.77	942	16.9	7.41	89.3	low flow	827743	8.2	30	930	580	12	5	2.6	0.002	0.16	0.0004	0.02	0.01	1.8	0.17	13	1
		5/07/2011	150	11.09	TH	7.97	859	7.5	12.32	4.4	low flow	844816	8.5	35	860	520	6	2	3.3	0.002	0.04	0.0002	0.005	0.17	0.4	0.01	2	1
		4/08/2011	150	10.34	TH	7.69	1068	9.4	13.3	21.4	low flow	848731	8.3	56	1100	660	7	4	3.5	0.001	0.05	0.0002	0.005	0.01	0.4	0.01	3	2
2010/11	Minimum					6.47	516	7.5	2.44	4.4			7.7	13	430	360	6	2	2	0.001	0.04	0.0002	0.005	0.01	0.4	0.01	2	1
	Maximum					7.97	1246	21.9	13.3	170.5			8.5	68	1200	750	18	5	3.5	0.03	0.51	0.0006	0.14	0.17	1.8	0.17	13	2
	Average					7.4967	858	14.1833333	8.628333	82.683			8.017	41	840	538.3333	11.66667	2.833	2.8	0.007167	0.222	0.000316667	0.035	0.0583333	0.966667	0.045	4.3333333	1.666667
	StdDev					0.5283	294.939316	5.72517831	3.950268	61.245			0.36	19.5141	308.609786	158.293	4.760952	1.329	0.62	0.011321	0.209	0.000160208	0.052	0.0670572	0.568038	0.06188699	4.2739521	0.516398
	Count					6	6	6	6	6			6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

T-13.4 - IMF Surface Water Results - First Flush System

	Statistics	Field Information										Analytical Information																		
EPL 11455		Date	Site Code	Time	Sampler	pH	Conductivity	Temperature oC	Dissolved Oxygen	Redox	Flow	Laboratory Sample Code	pH	Sulfate	Conductivity	Total Dissolved Solids	Total Organic Carbon	BOD	Total Potassium	Total Copper	Total Iron	Total Lead	Total Zinc	Ammonia (Nitrogen)	Total Kjeldahl Nitrogen	Phosphorus Reactive	Total Suspended Solids	Oil & Grease
							uS/cm							mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
		9/09/2010	dF First Flus	11.41	TH	7.71	122	10.5	13.39	61.6		801650	7.4	7.4	120	90	10	34	9	0.008	1.1	0.014	0.095	0.01	0.9	0.1	120	2
		9/11/2010	dF First Flus	10.34	TH	6.7	122.5	16.7	11.36	112.5	nil flow, 8mm	809592	7.8	5.8	120	82	8	46	8.7	0.009	0.96	0.01	0.056	0.09	1.2	0.02	100	3
		12/01/2011	dF First Flus	14.00	TH	6.78	122.5	20.2	12.58	134.7	Nil flow, 34mm	818618	7.1	7.1	180	120	26	110	9.4	0.008	5.2	0.0067	0.061	0.01	1.9	0.19	350	3
		8/03/2011	dF First Flus	9.19	TH	6.64	117.5	13.8	0.25	15.4	no flow	827745	6.7	3.6	120	130	23	19	3.1	0.002	2.6	0.002	0.013	0.01	1.4	0.12	400	1
		5/07/2011	dF First Flus	10.31	TH	7.13	178.7	7.1	6.97	-64	no flow	844818	7.1	11	170	110	22	70	13	0.007	1.2	0.0085	0.054	0.01	0.9	0.08	110	1
		4/08/2011	dF First Flus	10.06	TH	7.25	206.1	8.6	9.04	4.6	low flow	848733	7.2	11	200	120	8	69	13	0.004	0.65	0.0024	0.049	0.02	0.4	0.02	64	2
2010/11	Minimum					6.64	117.5	7.1	0.25	-64			6.7	3.6	120	82	8	19	3.1	0.002	0.65	0.002	0.013	0.01	0.4	0.02	64	1
	Maximum					7.71	206.1	20.2	13.39	134.7			7.8	11	200	130	26	110	13	0.009	5.2	0.014	0.095	0.09	1.9	0.19	400	3
	Average					7.035	144.883333	12.8166667	8.931667	44.133			7.217	7.65	151.6666667	108.6667	16.16667	58	9.37	0.006333	1.952	0.007266667	0.055	0.025	1.116667	0.08833333	190.66667	2
	StdDev					0.4109	37.8591292	5.02768999	4.864465	73.841			0.366	2.920103	36.00925807	18.8326	8.352644	32.28	3.64	0.002733	1.729	0.004605938	0.026	0.0320936	0.511534	0.06462714	144.89536	0.894427
	Count					6	6	6	6	6			6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6

