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Company: Florida Dept. of Environmental Protection
Address: Northeast District Office
8800 Baymeadows Way, Ste100
Jacksonville, FL 32256-7598

RE: BIENNIAL WATER QUALITY TECHNICAL REPORT – TRAIL RIDGE

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1	Report	**BIENNIAL WATER QUALITY TECHNICAL REPORT TRAIL RIDGE LANDFILL FDEP PERMIT NO. 0013493-017-SO WACS ID NO. NED/16100033628**

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ACKNOWLEDGEMENT REQUIRED:

☐ Yes ☒ No

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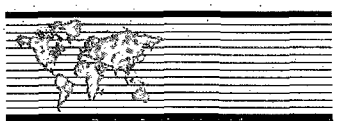

BIENNIAL WATER QUALITY TECHNICAL REPORT

Trail Ridge Landfill

FDEP Permit Number 0013493-017-SO

WACS ID Number NED/16/00033628

5110 U.S. Highway 301

Duval County, Jacksonville, Florida 32234

Submitted To: Florida Department of Environmental Protection
Northeast District Office
7825 Baymeadows Way, Suite B200
Jacksonville, Florida 32256-7590 USA

Florida Department of Environmental Protection
Solid Waste Section
2600 Blair Stone Road, MS 4565
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Submitted By: Golder Associates Inc.
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Distribution:

1 Copy – Florida Department of Environmental Protection Northeast District Office
1 Copy – Florida Department of Environmental Protection Solid Waste Section
1 Copy – Trail Ridge Landfill, Inc.
1 Copy – Waste Management of Florida
2 Copies – Golder Associates Inc.

September 2013 **11390141.03**

Golder Associates

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September 27, 2013 11390141.03

Brian Durden
Florida Department of Environmental Protection
Northeast District Office
8800 Baymeadows Way, Suite 100
Jacksonville, Florida 32256-7598 USA

RE: BIENNIAL WATER QUALITY TECHNICAL REPORT, TRAIL RIDGE LANDFILL, DUVAL COUNTY, FLORIDA, PERMIT NO. 0013493-017-SO

Dear Mr. Durden:

Golder Associates Inc. (Golder) has prepared this biennial water quality technical report summarizing the August 2011 through February 2013 detection monitoring events for the Trail Ridge Landfill, owned by the City of Jacksonville and operated by Waste Management under Florida Department of Environmental Protection Permit Numbers 0013493-017-SO and WACS ID Number NED/16/00033628. This biennial report is submitted in accordance with monitoring and reporting requirements of Chapter 62-701.510 of the Florida Administrative Code (F.A.C.) and the Facility Permit.

If you have any questions regarding this report please contact the undersigned at (770) 496-1893.

Sincerely,

GOLDER ASSOCIATES INC.

Shannon S. George
Staff Hydrogeologist

Michael J. Smilley
Project Geologist

Kevin S. Brown, P.E.
Senior Consultant and Principal

cc: Trail Ridge Landfill Operating Record
Eric Parker, Waste Management of Florida

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1.0 INTRODUCTION

The Trail Ridge Landfill (Site; Facility) is an active municipal solid waste landfill that serves the City of Jacksonville and Duval County, Florida. The Facility is owned by the City of Jacksonville and operated by Waste Management in accordance with Florida Department of Environmental Protection (FDEP) Permit Number 0013493-017-SO issued September 16, 2009. The Facility previously operated under FDEP Permit Number 0013493-010-SC prior to the 2009 renewal.

FDEP Chapter 62-701.510(9)(b) and Facility Permit Specific Condition 45.s require preparation and submittal of a biennial (i.e., two-year) technical report which summarizes data collected from the groundwater, surface water, and leachate monitoring systems, including the following information:

- Tabular displays of detected monitoring parameters;
- Graphical displays of key indicator parameters detected;
- Monitoring well hydrographs;
- Trend analyses of consistently detected monitoring parameters;
- Comparisons among shallow, middle, and deep zone wells;
- Comparisons between background water quality and water quality in detection and compliance wells;
- Correlations between related parameters;
- Discussion of erratic and/or poorly correlated data;
- Interpretation of groundwater contour maps and evaluation of groundwater flow rates; and
- Evaluation of the adequacy of monitoring frequency and sampling locations for groundwater, surface water, and leachate based on results and site conditions.

The last biennial report was submitted in September 2011 for the February 2009 – March 2011 monitoring period. Golder Associates Inc. (Golder) has been retained to prepare the biennial technical report for this period, which includes semi-annual monitoring events conducted in August 2011, February 2012, July 2012, and February 2013. The following sections include relevant background information related to Site monitoring systems and present the data and evaluations described above. The Facility Permit requires submittal of the next biennial report, signed and sealed by a qualified groundwater professional, by September 30, 2015.

2.0 BACKGROUND INFORMATION

2.1 Site Location and Description

The Site is located in Jacksonville approximately five miles southwest of the intersection of US-301 and I-10 in southwestern Duval County along the border with Baker County, Florida (Figure 1). The Facility is an active municipal solid waste landfill with a disposal area of approximately 144 acres which accepts waste from the City of Jacksonville and Duval County. The landfill was constructed in sixteen phases and will be operated and closed in phases. The Facility operates a waste tire processing facility and active gas collection system, and the Facility design includes wetland mitigation, a stormwater management system, and environmental monitoring systems for groundwater, surface water, and methane gas.

2.2 Water Quality Monitoring Systems

The Site has three water quality monitoring systems: (1) groundwater; (2) surface water; and (3) leachate. Each system has different monitoring requirements, locations, frequency, parameters, and regulatory standards for comparison. The following sections provide monitoring details for each of the Site water quality monitoring systems.

2.2.1 Groundwater Monitoring System

The Site maintains a groundwater monitoring system in accordance with Facility Permit Specific Condition 45, which provides guidance related to system design, operation, monitoring, and reporting.

2.2.1.1 Monitoring Locations

Figure 2 shows the Site groundwater monitoring well locations. The Site groundwater monitoring system consists of thirty-seven (37) groundwater monitoring wells screened at shallow (S), intermediate (I), and deep (D) depths within the uppermost, surficial aquifer. These include:

- Sixteen (16) shallow wells: MWB-2(S), MWB-3(S), MWB-7(S), MWB-11(S), MWB-12(S), MWB-13(S), MWB-17(S), MWB-19(S), MWB-20(S), MWB-21(S), MWB-22(S), MWB-27(S), MWB-29(S), MWB-32(S), MWB-33(S), MWB-34(S);
- Twelve (12) intermediate wells: MWB-2(I), MWB-3(I), MWB-7(I), MWB-11(IR), MWB-12(I), MWB-13(I), MWB-17(I), MWB-19(I), MWB-27(I), MWB-29(I), MWB-32(I), MWB-34(I); and
- Nine (9) deep wells: MWB-7(D), MWB-12(D), MWB-17(D), MWB-19(D), MWB-27(D), MWB-29(D), MWB-31(D), MWB-32(D), MWB-34(D).

Background wells MWB-2(S), MWB-3(S), MWB-2(I), MWB-3(I), and MWB-31(D) demonstrate background water quality for the facility because they are located upgradient from landfill waste. The remaining wells listed above are utilized for compliance or detection monitoring purposes associated with various phases of landfill development. The following table indicates which wells are associated with each phase and function (e.g., background, compliance, or detection).

Trail Ridge Groundwater Monitoring Program Details

Well Type	Well ID
Background Well Clusters	
Background	MWB-2(S), MWB-2(I), MWB-3(S), MWB-3(I), MWB-31(D)
Phase I	
Compliance	MWB-7(S), MWB-7(I), MWB-7(D), MWB-11(S), MWB-11(IR), MWB-12(S), MWB-12(I), MWB-12(D), *MWB-14(S)*, MWB-14(I)*, MWB-14(D)**, MWB-19(S), MWB-19(I), MWB-19(D), MWB-20(S), MWB-21(S), MWB-22(S)
Phase II	
Compliance	MWB-17(S), MWB-17(I), MWB-17(D)
Phase III and Phase IV	
Compliance	MWB-13(S), MWB-13(I), *MWB-23(S)**
Detection	MWB-33(S), MWB-34(S), MWB-34(I), MWB-34(D)
Phase V	
Compliance	*MWB-24(S)*, MWB-25(S)*, MWB-25(I)*, MWB-25(D)*, MWB-26(S)**, MWB-27(S), MWB-27(I), MWB-27(D), MWB-29(S), MWB-29(I), MWB-29(D)
Detection	MWB-32(S), MWB-32(I), MWB-32(D)

As indicated in the Permit, the nine wells shown above in italics with an asterisk (*) -- MWB-14(S), MWB-14(I), MWB-14(D), MWB-23(S), MWB-24(S), MWB-25(S), MWB-25(I), MWB-25(D), and MWB-26(S) -- are maintained but are not currently utilized for routine monitoring.

2.2.1.2 Monitoring and Reporting Frequency

Groundwater monitoring is conducted on a semi-annual basis prior to March 30 and September 30 of each year. The corresponding semi-annual data reports are submitted to FDEP for each sampling period no later than April 15 and October 15 of each year.

2.2.1.3 Monitoring Parameters

The Facility Permit requires analysis of groundwater samples for the parameters listed in Permit Attachment 6, which include:

Groundwater Field Parameters

- Static Water Level
- Specific Conductivity
- pH
- Dissolved Oxygen
- Turbidity
- Temperature
- Colors, Sheens

Groundwater Lab Parameters

- Total Ammonia – N
- Chloride
- Iron
- Mercury
- Nitrate
- Sodium
- Total Dissolved Solids (TDS)
- Parameters listed in 40 CFR Part 258 Appendix I

2.2.1.4 Regulatory Standards

F.A.C. Chapter 62-520 establishes classes and standards for groundwater. Permit Conditions 45.c and 45.d require that the water quality standards for Class G-II groundwater (Rule 62-520.420) will not be exceeded at the zone of discharge boundary and that minimum criteria for groundwater (Rule 62-520.400) are not violated within the zone of discharge.

The minimum criteria identified in F.A.C. Chapter 62-520.400 indicate that groundwater shall be "free from domestic, industrial, agricultural, or other man-induced non-thermal components of discharges" in concentrations which:

- Are harmful to plants, animals, or native organisms
- Are carcinogenic, mutagenic, teratogenic, or toxic to human beings unless specific criteria are established in Rule 62-520.420
- Are acutely toxic within surface waters affected by groundwater
- Pose a serious danger to public health, safety, or welfare and/or create a nuisance
- Impair the reasonable and beneficial use of adjacent waters

The Class G-II standards identified in F.A.C. Chapter 62-520.420 for potable groundwater in aquifers with total dissolved solids content less than 10,000 mg/L refer to primary and secondary drinking water quality standards listed in Rules 62-550.310 and 62-550.320, respectively, with the exception that the total coliform bacteria standard shall be 4 per 100 milliliters. The primary drinking water standards (PDWS) and secondary drinking water standards (SDWS) for parameters included in laboratory analysis are listed in Table 1. The only field parameter with an established drinking water standard under F.A.C. Rule 62-550.310 and 62.550.320 is pH, with an SDWS in the range of 6.5 to 8.5.

F.A.C. Chapter 62-520.420 indicates that "if the concentration for any constituent listed in subsection (1) above in the natural background quality of the ground water is greater than the stated maximum, or in the case of pH is also less than the minimum, the representative natural background quality shall be the prevailing standard for Class G-I and Class G-II ground water."

2.2.2 Surface Water Monitoring System

The Site maintains a surface water monitoring system in accordance with Facility Permit Specific Condition 46, which provides guidance related to system design, operation, monitoring, and reporting.

2.2.2.1 Monitoring Locations

The Site surface water monitoring system presently consists of three (3) surface water monitoring locations: SW-1, SW-2, and SW-3. Surface water monitoring location SW-1 is located in a wetland approximately 200 feet east of the facility's stormwater retention basin. SW-2 is located in an east-west trending drainage feature approximately 500 feet north of the landfill, and is considered a background water quality location because it does not receive surface water runoff from the landfill. SW-3 was established under the latest Permit issuance at the discharge point of the Site stormwater pond approximately 700 feet east of the landfill boundary. SW-3 is sampled at the discharge point if actively discharging or from the center of the pond if there is no active discharge.

2.2.2.2 Monitoring and Reporting Frequency

Surface water monitoring and reporting is conducted on a semi-annual basis in conjunction with groundwater monitoring events.

2.2.2.3 Monitoring Parameters

The Facility Permit requires analysis of surface water samples for the parameters listed in Permit Attachment 9, which include:

Surface Water Field Parameters

- Specific Conductivity
- pH
- Dissolved Oxygen
- Turbidity
- Temperature
- Colors, Sheens

Surface Water Lab Parameters

- Unionized Ammonia N
- Total Hardness
- Biochemical Oxygen Demand (BOD5)
- Copper
- Iron
- Mercury
- Nitrate
- Zinc
- Total Dissolved Solids (TDS)
- Total Organic Carbon (TOC)
- Fecal Coliform
- Total Phosphates
- Chlorophyll A
- Total Nitrogen
- Chemical Oxygen Demand (COD)
- Total Suspended Solids (TSS)
- Parameters listed in 40 CFR Part 258 Appendix I

2.2.2.4 Regulatory Standards

Facility Permit condition 46.d requires that surface water discharges shall not exceed quality standards for drinking water or surface water. In this case, drinking and surface water quality standards under F.A.C. Chapter 62-302 apply. F.A.C. Chapter 62-302 establishes minimum criteria and water quality standards for several classes of water including: Class I (potable water supplies), Class II (shellfish propagation or harvesting), Class III (fish consumption, recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife), Class IV (agricultural water supplies), and Class V (navigation, utility, and industrial use).

The minimum criteria identified in F.A.C. Chapter 62-302.500 indicate that surface waters shall be "free from domestic, industrial, agricultural, or other man-induced non-thermal components of discharges" which:

- Settle to form putrescent deposits or create a nuisance
- Float as debris, scum, oil, or other matter in such amounts to create a nuisance
- Produce color, odor, taste, turbidity, or other conditions to create a nuisance

- Are acutely toxic
- Are present in concentrations which are carcinogenic, mutagenic, or teratogenic to human beings or to significant, locally occurring fish a wildlife
- Pose a serious danger to public health, safety, or welfare

The surface water quality standards for each defined class are established in F.A.C. Chapter 62-302.530. Class I and Class III (predominantly fresh water) are the only applicable surface water classes for the Site. Standards for these two classes are provided in Table 2. In some cases, F.A.C. Chapter 62-302.530 requires calculations for Class I and III standards based on sample hardness. Table 3 provides equations and calculation results for analytes which require standard calculation, including cadmium, chromium, copper, lead, nickel, and zinc.

2.2.3 Leachate Monitoring System

The Site maintains a leachate monitoring system in accordance with Facility Permit Specific Condition 40, which provides guidance related to system design, operation, monitoring, and reporting.

2.2.3.1 Monitoring Locations

The Site leachate monitoring system currently consists of two (2) monitoring locations: LCS and LDSS. LCS is collected as a composite sample from leachate tanks 1 through 5 (COMP-1), which receive leachate from all of the primary leachate collection sumps via one force main. LDSS is collected from the secondary leachate collection system from the drain valve of the leachate detection storage tank (TANK-6).

During the previous permit period (i.e., before September 2009), gas condensate samples were collected on a semi-annual basis from the pump station and analyzed for toxicity characteristic leaching procedure (TCLP) parameters. Under current Facility Permit Specific Condition 38, separate testing of the gas condensate is no longer required because the condensate is discharged into the leachate collection system.

2.2.3.2 Monitoring and Reporting Frequency

Leachate monitoring is conducted on an annual basis prior to September 30 of each year. Results are submitted to FDEP each year along with groundwater and surface water monitoring data from the second semi-annual event.

2.2.3.3 Monitoring Parameters

The Facility Permit requires analysis of leachate samples for the parameters listed in Specific Condition 40, which include:

Leachate Field Parameters

- Specific Conductivity
- pH
- Dissolved Oxygen
- Colors, Sheens

Leachate Lab Parameters

- Total ammonia – N
- Nitrate
- Bicarbonate
- Chlorides
- Iron
- Mercury
- Sodium
- Total Dissolved Solids (TDS)
- Parameters listed in 40 CFR Part 258 Appendix II

2.2.3.4 Regulatory Standards

Leachate data is compared to regulatory standard values provided in 40 CFR 261.24 which define toxicity characteristics. Permit Condition 40 indicates that "if a contaminant listed in 40 CFR 261.24 exceeds the regulatory level listed therein, the Permittee shall follow the procedures addressed in F.A.C. Rule 62-701.510(6)(c)2, which includes notifying DEP of the results in writing and conducting monthly sampling and analysis, commencing within 30 days of the date of the sampling event in which the exceedance is first detected."

3.0 WATER QUALITY MONITORING RESULTS

Water quality monitoring results for groundwater, surface water, and leachate samples collected during this biennial period (i.e., August 2011 through February 2013) are presented in the following sections. The complete laboratory data reports were submitted to FDEP in the corresponding semi-annual monitoring reports.

3.1 Groundwater

Groundwater samples were collected from the thirty-seven (37) Site monitoring wells on a semi-annual basis in August 2011, February 2012, July 2012, and February 2013, except for MWB-13(S) in February 2012 because the well was dry. The following sections provide a summary of constituents detected in groundwater samples, comparison of detections to regulatory standards, and trend analyses. For those parameters without established PDWS or SDWS, groundwater cleanup target levels (GCTL) established under F.A.C. Chapter 62-777 (2005) were used for comparison. These GCTL values are provided with the associated parameters below.

Results for analytes detected in groundwater samples are shown in Table 4. Several laboratory analytes were detected in groundwater samples from more than one event conducted during this biennial period and are discussed in greater detail below by parameter type. Spurious detections which occurred in only one monitoring well during a single event are discussed separately in Section 3.1.5.

3.1.1 Appendix I Volatile Organic Compounds in Groundwater

The following Appendix I volatile organic compounds were detected more than once during August 2011 – February 2013 monitoring events.

Parameter:	Acetone
Wells:	*Several shallow, intermediate, deep wells*
Concentrations:	All below reporting limits (qualified with an "I")
Max. Concentration:	8.4 I ug/L at MWB-17(D) in February 2012
Standard:	GCTL 6,300 ug/L
Exceedance:	None

Parameter:	Carbon disulfide
Wells:	MWB-27(I) and MWB-17(D)
Concentrations:	One below reporting limits (qualified with an "I"); one above laboratory PQL
Max. Concentration:	1.1 ug/L at MWB-27(I) in July 2012
Standard:	GCTL 700 ug/L
Exceedance:	None

Parameter:	Toluene
Wells:	MWB-22(S), MWB-32(S), and MWB-12(I)
Concentrations:	Most below reporting limits (qualified with an "I")
Max. Concentration:	2.4 ug/L at MWB-32(S)in July 2012
Standard:	PDWS 1,000 ug/L
Exceedance:	None

None of the above detections exceeded applicable PDWS/SDWS or GCTL. The majority of these detections occurred only once in each well except for: acetone, which was detected at MWB-17(I) and MWB-17(D) in August 2011 and February 2012. None of the wells had multiple volatile organic compound detections during one or more events. The VOC detections have been sporadic and do not exhibit any clear trends.

3.1.2 Appendix I Metals in Groundwater

The following Appendix I metals were detected in one or more wells during August 2011 – February 2013 monitoring events.

Parameter:	Arsenic
Wells:	Several shallow, intermediate, deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	14 ug/L at MWB-19(D) in July 2012
Standard:	PDWS 10 ug/L
Exceedance:	MWB-19(D) in July 2012

Parameter:	Barium
Wells:	All shallow, intermediate, deep wells
Concentrations:	Range from 2.8 to 140 ug/L
Max. Concentration:	140 ug/L at MWB-19(D) in July 2012
Standard:	PDWS 2,000 ug/L
Exceedance:	None

Parameter:	Beryllium
Wells:	MWB-32(S), MWB-11(IR), and MWB-19(D)
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	3.1 ug/L at MWB-19(D) in July 2012
Standard:	PDWS 4 ug/L
Exceedance:	None

Parameter:	Cadmium
Wells:	Several shallow and intermediate wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	1.5 ug/L at MWB-19(D) in July 2012
Standard:	PDWS 5 ug/L
Exceedance:	None

Parameter:	Chromium
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	23 ug/L at MWB-19(D) in July 2012
Standard:	PDWS 100 ug/L
Exceedance:	None

Parameter:	Cobalt
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	2.7 ug/L at MWB-19(D) in July 2012
Standard:	GCTL 140 ug/L
Exceedance:	None

Parameter:	Copper
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	50 ug/L at MWB-33(S) in August 2011
Standard:	SDWS 1,000 ug/L
Exceedance:	None

Parameter:	Lead
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	24 ug/L at MWB-2(S) in August 2011
Standard:	PDWS 15 ug/L
Exceedance:	MWB-2(S) in August 2011 and MWB-32(S) in July 2012

Parameter:	Nickel
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	45 V ug/L at MWB-33(S) in August 2011
Standard:	PDWS 100 ug/L
Exceedance:	None

Parameter:	Selenium
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	21 ug/L at MWB-13(S) in July 2012
Standard:	PDWS 50 ug/L
Exceedance:	None

Parameter:	Vanadium
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	65 ug/L at MWB-12(S) in July 2012
Standard:	GCTL 49 ug/L
Exceedance:	MWB-12(S) in July 2012, and MWB-13(S) in August 2011, July 2012 and February 2013

Parameter:	Zinc
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	260 ug/L at MWB-34(S) in February 2013
Standard:	SDWS 5,000 ug/L
Exceedance:	None

Arsenic, lead, and vanadium were the only Appendix I metals detected at concentrations exceeding applicable PDWS/SWDS or GCTL. The vanadium exceedances have historically been attributed to elevated turbidity levels and have been limited to wells MWB-12(S) and MWB-13(S).

There do not appear to be any clear trends in the Appendix I metals data over time. However, concentrations of metals at certain locations were anomalously high, which are likely due to elevated turbidity readings in those wells during the corresponding monitoring events. These include: MWB-19(D) and MWB-32(S) in July 2012, and MWB-11(IR) in February 2012.

3.1.3 Water Quality Indicator Parameters in Groundwater

The following water quality indicator parameters were detected in one or more wells during the August 2011 – February 2013 monitoring events.

Parameter:	Ammonia
Wells:	All shallow, intermediate, and deep wells
Concentrations:	Most above reporting limits
Max. Concentration:	1,400 ug/L at MWB-34(S) in February 2012
Standard:	GCTL 2,800 ug/L
Exceedance:	None

Parameter:	Chloride
Wells:	All shallow, intermediate, and deep wells
Concentrations:	1.4 I mg/L to 260 J mg/L
Max. Concentration:	260 J mg/L at MWB-34(S) in August 2011
Standard:	SDWS 250 mg/L
Exceedance:	MWB-34(S) in August 2011

Parameter:	Iron
Wells:	All shallow, intermediate, and deep wells
Concentrations:	0.04 mg/L to 15 mg/L
Max. Concentration:	15 mg/L at MWB-19(D) in July 2012
Standard:	SDWS 0.3 mg/L
Exceedance:	Most detections

Parameter:	Mercury
Wells:	MWB-17(S), MWB-32(S), and MWB-3(I)
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	0.85 ug/L at MWB-17(S) in February 2013
Standard:	PDWS 2 ug/L
Exceedance:	None

Parameter:	Nitrate
Wells:	Several shallow, intermediate, and deep wells
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	4.4 mg/L at MWB-27(S) in February 2013
Standard:	PDWS 10 mg/L
Exceedance:	None

Parameter:	Sodium
Wells:	All shallow, intermediate, and deep wells
Concentrations:	1.8 mg/L to 79 mg/L
Max. Concentration:	79 mg/L at MWB-27(S) in February 2012
Standard:	PDWS 160 mg/L
Exceedance:	None

Parameter:	Total Dissolved Solids
Wells:	All shallow, intermediate, and deep wells
Concentrations:	8 mg/L to 570 mg/L
Max. Concentration:	570 mg/L at MWB-34(S) in February 2013
Standard:	SDWS 500 mg/L
Exceedance:	MWB-34(S) in February 2013

Trend plots for key indicator parameters are provided in Appendix A. Chloride, iron, and total dissolved solids (TDS) were the only laboratory water quality parameters detected at concentrations exceeding applicable PDWS/SWDS or GCTL.

- The chloride concentration at MWB-34(S) exceeded the SDWS of 250 mg/L during only the August 2011 event and was qualified as approximate ("J"). All other chloride detections at that location were well below the SDWS. Generally, chloride concentrations decreased slightly from August 2011 to February 2013 in most of the intermediate and deep wells; chloride fluctuations occurred in most shallow wells.
- Iron concentrations exceeded the SDWS of 0.3 mg/L at nearly all wells. As shown in Table 4, iron concentrations generally appear to increase with depth. However, there does not appear to be a consistent trend in individual wells across the site over time. Iron concentrations have historically been reported above the SDWS at this site and are considered to be reflective of natural groundwater conditions in the area. Iron in MWB-19(D) was anomalously high during the July 2012 event likely due to the high turbidity value measured.

- Total dissolved solids concentrations have historically exceeded the SDWS of 500 mg/L at MWB-34(S). However, there does not appear to be a consistent trend in individual wells across the site over time.

3.1.4 Field Parameters in Groundwater

Several field parameters were monitored during semi-annual events, including pH, specific conductance, and turbidity. Trend plots for these parameters are included in Appendix A and results are described below.

- pH: Measured values were typically less than 6.5 standard units (S.U.), which is below the acceptable SWDS range of 6.5 to 8.5 S.U. Groundwater pH generally increases with depth with values ranging from 3.52 to 6.23 S.U. in shallow wells; 4.03 to 5.53 S.U. in intermediate wells; and 5.19 to 7.64 S.U. in deep wells.
- Specific conductance (conductivity): Conductitivty values ranged from 25 to 888 umhos/cm in shallow wells; 3 to 52 umhos/cm in intermediate wells; and 35 to 429 umhos/cm in deep wells. In general, the shallow and deep wells had higher specific conductance readings than intermediate wells and MWB-34(S) had the highest values among all wells. In several of the wells the highest conductivity reading occurred in July 2012. There does not appear to be any clear trends in conductivity across the Site.
- Turbidity: Turbidity values were typically less than 29 nephelometric turbidity units (NTU) above background, with the following exceptions: MWB-32(I) in August 2011; MWB-11(IR) in February 2012; MWB-13(S), MWB-27(S), MWB-32(S), MWB-32(I), and MWB-19(D) in July 2012; and MWB-12(S) in February 2013. Turbidity values tend to be lowest in the deep wells; however, there do not appear to be any clear trends in turbidity across the Site.

3.1.5 Spurious Detections in Groundwater

The following parameters were detected in a single well during only one of the four biennial events for this period:

- 1,2-Dibromo-3-chloropropane at MWB-12(D) in August 2011 (0.013 I ug/L);
- 1,2-Dibromoethane at MWB-12(D) in August 2011 (0.013 I ug/L);
- Benzene at MWB-12(I) in February 2013 (0.14 I ug/L); and
- Thallium at MWB-19(D) in July 2012 (0.99 I ug/L)

These were all low-level detections which occurred at or below reporting limits.

3.2 Surface Water

Surface water samples were collected from the three (3) Site active monitoring locations, SW-1, SW-2, and SW-3, on a semi-annual basis in August 2011, February 2012, July 2012, and February 2013. The following sections provide a summary of constituents detected in surface water samples, comparison of detections to regulatory standards, and trend analyses.

Results for analytes detected in surface water samples are shown in Table 5. Several laboratory analytes were detected in surface water samples from more than one event conducted during this biennial period and are discussed in greater detail below by parameter type. Spurious detections which occurred in only one monitoring well during a single event are discussed separately in Section 3.2.5.

3.2.1 Appendix I Volatile Organic Compounds in Surface Water

Acetone was the only Appendix I volatile organic compound detected at one or more surface water locations during August 2011 – February 2013 monitoring events. These detections include:

- Acetone in SW-1 (5.4 I ug/L) and SW-2 (4.5 I ug/L) in August 2011, and at SW-3 in February 2012 (9.9 I ug/L) and July 2012 (82 ug/L)

These detections were all below reporting limits (qualified with an "I"), with the exception of acetone at SW-3 in July 2012, and did not exceed applicable primary or secondary drinking water standards (PDWS/SDWS). The detections appear to be sporadic and do not exhibit any clear trends.

3.2.2 Appendix I Metals in Surface Water

The following Appendix I metals were detected at one or more surface water locations during August 2011 – February 2013 monitoring events.

Parameter:	Antimony
Locations:	SW-2, SW-3
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	15 ug/L at SW-2 in July 2012
Standard:	Class I (14 ug/L), Class III (4,300 ug/L)
Exceedance:	SW-2 in July 2012
Action:	SW-2 was resampled in September 2012; the resampling result was non-detect

Parameter:	Arsenic
Locations:	SW-1, SW-3
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	2.8 ug/L at SW-3 in July 2012
Standard:	Class I (10 ug/L), Class III (50 ug/L)
Exceedance:	None

Parameter:	Barium
Locations:	SW-1, SW-2, SW-3
Concentrations:	Range from 45 ug/L to 110 ug/L
Max. Concentration:	110 ug/L at SW-2 in July 2013 and February 2013
Standard:	Class I (1,000 ug/L)
Exceedance:	None

Parameter:	Beryllium
Locations:	SW-2
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	0.78 ug/L at SW-2 in February 2013
Standard:	Class I (0.008 ug/L), Class III (0.13 ug/L)
Exceedance:	SW-2 in July 2012 and February 2013
Action:	SW-2 was resampled in September 2012; the resampling result confirmed the detection

Parameter:	Chromium
Locations:	SW-1, SW-2, SW-3
Concentrations:	Some below reporting limits (qualified with an "I")
Max. Concentration:	23 ug/L at SW-2 in July 2012
Standard:	Varies (calculated), range from 27.7 to 133 ug/L depending on hardness
Exceedance:	SW-2 in July 2012
Action:	SW-2 was resampled in September 2012; the resampling result was non-detect

Parameter:	Cobalt
Locations:	SW-1, SW-2, SW-3
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	1.5 ug/L at SW-2 in July 2012
Standard:	Not Established
Exceedance:	None

Parameter:	Copper
Locations:	SW-1, SW-2, SW-3
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	45 ug/L at SW-2 in July 2012
Standard:	Varies (calculated), range from 2.9 to 14.7 ug/L depending on hardness
Exceedance:	SW-2 in July 2012
Action:	SW-2 was resampled in September 2012; the resampling result was non-detect

Parameter:	Lead
Locations:	SW-1, SW-2. SW-3
Concentrations:	Some below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	36 ug/L at SW-3 in February 2012
Standard:	Varies (calculated), range from 0.54 to 6.3 ug/L depending on hardness
Exceedance:	SW-3 in February 2012; SW-1 and SW-2 in July 2012; SW-1 and SW-3 in February 2013
Action:	SW-2 was resampled in September 2012; the resampling result was below the reporting limit (qualified with an "I")

Parameter:	Nickel
Locations:	SW-1, SW-2, SW-3
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	61 ug/L at SW-2 in July 2012
Standard:	Varies (calculated), range from 5.63 to 73.5 ug/L depending on hardness
Exceedance:	SW-2 in July 2012
Action:	SW-2 was resampled in September 2012; the resampling result was below the reporting limit (qualified with an "I")

Parameter:	Selenium
Locations:	SW-1, SW-2, SW-3
Concentrations:	All below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	3.3 I ug/L at SW-3 in February 2012
Standard:	Class I (5 ug/L), Class III (5 ug/L)
Exceedance:	None

Parameter:	Vanadium
Locations:	SW-1, SW-2, SW-3
Concentrations:	Most below reporting limits (qualified with an "I" or non-detect)
Max. Concentration:	49 ug/L at SW-2 in July 2012
Standard:	Not Established
Exceedance:	None

Parameter:	Zinc
Locations:	SW-1, SW-2, SW-3
Concentrations:	Some below reporting limits (qualified with an "I")
Max. Concentration:	63 ug/L at SW-2 in July 2012
Standard:	Varies (calculated), range from 37.0 to 188 ug/L depending on hardness
Exceedance:	SW-2 in July 2012
Action:	SW-2 was resampled in September 2012; the resampling result was non-detect

There do not appear to be clear trends in the Appendix I metals data across multiple locations or parameters over time. Antimony, beryllium, chromium, copper, lead, nickel, silver, and zinc were the only Appendix I metals detected at concentrations exceeding applicable Class I or III surface water standards established (Table 2) or calculated based on hardness (Table 3). Most of these exceedances were attributed to low hardness readings at the surface water locations that resulted in low calculated standard values based on hardness, elevated turbidity readings leading to elevated metals detections, or were identified as anomalously high. Several of the surface water locations were resampled in September 2012 for constituents that exceeded the applicable standards in July 2012. Most of the resampling results were either non-detect or significantly lower than the original detection, except for the beryllium exceedance in SW-2, which was confirmed by the resampling event.

3.2.3 Water Quality Indicator Parameters in Surface Water

The following water quality indicator parameters with established standards were detected at one or more surface water locations during the August 2011 – February 2013 monitoring events.

Parameter:	Ammonia, Unionized
Locations:	SW-3
Concentrations:	Ranging from 0.61 to 50 ug/L
Max. Concentration:	50 ug/L at SW-3 in July 2012
Standard:	Class I (20 ug/L), Class III (20 ug/L)
Exceedance:	SW-3 in August 2011 and July 2012
Action:	SW-2 was resampled in September 2012; the resampling result was below the Class I/III standard

Parameter:	*Fecal Coliform*
Locations:	SW-1, SW-2, SW-3
Concentrations:	Ranging from 11 to 2,440 B CFU/100 mL ("B" indicates detected in blank sample)
Max. Concentration:	2,440 B CFU/100 mL at SW-3 in February 2013
Standard:	Class I (800 CFU/100 mL), Class III (800 CFU/100 mL)
Exceedance:	SW-2 and SW-3 in both August 2011 and February 2013

Parameter:	Iron
Locations:	SW-1, SW-2, SW-3
Concentrations:	Ranging from 0.22 V mg/L to 7.6 mg/L
Max. Concentration:	7.6 mg/L at SW-1 in July 2012
Standard:	Class I (1 mg/L), Class III (1 mg/L)
Exceedance:	SW-1 in July 2012 and February 2013; SW-3 in February 2012 and February 2013

Parameter:	Mercury
Locations:	SW-1, SW-2, SW-3
Concentrations:	Some below reporting limits (qualified with an "I")
Max. Concentration:	0.29 ug/L at SW-3 in February 2012
Standard:	Class I (0.012 ug/L), Class III (0.012 ug/L)
Exceedance:	SW-3 in August 2011 and February 2012

Parameter:	Nitrate as Nitrogen (N)
Locations:	SW-1, SW-2, SW-3
Concentrations:	Non-detect to 2.6 mg/L
Max. Concentration:	2.6 mg/L at SW-3 in February 2012
Standard:	Class I (10 mg/L)
Exceedance:	None

In addition, the following indicator parameters without *established surface water standards were detected:*

- Biological Oxygen Demand (BOD)
- Total Organic Carbon (TOC)
- Chemical Oxygen Demand (COD)
- Chlorophyll-a

- Hardness (calculated)
- Total Nitrogen
- Orthophosphate
- Total Phosphorus
- Total Dissolved Solids (TDS)
- Total Suspended Solids (TSS)

Trend plots for key indicator parameters in surface water are provided in Appendix A. There does not appear to be a consistent trend in key indicator parameter concentrations at surface water locations over time. Unionized ammonia, fecal coliform, iron, and mercury were detected at concentrations exceeding applicable surface water standards. Iron exceedances occurred at surface water locations SW-1 and SW-3 at concentrations ranging from 1 to 7.6 mg/L. The presence of iron is consistent with the groundwater results and is known to naturally occur in waters of the area. Most of the detections of fecal coliform were within the historical range of detections, with the exception of SW-3 in February 2013. There are no clear trends over time for the detections of mercury and unionized ammonia.

3.2.4 Field Parameters in Surface Water

Several field parameters were monitored at surface water locations during semi-annual events, including dissolved oxygen, pH, specific conductance, and turbidity. Trend plots for these parameters are included in Appendix A and results are described below.

- Dissolved oxygen (DO): DO values ranged from 4 to 6.2 mg/L in surface water samples. Detections less than 5.0 mg/L are considered outside the acceptable range based on Class I/III surface water standards. These detections include SW-1 (August 2011) and SW-3 (August 2011, February 2012, and July 2012). DO values at SW-1 and SW-3 fluctuated more greatly than at SW-2.
- pH: Measured values ranged from 4.83 to 7.15 standard units (S.U.) in SW-1; 4.14 to 6.12 S.U. in SW-2; and 6.96 to 7.32 S.U. in SW-3. The pH in SW-1 and SW-2 and are often recorded below 6.5 S.U. and the range of values vary more greatly than in SW-3. SW-1 and SW-3 often vary more greatly than one standard unit from SW-2, which is likely based on the location of the surface water monitoring points. SW-2 is in a stream upgradient of the landfill; SW-3 is the discharge point of the Site stormwater pond; and SW-1 is located in a wetland approximately 200 feet east of a stormwater retention basin.

- Specific conductance (conductivity): Conductance values ranged from 50 to 496 umhos. In general, conductance values were lowest at SW-2 and highest at SW-3.
- Turbidity: Turbidity values ranged from 4.11 to 31.86 NTU at SW-1; 2.52 to 9.77 NTU at SW-2; and 41.71 to 254.5 NTU at SW-3. Turbidity was greater than 29 NTU above background at SW-1 (July 2012) and SW-3 (February 2012 and February 2013).

There do not appear to be clear trends in the surface water field parameters over time.

3.2.5 Spurious Detections in Surface Water

The following parameters were detected in a single well during only one of the four biennial events for this period:

- 2-Butanone at SW-3 in July 2012 (77 ug/L)
- Carbon Disulfide at SW-3 in July 2012 (1.1 ug/L)
- Chloroform at SW-1 in August 2011 (1.2 ug/L)
- Toluene at SW-3 in July 2012 (20 ug/L)
- Cadmium at SW-2 in July 2012 (0.3 I ug/L)
- Silver at SW-2 in July 2012 (1.6 ug/L)

2-butanone, carbon disulfide, chloroform, toluene, cadmium, and silver detections in July 2012 were resampled in September 2012 and were not detected. The chloroform detection at SW-1 in August 2011 was not detected during any other monitoring events during this biennial period.

3.3 Leachate

Leachate samples were collected from the primary (LCS/COMP-1) and secondary (LDSS/TANK-6) leachate collection systems during the August 2011 and July 2012 monitoring events. Leachate monitoring results were reported in the corresponding semi-annual monitoring reports. The following parameters were detected in leachate samples collected during this biennial period:

- Water quality indicator parameters: iron, sodium, mercury, chloride, ammonia, nitrate-nitrite as N, bicarbonate alkalinity as $CaCO_3$, total dissolved solids, sulfide;
- Field parameters: pH, dissolved oxygen, specific conductance, temperature, and turbidity;
- Metals (Method 6020): antimony, arsenic, barium, cadmium, chromium, cobalt, copper, lead, nickel, selenium, silver, tin, vanadium, and zinc;

- VOCs (Method 8260C and 8011): 2-butanone, 1,2-dibromo-3-chloropropane, acetone, acetonitrile, benzene, chlorobenzene, ethylbenzene, isobutyl alcohol, 4-methyl-2-pentanone, propionitrile, toluene, and xylenes;
- SVOCs (Method 8270D): 2-methylphenol, 3&4 methylphenol, phenol, acetophenone, bis(2-ethylhexyl)phthalate, 1,4-dichlorobenzene, dimethyl phthalate, naphthalene, o-toluidine, phenol;
- Pesticides and PCBs (Methods 8081B and 8082A): 4,4'-DDD, beta-BHC, delta-BHC, endrin aldehyde, methoxychlor, 4,4'-DDT, dieldrin, heptachlor;
- Organophosphorous compounds and Herbicides (Methods 8141B and 8151A): ethyl parathion, thionazin, silvex, and
- Total Cyanide

None of the above detections exceeded regulatory standard values for toxicity characteristics listed in 40 CFR 261.24.

4.0 GROUNDWATER FLOW RATE AND DIRECTION EVALUATION

Table 6 provides groundwater elevations for each Site monitoring well calculated based on water levels measured during this biennial period (i.e., August 2011 – February 2013). Water level hydrographs for shallow, intermediate, and deep monitoring wells are provided in Appendix B.

Potentiometric maps were developed for the shallow, intermediate, and deep zones of the surficial aquifer based on the water levels presented in Table 6 for each semi-annual monitoring event. The maps were submitted to FDEP with the corresponding semi-annual monitoring report. Based on review of the potentiometric maps, groundwater flow in the uppermost aquifer beneath the Site is consistently to the east in shallow, intermediate, and deep zones. Although water levels fluctuate somewhat (e.g., 1 to 5 feet) in individual wells over time, the overall pattern of groundwater flow does not appear to change significantly between events.

Average horizontal hydraulic gradients were calculated for the semi-annual events conducted during this biennial period based on water levels in shallow, intermediate, and deep zone wells located along flow paths oriented approximately perpendicular to the potentiometric contours. The hydraulic gradient was calculated by taking the difference in groundwater elevations between two designated wells in a given zone (i.e., shallow, intermediate, or deep) divided by the measured distance between the two wells. The following table identifies the monitoring wells used to calculate hydraulic gradient for each zone.

Groundwater Wells Used for Hydraulic Gradient Calculations

Aquifer Zone	Well A	Well B	Distance Between Wells (feet)
Shallow	MWB-3(S)	MWB-11(S)	2,850
Intermediate	MWB-3(I)	MWB-11(IR)	2,820
Deep	MWB-31(D)	MWB-34(D)	2,750

Average linear groundwater flow rates were calculated for each zone using the calculated horizontal hydraulic gradient values and estimated Site-specific hydraulic conductivity and effective porosity values. The flow rate calculations were completed using the following formula (Equation 1), where v represents the average linear velocity, K is the horizontal hydraulic conductivity, i is the horizontal hydraulic gradient, and η_e is the effective porosity.

$$v = \frac{Ki}{n_e} \qquad \text{Equation 1}$$

Horizontal hydraulic conductivity values were calculated for each zone based on the geometric mean of values obtained from slug test data presented in the Site Hydrogeological Report (Golder Associates, 1990). The calculated hydraulic conductivity values were: 7.5 feet per day, or ft/d (2.6×10^{-3} centimeters per second, or cm/s) for the shallow zone; 10.7 ft/d (3.8×10^{-3} cm/s) for the intermediate zone; and 0.55 ft/d (1.9×10^{-4} cm/s) for the deep zone. The effective porosity for each zone is estimated to be on the order of 20%, based on regional literature. Hydrogeologic calculations are included in Appendix B and discussed by aquifer zone in the following sections.

4.1 Shallow Zone

Groundwater elevations in the shallow surficial aquifer zone ranged from approximately 107 to 147 feet above mean sea level (ft MSL) across the Site during the most recent biennial period. Water levels in individual wells varied slightly between events; the variations were typically on the order of zero to six feet from one event to the next. The greatest water level variation was observed in MWB-3(S), which increased from 141.38 to 147.33 ft MSL between February 2012 and July 2012.

The average hydraulic gradient for the shallow zone, calculated based on water levels in wells MWB-3(S) and MWB-11(S), was 0.0126 ft/ft (Appendix B). Calculated hydraulic gradient values were consistent for individual events, ranging from 0.0120 to 0.0132 ft/ft. Based on these hydraulic gradient values, groundwater flow rates are expected to range from 0.45 to 0.49 ft/d with an average value of 0.47 feet per day (ft/d), or 171 feet per year (ft/yr).

4.2 Intermediate Zone

Groundwater elevations in the intermediate surficial aquifer zone ranged from approximately 106 to 140 feet above mean sea level (ft MSL) across the Site during the most recent biennial period. Water levels in individual wells varied slightly between events; the variations were typically on the order of zero to seven feet from one event to the next.

The average hydraulic gradient for the intermediate zone, calculated based on water levels in wells MWB-3(I) and MWB-11(IR), was 0.0102 ft/ft (Appendix B). Calculated hydraulic gradient values were consistent for individual events, ranging from 0.0094 to 0.0106 ft/ft. Based on these hydraulic gradient values, groundwater flow rates are expected to range from 0.50 to 0.57 ft/d with an average value of 0.54 feet per day (ft/d), or 197 feet per year (ft/yr).

4.3 Deep Zone

Groundwater elevations in the deep surficial aquifer zone ranged from approximately 115 to 140 feet above mean sea level (ft MSL) across the Site during the most recent biennial period. Water levels in individual wells varied slightly between events; the variations were typically on the order of zero to three feet from one event to the next.

The average hydraulic gradient for the deep zone, calculated based on water levels in wells MWB-31(D) and MWB-34(D), was 0.0076 ft/ft (Appendix B). Calculated hydraulic gradient values were consistent for individual events, ranging from 0.0072 to 0.079 ft/ft. Based on these hydraulic gradient values, groundwater flow rates are expected to range from 0.020 to 0.022 ft/d with an average value of 0.021 feet per day (ft/d), or 7.6 feet per year (ft/yr).

5.0 SUMMARY AND DISCUSSION

5.1 Trend Analysis

Discussion of trends observed in flow and quality data are presented in the following sections.

5.1.1 Groundwater Flow Trends

Groundwater flow in the uppermost aquifer beneath the Site was consistently to the east in shallow, intermediate, and deep zones during this biennial period. Water level fluctuations in individual wells were typically on the order of zero to seven feet between events. Water levels across the Site generally increased from August 2011 to July 2012, and decreased by the February 2013 event. These trends appear to be related to regional climate conditions rather than seasonal effects, and do not appear to result in significant changes to the hydraulic gradient over time. Hydraulic gradient and groundwater flow rates were consistent between events in each zone (Appendix B).

5.1.2 Water Quality Trends

Several parameters were detected in groundwater and surface water during this biennial period, including Appendix I VOCs, Appendix I metals, water quality indicator parameters, and field parameters. Associated trends are discussed in detail below.

Appendix I VOC detections in groundwater were limited to a few wells. Most VOC detections were below reporting limits (qualified with an "I" or non-detect) and all were below applicable PDWS/SDWS/GCTL standards. Appendix I metals were detected at most wells across the Site, primarily below reporting limits (qualified with an "I").

Arsenic, lead, and vanadium were the only Appendix I metals detected at concentrations exceeding applicable PDWS/SWDS or GCTL. The vanadium exceedances have historically been attributed to elevated turbidity levels and have been limited to wells MWB-12(S) and MWB-13(S).

There do not appear to be clear trends in the Appendix I metals data over time. Anomalously high metals detections occurred during the biennial events (e.g. MWB-19(D) and MWB-32(S) in July 2012, and MWB-11(IR) in February 2012) appear to correlate with sample turbidity increases from the previous event and/or turbidity values above 20 NTU.

The analytical results for groundwater show the widespread presence of iron at concentrations exceeding the SDWS of 0.3 mg/L, and pH below the SDWS of 6.5 S.U. Iron concentrations and pH generally appear to increase with depth. Previous monitoring reports have attributed this to reduction processes in the deeper surficial aquifer, where insoluble ferric iron is converted to soluble ferrous iron. This process results in a shift in groundwater pH from acidic to a more neutral state (i.e., closer to 7). This is consistent

with observed groundwater pH values, which are lower (i.e., more acidic) near the surface and tend to increase with depth. The lack of indicator parameter trends for these wells indicates that iron is naturally occurring and these exceedences are not related to a landfill impact.

The chloride concentration at MWB-34(S) exceeded the SDWS of 250 mg/L during only the August 2011 event and was qualified as approximate ("J"). All other chloride detections at that location were well below the SDWS. Generally, chloride concentrations decreased slightly from August 2011 to February 2013 in most of the intermediate and deep wells; chloride fluctuations occurred in most shallow wells. The elevated chloride concentrations were related to a sump issue (discussed in the next paragraph) and the decreasing concentrations show this prior issue has been mitigated.

TDS was the only other water quality indicator parameter detected in groundwater at concentrations exceeding applicable standards. TDS was consistently detected at MWB-34(S) at higher concentrations than most other wells, and only exceeded the SDWS of 500 mg/L in February 2013. Historically, elevated TDS at MWB-34(S) has been attributed to isolated issues associated with nearby leachate pump station IIIC. A power outage in June 2005 and cleaning events in 2006 and 2007 reportedly resulted in discharge of liquids in the vicinity of MWB-34(S). These events were reported to FDEP. Although the discharges were promptly contained, indicator data (e.g., TDS, chlorides, etc.) suggested impacts at MWB-34(S). TDS and chlorides have since decreased from previous highs of 4,000 mg/L and 1,400 mg/L, respectively, which occurred in February 2007. Key indicator trends from the latest biennial period (Appendix A) suggest that concentrations of these parameters have fluctuated somewhat. However, although concentrations have fluctuated over the past few years, the reduced concentrations of TDS suggest that overall conditions at MWB-34(S) have improved when compared to the previous biennial reporting period and the historical highs from 2007.

In surface water, Appendix I metals, iron, and other water quality parameters were routinely detected at all three locations. The Appendix I metals detections were generally below surface water quality standards, with the exceptions of antimony, beryllium, chromium, copper, lead, nickel, silver, and zinc. Most of these exceedances were attributed to low hardness readings at the surface water locations that resulted in low calculated standard values based on hardness, elevated turbidity readings leading to elevated metals detections (e.g. lead at SW-3 in February 2012 and February 2013), or were identified as anomalously high. Several of the surface water locations were resampled in September 2012 for constituents that exceeded the applicable standards in July 2012. Most of the resampling results were either non-detect or significantly lower than the original detection, except for the beryllium exceedance in SW-2, which was confirmed by the resampling event.

Lead was first analyzed at SW-3 in 2010 following the permit renewal. The initial sampling in 2010 and subsequent confirmation sampling confirmed lead above the calculated surface water quality standards.

The Site has conducted an investigation of lead exceedances and submitted this information under separate cover in a letter dated August 12, 2011. Results of this investigation showed that the lead was from historical sediment loading and that "there is no current continual loading of lead to the pond from the landfill based on the sediment and surface water results from the stormwater conveyances."

Water quality indicators including unionized ammonia, fecal coliform, iron, mercury, dissolved oxygen, pH, and turbidity were detected at concentrations exceeding applicable surface water standards. The presence of iron is known to naturally occur in waters of the area. The iron concentrations in surface water are consistent with those observed in surrounding soils in the region and can be explained by the local vegetative cover. The presence of iron is consistent with the groundwater results and is known to naturally occur in waters of the area. Most of the detections of fecal coliform were within the historical range of detections, with the exception of SW-3 in February 2013.

DO values fluctuated more greatly at SW-1 and SW-3 than at SW-2. SW-1 and SW-3 were below the applicable standard for some of the biennial events. The pH in SW-1 and SW-2 and are often recorded below 6.5 S.U. and the range of values vary more greatly than in SW-3. SW-1 and SW-3 often vary more than one standard unit from SW-2, which is likely based on the location of the surface water monitoring points. SW-2 is in a stream upgradient of the landfill; SW-3 is the discharge point of the Site stormwater pond; and SW-1 is located in a wetland approximately 200 feet east of a stormwater retention basin. Turbidity values at SW-1 and SW-3 fluctuated over the biennial period exceeded the standard of 29 NTU for some events (e.g. SW-1 in July 2012, and SW-3 in February 2012 and February 2013). As previously discussed, the elevated turbidity may have contributed to metals detections observed at this location.

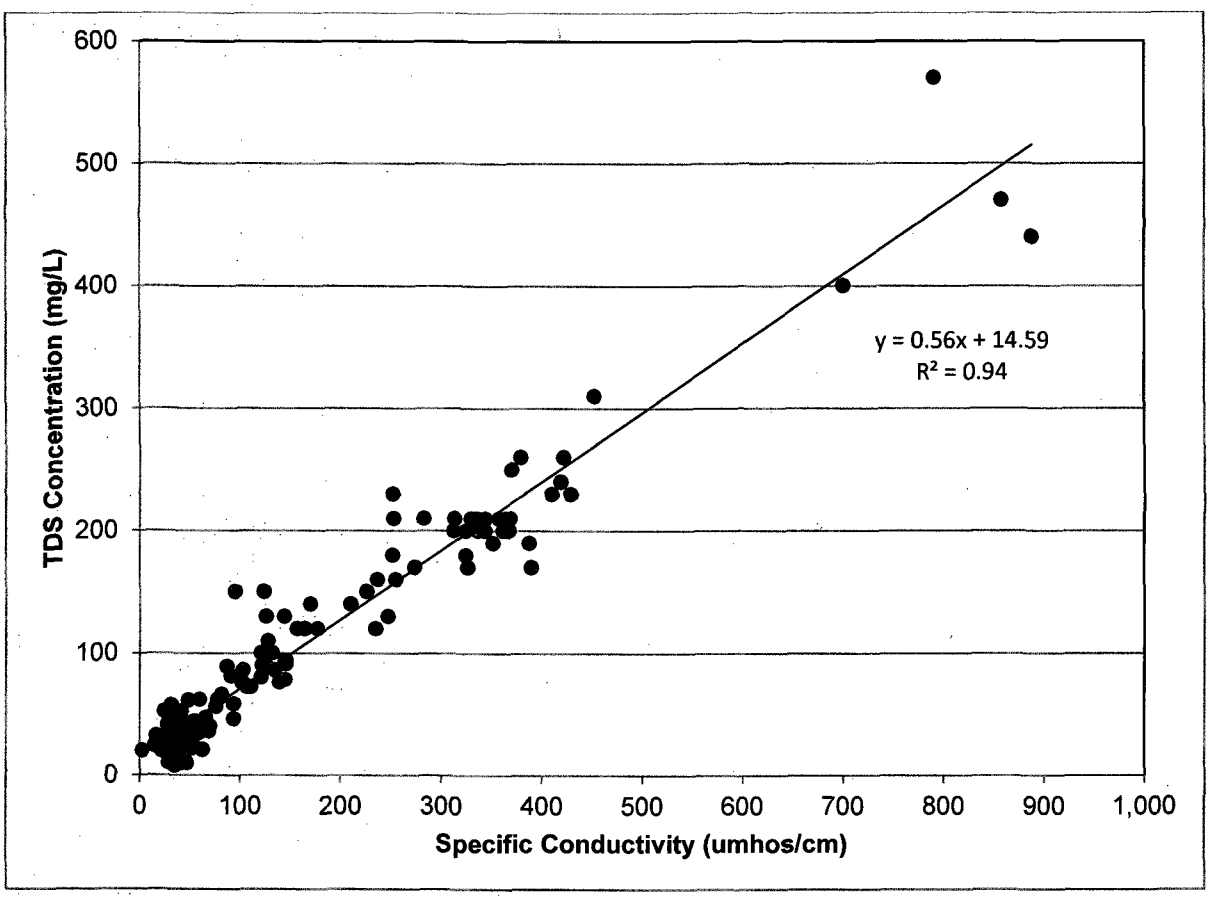
Overall, analyte detections and standard exceedances observed during this period for both groundwater and surface water are generally consistent with historical conditions and/or background water quality. The observed trends do not indicate that landfill operations have resulted in water quality deterioration during the most recent biennial period.

5.2 TDS/Conductivity Parameter Correlation

Parameter correlation can be used to evaluate the accuracy and precision of data, and identify potential measurement errors. TDS and specific conductivity are commonly used for this type of comparison because they both represent a measure of dissolved ions in solution, and an established relationship between the parameters has been identified based on experimental data. The commonly accepted ratio between TDS and conductivity (TDS/conductivity) ranges from 0.55 to 0.70. Data which falls outside of this range may be due to measurement or transcription errors, improper equipment calibration, inadequate sampling procedures, etc. Errors identified based on the TDS/conductivity relationship may indicate potential errors across other parameters as well.

The following graph shows a scatterplot of TDS and conductivity measurements in all groundwater wells for the latest biennial period. TDS values were reported by the analytical laboratory and conductivity measurements were recorded on the field logs.

Scatterplot of TDS and Conductivity Measurements



The plot shows that there is a linear correlation between TDS and conductivity, with a slope of 0.56. This value is consistent with the acceptable range (0.55 to 0.70). These results indicate that the data overall do not introduce significant measurement errors which affect data quality.

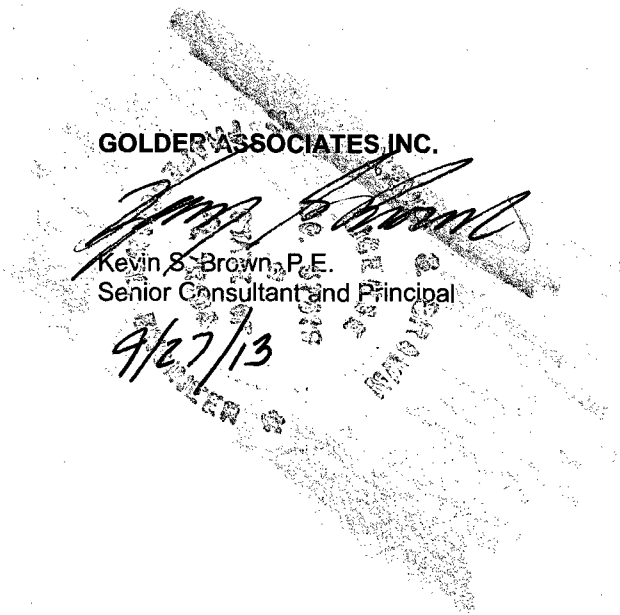
5.3 Monitoring Program Evaluation and Recommendations

Specific condition 45.s of the Facility Permit requires that the adequacy of the monitoring locations, frequency, and analyses for the groundwater, surface water, and leachate monitoring programs be evaluated on a biennial basis. Results from the recent biennial monitoring period are consistent with historical data and do not vary significantly between semi-annual events for groundwater and surface water, or between annual events for leachate. Sufficient data exists both spatially and temporally to

evaluate conditions and identify trends. Therefore, all three monitoring system (i.e., groundwater, surface water, and leachate) locations, frequencies, and analyses are considered adequate for identifying potential landfill impacts to water quality at the Site. Measures should be taken to reduce the turbidity at groundwater and surface water monitoring points wherever possible to obtain metals detections representative of the water at the monitoring points.

6.0 PROFESSIONAL CERTIFICATION

I hereby certify that I have supervised the current field work and preparation of this report, in accordance with Chapter 62-701, Florida Solid Waste Management Facility Regulations. As a registered professional engineer, I certify that I am a qualified professional with knowledge and experience in water quality assessment. To the best of my knowledge, the information and laboratory data summarized in this report (including the applicable attachments) are true, accurate, complete, and in accordance with applicable State Rules and Regulations.



GOLDER ASSOCIATES INC.

Kevin S. Brown, P.E.
Senior Consultant and Principal

9/27/13

7.0 REFERENCES

Florida Administrative Code (F.A.C.) Rules: 62-160, 62-302, 62-520, 62-550, 62-701, and 62-711.

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Golder Associates, Inc., July 1990, Permit Documents for Trail Ridge Landfill, Plan A, Volume II: Hydrogeological Report.

HDR Engineering, Inc., October 2010, Semiannual Water Quality Monitoring Report, Trail Ridge Landfill, Operating Permit No. 0013493-017-SO.

HDR Engineering, Inc., April 2010, Semiannual Water Quality Data Report, Trail Ridge Landfill, Operating Permit No. 0013493-017-SO.

HDR Engineering, Inc., October 2009, Semiannual Water Quality Monitoring Report, Trail Ridge Landfill, Operating Permit No. 0013493-010-SC.

HDR Engineering, Inc., April 2009, Semiannual Water Quality Monitoring Report, Trail Ridge Landfill, Operating Permit No. 0013493-010-SC.

