Water Quality Technical Report

Trail Ridge Landfill
FDEP Permit # 0013493-025-SO-01

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April 2018

PROFESSIONAL CERTIFICATION - TRAIL RIDGE LANDFILL TECHNICAL REPORT

I certify that I am a certified professional hydrogeologic engineer with knowledge and experience in water quality assessment and hydrogeologic investigations. The document preparation for this project were conducted under my direct supervision, are consistent with FAC Chapter 62-701, and are consistent with generally accepted professional consulting principles and practices. To the best of my knowledge, the information contained herein, including all attachments, are true, accurate, and complete.

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4/11/2018

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CEC

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Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

DEP Form #: 62-701.900(31), F.A.C
Form Title: Water Quality Monitoring Certification
Effective Date: January 6, 2010
Incorporated in Rule 62-701.510(9), F.A.C.

WATER QUALITY MONITORING CERTIFICATION

PART I GENERAL INFORMATION

(1) Facility Name Trailridge Landfill, Inc.

Address 5110 U.S. Highway 301

City Baldwin, FL Zip 32234 County Duval

Telephone Number ( )

(2) WACS Facility ID 33628

(3) DEP Permit Number 0013495-025-SO-01

(4) Authorized Representative's Name Eric Parker Title Environmental Manager

Address 5110 U.S. Highway 301

City Baldwin, FL Zip 32234 County Duval

Telephone Number (904) 748-6006

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CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submission of false information including the possibility of fine and imprisonment.

4/5/18
(Date)

(Owner or Authorized Representative's Signature)

PART II QUALITY ASSURANCE REQUIREMENTS

Sampling Organization Professional Tech Support Service (Pro Tech)

Analytical Lab NELAC / HRS Certification # Florida E87052

Lab Name Advanced Environmental Laboratories, Inc. (AEL)

Address 6681 Southpoint Parkway, Jacksonville, FL 32216

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1.0 INTRODUCTION

The Trail Ridge Landfill (Site) is owned by the City of Jacksonville and operated by Trail Ridge Landfill, Inc. (a Waste Management Company) in accordance with Florida Department of Environmental Protection (FDEP) Operation Permit Number 0013493-025-SO-01 issued June 16, 2014. The Site is an active municipal solid waste landfill that serves the City of Jacksonville, Duval County, and Northeast Florida.

Carlson Environmental Consultants, PC (CEC) has been retained to prepare and submit the Water Quality Technical Report in accordance with Chapter 62-701.510(8)(b) F.A.C and the Water Quality Monitoring Plan (Appendix 3 of the referenced permit). This report analyzes semiannual water quality monitoring data from 1H 2016 to 1H 2018. The following sections include general information concerning the site monitoring systems from groundwater and surface water, an evaluation of water quality monitoring results over the reporting period, and evaluation of groundwater flow rate and direction over the reporting periods, an analysis of trends, and a monitoring program evaluation and recommendations.

2.0 BACKGROUND

2.1 Site Location and Description

The Site is located near the town of Baldwin 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 that accepts waste from the City of Jacksonville and Duval County. 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. Since the last water quality technical report submitted in March 2016, the facility has commenced construction on the horizontal expansion approved June 16, 2014 (Phases 6-14) and added monitoring locations in accordance with the permit. In the expansion area, only Phase 6 has been constructed and is currently receiving waste. The stormwater management system for the expansion remains under construction, but in general consists of:

- An outer perimeter interceptor ditch intended to capture shallow groundwater and surface water migrating onto the site from the west;
- A retention pond with an outfall dedicated to that ditch;
- An inner perimeter ditch intended to capture runoff from the landfill, and;
- A second, larger retention pond with two outfalls dedicated to that ditch.