T-14 - Dust Deposition Results - DG18 IMF

Site Name	Date	Total Solids	Soluble Matter	Insoluble Solids	Combustibles	Ash Residue	Calculated Rainfall
		g/m2/mth	g/m2/mth	g/m2/mth	g/m2/mth	g/m2/mth	mm
DG18	Sep-10	2.5	1.3	1.2	0.1	1.1	60
DG18	Oct-10	29.9	7.9	22	2.8	19.2	91
DG18	Nov-10	2.3	1.7	0.6	0.2	0.4	114
DG18	Dec-10	10.4	2.9	7.5	1.1	6.4	114
DG18	Jan-11	3.4	2.8	0.6	0.1	0.5	10
DG18	Feb-11	2.7	1.8	0.9	0.4	0.5	111
DG18	Mar-11	2.5	2.3	0.2	0.1	0.2	77
DG18	Apr-11	0.4	0.1	0.3	0.2	0.1	17
DG18	May-11	1.3	0.1	1.2	0.6	0.6	31
DG18	Jun-11	2.7	0.4	2.3	0.4	1.9	27
DG18	Jul-11	0.4	0.1	0.4	0.1	0.3	25
DG18	Aug-11	2.5	2.2	0.3	0.1	0.2	93

2010/2011	Min	0.4	0.1	0.2	0.1	0.1	10
	Avg	5.08	1.97	3.13	0.52	2.62	64.17
	Max	29.9	7.9	22	2.8	19.2	114
	stDev	8.23	2.14	6.28	0.78	5.51	40.53