TABLES

TABLE 1
Florida Drinking Water Standards for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Appendix I Volatile Organic Compounds

Parameter	Unit	PDWS	SDWS
1,2-Dibromo-3-Chloropropane	ug/L	0.2	--
1,2-Dibromoethane	ug/L	0.02	--
1,1,1,2-Tetrachloroethane	ug/L	--	--
1,1,1-Trichloroethane	ug/L	200	--
1,1,2,2-Tetrachloroethane	ug/L	--	--
1,1,2-Trichloroethane	ug/L	5	--
1,1-Dichloroethane	ug/L	--	--
1,1-Dichloroethene	ug/L	7	--
1,2,3-Trichloropropane	ug/L	--	--
1,2-Dibromo-3-Chloropropane	ug/L	0.2	--
1,2-Dibromoethane	ug/L	0.02	--
1,2-Dichlorobenzene	ug/L	600	--
1,2-Dichloroethane	ug/L	3	--
1,2-Dichloropropane	ug/L	5	--
1,4-Dichlorobenzene	ug/L	75	--
2-Butanone	ug/L	--	--
2-Hexanone	ug/L	--	--
4-Methyl-2-pentanone	ug/L	--	--
Acetone	ug/L	--	--
Acrylonitrile	ug/L	--	--
Benzene	ug/L	1	--
Bromochloromethane	ug/L	--	--
Bromodichloromethane	ug/L	--	--
Bromoform	ug/L	--	--
Bromomethane	ug/L	--	--
Carbon disulfide	ug/L	--	--
Carbon tetrachloride	ug/L	3	--
Chlorobenzene	ug/L	100	--
Chloroethane	ug/L	--	--
Chloroform	ug/L	--	--
Chloromethane	ug/L	--	--
cis-1,2-Dichloroethene	ug/L	70	--
cis-1,3-Dichloropropene	ug/L	--	--
Dibromochloromethane	ug/L	--	--
Dibromomethane	ug/L	--	--
Ethylbenzene	ug/L	700	--
Iodomethane	ug/L	--	--
Methylene chloride	ug/L	5	--
Styrene	ug/L	100	--
Tetrachloroethene	ug/L	3	--
Toluene	ug/L	1000	--
trans-1,2-Dichloroethene	ug/L	100	--
trans-1,3-Dichloropropene	ug/L	--	--
trans-1,4-Dichloro-2-butene	ug/L	--	--
Trichloroethene	ug/L	3	--
Trichlorofluoromethane	ug/L	--	--
Vinyl acetate	ug/L	--	--
Vinyl chloride	ug/L	1	--
Xylene, -m & -p	ug/L	--	--
Xylene, -o	ug/L	--	--
Xylenes, Total	ug/L	10000	--

Appendix I Metals

Parameter	Unit	PDWS	SDWS
Antimony	ug/L	6	--
Arsenic	ug/L	10	--
Barium	ug/L	2000	--
Beryllium	ug/L	4	--
Cadmium	ug/L	5	--
Chromium	ug/L	100	--
Cobalt	ug/L	--	--
Copper	ug/L	--	1000
Lead	ug/L	15	--
Nickel	ug/L	100	--
Selenium	ug/L	50	--
Silver	ug/L	--	100
Thallium	ug/L	2	--
Vanadium	ug/L	--	--
Zinc	ug/L	--	5000

Other Water Quality Parameters

Parameter	Unit	PDWS	SDWS
Ammonia (N)	ug/L	--	--
Chloride	mg/L	--	250
Mercury	ug/L	2	--
Nitrate (N)	mg/L	10	--
Nitrate (N)	mg/L	10	--
Nitrate-Nitrite (N)	mg/L	10	--
Iron	mg/L	--	0.3
Sodium	mg/L	160	--
Total Dissolved Solids	mg/L	--	500
pH	S.U.	--	6.5-8.5

Notes:
PDWS - Primary Drinking Water Standard (62-550)
SDWS - Secondary Drinking Water Standard (62-550)
-- standard not established under FDEP Chapter 62-550
ug/L - micrograms per liter
mg/L - milligrams per liter
S.U. - standard pH units

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TABLE 2
Florida Water Quality Standards for Surface Water
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Appendix I Volatile Organic Compounds

Parameter	Unit	CL I	CL III
1,2-Dibromo-3-Chloropropane	ug/L	--	--
1,2-Dibromoethane	ug/L	--	--
1,1,1,2-Tetrachloroethane	ug/L	--	--
1,1,1-Trichloroethane	ug/L	--	--
1,1,2,2-Tetrachloroethane	ug/L	0.17	10.8
1,1,2-Trichloroethane	ug/L	--	--
1,1-Dichloroethane	ug/L	--	--
1,1-Dichloroethene	ug/L	7	3.2
1,2,3-Trichloropropane	ug/L	--	--
1,2-Dibromo-3-Chloropropane	ug/L	--	--
1,2-Dibromoethane	ug/L	--	--
1,2-Dichlorobenzene	ug/L	--	--
1,2-Dichloroethane	ug/L	--	--
1,2-Dichloropropane	ug/L	--	--
1,4-Dichlorobenzene	ug/L	--	--
2-Butanone	ug/L	--	--
2-Hexanone	ug/L	--	--
4-Methyl-2-pentanone	ug/L	--	--
Acetone	ug/L	--	--
Acrylonitrile	ug/L	--	--
Benzene	ug/L	1.18	71.28
Bromochloromethane	ug/L	--	--
Bromodichloromethane	ug/L	0.27	22
Bromoform	ug/L	4.3	360
Bromomethane	ug/L	--	--
Carbon disulfide	ug/L	--	--
Carbon tetrachloride	ug/L	3	4.42
Chlorobenzene	ug/L	--	--
Chloroethane	ug/L	--	--
Chloroform	ug/L	5.67	470.8
Chloromethane	ug/L	5.67	470.8
cis-1,2-Dichloroethene	ug/L	--	--
cis-1,3-Dichloropropene	ug/L	--	--
Dibromochloromethane	ug/L	0.41	34
Dibromomethane	ug/L	--	--
Ethylbenzene	ug/L	--	--
Iodomethane	ug/L	--	--
Methylene chloride	ug/L	4.65	1580
Styrene	ug/L	--	--
Tetrachloroethene	ug/L	3	8.85
Toluene	ug/L	--	--
trans-1,2-Dichloroethene	ug/L	--	--
trans-1,3-Dichloropropene	ug/L	--	--
trans-1,4-Dichloro-2-butene	ug/L	--	--
Trichloroethene	ug/L	3	80.7
Trichlorofluoromethane	ug/L	--	--
Vinyl acetate	ug/L	--	--
Vinyl chloride	ug/L	--	--
Xylene, -m & -p	ug/L	--	--
Xylene, -o	ug/L	--	--
Xylenes, Total	ug/L	--	--

Appendix I Metals

Parameter	Unit	CL I	CL III
Antimony	ug/L	14	4300
Arsenic	ug/L	10	50
Barium	ug/L	1000	--
Beryllium	ug/L	0.0077	0.13
Cadmium	ug/L	Calc	Calc
Chromium	ug/L	Calc	Calc
Cobalt	ug/L	--	--
Copper	ug/L	Calc	Calc
Lead	ug/L	Calc	Calc
Nickel	ug/L	Calc	Calc
Selenium	ug/L	5	5
Silver	ug/L	0.07	0.07
Thallium	ug/L	1.7	6.3
Vanadium	ug/L	--	--
Zinc	ug/L	Calc	Calc

Other Water Quality Parameters

Parameter	Unit	CL I	CL III
Ammonia- Un-ionized (NH3)	ug/L	20	20
Biological Oxygen Demand	mg/L	--	--
Carbon- Total Organic	mg/L	--	--
Chemical Oxygen Demand	mg/L	--	--
Chlorophyll a	ug/L	--	--
Coliform Fecal	CFU/100 mL	800	800
Hardness- Calculated	mg/L	--	--
Iron	mg/L	1	1
Mercury	ug/L	0.012	0.012
Nitrate (N)	mg/L	10	--
Nitrogen- Total	mg/L	--	--
Orthophosphate (P)	mg/L	--	--
Phosphorus, Total	mg/L	--	--
Residues- Filterable (TDS)	mg/L	--	--
Residues- Nonfilterable (TSS)	mg/L	--	--
pH	S.U.	Varies < 1 Unit	
Dissolved Oxygen	mg/L	> 5.0	
Specific Conductance	mmohs/cm	1.275 or 50%	
Turbidity	NTU	29 > Background	

Notes:

CL I - Class I potable surface water standard (62-302)
CL III - Class III freshwater standard (62-302)
-- standard not established under FDEP Chapter 62-302
Calc - calculated based on sample hardness
ug/L - micrograms per liter
mg/L - milligrams per liter
S.U. - standard pH units
CFU/100 mL - colony forming units per 100 milliliters
mmhos/cm - millimhos per centimeter
NTU - nephelometric turbidity units

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TABLE 3
Calculated Water Quality Standards for Surface Water
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

SW-1	Calculation	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Hardness	N/A	mg/L	110	170	38	26
Ln Hardness	Ln H	mg/L	4.7	5.1	3.6	3.3
Cadmium	$e^{(0.7409[lnH]-4.719)}$	ug/L	0.29	0.40	0.13	0.10
Chromium	$e^{(0.819[lnH]+0.6848)}$	ug/L	93.2	133	39.0	28.6
Copper	$e^{(0.8545[lnH]-1.702)}$	ug/L	10.1	14.7	4.1	3.0
Lead	$e^{(1.273[lnH]- 4.705)}$	ug/L	3.6	6.3	0.93	0.57
Nickel	$e^{(0.846[lnH]+0.0584)}$	ug/L	56.5	81.7	23.0	16.7
Zinc	$e^{(0.8473[lnH]+0.884)}$	ug/L	130	188	52.8	38.3

SW-2	Calculation	Unit	S2-2011	S1-2012	S2-2012	S1-2013
Hardness	N/A	mg/L	8.2(25*)	17(25*)	10(25*)	12(25*)
Ln Hardness	Ln H	mg/L	3.22	3.22	3.22	3.22
Cadmium	$e^{(0.7409[lnH]-4.719)}$	ug/L	0.10	0.10	0.10	0.10
Chromium	$e^{(0.819[lnH]+0.6848)}$	ug/L	27.7	27.7	27.7	27.7
Copper	$e^{(0.8545[lnH]-1.702)}$	ug/L	2.9	2.9	2.9	2.9
Lead	$e^{(1.273[lnH]- 4.705)}$	ug/L	0.54	0.54	0.54	0.54
Nickel	$e^{(0.846[lnH]+0.0584)}$	ug/L	16.1	16.1	16.1	16.1
Zinc	$e^{(0.8473[lnH]+0.884)}$	ug/L	37.0	37.0	37.0	37.0

Notes:

Water quality standard calculations for Class I (potable) and Class III (freshwater) provided in FDEP Chapter 62-302.
Hardness is reported in milligrams per liter of CaCO3 for each sample in corresponding laboratory reports.
Ln H is the natural logarithm of total hardness expressed as milligrams per liter of CaCO3.
ug/L - micrograms per liter; mg/L - milligrams per liter

TABLE 3
Calculated Water Quality Standards for Surface Water
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

SW-3	Calculation	Unit	S2-2011	S1-2012	S2-2012	S1-2013
Hardness	N/A	mg/L	170	150	170	130
Ln Hardness	Ln H	mg/L	5.14	5.01	5.14	4.87
Cadmium	$e^{(0.7409[lnH]-4.719)}$	ug/L	0.40	0.37	0.40	0.33
Chromium	$e^{(0.819[lnH]+0.6848)}$	ug/L	133	120	133	107
Copper	$e^{(0.8545[lnH]-1.702)}$	ug/L	14.7	13.2	14.7	11.7
Lead	$e^{(1.273[lnH]- 4.705)}$	ug/L	6.3	5.3	6.3	4.4
Nickel	$e^{(0.846[lnH]+0.0584)}$	ug/L	81.7	73.5	81.7	65.1
Zinc	$e^{(0.8473[lnH]+0.884)}$	ug/L	188	169	188	150

Notes:

Water quality standard calculations for Class I (potable) and Class III (freshwater) provided in FDEP Chapter 62-302.
Hardness is reported in milligrams per liter of CaCO3 for each sample in corresponding laboratory reports.
Ln H is the natural logarithm of total hardness expressed as milligrams per liter of CaCO3.
ug/L - micrograms per liter; mg/L - milligrams per liter

TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
1,2-Dibromo-3-Chloropropane	Shallow	MWB-2(S)b	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-3(S)b	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-7(S)c	ug/L	< 0.0057	< 0.0057	< 0.0058	< 0.0057
		MWB-11(S)c	ug/L	< 0.0057	< 0.0057	< 0.0058	< 0.0057
		MWB-12(S)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-13(S)c	ug/L	< 0.0057	NM	< 0.0057	< 0.0057
		MWB-17(S)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-19(S)c	ug/L	< 0.0056	< 0.0057	< 0.0057	< 0.0058
		MWB-20(S)c	ug/L	< 0.0057	< 0.0058	< 0.31	< 0.0057
		MWB-21(S)c	ug/L	< 0.0057	< 0.0057	< 0.0058	< 0.0057
		MWB-22(S)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-27(S)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-29(S)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0056
		MWB-32(S)d	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-33(S)d	ug/L	< 0.0058	< 0.0058	< 0.0057	< 0.0057
		MWB-34(S)d	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
	Intermediate	MWB-2(I)b	ug/L	< 0.0057	< 0.0058	< 0.0057	< 0.0057
		MWB-3(I)b	ug/L	< 0.0057	< 0.0058	< 0.0057	< 0.0057
		MWB-7(I)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-11(IR)c	ug/L	< 0.0057	< 0.0057	< 0.0058	< 0.0057
		MWB-12(I)c	ug/L	< 0.0056	< 0.0057	< 0.0057	< 0.0057
		MWB-13(I)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-17(I)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-19(I)c	ug/L	< 0.0057	< 0.0057	< 0.0058	< 0.0057
		MWB-27(I)c	ug/L	< 0.32	< 0.0057	< 0.0057	< 0.0056
		MWB-29(I)c	ug/L	< 0.0058	< 0.32	< 0.0057	< 0.0057
		MWB-32(I)d	ug/L	< 0.32	< 0.0057	< 0.0056	< 0.0057
		MWB-34(I)d	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
	Deep	MWB-7(D)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-12(D)c	ug/L	**0.013 I**	< 0.0057	< 0.0057	< 0.0057
		MWB-17(D)c	ug/L	< 0.0057	< 0.0056	< 0.0058	< 0.0057
		MWB-19(D)c	ug/L	< 0.0057	< 0.0057	< 0.0058	< 0.0057
		MWB-27(D)c	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057
		MWB-29(D)c	ug/L	< 0.0058	< 0.0057	< 0.0057	< 0.0057
		MWB-31(D)b	ug/L	< 0.0057	< 0.0058	< 0.0057	< 0.0057
		MWB-32(D)d	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0056
		MWB-34(D)d	ug/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057

Notes:

Bold values indicate parameter detections above reporting limits.

< and U - non-detect; I - detected below reporting limit; V - detected in blank and sample; J - estimated value

ug/L - micrograms per liter; mg/L - milligrams per liter; umhos/cm - micromohs per centimeter; NTU - nephelometric turbidity units

NM - Not measured because the well was dry at the time of sampling

TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
1,2-Dibromoethane	Shallow	MWB-2(S)b	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061
		MWB-3(S)b	ug/L	< 0.25	< 0.0061	< 0.0061	< 0.0061
		MWB-7(S)c	ug/L	< 0.0061	< 0.006	< 0.0062	< 0.0061
		MWB-11(S)c	ug/L	< 0.0061	< 0.0061	< 0.0062	< 0.0061
		MWB-12(S)c	ug/L	< 0.0061	< 0.006 UJ	< 0.0061	< 0.0061 UJ
		MWB-13(S)c	ug/L	< 0.0061	NM	< 0.0061	< 0.0061
		MWB-17(S)c	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061 UJ
		MWB-19(S)c	ug/L	< 0.006	< 0.0061	< 0.0061	< 0.0061 UJ
		MWB-20(S)c	ug/L	< 0.0061	< 0.0061	< 0.15	< 0.0061
		MWB-21(S)c	ug/L	< 0.0061	< 0.0061	< 0.0062	< 0.0061
		MWB-22(S)c	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061 UJ
		MWB-27(S)c	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061
		MWB-29(S)c	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.006
		MWB-32(S)d	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061
		MWB-33(S)d	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061
		MWB-34(S)d	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061
	Intermediate	MWB-2(I)b	ug/L	< 0.006	< 0.0061	< 0.0061	< 0.0061
		MWB-3(I)b	ug/L	< 0.0061	< 0.0062	< 0.0061	< 0.0061
		MWB-7(I)c	ug/L	< 0.0061	< 0.006	< 0.0061	< 0.0061
		MWB-11(IR)c	ug/L	< 0.0061	< 0.0061	< 0.0062	< 0.0061
		MWB-12(I)c	ug/L	< 0.006	< 0.0061 UJ	< 0.0061	< 0.15
		MWB-13(I)c	ug/L	< 0.0061	< 0.0061	< 0.006	< 0.0061 UJ
		MWB-17(I)c	ug/L	< 0.006	< 0.006	< 0.0061	< 0.0061 UJ
		MWB-19(I)c	ug/L	< 0.0061	< 0.0061	< 0.0062	< 0.0061 UJ
		MWB-27(I)c	ug/L	< 0.25	< 0.0061	< 0.0061	< 0.006
		MWB-29(I)c	ug/L	< 0.0062	< 0.25	< 0.0061	< 0.0061
		MWB-32(I)d	ug/L	< 0.25	< 0.0061	< 0.006	< 0.0061
		MWB-34(I)d	ug/L	< 0.0061	< 0.0061 UJ	< 0.0061	< 0.0061
	Deep	MWB-7(D)c	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061
		MWB-12(D)c	ug/L	**0.013 I**	< 0.006 UJ	< 0.0061	< 0.0061 UJ
		MWB-17(D)c	ug/L	< 0.0061	< 0.006	< 0.0062	< 0.0061 UJ
		MWB-19(D)c	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061 UJ
		MWB-27(D)c	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.0061
		MWB-29(D)c	ug/L	< 0.0062	< 0.0061	< 0.006	< 0.0061
		MWB-31(D)b	ug/L	< 0.0061	< 0.0061 UJ	< 0.0061	< 0.0061
		MWB-32(D)d	ug/L	< 0.0061	< 0.0061	< 0.0061	< 0.006
		MWB-34(D)d	ug/L	< 0.0061	< 0.0061 UJ	< 0.006	< 0.0061

Notes:

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< and U - non-detect; I - detected below reporting limit; V - detected in blank and sample; J - estimated value

ug/L - micrograms per liter; mg/L - milligrams per liter; umhos/cm - micromohs per centimeter; NTU - nephelometric turbidity units

NM - Not measured because the well was dry at the time of sampling

Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Acetone	Shallow	MWB-2(S)b	ug/L	< 3	< 3	**3.9 I**	< 2.8
		MWB-3(S)b	ug/L	< 3	**5.7 I**	< 2.8	< 2.8
		MWB-7(S)c	ug/L	**5.6 I**	< 3	< 2.8	< 2.8
		MWB-11(S)c	ug/L	**5.5 I**	< 3	< 2.8	< 2.8
		MWB-12(S)c	ug/L	**4.9 I**	< 3	< 2.8	< 2.8
		MWB-13(S)c	ug/L	**5.2 I**	NM	< 2.8	< 2.8
		MWB-17(S)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-19(S)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-20(S)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-21(S)c	ug/L	< 3	**3.6 I**	< 2.8	< 2.8
		MWB-22(S)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-27(S)c	ug/L	**4.2 I**	< 3	< 2.8	< 2.8
		MWB-29(S)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-32(S)d	ug/L	**3.3 I**	< 3	< 2.8	< 2.8
		MWB-33(S)d	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-34(S)d	ug/L	< 3	< 3	< 2.8	< 2.8
	Intermediate	MWB-2(I)b	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-3(I)b	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-7(I)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-11(IR)c	ug/L	**3.6 I**	< 3	< 2.8	< 2.8
		MWB-12(I)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-13(I)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-17(I)c	ug/L	**4 I**	**6.8 I**	< 2.8	< 2.8
		MWB-19(I)c	ug/L	**3 I**	< 3	< 2.8	< 2.8
		MWB-27(I)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-29(I)c	ug/L	**3.9 I**	< 3	< 2.8	< 2.8
		MWB-32(I)d	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-34(I)d	ug/L	< 3	< 3	< 2.8	< 2.8
	Deep	MWB-7(D)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-12(D)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-17(D)c	ug/L	**4.3 I**	**8.4 I**	< 2.8	< 2.8
		MWB-19(D)c	ug/L	**3 I**	< 3	< 2.8	< 2.8
		MWB-27(D)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-29(D)c	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-31(D)b	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-32(D)d	ug/L	< 3	< 3	< 2.8	< 2.8
		MWB-34(D)d	ug/L	**3.2 I**	< 3	< 2.8	< 2.8

Notes:

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< and U - non-detect; I - detected below reporting limit; V - detected in blank and sample; J - estimated value

ug/L - micrograms per liter; mg/L - milligrams per liter; umhos/cm - micromohs per centimeter; NTU - nephelometric turbidity units

NM - Not measured because the well was dry at the time of sampling

TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Benzene	Shallow	MWB-2(S)b	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-3(S)b	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-7(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-11(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-12(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-13(S)c	ug/L	< 0.28	NM	< 0.13	< 0.13
		MWB-17(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-19(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-20(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-21(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-22(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-27(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-29(S)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-32(S)d	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-33(S)d	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-34(S)d	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
	Intermediate	MWB-2(I)b	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-3(I)b	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-7(I)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-11(IR)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-12(I)c	ug/L	< 0.28	< 0.28	< 0.13	**0.14 I**
		MWB-13(I)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-17(I)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-19(I)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-27(I)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-29(I)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-32(I)d	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-34(I)d	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
	Deep	MWB-7(D)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-12(D)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-17(D)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-19(D)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-27(D)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-29(D)c	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-31(D)b	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-32(D)d	ug/L	< 0.28	< 0.28	< 0.13	< 0.13
		MWB-34(D)d	ug/L	< 0.28	< 0.28	< 0.13	< 0.13

Notes:

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NM - Not measured because the well was dry at the time of sampling

TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Carbon disulfide	Shallow	MWB-2(S)b	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-3(S)b	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-7(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-11(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-12(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-13(S)c	ug/L	< 0.13	NM	< 0.23	< 0.23
		MWB-17(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-19(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-20(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-21(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-22(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-27(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-29(S)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-32(S)d	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-33(S)d	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-34(S)d	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
	Intermediate	MWB-2(I)b	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-3(I)b	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-7(I)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-11(IR)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-12(I)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-13(I)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-17(I)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-19(I)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-27(I)c	ug/L	< 0.13	< 0.13	**1.1**	< 0.23
		MWB-29(I)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-32(I)d	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-34(I)d	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
	Deep	MWB-7(D)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-12(D)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-17(D)c	ug/L	< 0.13	< 0.13	**0.41 I**	< 0.23
		MWB-19(D)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-27(D)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-29(D)c	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-31(D)b	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-32(D)d	ug/L	< 0.13	< 0.13	< 0.23	< 0.23
		MWB-34(D)d	ug/L	< 0.13	< 0.13	< 0.23	< 0.23

Notes:

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Toluene	Shallow	MWB-2(S)b	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-3(S)b	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-7(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-11(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-12(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-13(S)c	ug/L	< 0.24	NM	< 0.14	< 0.14
		MWB-17(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-19(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-20(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-21(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-22(S)c	ug/L	< 0.24	< 0.24	< 0.14	**0.26 I**
		MWB-27(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-29(S)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-32(S)d	ug/L	< 0.24	< 0.24	**2.4**	< 0.14
		MWB-33(S)d	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-34(S)d	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
	Intermediate	MWB-2(I)b	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-3(I)b	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-7(I)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-11(IR)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-12(I)c	ug/L	< 0.24	< 0.24	< 0.14	**0.26 I**
		MWB-13(I)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-17(I)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-19(I)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-27(I)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-29(I)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-32(I)d	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-34(I)d	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
	Deep	MWB-7(D)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-12(D)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-17(D)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-19(D)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-27(D)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-29(D)c	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-31(D)b	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-32(D)d	ug/L	< 0.24	< 0.24	< 0.14	< 0.14
		MWB-34(D)d	ug/L	< 0.24	< 0.24	< 0.14	< 0.14

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Arsenic	Shallow	MWB-2(S)b	ug/L	**1.1 I**	< 0.66	< 1.3	< 1.3
		MWB-3(S)b	ug/L	**0.77 I**	< 0.66	< 1.3	< 1.3
		MWB-7(S)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-11(S)c	ug/L	**0.8 I**	< 0.66	< 1.3	< 1.3
		MWB-12(S)c	ug/L	**1.6**	< 0.66	< 1.3	< 1.3
		MWB-13(S)c	ug/L	< 0.66	NM	**1.3 I**	**1.3 I**
		MWB-17(S)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-19(S)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-20(S)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-21(S)c	ug/L	**1.6**	< 0.66	< 1.3	< 1.3
		MWB-22(S)c	ug/L	**0.89 I**	< 0.66	< 1.3	< 1.3
		MWB-27(S)c	ug/L	**1.3**	**0.71 I**	**1.5 I**	< 1.3
		MWB-29(S)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-32(S)d	ug/L	**0.95 I**	< 0.66	**1.7 I**	< 1.3
		MWB-33(S)d	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-34(S)d	ug/L	**1 I**	**0.97 I**	< 1.3	**1.7 I**
	Intermediate	MWB-2(I)b	ug/L	**1.1 I**	< 0.66	< 1.3	< 1.3
		MWB-3(I)b	ug/L	**0.88 I**	< 0.66	< 1.3	< 1.3
		MWB-7(I)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-11(IR)c	ug/L	**0.9 I**	< 0.66	< 1.3	< 1.3
		MWB-12(I)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-13(I)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-17(I)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-19(I)c	ug/L	**0.8 I**	**0.75 I**	< 1.3	< 1.3
		MWB-27(I)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-29(I)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-32(I)d	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-34(I)d	ug/L	**0.73 I**	< 0.66	< 1.3	< 1.3
	Deep	MWB-7(D)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-12(D)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-17(D)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-19(D)c	ug/L	**1 I**	< 0.66 I	**14**	**4.6**
		MWB-27(D)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-29(D)c	ug/L	< 0.66	< 0.66	< 1.3	< 1.3
		MWB-31(D)b	ug/L	**0.99 I**	< 0.66	< 1.3	< 1.3
		MWB-32(D)d	ug/L	< 0.66	**0.75 I**	< 1.3	< 1.3
		MWB-34(D)d	ug/L	**0.67 I**	< 0.66	< 1.3	< 1.3

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Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Barium	Shallow	MWB-2(S)b	ug/L	13 V	13	7.6	9.4
		MWB-3(S)b	ug/L	17 V	13	9.5	17
		MWB-7(S)c	ug/L	14	12	6.5	11
		MWB-11(S)c	ug/L	79	63	86	82
		MWB-12(S)c	ug/L	6 V	6.3	6	7.3
		MWB-13(S)c	ug/L	13 V	NM	26	11
		MWB-17(S)c	ug/L	3.4	2.8	4.8 I	3.2 I
		MWB-19(S)c	ug/L	110 V	94	17	65
		MWB-20(S)c	ug/L	14	9.9	11	9.7
		MWB-21(S)c	ug/L	19	19	13	18
		MWB-22(S)c	ug/L	6.5	4.5	3.8 I	3.4 I
		MWB-27(S)c	ug/L	37 V	20	9.9	15
		MWB-29(S)c	ug/L	9.4	5.8	15	24
		MWB-32(S)d	ug/L	30	45	39	49
		MWB-33(S)d	ug/L	18	20	31	17
		MWB-34(S)d	ug/L	3.1	3.7	7.7	4.2 I
	Intermediate	MWB-2(I)b	ug/L	23 V	22	21	20
		MWB-3(I)b	ug/L	27 V	27	23	27
		MWB-7(I)c	ug/L	54 V	48	50	50
		MWB-11(IR)c	ug/L	44	64	46	38
		MWB-12(I)c	ug/L	53 V	49	51	48
		MWB-13(I)c	ug/L	35 V	32	33	30
		MWB-17(I)c	ug/L	35	34	34	35
		MWB-19(I)c	ug/L	58 V	52	69	53
		MWB-27(I)c	ug/L	56	53	52	48
		MWB-29(I)c	ug/L	44	43	39	42
		MWB-32(I)d	ug/L	38	32	37	37
		MWB-34(I)d	ug/L	51	49	49	49
	Deep	MWB-7(D)c	ug/L	89 V	80	76	89
		MWB-12(D)c	ug/L	130 V	130	120	130
		MWB-17(D)c	ug/L	34	32	32	30
		MWB-19(D)c	ug/L	110 V	100	140	110
		MWB-27(D)c	ug/L	55	53	53	50
		MWB-29(D)c	ug/L	56 V	55	56	48
		MWB-31(D)b	ug/L	96 V	97	93	89
		MWB-32(D)d	ug/L	51	44	51	37
		MWB-34(D)d	ug/L	110	110	100	110

Notes:

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NM - Not measured because the well was dry at the time of sampling

TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Beryllium	Shallow	MWB-2(S)b	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-3(S)b	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-7(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-11(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-12(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-13(S)c	ug/L	< 0.37	NM	< 0.25	< 0.25
		MWB-17(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-19(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-20(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-21(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-22(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-27(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-29(S)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-32(S)d	ug/L	< 0.37	< 0.37	**0.26 I**	< 0.25
		MWB-33(S)d	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-34(S)d	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
	Intermediate	MWB-2(I)b	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-3(I)b	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-7(I)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-11(IR)c	ug/L	< 0.37	**0.56 I**	< 0.25	< 0.25
		MWB-12(I)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-13(I)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-17(I)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-19(I)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-27(I)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-29(I)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-32(I)d	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-34(I)d	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
	Deep	MWB-7(D)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-12(D)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-17(D)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-19(D)c	ug/L	< 0.37	< 0.37	**3.1**	**0.87**
		MWB-27(D)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-29(D)c	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-31(D)b	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-32(D)d	ug/L	< 0.37	< 0.37	< 0.25	< 0.25
		MWB-34(D)d	ug/L	< 0.37	< 0.37	< 0.25	< 0.25

Notes:

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NM - Not measured because the well was dry at the time of sampling

TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Cadmium	Shallow	MWB-2(S)b	ug/L	**1.1 I**	< 0.59	< 0.095	< 0.095
		MWB-3(S)b	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-7(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-11(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-12(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-13(S)c	ug/L	< 0.59	NM	< 0.095	< 0.095
		MWB-17(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-19(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-20(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-21(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-22(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-27(S)c	ug/L	< 0.59	< 0.59	< 0.095	**0.2 I**
		MWB-29(S)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-32(S)d	ug/L	< 0.59	< 0.59	**0.23 I**	< 0.095
		MWB-33(S)d	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-34(S)d	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
	Intermediate	MWB-2(I)b	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-3(I)b	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-7(I)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-11(IR)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-12(I)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-13(I)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-17(I)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-19(I)c	ug/L	< 0.59	< 0.59	**0.68**	**0.19 I**
		MWB-27(I)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-29(I)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-32(I)d	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-34(I)d	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
	Deep	MWB-7(D)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-12(D)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-17(D)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-19(D)c	ug/L	< 0.59	< 0.59	**1.5**	**0.39 I**
		MWB-27(D)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-29(D)c	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-31(D)b	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-32(D)d	ug/L	< 0.59	< 0.59	< 0.095	< 0.095
		MWB-34(D)d	ug/L	< 0.59	< 0.59	< 0.095	< 0.095

Notes:

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Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Chromium	Shallow	MWB-2(S)b	ug/L	< 0.63	< 1.2	**2.6 I**	< 2.5
		MWB-3(S)b	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-7(S)c	ug/L	**0.68 I**	< 1.2	< 2.5	< 2.5
		MWB-11(S)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-12(S)c	ug/L	**1.8 I**	**1.8 I**	**2.8 I**	< 2.5
		MWB-13(S)c	ug/L	**5.3**	NM	**13**	**4.5 I**
		MWB-17(S)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-19(S)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-20(S)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-21(S)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-22(S)c	ug/L	< 0.63	< 1.2 I	< 2.5	< 2.5
		MWB-27(S)c	ug/L	**0.74 I**	**6.1 I**	**5.8**	**3.7 I**
		MWB-29(S)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-32(S)d	ug/L	**1 I**	< 1.2	**17**	< 2.5
		MWB-33(S)d	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-34(S)d	ug/L	**0.95 I**	**1.6 I**	< 2.5	< 2.5
	Intermediate	MWB-2(I)b	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-3(I)b	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-7(I)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-11(IR)c	ug/L	< 0.63	**12**	< 2.5	< 2.5
		MWB-12(I)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-13(I)c	ug/L	< 0.63	< 1.2 I	< 2.5	< 2.5
		MWB-17(I)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-19(I)c	ug/L	< 0.63	**1.3 I**	< 2.5	< 2.5
		MWB-27(I)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-29(I)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-32(I)d	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-34(I)d	ug/L	< 0.63	**2.8 I**	< 2.5	< 2.5
	Deep	MWB-7(D)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-12(D)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-17(D)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-19(D)c	ug/L	**1.2 I**	**1.7 I**	**23**	**7.5**
		MWB-27(D)c	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-29(D)c	ug/L	< 0.63	< 1.2	**3 I**	< 2.5
		MWB-31(D)b	ug/L	< 0.63	< 1.2	**3.1 I**	< 2.5
		MWB-32(D)d	ug/L	< 0.63	< 1.2	< 2.5	< 2.5
		MWB-34(D)d	ug/L	< 0.63	< 1.2	< 2.5	< 2.5

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Cobalt	Shallow	MWB-2(S)b	ug/L	< 0.25	< 0.25	**0.19 I**	< 0.15
		MWB-3(S)b	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-7(S)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-11(S)c	ug/L	**0.86 I**	**0.5 I**	**0.5**	**0.42 I**
		MWB-12(S)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-13(S)c	ug/L	< 0.25	NM	**0.26 I**	**0.17 I**
		MWB-17(S)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-19(S)c	ug/L	**0.64 I**	**0.34 I**	**0.15 I**	**0.21 I**
		MWB-20(S)c	ug/L	< 0.25	< 0.25	**0.19 I**	< 0.15
		MWB-21(S)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-22(S)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-27(S)c	ug/L	**0.34 I**	**0.3 I**	**0.26 I**	< 0.15
		MWB-29(S)c	ug/L	< 0.25	< 0.25	< 0.15	**0.27 I**
		MWB-32(S)d	ug/L	**0.44 I**	**0.78 I**	**0.57**	**0.52**
		MWB-33(S)d	ug/L	**0.28 I**	**0.33 I**	**0.32 I**	**0.18 I**
		MWB-34(S)d	ug/L	**0.49 I**	**0.43 I**	**0.47 I**	**0.77**
	Intermediate	MWB-2(I)b	ug/L	**0.27 I**	< 0.25	**0.2 I**	**0.17 I**
		MWB-3(I)b	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-7(I)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-11(IR)c	ug/L	< 0.25	**0.35 I**	< 0.15	< 0.15
		MWB-12(I)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-13(I)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-17(I)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-19(I)c	ug/L	**0.58 I**	**0.77 I**	**0.93**	**0.66**
		MWB-27(I)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-29(I)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-32(I)d	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-34(I)d	ug/L	< 0.25	< 0.25	< 0.15	**0.17 I**
	Deep	MWB-7(D)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-12(D)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-17(D)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-19(D)c	ug/L	< 0.25	< 0.25	**2.7**	**0.78**
		MWB-27(D)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-29(D)c	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-31(D)b	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-32(D)d	ug/L	< 0.25	< 0.25	< 0.15	< 0.15
		MWB-34(D)d	ug/L	< 0.25	< 0.25	< 0.15	< 0.15

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Copper	Shallow	MWB-2(S)b	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-3(S)b	ug/L	< 1.9	< 1.1 IV	< 1.1	< 1.1
		MWB-7(S)c	ug/L	**16**	**1.4 IV**	< 1.1	< 1.1
		MWB-11(S)c	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-12(S)c	ug/L	**3.3**	**1.6 I**	< 1.1	**1.2 I**
		MWB-13(S)c	ug/L	**2.8**	NM	**5.2**	**2.9 I**
		MWB-17(S)c	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-19(S)c	ug/L	< 1.9	**3 IV**	< 1.1	< 1.1
		MWB-20(S)c	ug/L	< 1.9	**2 IV**	< 1.1	< 1.1
		MWB-21(S)c	ug/L	**2.4 I**	**1.9 IV**	< 1.1	< 1.1
		MWB-22(S)c	ug/L	**2 I**	**2 IV**	< 1.1	< 1.1
		MWB-27(S)c	ug/L	**2.2 I**	**1.6 I**	**1.6 I**	**1.8 I**
		MWB-29(S)c	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-32(S)d	ug/L	**7.7**	< 1.1	**10**	**1.4 I**
		MWB-33(S)d	ug/L	**50**	< 1.1	< 1.1	**2.5 I**
		MWB-34(S)d	ug/L	**4.3**	**4.3 IV**	**2.2 I**	**21**
	Intermediate	MWB-2(I)b	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-3(I)b	ug/L	< 1.9	**1.3 IV**	< 1.1	< 1.1
		MWB-7(I)c	ug/L	< 1.9	< 1.1 IV	< 1.1	< 1.1
		MWB-11(IR)c	ug/L	< 1.9	**1.2 IV**	< 1.1	< 1.1
		MWB-12(I)c	ug/L	< 1.9	**1.5 IV**	< 1.1	< 1.1
		MWB-13(I)c	ug/L	**2.5**	< 1.1	< 1.1	< 1.1
		MWB-17(I)c	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-19(I)c	ug/L	**2 I**	**3.1 IV**	< 1.1	< 1.1
		MWB-27(I)c	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-29(I)c	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-32(I)d	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-34(I)d	ug/L	< 1.9 I	< 1.1	< 1.1	< 1.1
	Deep	MWB-7(D)c	ug/L	< 1.9	**1.7 IV**	< 1.1	< 1.1
		MWB-12(D)c	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-17(D)c	ug/L	**12**	< 1.1	< 1.1	< 1.1
		MWB-19(D)c	ug/L	**3**	< 1.1	**8.5**	**2.8 I**
		MWB-27(D)c	ug/L	< 1.9	< 1.1	< 1.1	**1.7 I**
		MWB-29(D)c	ug/L	< 1.9	< 1.1	< 1.1	< 1.1
		MWB-31(D)b	ug/L	< 1.9 I	< 1.1	< 1.1	< 1.1
		MWB-32(D)d	ug/L	< 1.9	**1.3 IV**	< 1.1	< 1.1
		MWB-34(D)d	ug/L	**2.4 I**	< 1.1	< 1.1	< 1.1

Notes:

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Iron	Shallow	MWB-2(S)b	mg/L	0.54	0.25 V	0.46	0.13
		MWB-3(S)b	mg/L	1.9	0.93 V	0.13	0.29
		MWB-7(S)c	mg/L	0.26 V	0.25 V	0.054 I	0.28
		MWB-11(S)c	mg/L	1.5 V	1.1 V	0.23	1.2
		MWB-12(S)c	mg/L	0.11	0.11 V	0.065 I	0.11
		MWB-13(S)c	mg/L	0.36	NM	2	1.6
		MWB-17(S)c	mg/L	0.14 V	0.13 V	0.32	0.13
		MWB-19(S)c	mg/L	2.1	1.6 V	0.46	1
		MWB-20(S)c	mg/L	0.08	0.34 V	0.24	0.13
		MWB-21(S)c	mg/L	0.53 V	0.51 V	0.43	0.61
		MWB-22(S)c	mg/L	0.13 V	0.093 V	0.097 I	0.084 I
		MWB-27(S)c	mg/L	0.39	0.04 IV	0.37	0.16
		MWB-29(S)c	mg/L	0.29 V	0.3 V	0.33	0.76
		MWB-32(S)d	mg/L	0.78 V	1.1 V	1.4	0.91
		MWB-33(S)d	mg/L	0.34 V	0.35 V	0.64	0.23
		MWB-34(S)d	mg/L	0.2 V	0.14 V	0.23	0.14
	Intermediate	MWB-2(I)b	mg/L	0.33	0.34 V	0.34	0.35
		MWB-3(I)b	mg/L	0.75	0.72 V	0.7	0.81
		MWB-7(I)c	mg/L	0.4	0.35 V	0.34	0.38
		MWB-11(IR)c	mg/L	0.34	0.12 V	0.37	0.31
		MWB-12(I)c	mg/L	0.39	0.36 V	0.36	0.31
		MWB-13(I)c	mg/L	0.31 V	0.38 V	0.31	0.32
		MWB-17(I)c	mg/L	0.51	0.44 V	0.51	0.49
		MWB-19(I)c	mg/L	0.49 V	0.48 V	0.42	0.43
		MWB-27(I)c	mg/L	0.4 V	0.47 V	0.39	0.43
		MWB-29(I)c	mg/L	0.4 V	0.26 V	0.26	0.35
		MWB-32(I)d	mg/L	0.46 V	0.91 V	0.41	0.62
		MWB-34(I)d	mg/L	0.45 V	0.77 V	0.54	0.35
	Deep	MWB-7(D)c	mg/L	0.32	0.28 V	0.29	0.31
		MWB-12(D)c	mg/L	0.91	1.2 V	0.92	1.8
		MWB-17(D)c	mg/L	0.34 V	0.33 V	0.34	0.32
		MWB-19(D)c	mg/L	1.8	1.2 V	15	4.2
		MWB-27(D)c	mg/L	0.77 V	0.7 V	0.68	0.51
		MWB-29(D)c	mg/L	0.72	0.87 V	0.73	0.6
		MWB-31(D)b	mg/L	0.77	0.89 V	0.75	0.77
		MWB-32(D)d	mg/L	0.68 V	0.56 V	0.57	0.46
		MWB-34(D)d	mg/L	0.49 V	0.52 V	0.45	0.49

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Lead	Shallow	MWB-2(S)b	ug/L	**24**	< 1.5	**1.2 I**	< 0.2
		MWB-3(S)b	ug/L	**0.66 I**	< 1.5	< 0.2	< 0.2
		MWB-7(S)c	ug/L	**0.57 I**	< 1.5	**0.52 I**	< 0.2
		MWB-11(S)c	ug/L	< 0.17 I	< 1.5	< 0.2	< 0.2
		MWB-12(S)c	ug/L	**0.92 I**	< 1.5	**0.47 I**	**0.8 I**
		MWB-13(S)c	ug/L	**1.5**	NM	**3.8**	**1.6**
		MWB-17(S)c	ug/L	< 0.17	< 1.5	**0.71 I**	**0.44 I**
		MWB-19(S)c	ug/L	**0.26 I**	< 1.5	**0.37 I**	**0.24 I**
		MWB-20(S)c	ug/L	< 0.17	< 1.5	**0.8 I**	< 0.2
		MWB-21(S)c	ug/L	< 0.17	< 1.5	< 0.2	< 0.2
		MWB-22(S)c	ug/L	**0.43 I**	< 1.5	< 0.2	< 0.2
		MWB-27(S)c	ug/L	**0.25 I**	< 1.5	**1.5**	**4.3**
		MWB-29(S)c	ug/L	< 0.17	< 1.5	< 0.2	< 0.2
		MWB-32(S)d	ug/L	**0.49 I**	**1.8 I**	**20**	**0.65 I**
		MWB-33(S)d	ug/L	**0.19 I**	< 1.5	< 0.2	< 0.2
		MWB-34(S)d	ug/L	**0.37 I**	< 1.5	< 0.2	**0.78 I**
	Intermediate	MWB-2(I)b	ug/L	**3.1**	< 1.5	< 0.2	< 0.2
		MWB-3(I)b	ug/L	**0.27 I**	< 1.5	< 0.2	< 0.2
		MWB-7(I)c	ug/L	< 0.17	< 1.5	< 0.2	< 0.2
		MWB-11(IR)c	ug/L	**0.41 I**	**5.9 I**	**0.58 I**	< 0.2
		MWB-12(I)c	ug/L	< 0.17	< 1.5	< 0.2	< 0.2
		MWB-13(I)c	ug/L	**0.4 I**	< 1.5	**0.57 I**	< 0.2
		MWB-17(I)c	ug/L	< 0.17	< 1.5	< 0.2	< 0.2
		MWB-19(I)c	ug/L	**0.72 I**	< 1.5	**0.61 I**	**0.29 I**
		MWB-27(I)c	ug/L	**0.36 I**	< 1.5	**0.25 I**	**0.29 I**
		MWB-29(I)c	ug/L	**0.74 I**	< 1.5	**0.87 I**	**0.51 I**
		MWB-32(I)d	ug/L	**1.4**	< 1.5	**1.8**	**2.2**
		MWB-34(I)d	ug/L	**0.3 I**	< 1.5	**0.46 I**	**0.96 I**
	Deep	MWB-7(D)c	ug/L	< 0.17	< 1.5	< 0.2	**0.48 I**
		MWB-12(D)c	ug/L	**0.42 I**	< 1.5	< 0.2	< 0.2
		MWB-17(D)c	ug/L	< 0.17	< 1.5	< 0.2	< 0.2
		MWB-19(D)c	ug/L	**0.58 I**	< 1.5	**6.9**	**1.6**
		MWB-27(D)c	ug/L	< 0.17	< 1.5	< 0.2	< 0.2
		MWB-29(D)c	ug/L	**0.25 I**	< 1.5	< 0.2	< 0.2
		MWB-31(D)b	ug/L	**0.48 I**	< 1.5	**0.23 I**	**0.5 I**
		MWB-32(D)d	ug/L	**0.57 I**	**2.4 I**	**0.32 I**	**0.23 I**
		MWB-34(D)d	ug/L	< 0.17	< 1.5	< 0.2	**0.7 I**

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Mercury	Shallow	MWB-2(S)b	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-3(S)b	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-7(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-11(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-12(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-13(S)c	ug/L	< 0.084	NM	< 0.091	< 0.091
		MWB-17(S)c	ug/L	< 0.084	< 0.083	< 0.091	**0.85**
		MWB-19(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-20(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-21(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-22(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-27(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-29(S)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-32(S)d	ug/L	< 0.084	< 0.083	**0.33**	< 0.091
		MWB-33(S)d	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-34(S)d	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
	Intermediate	MWB-2(I)b	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-3(I)b	ug/L	< 0.084	< 0.083	< 0.091	**0.14 I**
		MWB-7(I)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-11(IR)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-12(I)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-13(I)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-17(I)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-19(I)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-27(I)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-29(I)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-32(I)d	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-34(I)d	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
	Deep	MWB-7(D)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-12(D)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-17(D)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-19(D)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-27(D)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-29(D)c	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-31(D)b	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-32(D)d	ug/L	< 0.084	< 0.083	< 0.091	< 0.091
		MWB-34(D)d	ug/L	< 0.084	< 0.083	< 0.091	< 0.091

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Nickel	Shallow	MWB-2(S)b	ug/L	**13 V**	< 0.71	< 2	< 2
		MWB-3(S)b	ug/L	< 0.7 UJ	< 0.71	< 2	< 2
		MWB-7(S)c	ug/L	**2.7 V**	< 0.71	< 2	< 2
		MWB-11(S)c	ug/L	**1.8 IV**	**1 I**	< 2	< 2
		MWB-12(S)c	ug/L	< 0.7	< 0.71	< 2	< 2
		MWB-13(S)c	ug/L	**2 IV**	NM	**4.7 I**	**2.5 I**
		MWB-17(S)c	ug/L	**1.6 IV**	< 0.71	< 2	< 2
		MWB-19(S)c	ug/L	< 0.7	**0.9 I**	< 2	< 2
		MWB-20(S)c	ug/L	< 0.7	< 0.71	< 2	< 2
		MWB-21(S)c	ug/L	**2 IV**	< 0.71	< 2	**2.1 I**
		MWB-22(S)c	ug/L	**2.3 IV**	**1.5 I**	< 2	< 2
		MWB-27(S)c	ug/L	**1.8 IV**	**4.4 I**	**2.3 I**	**2 I**
		MWB-29(S)c	ug/L	**0.71 IV**	< 0.71	< 2	**2.2 I**
		MWB-32(S)d	ug/L	**2.4 IV**	**1.4 I**	**2.9 I**	**2.4 I**
		MWB-33(S)d	ug/L	**45 V**	< 0.71	< 2	< 2
		MWB-34(S)d	ug/L	**5.7 V**	**3.5 I**	**2.1 I**	**6.6**
	Intermediate	MWB-2(I)b	ug/L	< 0.7	**0.8 I**	< 2	**2.5 I**
		MWB-3(I)b	ug/L	< 0.7 UJ	< 0.71	< 2	< 2
		MWB-7(I)c	ug/L	< 0.7 UJ	< 0.71	< 2	< 2
		MWB-11(IR)c	ug/L	**0.9 IV**	**1.7 I**	**2.6 I**	**2.2 I**
		MWB-12(I)c	ug/L	< 0.7 UJ	< 0.71	< 2	< 2
		MWB-13(I)c	ug/L	< 0.7	< 0.71	< 2	< 2
		MWB-17(I)c	ug/L	**1.7 IV**	**1.2 I**	< 2	< 2
		MWB-19(I)c	ug/L	**0.88 IV**	**1.9 I**	**2.8 I**	**2.2 I**
		MWB-27(I)c	ug/L	**1.4 IV**	< 0.71	< 2	< 2
		MWB-29(I)c	ug/L	**1.6 IV**	< 0.71	< 2	**2 I**
		MWB-32(I)d	ug/L	**1.3 IV**	< 0.71	< 2	< 2
		MWB-34(I)d	ug/L	**1 IV**	**4.2 I**	**3.2 I**	< 2
	Deep	MWB-7(D)c	ug/L	< 0.7	< 0.71	< 2	< 2
		MWB-12(D)c	ug/L	< 0.7 UJ	< 0.71	< 2	< 2
		MWB-17(D)c	ug/L	**1.2 IV**	< 0.71	< 2	< 2
		MWB-19(D)c	ug/L	< 0.7	< 0.71	**10**	**3.8 I**
		MWB-27(D)c	ug/L	**1.4 IV**	< 0.71	< 2	**2.1 I**
		MWB-29(D)c	ug/L	< 0.7	< 0.71	< 2	< 2
		MWB-31(D)b	ug/L	**2.3 IV**	< 0.71	< 2	< 2
		MWB-32(D)d	ug/L	**1.1 IV**	**1.4 I**	< 2	< 2
		MWB-34(D)d	ug/L	**0.82 IV**	< 0.71	< 2	< 2

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Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Selenium	Shallow	MWB-2(S)b	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-3(S)b	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-7(S)c	ug/L	**0.46 I**	< 2.5	**1.2 I**	< 1
		MWB-11(S)c	ug/L	**0.47 I**	< 2.5	**1.2 I**	< 1
		MWB-12(S)c	ug/L	**2.5**	< 2.5	**6.9**	**2.6**
		MWB-13(S)c	ug/L	**8.2**	NM	**21**	**17**
		MWB-17(S)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-19(S)c	ug/L	**0.38 I**	< 2.5	< 1	< 1
		MWB-20(S)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-21(S)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-22(S)c	ug/L	< 0.33	< 2.5	**1.3 I**	< 1
		MWB-27(S)c	ug/L	**0.35 I**	< 2.5	< 1	< 1
		MWB-29(S)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-32(S)d	ug/L	< 0.33	< 2.5	**2.9**	< 1
		MWB-33(S)d	ug/L	**2.4**	< 2.5	< 1	**2.9**
		MWB-34(S)d	ug/L	**0.86 I**	< 2.5	**1.2 I**	**1 I**
	Intermediate	MWB-2(I)b	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-3(I)b	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-7(I)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-11(IR)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-12(I)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-13(I)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-17(I)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-19(I)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-27(I)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-29(I)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-32(I)d	ug/L	< 0.33	< 2.5	**1.3 I**	< 1
		MWB-34(I)d	ug/L	< 0.33	< 2.5	**1 I**	< 1
	Deep	MWB-7(D)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-12(D)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-17(D)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-19(D)c	ug/L	< 0.33	< 2.5	**2.3 I**	< 1
		MWB-27(D)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-29(D)c	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-31(D)b	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-32(D)d	ug/L	< 0.33	< 2.5	< 1	< 1
		MWB-34(D)d	ug/L	< 0.33	< 2.5	< 1	< 1

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Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Sodium	Shallow	MWB-2(S)b	mg/L	**3.9**	**4.4**	**2**	**3.4**
		MWB-3(S)b	mg/L	**4.4**	**5**	**2.4**	**4.8**
		MWB-7(S)c	mg/L	**13**	**11**	**13**	**15**
		MWB-11(S)c	mg/L	**10**	**11**	**17**	**12**
		MWB-12(S)c	mg/L	**3.9**	**4.2**	**4.7**	**4**
		MWB-13(S)c	mg/L	**40**	NM	**45**	**29**
		MWB-17(S)c	mg/L	**5.2**	**4.7**	**4.5**	**4.7**
		MWB-19(S)c	mg/L	**9.4**	**9.4**	**7.4**	**8.5**
		MWB-20(S)c	mg/L	**9.7**	**11**	**4.9**	**3.8**
		MWB-21(S)c	mg/L	**3.3**	**3.4**	**1.8**	**3.1**
		MWB-22(S)c	mg/L	**13**	**25**	**15**	**7.8**
		MWB-27(S)c	mg/L	**30**	**79**	**8.9**	**11**
		MWB-29(S)c	mg/L	**6**	**4.3**	**4.3**	**11**
		MWB-32(S)d	mg/L	**22**	**26**	**14**	**24**
		MWB-33(S)d	mg/L	**5.9**	**8.6**	**13**	**16**
		MWB-34(S)d	mg/L	**58**	**66**	**16**	**71**
	Intermediate	MWB-2(I)b	mg/L	**4.1**	**4.7**	**4.4**	**4**
		MWB-3(I)b	mg/L	**3.5**	**3.8**	**3.6**	**3.7**
		MWB-7(I)c	mg/L	**3.2**	**3.5**	**3.3**	**3.3**
		MWB-11(IR)c	mg/L	**3**	**3.3**	**3.1**	**3**
		MWB-12(I)c	mg/L	**3.1**	**3.4**	**3.3**	**2.9**
		MWB-13(I)c	mg/L	**3.2**	**3.4**	**3.1**	**3.1**
		MWB-17(I)c	mg/L	**3.3**	**3.8**	**3.4**	**3.2**
		MWB-19(I)c	mg/L	**3.5**	**3.6**	**3.2**	**3**
		MWB-27(I)c	mg/L	**3.3**	**3.8**	**3.3**	**3.5**
		MWB-29(I)c	mg/L	**3.1**	**3.2**	**3.1**	**2.8**
		MWB-32(I)d	mg/L	**3.5**	**3.5**	**3.2**	**3.5**
		MWB-34(I)d	mg/L	**3.3**	**3.4**	**3**	**2.9**
	Deep	MWB-7(D)c	mg/L	**4.6**	**5.1**	**4.6**	**5**
		MWB-12(D)c	mg/L	**5.6**	**6.3**	**5.7**	**5.5**
		MWB-17(D)c	mg/L	**3.4**	**3.6**	**3.3**	**3.1**
		MWB-19(D)c	mg/L	**4.5**	**4.8**	**4.5**	**4.2**
		MWB-27(D)c	mg/L	**3.6**	**3.7**	**3.5**	**3.3**
		MWB-29(D)c	mg/L	**3.9**	**4.1**	**3.8**	**3.3**
		MWB-31(D)b	mg/L	**5.8**	**6.8**	**6.2**	**5.9**
		MWB-32(D)d	mg/L	**4.3**	**4.7**	**4.3**	**3.9**
		MWB-34(D)d	mg/L	**6.1**	**6.6**	**6**	**6.4**

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Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Thallium	Shallow	MWB-2(S)b	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-3(S)b	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-7(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-11(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-12(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-13(S)c	ug/L	< 0.5	NM	< 0.5	< 0.5
		MWB-17(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-19(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-20(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-21(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-22(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-27(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-29(S)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-32(S)d	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-33(S)d	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-34(S)d	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
	Intermediate	MWB-2(I)b	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-3(I)b	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-7(I)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-11(IR)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-12(I)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-13(I)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-17(I)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-19(I)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-27(I)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-29(I)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-32(I)d	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-34(I)d	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
	Deep	MWB-7(D)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-12(D)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-17(D)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-19(D)c	ug/L	< 0.5	< 0.5	**0.99 I**	< 0.5
		MWB-27(D)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-29(D)c	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-31(D)b	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-32(D)d	ug/L	< 0.5	< 0.5	< 0.5	< 0.5
		MWB-34(D)d	ug/L	< 0.5	< 0.5	< 0.5	< 0.5

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Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Vanadium	Shallow	MWB-2(S)b	ug/L	**2.9**	**1.4 I**	**5.2 I**	< 3.8
		MWB-3(S)b	ug/L	< 2.2	**0.9 I**	**3.9 I**	< 3.8
		MWB-7(S)c	ug/L	**4.7**	**2.2 I**	**7.8 I**	**4.8 I**
		MWB-11(S)c	ug/L	**3.6**	**1.6 I**	**4.8 I**	< 3.8
		MWB-12(S)c	ug/L	**14**	**9.4 I**	**65**	**14**
		MWB-13(S)c	ug/L	**57**	NM	**58**	**56**
		MWB-17(S)c	ug/L	**3.1**	**1.6 I**	**5.4 I**	**5.7 I**
		MWB-19(S)c	ug/L	**3.4**	**2 I**	**4.6 I**	< 3.8
		MWB-20(S)c	ug/L	< 2.2	**2.5 I**	**6.1 I**	**4 I**
		MWB-21(S)c	ug/L	**2.4 I**	**1 I**	**3.9 I**	< 3.8
		MWB-22(S)c	ug/L	**3.4**	**1.7 I**	< 3.8	< 3.8
		MWB-27(S)c	ug/L	**5.3**	**23**	**11**	**14**
		MWB-29(S)c	ug/L	< 2.2	**1.2 I**	< 3.8	< 3.8
		MWB-32(S)d	ug/L	**4.2**	**2.7 I**	**17**	**4.6 I**
		MWB-33(S)d	ug/L	**11**	**5 I**	**6.8 I**	**17**
		MWB-34(S)d	ug/L	**15**	**31**	**4.9 I**	**18**
	Intermediate	MWB-2(I)b	ug/L	< 2.2	< 0.6	< 3.8	< 3.8
		MWB-3(I)b	ug/L	< 2.2	< 0.6	< 3.8	< 3.8
		MWB-7(I)c	ug/L	**2.4 I**	**0.9 I**	< 3.8	< 3.8
		MWB-11(IR)c	ug/L	**4**	**19**	**11**	< 3.8
		MWB-12(I)c	ug/L	**2.5**	< 0.6	< 3.8	< 3.8
		MWB-13(I)c	ug/L	**3.3**	**1.7 I**	**4.1 I**	< 3.8
		MWB-17(I)c	ug/L	< 2.2	< 0.6 I	< 3.8	< 3.8
		MWB-19(I)c	ug/L	**2.7**	**1.9 I**	**5.4 I**	< 3.8
		MWB-27(I)c	ug/L	< 2.2	**0.9 I**	< 3.8	< 3.8
		MWB-29(I)c	ug/L	< 2.2	< 0.6 I	< 3.8	< 3.8
		MWB-32(I)d	ug/L	**2.5**	**1.3 I**	< 3.8	< 3.8
		MWB-34(I)d	ug/L	< 2.2	**1 I**	< 3.8	< 3.8
	Deep	MWB-7(D)c	ug/L	< 2.2	< 0.6	< 3.8	< 3.8
		MWB-12(D)c	ug/L	< 2.2	< 0.6	< 3.8	< 3.8
		MWB-17(D)c	ug/L	**2.6**	**1.5 I**	**4.2 I**	< 3.8
		MWB-19(D)c	ug/L	**3.4**	**2.3 I**	**39**	**12**
		MWB-27(D)c	ug/L	< 2.2	**0.8 I**	< 3.8	< 3.8
		MWB-29(D)c	ug/L	< 2.2	**1 I**	< 3.8	< 3.8
		MWB-31(D)b	ug/L	< 2.2 I	**1.2 I**	< 3.8	< 3.8
		MWB-32(D)d	ug/L	< 2.2 I	**1 I**	< 3.8	< 3.8
		MWB-34(D)d	ug/L	< 2.2	< 0.6	< 3.8	< 3.8

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Zinc	Shallow	MWB-2(S)b	ug/L	< 14	< 1.7	< 8.3	< 8.3
		MWB-3(S)b	ug/L	< 14	**3.6 I**	< 8.3	< 8.3
		MWB-7(S)c	ug/L	< 14 I	< 1.7 I	< 8.3	< 8.3
		MWB-11(S)c	ug/L	< 14	**2.6 I**	< 8.3	< 8.3
		MWB-12(S)c	ug/L	**15 I**	**6.2 I**	< 8.3	< 8.3
		MWB-13(S)c	ug/L	< 14	NM	**10 I**	< 8.3
		MWB-17(S)c	ug/L	< 14	< 1.7 I	< 8.3	< 8.3
		MWB-19(S)c	ug/L	< 14	**2.6 I**	**14 I**	< 8.3
		MWB-20(S)c	ug/L	< 14	**2.2 I**	< 8.3	< 8.3
		MWB-21(S)c	ug/L	< 14	**4.4 I**	< 8.3	< 8.3
		MWB-22(S)c	ug/L	< 14	< 1.7	< 8.3	< 8.3
		MWB-27(S)c	ug/L	< 14	< 1.7	< 8.3	< 8.3
		MWB-29(S)c	ug/L	< 14	< 1.7	< 8.3	< 8.3
		MWB-32(S)d	ug/L	< 14	**3.1 I**	< 8.3	< 8.3
		MWB-33(S)d	ug/L	< 14	< 1.7	< 8.3	< 8.3
		MWB-34(S)d	ug/L	**49**	**44**	**74**	**260**
	Intermediate	MWB-2(I)b	ug/L	**23**	**5 I**	< 8.3	< 8.3
		MWB-3(I)b	ug/L	< 14	**3.1 I**	< 8.3	< 8.3
		MWB-7(I)c	ug/L	< 14	< 1.7	< 8.3	< 8.3
		MWB-11(IR)c	ug/L	< 14	**4.9 I**	< 8.3	< 8.3
		MWB-12(I)c	ug/L	< 14	**3.3 I**	< 8.3	< 8.3
		MWB-13(I)c	ug/L	< 14	< 1.7	< 8.3	< 8.3
		MWB-17(I)c	ug/L	< 14	**1.9 I**	< 8.3	< 8.3
		MWB-19(I)c	ug/L	< 14	**7.6 I**	**14 I**	< 8.3
		MWB-27(I)c	ug/L	< 14	**3.2 I**	< 8.3	< 8.3
		MWB-29(I)c	ug/L	< 14	**2.5 I**	< 8.3	< 8.3
		MWB-32(I)d	ug/L	< 14	**4.8 I**	< 8.3	< 8.3
		MWB-34(I)d	ug/L	< 14	**2.1 I**	< 8.3	< 8.3
	Deep	MWB-7(D)c	ug/L	< 14	**2.1 I**	< 8.3	< 8.3
		MWB-12(D)c	ug/L	< 14	< 1.7	< 8.3	< 8.3
		MWB-17(D)c	ug/L	< 14	**2.7 I**	< 8.3	< 8.3
		MWB-19(D)c	ug/L	< 14	**2.7 I**	**29**	**8.9 I**
		MWB-27(D)c	ug/L	< 14	**3.6 I**	< 8.3	**13 I**
		MWB-29(D)c	ug/L	< 14	**2.6 I**	< 8.3	< 8.3
		MWB-31(D)b	ug/L	< 14	**3.2 I**	< 8.3	< 8.3
		MWB-32(D)d	ug/L	< 14	**16 I**	< 8.3	< 8.3
		MWB-34(D)d	ug/L	< 14	< 1.7	< 8.3	< 8.3

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Ammonia (N)	Shallow	MWB-2(S)b	ug/L	48	32	74	53
		MWB-3(S)b	ug/L	19 I	14 I	35 I	< 26
		MWB-7(S)c	ug/L	620	660	200	310
		MWB-11(S)c	ug/L	180	290	130	99
		MWB-12(S)c	ug/L	140	130	91	150
		MWB-13(S)c	ug/L	30	NM	73	150
		MWB-17(S)c	ug/L	400	300	120	200
		MWB-19(S)c	ug/L	420	360	130	480
		MWB-20(S)c	ug/L	380	330	160	170
		MWB-21(S)c	ug/L	110	110	130	180
		MWB-22(S)c	ug/L	110	42	90	310
		MWB-27(S)c	ug/L	560	450	200	57
		MWB-29(S)c	ug/L	160	89	86	450
		MWB-32(S)d	ug/L	590	720	290	650
		MWB-33(S)d	ug/L	820	1200	670	590
		MWB-34(S)d	ug/L	1100	1400	780	730
	Intermediate	MWB-2(I)b	ug/L	23	33	180	41 I
		MWB-3(I)b	ug/L	11 I	18 I	37 I	45 I
		MWB-7(I)c	ug/L	32	32	56	44 I
		MWB-11(IR)c	ug/L	39	54	60	47 I
		MWB-12(I)c	ug/L	40	36 I	68	56
		MWB-13(I)c	ug/L	42	48	84	56
		MWB-17(I)c	ug/L	28	27	41 I	46 I
		MWB-19(I)c	ug/L	31	44	76	57
		MWB-27(I)c	ug/L	66	73	79	110
		MWB-29(I)c	ug/L	30	46	93	74
		MWB-32(I)d	ug/L	28	33	39 I	67
		MWB-34(I)d	ug/L	52	54	67	94
	Deep	MWB-7(D)c	ug/L	150	140	150	160
		MWB-12(D)c	ug/L	180	180	170	240
		MWB-17(D)c	ug/L	40	32	68	74
		MWB-19(D)c	ug/L	97	120	110	90
		MWB-27(D)c	ug/L	84	84	110	170
		MWB-29(D)c	ug/L	85	130	98	110
		MWB-31(D)b	ug/L	180	180	180	180
		MWB-32(D)d	ug/L	110	110	100	130
		MWB-34(D)d	ug/L	200	180	180	210

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Chloride	Shallow	MWB-2(S)b	mg/L	8.6	8.4	1.9 I	5.6
		MWB-3(S)b	mg/L	8.3	12	3 I	10
		MWB-7(S)c	mg/L	16	14	14	17
		MWB-11(S)c	mg/L	18	16	33	21
		MWB-12(S)c	mg/L	7.1	7.4	8.5	6.3
		MWB-13(S)c	mg/L	61	NM	53	32
		MWB-17(S)c	mg/L	7.9	7.2	6.6	8.3
		MWB-19(S)c	mg/L	18	14	10	11
		MWB-20(S)c	mg/L	13	14	5.8	5.7
		MWB-21(S)c	mg/L	5.8	5.5	1.4 I	6.3
		MWB-22(S)c	mg/L	33 J	21	20	10
		MWB-27(S)c	mg/L	58 J	85	9.7	9
		MWB-29(S)c	mg/L	13 J	6.9	6.4	21
		MWB-32(S)d	mg/L	39	48	26	39
		MWB-33(S)d	mg/L	11 J	13	15	12
		MWB-34(S)d	mg/L	260 J	57	6.9	42
	Intermediate	MWB-2(I)b	mg/L	7.5	7.2	6.8	6.2
		MWB-3(I)b	mg/L	6.4	5.7	5.8	5.5
		MWB-7(I)c	mg/L	5.8	5.4	4.9 I	4.6 I
		MWB-11(IR)c	mg/L	5.5	5.2	4.6 I	4.5 I
		MWB-12(I)c	mg/L	5.8	5.3	4.6 I	4.6 I
		MWB-13(I)c	mg/L	4.7	4.6	4.2 I	4 I
		MWB-17(I)c	mg/L	5.5	5.3	4.4 I	4.5 I
		MWB-19(I)c	mg/L	5.4	5.1	4.5 I	4.9 I
		MWB-27(I)c	mg/L	6.4 J	5.7	5	5
		MWB-29(I)c	mg/L	5.8 J	5.2	4.7 I	4.5 I
		MWB-32(I)d	mg/L	5.7	5.3	4.9 I	4.5 I
		MWB-34(I)d	mg/L	5.4	5.8	4.9 I	4.8 I
	Deep	MWB-7(D)c	mg/L	4.3 J	4.1	4 I	4.1 I
		MWB-12(D)c	mg/L	4.4	4.3	4 I	4 I
		MWB-17(D)c	mg/L	5.9	6.4	5.4	5.3
		MWB-19(D)c	mg/L	4.7	4.6	4.1 I	4.2 I
		MWB-27(D)c	mg/L	5.5	5.7	5	4.4 I
		MWB-29(D)c	mg/L	7.2 J	6.4	5.7	5.4
		MWB-31(D)b	mg/L	5.5	5.3	5	5.1
		MWB-32(D)d	mg/L	6.2 J	5.3	4.8 I	5.6
		MWB-34(D)d	mg/L	5.6 J	5.3	4.6 I	4.7 I

Notes:

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Nitrate (N)	Shallow	MWB-2(S)b	ug/L	**0.024**	< 0.0047	**0.12**	< 0.0054
		MWB-3(S)b	ug/L	**0.015**	< 0.0047	< 0.0047	< 0.0054
		MWB-7(S)c	ug/L	**0.01**	< 0.0047	**1.1**	**0.075**
		MWB-11(S)c	ug/L	**0.024**	< 0.0047	**0.042**	< 0.0054
		MWB-12(S)c	ug/L	< 0.0047	< 0.0047	**0.075**	**0.02**
		MWB-13(S)c	ug/L	**0.28**	NM	**0.26**	**0.32**
		MWB-17(S)c	ug/L	< 0.0047	< 0.0047	< 0.0047	< 0.0054
		MWB-19(S)c	ug/L	**0.02**	< 0.0047	< 0.0047	< 0.0054
		MWB-20(S)c	ug/L	**0.11**	**0.0092 I**	< 0.0047	**0.23**
		MWB-21(S)c	ug/L	**0.0098 I**	< 0.0047	< 0.0047	< 0.0054
		MWB-22(S)c	ug/L	< 0.0047	< 0.0047	< 0.0047	< 0.0054
		MWB-27(S)c	ug/L	**0.02**	**0.68**	< 0.0047	**4.4**
		MWB-29(S)c	ug/L	**0.0082 I**	**0.017**	< 0.0047	< 0.0054
		MWB-32(S)d	ug/L	**0.014**	< 0.0047	< 0.0047	**0.01**
		MWB-33(S)d	ug/L	**0.23**	< 0.0047	**0.033**	**1.7**
		MWB-34(S)d	ug/L	**0.35**	**0.32**	< 0.0047	**0.12**
	Intermediate	MWB-2(I)b	ug/L	**0.0083 I**	< 0.0047	< 0.0047	< 0.0054
		MWB-3(I)b	ug/L	**0.97**	< 0.0047	< 0.0047	**0.011**
		MWB-7(I)c	ug/L	**0.0078 I**	< 0.0047	< 0.0047	< 0.0054
		MWB-11(IR)c	ug/L	**0.021**	**0.065**	< 0.0047	**0.022**
		MWB-12(I)c	ug/L	**0.012**	< 0.0047	< 0.0047	**0.014**
		MWB-13(I)c	ug/L	**0.0086 I**	**0.006 I**	< 0.0047	< 0.0054
		MWB-17(I)c	ug/L	**0.0077 I**	< 0.0047	< 0.0047	< 0.0054
		MWB-19(I)c	ug/L	**0.024**	< 0.0047	< 0.0047	**0.11**
		MWB-27(I)c	ug/L	**0.0086 I**	< 0.0047	< 0.0047	< 0.0054
		MWB-29(I)c	ug/L	**0.0072 I**	< 0.0047	< 0.0047	< 0.0054
		MWB-32(I)d	ug/L	**0.0088 I**	**0.043**	< 0.0047	**0.0081 I**
		MWB-34(I)d	ug/L	< 0.0047	**0.029**	< 0.0047	< 0.0054
	Deep	MWB-7(D)c	ug/L	< 0.0047	< 0.0047	< 0.0047	**0.0094 I**
		MWB-12(D)c	ug/L	**0.0096 I**	< 0.0047	< 0.0047	< 0.0054
		MWB-17(D)c	ug/L	**0.011**	< 0.0047	**0.04**	< 0.0054
		MWB-19(D)c	ug/L	**0.0096 I**	< 0.0047	< 0.0047	**0.01**
		MWB-27(D)c	ug/L	**0.02**	< 0.0047	**0.011**	**0.04**
		MWB-29(D)c	ug/L	**0.013**	< 0.0047	< 0.0047	< 0.0054
		MWB-31(D)b	ug/L	**0.0091 I**	< 0.0047	< 0.0047	< 0.0054
		MWB-32(D)d	ug/L	**0.011**	< 0.0047	< 0.0047	< 0.0054
		MWB-34(D)d	ug/L	**0.0052 I**	< 0.0047	< 0.0047	**0.046**

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Nitrate-Nitrite (N)	Shallow	MWB-2(S)b	mg/L	**0.024**	< 0.0047	**0.13**	< 0.0054
		MWB-3(S)b	mg/L	**0.015**	< 0.0047	< 0.01	< 0.0054
		MWB-7(S)c	mg/L	**0.01**	< 0.0047	**1.1**	**0.075**
		MWB-11(S)c	mg/L	**0.024**	< 0.0047	**0.042 I**	< 0.0054
		MWB-12(S)c	mg/L	**0.01**	< 0.0047	**0.075**	**0.02**
		MWB-13(S)c	mg/L	**0.28**	NM	**0.26**	**0.32**
		MWB-17(S)c	mg/L	< 0.0047	< 0.0047	< 0.01	< 0.0054
		MWB-19(S)c	mg/L	**0.02**	< 0.0047	< 0.01	< 0.0054
		MWB-20(S)c	mg/L	**0.11**	**0.0092 I**	< 0.01	**0.23**
		MWB-21(S)c	mg/L	**0.0098 I**	< 0.0047	< 0.01	< 0.0054
		MWB-22(S)c	mg/L	< 0.0047	< 0.0047	< 0.01	< 0.0054
		MWB-27(S)c	mg/L	**0.02**	**0.68**	< 0.01	**4.4**
		MWB-29(S)c	mg/L	**0.0082 I**	**0.017**	< 0.01	< 0.0054
		MWB-32(S)d	mg/L	**0.014**	< 0.0047	< 0.01	**0.01**
		MWB-33(S)d	mg/L	**0.23**	< 0.0047	**0.033 I**	**1.7**
		MWB-34(S)d	mg/L	**0.35**	**0.32**	< 0.01	**0.12**
	Intermediate	MWB-2(I)b	mg/L	**0.0083 I**	< 0.0047	< 0.01	< 0.0054
		MWB-3(I)b	mg/L	**0.97**	< 0.0047	< 0.01	**0.011**
		MWB-7(I)c	mg/L	**0.0078 I**	< 0.0047	< 0.01	< 0.0054
		MWB-11(IR)c	mg/L	**0.021**	**0.065**	< 0.01	**0.022**
		MWB-12(I)c	mg/L	**0.012**	< 0.0047	< 0.01	**0.014**
		MWB-13(I)c	mg/L	**0.0086 I**	**0.006 I**	< 0.01	< 0.0054
		MWB-17(I)c	mg/L	**0.0077 I**	< 0.0047	< 0.01	< 0.0054
		MWB-19(I)c	mg/L	**0.024**	< 0.0047	< 0.01	**0.11**
		MWB-27(I)c	mg/L	**0.0086 I**	< 0.0047	< 0.01	< 0.0054
		MWB-29(I)c	mg/L	**0.0072 I**	< 0.0047	< 0.01	< 0.0054
		MWB-32(I)d	mg/L	**0.0088 I**	**0.043**	< 0.01	**0.0081 I**
		MWB-34(I)d	mg/L	**0.0062 I**	**0.029**	< 0.01	< 0.0054
	Deep	MWB-7(D)c	mg/L	< 0.0047	< 0.0047	< 0.01	**0.0094 I**
		MWB-12(D)c	mg/L	**0.0096 I**	< 0.0047	< 0.01	< 0.0054
		MWB-17(D)c	mg/L	**0.011**	< 0.0047	**0.04 I**	< 0.0054
		MWB-19(D)c	mg/L	**0.0096 I**	< 0.0047	< 0.01	**0.01**
		MWB-27(D)c	mg/L	**0.02**	< 0.0047	**0.011 I**	**0.04**
		MWB-29(D)c	mg/L	**0.013**	< 0.0047	< 0.01	< 0.0054
		MWB-31(D)b	mg/L	**0.0091 I**	< 0.0047	< 0.01	< 0.0054
		MWB-32(D)d	mg/L	**0.011**	< 0.0047	< 0.01	< 0.0054
		MWB-34(D)d	mg/L	**0.0052 I**	< 0.0047	< 0.01	**0.046**

Notes:

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TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Total Dissolved Solids	Shallow	MWB-2(S)b	mg/L	**21 Q**	**47**	**52**	**22**
		MWB-3(S)b	mg/L	**34**	**37**	**8**	**10**
		MWB-7(S)c	mg/L	**130 V**	**100**	**120**	**86**
		MWB-11(S)c	mg/L	**91 V**	**90**	**130**	**78**
		MWB-12(S)c	mg/L	**88 Q**	**110**	**120**	**120**
		MWB-13(S)c	mg/L	**260 Q**	**NM**	**260**	**210**
		MWB-17(S)c	mg/L	**150 V**	**76**	**62**	**86**
		MWB-19(S)c	mg/L	**80**	**72**	**94**	**66**
		MWB-20(S)c	mg/L	**72 Q**	**98**	**56**	**36**
		MWB-21(S)c	mg/L	**40 Q**	**41**	**120**	**30**
		MWB-22(S)c	mg/L	**230**	**180**	**170**	**140**
		MWB-27(S)c	mg/L	**170**	**310**	**150**	**100**
		MWB-29(S)c	mg/L	**44 V**	**37**	**10**	**46**
		MWB-32(S)d	mg/L	**210 V**	**160**	**250**	**120**
		MWB-33(S)d	mg/L	**140 V**	**94**	**160**	**150**
		MWB-34(S)d	mg/L	**470 V**	**400**	**440**	**570**
	Intermediate	MWB-2(I)b	mg/L	**37**	**32**	**16**	**10**
		MWB-3(I)b	mg/L	**27**	**29**	**10**	**12**
		MWB-7(I)c	mg/L	**51**	**39**	**20**	**18**
		MWB-11(IR)c	mg/L	**29 Q**	**41**	**24**	**32**
		MWB-12(I)c	mg/L	**31 Q**	**38**	**36**	**30**
		MWB-13(I)c	mg/L	**31 Q**	**21**	**8**	**24**
		MWB-17(I)c	mg/L	**34**	**34**	**22**	**24**
		MWB-19(I)c	mg/L	**57**	**45**	**34**	**20**
		MWB-27(I)c	mg/L	**24**	**36**	**30**	**18**
		MWB-29(I)c	mg/L	**50 V**	**41**	**34**	**48**
		MWB-32(I)d	mg/L	**47 V**	**31**	**26**	**22**
		MWB-34(I)d	mg/L	**40 V**	**52**	**30**	**20**
	Deep	MWB-7(D)c	mg/L	**200**	**210**	**190**	**180**
		MWB-12(D)c	mg/L	**210 Q**	**210**	**190**	**200**
		MWB-17(D)c	mg/L	**61 V**	**44**	**34**	**40**
		MWB-19(D)c	mg/L	**210**	**210**	**210**	**200**
		MWB-27(D)c	mg/L	**89**	**64**	**58**	**38**
		MWB-29(D)c	mg/L	**44**	**62**	**36**	**24**
		MWB-31(D)b	mg/L	**210**	**200**	**200**	**200**
		MWB-32(D)d	mg/L	**130 V**	**81**	**76**	**40**
		MWB-34(D)d	mg/L	**240 V**	**230**	**230**	**170**

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Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Dissolved Oxygen	Shallow	MWB-2(S)b	mg/L	0.5	1.3	1.0	1.0
		MWB-3(S)b	mg/L	0.1	1.0	0.9	0.7
		MWB-7(S)c	mg/L	0.2	0.0	0.0	0.0
		MWB-11(S)c	mg/L	0.2	0.0	0.1	0.0
		MWB-12(S)c	mg/L	0.6	0.8	0.7	0.5
		MWB-13(S)c	mg/L	0.6	NM	0.7	0.9
		MWB-17(S)c	mg/L	1.8	0.8	0.6	0.5
		MWB-19(S)c	mg/L	0.2	0.0	0.0	0.0
		MWB-20(S)c	mg/L	0.2	0.0	0.0	0.0
		MWB-21(S)c	mg/L	0.4	0.0	0.1	0.0
		MWB-22(S)c	mg/L	0.6	0.4	0.3	0.2
		MWB-27(S)c	mg/L	0.5	0.1	0.0	0.0
		MWB-29(S)c	mg/L	0.6	0.4	0.3	0.3
		MWB-32(S)d	mg/L	0.4	0.3	0.2	0.4
		MWB-33(S)d	mg/L	0.7	0.3	0.3	0.2
		MWB-34(S)d	mg/L	0.4	0.4	0.2	0.3
	Intermediate	MWB-2(I)b	mg/L	0.1	0.5	0.4	0.4
		MWB-3(I)b	mg/L	0.2	0	0.1	0
		MWB-7(I)c	mg/L	0	0	0	0
		MWB-11(IR)c	mg/L	0.5	0	0	0
		MWB-12(I)c	mg/L	0.5	0.5	0.3	0.3
		MWB-13(I)c	mg/L	0.4	0.4	0.3	0.6
		MWB-17(I)c	mg/L	0	0	0	0
		MWB-19(I)c	mg/L	0.3	0	0.2	0
		MWB-27(I)c	mg/L	0.5	0.4	0.3	0.3
		MWB-29(I)c	mg/L	0.4	0.6	0.5	0.3
		MWB-32(I)d	mg/L	0.3	0.5	0.2	0.3
		MWB-34(I)d	mg/L	0.3	0.3	0.2	0.1
	Deep	MWB-7(D)c	mg/L	0	0	0	0
		MWB-12(D)c	mg/L	0.2	0.2	0.1	0
		MWB-17(D)c	mg/L	0	0	0	0
		MWB-19(D)c	mg/L	0.1	0	0	0
		MWB-27(D)c	mg/L	0.2	0.4	0.2	0.1
		MWB-29(D)c	mg/L	0.3	0.2	0.1	0
		MWB-31(D)b	mg/L	1.9	0	0	0
		MWB-32(D)d	mg/L	0.3	0.9	0.4	0.4
		MWB-34(D)d	mg/L	0.2	0.4	0.2	0.2

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Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
pH	Shallow	MWB-2(S)b	pH Units	4.26	4.47	4.66	4.31
		MWB-3(S)b	pH Units	4.24	3.52	4.36	3.95
		MWB-7(S)c	pH Units	4.62	4.68	5.16	4.62
		MWB-11(S)c	pH Units	3.76	3.53	3.9	3.74
		MWB-12(S)c	pH Units	5.33	5.29	5.54	5.45
		MWB-13(S)c	pH Units	5.61	NM	5.81	5.61
		MWB-17(S)c	pH Units	5.4	5.38	5.39	5.29
		MWB-19(S)c	pH Units	4.08	3.9	5.43	4.01
		MWB-20(S)c	pH Units	4.22	4.34	4.23	4.2
		MWB-21(S)c	pH Units	4.38	4.63	5.2	4.82
		MWB-22(S)c	pH Units	5.38	5.95	5.98	5.77
		MWB-27(S)c	pH Units	4.5	5.42	5.39	5.33
		MWB-29(S)c	pH Units	4.51	4.58	4.3	4.37
		MWB-32(S)d	pH Units	5.21	5.42	5.83	4.88
		MWB-33(S)d	pH Units	5.35	5.29	5.23	5.41
		MWB-34(S)d	pH Units	5.96	6.14	6.23	6.23
	Intermediate	MWB-2(I)b	pH Units	4.62	4.76	4.71	4.58
		MWB-3(I)b	pH Units	4.47	4.03	4.45	4.16
		MWB-7(I)c	pH Units	4.94	5.05	5.07	4.76
		MWB-11(IR)c	pH Units	4.69	4.73	4.74	4.71
		MWB-12(I)c	pH Units	4.95	5.19	5.15	5.12
		MWB-13(I)c	pH Units	4.78	5.22	5.14	4.97
		MWB-17(I)c	pH Units	4.69	4.57	5.02	4.52
		MWB-19(I)c	pH Units	4.79	5.08	5.06	4.82
		MWB-27(I)c	pH Units	5.29	5.5	5.53	5.37
		MWB-29(I)c	pH Units	4.9	5.09	5.02	4.96
		MWB-32(I)d	pH Units	5.31	5.33	5.34	5.18
		MWB-34(I)d	pH Units	5.08	5.27	5.23	5.18
	Deep	MWB-7(D)c	pH Units	7.26	7.64	7.41	7.51
		MWB-12(D)c	pH Units	6.9	7.16	7.04	7.04
		MWB-17(D)c	pH Units	5.22	5.65	5.45	5.19
		MWB-19(D)c	pH Units	7.13	7.6	7.36	7.31
		MWB-27(D)c	pH Units	5.46	5.84	5.84	5.75
		MWB-29(D)c	pH Units	5.35	5.45	5.53	5.44
		MWB-31(D)b	pH Units	6.88	7.39	7.32	7.15
		MWB-32(D)d	pH Units	6.05	5.86	5.98	5.68
		MWB-34(D)d	pH Units	6.91	7.06	7.04	7.13

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Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Specific Conductance	Shallow	MWB-2(S)b	umhos/cm	63	66	25	52
		MWB-3(S)b	umhos/cm	58	61	35	47
		MWB-7(S)c	umhos/cm	144	132	177	135
		MWB-11(S)c	umhos/cm	146	122	247	145
		MWB-12(S)c	umhos/cm	128	128	164	157
		MWB-13(S)c	umhos/cm	379	NM	422	283
		MWB-17(S)c	umhos/cm	124	102	78	103
		MWB-19(S)c	umhos/cm	121	107	146	82
		MWB-20(S)c	umhos/cm	111	126	76	62
		MWB-21(S)c	umhos/cm	41	42	165	49
		MWB-22(S)c	umhos/cm	252	252	274	210
		MWB-27(S)c	umhos/cm	327	453	95	121
		MWB-29(S)c	umhos/cm	54	36	41	94
		MWB-32(S)d	umhos/cm	253	237	370	235
		MWB-33(S)d	umhos/cm	170	145	255	226
		MWB-34(S)d	umhos/cm	858	701	888	791
	Intermediate	MWB-2(I)b	umhos/cm	35	36	39	29
		MWB-3(I)b	umhos/cm	35	39	42	30
		MWB-7(I)c	umhos/cm	39	42	40	31
		MWB-11(IR)c	umhos/cm	35	28	34	17
		MWB-12(I)c	umhos/cm	38	36	39	24
		MWB-13(I)c	umhos/cm	35	33	34	25
		MWB-17(I)c	umhos/cm	28	32	29	15
		MWB-19(I)c	umhos/cm	32	39	34	3
		MWB-27(I)c	umhos/cm	52	48	51	27
		MWB-29(I)c	umhos/cm	36	33	35	30
		MWB-32(I)d	umhos/cm	41	38	40	21
		MWB-34(I)d	umhos/cm	42	42	43	22
	Deep	MWB-7(D)c	umhos/cm	313	314	352	325
		MWB-12(D)c	umhos/cm	358	369	388	362
		MWB-17(D)c	umhos/cm	49	56	56	35
		MWB-19(D)c	umhos/cm	330	344	364	325
		MWB-27(D)c	umhos/cm	87	81	94	58
		MWB-29(D)c	umhos/cm	63	60	69	54
		MWB-31(D)b	umhos/cm	336	344	368	337
		MWB-32(D)d	umhos/cm	126	91	139	70
		MWB-34(D)d	umhos/cm	419	410	429	390

Notes:

Bold values indicate parameter detections above reporting limits.

< and U - non-detect; I - detected below reporting limit; V - detected in blank and sample; J - estimated value

ug/L - micrograms per liter; mg/L - milligrams per liter; umhos/cm - micromohs per centimeter; NTU - nephelometric turbidity units

NM - Not measured because the well was dry at the time of sampling

TABLE 4
Results for Parameters Detected in Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Depth	Location	Unit	Aug-11	Feb-12	Jul-12	Feb-13
Turbidity	Shallow	MWB-2(S)b	NTU	1.36	0.53	18.67	3.96
		MWB-3(S)b	NTU	4.77	2.3	3.03	3.52
		MWB-7(S)c	NTU	14.87	13.9	15.59	14.04
		MWB-11(S)c	NTU	3.09	0.85	2.77	1.89
		MWB-12(S)c	NTU	15.08	71.86	23.24	36.75
		MWB-13(S)c	NTU	10.41	NM	48.45	24.34
		MWB-17(S)c	NTU	1.99	15.5	19.82	20.43
		MWB-19(S)c	NTU	2.47	17.97	13.85	8.16
		MWB-20(S)c	NTU	9.13	2.17	19.13	2.51
		MWB-21(S)c	NTU	4.08	10.67	3.14	3.91
		MWB-22(S)c	NTU	7.78	5.36	5.18	3.7
		MWB-27(S)c	NTU	3.71	7.01	55.91	10.25
		MWB-29(S)c	NTU	3.98	1.52	3.67	1.14
		MWB-32(S)d	NTU	9.65	4.49	489.4	17.43
		MWB-33(S)d	NTU	7.38	1.99	3.87	18.07
		MWB-34(S)d	NTU	3.56	3.63	3.81	3.09
	Intermediate	MWB-2(I)b	NTU	0.82	0.71	2.03	1.43
		MWB-3(I)b	NTU	1.72	1.78	1.47	2.61
		MWB-7(I)c	NTU	0.45	1.98	3.29	2.73
		MWB-11(IR)c	NTU	2.79	164	9.81	5.03
		MWB-12(I)c	NTU	1.3	0.61	3.16	2.16
		MWB-13(I)c	NTU	4.65	3.78	4.23	3.49
		MWB-17(I)c	NTU	0.54	0.7	1.47	1.12
		MWB-19(I)c	NTU	1.01	9.33	15.84	4.29
		MWB-27(I)c	NTU	7.65	7.87	5.55	5.05
		MWB-29(I)c	NTU	14.28	14.67	14.66	11.8
		MWB-32(I)d	NTU	43.73	18.46	54.31	19.37
		MWB-34(I)d	NTU	5.35	4.92	7.17	4.2
	Deep	MWB-7(D)c	NTU	0.59	0.59	2.05	1.78
		MWB-12(D)c	NTU	2.08	3.88	3.53	5.65
		MWB-17(D)c	NTU	0.83	0.63	1.14	0.51
		MWB-19(D)c	NTU	2.22	6.34	80.7	6.62
		MWB-27(D)c	NTU	0.77	0.34	0.4	0.44
		MWB-29(D)c	NTU	2.68	3.38	2.24	2.02
		MWB-31(D)b	NTU	0.72	8.26	1.87	6.33
		MWB-32(D)d	NTU	5.13	6.1	4.8	3.7
		MWB-34(D)d	NTU	2.49	0.81	1.12	1.23

Notes:

Bold values indicate parameter detections above reporting limits.

< and U - non-detect; I - detected below reporting limit; V - detected in blank and sample; J - estimated value

ug/L - micrograms per liter; mg/L - milligrams per liter; umhos/cm - micromohs per centimeter; NTU - nephelometric turbidity units

NM - Not measured because the well was dry at the time of sampling

TABLE 5
Results for Parameters Detected in Surface Water
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Location	Unit	Aug-11	Feb-12	Jul-12	Jul-12 Resampling	Feb-13
2-Butanone	SW-1	ug/L	< 3	< 3	< 2.6	--	< 2.6
	SW-2	ug/L	< 3	< 3	< 2.6	--	< 2.6
	SW-3	ug/L	< 3	< 3	77	<2.6	< 2.6
Acetone	SW-1	ug/L	5.4 I	< 3	< 2.8	--	< 2.8
	SW-2	ug/L	4.5 I	< 3	< 2.8	--	< 2.8
	SW-3	ug/L	< 3	9.9 I	82	<2.8	< 2.8
Carbon Disulfide	SW-1	ug/L	< 0.13	< 0.13	< 0.23	--	< 0.23
	SW-2	ug/L	< 0.13	< 0.13	< 0.23	--	< 0.23
	SW-3	ug/L	< 0.13	< 0.13	1.1	<0.23	< 0.23
Chloroform	SW-1	ug/L	1.2	< 0.21	< 0.12	--	< 0.12
	SW-2	ug/L	< 0.21	< 0.21	< 0.12	--	< 0.12
	SW-3	ug/L	< 0.21	< 0.21	< 0.12	--	< 0.12
Toluene	SW-1	ug/L	< 0.24	< 0.24	< 0.14	--	< 0.14
	SW-2	ug/L	< 0.24	< 0.24	< 0.14	--	< 0.14
	SW-3	ug/L	< 0.24	< 0.24	20	<0.14	< 0.14
Antimony	SW-1	ug/L	< 0.84	< 0.84	< 2.3	--	< 2.3
	SW-2	ug/L	< 0.84	< 0.84	15	<2.3	< 2.3
	SW-3	ug/L	1.8	1.4	< 2.3	--	2.7 I
Arsenic	SW-1	ug/L	< 0.66	< 0.66	1.7 I	--	< 1.3
	SW-2	ug/L	< 0.66	< 0.66	1.3 I	--	< 1.3
	SW-3	ug/L	2.4	2.3	2.8	--	2.6
Barium	SW-1	ug/L	51	52	45	--	55
	SW-2	ug/L	84	77	110	--	110
	SW-3	ug/L	79	82	48	--	71
Beryllium	SW-1	ug/L	< 0.37	< 0.37	< 0.25	--	< 0.25
	SW-2	ug/L	< 0.37	< 0.37	0.42 I	0.75	0.78
	SW-3	ug/L	< 0.37	< 0.37	< 0.25	--	< 0.25
Cadmium	SW-1	ug/L	< 0.59	< 0.59	< 0.095	--	< 0.095
	SW-2	ug/L	< 0.59	< 0.59	0.3 I	< 0.095	< 0.095
	SW-3	ug/L	< 0.59	< 0.59	< 0.095	--	< 0.095
Chromium	SW-1	ug/L	< 0.63	< 1.2	4.3 I	--	< 2.5
	SW-2	ug/L	< 0.63	< 1.2	23	<2.5	< 2.5
	SW-3	ug/L	1.9 I	14	2.6 I	--	12
Cobalt	SW-1	ug/L	< 0.25	< 0.25	0.72	--	0.51
	SW-2	ug/L	< 0.25	< 0.25	1.5	--	0.17 I
	SW-3	ug/L	0.4 I	0.88 I	0.22 I	--	0.63
Copper	SW-1	ug/L	< 1.9	2.8 IV	1.2 I	--	1.5 I
	SW-2	ug/L	< 1.9	1.6 IV	45	< 1.1	< 1.1
	SW-3	ug/L	2 I	9.7 IV	< 1.1	--	9.9
Iron	SW-1	mg/L	0.33	0.22 V	7.6	--	1
	SW-2	mg/L	0.31	0.39 V	0.53	--	0.53
	SW-3	mg/L	0.96	5.3 V	0.76	--	2.5
Lead	SW-1	ug/L	0.75 I	3 I	4.7	--	2.1
	SW-2	ug/L	< 0.17	< 1.5	3.8	0.29 I	< 0.2
	SW-3	ug/L	5.3	36	1.8	--	33
Mercury	SW-1	ug/L	0.00073	0.00066	< 0.001	--	0.0004 IV
	SW-2	ug/L	0.00041 I	< 0.0002	< 0.0002	--	< 0.0002
	SW-3	ug/L	0.015	0.029	< 0.001	--	0.0074 V
Nickel	SW-1	ug/L	< 0.7	1.2 I	4.5 I	--	< 2
	SW-2	ug/L	< 0.7	< 0.71	61	2.2 I	< 2
	SW-3	ug/L	3.4	6.1 I	5.2	--	5.9

Notes:

Bold values indicate parameter detections above reporting limits. -- Sample not collected.

Gray shading indicates exceedance of established standard; Blue shading indicates exceedance of calculated standard.

< and U - non-detect; I - detected below reporting limit; V - detected in blank and sample; J - estimated value

ug/L - micrograms per liter; mg/L - milligrams per liter; CFU/100 mL - colony forming units per 100 milliliters

umhos/cm - micromohs per centimeter; NTU - nephelometric turbidity units

TABLE 5
Results for Parameters Detected in Surface Water
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Location	Unit	Aug-11	Feb-12	Jul-12	Jul-12 Resampling	Feb-13
Selenium	SW-1	ug/L	< 0.33	< 2.5	2.4 I	--	< 1
	SW-2	ug/L	< 0.33	< 2.5	1.5 I	--	< 1
	SW-3	ug/L	0.89 I	3.3 I	< 1	--	1.5 I
Silver	SW-1	ug/L	< 0.063	< 0.063	< 0.25	--	< 0.25
	SW-2	ug/L	< 0.063	< 0.063	1.6	<0.25	< 0.25
	SW-3	ug/L	< 0.063	< 0.063	< 0.25	--	< 0.25
Vanadium	SW-1	ug/L	< 2.2	0.8 I	7 I	--	5.2 I
	SW-2	ug/L	< 2.2	0.8 I	49	--	5.7 I
	SW-3	ug/L	4.6	22	4.8 I	--	16
Zinc	SW-1	ug/L	< 14	7.1 IV	29	--	18 I
	SW-2	ug/L	< 14	2.1 IV	63	< 8.3	< 8.3
	SW-3	ug/L	< 14	45 V	10 I	--	43
Ammonia- Unionized (NH3)	SW-1	ug/L	< 0.28	< 0.28	< 0.28	--	< 0.28
	SW-2	ug/L	< 0.28	< 0.28	< 0.28	--	< 0.28
	SW-3	ug/L	23	0.61	50	5.6	6.1
BOD	SW-1	mg/L	2.4	4.7	15.1	--	< 6
	SW-2	mg/L	< 1.5	< 1.5	2.02	--	< 6
	SW-3	mg/L	3.6	43	43.9	--	< 6
Carbon- Total Organic	SW-1	mg/L	22	19	84	--	57
	SW-2	mg/L	6.9	4.8	9.8	--	19
	SW-3	mg/L	24	21	48	--	15
Chemical Oxygen Demand	SW-1	mg/L	65	47	240	--	150
	SW-2	mg/L	23	< 10	61	--	46
	SW-3	mg/L	73	92	190	--	48
Chlorophyll a	SW-1	ug/L	4.9	99.3	46	--	< 0.5
	SW-2	ug/L	4.9	< 0.5	< 0.24	--	0.53
	SW-3	ug/L	61.9	209	32	--	2.1
Coliform Fecal	SW-1	CFU/100 mL	29 J	11	60	--	32 B
	SW-2	CFU/100 mL	920 B	110 B	330	--	1188 B
	SW-3	CFU/100 mL	1340 B	150 B	60 B	--	2440 B
Hardness- Calculated	SW-1	mg/L	110	170	38	15	26
	SW-2	mg/L	8.2	< 17	10	--	12
	SW-3	mg/L	170	150	170	--	130
Nitrate (N)	SW-1	mg/L	0.0092 I	< 0.0047	< 0.024	--	0.081
	SW-2	mg/L	0.015	0.012	< 0.0047	--	0.51
	SW-3	mg/L	0.018	2.6	0.023	--	1.3
Nitrogen- Total	SW-1	mg/L	0.85	1.1	4	--	1.3
	SW-2	mg/L	0.31	0.28	0.36	--	1.1
	SW-3	mg/L	4	5.9	6.2	--	3.4
Orthophosphate (P)	SW-1	mg/L	0.0022 I	0.014	0.021	--	0.0045 I
	SW-2	mg/L	0.0066 I	0.0074 I	0.0074 I	--	0.0065 I
	SW-3	mg/L	0.059	0.26	0.03	--	0.069
Phosphorus- Total	SW-1	mg/L	0.021	0.064	0.24 I	--	0.045 I
	SW-2	mg/L	0.015	0.0094 I	0.033 I	--	< 0.041
	SW-3	mg/L	0.085	0.33	0.23 I	--	0.2
Residues- Filterable (TDS)	SW-1	mg/L	180	230	210	--	160
	SW-2	mg/L	54	48	38	--	54
	SW-3	mg/L	360	390	280	--	350
Residues- Nonfilterable (TSS)	SW-1	mg/L	4.8	14	45	--	1.6
	SW-2	mg/L	4.2	47	1.6	--	6.4
	SW-3	mg/L	13	150	12	--	45

Notes:

Bold values indicate parameter detections above reporting limits. -- Sample not collected.
Gray shading indicates exceedance of established standard; Blue shading indicates exceedance of calculated standard.
< and U - non-detect; I - detected below reporting limit; V - detected in blank and sample; J - estimated value
ug/L - micrograms per liter; mg/L - milligrams per liter; CFU/100 mL - colony forming units per 100 milliliters
umhos/cm - micromohs per centimeter; NTU - nephelometric turbidity units

TABLE 5
Results for Parameters Detected in Surface Water
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Parameter	Location	Unit	Aug-11	Feb-12	Jul-12	Jul-12 Resampling	Feb-13
Dissolved Oxygen	SW-1	mg/L	**4.3**	**5.0**	**5.1**	--	**5.0**
	SW-2	mg/L	**5.6**	**5.4**	**5.8**	--	**6.2**
	SW-3	mg/L	**4.7**	**4.0**	**4.6**	--	**5.6**
pH	SW-1	pH Units	**7.15**	**7.14**	**6.13**	--	**4.83**
	SW-2	pH Units	**5.75**	**6.12**	**4.62**	--	**4.14**
	SW-3	pH Units	**6.96**	**7.32**	**7.16**	--	**7.28**
Specific Conductance	SW-1	umhos/cm	**251**	**332**	**105**	--	**99**
	SW-2	umhos/cm	**50**	**50**	**64**	--	**64**
	SW-3	umhos/cm	**496**	**417**	**457**	--	**264**
Turbidity	SW-1	NTU	**4.11**	**4.99**	**31.86**	--	**8.56**
	SW-2	NTU	**3.97**	**5.41**	**2.52**	--	**9.77**
	SW-3	NTU	**41.71**	**254.5**	**26.49**	--	**156.3**

Notes:

Bold values indicate parameter detections above reporting limits. -- Sample not collected.
Tan shading indicates field parameters outside acceptable ranges based on surface water standards.
< and U - non-detect; I - detected below reporting limit; V - detected in blank and sample; J - estimated value
ug/L - micrograms per liter; mg/L - milligrams per liter; CFU/100 mL - colony forming units per 100 milliliters
umhos/cm - micromohs per centimeter; NTU - nephelometric turbidity units

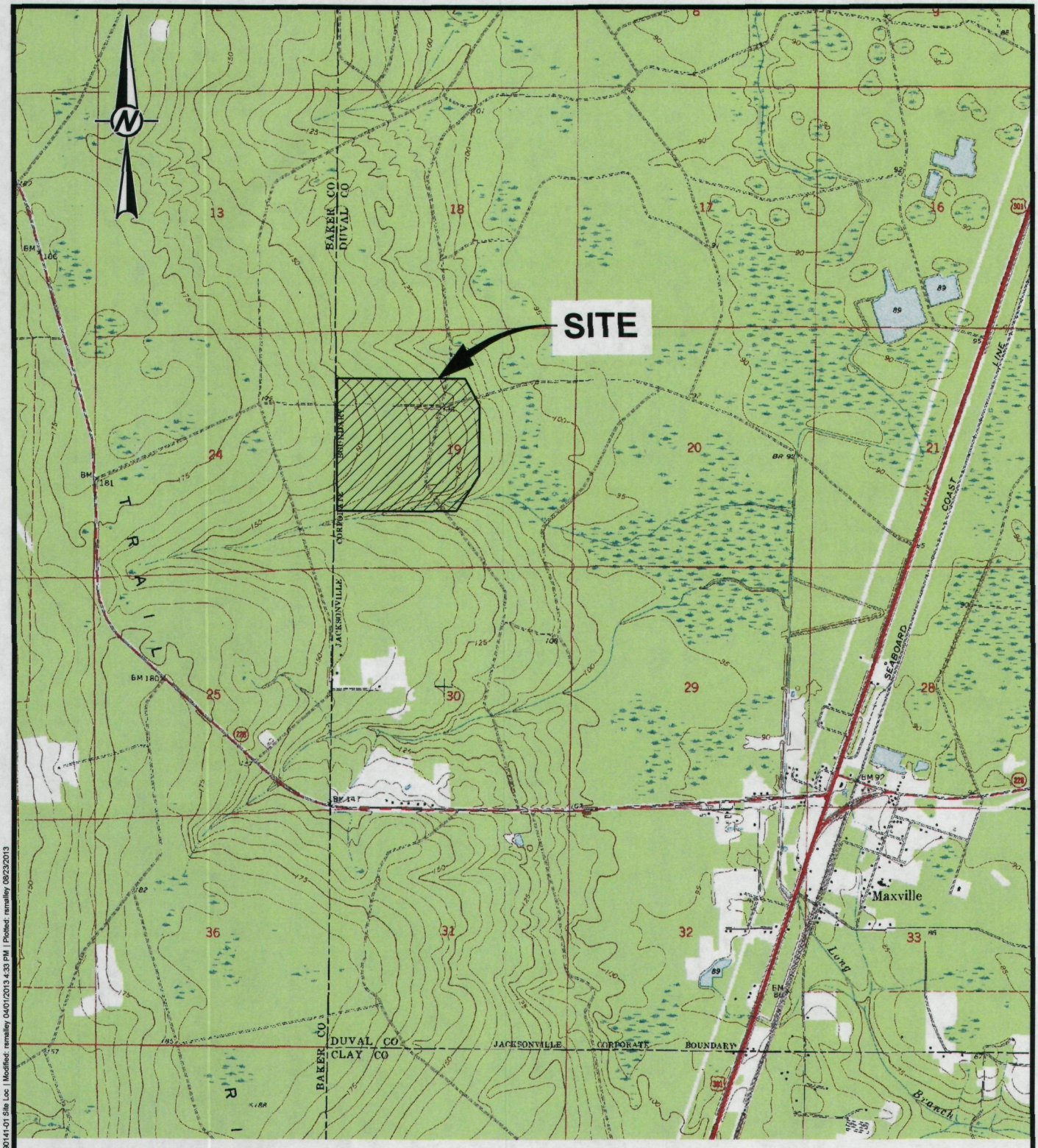
TABLE 6
Groundwater Elevations
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	TOC Elevation	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-2(S)	146.64	ft MSL	135.85	135.72	140.21	137.89
MWB-3(S)	154.38	ft MSL	141.73	141.38	147.33	145.36
MWB-7(S)	123.29	ft MSL	113.26	113.14	115.91	115.08
MWB-11(S)	120.81	ft MSL	107.66	107.31	109.97	107.76
MWB-12(S)	124.63	ft MSL	113.82	112.81	114.90	113.76
MWB-13(S)	126.05	ft MSL	111.98	NM	113.69	110.98
MWB-17(S)	138.31	ft MSL	129.93	130.11	132.21	132.71
MWB-19(S)	127.38	ft MSL	117.98	118.20	120.93	120.12
MWB-20(S)	121.01	ft MSL	111.69	111.11	113.81	113.56
MWB-21(S)	122.84	ft MSL	111.64	111.03	112.17	112.08
MWB-22(S)	126.97	ft MSL	114.77	113.49	115.67	114.71
MWB-27(S)	128.42	ft MSL	122.07	121.26	122.01	122.36
MWB-29(S)	138.02	ft MSL	130.66	129.82	130.52	130.51
MWB-32(S)	124.64	ft MSL	116.34	115.64	116.72	116.71
MWB-33(S)	125.90	ft MSL	115.76	114.97	115.69	115.74
MWB-34(S)	125.78	ft MSL	116.20	115.53	116.48	116.53
MWB-2(I)	145.73	ft MSL	135.89	135.33	137.95	136.89
MWB-3(I)	151.86	ft MSL	136.51	135.84	139.55	138.61
MWB-7(I)	121.53	ft MSL	116.53	116.03	118.32	118.17
MWB-11(IR)	120.43	ft MSL	107.87	109.28	109.63	109.19
MWB-12(I)	124.62	ft MSL	117.53	115.34	117.76	117.40
MWB-13(I)	125.98	ft MSL	108.87	106.81	109.11	116.20
MWB-17(I)	138.43	ft MSL	133.25	132.85	135.88	135.18
MWB-19(I)	127.94	ft MSL	119.32	119.00	121.06	120.95
MWB-27(I)	128.63	ft MSL	123.37	122.32	124.02	123.61
MWB-29(I)	138.08	ft MSL	133.40	132.28	134.42	133.23
MWB-32(I)	124.79	ft MSL	117.78	116.53	118.45	118.21
MWB-34(I)	125.80	ft MSL	117.14	115.58	117.86	117.61
MWB-7(D)	121.65	ft MSL	118.70	118.47	120.70	120.21
MWB-12(D)	124.56	ft MSL	118.84	117.83	119.98	119.31
MWB-17(D)	138.52	ft MSL	129.73	129.26	131.96	131.43
MWB-19(D)	128.23	ft MSL	119.68	119.39	121.53	121.15
MWB-27(D)	128.88	ft MSL	123.27	122.17	123.93	123.47
MWB-29(D)	138.18	ft MSL	133.36	132.22	134.37	133.20
MWB-31(D)	156.15	ft MSL	137.00	136.35	139.48	138.45
MWB-32(D)	124.93	ft MSL	117.57	116.33	118.28	118.01
MWB-34(D)	125.92	ft MSL	117.07	115.51	117.80	117.55

Notes:
TOC - top of casing; ft MSL - feet above mean sea level
NM - Not measured because the well was dry at the time of sampling

Golder Associates

FIGURES



REFERENCES

USGS 7.5 MINUTE QUADRANGLE; MAXVILLE, FL 1970
(PHOTOINSPECTED 1984).

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COA No. 1670

0 1500 3000 4500
SCALE FEET

REV	DATE	REVISION DESCRIPTION	DES	CADD	CHK	RVW

PROJECT
WASTE MANAGEMENT
TRAIL RIDGE LANDFILL / JACKSONVILLE, FL

TITLE
SITE LOCATION

Golder Associates

PROJECT No.		11390141	FILE No.	11390141-01 Site Loc
DESIGN	-	2013-08-23	SCALE	AS SHOWN
CADD	RJC	2013-08-23	FIGURE	
CHECK	MJS	2013-08-23		1
REVIEW	KSB	2013-08-23		

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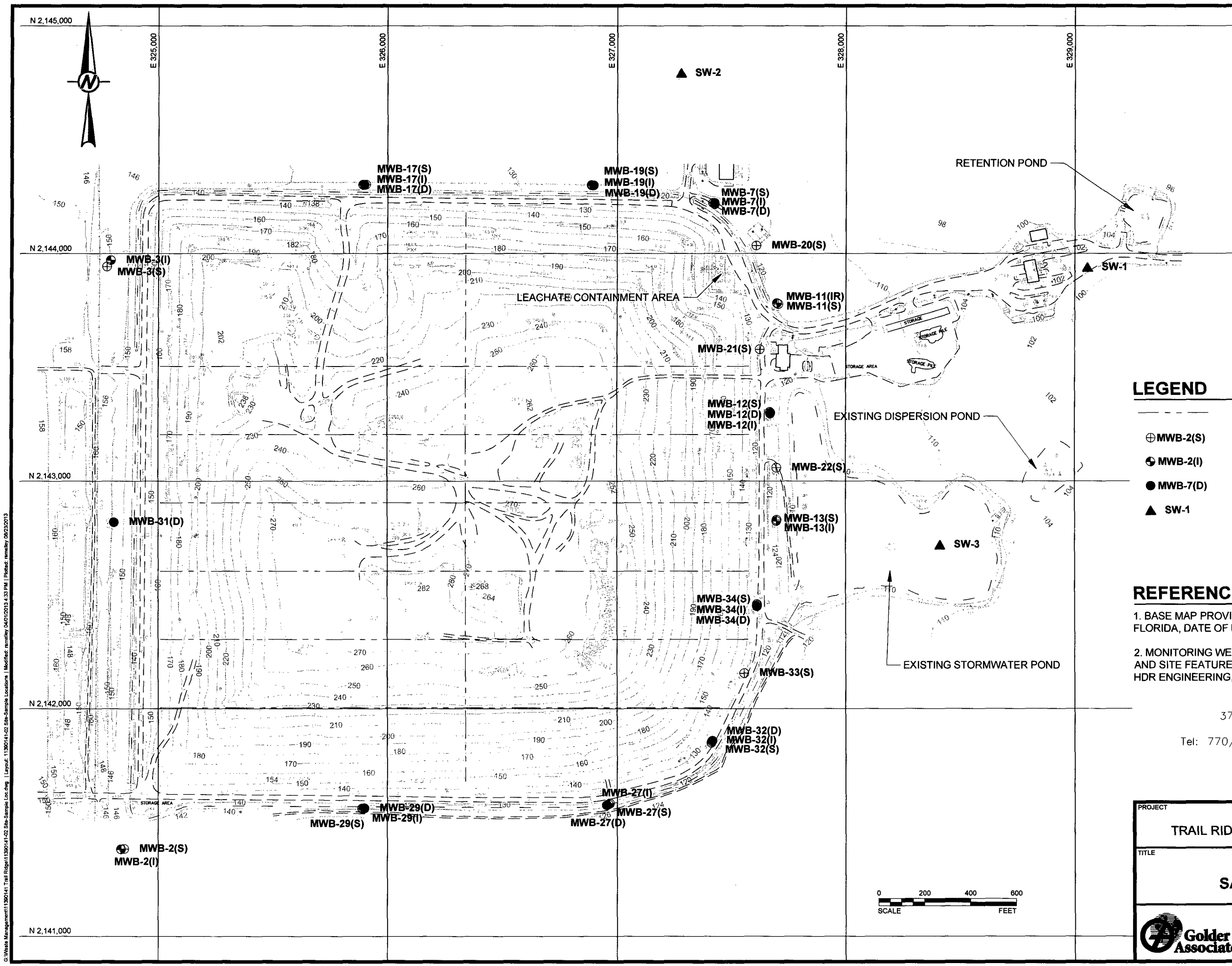


LEGEND

PHASE BOUNDARY	
⊕ MWB-2(S)	SHALLOW MONITORING WELL
◒ MWB-2(I)	INTERMEDIATE MONITORING WELL
● MWB-7(D)	DEEP MONITORING WELL
▲ SW-1	SURFACE WATER MONITORING POINT

REFERENCES

1. BASE MAP PROVIDED BY WASTE MANAGEMENT, INC. OF FLORIDA, DATE OF PHOTOGRAPHY 01/12/11.

2. MONITORING WELLS, SURFACE WATER MONITORING POINTS AND SITE FEATURES FROM GROUNDWATER CONTOUR MAPS BY HDR ENGINEERING, INC., DATED 07/20/10.

Golder Associates
3730 Chamblee Tucker Road
Atlanta, Georgia 30341
Tel: 770/496-1893 Fax: 770/934-9476
COA No. 1670

PROJECT
WASTE MANAGEMENT
TRAIL RIDGE LANDFILL / JACKSONVILLE, FL

TITLE
SITE LAYOUT AND SAMPLING LOCATIONS

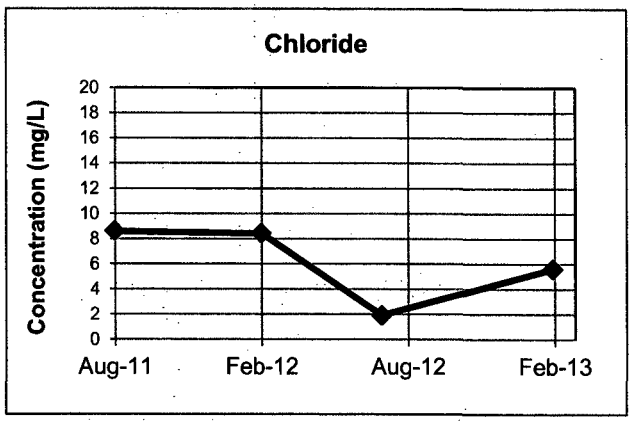
Golder Associates

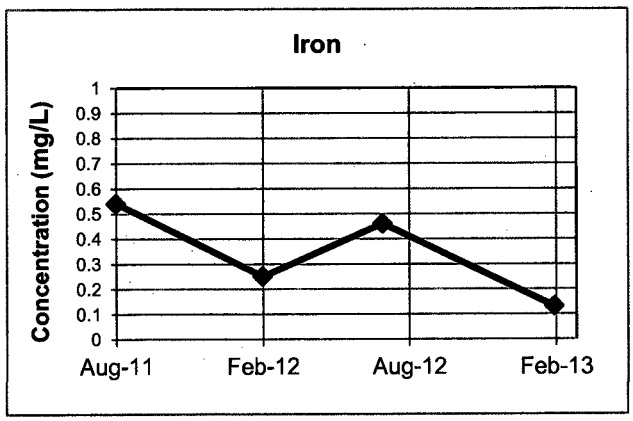
PROJECT No.		11390141	FILE No	11390141-02 Site-Sample Loc	
DESIGN	-	2013-08-23	SCALE	AS SHOWN	
CADD	RJC	2013-08-23	FIGURE		
CHECK	MJS	2013-08-23		2	
REVIEW	KSB	2013-08-23			

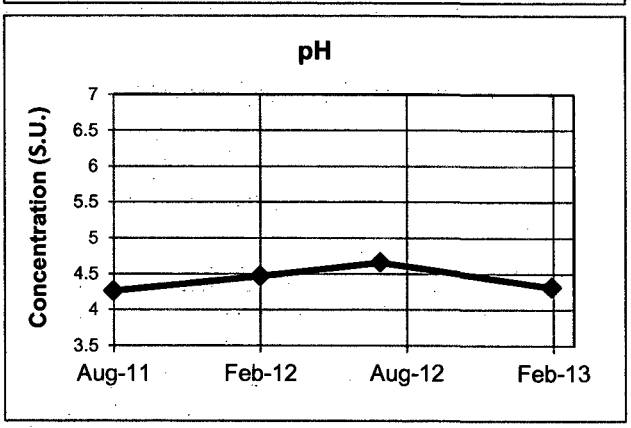
G:\Waste Management\11390141 Trail Ridge\11390141-02 Site-Sample Loc.dwg | Layout: 11390141-02 Site-Sample Locations | Modified: rsmalley 04/01/2013 4:33 PM | Plotted: rsmalley 06/23/2013

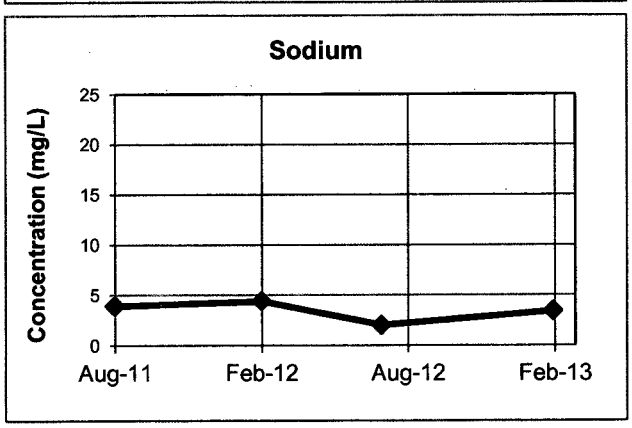
APPENDIX A
KEY INDICATOR PARAMETER TREND PLOTS

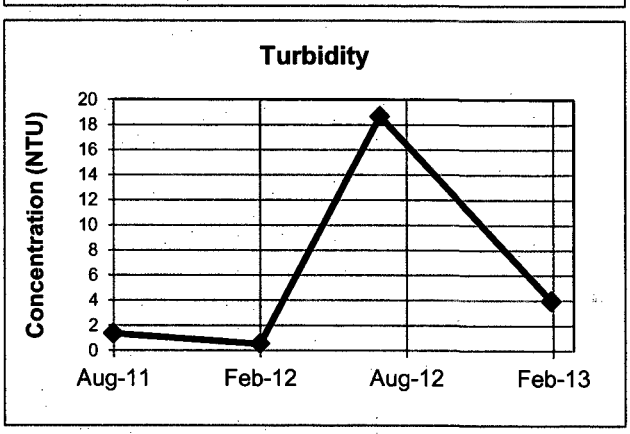
MWB-2(S)

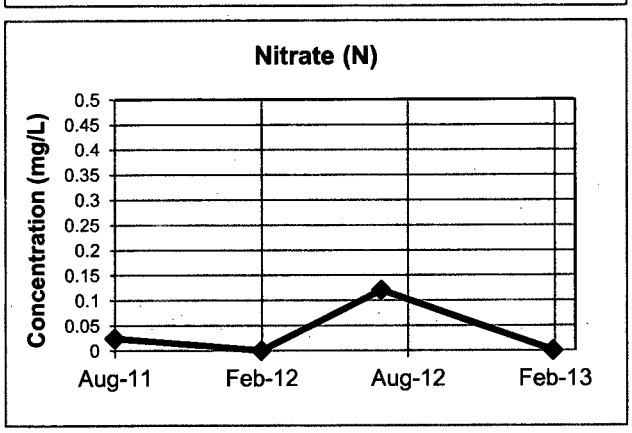

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

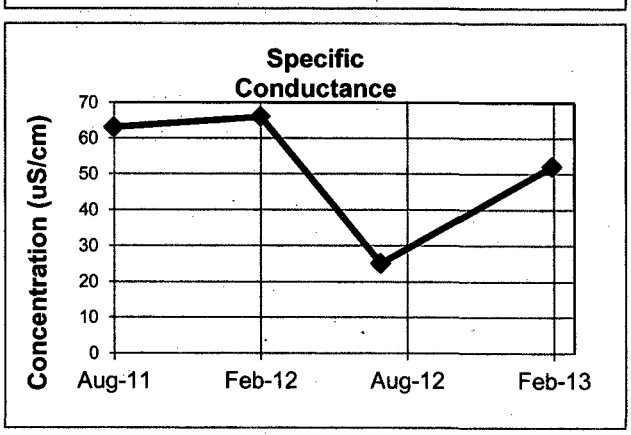

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

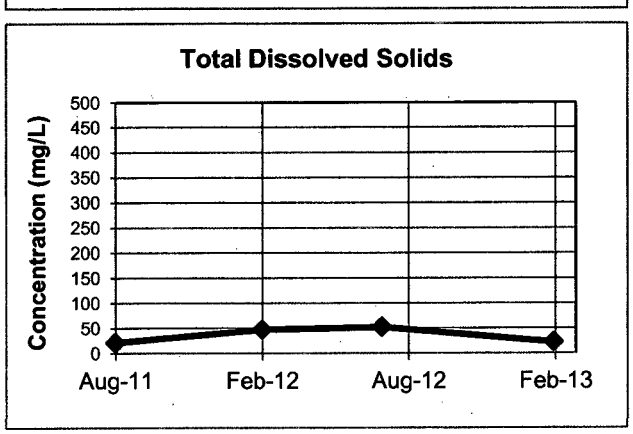

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

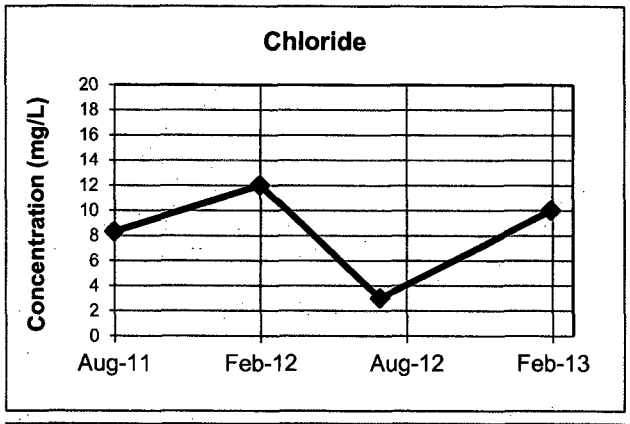

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

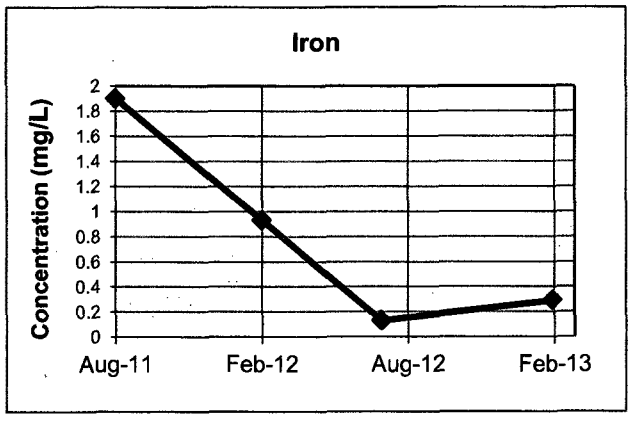

Nitrate (N)
Concentration (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aug-11
Feb-12
Aug-12
Feb-13

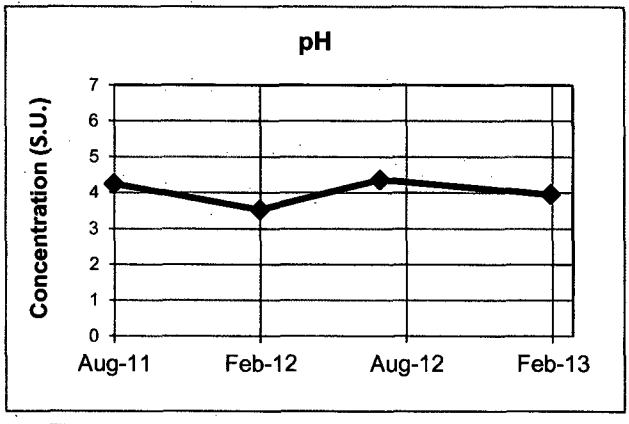

Specific Conductance
Concentration (uS/cm)
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

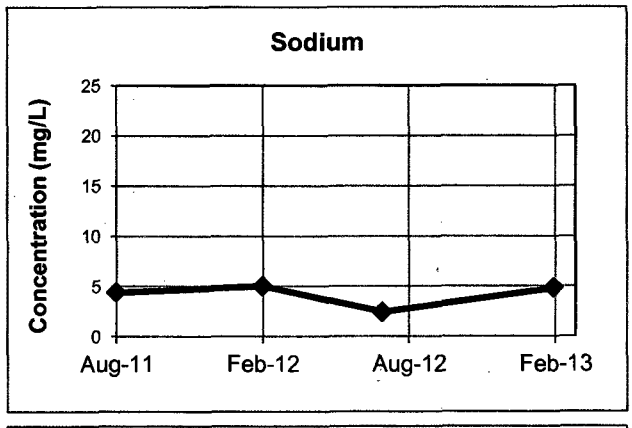

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

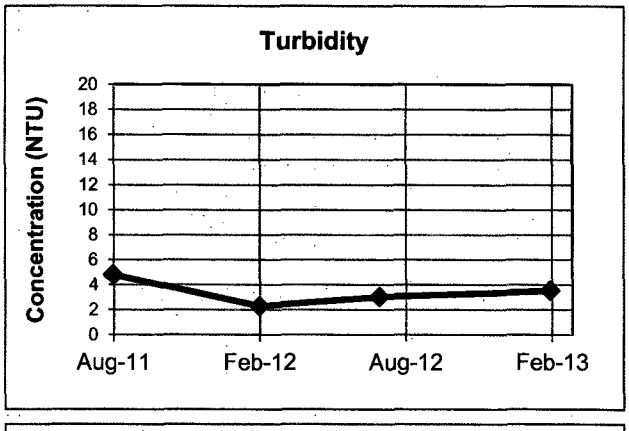
MWB-3(S)

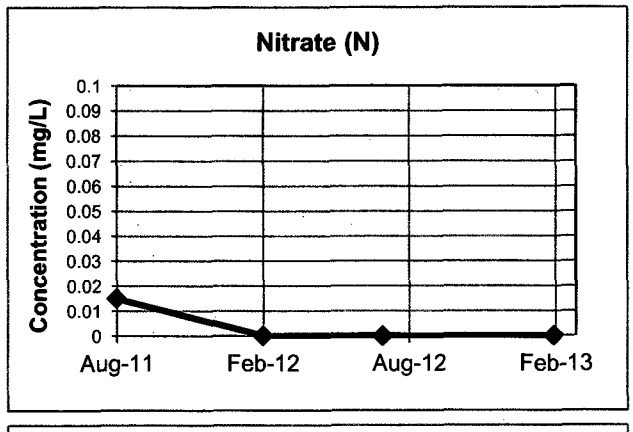

Chloride
Concentration (mg/L)
0
2
4
6
8
10
12
14
16
18
20
Aug-11
Feb-12
Aug-12
Feb-13

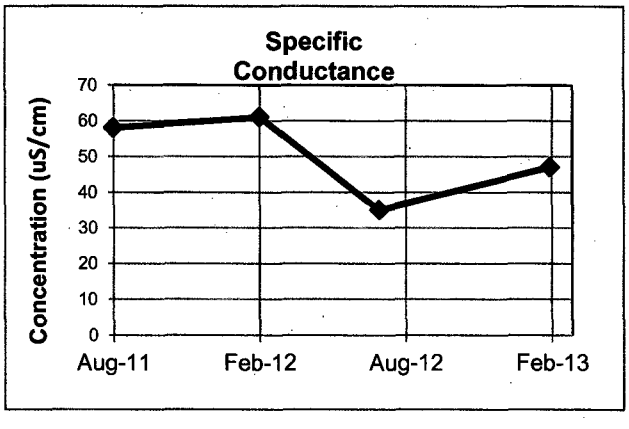

Iron
Concentration (mg/L)
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
Aug-11
Feb-12
Aug-12
Feb-13

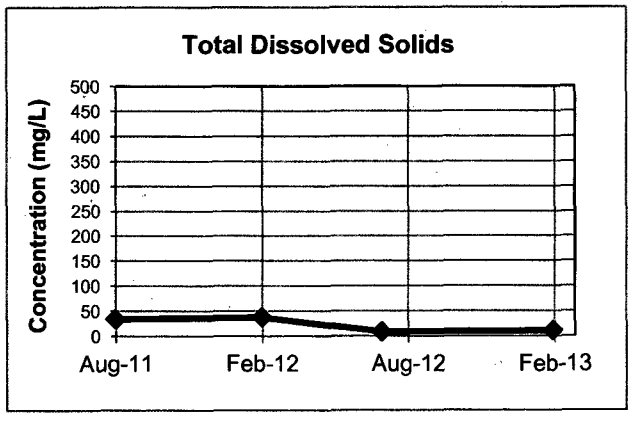

pH
Concentration (S.U.)
0
1
2
3
4
5
6
7
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
0
5
10
15
20
25
Aug-11
Feb-12
Aug-12
Feb-13

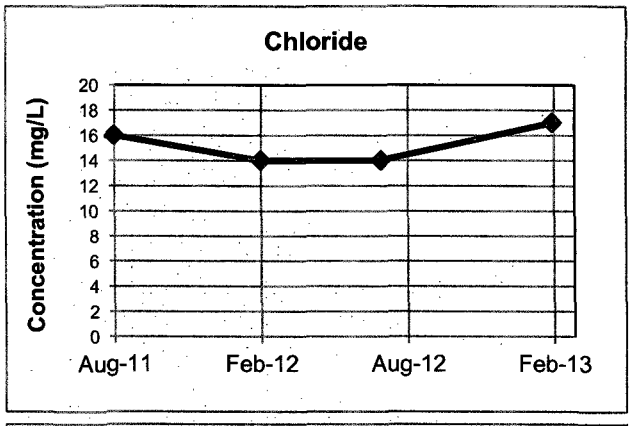

Turbidity
Concentration (NTU)
0
2
4
6
8
10
12
14
16
18
20
Aug-11
Feb-12
Aug-12
Feb-13

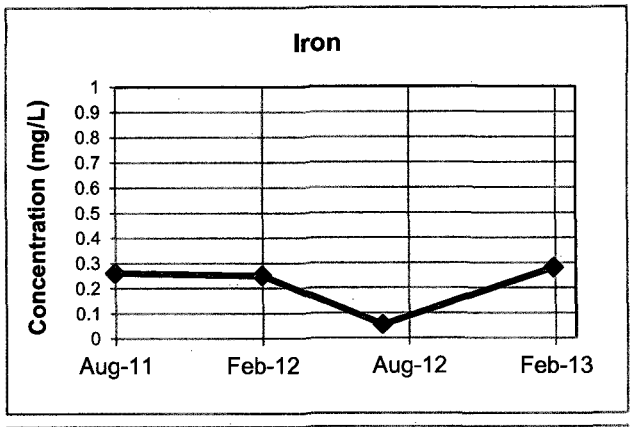

Nitrate (N)
Concentration (mg/L)
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
Aug-11
Feb-12
Aug-12
Feb-13

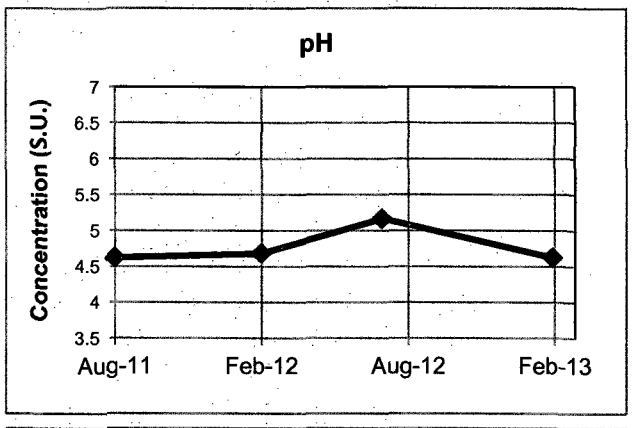

Specific Conductance
Concentration (uS/cm)
0
10
20
30
40
50
60
70
Aug-11
Feb-12
Aug-12
Feb-13