2.2 Groundwater and Surface Water Monitoring Systems

Groundwater and surface water monitoring events are conducted concurrently on a semi-annual basis prior to March 30th and September 30th of each year. Leachate is no longer sampled. Figure 2 shows the Site layout and groundwater monitoring well and surface water sampling locations. The current Site groundwater monitoring system consists of twenty-nine (29) groundwater monitoring wells screened at shallow (S) and intermediate (I) depths within the uppermost, surficial aquifer. These include:

- Eighteen (18) shallow wells: MWB-2(S), MWB-3(S), MWB-11(S), MWB-12(S), MWB-13(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), MWB-35(S), MWB-39(S), MWB-40(S), SGMW-1(S), SGMW-2(S)
- Eleven (11) intermediate wells: MWB-2(I), MWB-3(I), MWB-11(IR), MWB-12(I), MWB-13(I), MWB-27(I), MWB-29(I), MWB-32(I), MWB-34(I), MWB-35(I), MWB-39(I)

In addition, the following wells are used to monitor groundwater levels at the Site:

- Six (6) shallow wells: MWB-7(S), MWB-14(S), MWB-23(S), MWB-24(S), MWB-25(S), MWB-26(S)
- Three (3) intermediate wells: MWB-7(I), MWB-14(I), MWB-25(I)
- Nine (9) deep wells: MWB-7(D), MWB-12(D), MWB-14(D), MWB-25(D), MWB-27(D), MWB-29(D), MWB-31(D), MWB-32(D), and MWB-34(D)

Background wells MWB-2(S), MWB-3(S), MWB-2(I), and MWB-3(I) demonstrate background water quality for the facility due to their location upgradient from landfill waste. The remaining shallow and intermediate wells listed above are utilized for compliance or detection monitoring purposes associated with various phases of landfill development.

The Site surface water monitoring system currently consists of seven surface water monitoring locations: SW-1, SW-3, SW-4, SW-5, SW-6, SW-7, and SW-B (Figure 1). SW-B is intended to be a background water quality sampling point in the perimeter interceptor ditch. SW-4 is a new sampling location that is associated with the retention pond capturing flow from the perimeter interceptor ditch; SW-5 and SW-6 are new sampling locations associated with the newly constructed retention pond that receives runoff from Phases 6-14 in the expansion area; SW-7 is a sampling point downgradient of the retention pond discharges. SW-4 through SW-7 were sampled for the first time in February 2018 while construction was ongoing and only Phase 6 was receiving waste.

3.0 WATER QUALITY MONITORING RESULTS

3.1 Groundwater

Throughout the reporting period, the monitoring network was sampled in accordance with Solid Waste Permit 0013493-025-SO-01 issued June 16, 2014 and the associated approved Water Quality Monitoring Plan, with minor exceptions as noted in the semiannual reports. During 2016, twenty-two wells were sampled at each event; thirteen shallow wells and nine intermediate wells. From 2017 through 1H 2018, as the landfill expanded into Phase VI, twenty-nine wells were sampled at each event; eighteen shallow wells and nine intermediate wells. During the latter period, shallow wells were sampled for Appendix I Volatile Organic Compounds (VOCs), Appendix I Metals, and other parameters. Intermediate wells were sampled only for a select list of indicator parameters. Monitoring results for shallow wells are provided in Table 2A. Monitoring results for intermediate wells are provided in Table 2B. Parameter trend plots for consistently detected parameters are found in Appendix A.

3.1.1 Appendix I Volatile Organic Compounds (VOCs)

Only shallow wells are monitored for Appendix I VOCs. During the reporting period, there were a few isolated, low level detections of VOC parameters. These detections were not present in the subsequent monitoring events and were generally between the method detection limit (MDL) and laboratory practical quantitation limit (PQL). With the exception of an initial chloromethane detection in 1H 2018 which is pending resample, no primary or secondary drinking water standards were exceeded. Two detections in 1H 2017 were attributed to a leachate release that was quickly remedied. Beyond these sporadic detections summarized below, for which there is no discernable trend, no other VOCs were detected at or above the laboratory reporting limits in any other wells during the reporting period.