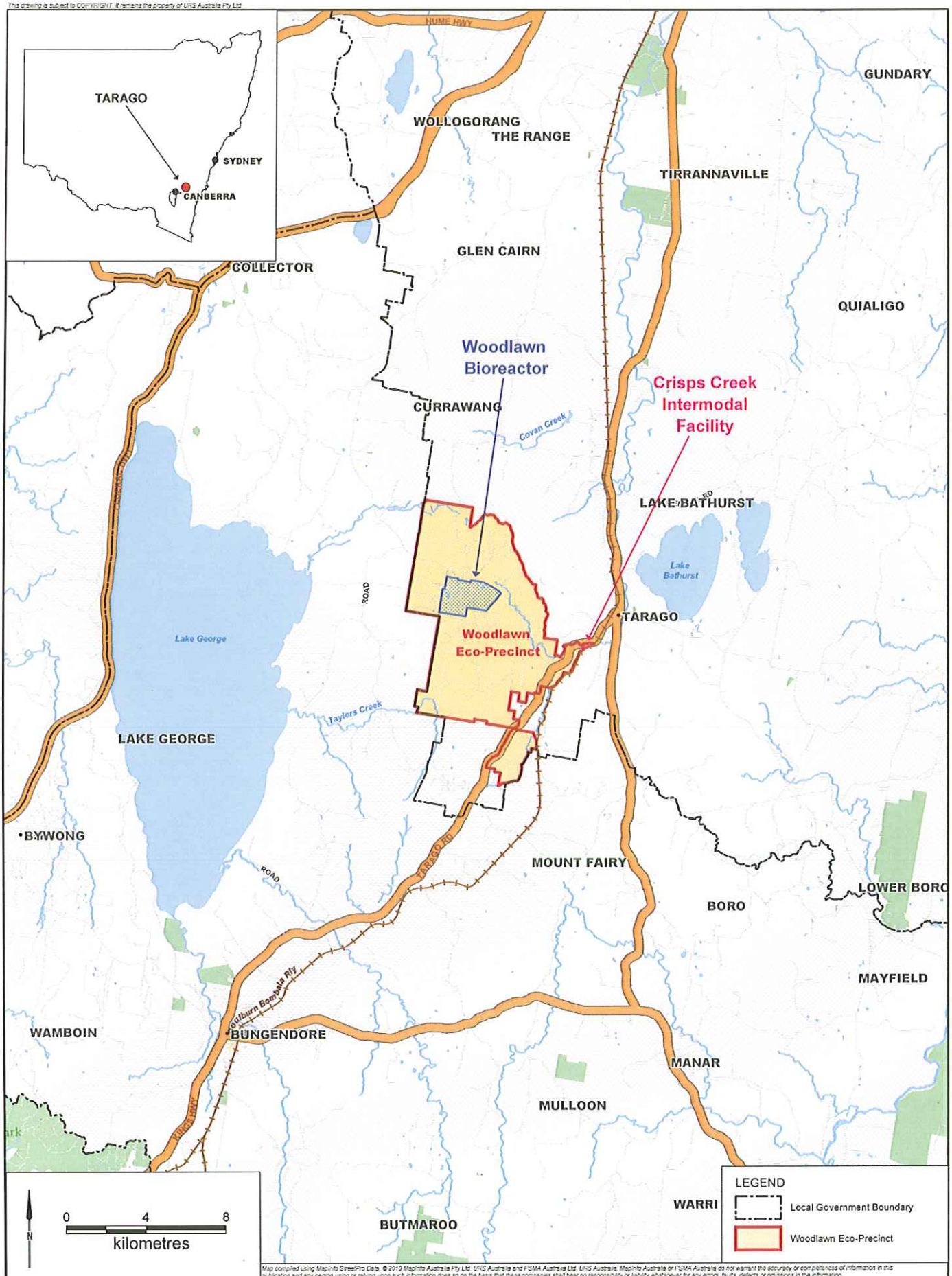
APPENDICES

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APPENDIX 1 – SITE LOCATION PLAN

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Client	Project	Title
VEOLIA ENVIRONMENTAL SERVICES PTY LTD	WOODLAWN EXPANSION PROJECT	WOODLAWN ECO-PRECINCT LOCATION

URS

Drawn: SB	Approved: LO	Date: 06/08/2010
Job No: 43177703	File No: 43177703.018.wor	

Figure: 1.1

APPENDIX 2 – EPL BOUNDARY

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North

EVAPORATION DAM 2

EVAPORATION DAM 1

Lot 30 DP 754919

Lot 25 DP 754919

EVAPORATION DAM 3

EVAPORATION DAM 3

3

WEST RIDGE

5

OFFICE AREA

4

PLANT COLLECTION DAM

DISUSED PLANT AREA

1

HICKORY'S PADDOCK

RAW WATER DAM

DOLORITE STOCKPILE

2

Lot 91 DP 754919

Lot 88 DP 754919

MINE VOID

Lot 19 DP 827588

LAKE GEORGE CATCHMENT

WASTE ROCK DAM

REHABILITATED WASTE DUMP

WOLLONDILLY CATCHMENT

NORTH TAILINGS DAM

WEST TAILINGS DAM

SOUTH TAILINGS DAM

LAKE GEORGE CATCHMENT

AREA SOURCE - WOODWARD-CLYDE DRAWING A8602362/0600

PROJECT AREAS

1 - ACCESS ROAD
2 - MINE VOID
3 - EVAPORATION DAM
4 - OFFICES, WORKSHOP, POWER GENERATING INFRASTRUCTURE
5 - PIPELINE

Cad ref: J:\MMPL\10407001\Cad\LEMP\LEMP-10407001-560.dwg

Last modified: 23 Jun 04 - 15:00

REVISIONS				
No.	BY	DATE	DESCRIPTION	APPD
A	SGG	23.6.04		

Before commencing work, all controlling dimensions on the drawings must be verified on the site, particularly those relative to property allgnments, other structures, and services.

Figured dimensions take preference over scaled. If in doubt, ask.

SCALES

0 100 200 300 400m

1 : 1500 at A3

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THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE MAUNSELL AUSTRALIA QUALITY ASSURANCE SYSTEM CERTIFIED TO AS/NZS ISO 9001-1994