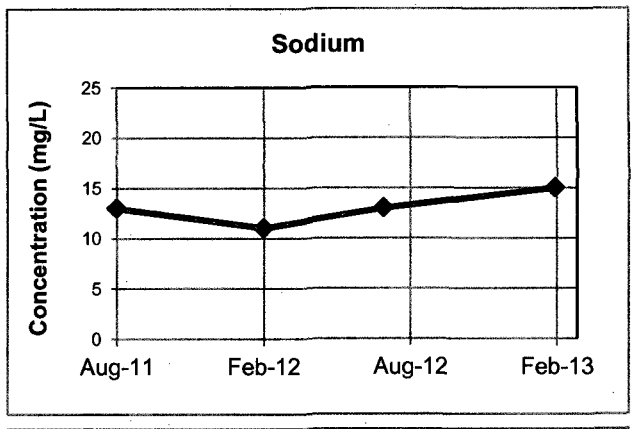

Total Dissolved Solids
Concentration (mg/L)
0
50
100
150
200
250
300
350
400
450
500
Aug-11
Feb-12
Aug-12
Feb-13

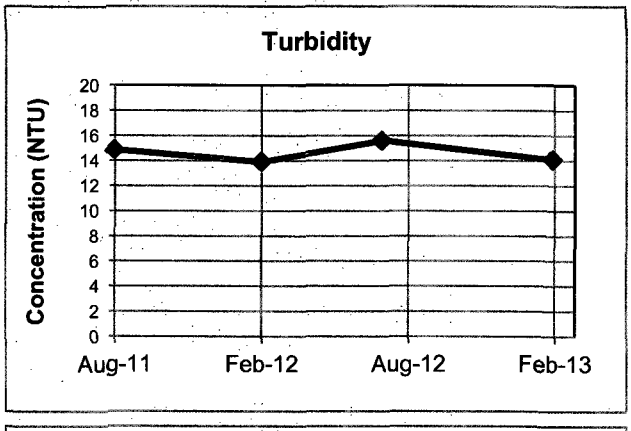
MWB-7(S)

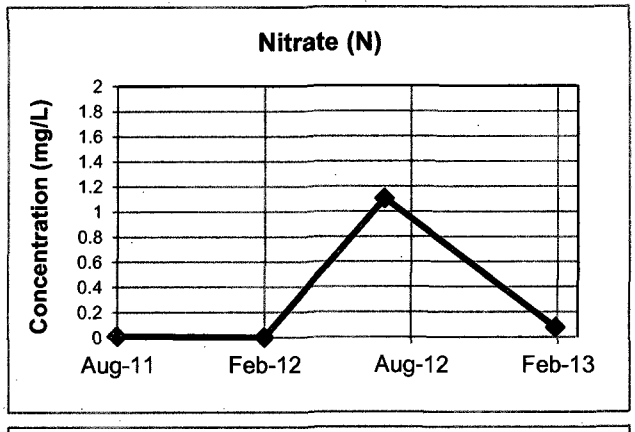

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

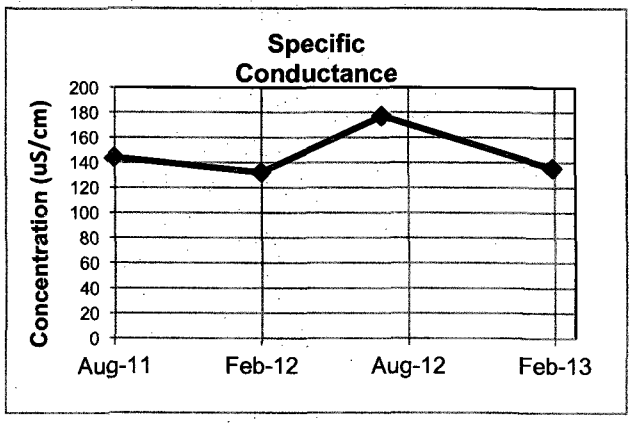

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

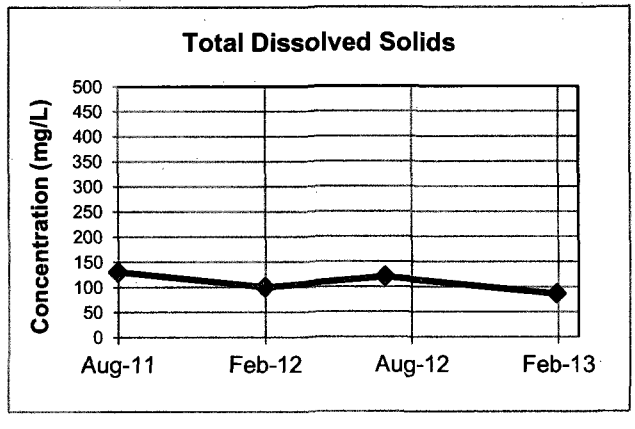

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

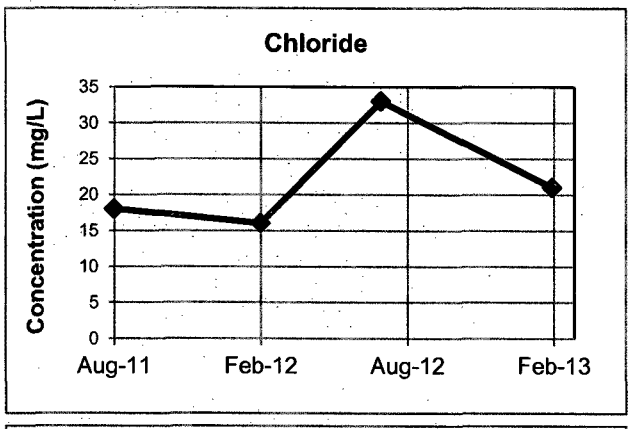

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

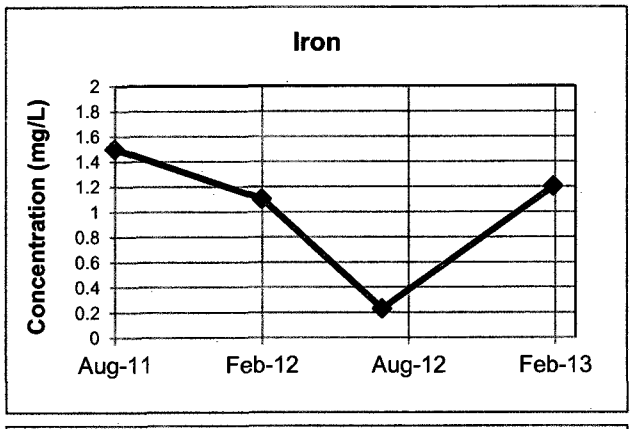

Nitrate (N)
Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Aug-11
Feb-12
Aug-12
Feb-13

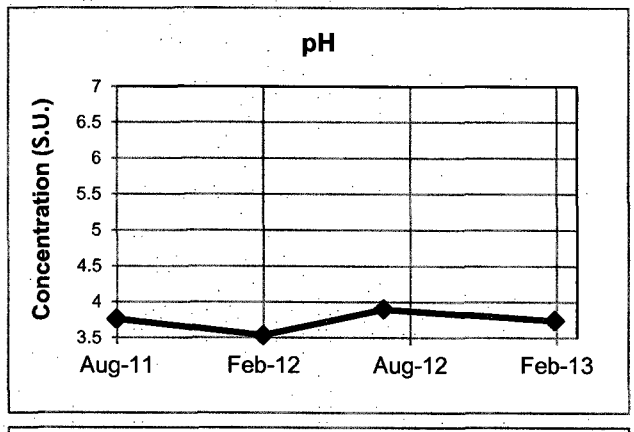

Specific Conductance
Concentration (uS/cm)
200
180
160
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

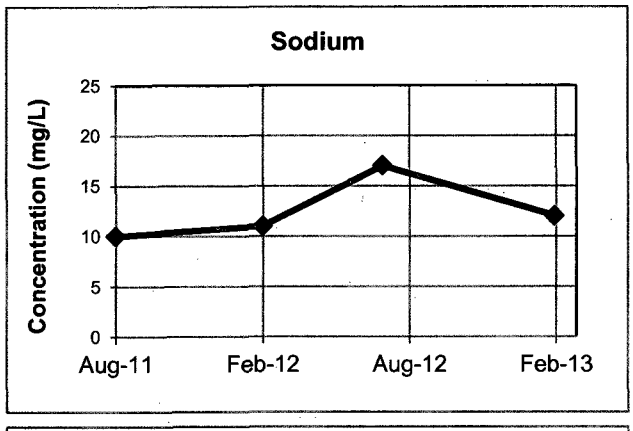

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

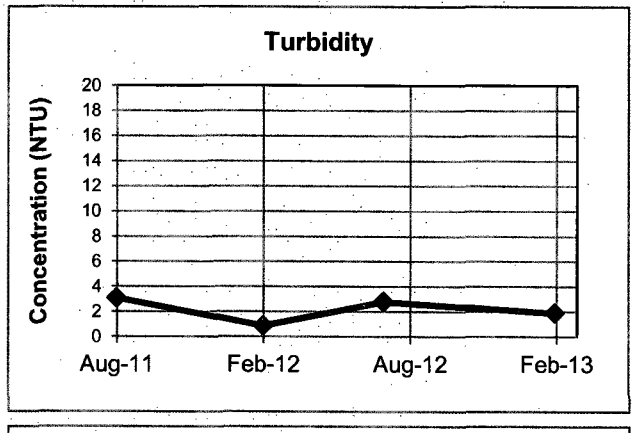
MWB-11(S)

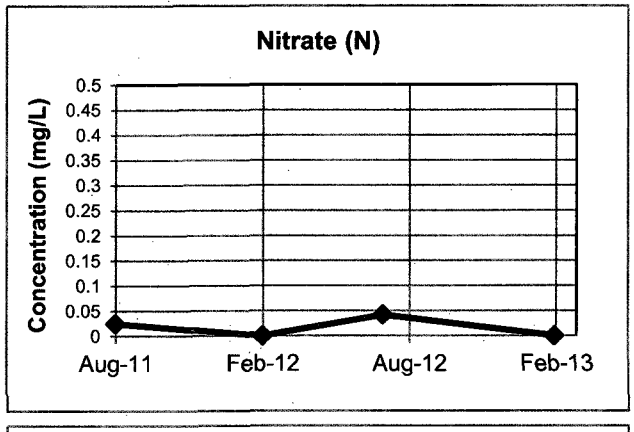

Chloride
Concentration (mg/L)
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

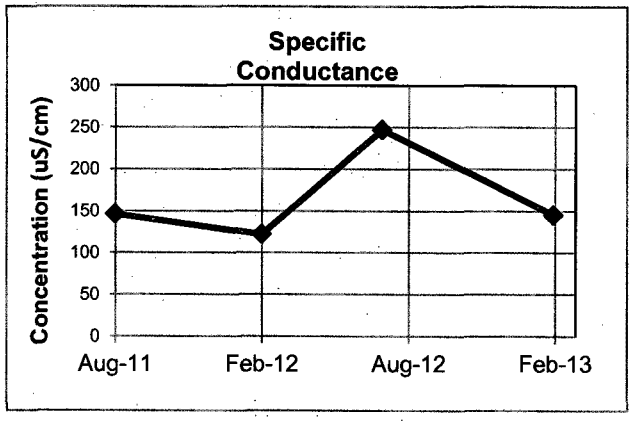

Iron
Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Aug-11
Feb-12
Aug-12
Feb-13

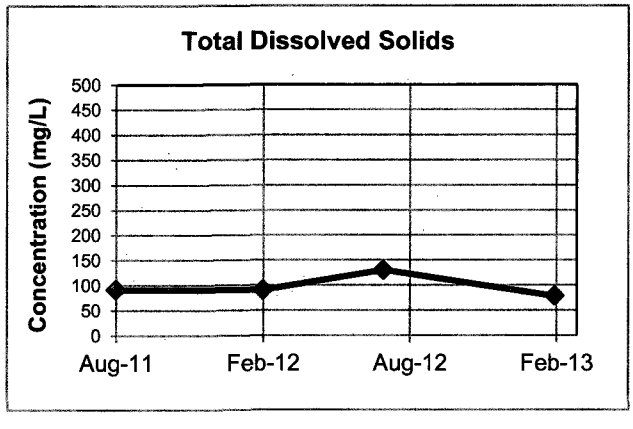

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

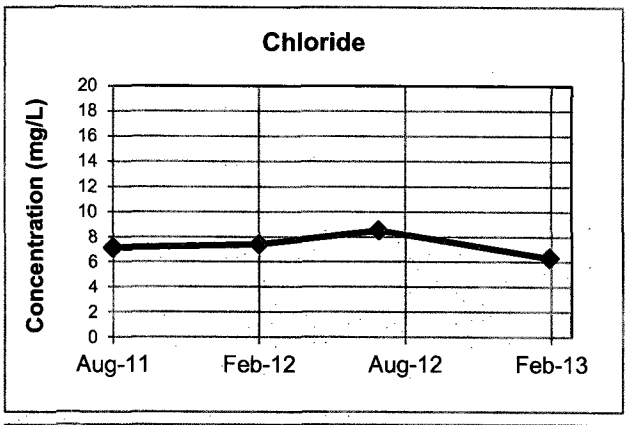

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

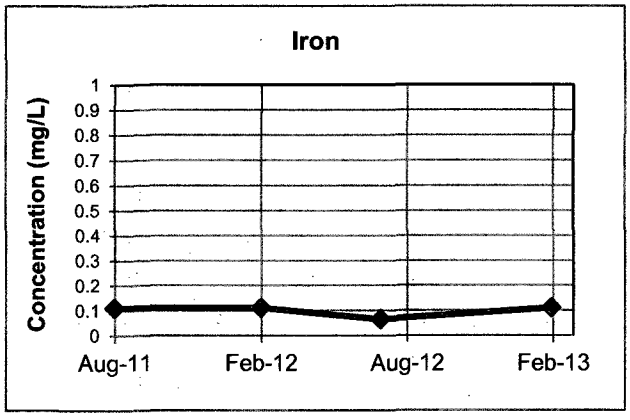

Nitrate (N)
Concentration (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aug-11
Feb-12
Aug-12
Feb-13

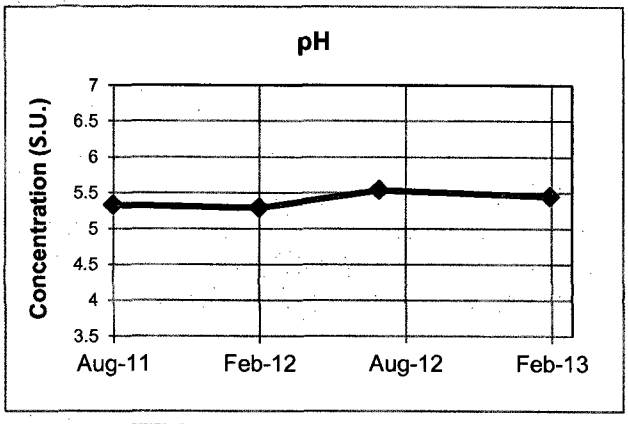

Specific Conductance
Concentration (uS/cm)
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

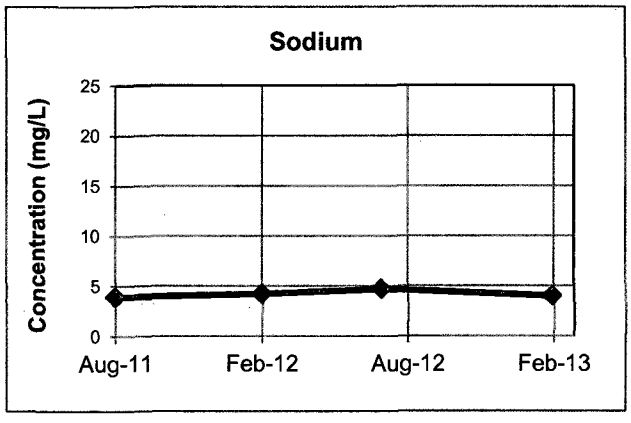

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

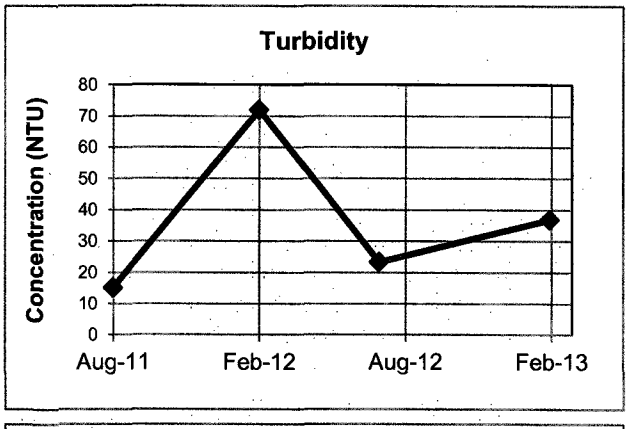
MWB-12(S)

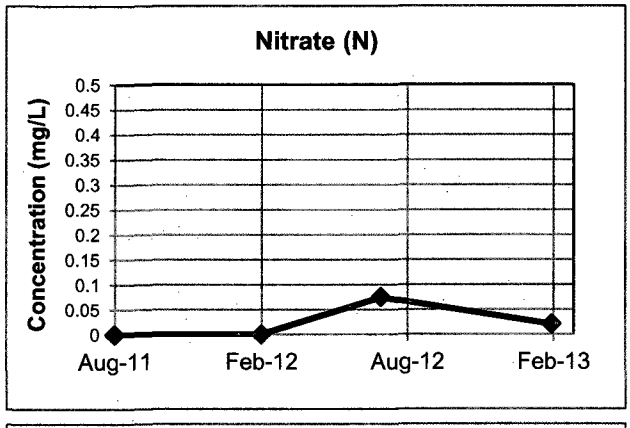

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

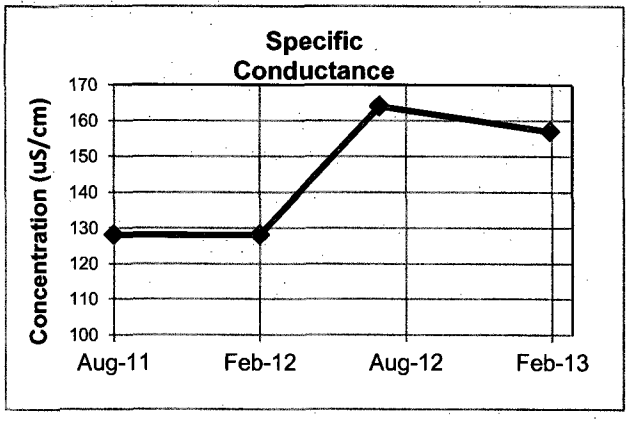

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

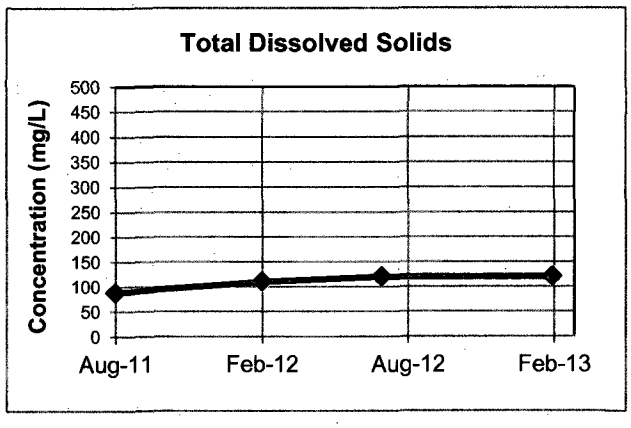

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

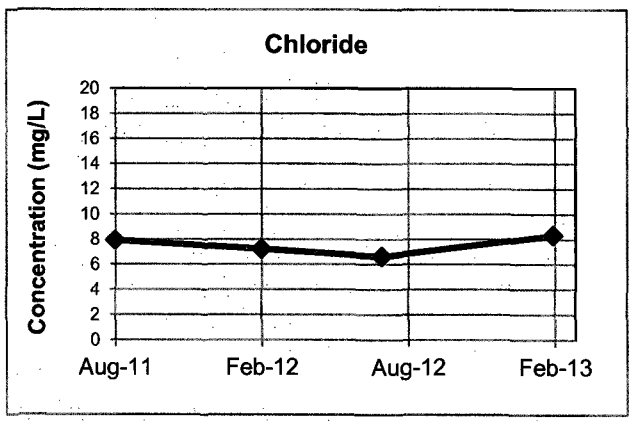

Turbidity
Concentration (NTU)
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

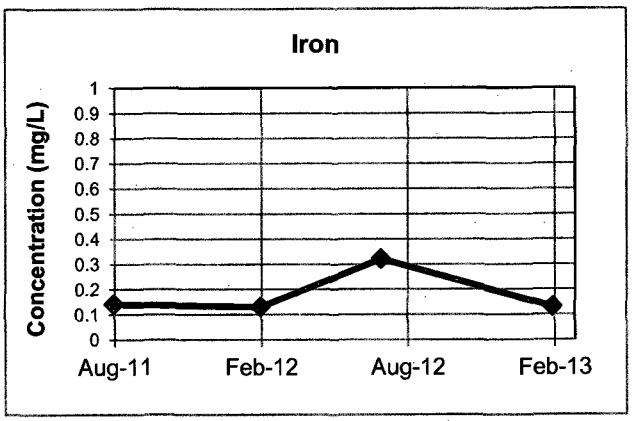

Nitrate (N)
Concentration (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aug-11
Feb-12
Aug-12
Feb-13

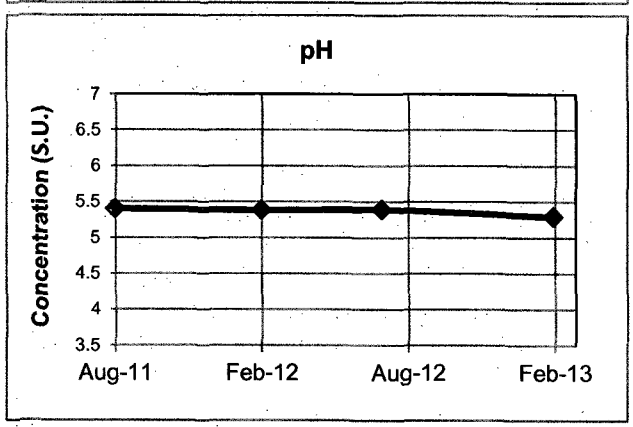

Specific Conductance
Concentration (uS/cm)
170
160
150
140
130
120
110
100
Aug-11
Feb-12
Aug-12
Feb-13

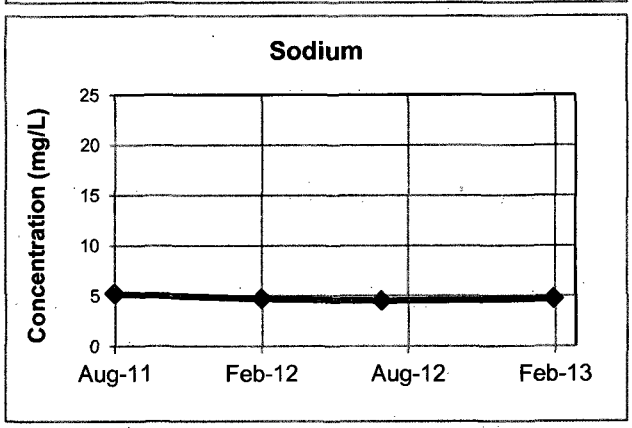

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

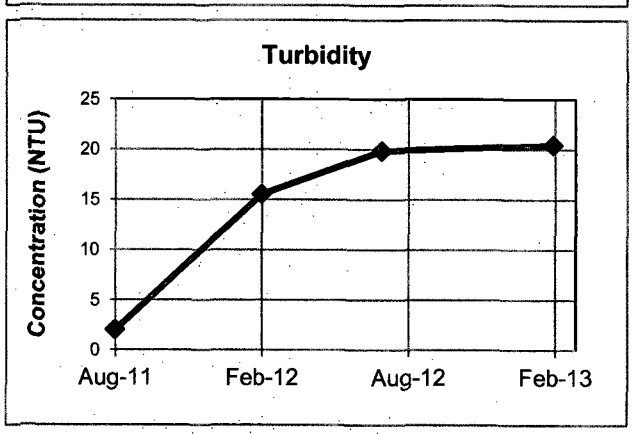
MWB-17(S)

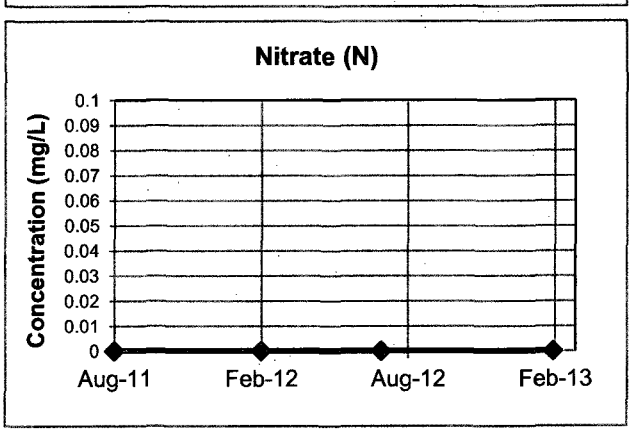

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

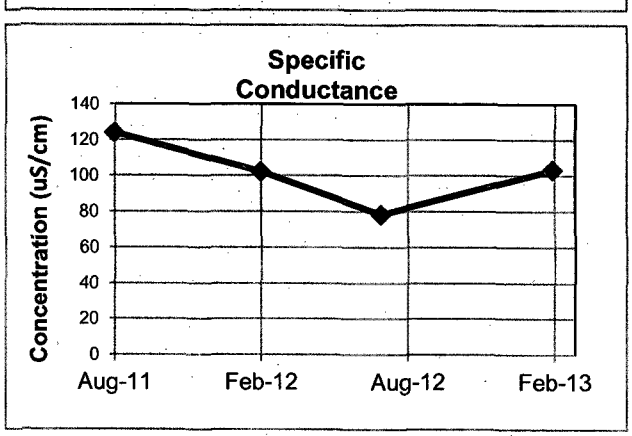

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

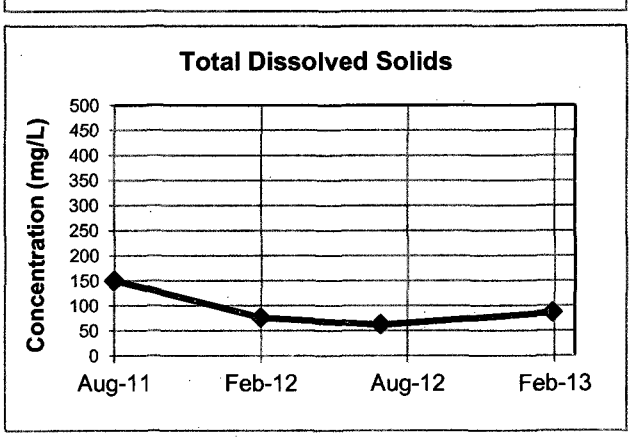

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

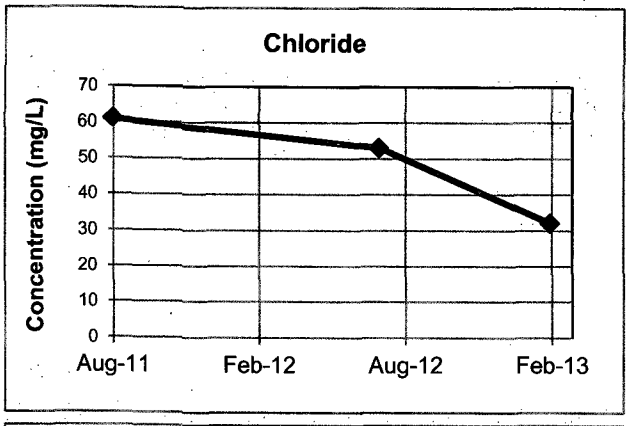

Turbidity
Concentration (NTU)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

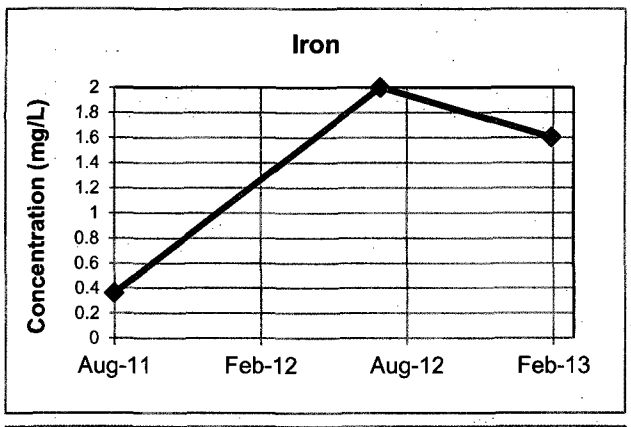

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

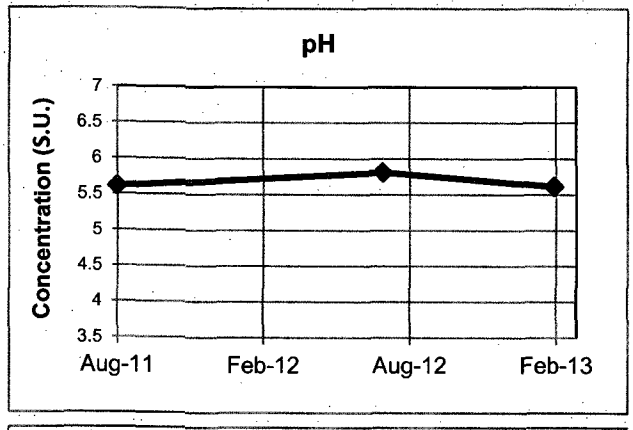

Specific Conductance
Concentration (uS/cm)
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

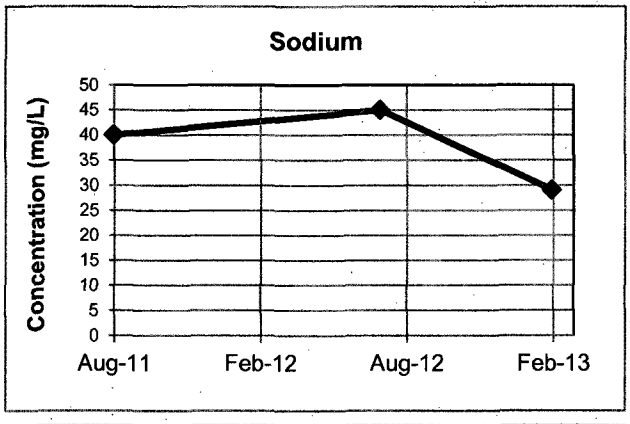

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

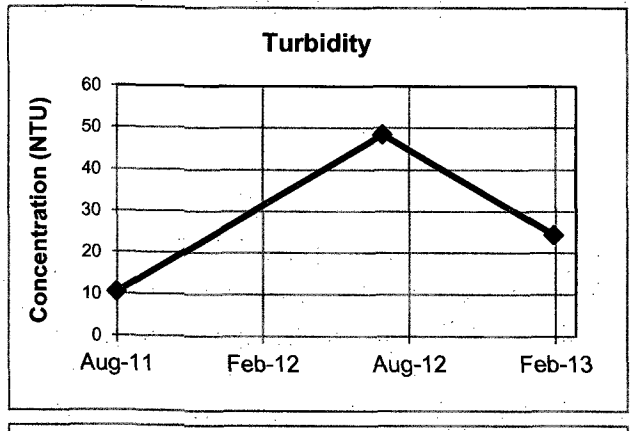
MWB-13(S)

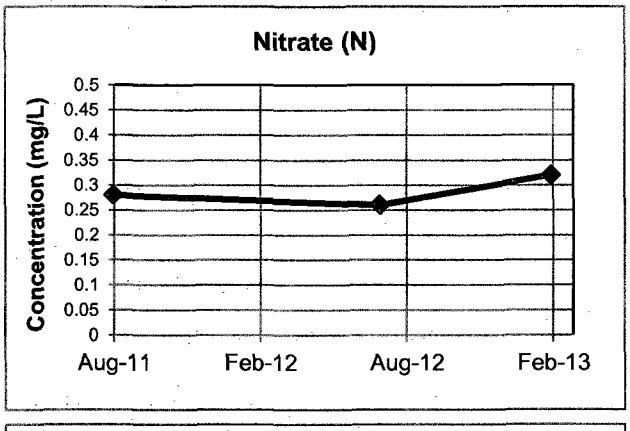

Chloride
Concentration (mg/L)
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

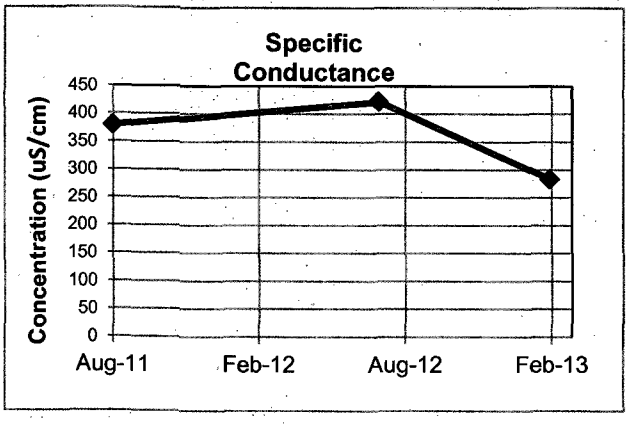

Iron
Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Aug-11
Feb-12
Aug-12
Feb-13

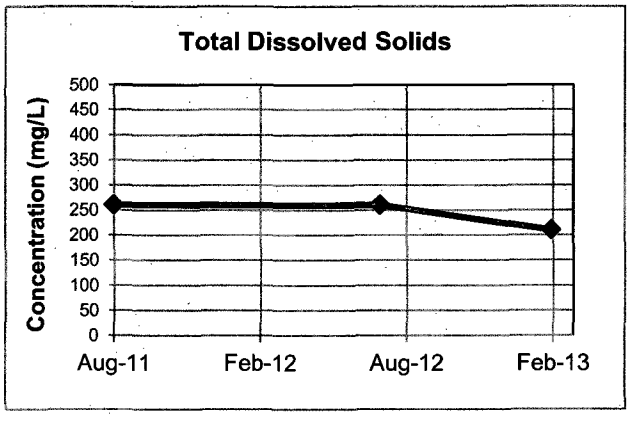

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
50
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

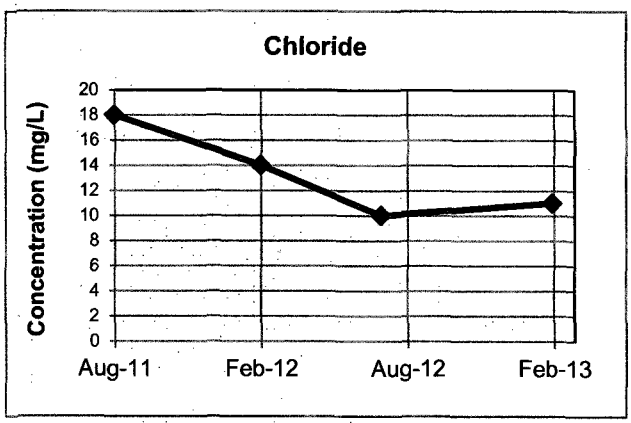

Turbidity
Concentration (NTU)
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

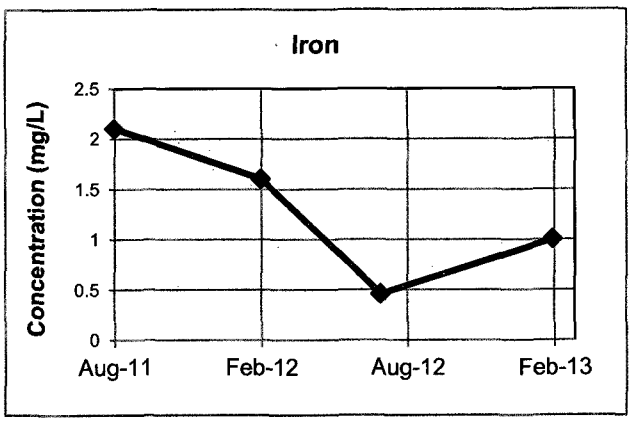

Nitrate (N)
Concentration (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aug-11
Feb-12
Aug-12
Feb-13

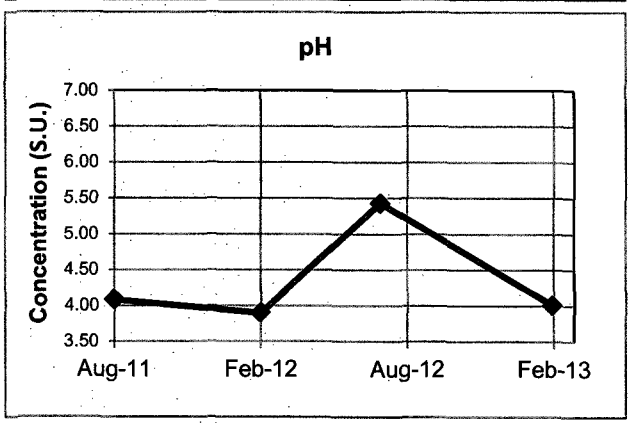

Specific Conductance
Concentration (uS/cm)
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

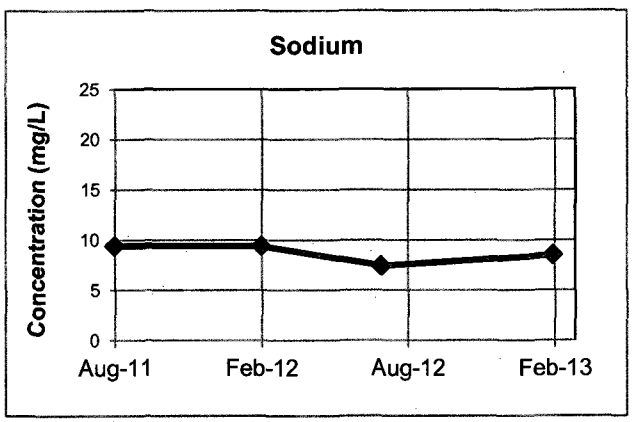

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

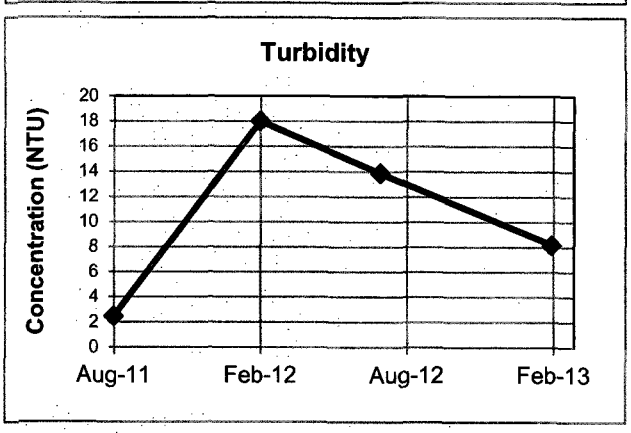
MWB-19(S)

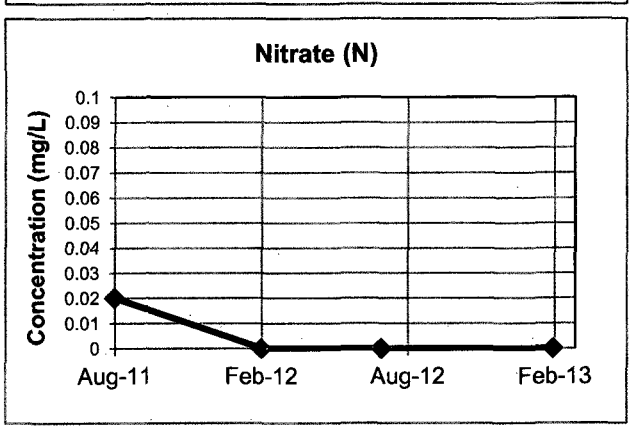

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

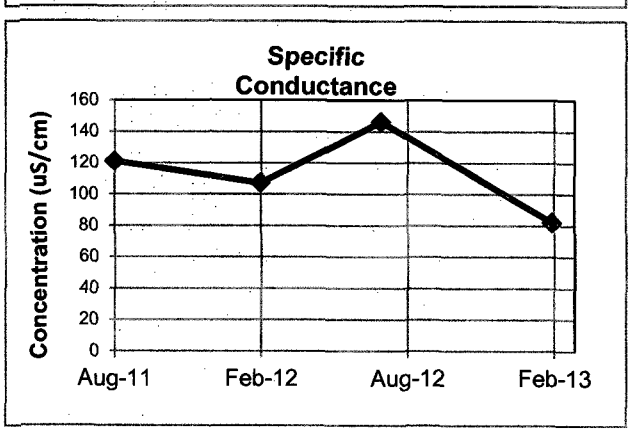

Iron
Concentration (mg/L)
2.5
2
1.5
1
0.5
0
Aug-11
Feb-12
Aug-12
Feb-13

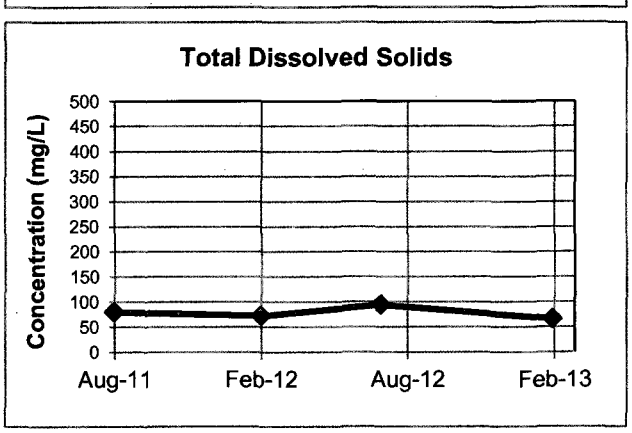

pH
Concentration (S.U.)
7.00
6.50
6.00
5.50
5.00
4.50
4.00
3.50
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

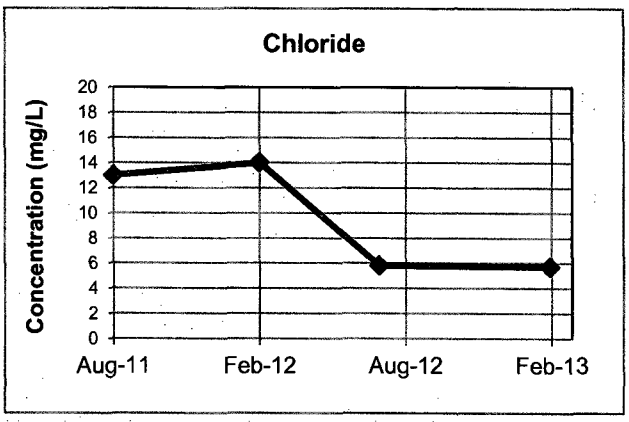

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

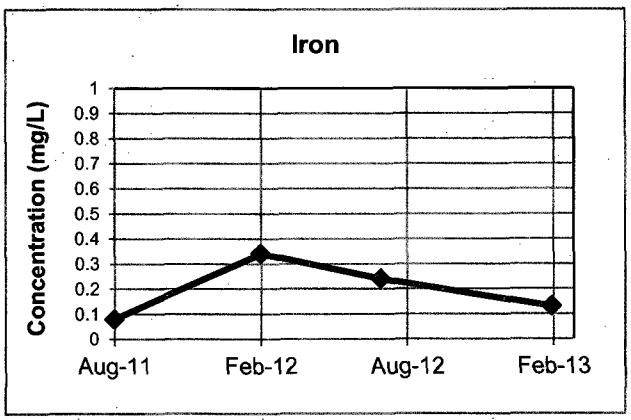

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

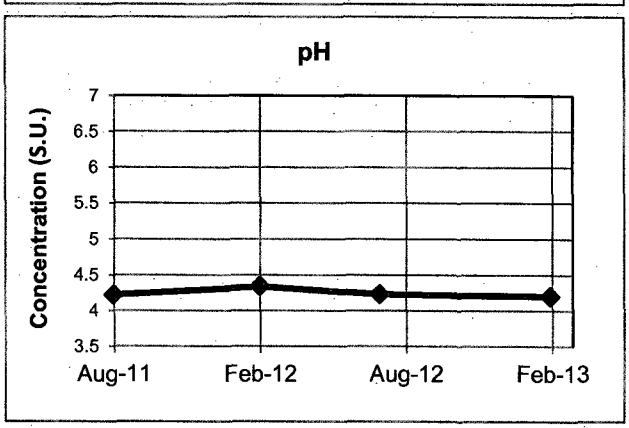

Specific Conductance
Concentration (uS/cm)
160
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

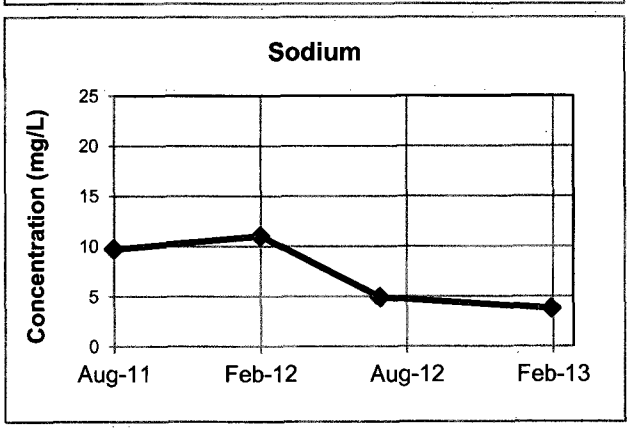

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

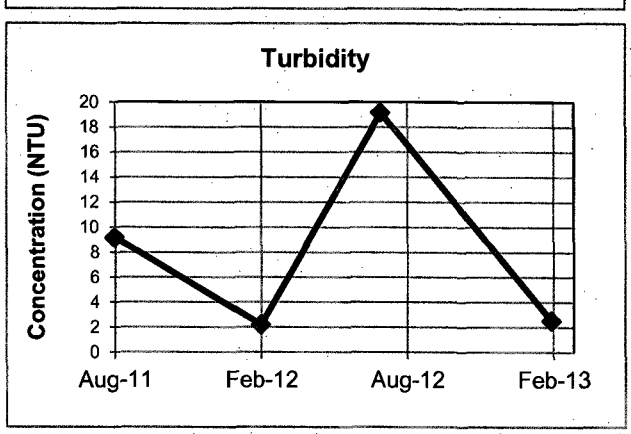
MWB-20(S)

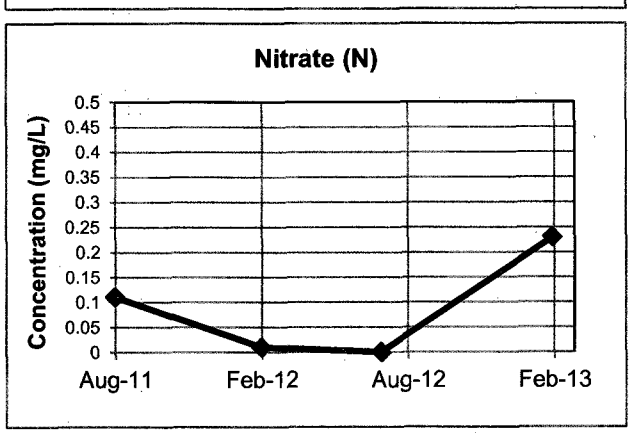

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

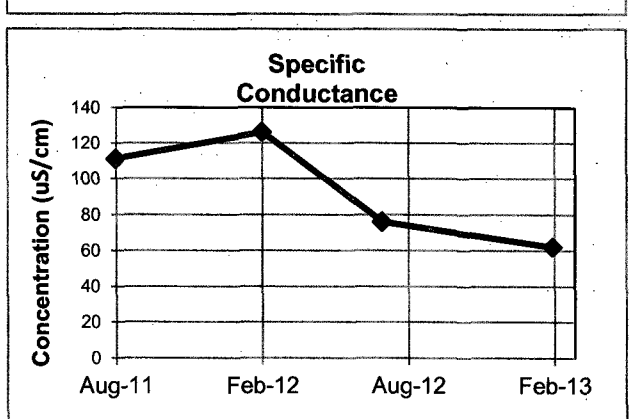

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

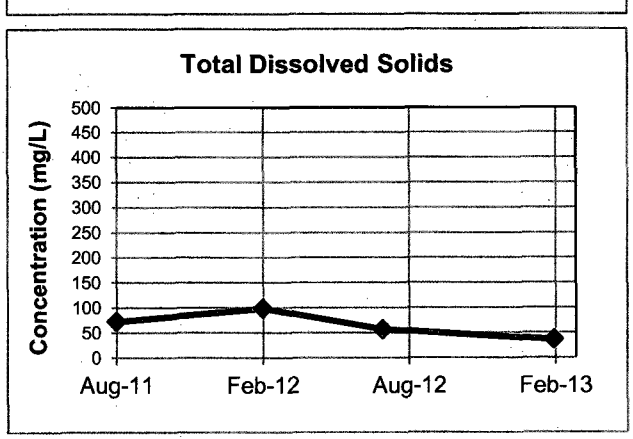

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

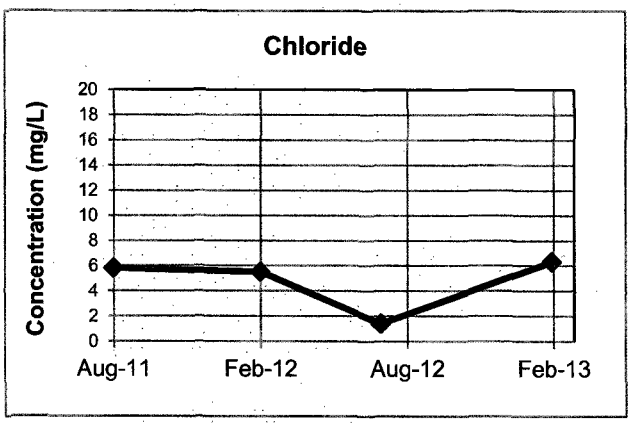

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

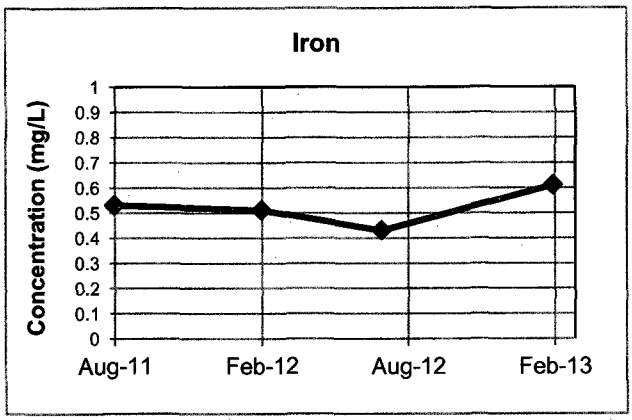

Nitrate (N)
Concentration (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aug-11
Feb-12
Aug-12
Feb-13

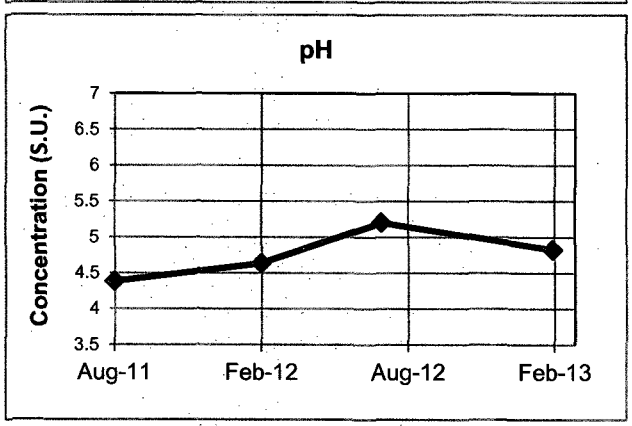

Specific Conductance
Concentration (uS/cm)
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

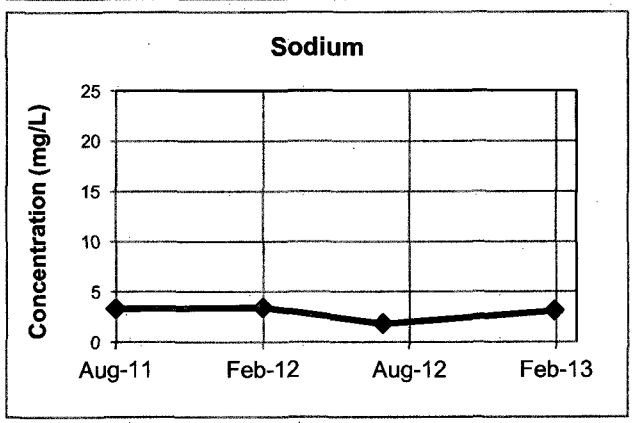

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

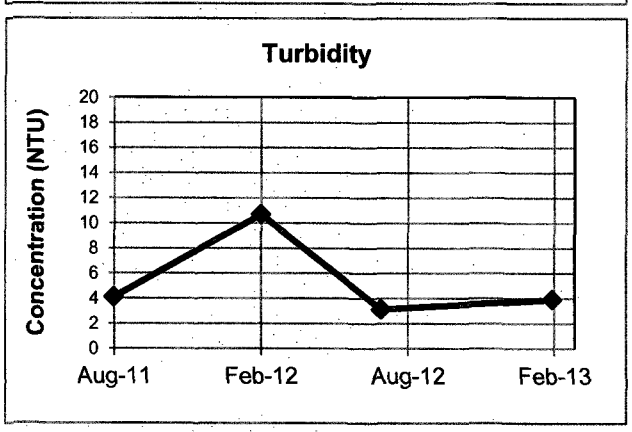
MWB-21(S)

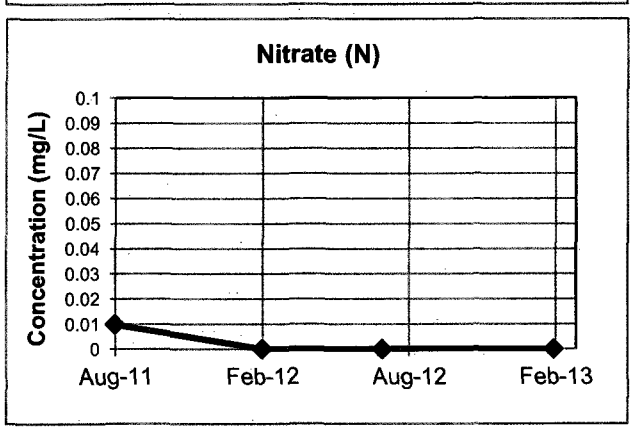

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

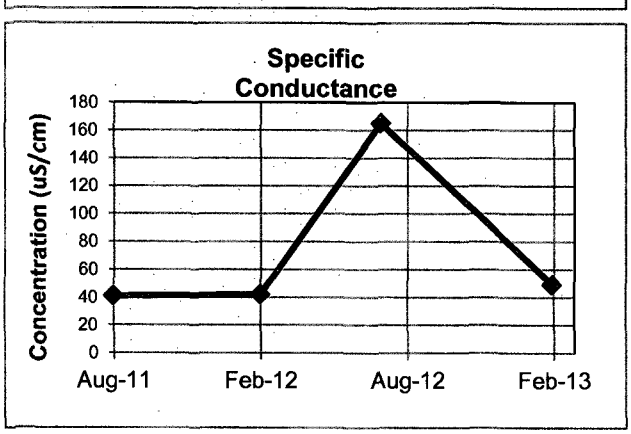

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

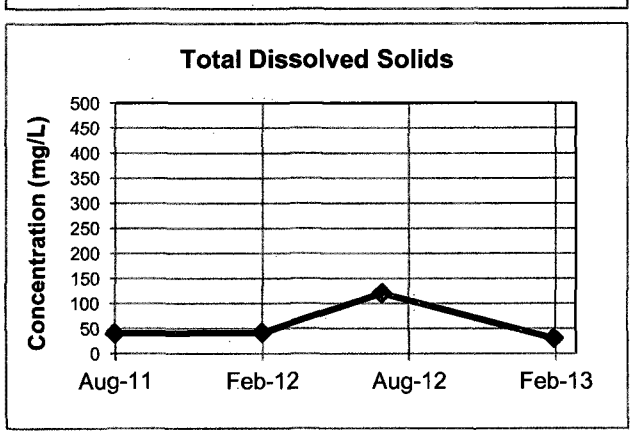

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

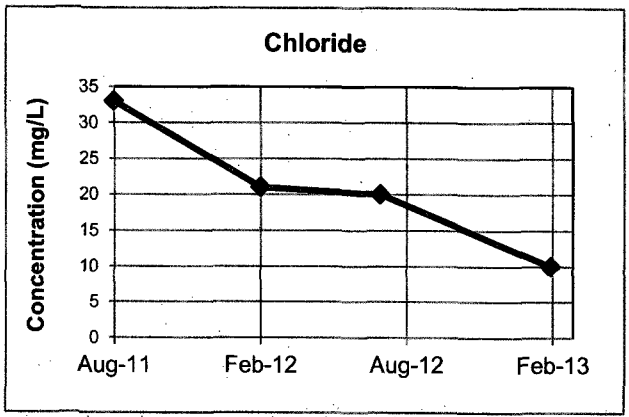

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

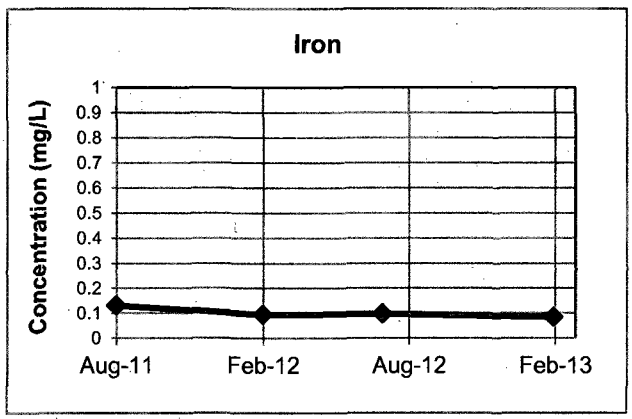

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

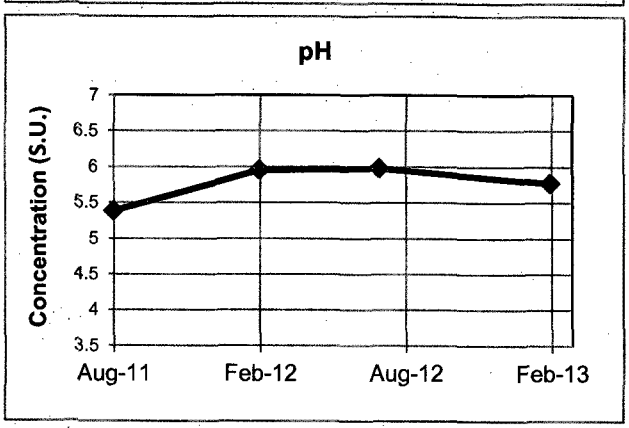

Specific Conductance
Concentration (uS/cm)
180
160
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

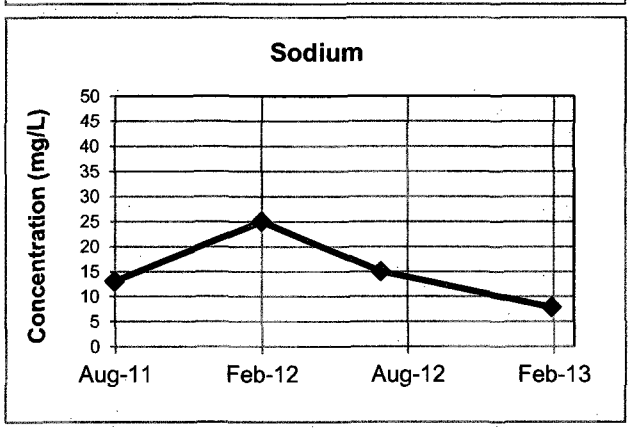

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

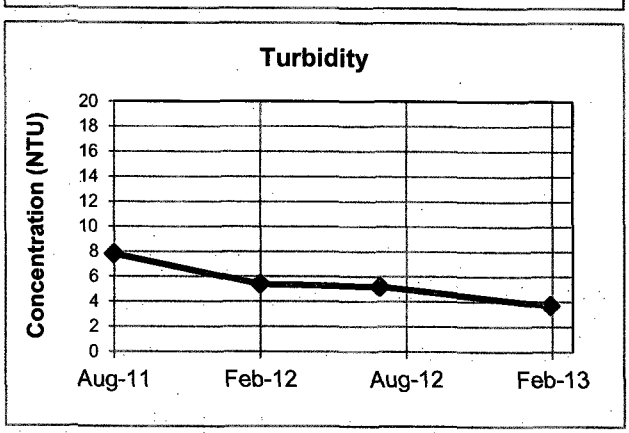
MWB-22(S)

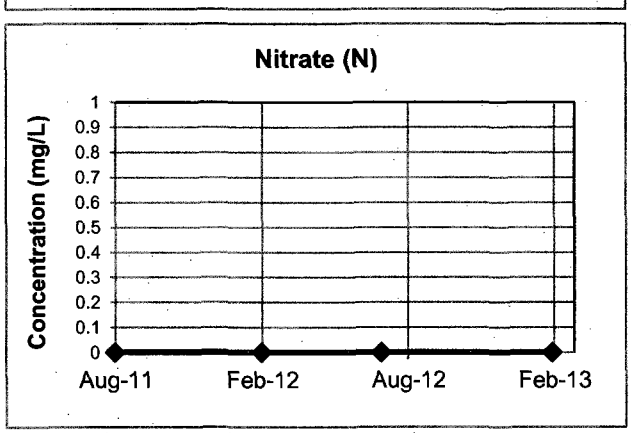

Chloride
Concentration (mg/L)
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

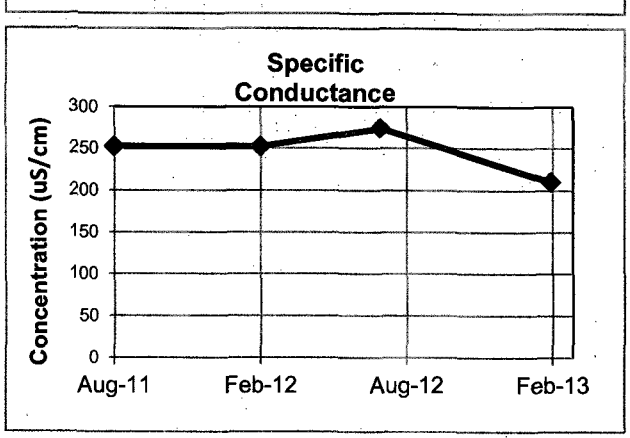

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

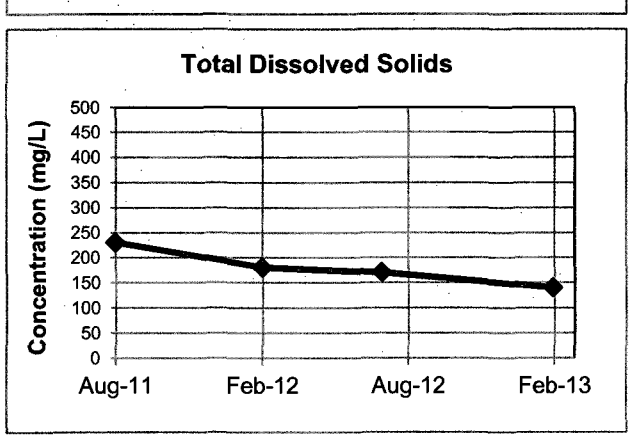

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
50
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