Parameter:	Acetone
Wells:	MWB-11(S), MWB-12(S), MWB-22(S), MWB-27(S), MWB-29(S), MWB-32(S), MWB-33(D), MWB-34(S), MWB-35(S), MWB-40(S)
Concentrations:	2.2 ug/L to 72 ug/L
Max Concentration:	72 ug/L at MWB-34(S) in 1H 2017
Standard:	6,300 ug/L GCTL
Exceedances:	None

Parameter	2-Butanone
Wells:	MWB-34(S)
Concentrations:	12 ug/L
Max Concentration:	12 ug/L at MW-34(S) in 1H 2017
Standard:	4,200 ug/L GCTL

Exceedances:	None

Parameter:	Benzene
Wells:	MWB-33(S)
Concentrations:	0.34 ug/L
Max Concentration:	0.34 ug/L at MWB-33(S) in 2H 2017
Standard:	1 ug/L PDWS
Exceedances:	None

Parameter:	Carbon Disulfide
Wells:	MWB-29(S), MWB-32(S)
Concentrations:	0.21 ug/L to 0.45 ug/L
Max Concentration:	0.45 ug/L at MWB-29(S) in 2H 2017
Standard:	700 ug/L GCTL
Exceedances:	None

Parameter:	Chloromethane
Wells:	MWB-2(S) and MWB-40(S)
Concentrations:	120 ug/L to 150 ug/L
Max Concentration:	150 ug/L at MWB-40(S) in 1H 2018
Standard:	2.7 ug/L PDWS
Exceedances:	MWB-2(S) and MWB-40(S) in 1H 2018 (pending resample)

Parameter:	1,2-Dibromoethane (EDB)
Wells:	MWB-3(S), MWB-12(S), MWB-40(S)
Concentrations:	0.020 ug/L
Max Concentration:	0.020 ug/L at MWB-40(S) in 2H 2017; MWB-3(S) and MWB-12(S) in 1H 2018 (pending resample)
Standard:	0.020 ug/L PDWS
Exceedances:	None

3.1.2 Appendix I Metals and Mercury

Only shallow wells are monitored for Appendix I metals and mercury. During the reporting period, most Appendix I metals and mercury were detected at least once. Cadmium and silver were not detected at any wells during the period. Arsenic and thallium were detected only once at a single well during the period. The following tables summarize the other Appendix I metal detections. Note that many of the lower detections were qualified values between the MDL and the laboratory PQL. No exceedances of any primary or secondary drinking water standards occurred during the period and there were no obvious increasing trends over time or from up to down gradient.

Parameter	Antimony
Wells:	Many shallow wells
Concentrations:	0.048 ug/L to 1.6 ug/L
Max Concentration:	1.6 ug/L at MWB-34(S) in 2H 2017
Standard:	6 ug/L PDWS
Exceedances:	None

Parameter	Arsenic
Wells:	MWB-2(S)
Concentrations:	2.1 ug/L
Max Concentration:	2.1 ug/L
Standard:	10 ug/L PDWS
Exceedances:	None

Parameter	Barium
Wells:	All shallow wells
Concentrations:	3.0 ug/L to 760 ug/L
Max Concentration:	760 ug/L at MWB-40(S) in 2H 2017
Standard:	2000 ug/L PDWS
Exceedances:	None

Parameter	Beryllium
Wells:	MWB-2(S), MWB-3(S), MWB-11(S), MWB-20(S), MWB-21(S), MWB-40(S), SGMW-2(S)
Concentrations:	0.16 ug/L to 1.0 ug/L
Max Concentration:	1.0 ug/L at MWB-40(S) in 2H 2017
Standard:	4 ug/L PDWS
Exceedances:	None

Parameter	Chromium
Wells:	Many shallow wells
Concentrations:	1.1 ug/L to 13 ug/L
Max Concentration:	13 ug/L at MWB-2(S) in 1H 2016
Standard:	100 ug/L PDWS
Exceedances:	None