	PREPARED	CHECKED	
DESIGN			PASSED
DRAFTING	PM		DATE

maunsell

Maunsell Australia Pty Ltd A.B.N. 20 093 846 925
An AECOM company

WOODLAWN BIOREACTOR

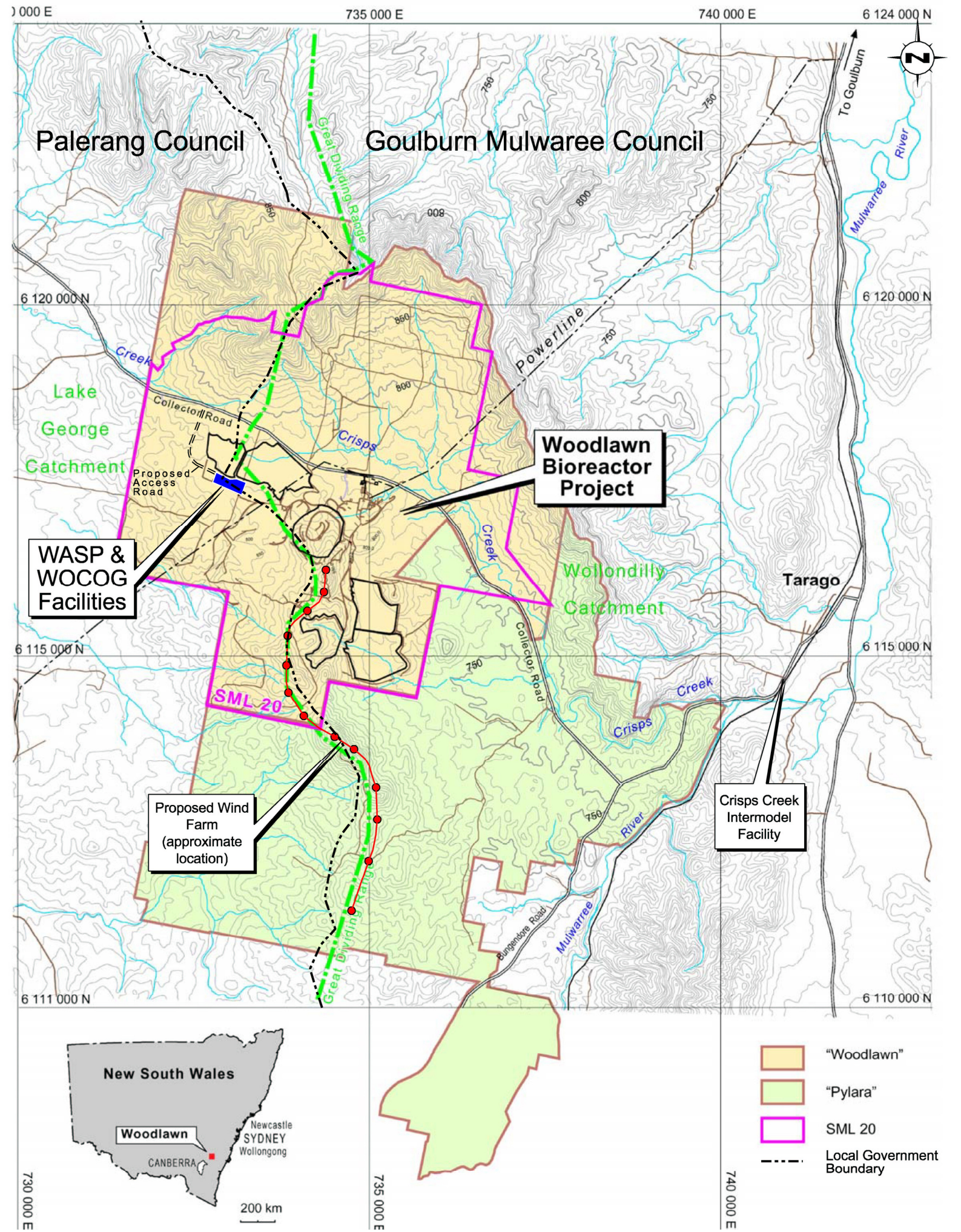
WOODLAWN MINE SITE

LICENCED PREMISES

10407001-560 | A

APPENDIX 3 – SML20 BOUNDARY

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000 E
735 000 E
740 000 E
6 124 000 N
Palerang Council
Goulburn Mulwaree Council
Great Dividing Range
To Goulburn
Mulwarree River
6 120 000 N
Powerline
Lake George Catchment
Collector Road
Crisps Creek
Proposed Access Road
Woodlawn Bioreactor Project
WASP & WOCOG Facilities
Wollondilly Catchment
Tarago
6 115 000 N
SML 20
Proposed Wind Farm (approximate location)
Crisps Creek Intermodel Facility
Bungendore Road
6 111 000 N
6 110 000 N
New South Wales
Woodlawn
Newcastle
SYDNEY
Wollongong
CANBERRA
200 km
730 000 E
735 000 E
740 000 E
"Woodlawn"
"Pylara"
SML 20
Local Government Boundary