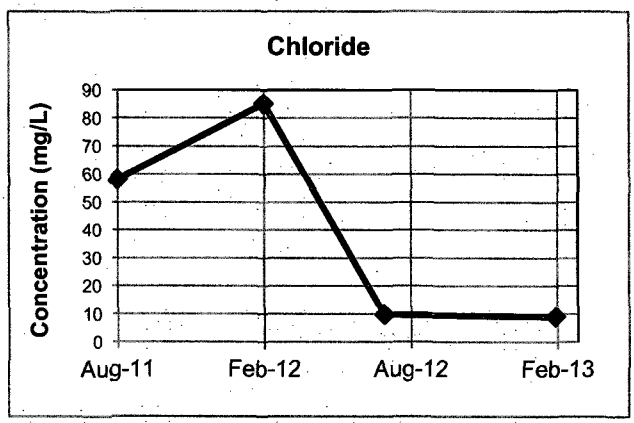

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

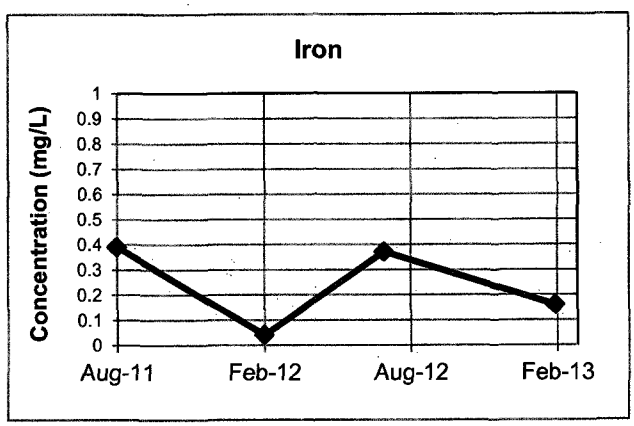

Nitrate (N)
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

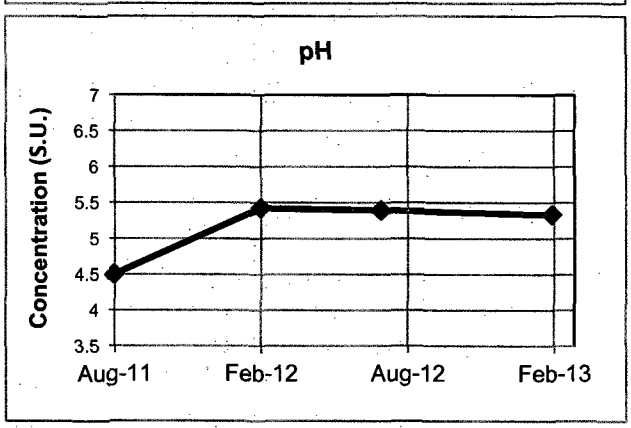

Specific Conductance
Concentration (uS/cm)
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

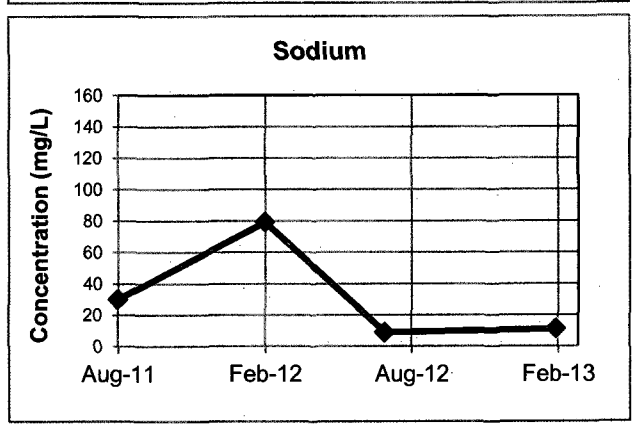

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

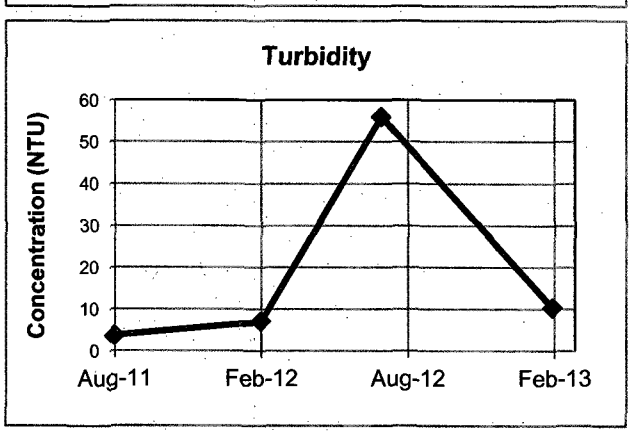
MWB-27(S)

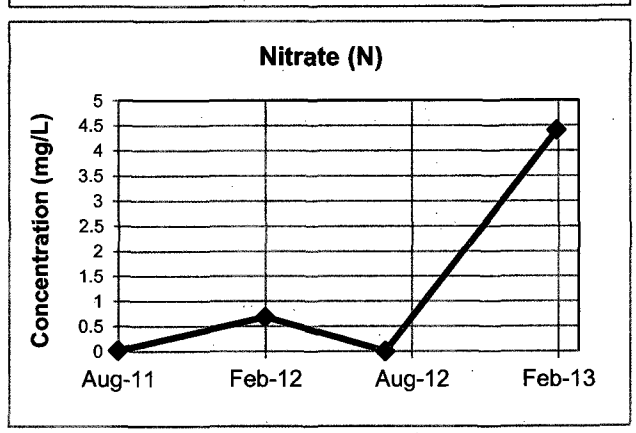

Chloride
Concentration (mg/L)
90
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

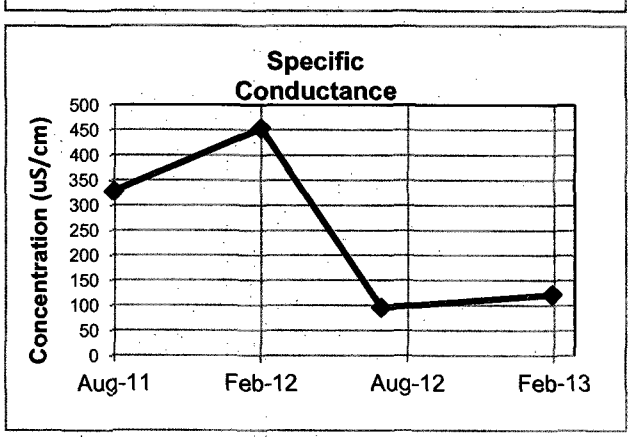

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

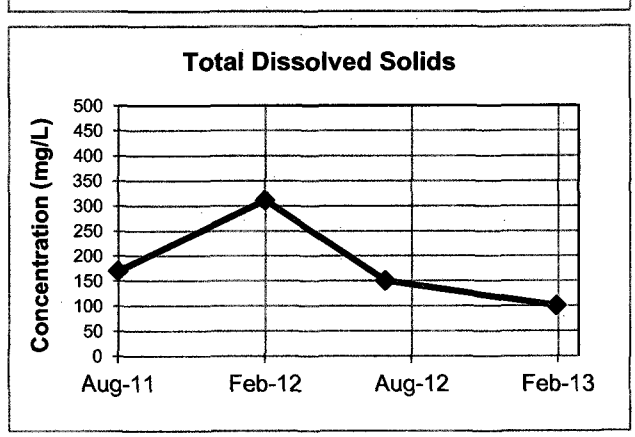

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
160
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

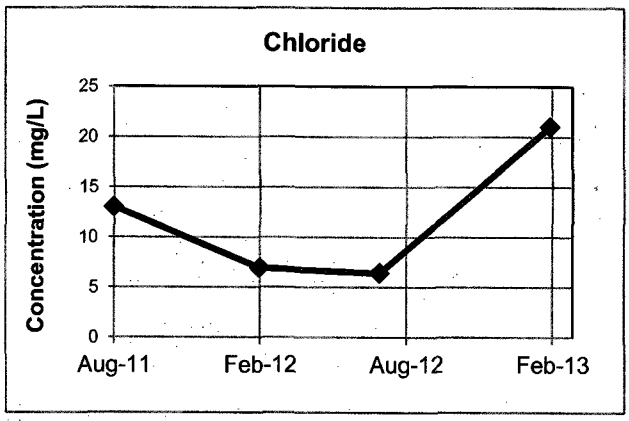

Turbidity
Concentration (NTU)
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

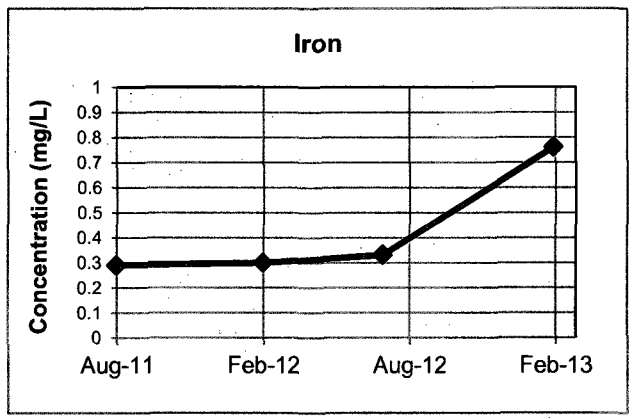

Nitrate (N)
Concentration (mg/L)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Aug-11
Feb-12
Aug-12
Feb-13

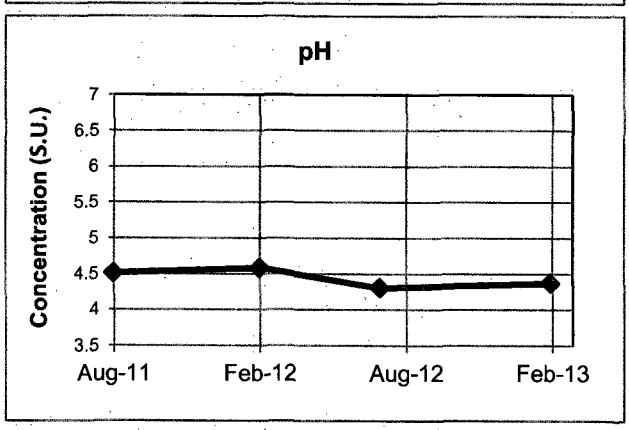

Specific Conductance
Concentration (uS/cm)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

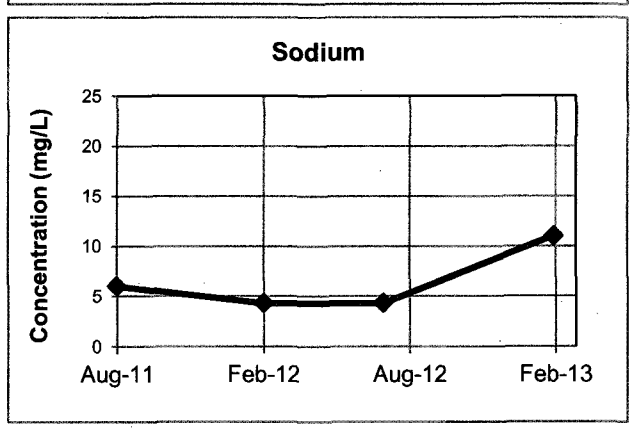

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

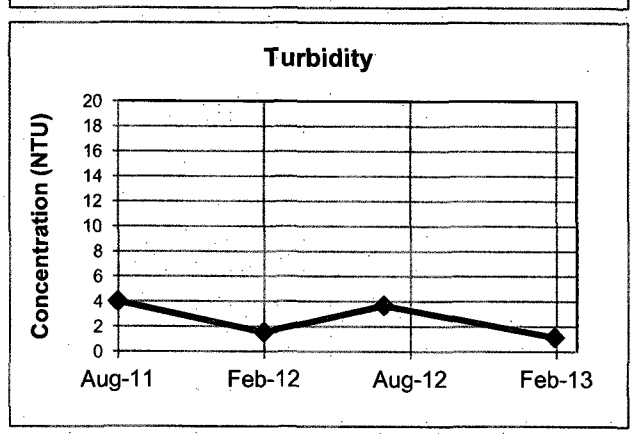
MWB-29(S)

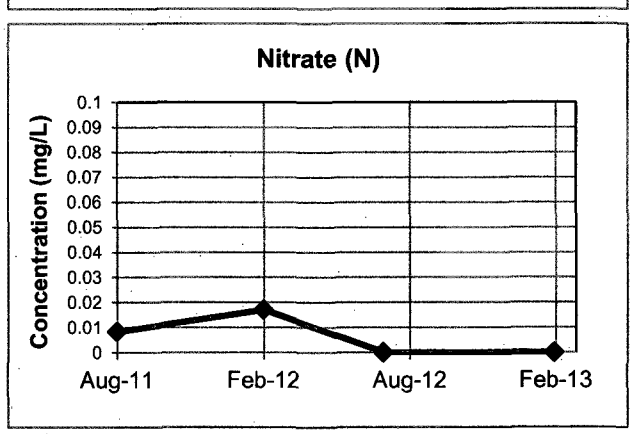

Chloride
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

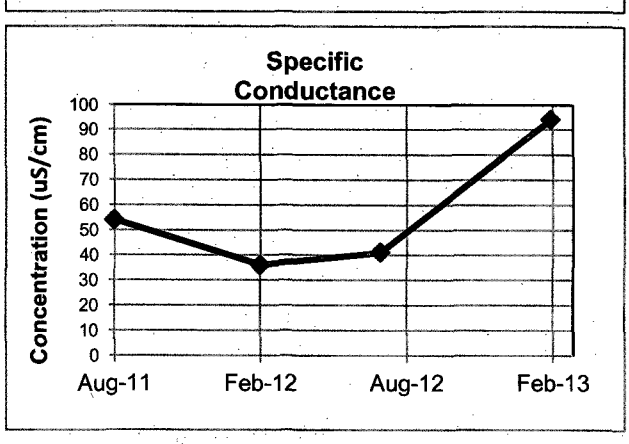

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

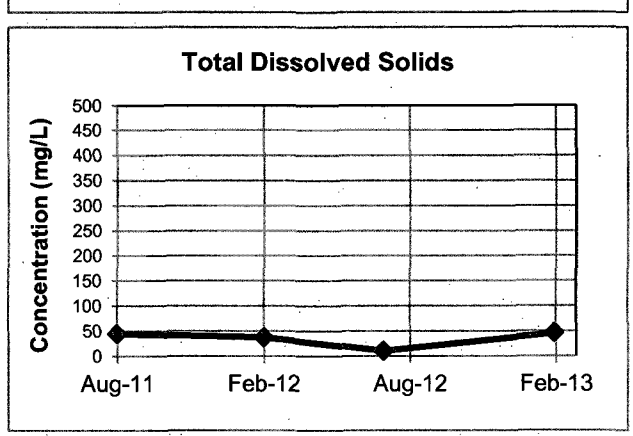

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

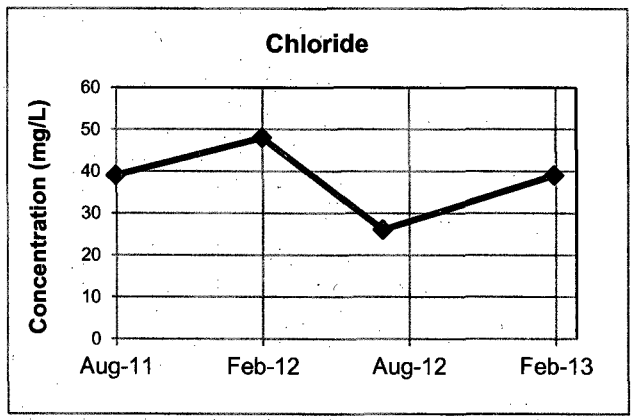

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

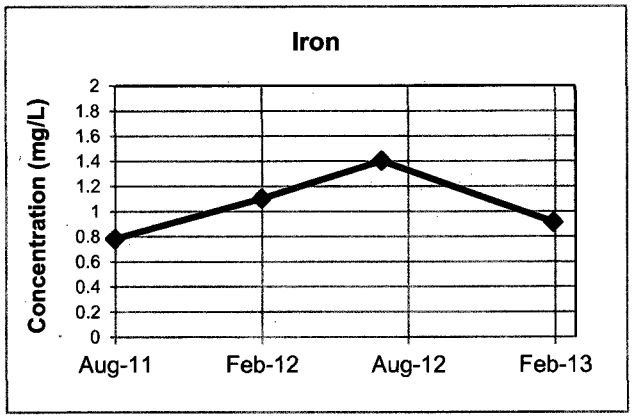

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

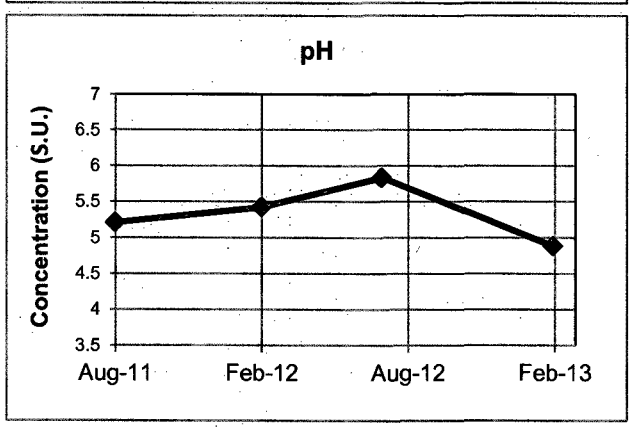

Specific Conductance
Concentration (uS/cm)
100
90
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

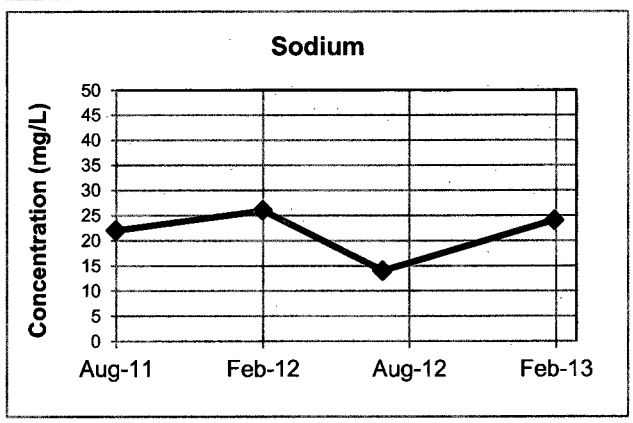

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

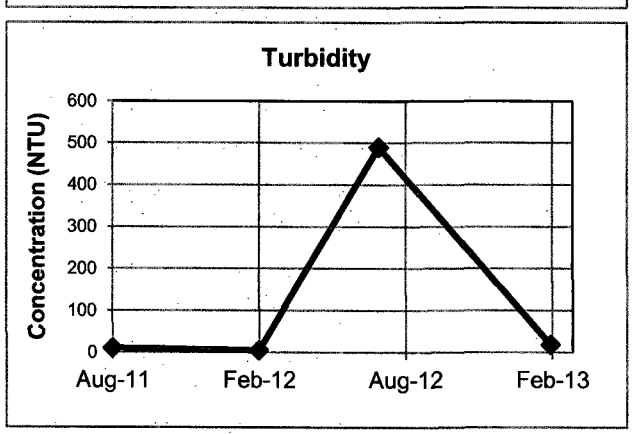
MWB-32(S)

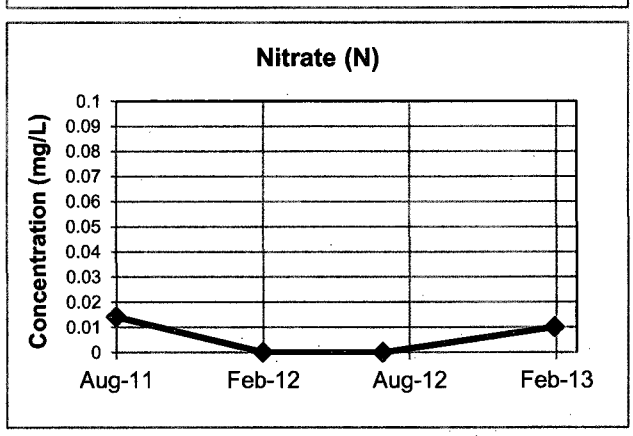

Chloride
Concentration (mg/L)
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

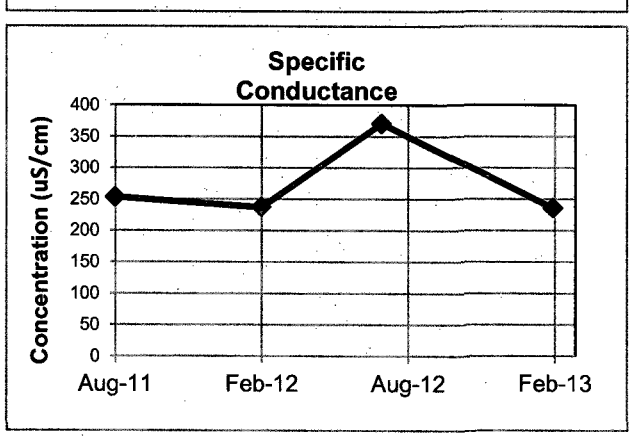

Iron
Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Aug-11
Feb-12
Aug-12
Feb-13

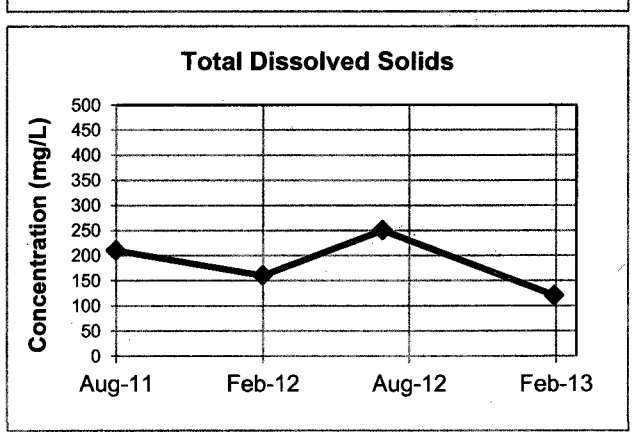

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
50
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

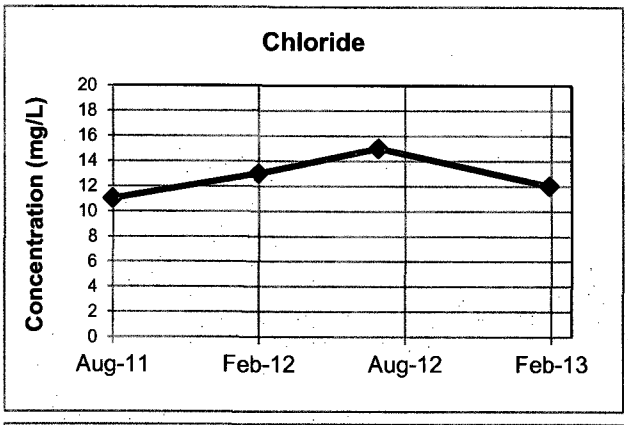

Turbidity
Concentration (NTU)
600
500
400
300
200
100
0
Aug-11
Feb-12
Aug-12
Feb-13

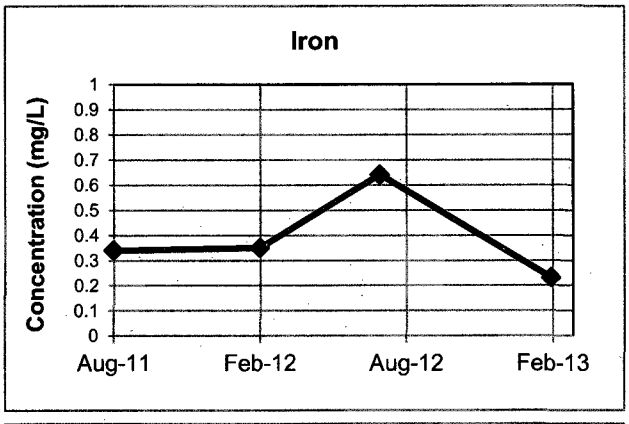

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

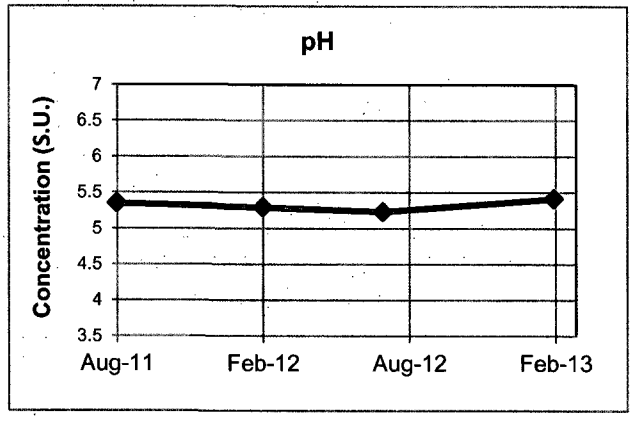

Specific Conductance
Concentration (uS/cm)
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

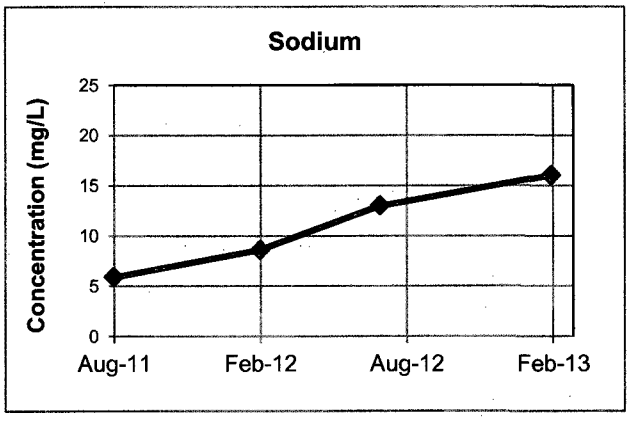

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

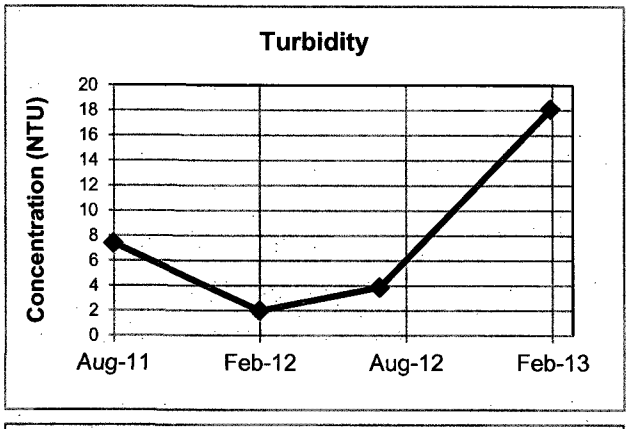
MWB-33(S)

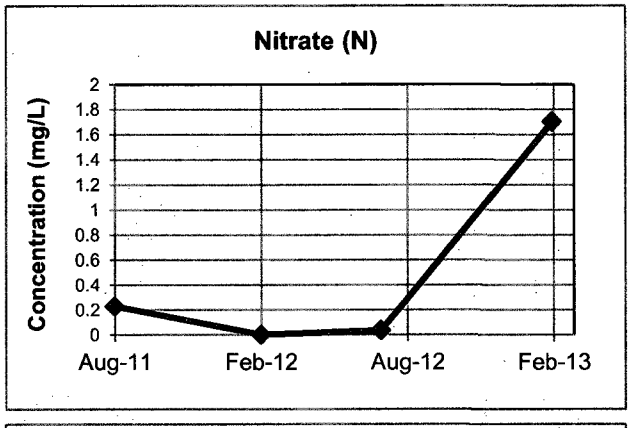

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

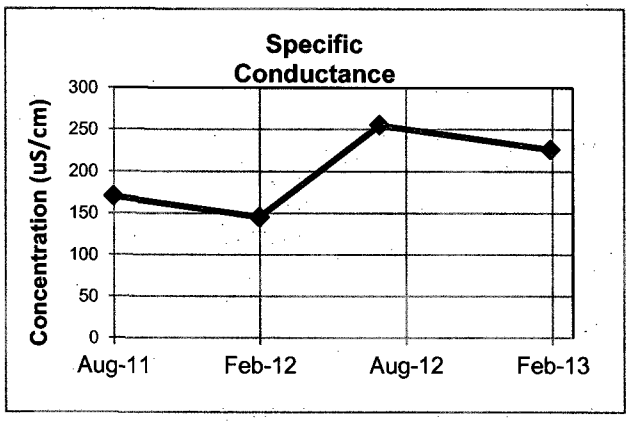

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

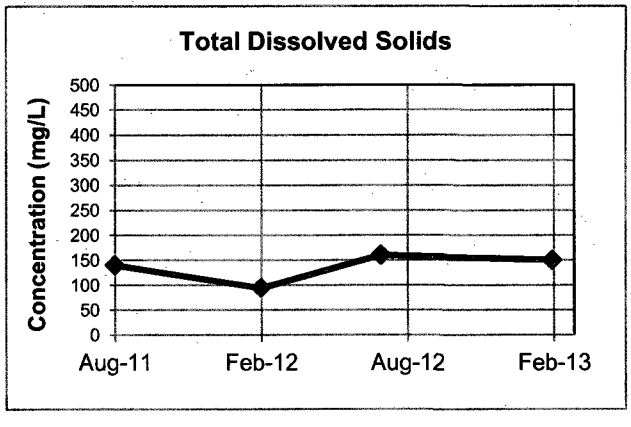

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

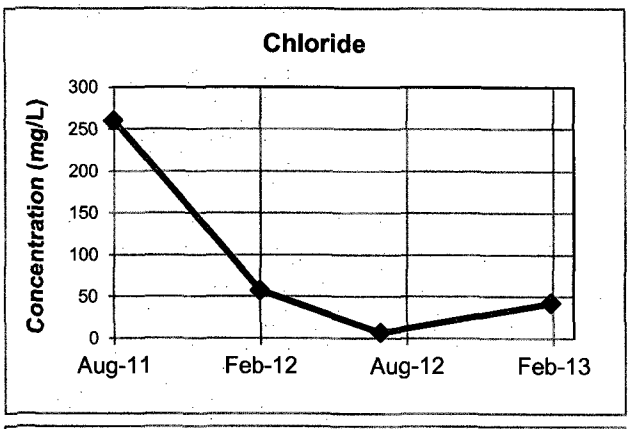

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

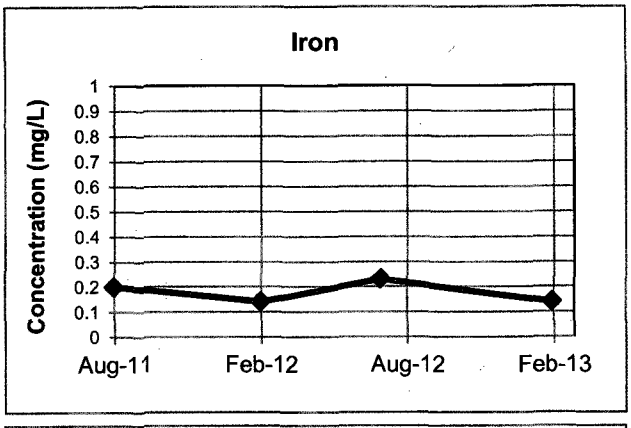

Nitrate (N)
Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Aug-11
Feb-12
Aug-12
Feb-13

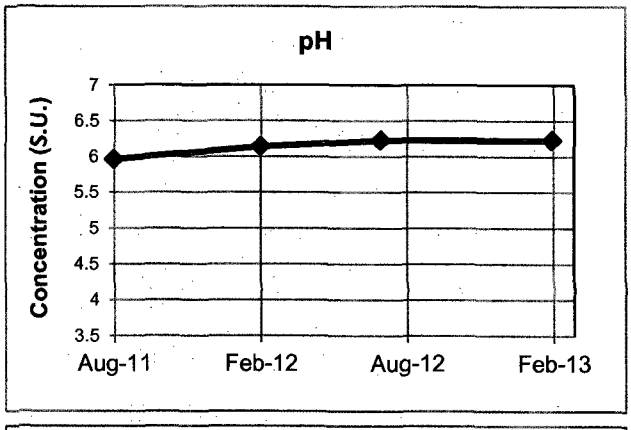

Specific Conductance
Concentration (uS/cm)
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

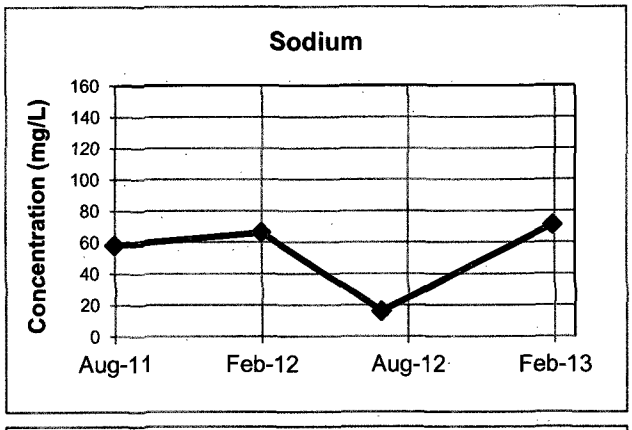

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

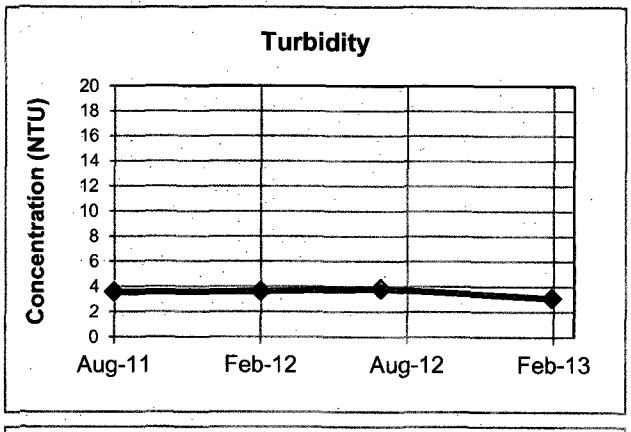
MWB-34(S)

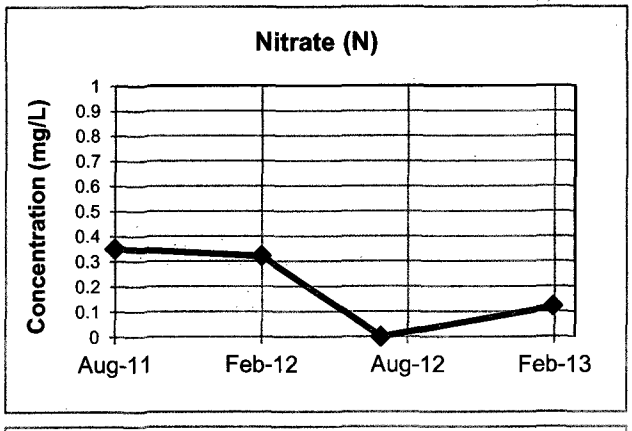

Chloride
Concentration (mg/L)
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

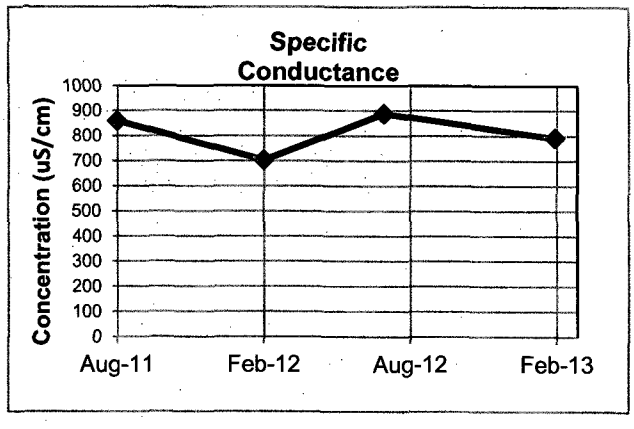

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

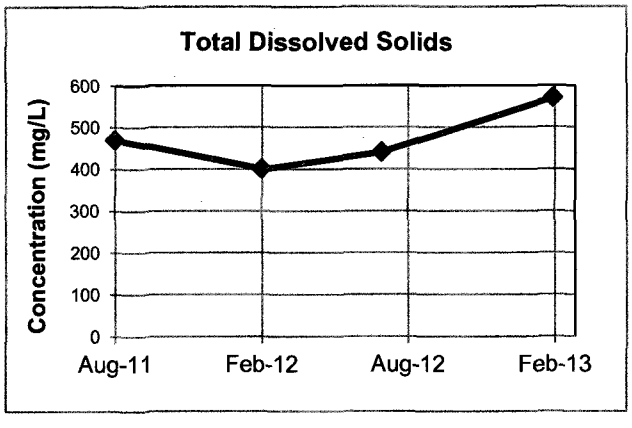

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
160
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

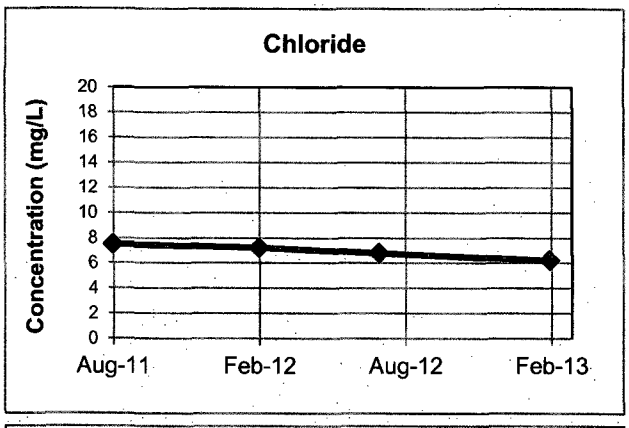

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

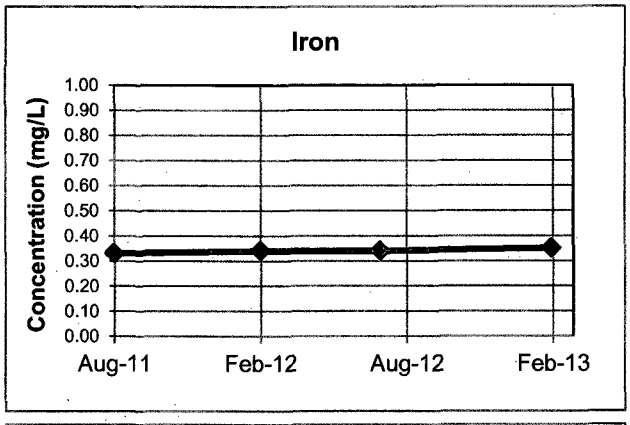

Nitrate (N)
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

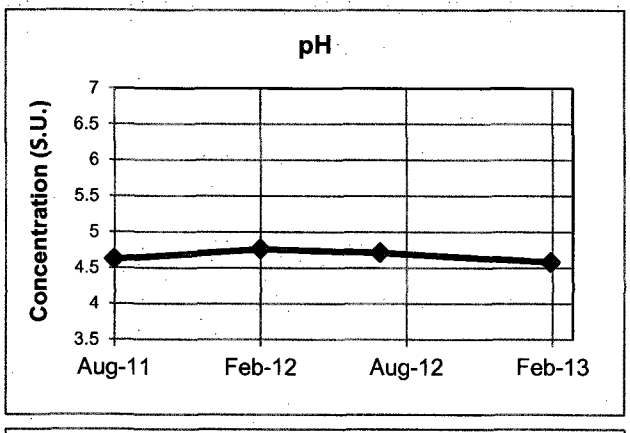

Specific Conductance
Concentration (uS/cm)
1000
900
800
700
600
500
400
300
200
100
0
Aug-11
Feb-12
Aug-12
Feb-13

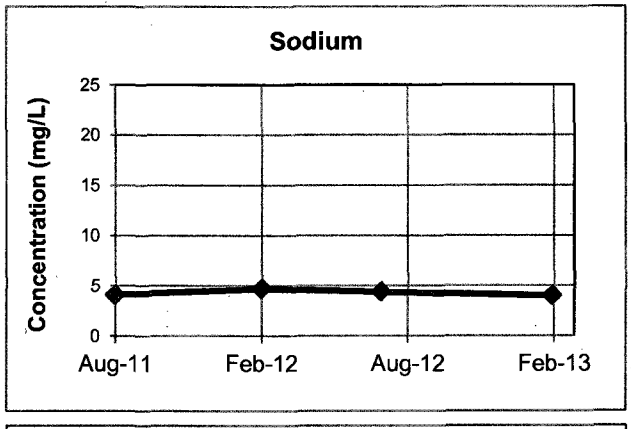

Total Dissolved Solids
Concentration (mg/L)
600
500
400
300
200
100
0
Aug-11
Feb-12
Aug-12
Feb-13

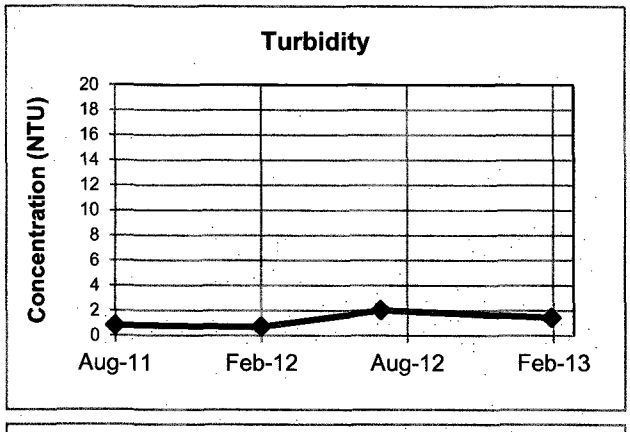
MWB-2(I)

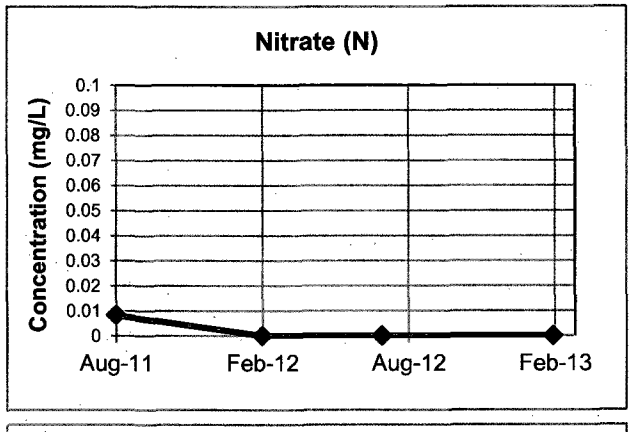

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

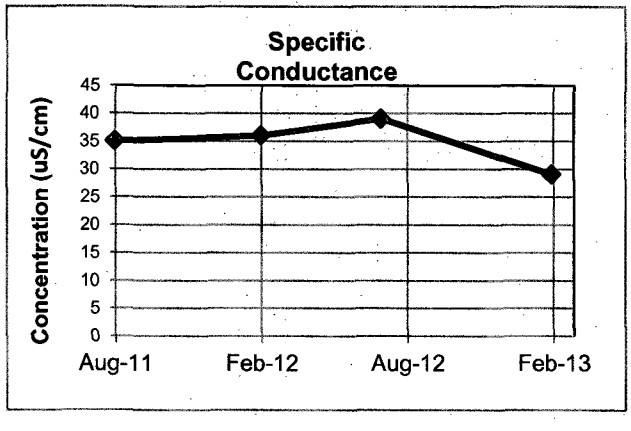

Iron
Concentration (mg/L)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Aug-11
Feb-12
Aug-12
Feb-13

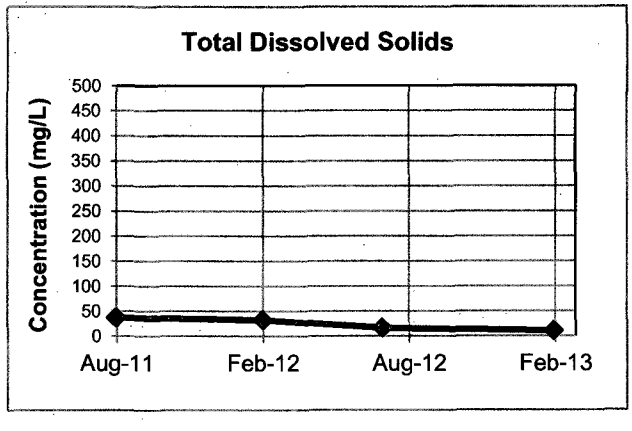

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

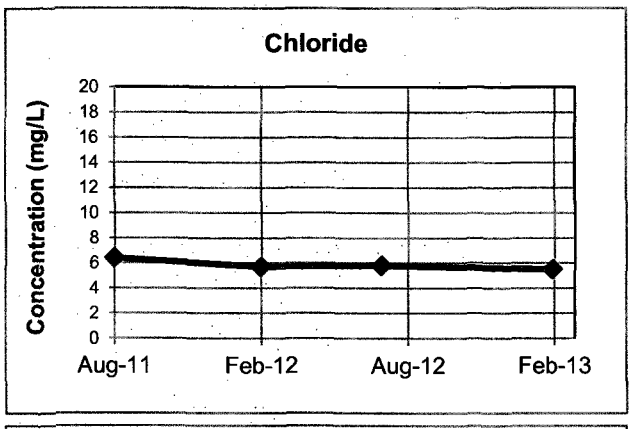

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

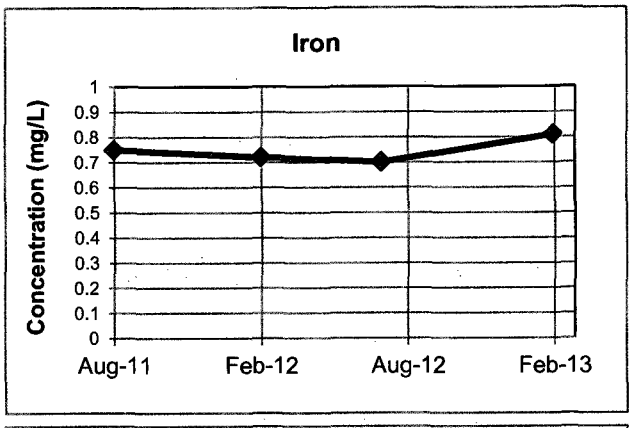

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

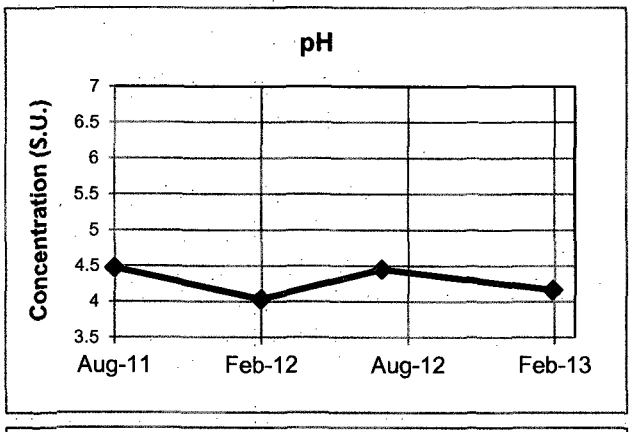

Specific Conductance
Concentration (uS/cm)
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

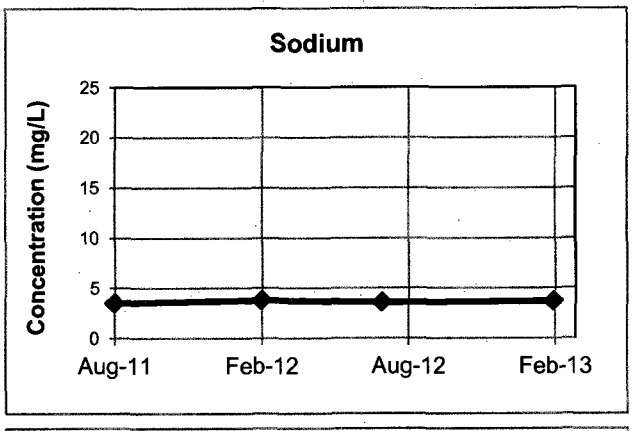

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

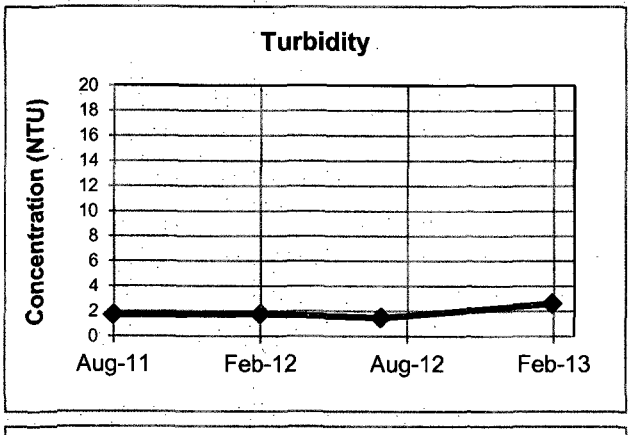
MWB-3(I)

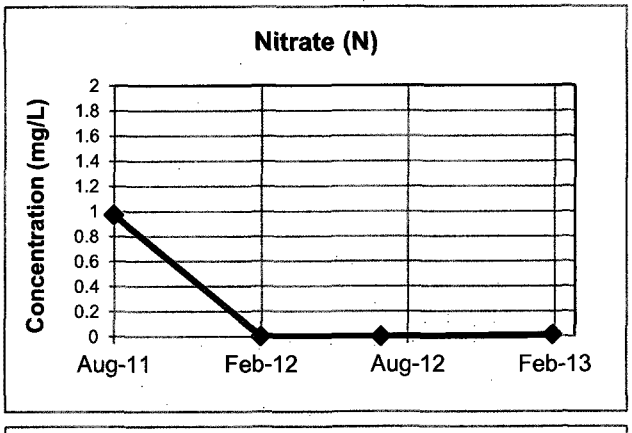

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

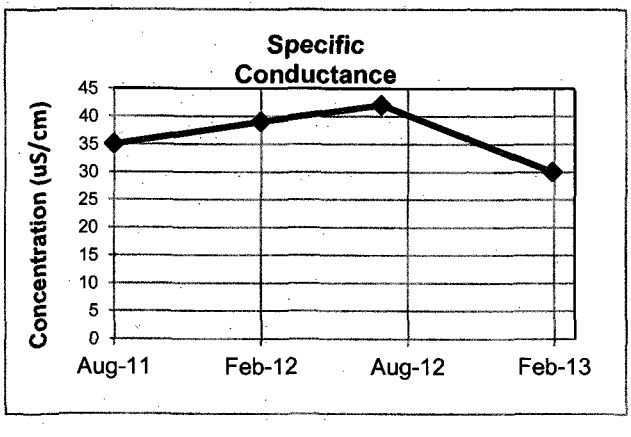

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

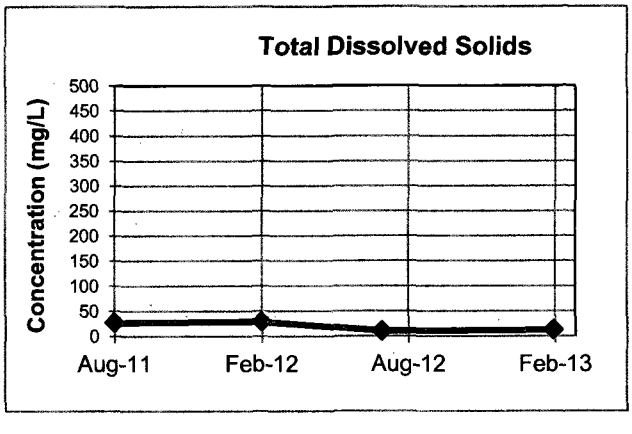

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

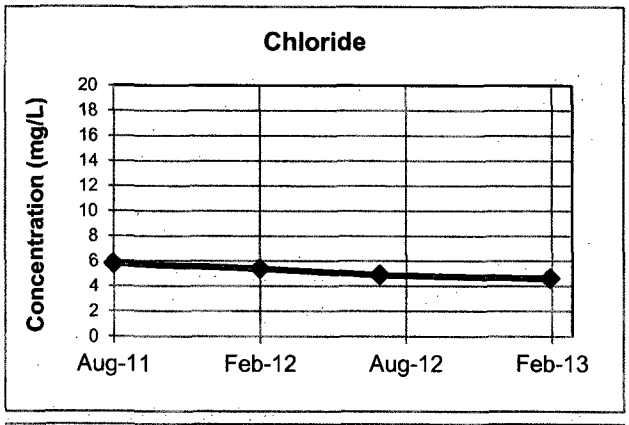

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

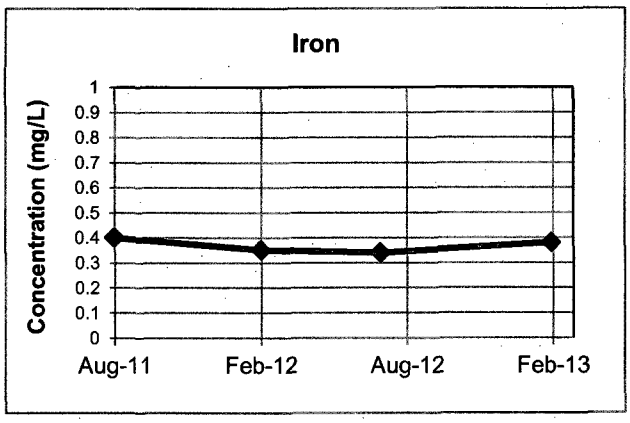

Nitrate (N)
Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Aug-11
Feb-12
Aug-12
Feb-13

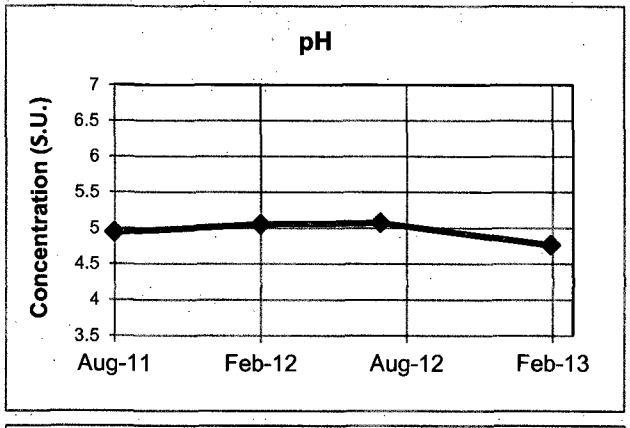

Specific Conductance
Concentration (uS/cm)
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

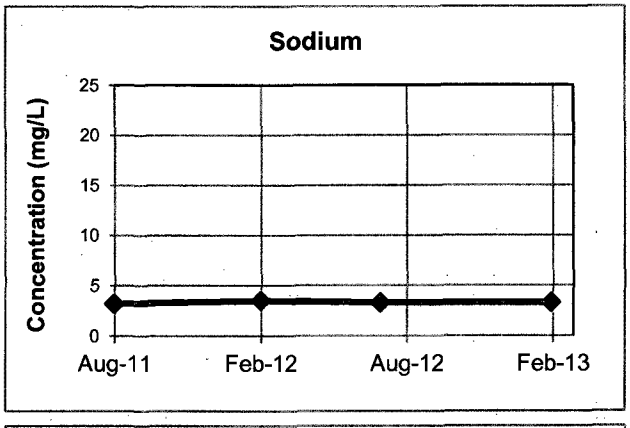

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

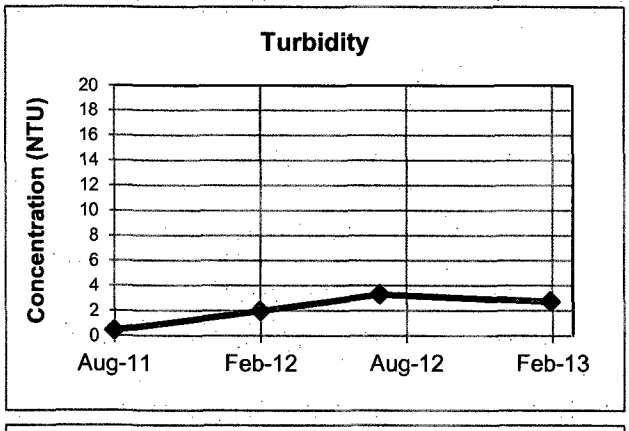
MWB-7(I)

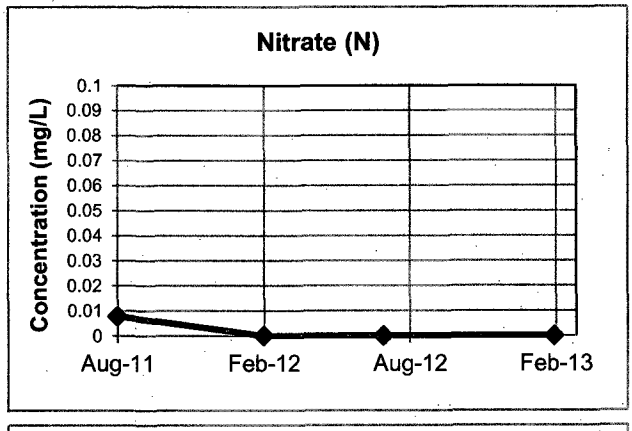

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

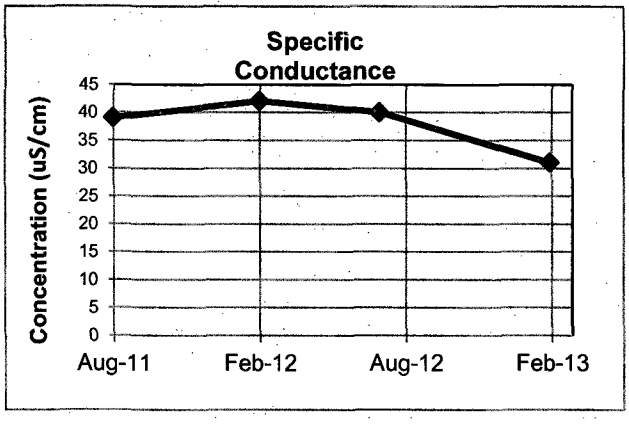

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

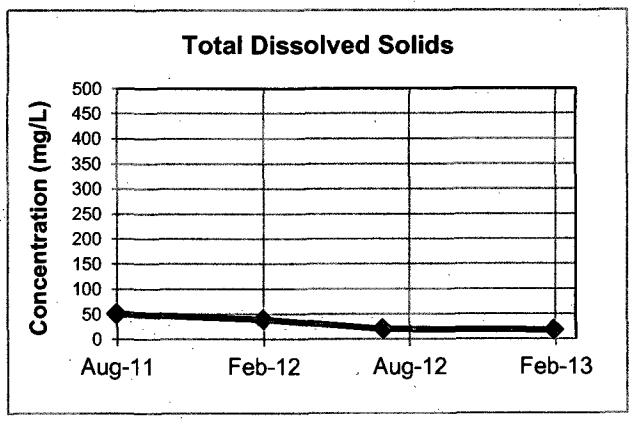

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

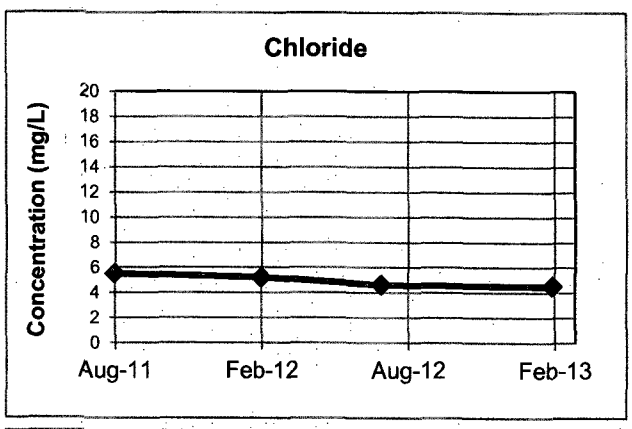

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

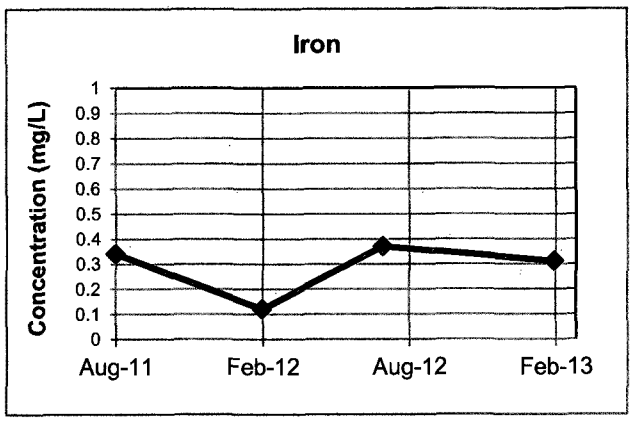

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

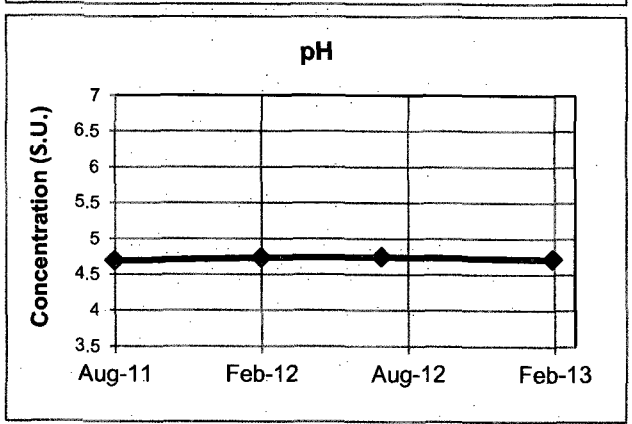

Specific Conductance
Concentration (uS/cm)
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

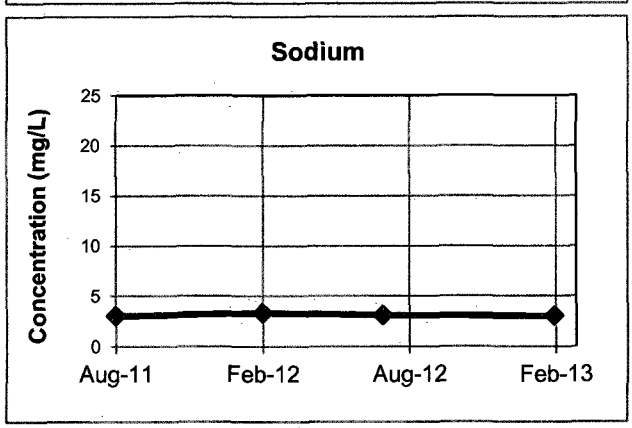

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

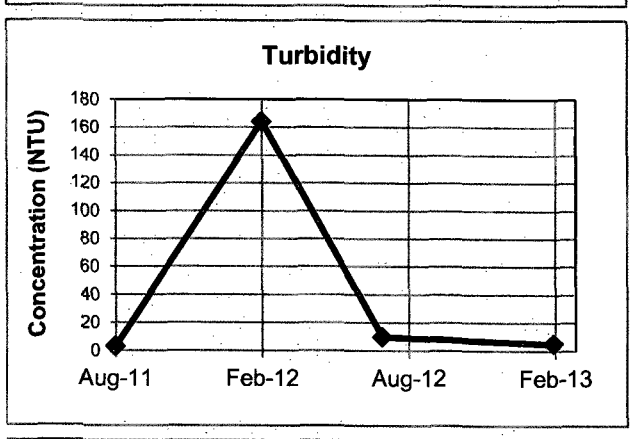
MWB-11(IR)

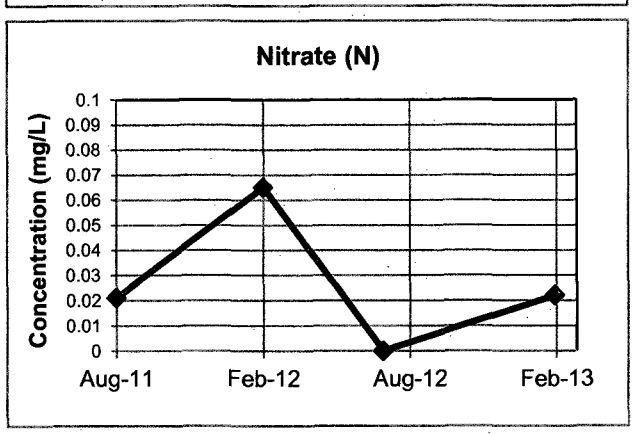

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

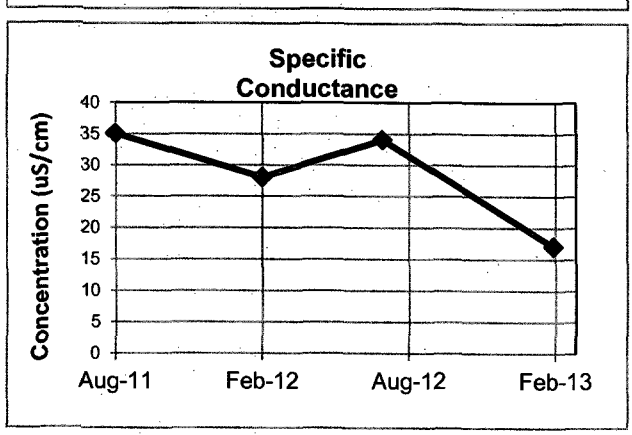

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

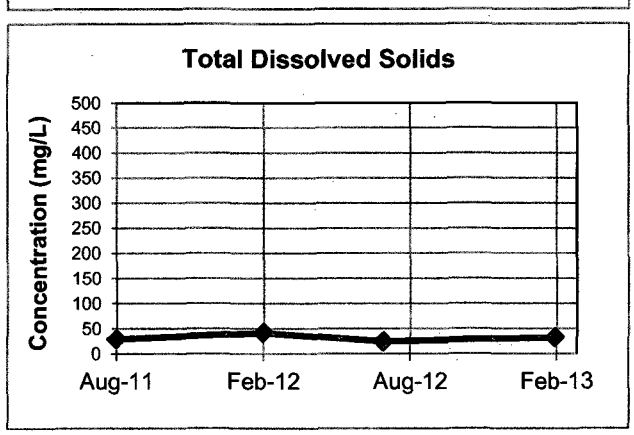

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

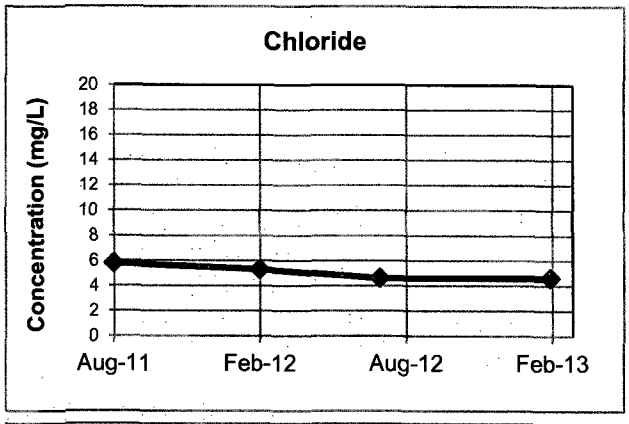

Turbidity
Concentration (NTU)
180
160
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

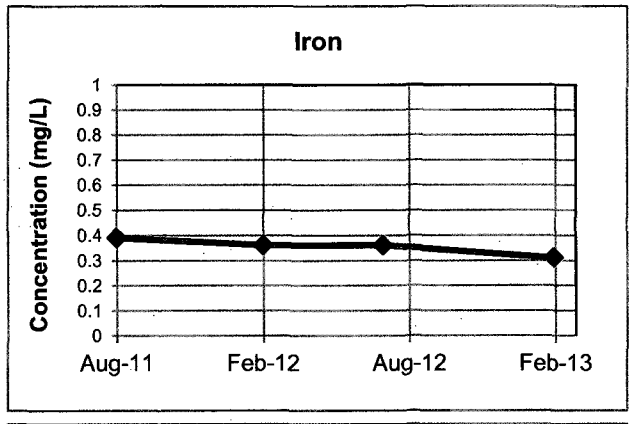

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

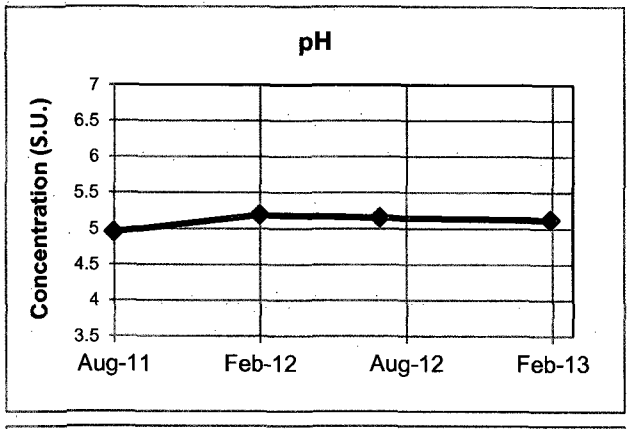

Specific Conductance
Concentration (uS/cm)
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

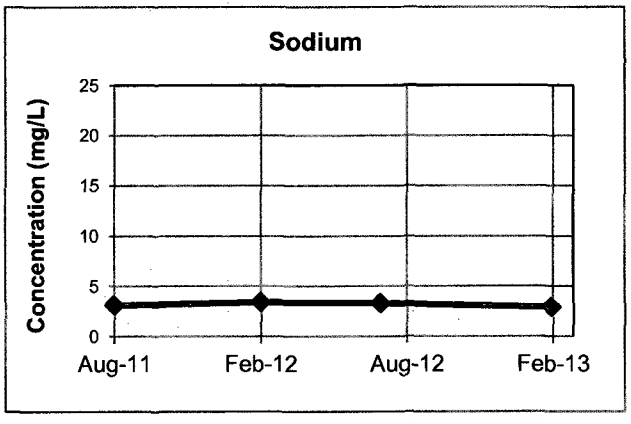

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

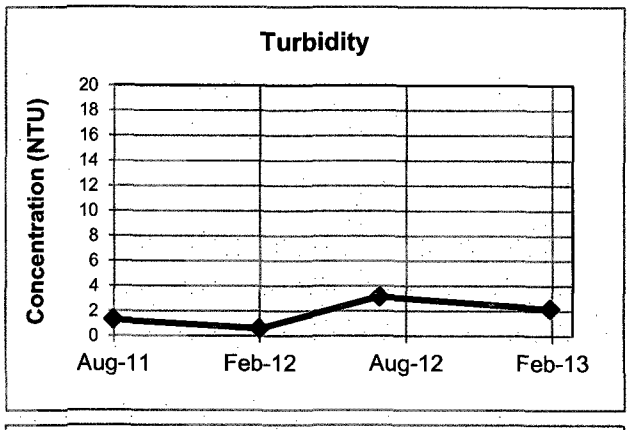
MWB-12(I)

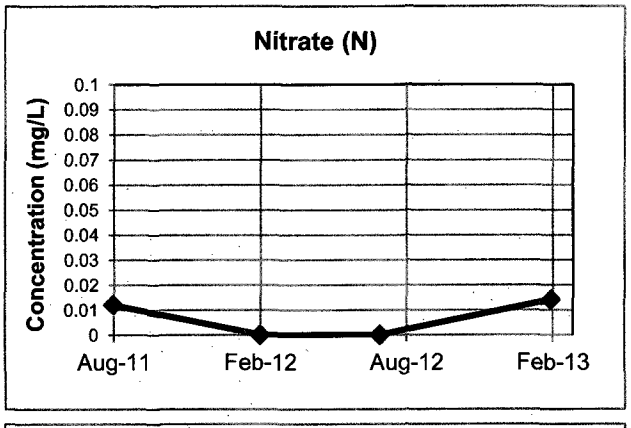

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

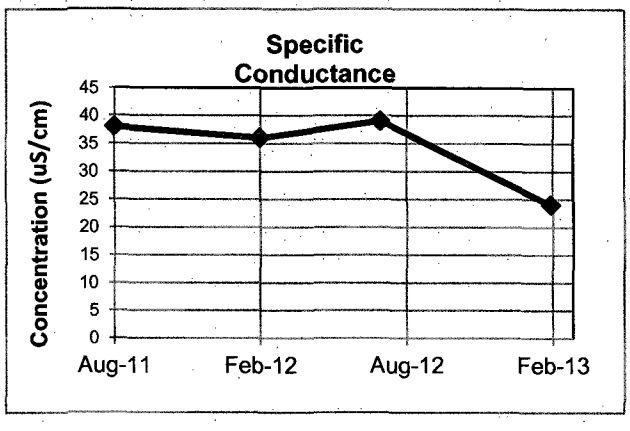

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

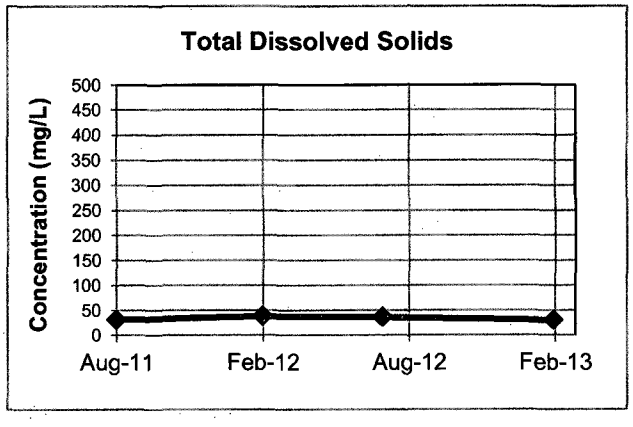

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

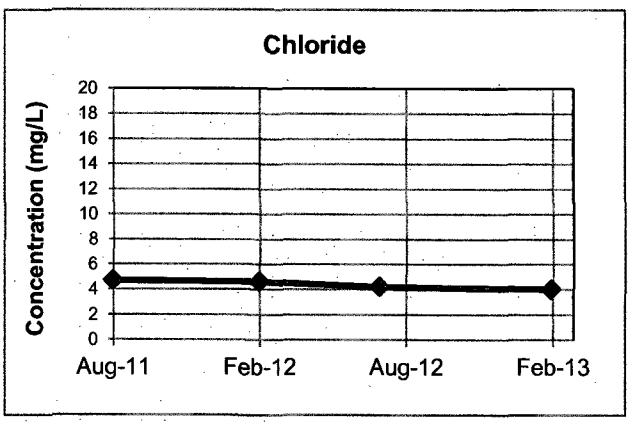

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

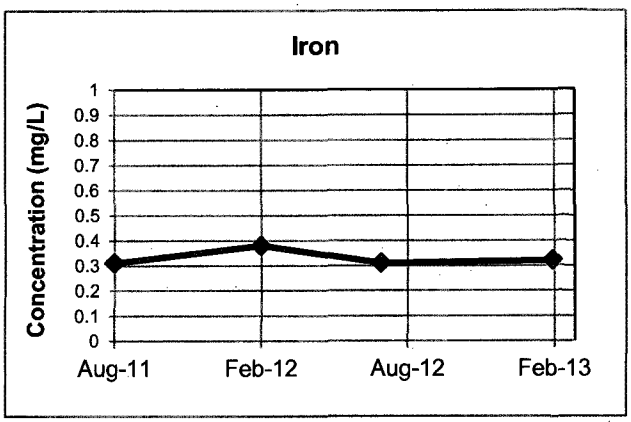

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

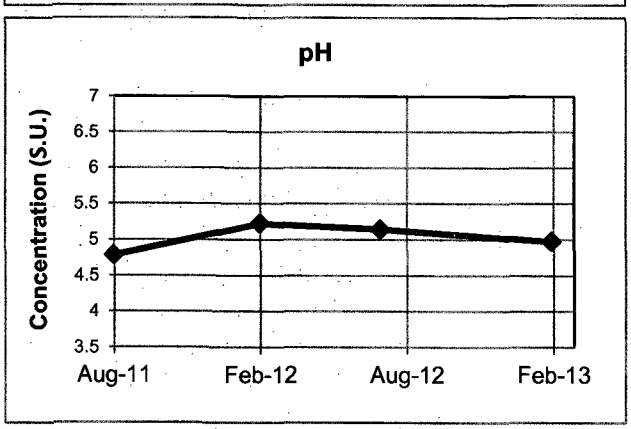

Specific Conductance
Concentration (uS/cm)
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

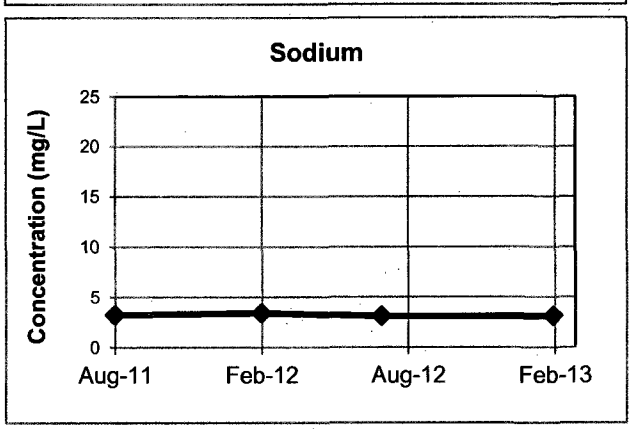

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

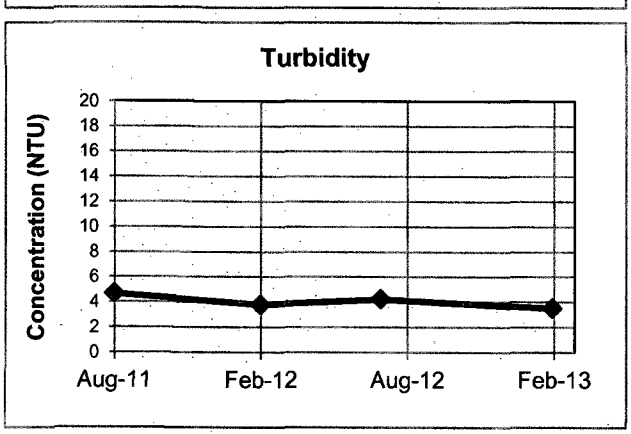
MWB-13(I)

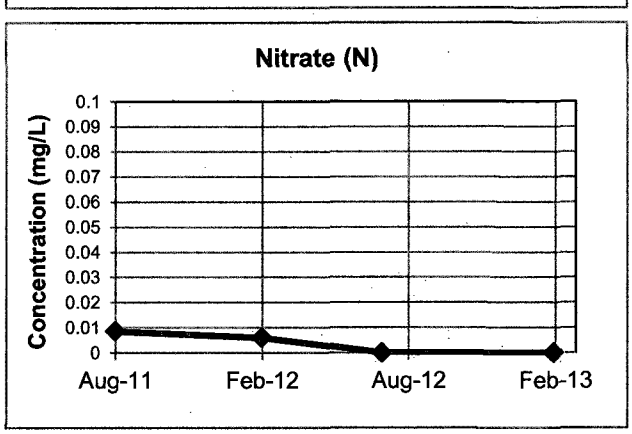

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

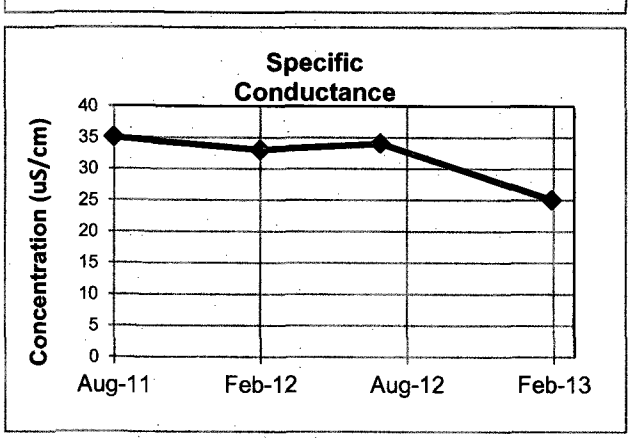

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

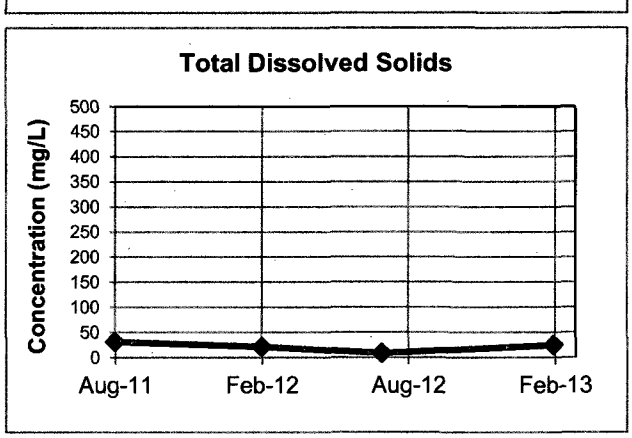

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

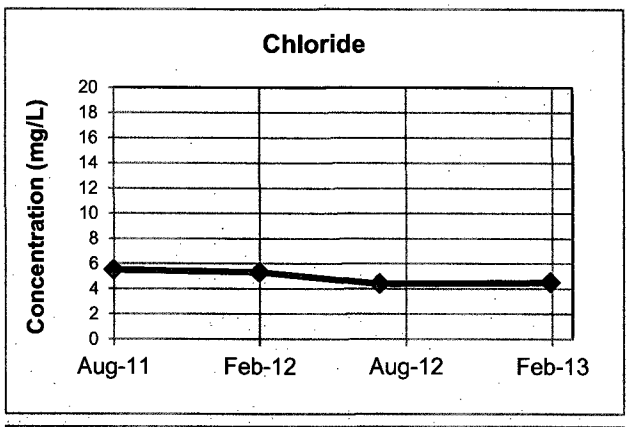

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

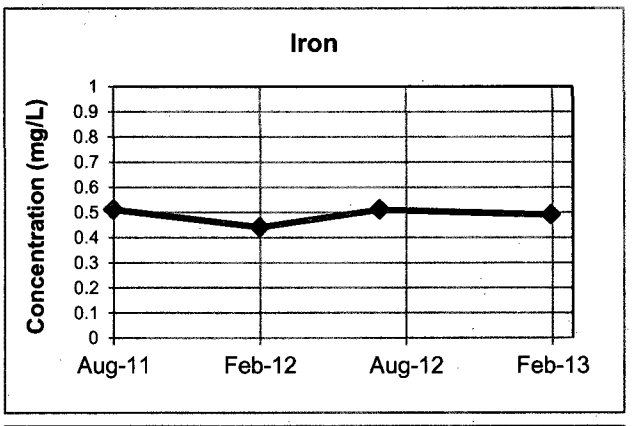

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

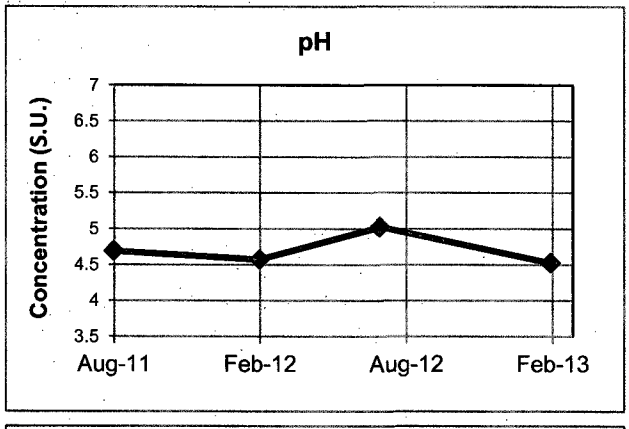

Specific Conductance
Concentration (uS/cm)
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

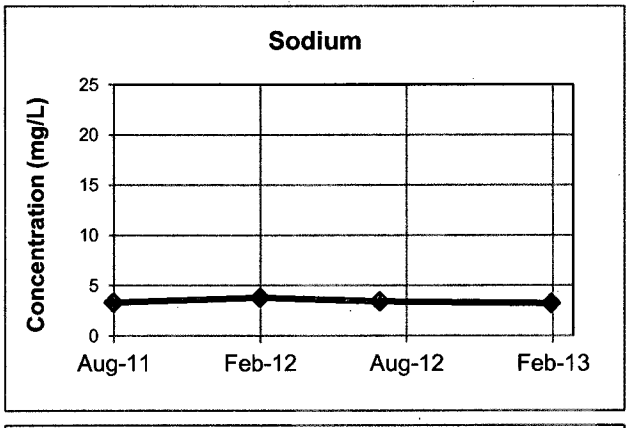

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

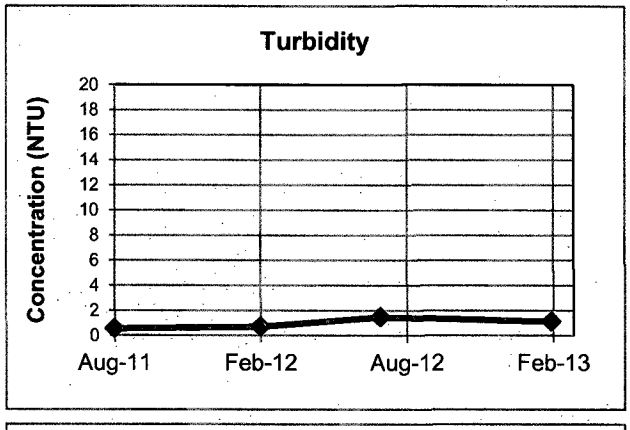
MWB-17(I)

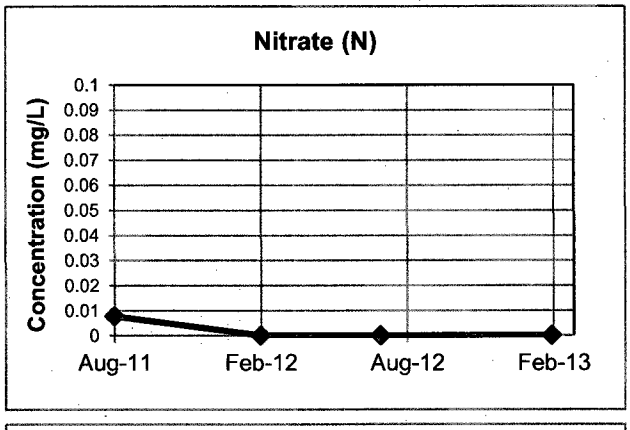

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

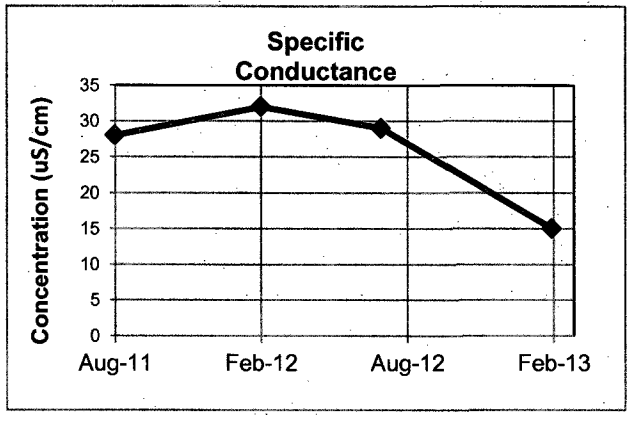

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

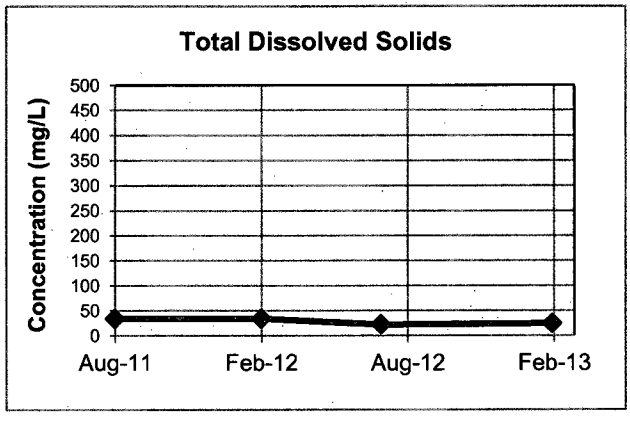

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

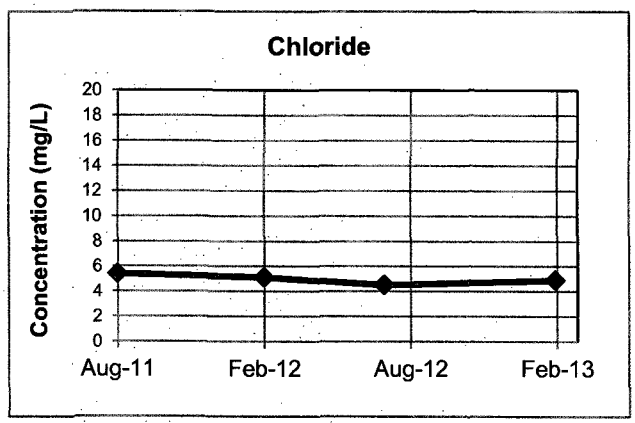

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

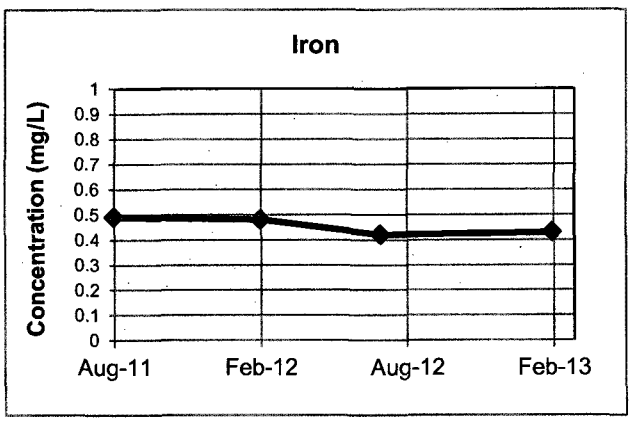

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

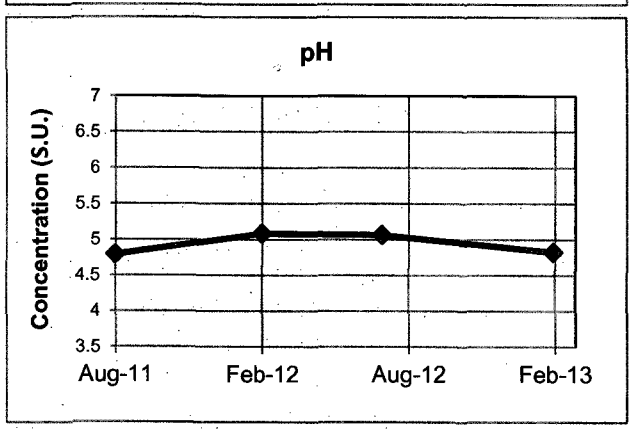

Specific Conductance
Concentration (uS/cm)
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

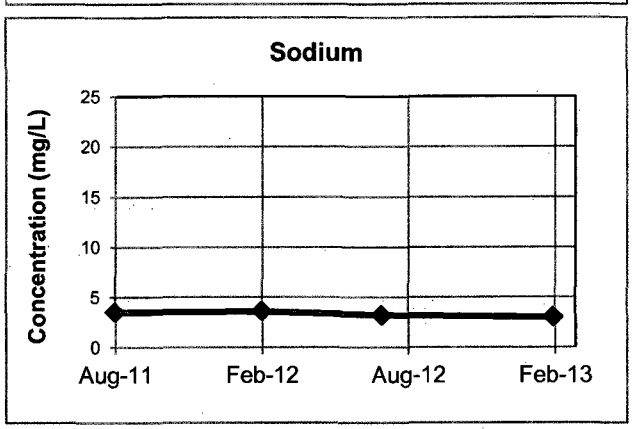

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

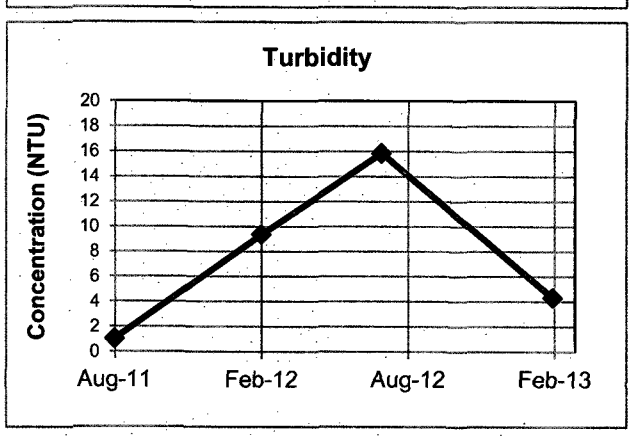
MWB-19(I)

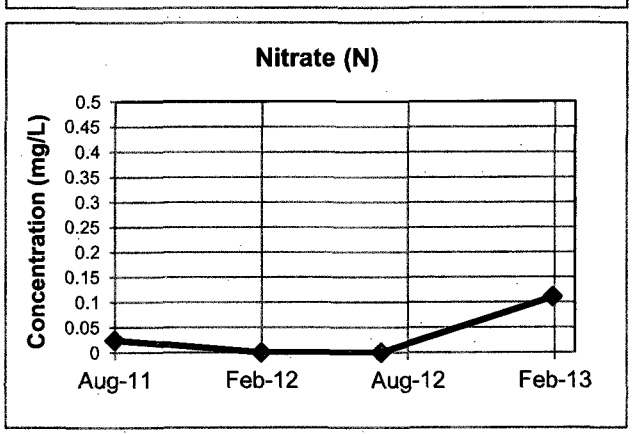

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

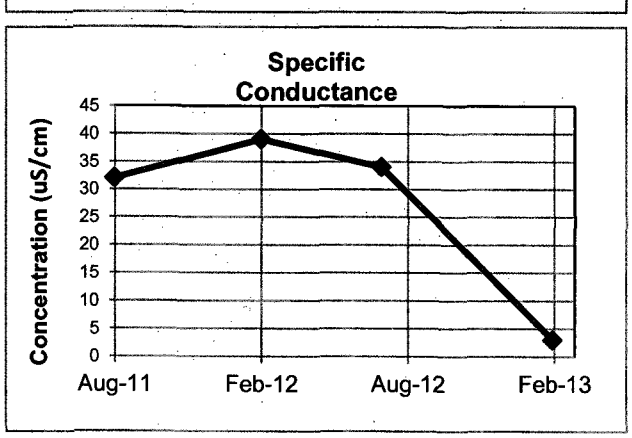

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

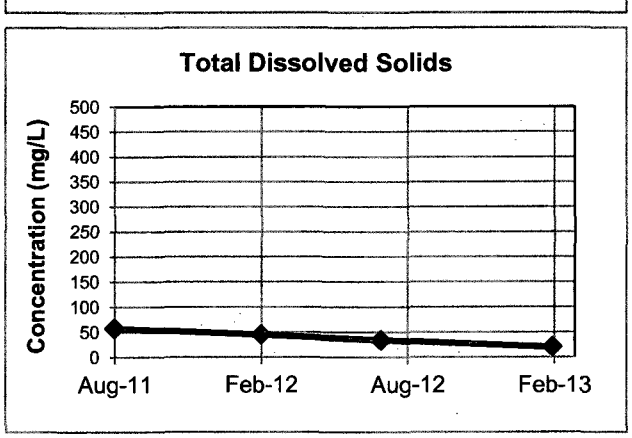

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

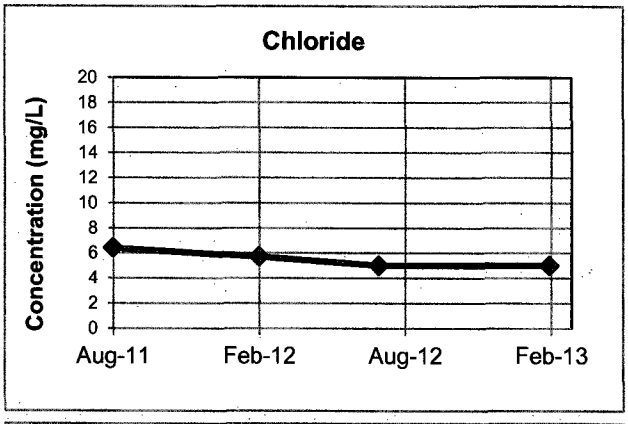

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

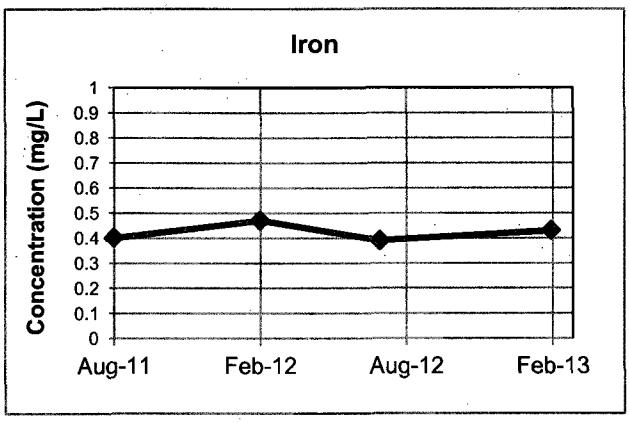

Nitrate (N)
Concentration (mg/L)
0.5
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
Aug-11
Feb-12
Aug-12
Feb-13

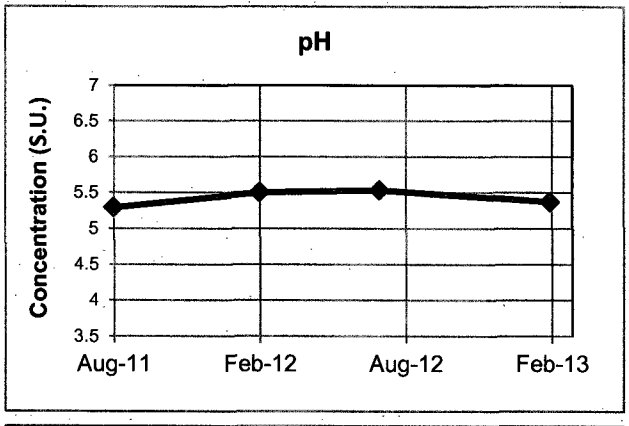

Specific Conductance
Concentration (uS/cm)
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

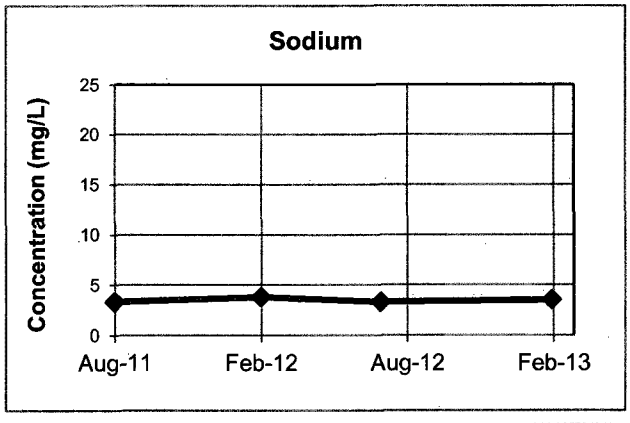

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

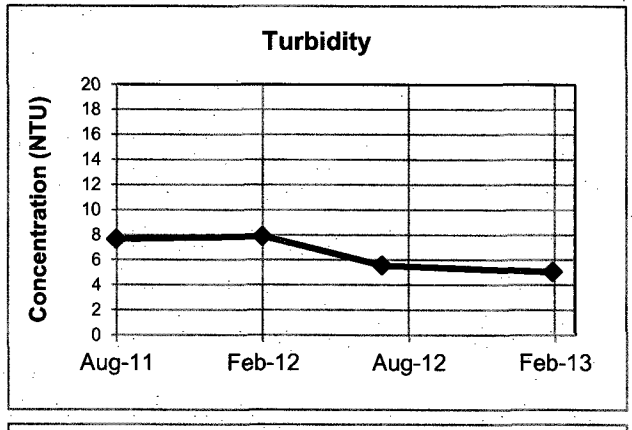
MWB-27(I)

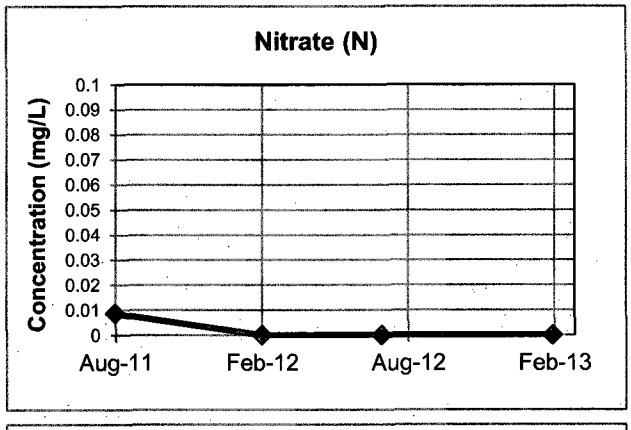

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

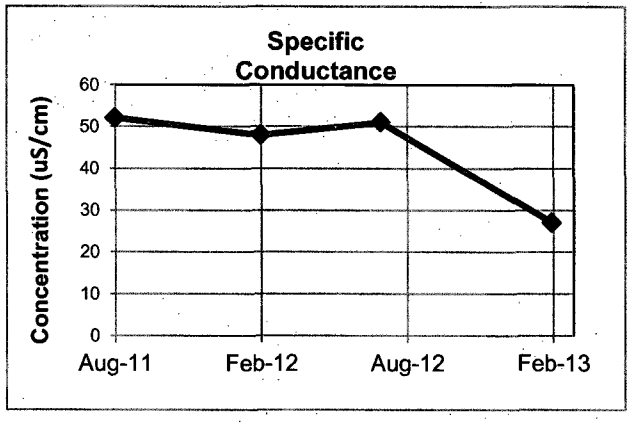

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

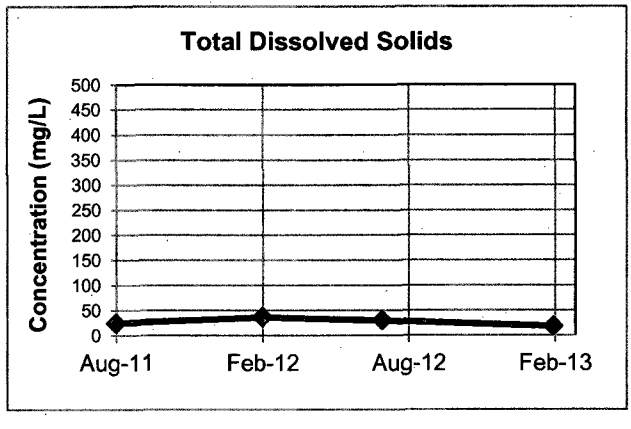

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

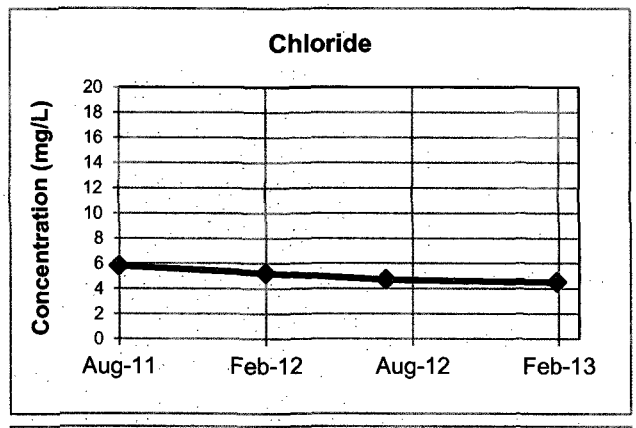

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

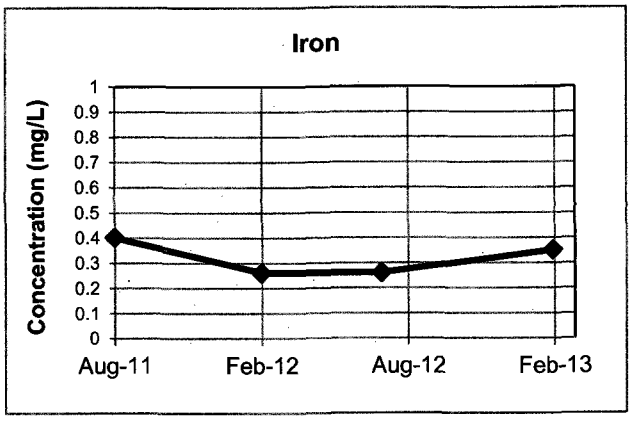

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

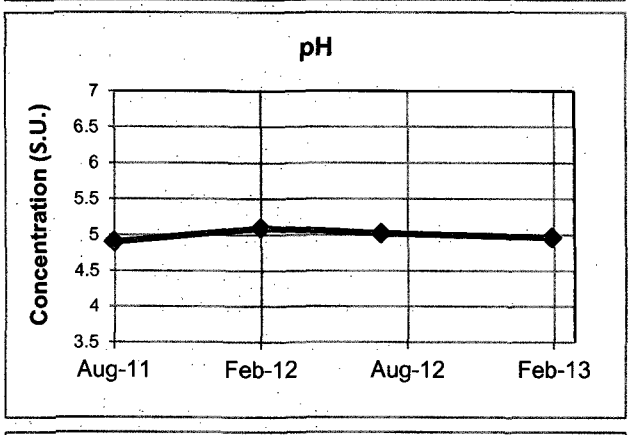

Specific Conductance
Concentration (uS/cm)
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

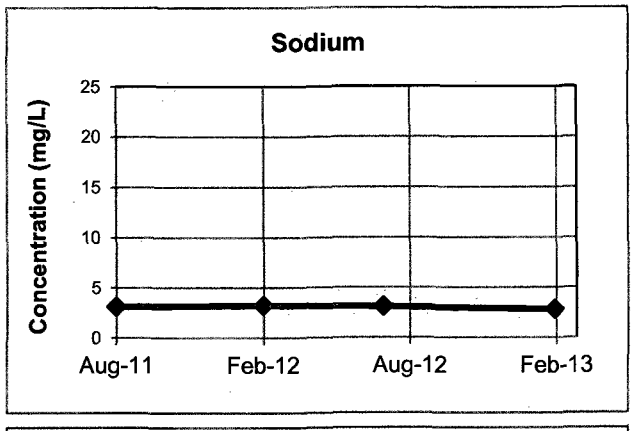

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

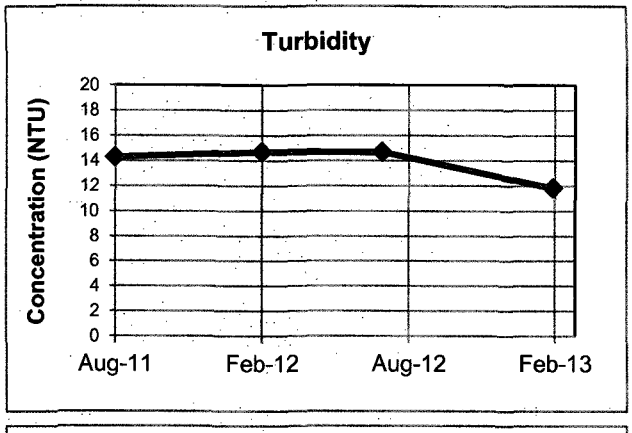
MWB-29(I)

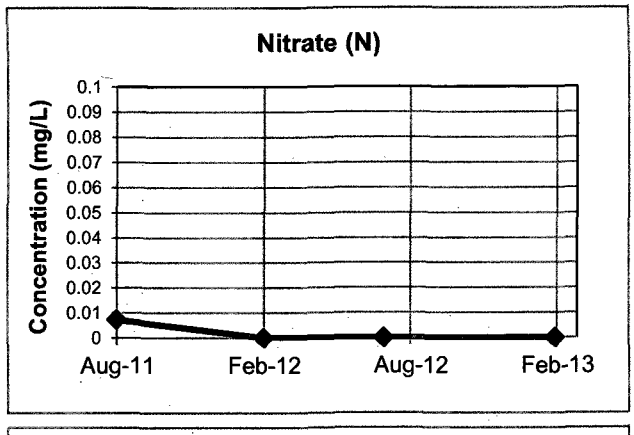

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

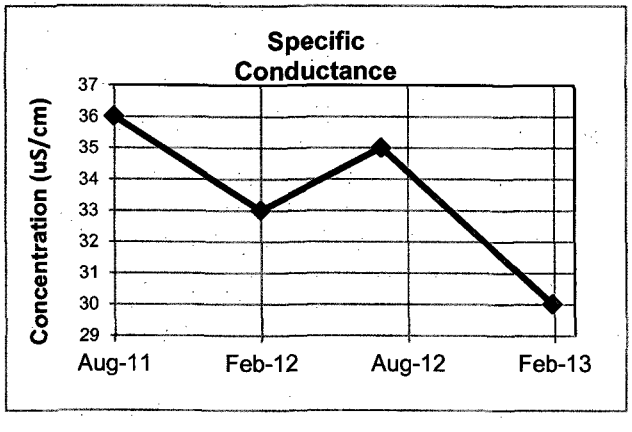

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

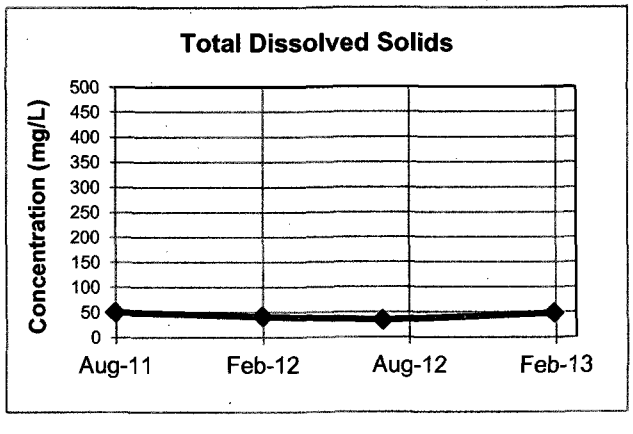

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

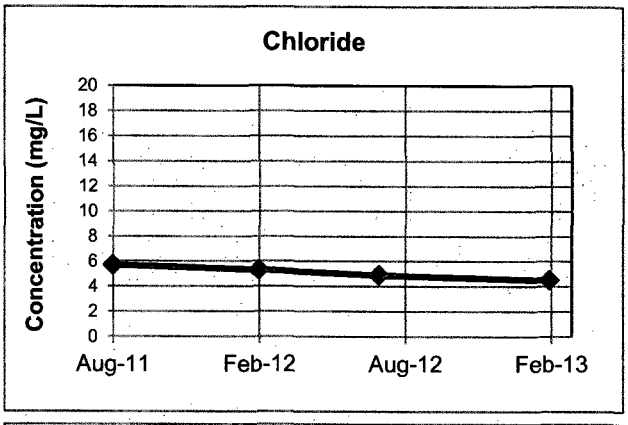

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

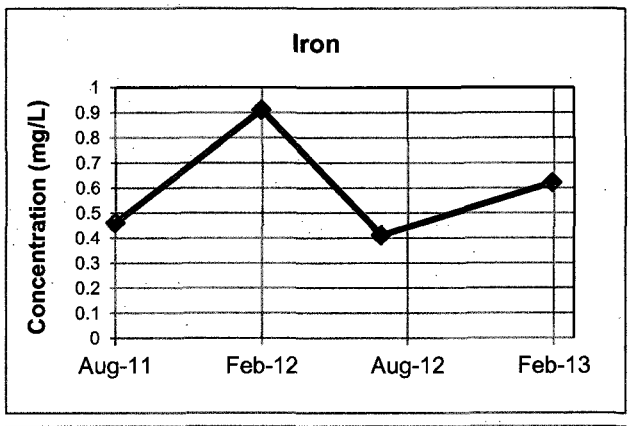

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

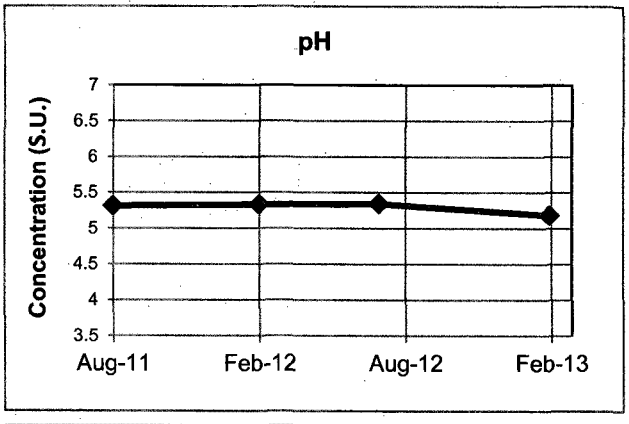

Specific Conductance
Concentration (uS/cm)
37
36
35
34
33
32
31
30
29
Aug-11
Feb-12
Aug-12
Feb-13

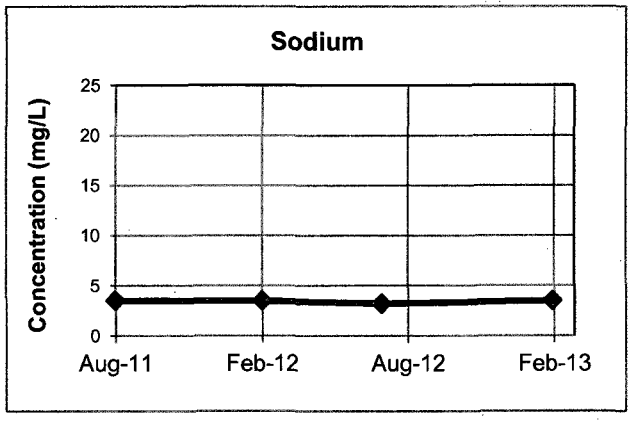

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

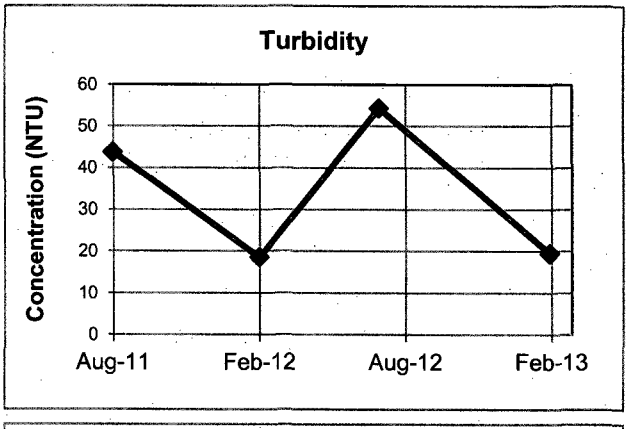
MWB-32(I)

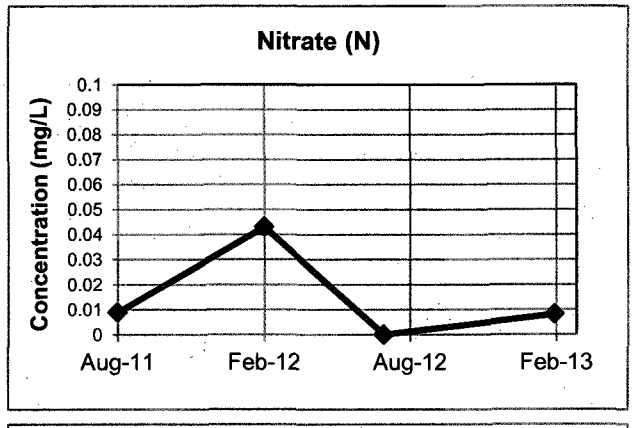

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

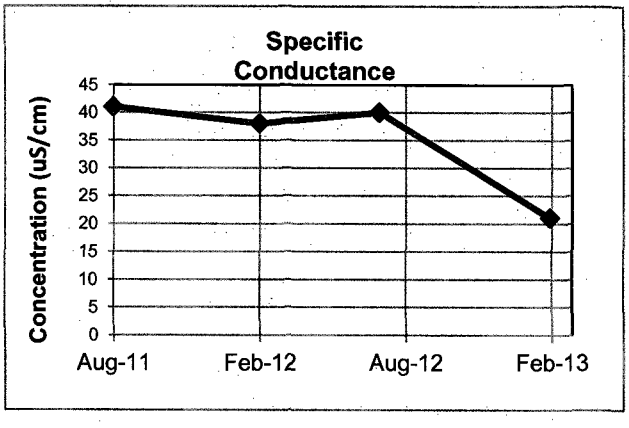

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

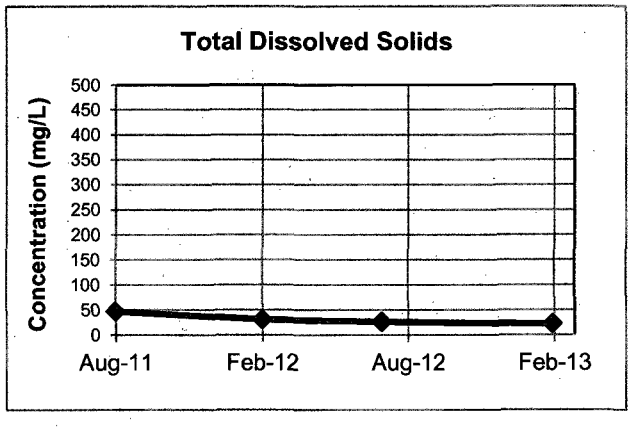

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

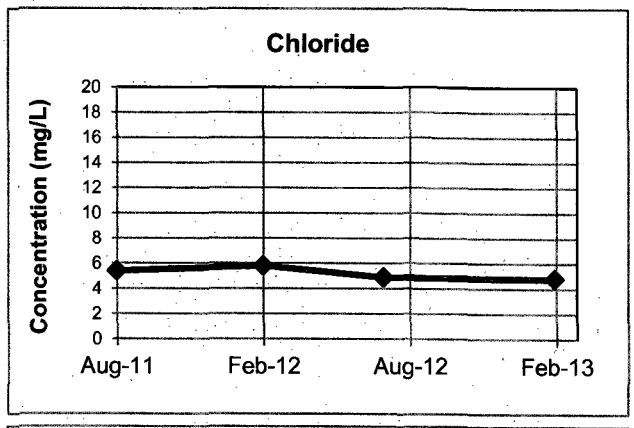

Turbidity
Concentration (NTU)
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

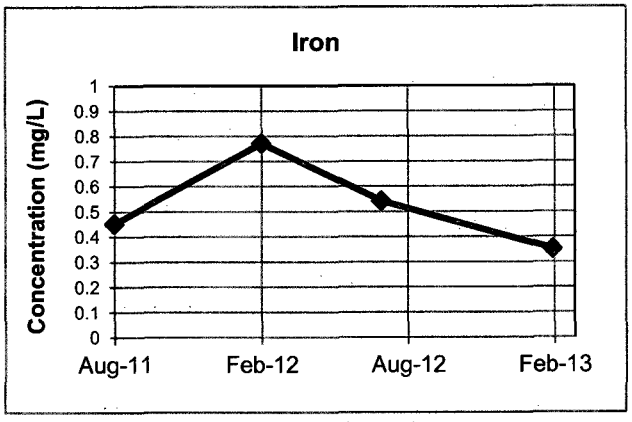

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

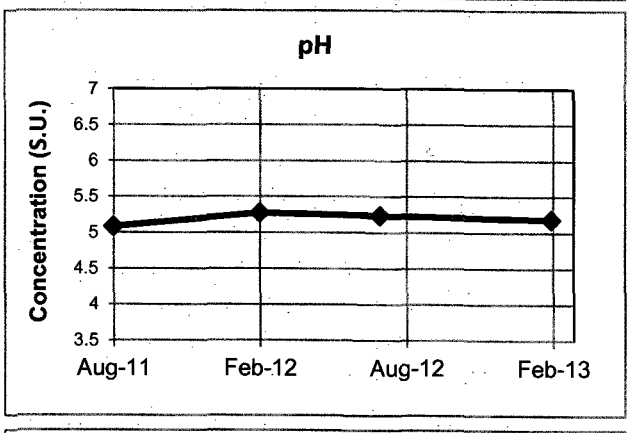

Specific Conductance
Concentration (uS/cm)
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

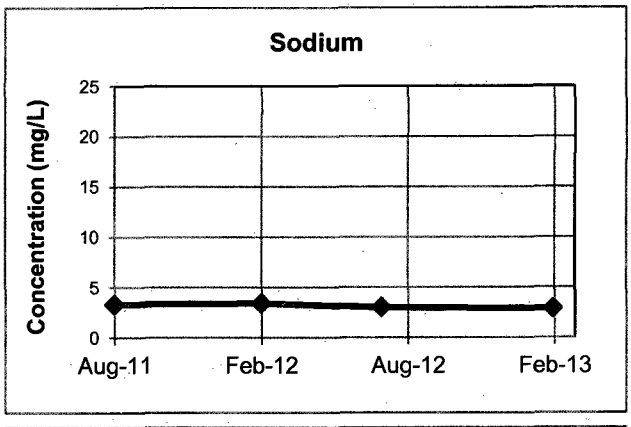

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

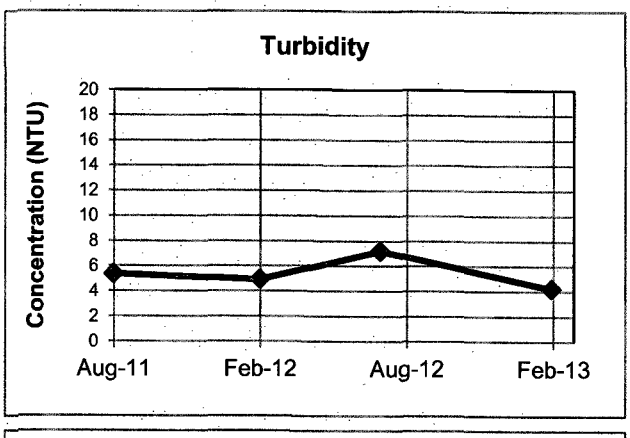
MWB-34(I)

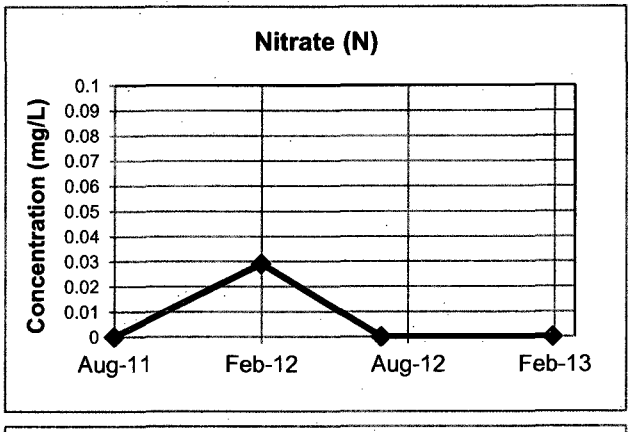

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

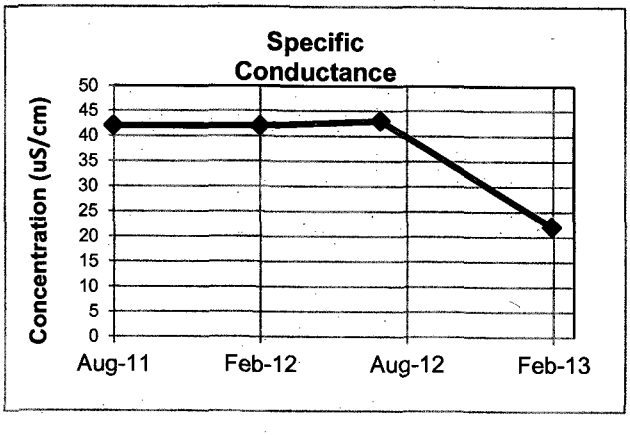

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

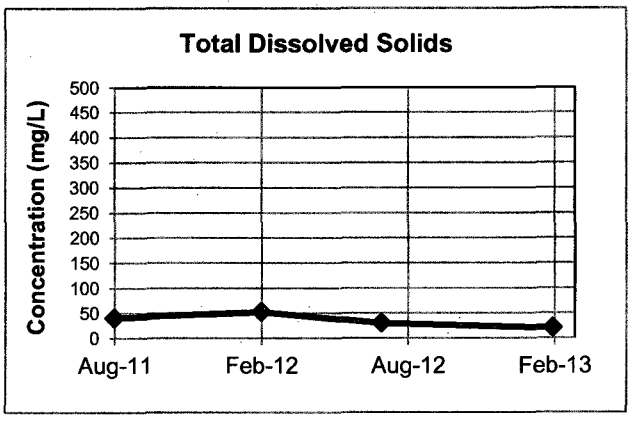

pH
Concentration (S.U.)
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

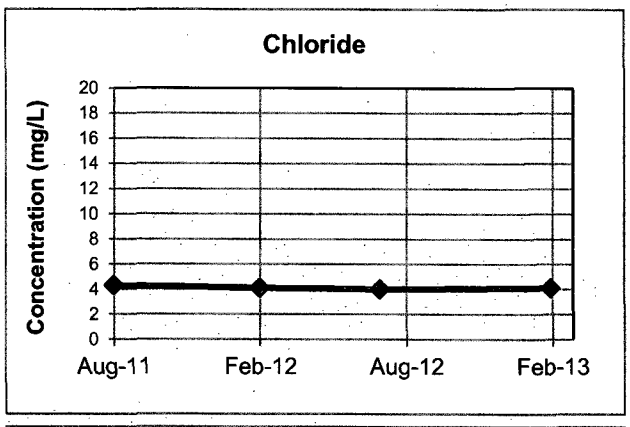

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

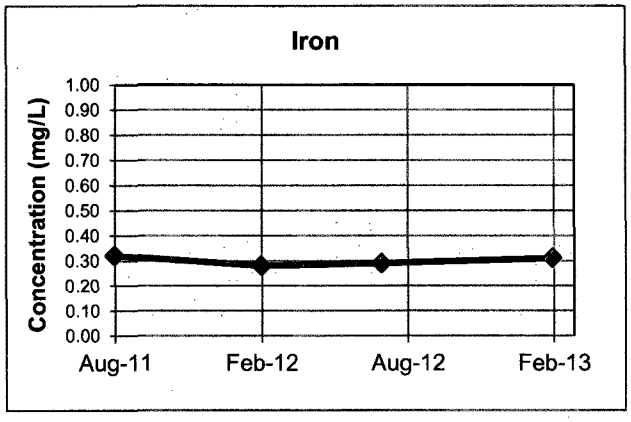

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

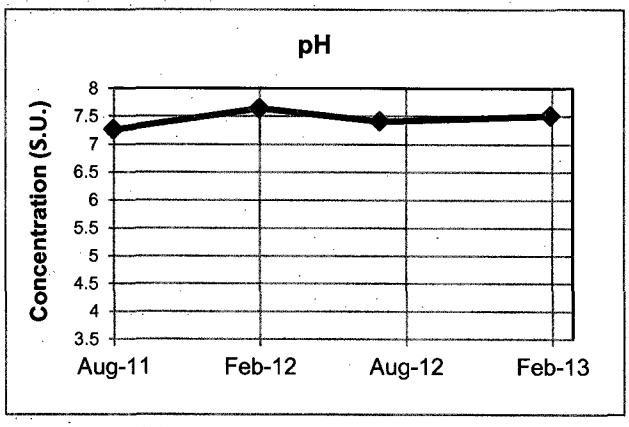

Specific Conductance
Concentration (uS/cm)
50
45
40
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

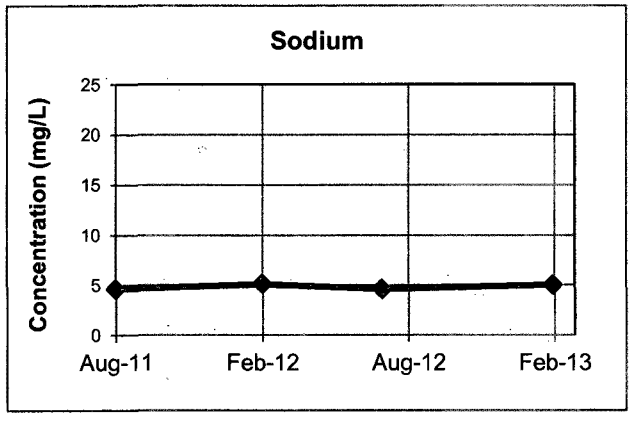

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

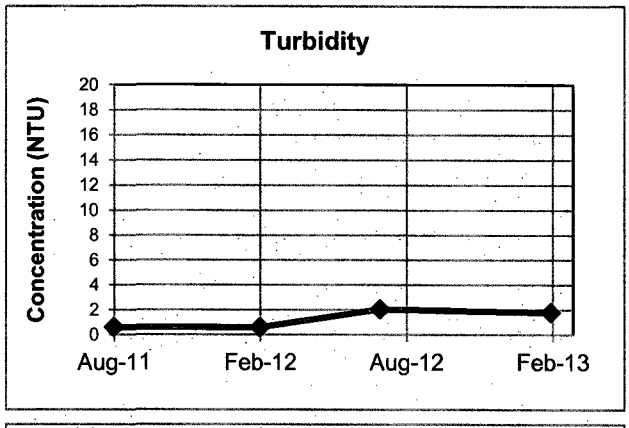
MWB-7(D)

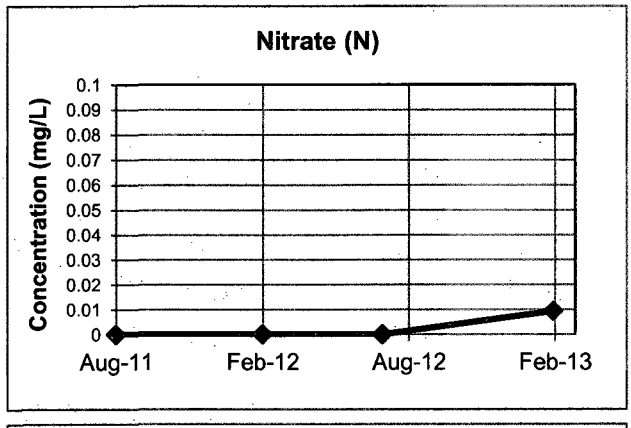

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

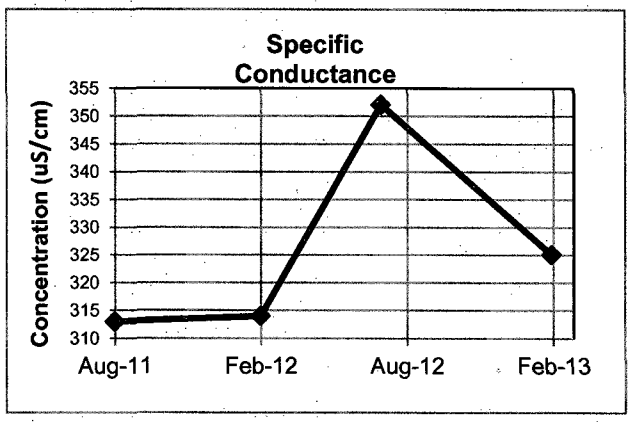

Iron
Concentration (mg/L)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Aug-11
Feb-12
Aug-12
Feb-13