APPENDIX 4 – CLAY LINING PLAN

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	HEIGHT DATUM : AHD CONTOUR INTERVAL : 5m	PLAN	Sheet No. 1
	0 15 30 45 60 METRES SCALE 1:1250	WOODLAWN BIOREACTOR CLAY LINING MARCH 2011	No. of Sheets: 1 Date: 22/11/2011 Ref. No: 16700 Drawing No. 35 / Issue A

LandTeam
Powering your Development

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Incorporating Kells Land Surveyors
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APPENDIX 5 – CLYDE WASTE SCREENING PROCEDURE

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NSW Clyde Transfer Terminal Screening and Recording of Waste

Objective

There are two main screening points when waste is delivered to the site:

- Weighbridge operator questions driver as to contents of load, with follow up inspection if necessary, before allowing vehicle to proceed to the tipping facility.
- Site Plant Operator inspection of waste as it is discharged from vehicle, to check for non-conforming waste.

The weighbridge operator is also responsible for recording all details of the waste accepted onto the site.

Activity

2.1 Weighbridge

2.1.1 As the vehicle approaches the weighbridge the weighbridge operator will check the customer details by entering the vehicle's registration number on COPS. If there are any concerns or queries, the site manager will be contacted and the driver's office may be contacted.

2.1.2 In the case of a new or infrequent user, the weighbridge operator will follow the Procedure for New Customers.

2.1.3 The driver will indicate to the weighbridge operator the waste type that is in the load. The weighbridge operator will be trained in the waste types that are not permitted at the site.

2.1.4 From visual inspection, knowledge of the customer (if appropriate), driver response and weight of the waste, the weighbridge operator will assess whether the load is suitable to be allowed on the site.

2.1.5 Should there be any reason to not permit the load onto the site, the customer will be informed and a log of waste rejected will be kept. The Procedure for Waste Rejection will be followed.

2.1.6 Once the weighbridge operator is satisfied that the waste appears acceptable, the following details will be recorded on the site database:

- Date
- Time
- Vehicle Registration
- Customer
- Gross weight
- Waste type

An open ticket will be processed on COPS with the above details.

2.1.7 The weighbridge operator will direct the driver to front of the tipping facility where he will stop at the STOP sign and wait for a signal from the Plant Operator as to where to tip his load

2.1.8 Once the load has been tipped the vehicle will proceed to the weighbridge on the exit side (where applicable) and a tare weight will be recorded. A transaction docket will be produced confirming the key details above, and the weighbridge operator will obtain the driver's signature (where applicable) to confirm the details. A copy will be given to the driver, and copies will be retained on the site for invoicing and records.

2.2 Inspection at Unloading Point

2.2.1 Site operators are trained to recognise wastes that are not to be accepted at the site. In addition, operators will be trained to recognise wastes discharged in an incorrect part of the site.

2.2.2 As the waste truck discharges its load, if the site operator sees a non-conforming waste, the truck driver will be informed and asked to wait at the weighbridge area. The site manager will be immediately informed who will arrange for the customer to be notified.

2.2.3 Where a non-conforming waste is identified, if appropriate, the site operator will isolate the load, either by leaving it or by moving it to a separate place so as not to cause hazard or disruption to others. The operator should follow the Procedure for Waste Rejection.

2.2.4 If the operator is in any doubt as to the contents of the load, the load will be left in place and the Site Manager consulted. If possible, the driver will be asked to provide any further information on the contents.

2.2.5 In the event that part or the entire load is to be rejected, Procedure for Waste Rejection will be followed.

End of Procedure

APPENDIX 6 – MONITORING LOCATIONS PLAN

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MINE GRID

Rev.	Description	By	Date
A	Site monitoring locations	B.R.	12/10/07

Kells Land Development Solutions
GOULBURN
88 Montague Street
PO Box 2060
GOULBURN NSW 2580
Ph: (02) 4821 2288
Fax (02) 4821 2288
Email: office@kellsurveyors.com.au
BRAIDWOOD
5 Village Terrace
Lascelles Street
BRAIDWOOD NSW 2622
Ph: (02) 4842 2288
Fax (02) 4842 2994

SCALE 1:12,500 (AT A1)