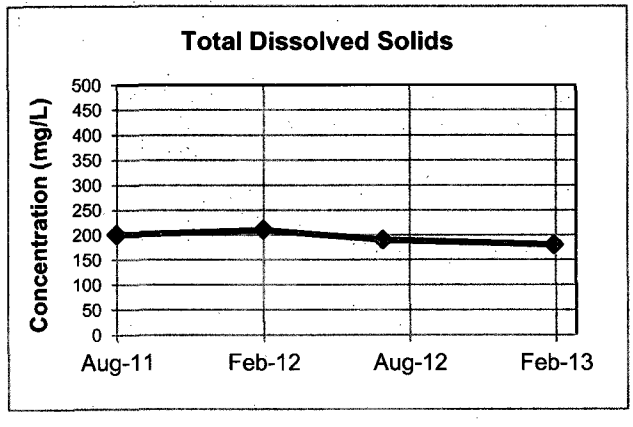

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

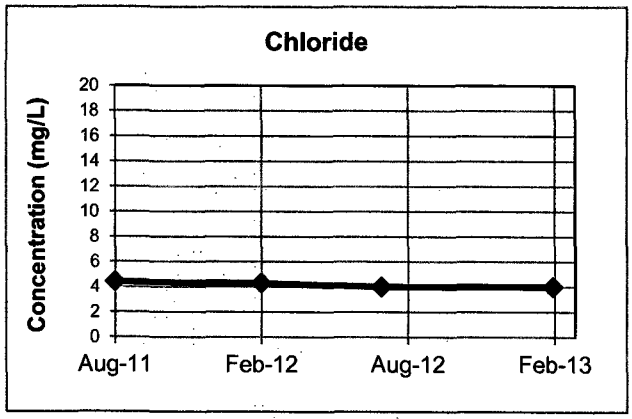

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

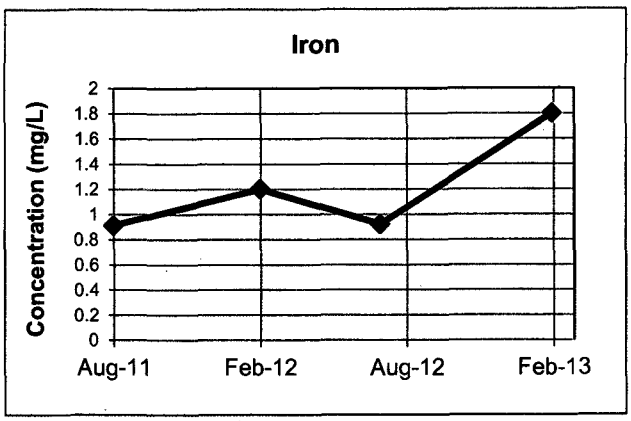

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

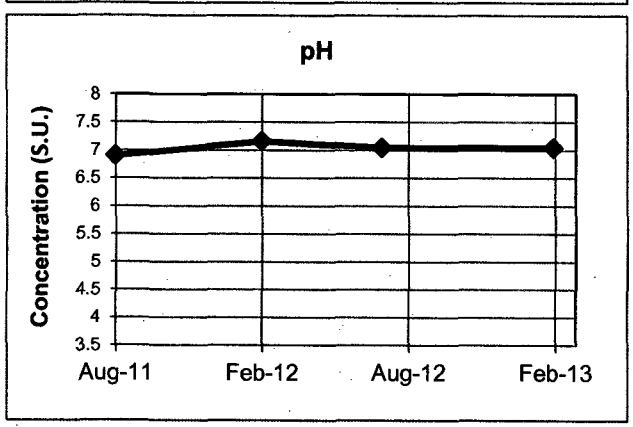

Specific Conductance
Concentration (uS/cm)
355
350
345
340
335
330
325
320
315
310
Aug-11
Feb-12
Aug-12
Feb-13

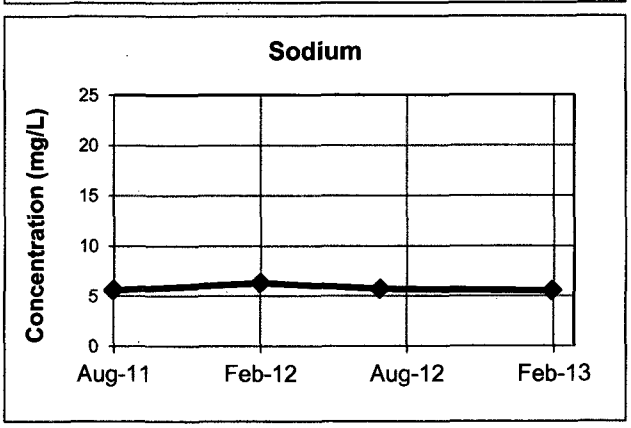

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

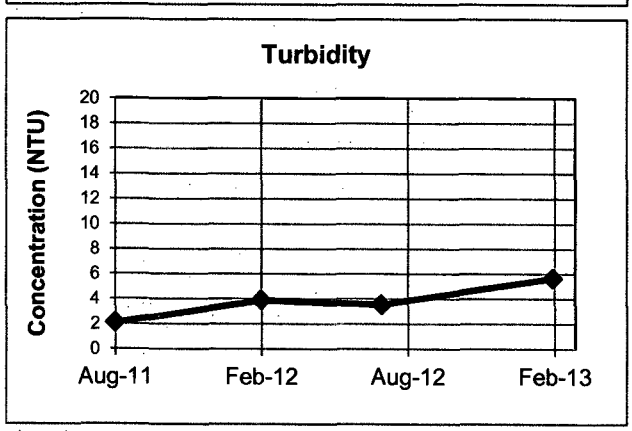
MWB-12(D)

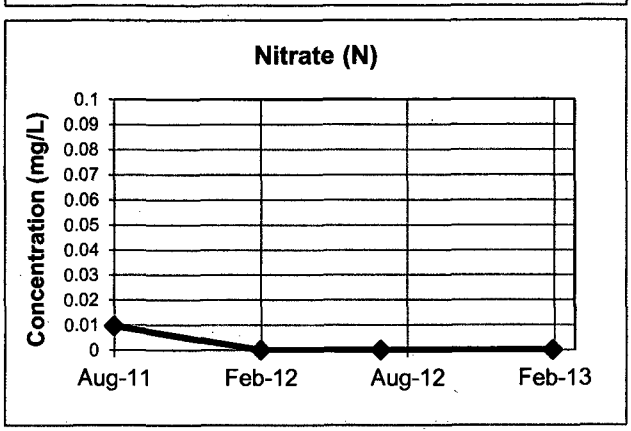

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

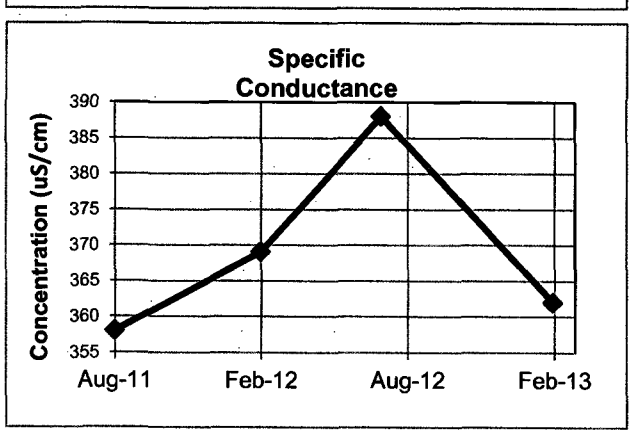

Iron
Concentration (mg/L)
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Aug-11
Feb-12
Aug-12
Feb-13

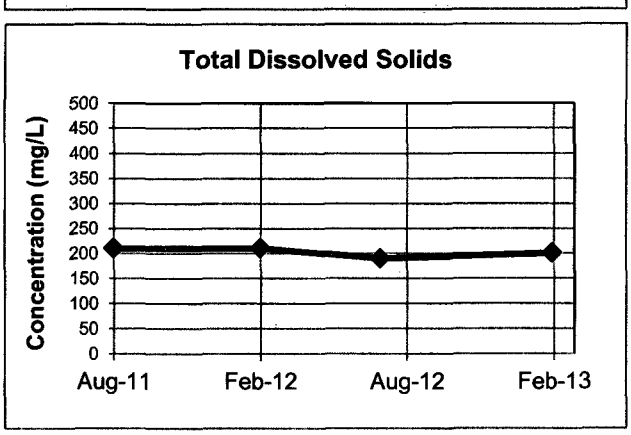

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

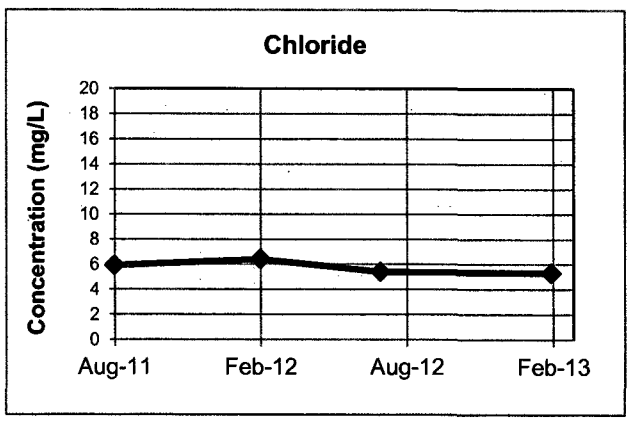

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

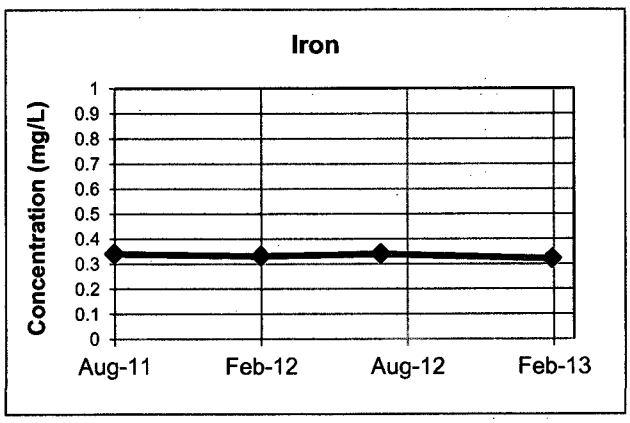

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

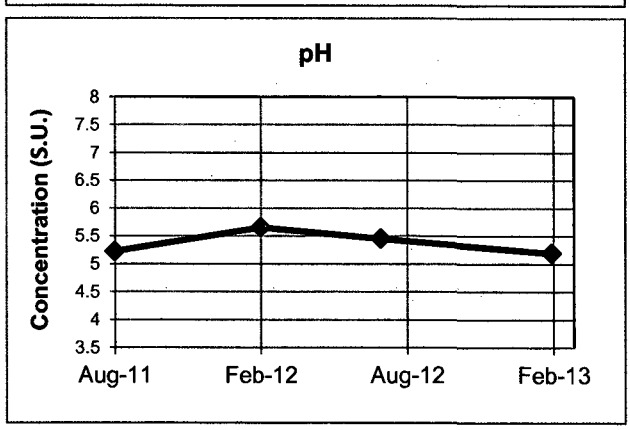

Specific Conductance
Concentration (uS/cm)
390
385
380
375
370
365
360
355
Aug-11
Feb-12
Aug-12
Feb-13

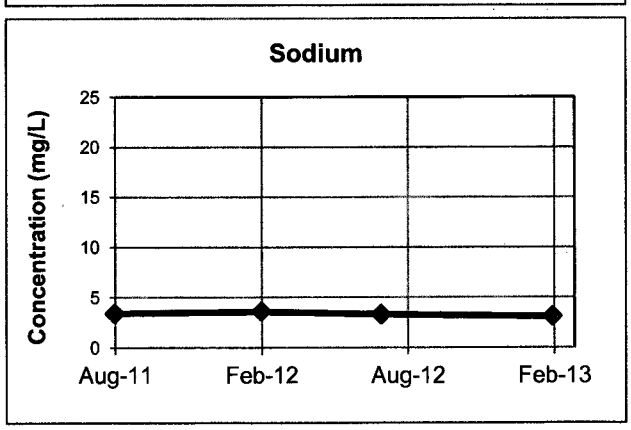

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

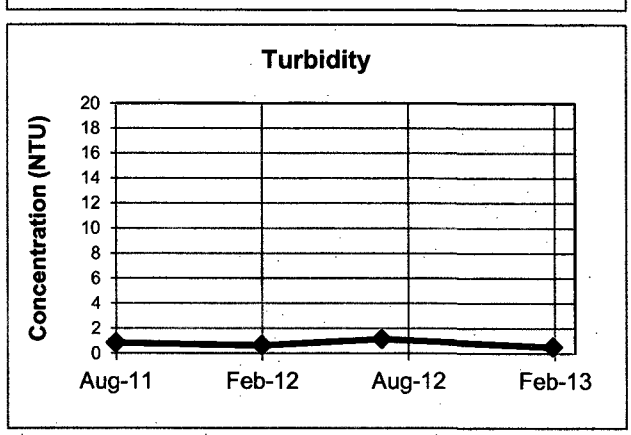
MWB-17(D)

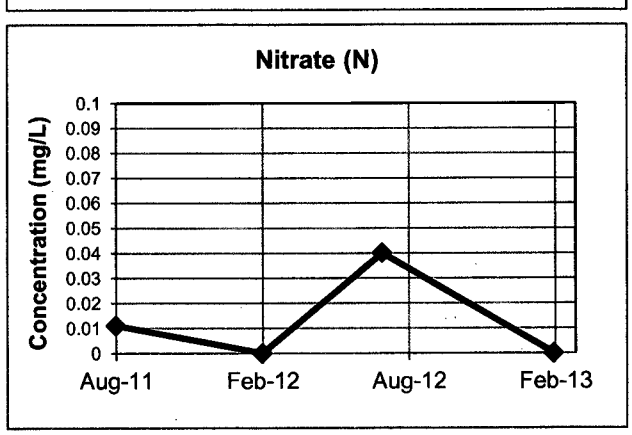

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

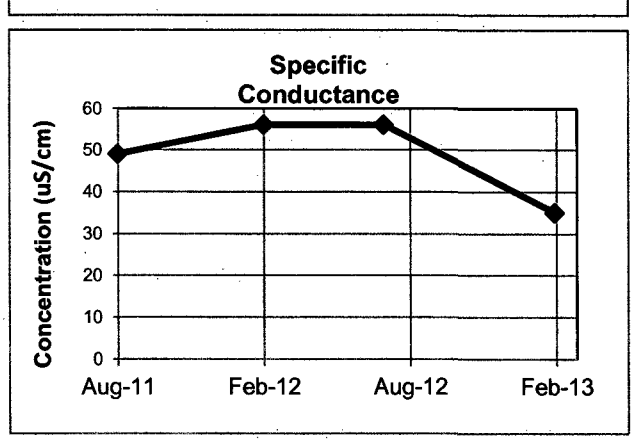

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

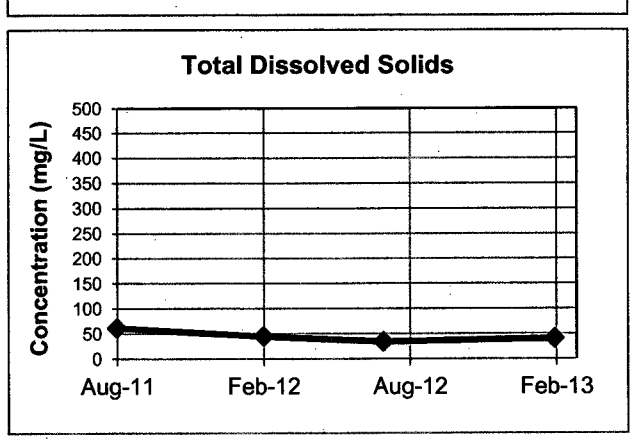

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

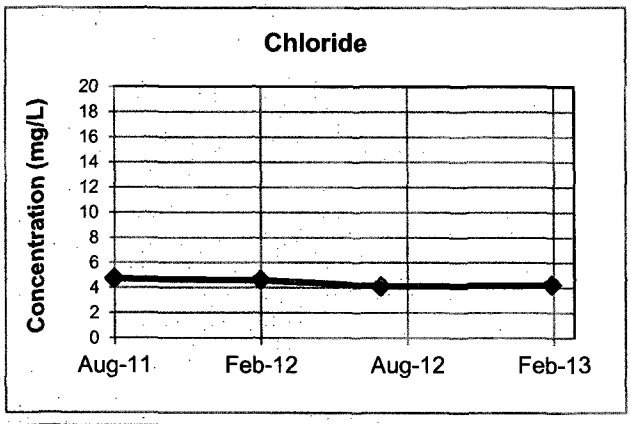

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

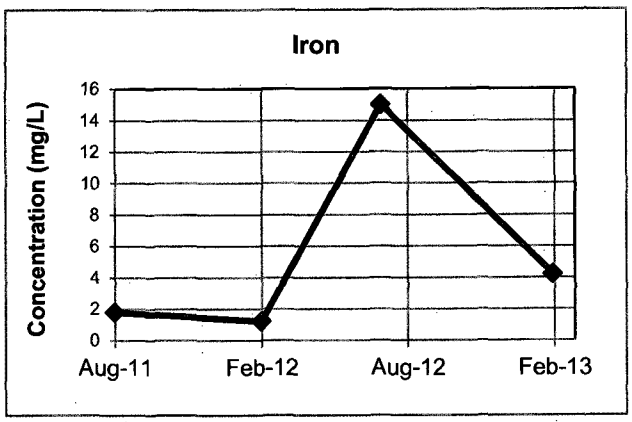

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

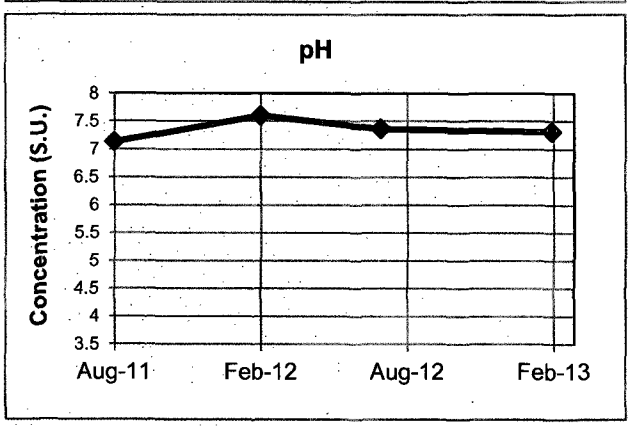

Specific Conductance
Concentration (uS/cm)
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

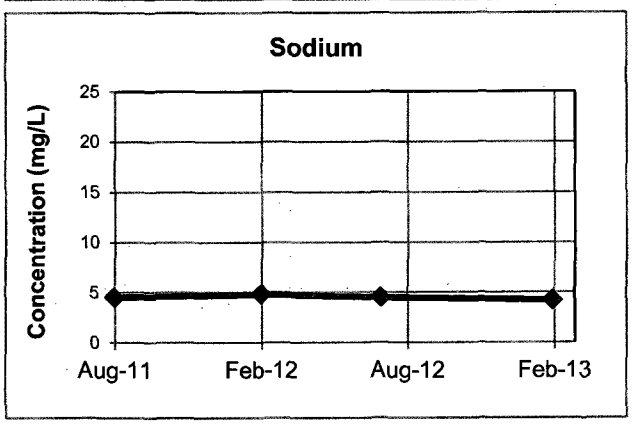

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

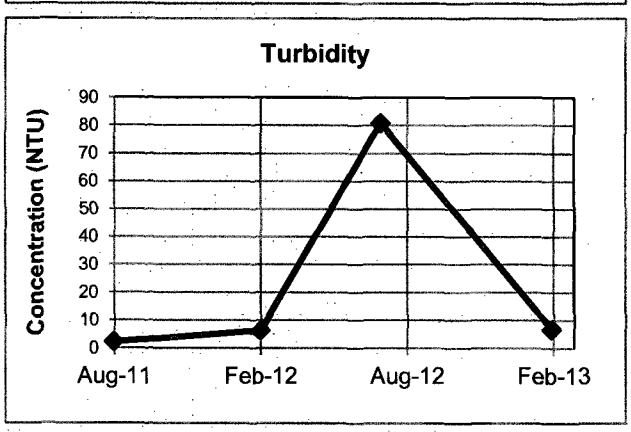
MWB-19(D)

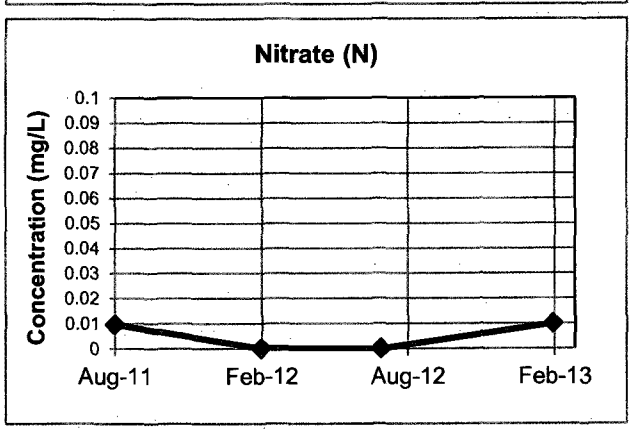

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

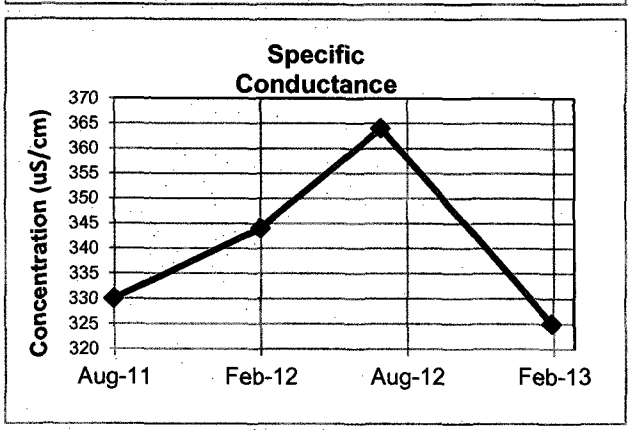

Iron
Concentration (mg/L)
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

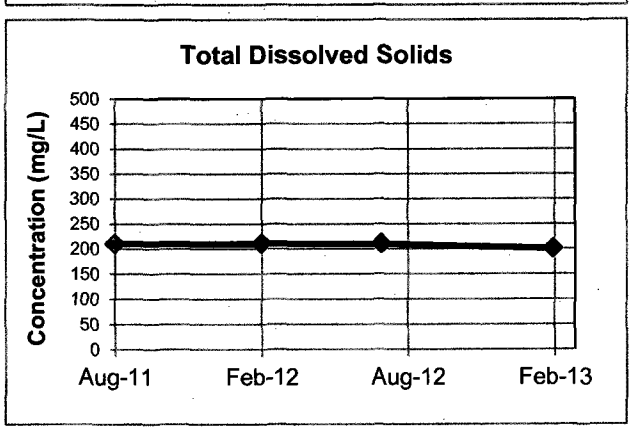

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

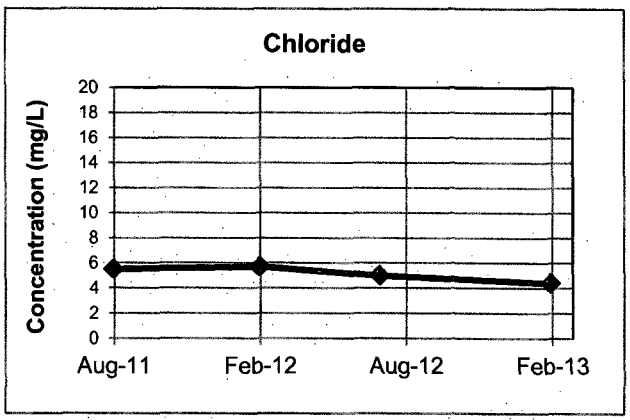

Turbidity
Concentration (NTU)
90
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

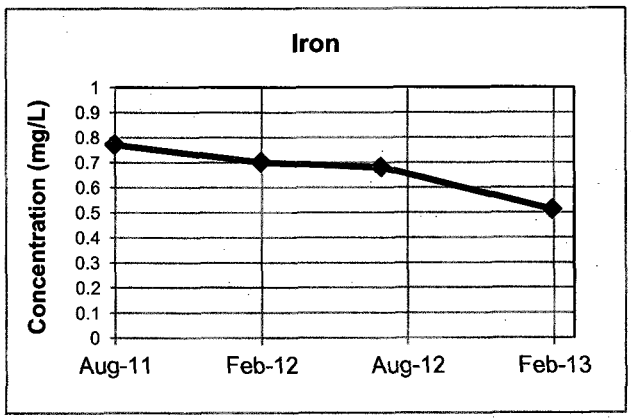

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

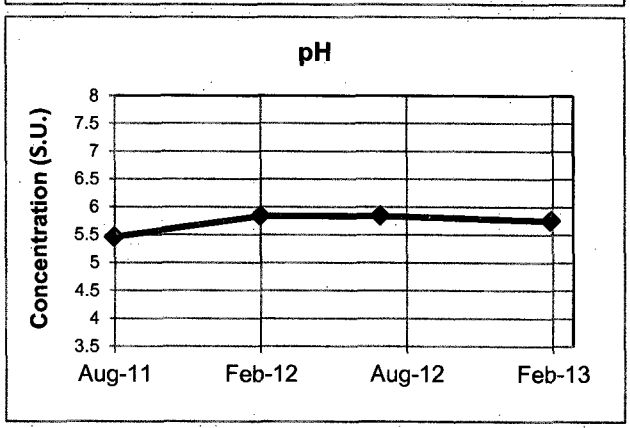

Specific Conductance
Concentration (uS/cm)
370
365
360
355
350
345
340
335
330
325
320
Aug-11
Feb-12
Aug-12
Feb-13

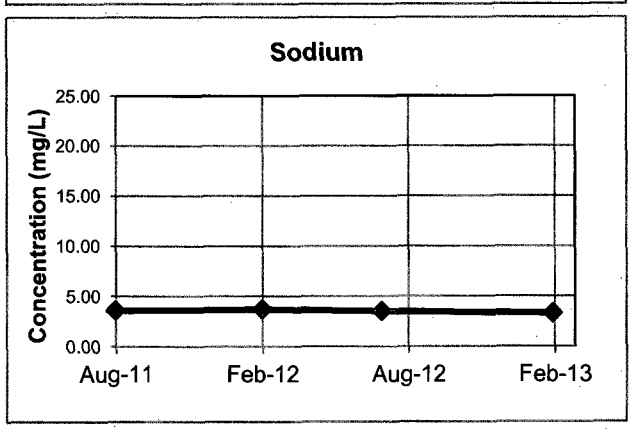

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

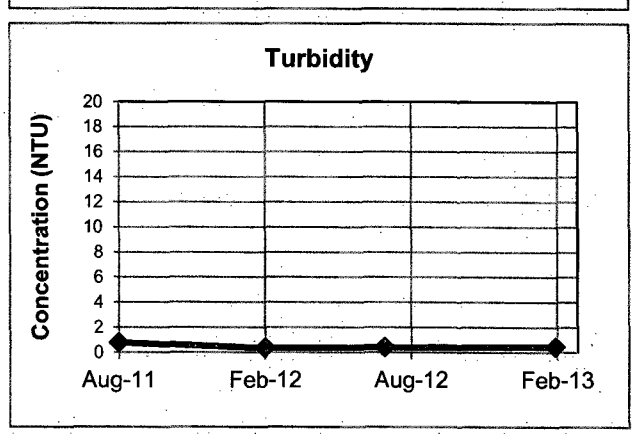
MWB-27(D)

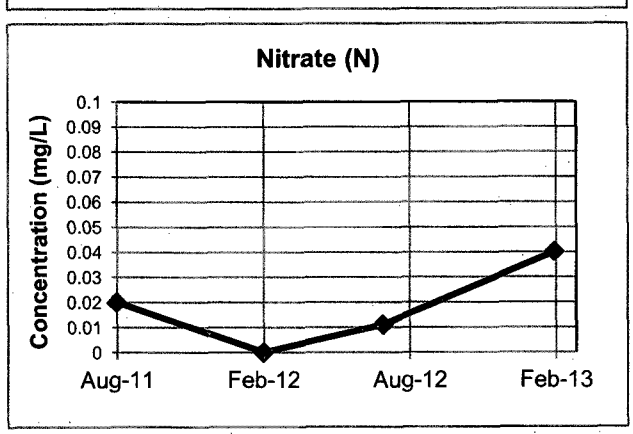

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

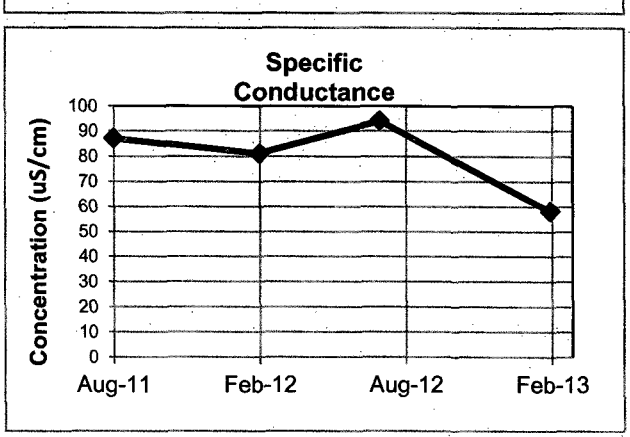

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

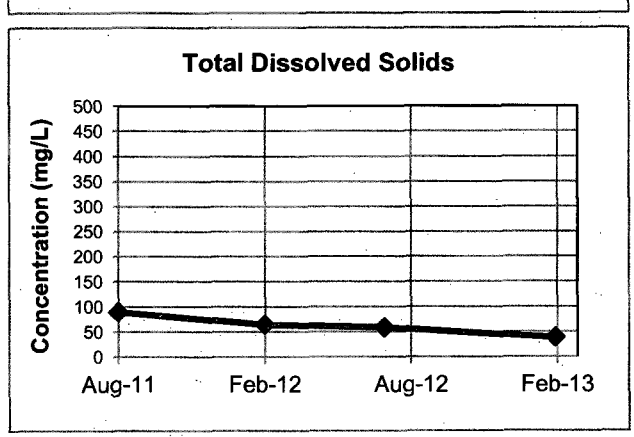

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25.00
20.00
15.00
10.00
5.00
0.00
Aug-11
Feb-12
Aug-12
Feb-13

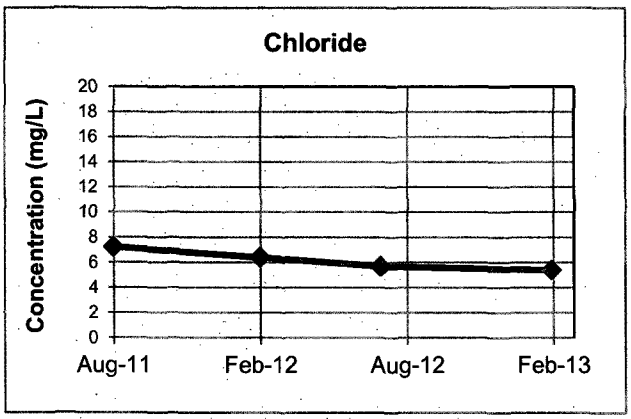

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

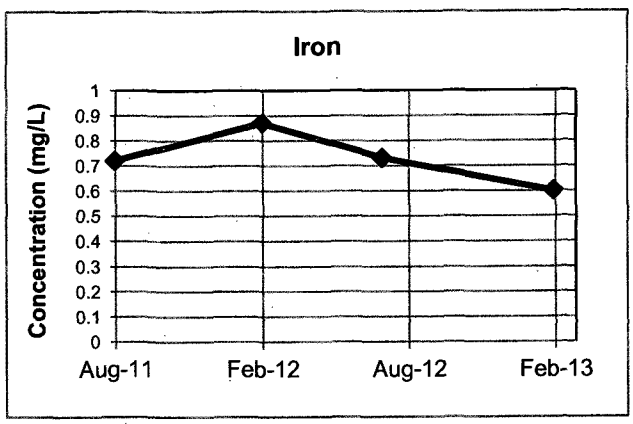

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

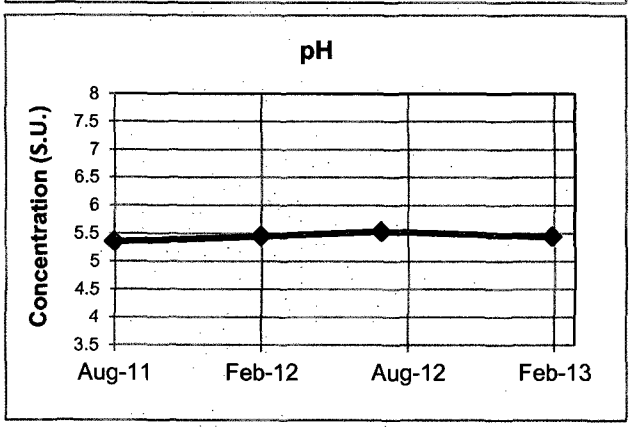

Specific Conductance
Concentration (uS/cm)
100
90
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

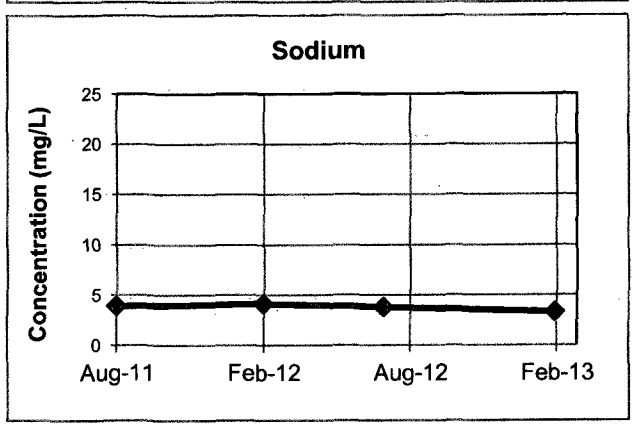

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

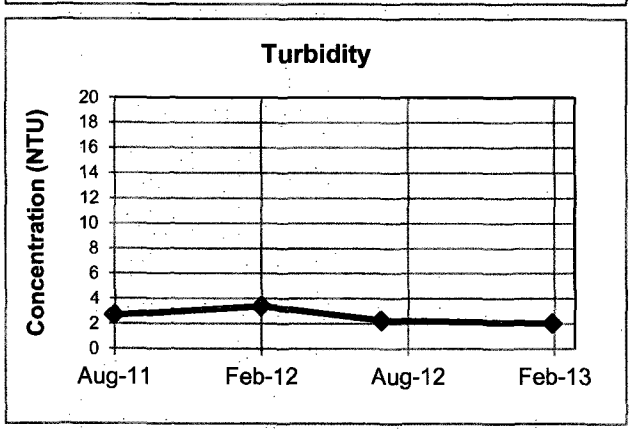
MWB-29(D)

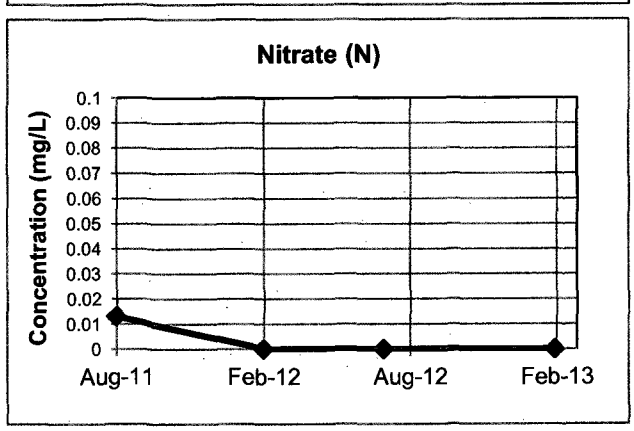

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

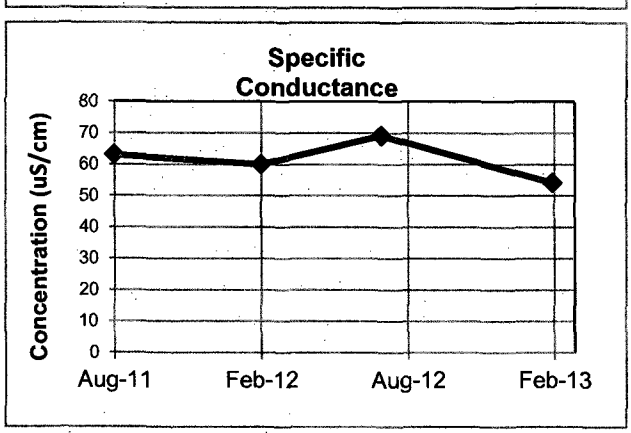

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

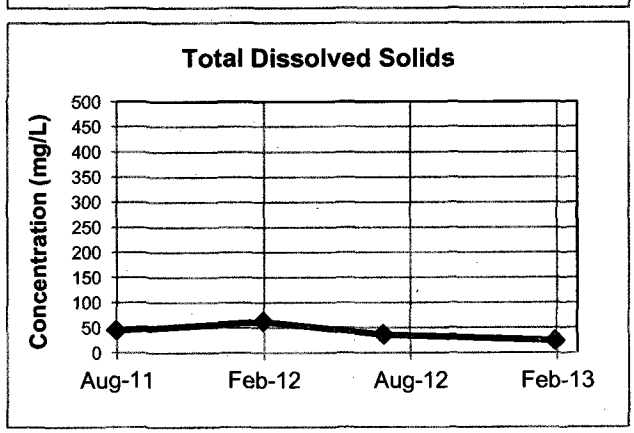

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

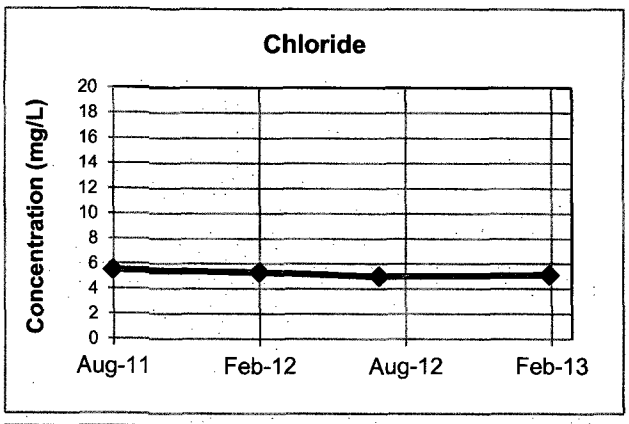

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

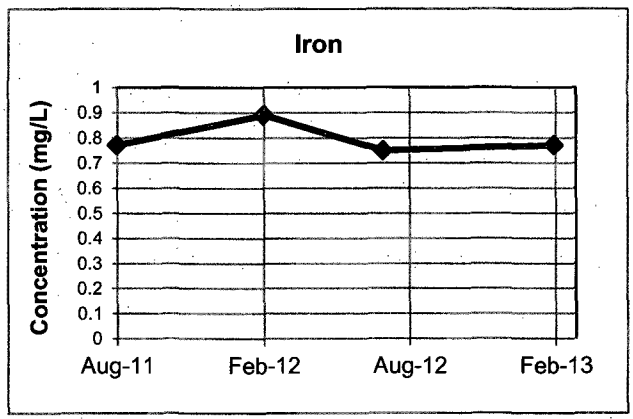

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

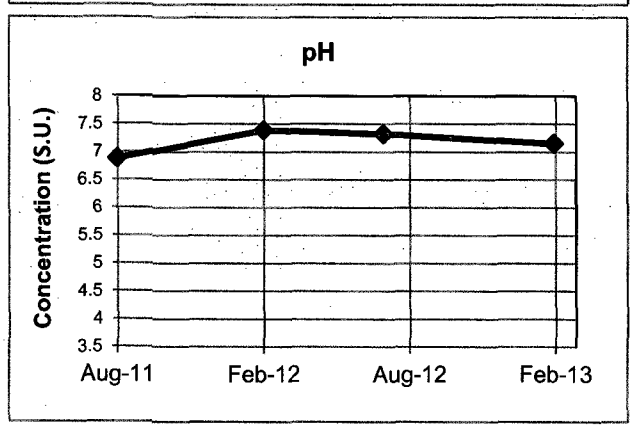

Specific Conductance
Concentration (uS/cm)
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

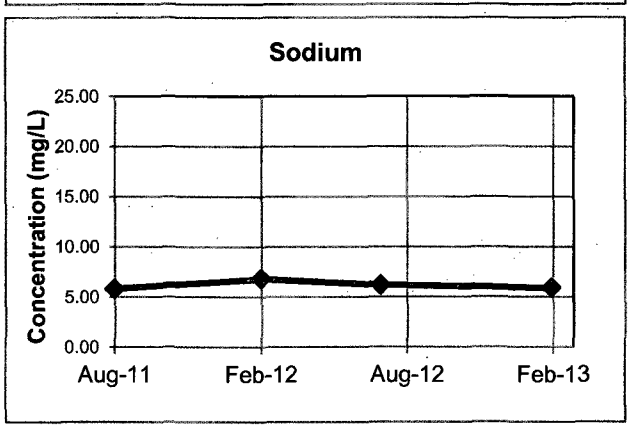

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

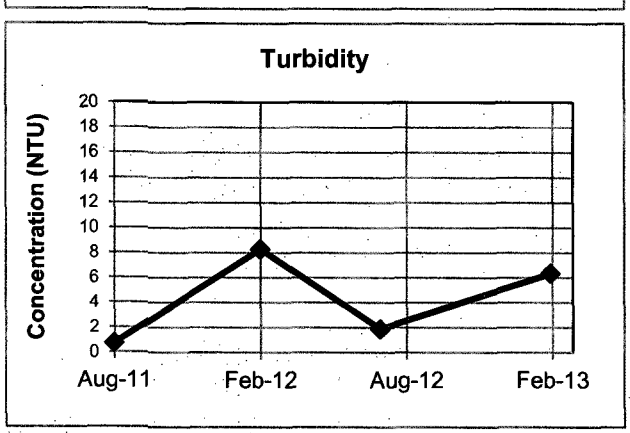
MWB-31(D)

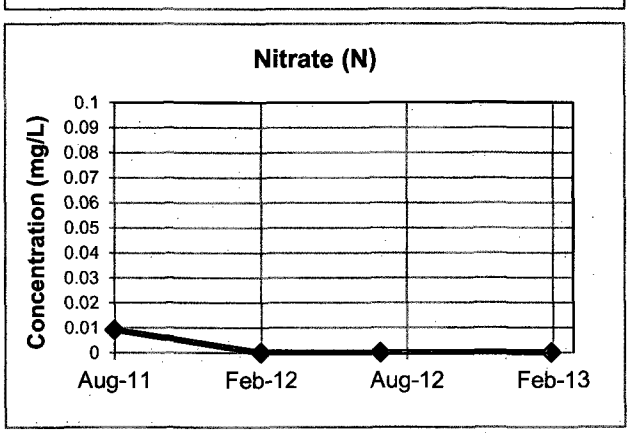

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

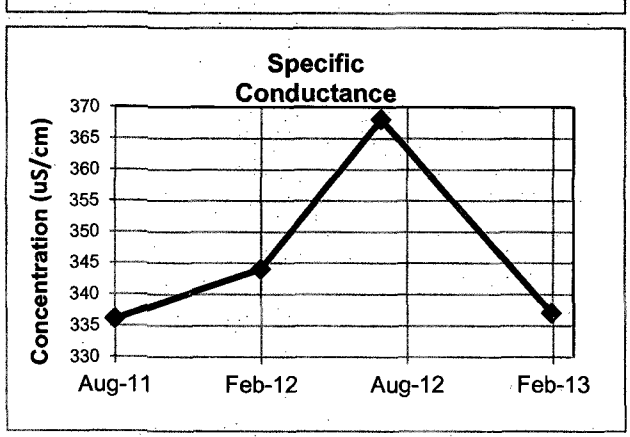

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

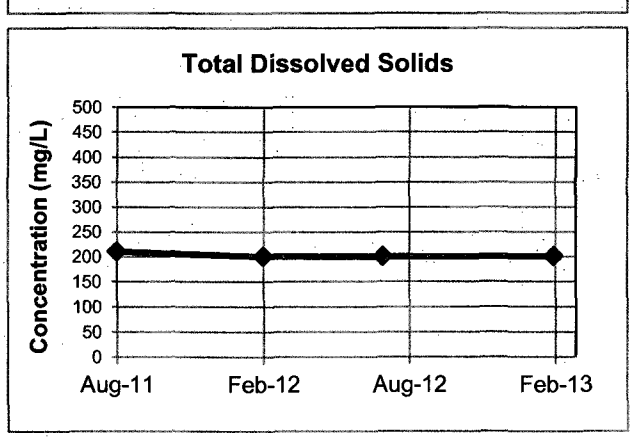

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25.00
20.00
15.00
10.00
5.00
0.00
Aug-11
Feb-12
Aug-12
Feb-13

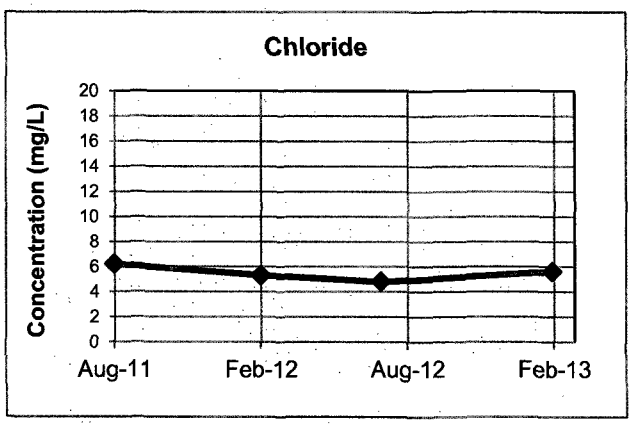

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

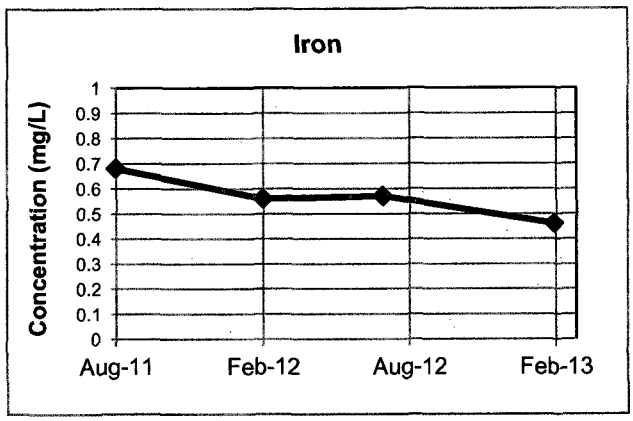

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

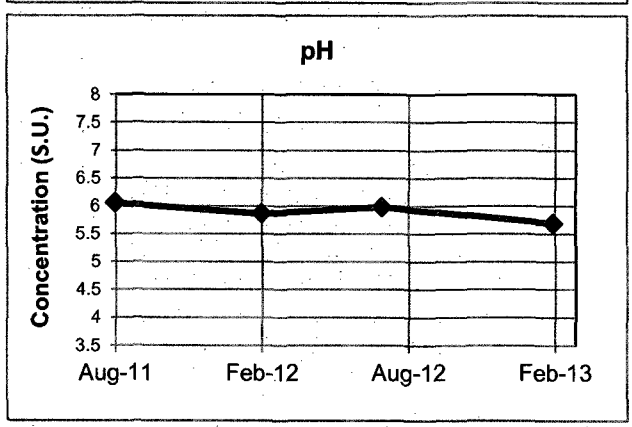

Specific Conductance
Concentration (uS/cm)
370
365
360
355
350
345
340
335
330
Aug-11
Feb-12
Aug-12
Feb-13

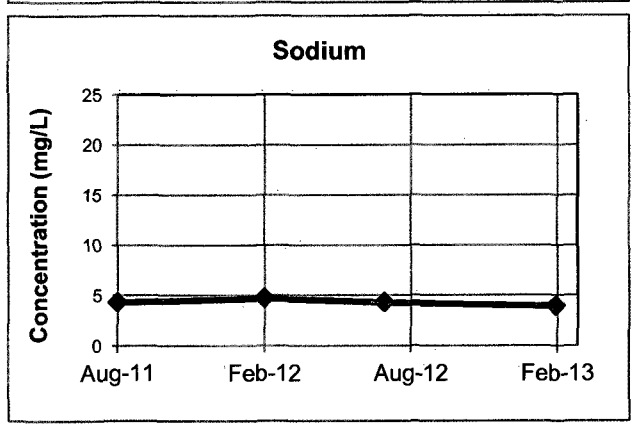

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

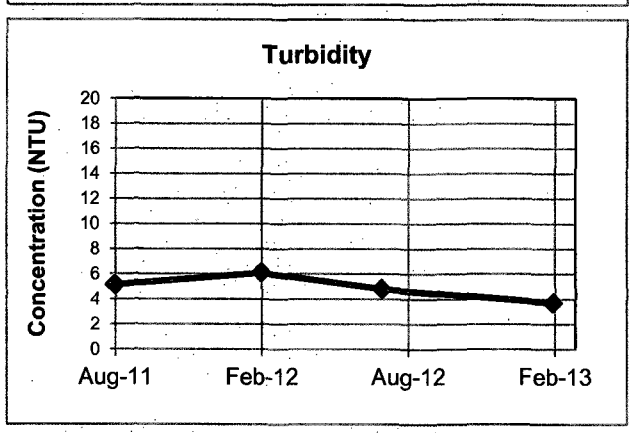
MWB-32(D)

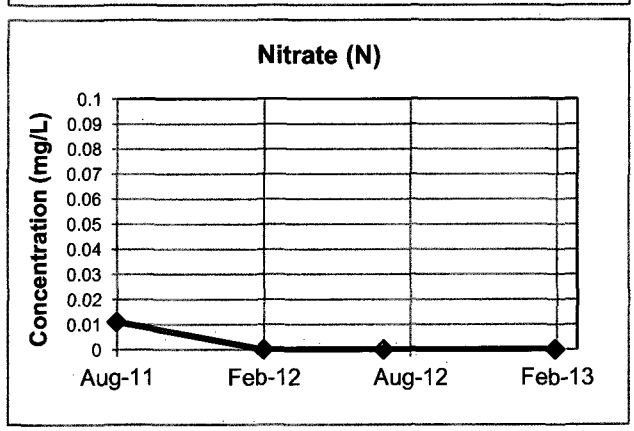

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

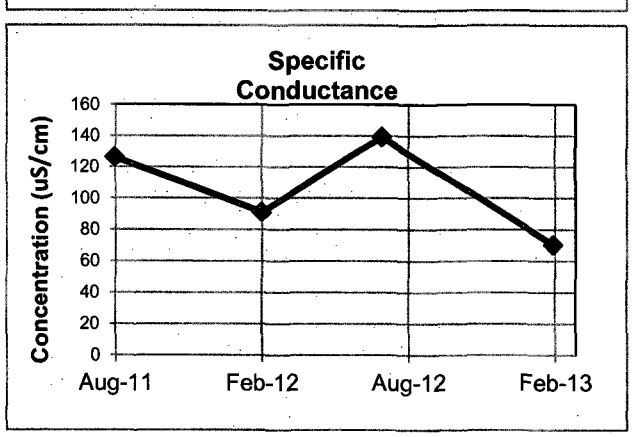

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

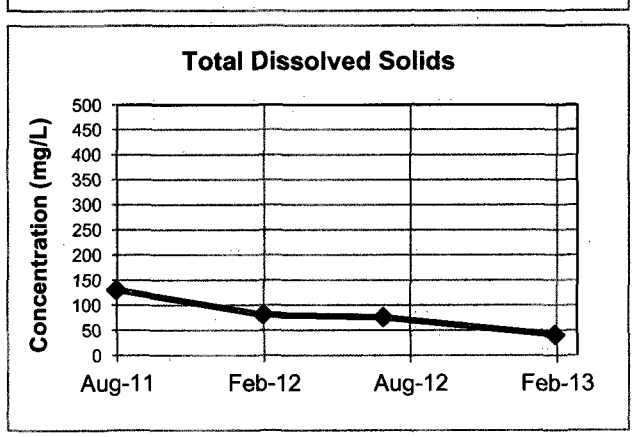

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

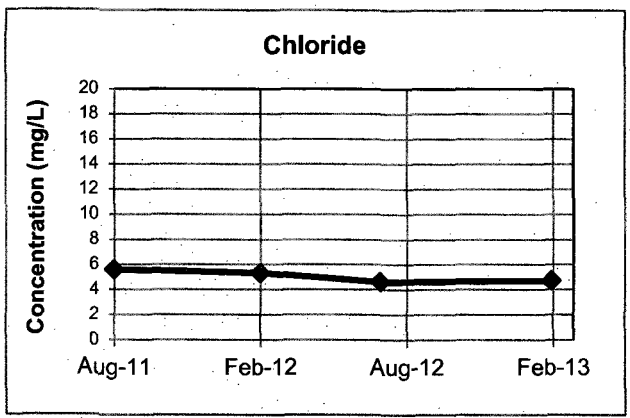

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

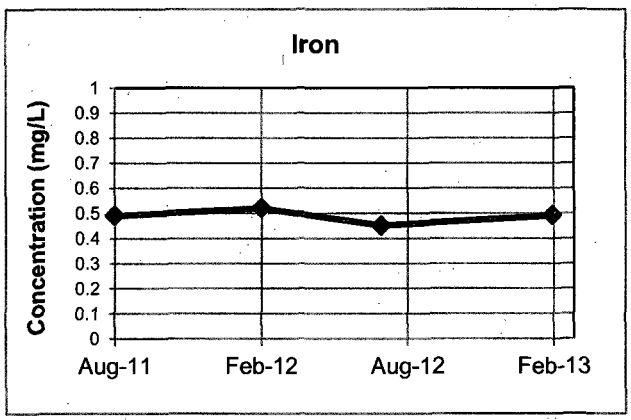

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

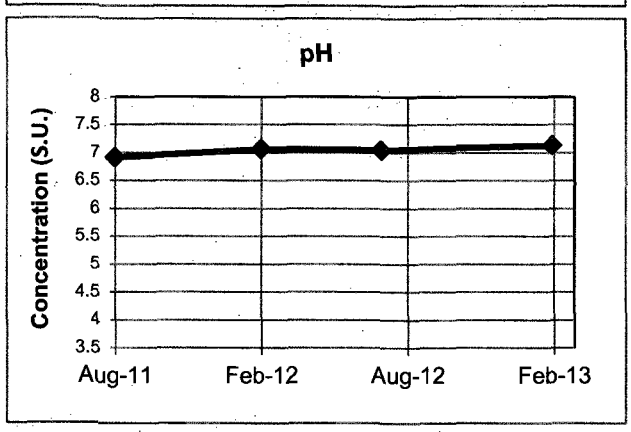

Specific Conductance
Concentration (uS/cm)
160
140
120
100
80
60
40
20
0
Aug-11
Feb-12
Aug-12
Feb-13

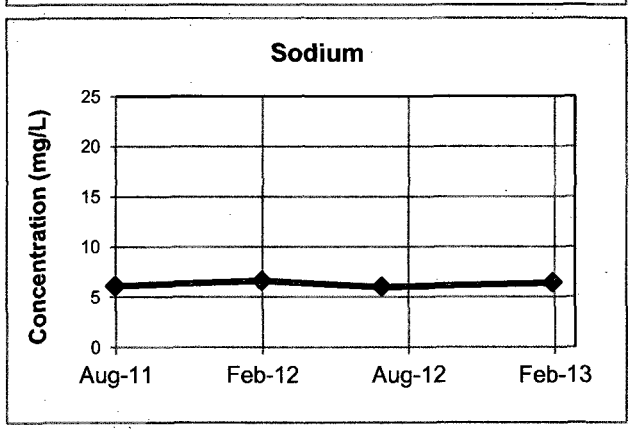

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

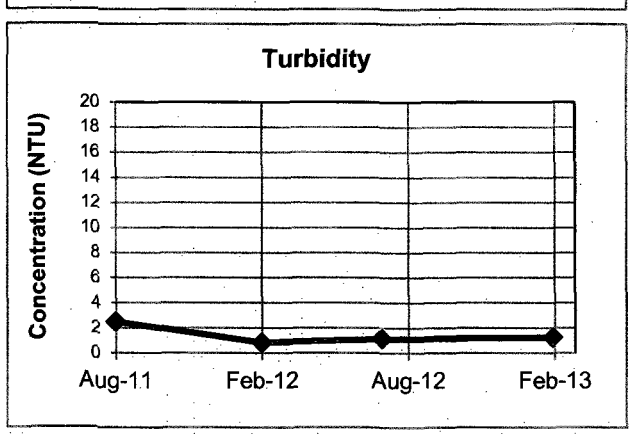
MWB-34(D)

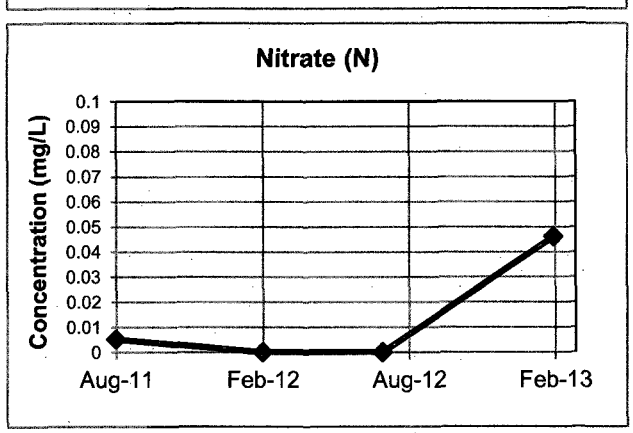

Chloride
Concentration (mg/L)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

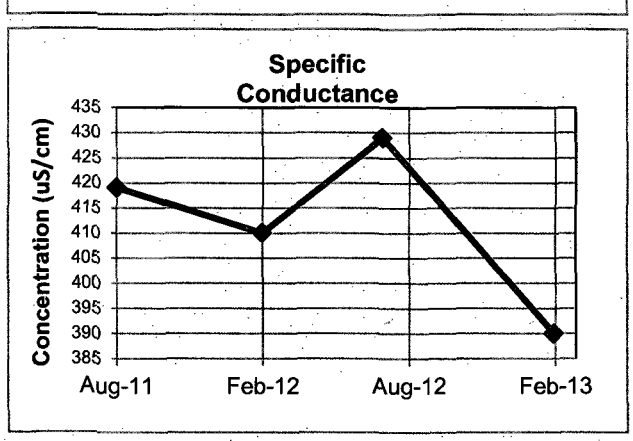

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13

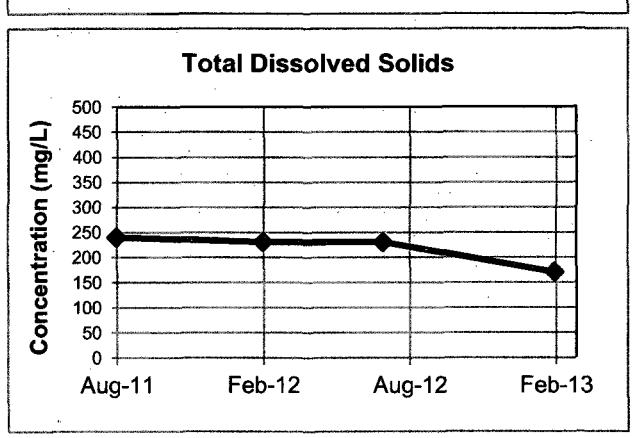

pH
Concentration (S.U.)
8
7.5
7
6.5
6
5.5
5
4.5
4
3.5
Aug-11
Feb-12
Aug-12
Feb-13


Sodium
Concentration (mg/L)
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

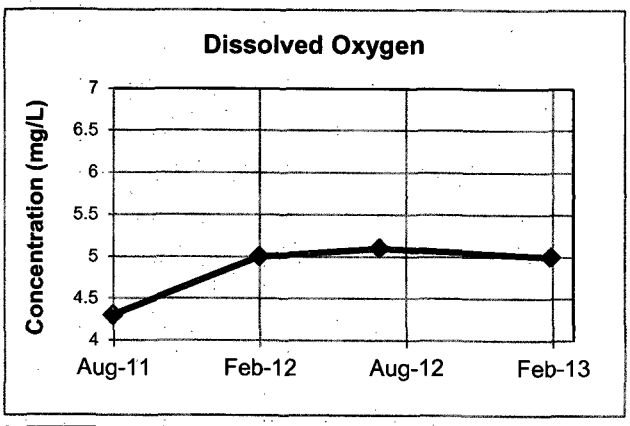

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

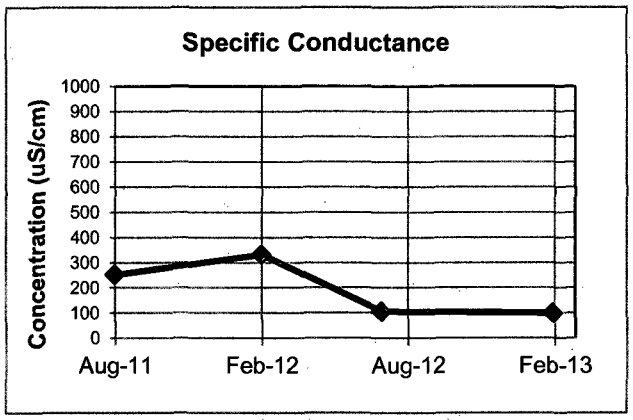

Nitrate (N)
Concentration (mg/L)
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
Aug-11
Feb-12
Aug-12
Feb-13

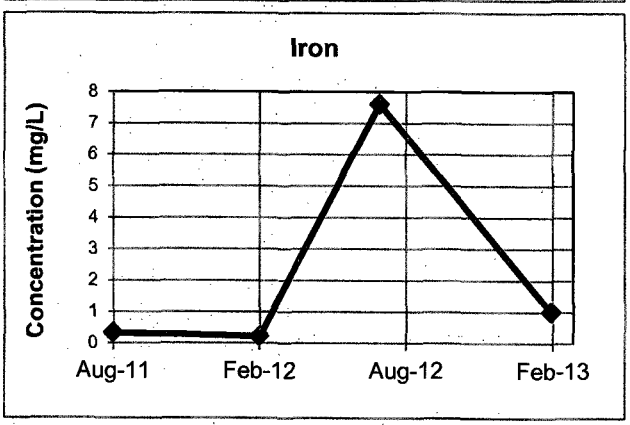

Specific Conductance
Concentration (uS/cm)
435
430
425
420
415
410
405
400
395
390
385
Aug-11
Feb-12
Aug-12
Feb-13

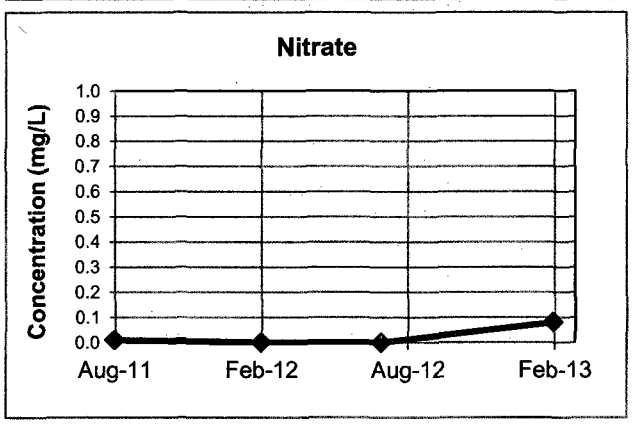

Total Dissolved Solids
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

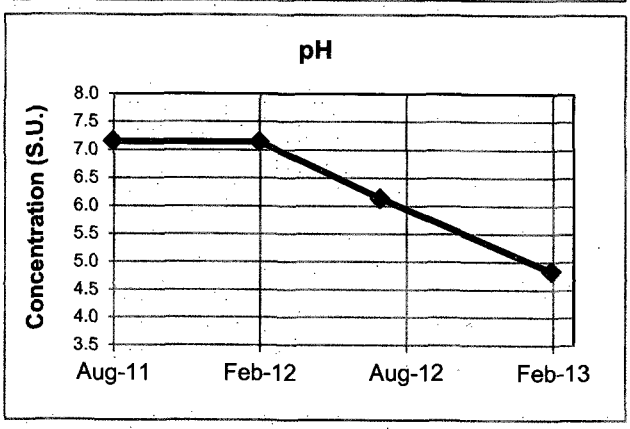
SW-1

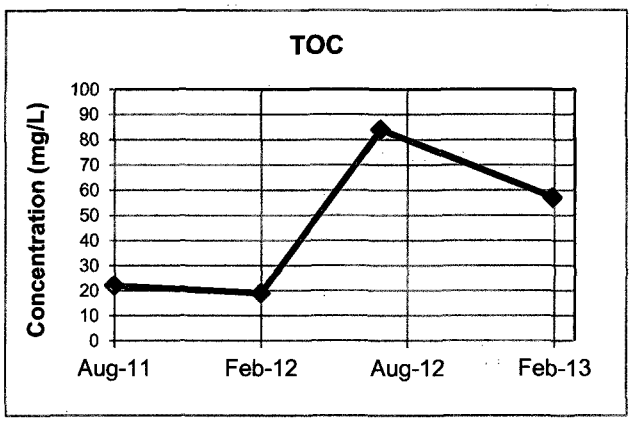

Dissolved Oxygen
Concentration (mg/L)
7
6.5
6
5.5
5
4.5
4
Aug-11
Feb-12
Aug-12
Feb-13