0 250 500 750 1000 1250
Metres

SURVEY	B.R
DESIGN	VEOLIA
DRAWN	B.R.
CHECKED	VEOLIA
APPROVED	VEOLIA

VEOLIA ENVIRONMENTAL SERVICES

WOODLAWN BIOREACTOR SITE MONITORING LOCATIONS

DATUM: AHD
ORIGIN OF LEVELS:
DRAWING No. 16800 - 220/1
REV. A

APPENDIX 8 – MB19 AND MB20 RESULTS

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T-8.17 - Groundwater Results - Monitoring Bore 19

Field Information / **Analytical Information**

SML20	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level
							uS/cm	oC	ppm	mV	m	
		27/10/2010	MB19	9.04	TH	7.15	5520	13.70	4.36		0.73	776.79
		8/12/2010	MB19	11.15	TH	5.17	5840	18.30	3.4		0.6	776.92
		30/03/2011	MB19	13.37	TH	6.93	5710	18.60	3.72		1.16	776.36
		28/06/2011	MB19	10.52	TH	6.95	5850	13.30	3.64		1.57	775.95
2010/11	Minimum					5.17	5520	13.3	3.4	0	0.6	775.95
	Maximum					7.15	5850	18.6	4.36	0	1.57	776.92
	Average					6.55	5730	15.975	3.78	#DIV/0!	1.015	776.505
	StdDev					0.925347	153.8397	2.865164	0.409878	#DIV/0!	0.440643	0.440643
	Count					4	4	4	4	0	4	4

SML20	Statistics	Date	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
		27/10/2010																				
		8/12/2010																				
		30/03/2011	831587	7.4	493	493	0.1	0.3	690	2300	5800	5200	13	0.002	25	25	100	100	1	1	1	2
		28/06/2011	843867	7.2	552	552	0.1		760	2300	5900	5700										
2010/11	Minimum			7.2	493	493	0.1	0.3	690	2300	5800	5200	13	0.002	25	25	100	100	1	1	1	2
	Maximum			7.4	552	552	0.1	0.3	760	2300	5900	5700	13	0.002	25	25	100	100	1	1	1	2
	Average			7.3	522.5	522.5	0.1	0.3	725	2300	5850	5450	13	0.002	25	25	100	100	1	1	1	2
	StdDev			0.141421	41.7193	41.7193	0	#DIV/0!	49.49747	0	70.71068	353.5534	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count			2	2	2	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1

SML20	Statistics	Date	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (HEX)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrate	Nitrite	Ammonia	Nitrate + Nitrite (oxidised nitrogen)	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		27/10/2010																								
		8/12/2010																								
		30/03/2011	0.05	0.001	0.02	810	520	180	2.4	0.019	0.023	0.000005	0.002	0.073	0.01	0.0001	3.2	0.00006	4.5	0.17	0.01	0.01	0.17	0.00001	0.0001	1
		28/06/2011				650	420	200	1.8					0.0065	0.02			0.00005	0.15			0.01				
2010/11	Minimum		0.05	0.001	0.02	650	420	180	1.8	0.019	0.023	0.000005	0.002	0.0065	0.01	0.0001	3.2	0.00005	0.15	0.17	0.01	0.01	0.17	0.00001	0.0001	1
	Maximum		0.05	0.001	0.02	810	520	200	2.4	0.019	0.023	0.000005	0.002	0.073	0.02	0.0001	3.2	0.00006	4.5	0.17	0.01	0.01	0.17	0.00001	0.0001	1
	Average		0.05	0.001	0.02	730	470	190	2.1	0.019	0.023	0.000005	0.002	0.03975	0.015	0.0001	3.2	0.000055	2.325	0.17	0.01	0.01	0.17	0.00001	0.0001	1
	StdDev		#DIV/0!	#DIV/0!	#DIV/0!	113.1371	70.71068	14.14214	0.424264	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.047023	0.007071	#DIV/0!	#DIV/0!	7.07E-06	3.075914	#DIV/0!	#DIV/0!	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count		1	1	1	2	2	2	2	1	1	1	1	2	2	1	1	2	2	1	1	2	1	1	1	1