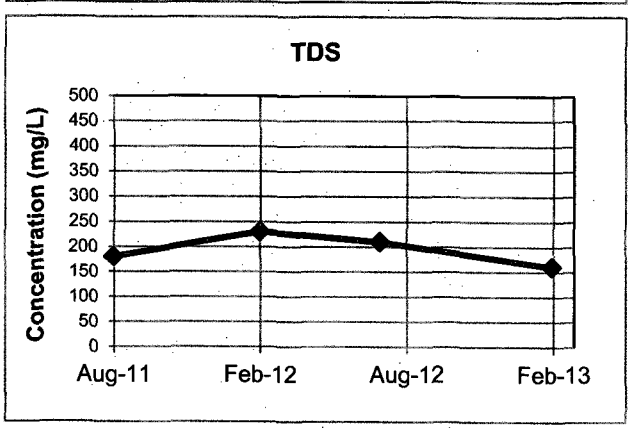

Specific Conductance
Concentration (uS/cm)
1000
900
800
700
600
500
400
300
200
100
0
Aug-11
Feb-12
Aug-12
Feb-13

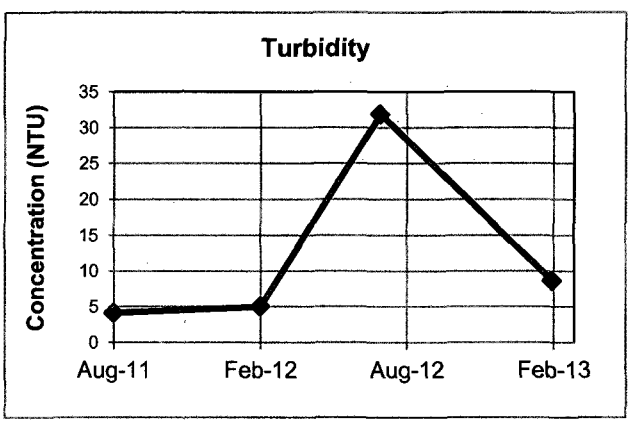

Iron
Concentration (mg/L)
8
7
6
5
4
3
2
1
0
Aug-11
Feb-12
Aug-12
Feb-13


Nitrate
Concentration (mg/L)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Aug-11
Feb-12
Aug-12
Feb-13

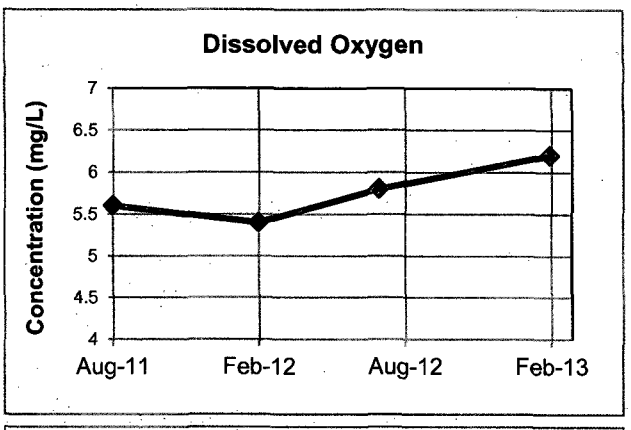

pH
Concentration (S.U.)
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
Aug-11
Feb-12
Aug-12
Feb-13

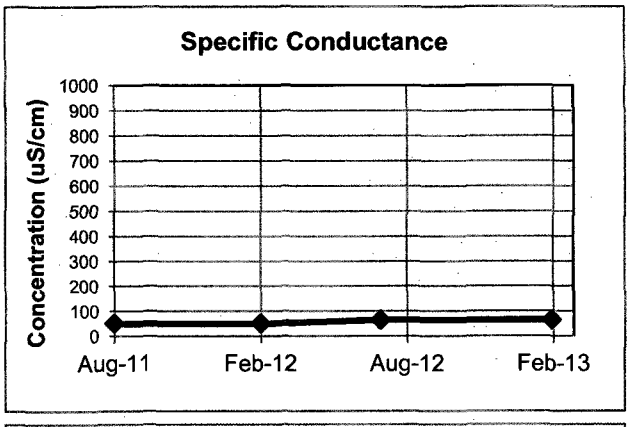

TOC
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

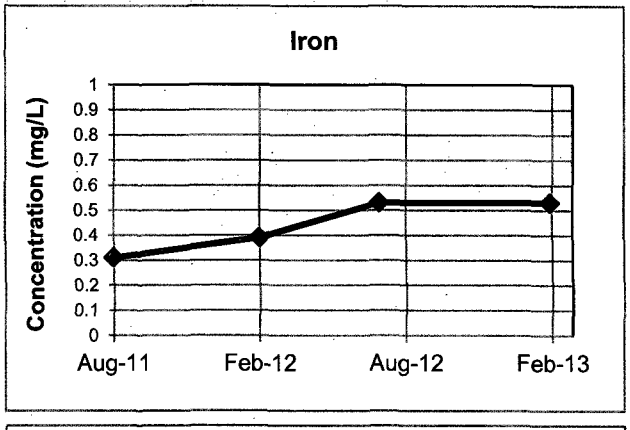

TDS
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

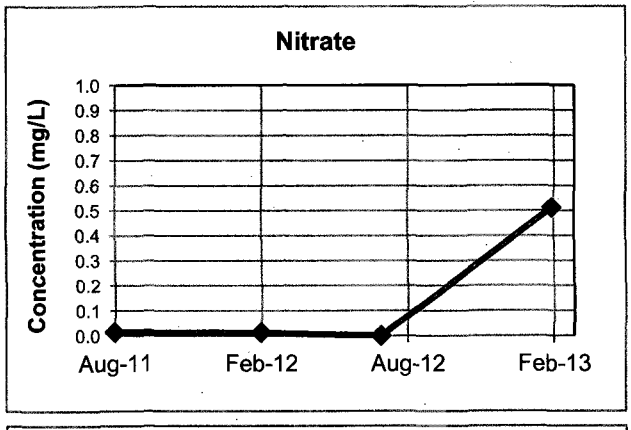

Turbidity
Concentration (NTU)
35
30
25
20
15
10
5
0
Aug-11
Feb-12
Aug-12
Feb-13

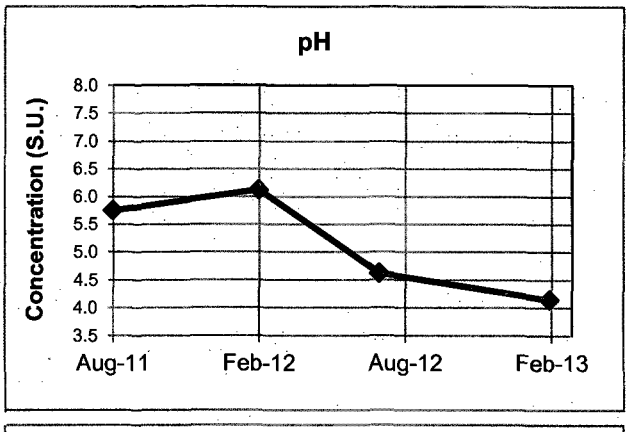
SW-2

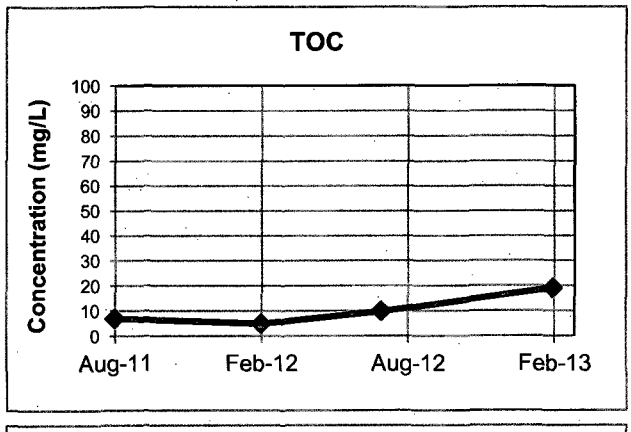

Dissolved Oxygen
Concentration (mg/L)
7
6.5
6
5.5
5
4.5
4
Aug-11
Feb-12
Aug-12
Feb-13

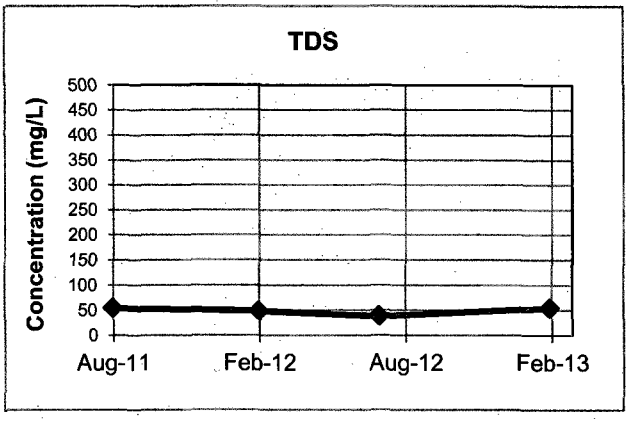

Specific Conductance
Concentration (uS/cm)
1000
900
800
700
600
500
400
300
200
100
0
Aug-11
Feb-12
Aug-12
Feb-13

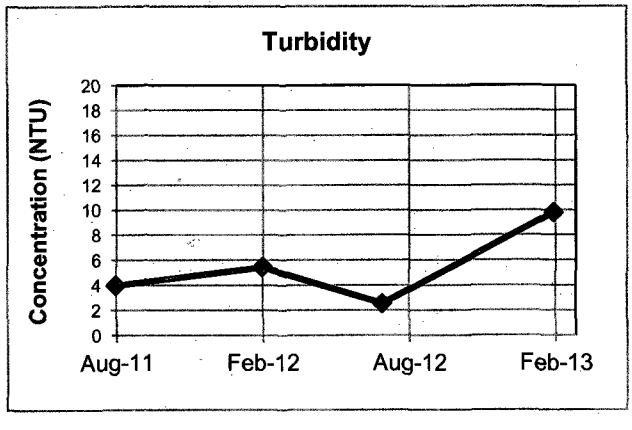

Iron
Concentration (mg/L)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Aug-11
Feb-12
Aug-12
Feb-13


Nitrate
Concentration (mg/L)
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Aug-11
Feb-12
Aug-12
Feb-13

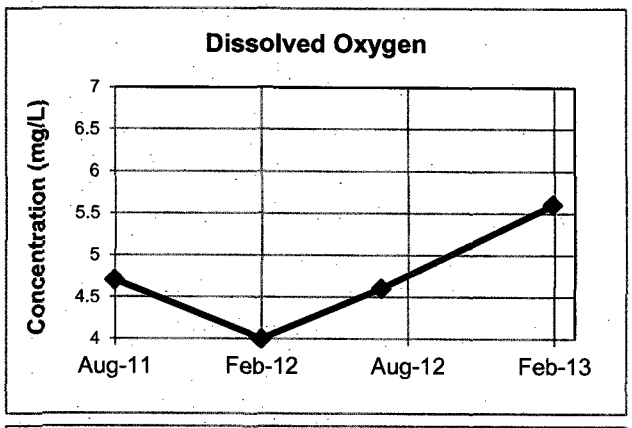

pH
Concentration (S.U.)
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
Aug-11
Feb-12
Aug-12
Feb-13

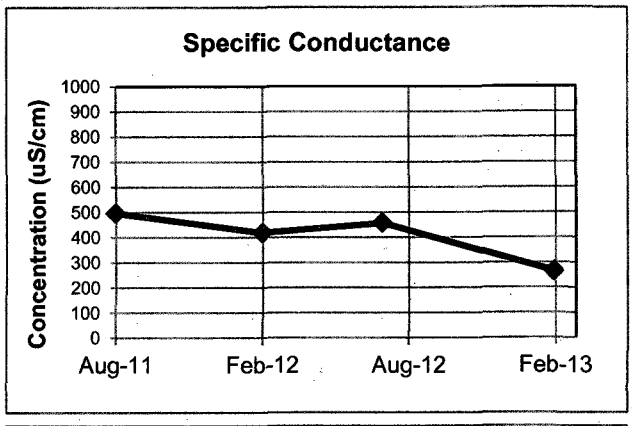

TOC
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13

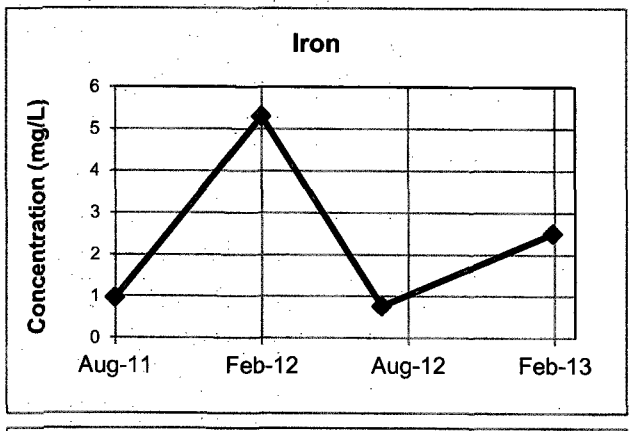

TDS
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

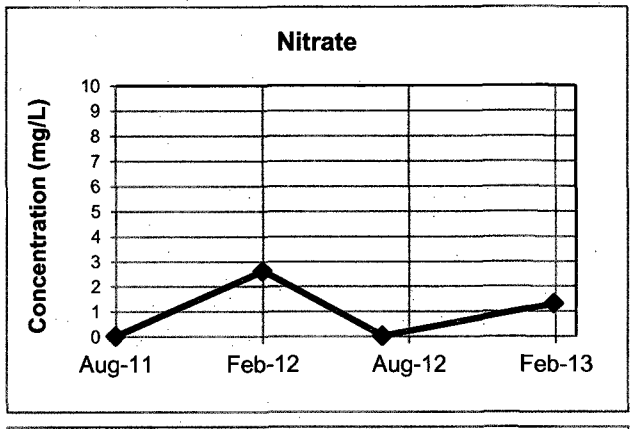

Turbidity
Concentration (NTU)
20
18
16
14
12
10
8
6
4
2
0
Aug-11
Feb-12
Aug-12
Feb-13

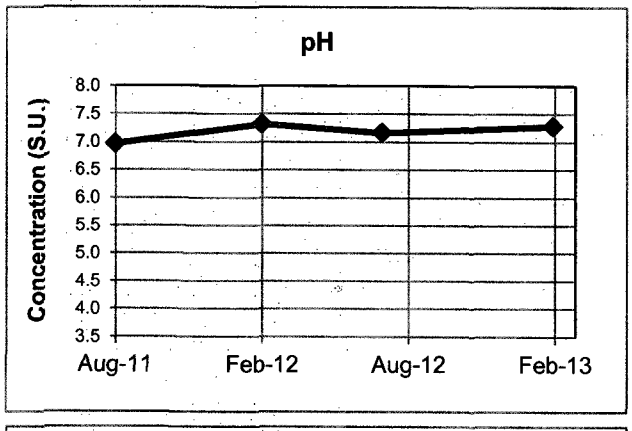
SW-3

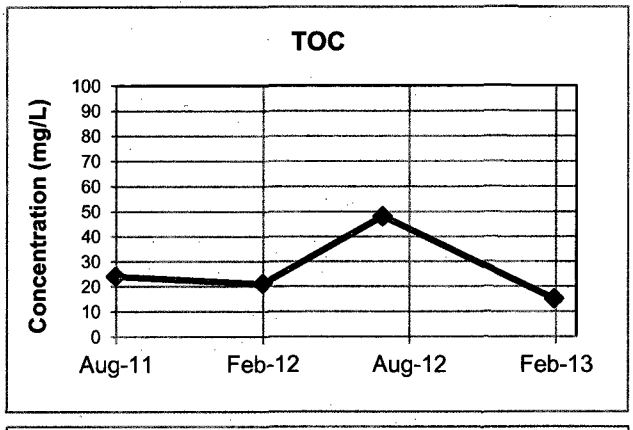

Dissolved Oxygen
Concentration (mg/L)
7
6.5
6
5.5
5
4.5
4
Aug-11
Feb-12
Aug-12
Feb-13

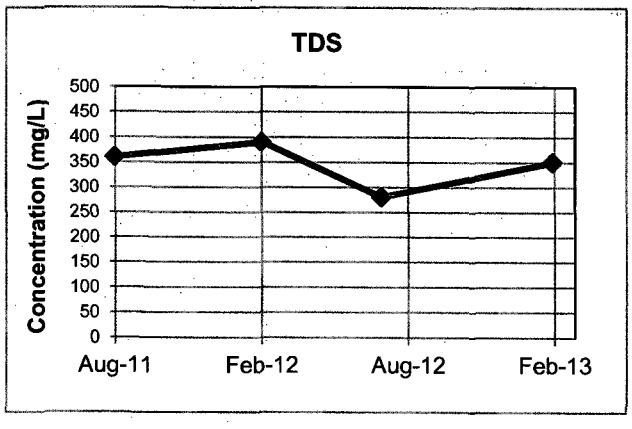

Specific Conductance
Concentration (uS/cm)
1000
900
800
700
600
500
400
300
200
100
0
Aug-11
Feb-12
Aug-12
Feb-13

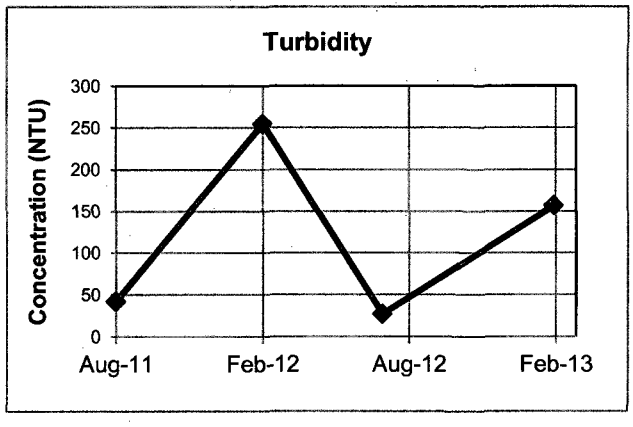

Iron
Concentration (mg/L)
6
5
4
3
2
1
0
Aug-11
Feb-12
Aug-12
Feb-13


Nitrate
Concentration (mg/L)
10
9
8
7
6
5
4
3
2
1
0
Aug-11
Feb-12
Aug-12
Feb-13


pH
Concentration (S.U.)
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
Aug-11
Feb-12
Aug-12
Feb-13


TOC
Concentration (mg/L)
100
90
80
70
60
50
40
30
20
10
0
Aug-11
Feb-12
Aug-12
Feb-13


TDS
Concentration (mg/L)
500
450
400
350
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13


Turbidity
Concentration (NTU)
300
250
200
150
100
50
0
Aug-11
Feb-12
Aug-12
Feb-13

APPENDIX A: TABLE A-1
Key Indicator Data for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-2(S)b	Chloride	mg/L	8.6	8.4	1.9	5.6
	Iron	mg/L	0.54	0.25	0.46	0.13
	pH	pH Units	4.26	4.47	4.66	4.31
	Sodium	mg/L	3.9	4.4	2	3.4
	Turbidity	NTU	1.36	0.53	18.67	3.96
	Nitrate (N)	ug/L	0.024	< 0.0047	0.12	< 0.0054
	SpecificConductance	umhos/cm	63	66	25	52
	TotaDissolvedSolids	mg/L	21	47	52	22
MWB-3(S)b	Chloride	mg/L	8.3	12	3	10
	Iron	mg/L	1.9	0.93	0.13	0.29
	pH	pH Units	4.24	3.52	4.36	3.95
	Sodium	mg/L	4.4	5	2.4	4.8
	Turbidity	NTU	4.77	2.3	3.03	3.52
	Nitrate (N)	ug/L	0.015	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	58	61	35	47
	TotaDissolvedSolids	mg/L	34	37	8	10
MWB-7(S)c	Chloride	mg/L	16	14	14	17
	Iron	mg/L	0.26	0.25	0.054	0.28
	pH	pH Units	4.62	4.68	5.16	4.62
	Sodium	mg/L	13	11	13	15
	Turbidity	NTU	14.87	13.9	15.59	14.04
	Nitrate (N)	ug/L	0.01	< 0.0047	1.1	0.075
	SpecificConductance	umhos/cm	144	132	177	135
	TotaDissolvedSolids	mg/L	130	100	120	86
MWB-11(S)c	Chloride	mg/L	18	16	33	21
	Iron	mg/L	1.5	1.1	0.23	1.2
	pH	pH Units	3.76	3.53	3.9	3.74
	Sodium	mg/L	10	11	17	12
	Turbidity	NTU	3.09	0.85	2.77	1.89
	Nitrate (N)	ug/L	0.024	< 0.0047	0.042	< 0.0054
	SpecificConductance	umhos/cm	146	122	247	145
	TotaDissolvedSolids	mg/L	91	90	130	78
MWB-12(S)c	Chloride	mg/L	7.1	7.4	8.5	6.3
	Iron	mg/L	0.11	0.11	0.065	0.11
	pH	pH Units	5.33	5.29	5.54	5.45
	Sodium	mg/L	3.9	4.2	4.7	4
	Turbidity	NTU	15.08	71.86	23.24	36.75
	Nitrate (N)	ug/L	< 0.0047	< 0.0047	0.075	0.02
	SpecificConductance	umhos/cm	128	128	164	157
	TotaDissolvedSolids	mg/L	88	110	120	120

Notes:

These values represent numerical data only; all associated data qualifiers have been removed for graphing purposes.

Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.

TDS - total dissolved solids; mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units

APPENDIX A: TABLE A-1
Key Indicator Data for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-13(S)c	Chloride	mg/L	61	NM	53	32
	Iron	mg/L	0.36	NM	2	1.6
	pH	pH Units	5.61	NM	5.81	5.61
	Sodium	mg/L	40	NM	45	29
	Turbidity	NTU	10.41	NM	48.45	24.34
	Nitrate (N)	ug/L	0.28	NM	0.26	0.32
	SpecificConductance	umhos/cm	379	NM	422	283
	TotaDissolvedSolids	mg/L	260	NM	260	210
MWB-17(S)c	Chloride	mg/L	7.9	7.2	6.6	8.3
	Iron	mg/L	0.14	0.13	0.32	0.13
	pH	pH Units	5.4	5.38	5.39	5.29
	Sodium	mg/L	5.2	4.7	4.5	4.7
	Turbidity	NTU	1.99	15.5	19.82	20.43
	Nitrate (N)	ug/L	< 0.0047	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	124	102	78	103
	TotaDissolvedSolids	mg/L	150	76	62	86
MWB-19(S)c	Chloride	mg/L	18	14	10	11
	Iron	mg/L	2.1	1.6	0.46	1
	pH	pH Units	4.08	3.9	5.43	4.01
	Sodium	mg/L	9.4	9.4	7.4	8.5
	Turbidity	NTU	2.47	17.97	13.85	8.16
	Nitrate (N)	ug/L	0.02	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	121	107	146	82
	TotaDissolvedSolids	mg/L	80	72	94	66
MWB-20(S)c	Chloride	mg/L	13	14	5.8	5.7
	Iron	mg/L	0.08	0.34	0.24	0.13
	pH	pH Units	4.22	4.34	4.23	4.2
	Sodium	mg/L	9.7	11	4.9	3.8
	Turbidity	NTU	9.13	2.17	19.13	2.51
	Nitrate (N)	ug/L	0.11	0.0092	< 0.0047	0.23
	SpecificConductance	umhos/cm	111	126	76	62
	TotaDissolvedSolids	mg/L	72	98	56	36
MWB-21(S)c	Chloride	mg/L	5.8	5.5	1.4	6.3
	Iron	mg/L	0.53	0.51	0.43	0.61
	pH	pH Units	4.38	4.63	5.2	4.82
	Sodium	mg/L	3.3	3.4	1.8	3.1
	Turbidity	NTU	4.08	10.67	3.14	3.91
	Nitrate (N)	ug/L	0.0098	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	41	42	165	49
	TotaDissolvedSolids	mg/L	40	41	120	30

Notes:

These values represent numerical data only; all associated data qualifiers have been removed for graphing purposes.
Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.
TDS - total dissolved solids; mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units
NM - Not measured because the well was dry at the time of sampling

APPENDIX A: TABLE A-1
Key Indicator Data for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-22(S)c	Chloride	mg/L	33	21	20	10
	Iron	mg/L	0.13	0.093	0.097	0.084
	pH	pH Units	5.38	5.95	5.98	5.77
	Sodium	mg/L	13	25	15	7.8
	Turbidity	NTU	7.78	5.36	5.18	3.7
	Nitrate (N)	ug/L	< 0.0047	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	252	252	274	210
	TotaDissolvedSolids	mg/L	230	180	170	140
MWB-27(S)c	Chloride	mg/L	58	85	9.7	9
	Iron	mg/L	0.39	0.04	0.37	0.16
	pH	pH Units	4.5	5.42	5.39	5.33
	Sodium	mg/L	30	79	8.9	11
	Turbidity	NTU	3.71	7.01	55.91	10.25
	Nitrate (N)	ug/L	0.02	0.68	< 0.0047	4.4
	SpecificConductance	umhos/cm	327	453	95	121
	TotaDissolvedSolids	mg/L	170	310	150	100
MWB-29(S)c	Chloride	mg/L	13	6.9	6.4	21
	Iron	mg/L	0.29	0.3	0.33	0.76
	pH	pH Units	4.51	4.58	4.3	4.37
	Sodium	mg/L	6	4.3	4.3	11
	Turbidity	NTU	3.98	1.52	3.67	1.14
	Nitrate (N)	ug/L	0.0082	0.017	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	54	36	41	94
	TotaDissolvedSolids	mg/L	44	37	10	46
MWB-32(S)d	Chloride	mg/L	39	48	26	39
	Iron	mg/L	0.78	1.1	1.4	0.91
	pH	pH Units	5.21	5.42	5.83	4.88
	Sodium	mg/L	22	26	14	24
	Turbidity	NTU	9.65	4.49	489.4	17.43
	Nitrate (N)	ug/L	0.014	< 0.0047	< 0.0047	0.01
	SpecificConductance	umhos/cm	253	237	370	235
	TotaDissolvedSolids	mg/L	210	160	250	120
MWB-33(S)d	Chloride	mg/L	11	13	15	12
	Iron	mg/L	0.34	0.35	0.64	0.23
	pH	pH Units	5.35	5.29	5.23	5.41
	Sodium	mg/L	5.9	8.6	13	16
	Turbidity	NTU	7.38	1.99	3.87	18.07
	Nitrate (N)	ug/L	0.23	< 0.0047	0.033	1.7
	SpecificConductance	umhos/cm	170	145	255	226
	TotaDissolvedSolids	mg/L	140	94	160	150

Notes:

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Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.
TDS - total dissolved solids; mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units

APPENDIX A: TABLE A-1
Key Indicator Data for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-34(S)d	Chloride	mg/L	260	57	6.9	42
	Iron	mg/L	0.2	0.14	0.23	0.14
	pH	pH Units	5.96	6.14	6.23	6.23
	Sodium	mg/L	58	66	16	71
	Turbidity	NTU	3.56	3.63	3.81	3.09
	Nitrate (N)	ug/L	0.35	0.32	< 0.0047	0.12
	SpecificConductance	umhos/cm	858	701	888	791
	TotaDissolvedSolids	mg/L	470	400	440	570
MWB-2(I)b	Chloride	mg/L	7.5	7.2	6.8	6.2
	Iron	mg/L	0.33	0.34	0.34	0.35
	pH	pH Units	4.62	4.76	4.71	4.58
	Sodium	mg/L	4.1	4.7	4.4	4
	Turbidity	NTU	0.82	0.71	2.03	1.43
	Nitrate (N)	ug/L	0.0083	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	35	36	39	29
	TotaDissolvedSolids	mg/L	37	32	16	10
MWB-3(I)b	Chloride	mg/L	6.4	5.7	5.8	5.5
	Iron	mg/L	0.75	0.72	0.7	0.81
	pH	pH Units	4.47	4.03	4.45	4.16
	Sodium	mg/L	3.5	3.8	3.6	3.7
	Turbidity	NTU	1.72	1.78	1.47	2.61
	Nitrate (N)	ug/L	0.97	< 0.0047	< 0.0047	0.011
	SpecificConductance	umhos/cm	35	39	42	30
	TotaDissolvedSolids	mg/L	27	29	10	12
MWB-7(I)c	Chloride	mg/L	5.8	5.4	4.9	4.6
	Iron	mg/L	0.4	0.35	0.34	0.38
	pH	pH Units	4.94	5.05	5.07	4.76
	Sodium	mg/L	3.2	3.5	3.3	3.3
	Turbidity	NTU	0.45	1.98	3.29	2.73
	Nitrate (N)	ug/L	0.0078	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	39	42	40	31
	TotaDissolvedSolids	mg/L	51	39	20	18
MWB-11(IR)c	Chloride	mg/L	5.5	5.2	4.6	4.5
	Iron	mg/L	0.34	0.12	0.37	0.31
	pH	pH Units	4.69	4.73	4.74	4.71
	Sodium	mg/L	3	3.3	3.1	3
	Turbidity	NTU	2.79	164	9.81	5.03
	Nitrate (N)	ug/L	0.021	0.065	< 0.0047	0.022
	SpecificConductance	umhos/cm	35	28	34	17
	TotaDissolvedSolids	mg/L	29	41	24	32

Notes:

These values represent numerical data only; all associated data qualifiers have been removed for graphing purposes.
Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.
TDS - total dissolved solids; mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units

APPENDIX A: TABLE A-1
Key Indicator Data for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-12(I)c	Chloride	mg/L	5.8	5.3	4.6	4.6
	Iron	mg/L	0.39	0.36	0.36	0.31
	pH	pH Units	4.95	5.19	5.15	5.12
	Sodium	mg/L	3.1	3.4	3.3	2.9
	Turbidity	NTU	1.3	0.61	3.16	2.16
	Nitrate (N)	ug/L	0.012	< 0.0047	< 0.0047	0.014
	SpecificConductance	umhos/cm	38	36	39	24
	TotaDissolvedSolids	mg/L	31	38	36	30
MWB-13(I)c	Chloride	mg/L	4.7	4.6	4.2	4
	Iron	mg/L	0.31	0.38	0.31	0.32
	pH	pH Units	4.78	5.22	5.14	4.97
	Sodium	mg/L	3.2	3.4	3.1	3.1
	Turbidity	NTU	4.65	3.78	4.23	3.49
	Nitrate (N)	ug/L	0.0086	0.006	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	35	33	34	25
	TotaDissolvedSolids	mg/L	31	21	8	24
MWB-17(I)c	Chloride	mg/L	5.5	5.3	4.4	4.5
	Iron	mg/L	0.51	0.44	0.51	0.49
	pH	pH Units	4.69	4.57	5.02	4.52
	Sodium	mg/L	3.3	3.8	3.4	3.2
	Turbidity	NTU	0.54	0.7	1.47	1.12
	Nitrate (N)	ug/L	0.0077	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	28	32	29	15
	TotaDissolvedSolids	mg/L	34	34	22	24
MWB-19(I)c	Chloride	mg/L	5.4	5.1	4.5	4.9
	Iron	mg/L	0.49	0.48	0.42	0.43
	pH	pH Units	4.79	5.08	5.06	4.82
	Sodium	mg/L	3.5	3.6	3.2	3
	Turbidity	NTU	1.01	9.33	15.84	4.29
	Nitrate (N)	ug/L	0.024	< 0.0047	< 0.0047	0.11
	SpecificConductance	umhos/cm	32	39	34	3
	TotaDissolvedSolids	mg/L	57	45	34	20
MWB-27(I)c	Chloride	mg/L	6.4	5.7	5	5
	Iron	mg/L	0.4	0.47	0.39	0.43
	pH	pH Units	5.29	5.5	5.53	5.37
	Sodium	mg/L	3.3	3.8	3.3	3.5
	Turbidity	NTU	7.65	7.87	5.55	5.05
	Nitrate (N)	ug/L	0.0086	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	52	48	51	27
	TotaDissolvedSolids	mg/L	24	36	30	18

Notes:

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Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.

TDS - total dissolved solids; mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units

APPENDIX A: TABLE A-1
Key Indicator Data for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
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Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-29(I)c	Chloride	mg/L	5.8	5.2	4.7	4.5
	Iron	mg/L	0.4	0.26	0.26	0.35
	pH	pH Units	4.9	5.09	5.02	4.96
	Sodium	mg/L	3.1	3.2	3.1	2.8
	Turbidity	NTU	14.28	14.67	14.66	11.8
	Nitrate (N)	ug/L	0.0072	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	36	33	35	30
	TotaDissolvedSolids	mg/L	50	41	34	48
MWB-32(I)d	Chloride	mg/L	5.7	5.3	4.9	4.5
	Iron	mg/L	0.46	0.91	0.41	0.62
	pH	pH Units	5.31	5.33	5.34	5.18
	Sodium	mg/L	3.5	3.5	3.2	3.5
	Turbidity	NTU	43.73	18.46	54.31	19.37
	Nitrate (N)	ug/L	0.0088	0.043	< 0.0047	0.0081
	SpecificConductance	umhos/cm	41	38	40	21
	TotaDissolvedSolids	mg/L	47	31	26	22
MWB-34(I)d	Chloride	mg/L	5.4	5.8	4.9	4.8
	Iron	mg/L	0.45	0.77	0.54	0.35
	pH	pH Units	5.08	5.27	5.23	5.18
	Sodium	mg/L	3.3	3.4	3	2.9
	Turbidity	NTU	5.35	4.92	7.17	4.2
	Nitrate (N)	ug/L	< 0.0047	0.029	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	42	42	43	22
	TotaDissolvedSolids	mg/L	40	52	30	20
MWB-7(D)c	Chloride	mg/L	4.3	4.1	4	4.1
	Iron	mg/L	0.32	0.28	0.29	0.31
	pH	pH Units	7.26	7.64	7.41	7.51
	Sodium	mg/L	4.6	5.1	4.6	5
	Turbidity	NTU	0.59	0.59	2.05	1.78
	Nitrate (N)	ug/L	< 0.0047	< 0.0047	< 0.0047	0.0094
	SpecificConductance	umhos/cm	313	314	352	325
	TotaDissolvedSolids	mg/L	200	210	190	180
MWB-12(D)c	Chloride	mg/L	4.4	4.3	4	4
	Iron	mg/L	0.91	1.2	0.92	1.8
	pH	pH Units	6.9	7.16	7.04	7.04
	Sodium	mg/L	5.6	6.3	5.7	5.5
	Turbidity	NTU	2.08	3.88	3.53	5.65
	Nitrate (N)	ug/L	0.0096	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	358	369	388	362
	TotaDissolvedSolids	mg/L	210	210	190	200

Notes:

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Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.

TDS - total dissolved solids; mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units

APPENDIX A: TABLE A-1
Key Indicator Data for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-17(D)c	Chloride	mg/L	5.9	6.4	5.4	5.3
	Iron	mg/L	0.34	0.33	0.34	0.32
	pH	pH Units	5.22	5.65	5.45	5.19
	Sodium	mg/L	3.4	3.6	3.3	3.1
	Turbidity	NTU	0.83	0.63	1.14	0.51
	Nitrate (N)	ug/L	0.011	< 0.0047	0.04	< 0.0054
	SpecificConductance	umhos/cm	49	56	56	35
	TotaDissolvedSolids	mg/L	61	44	34	40
MWB-19(D)c	Chloride	mg/L	4.7	4.6	4.1	4.2
	Iron	mg/L	1.8	1.2	15	4.2
	pH	pH Units	7.13	7.6	7.36	7.31
	Sodium	mg/L	4.5	4.8	4.5	4.2
	Turbidity	NTU	2.22	6.34	80.7	6.62
	Nitrate (N)	ug/L	0.0096	< 0.0047	< 0.0047	0.01
	SpecificConductance	umhos/cm	330	344	364	325
	TotaDissolvedSolids	mg/L	210	210	210	200
MWB-27(D)c	Chloride	mg/L	5.5	5.7	5	4.4
	Iron	mg/L	0.77	0.7	0.68	0.51
	pH	pH Units	5.46	5.84	5.84	5.75
	Sodium	mg/L	3.6	3.7	3.5	3.3
	Turbidity	NTU	0.77	0.34	0.4	0.44
	Nitrate (N)	ug/L	0.02	< 0.0047	0.011	0.04
	SpecificConductance	umhos/cm	87	81	94	58
	TotaDissolvedSolids	mg/L	89	64	58	38
MWB-29(D)c	Chloride	mg/L	7.2	6.4	5.7	5.4
	Iron	mg/L	0.72	0.87	0.73	0.6
	pH	pH Units	5.35	5.45	5.53	5.44
	Sodium	mg/L	3.9	4.1	3.8	3.3
	Turbidity	NTU	2.68	3.38	2.24	2.02
	Nitrate (N)	ug/L	0.013	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	63	60	69	54
	TotaDissolvedSolids	mg/L	44	62	36	24
MWB-31(D)b	Chloride	mg/L	5.5	5.3	5	5.1
	Iron	mg/L	0.77	0.89	0.75	0.77
	pH	pH Units	6.88	7.39	7.32	7.15
	Sodium	mg/L	5.8	6.8	6.2	5.9
	Turbidity	NTU	0.72	8.26	1.87	6.33
	Nitrate (N)	ug/L	0.0091	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	336	344	368	337
	TotaDissolvedSolids	mg/L	210	200	200	200

Notes:

These values represent numerical data only; all associated data qualifiers have been removed for graphing purposes.
Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.
TDS - total dissolved solids; mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units

APPENDIX A: TABLE A-1
Key Indicator Data for Groundwater
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
MWB-32(D)d	Chloride	mg/L	6.2	5.3	4.8	5.6
	Iron	mg/L	0.68	0.56	0.57	0.46
	pH	pH Units	6.05	5.86	5.98	5.68
	Sodium	mg/L	4.3	4.7	4.3	3.9
	Turbidity	NTU	5.13	6.1	4.8	3.7
	Nitrate (N)	ug/L	0.011	< 0.0047	< 0.0047	< 0.0054
	SpecificConductance	umhos/cm	126	91	139	70
	TotaDissolvedSolids	mg/L	130	81	76	40
MWB-34(D)d	Chloride	mg/L	5.6	5.3	4.6	4.7
	Iron	mg/L	0.49	0.52	0.45	0.49
	pH	pH Units	6.91	7.06	7.04	7.13
	Sodium	mg/L	6.1	6.6	6	6.4
	Turbidity	NTU	2.49	0.81	1.12	1.23
	Nitrate (N)	ug/L	0.0052	< 0.0047	< 0.0047	0.046
	SpecificConductance	umhos/cm	419	410	429	390
	TotaDissolvedSolids	mg/L	240	230	230	170

Notes:

These values represent numerical data only; all associated data qualifiers have been removed for graphing purposes.

Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.

TDS - total dissolved solids; mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units

APPENDIX A: TABLE A-2
Key Indicator Data for Surface Water
Trail Ridge Landfill, Jacksonville, Florida
FDEP Permit 0013493-017-SO / WACS ID Number NED/16/00033628

Location	Parameter	Unit	Aug-11	Feb-12	Jul-12	Feb-13
SW-1	Conductance	umhos/cm	251	332	105	99
	Dissolved Oxygen	mg/L	4.3	5	5.1	5
	Iron	mg/L	0.33	0.22	7.6	1
	Nitrate	mg/L	0.0092	< 0.0047	< 0.024	0.081
	pH	pH Units	7.15	7.14	6.13	4.83
	TDS	mg/L	180	230	210	160
	TOC	mg/L	22	19	84	57
	Turbidity	NTU	4.11	4.99	31.86	8.56
SW-2	Conductance	umhos/cm	50	50	64	64
	Dissolved Oxygen	mg/L	5.6	5.4	5.8	6.2
	Iron	mg/L	0.31	0.39	0.53	0.53
	Nitrate	mg/L	0.015	0.012	< 0.0047	0.51
	pH	pH Units	5.75	6.12	4.62	4.14
	TDS	mg/L	54	48	38	54
	TOC	mg/L	6.9	4.8	9.8	19
	Turbidity	NTU	3.97	5.41	2.52	9.77
SW-3	Conductance	umhos/cm	496	417	457	264
	Dissolved Oxygen	mg/L	4.7	4	4.6	5.6
	Iron	mg/L	0.96	5.3	0.76	2.5
	Nitrate	mg/L	0.018	2.6	0.023	1.3
	pH	pH Units	6.96	7.32	7.16	7.28
	TDS	mg/L	360	390	280	350
	TOC	mg/L	24	21	48	15
	Turbidity	NTU	41.71	254.5	26.49	156.3

Notes:

These values represent numerical data only; all associated data qualifiers have been removed for graphing purposes.
Values less than the method detection limit (<) are plotted as zero on the corresponding graphs.
-- Sample not collected; TDS - total dissolved solids; TOC - total organic carbon
mg/L - milligrams per liter; umhos/cm - micromhos per centimeter; NTU - nephelometric turbidity units

APPENDIX B
HYDROGRAPHS AND HYDROGEOLOGIC CALCULATIONS

APPENDIX B: TABLE B-1
Hydraulic Calculations for the Shallow Zone
Trail Ridge Landfill, Jacksonville, Florida

Checked by: SSG
Reviewed by: KSB

Purpose: Calculate average horizontal hydraulic gradient and groundwater flow rate for the shallow zone of the surficial aquifer beneath Trail Ridge Landfill.

Method for Determination of Horizontal Hydraulic Gradient:

$$i = \frac{\Delta h}{\Delta s} = \frac{GWE_A - GWE_B}{\underline{AB}}$$

Where:

i	Hydraulic gradient (dimensionless)
Δh	Difference of hydraulic head
Δs	Horizontal distance between two points
$GWE_{A, B}$	Groundwater elevation of points A and B (in feet)
$\underline{AB}$	The horizontal distance between points A and B (in feet), where AB is perpendicular to potentiometric contours

Method for Determination of Groundwater Flow Rate:

$$v = \frac{Ki}{n_e}$$

Where:

v	Average linear flow velocity (feet per day)
K	Horizontal hydraulic conductivity (feet per day)
i	Hydraulic gradient (dimensionless)
n_e	Effective porosity (dimensionless)

Using Constants:

K	=	7.5	feet per day	ft/d
n_e	=	20%	(dimensionless)	

Using Groundwater Elevation Data:

Well A	=	MWB-3(S)	Distance Between		
Well B	=	MWB-11(S)	Wells A and B (ft)	=	2,850

	GWE_A (ft MSL)	GWE_B (ft MSL)
Aug-11	141.73	107.66
Feb-12	141.38	107.31
Jul-12	147.33	109.97
Feb-13	145.36	107.76

APPENDIX B: TABLE B-1
Hydraulic Calculations for the Shallow Zone
Trail Ridge Landfill, Jacksonville, Florida

Checked by: SSG
Reviewed by: KSB

Horizontal Hydraulic Gradient Calculations:

August 2011	$i = \frac{141.73 - 107.66}{2{,}850} = \frac{34.07}{2{,}850} =$	0.0120	ft/ft
February 2012	$i = \frac{141.38 - 107.31}{2{,}850} = \frac{34.07}{2{,}850} =$	0.0120	ft/ft
July 2012	$i = \frac{147.33 - 109.97}{2{,}850} = \frac{37.36}{2{,}850} =$	0.0131	ft/ft
February 2013	$i = \frac{145.36 - 107.76}{2{,}850} = \frac{37.60}{2{,}850} =$	0.0132	ft/ft

Minimum	=	0.0120	ft/ft
Maximum	=	0.0132	ft/ft
Average	=	0.0126	ft/ft

Groundwater Flow Rate Calculations:

August 2011	$v = \frac{7.5 * 0.0120}{20\%} = \frac{0.0897}{0.20} =$	0.45	ft/d
February 2012	$i = \frac{7.5 * 0.0120}{20\%} = \frac{0.0897}{0.20} =$	0.45	ft/d
July 2012	$i = \frac{7.5 * 0.0131}{20\%} = \frac{0.0983}{0.20} =$	0.49	ft/d
February 2013	$i = \frac{7.5 * 0.0132}{20\%} = \frac{0.0989}{0.20} =$	0.49	ft/d

Minimum	=	0.45	ft/d
Maximum	=	0.49	ft/d
Average	=	0.47	ft/d

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APPENDIX B: TABLE B-2
Hydraulic Calculations for the Intermediate Zone
Trail Ridge Landfill, Jacksonville, Florida

Checked by: SSG
Reviewed by: KSB

Purpose: Calculate average horizontal hydraulic gradient and groundwater flow rate for the intermediate zone of the surficial aquifer beneath Trail Ridge Landfill.

Method for Determination of Horizontal Hydraulic Gradient:

$$i = \frac{\Delta h}{\Delta s} = \frac{GWE_A - GWE_B}{\underline{AB}}$$

Where:

i	Hydraulic gradient (dimensionless)
Δh	Difference of hydraulic head
Δs	Horizontal distance between two points
$GWE_{A, B}$	Groundwater elevation of points A and B (in feet)
$\underline{AB}$	The horizontal distance between points A and B (in feet), where AB is perpendicular to potentiometric contours

Method for Determination of Groundwater Flow Rate:

$$v = \frac{Ki}{n_e}$$

Where:

v	Average linear flow velocity (feet per day)
K	Horizontal hydraulic conductivity (feet per day)
i	Hydraulic gradient (dimensionless)
n_e	Effective porosity (dimensionless)

Using Constants:

K	=	10.7	feet per day	ft/d
n_e	=	20%	(dimensionless)	

Using Groundwater Elevation Data:

Well A	=	MWB-3(I)	Distance Between		
Well B	=	MWB-11(IR)	Wells A and B (ft)	=	2,820

	GWE_A (ft MSL)	GWE_B (ft MSL)
Aug-11	136.51	107.87
Feb-12	135.84	109.28
Jul-12	139.55	109.63
Feb-13	138.61	109.19

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APPENDIX B: TABLE B-2
Hydraulic Calculations for the Intermediate Zone
Trail Ridge Landfill, Jacksonville, Florida

Checked by: SSG
Reviewed by: KSB

Horizontal Hydraulic Gradient Calculations:

August 2011	$i = \frac{136.51 - 107.87}{2{,}820} = \frac{28.64}{2{,}820}$	=	0.0102	ft/ft
February 2012	$i = \frac{135.84 - 109.28}{2{,}820} = \frac{26.56}{2{,}820}$	=	0.0094	ft/ft
July 2012	$i = \frac{139.55 - 109.63}{2{,}820} = \frac{29.92}{2{,}820}$	=	0.0106	ft/ft
February 2013	$i = \frac{138.61 - 109.19}{2{,}820} = \frac{29.42}{2{,}820}$	=	0.0104	ft/ft

Minimum	=	0.0094	ft/ft
Maximum	=	0.0106	ft/ft
Average	=	0.0102	ft/ft

Groundwater Flow Rate Calculations:

August 2011	$v = \frac{10.7 * 0.0102}{20\%} = \frac{0.1087}{0.20}$	=	0.54	ft/d
February 2012	$i = \frac{10.7 * 0.0094}{20\%} = \frac{0.1008}{0.20}$	=	0.50	ft/d
July 2012	$i = \frac{10.7 * 0.0106}{20\%} = \frac{0.1135}{0.20}$	=	0.57	ft/d
February 2013	$i = \frac{10.7 * 0.0104}{20\%} = \frac{0.1116}{0.20}$	=	0.56	ft/d

Minimum	=	0.50	ft/d
Maximum	=	0.57	ft/d
Average	=	0.54	ft/d

APPENDIX B: TABLE B-3
Hydraulic Calculations for the Deep Zone
Trail Ridge Landfill, Jacksonville, Florida

Checked by: SSG
Reviewed by: KSB

Purpose: Calculate average horizontal hydraulic gradient and groundwater flow rate for the deep zone of the surficial aquifer beneath Trail Ridge Landfill.

Method for Determination of Horizontal Hydraulic Gradient:

$$i = \frac{\Delta h}{\Delta s} = \frac{GWE_A - GWE_B}{\underline{AB}}$$

Where:

i	Hydraulic gradient (dimensionless)
Δh	Difference of hydraulic head
Δs	Horizontal distance between two points
$GWE_{A, B}$	Groundwater elevation of points A and B (in feet)
$\underline{AB}$	The horizontal distance between points A and B (in feet), where AB is perpendicular to potentiometric contours

Method for Determination of Groundwater Flow Rate:

$$v = \frac{Ki}{n_e}$$

Where:

v	Average linear flow velocity (feet per day)
K	Horizontal hydraulic conductivity (feet per day)
i	Hydraulic gradient (dimensionless)
n_e	Effective porosity (dimensionless)

Using Constants:

K	=	0.55	feet per day	ft/d
n_e	=	20%	(dimensionless)	

Using Groundwater Elevation Data:

Well A	=	MWB-31(D)	Distance Between		
Well B	=	MWB-34(D)	Wells A and B (ft)	=	2,750

	GWE_A (ft MSL)	GWE_B (ft MSL)
Aug-11	137.00	117.07
Feb-12	136.35	115.51
Jul-12	139.48	117.80
Feb-13	138.45	117.55

APPENDIX B: TABLE B-3
Hydraulic Calculations for the Deep Zone
Trail Ridge Landfill, Jacksonville, Florida

Checked by: SSG
Reviewed by: KSB

Horizontal Hydraulic Gradient Calculations:

August 2011	$i = \frac{137 - 117.07}{2{,}750} = \frac{19.93}{2{,}750} =$	0.0072	ft/ft
February 2012	$i = \frac{136.35 - 115.51}{2{,}750} = \frac{20.84}{2{,}750} =$	0.0076	ft/ft
July 2012	$i = \frac{139.48 - 117.8}{2{,}750} = \frac{21.68}{2{,}750} =$	0.0079	ft/ft
February 2013	$i = \frac{138.45 - 117.55}{2{,}750} = \frac{20.90}{2{,}750} =$	0.0076	ft/ft

Minimum	=	0.0072	ft/ft
Maximum	=	0.0079	ft/ft
Average	=	0.0076	ft/ft

Groundwater Flow Rate Calculations:

August 2011	$v = \frac{0.55 * 0.0072}{20\%} = \frac{0.0040}{0.20} =$	0.020	ft/d
February 2012	$i = \frac{0.55 * 0.0076}{20\%} = \frac{0.0042}{0.20} =$	0.021	ft/d
July 2012	$i = \frac{0.55 * 0.0079}{20\%} = \frac{0.0043}{0.20} =$	0.022	ft/d
February 2013	$i = \frac{0.55 * 0.0076}{20\%} = \frac{0.0042}{0.20} =$	0.021	ft/d

Minimum	=	0.020	ft/d
Maximum	=	0.022	ft/d
Average	=	0.021	ft/d

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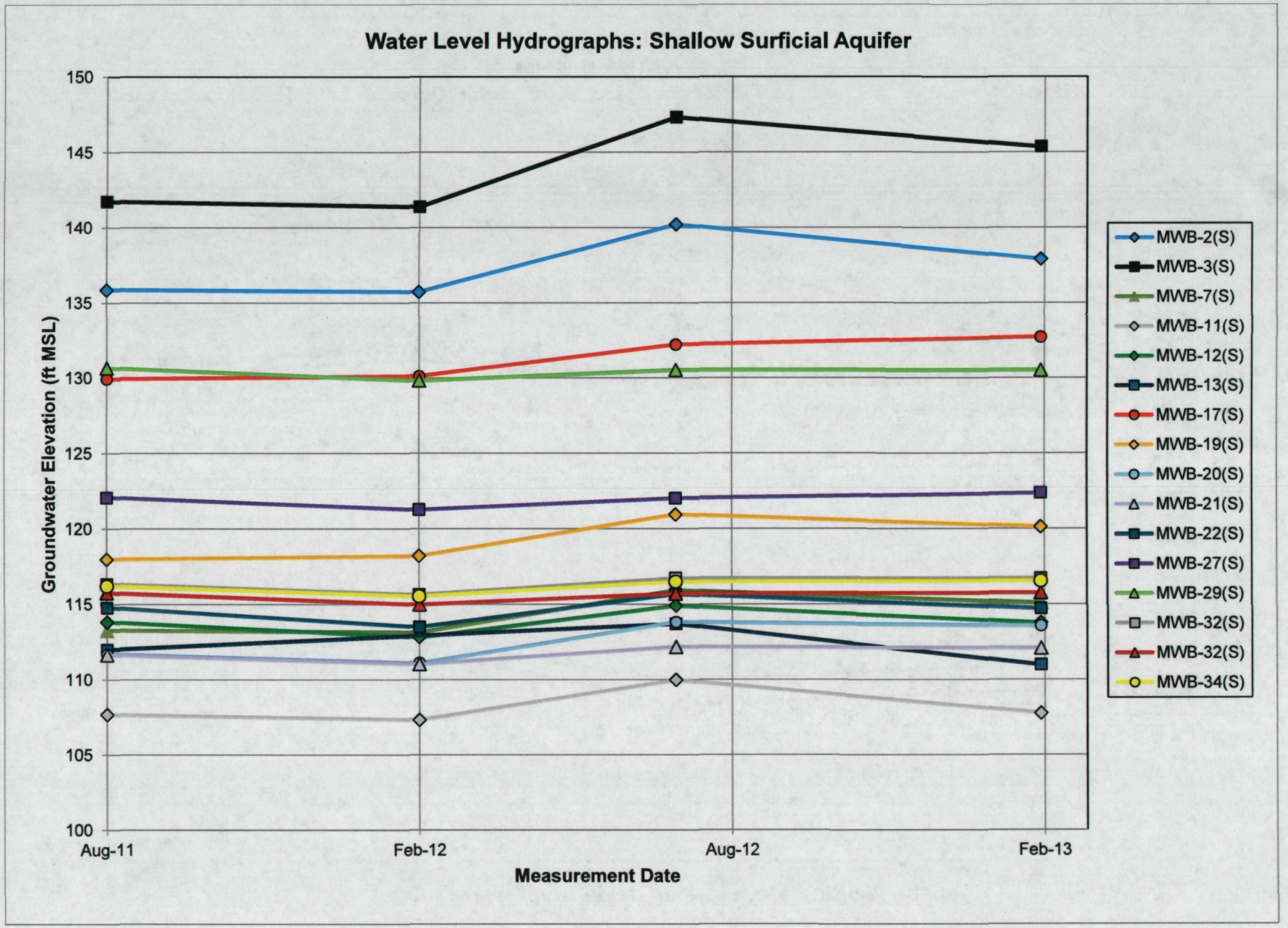
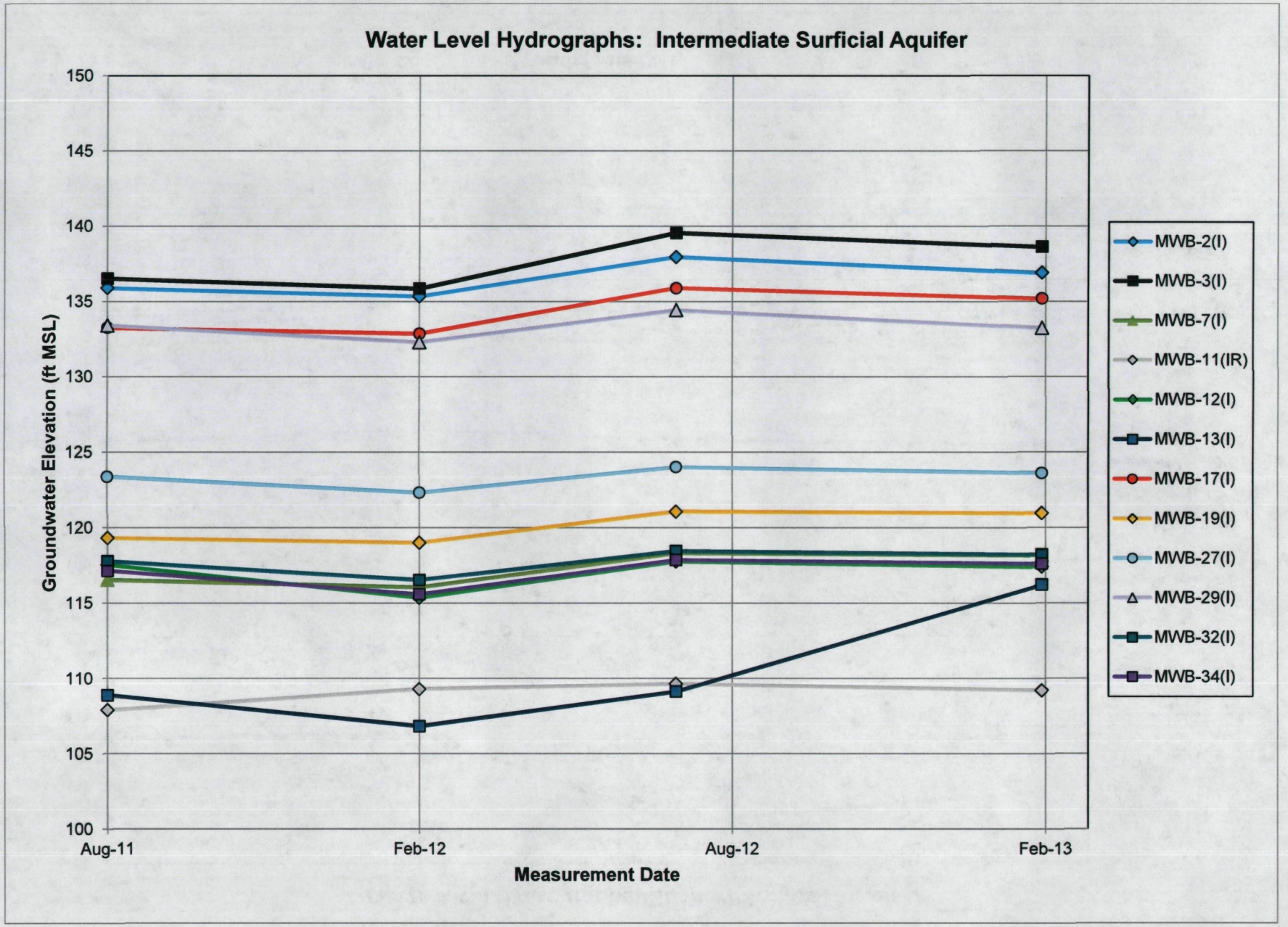
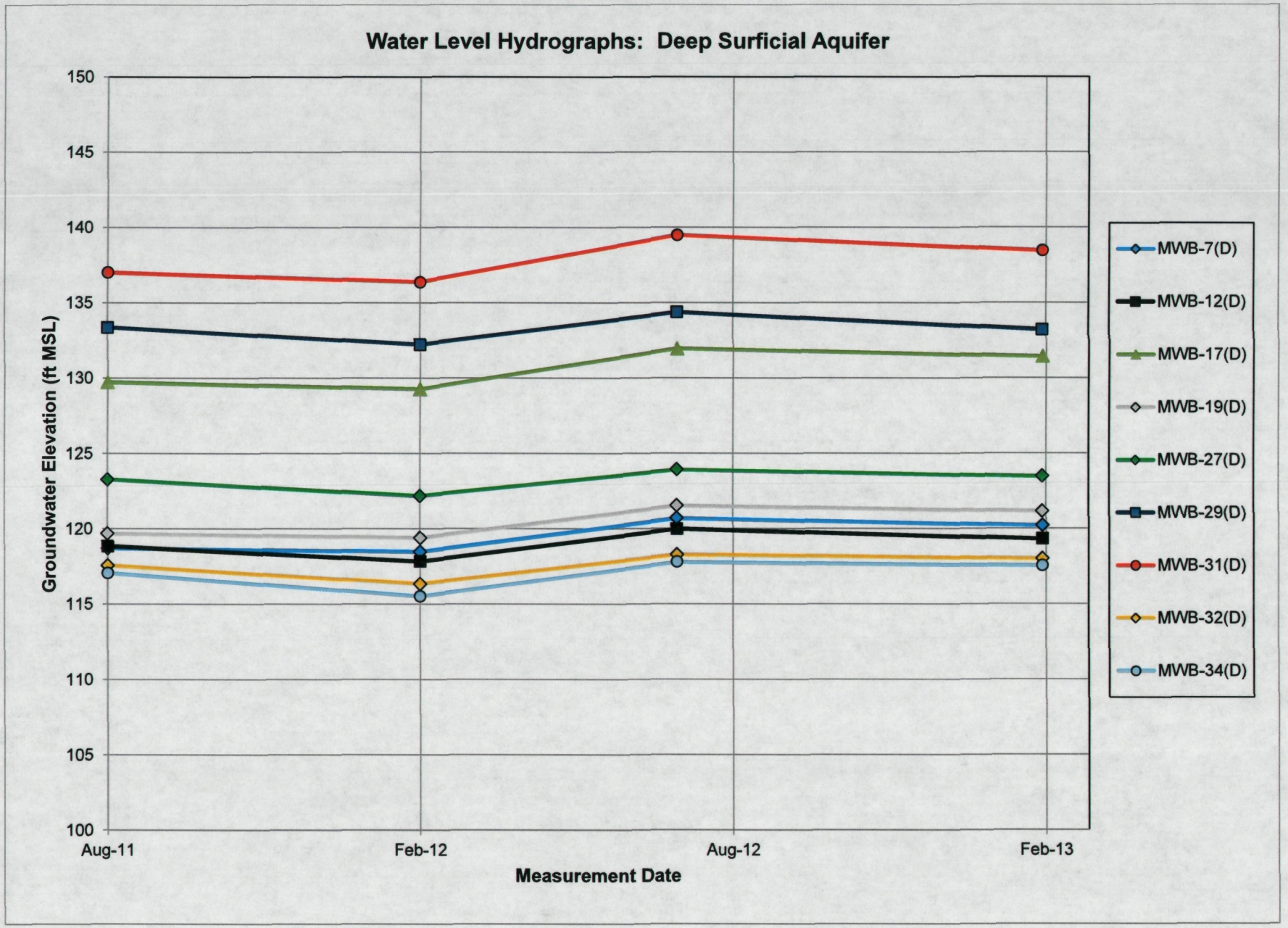

Water Level Hydrographs: Shallow Surficial Aquifer
Groundwater Elevation (ft MSL)
150
145
140
135
130
125
120
115
110
105
100
Aug-11
Feb-12
Aug-12
Feb-13
Measurement Date
MWB-2(S)
MWB-3(S)
MWB-7(S)
MWB-11(S)
MWB-12(S)
MWB-13(S)
MWB-17(S)
MWB-19(S)
MWB-20(S)
MWB-21(S)
MWB-22(S)
MWB-27(S)
MWB-29(S)
MWB-32(S)
MWB-32(S)
MWB-34(S)


Water Level Hydrographs: Intermediate Surficial Aquifer
Groundwater Elevation (ft MSL)
150
145
140
135
130
125
120
115
110
105
100
Aug-11
Feb-12
Aug-12
Feb-13
Measurement Date
MWB-2(I)
MWB-3(I)
MWB-7(I)
MWB-11(IR)
MWB-12(I)
MWB-13(I)
MWB-17(I)
MWB-19(I)
MWB-27(I)
MWB-29(I)
MWB-32(I)
MWB-34(I)


Water Level Hydrographs: Deep Surficial Aquifer
Groundwater Elevation (ft MSL)
150
145
140
135
130
125
120
115
110
105
100
Aug-11
Feb-12
Aug-12
Feb-13
Measurement Date
MWB-7(D)
MWB-12(D)
MWB-17(D)
MWB-19(D)
MWB-27(D)
MWB-29(D)
MWB-31(D)
MWB-32(D)
MWB-34(D)