T-8.18 - Groundwater Results - Monitoring Bore 20

Field Information / **Analytical Information**

SML20	Statistics	Date	Site Code	Time	Sampler	pH	Conductivity	Temperature	Dissolved Oxygen	Redox	Depth to Water	RL Water Level
							uS/cm	oC	ppm	mV	m	
		27/10/2010	MB20	9.2	TH	6.96	5330	14.2	3.23		1.36	776.66
		8/12/2010	MB20	11.2	TH	5.25	5490	16.3	2.6		1.13	776.89
		30/03/2011	MB20	13.21	TH	6.63	5450	18	2.59		1.47	776.55
		28/06/2011	MB20	10.42	TH	7.2	5720	13.8	3.1		2.07	775.95
2010/11	Minimum					5.25	5330	13.8	2.59	0	1.13	775.95
	Maximum					7.2	5720	18	3.23	0	2.07	776.89
	Average					6.51	5497.5	15.575	2.88	#DIV/0!	1.5075	776.5125
	StdDev					0.871894	163.1717	1.953416	0.333367	#DIV/0!	0.400864	0.400864
	Count					4	4	4	4	0	4	4

SML20	Statistics	Date	Laboratory Sample Code	pH	Alkalinity (as CaCO3)	Bicarbonate (as CaCO3)	Carbonate (as CaCO3)	Fluoride	Chloride	Sulfate	Conductivity	Total Dissolved Solids	Total Organic carbon	Total Phenolics	TPH C6-C9	TPH C10-C14	TPH C15-C28	TPH C29-C36	Benzene	Toluene	Ethyl Benzene	Xylene
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	uS/cm	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
		27/10/2010																				
		8/12/2010																				
		30/03/2011	831588	7.1	437	437	0.1	0.3	550	2400	5500	5200	10	0.002	25	25	100	100	1	1	1	2
		28/06/2011	843868	7.2	461	461	0.1		590	2500	5600	5300										
2010/11	Minimum			7.1	437	437	0.1	0.3	550	2400	5500	5200	10	0.002	25	25	100	100	1	1	1	2
	Maximum			7.2	461	461	0.1	0.3	590	2500	5600	5300	10	0.002	25	25	100	100	1	1	1	2
	Average			7.15	449	449	0.1	0.3	570	2450	5550	5250	10	0.002	25	25	100	100	1	1	1	2
	StdDev			0.070711	16.97056	16.97056	0	#DIV/0!	28.28427	70.71068	70.71068	70.71068	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count			2	2	2	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1

SML20	Statistics	Date	Diss Aluminium	Diss Arsenic	Total Barium	Diss Calcium	Diss Magnesium	Diss Sodium	Diss Potassium	Diss Cadmium	Diss Cobalt	Chromium (HEX)	Total Chromium	Diss Copper	Diss Iron	Diss Mercury	Diss Manganese	Diss Lead	Diss Zinc	Nitrate	Nitrite	Ammonia	Nitrate + Nitrite (oxidised nitrogen)	Organo-chlorine pesticides	Organo-phosphate pesticides	PAHs
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L
		27/10/2010																								
		8/12/2010																								
		30/03/2011	0.04	0.001	0.013	650	470	210	1.7	0.00058	0.0035	0.000005	0.001	0.0058	0.09	0.0001	0.14	0.001	0.17	0.01	0.01	0.01	0.01	0.00001	0.0001	1
		28/06/2011				640	470	220	1.9					0.0039	0.5			0.0013	0.017			2.8				
2010/11	Minimum		0.04	0.001	0.013	640	470	210	1.7	0.00058	0.0035	0.000005	0.001	0.0039	0.09	0.0001	0.14	0.001	0.017	0.01	0.01	0.01	0.01	0.00001	0.0001	1
	Maximum		0.04	0.001	0.013	650	470	220	1.9	0.00058	0.0035	0.000005	0.001	0.0058	0.5	0.0001	0.14	0.0013	0.17	0.01	0.01	2.8	0.01	0.00001	0.0001	1
	Average		0.04	0.001	0.013	645	470	215	1.8	0.00058	0.0035	0.000005	0.001	0.00485	0.295	0.0001	0.14	0.00115	0.0935	0.01	0.01	1.405	0.01	0.00001	0.0001	1
	StdDev		#DIV/0!	#DIV/0!	#DIV/0!	7.071068	0	7.071068	0.141421	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.001344	0.289914	#DIV/0!	#DIV/0!	0.000212	0.108187	#DIV/0!	#DIV/0!	1.972828	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
	Count		1	1	1	2	2	2	2	1	1	1	1	2	2	1	1	2	2	1	1	2	1	1	1	1

'<' removed from <LOR values