Parameter	Cobalt
Wells:	MWB-2(S), MWB-11(S), MWB-12(S), MWB-13(S), MWB-20(S), MWB-21(S), MWB-27(S), MWB-29(S), MWB-32(S), MWB-34(S), MWB-40(S)
Concentrations:	0.12 ug/L to 2.1 ug/L

Max Concentration:	2.1 ug/L at MWB-2(S) in 1H 2016
Standard:	140 ug/L GCTL
Exceedances:	None

Parameter	Copper
Wells:	Many shallow wells
Concentrations:	2.2 ug/L to 7.3 ug/L
Max Concentration:	7.3 ug/L at MWB-34(S) in 1H 2018
Standard:	1000 ug/L SDWS
Exceedances:	None

Parameter	Lead
Wells:	MWB-2(S), MWB-3(S), MWB-12(S), SGMW-2(S)
Concentrations:	1.3 ug/L to 8.6 ug/L
Max Concentration:	8.6 ug/L at MWB-2(S) in 1H 2016
Standard:	15 ug/L PDWS
Exceedances:	None

Parameter	Nickel
Wells:	MWB-2(S), MWB-12(S), MWB-13(S), MWB-21(S), MWB-27(S), MWB-34(S)
Concentrations:	1.3 ug/L to 5.6 ug/L
Max Concentration:	5.6 ug/L at MWB-2(S) in 1H 2016
Standard:	100 ug/L PDWS
Exceedances:	None

Parameter	Selenium
Wells:	Many shallow wells
Concentrations:	0.58 ug/L to 14 ug/L
Max Concentration:	14 ug/L at MWB-12(S) in 1H 2016
Standard:	50 ug/L PDWS
Exceedances:	None

Parameter	Thallium
Wells:	MWB-11(S)
Concentrations:	0.092 ug/L
Max Concentration:	0.092 ug/L in MWB-11(S) in 2H 2017
Standard:	2 ug/L PDWS
Exceedances:	None

Parameter	Vanadium
Wells:	Most shallow wells
Concentrations:	1.7 ug/L to 84 ug/L
Max Concentration:	84 ug/L
Standard:	49 ug/L GCTL
Exceedances:	MWB-12(S) and MWB-34(S) in 2H 2017

Parameter	Zinc
Wells:	Many shallow wells
Concentrations:	6.8 ug/L to 66 ug/L
Max Concentration:	66 ug/L in MWB-34(S) in 2H 2017
Standard:	5,000 ug/L SDWS
Exceedances:	None

Parameter	Mercury
Wells:	Many shallow wells
Concentrations:	0.012 ug/L to 0.098 ug/L
Max Concentration:	0.098 ug/L in MWB-2(S) in 1H 2016
Standard:	2 ug/L PDWS
Exceedances:	None

3.1.3 Other Water Quality Parameters

All shallow and intermediate wells are sampled for indicator or other water quality parameters. These parameters are commonly detected and are often good indicators of initial impacts. There were several exceedances of secondary drinking water standards for chloride, nitrate, and total dissolved solids during the reporting period as noted below, all in shallow wells. These exceedances were generally attributed to isolated events and did not represent ongoing releases. There was no indication of any migration or impacts to intermediate wells during the period. The only wells exhibiting upward trends of note (i.e. a clear trend confirmed by other parameters) were shallow wells MWB-3(S) and MWB-22(S), though all parameters remained below standards. The remaining wells, including all intermediate wells, had no significant trends indicating ongoing releases.

Parameter	Ammonia
Wells:	Nearly all shallow and intermediate wells
Concentrations:	100 ug/L to 7,300 ug/L
Max Concentration:	7,300 ug/L at MWB-34(S) in 1H 2018
Standard:	2,800 ug/L GCTL
Exceedances:	MWB-20(S) in 2H 2016; MWB-20(S) in 2H 2017; MWB-34(S) in 1H 2018; MWB-39(S) in 1H 2018

Parameter	Chloride
Wells:	All shallow and intermediate wells
Concentrations:	3,800 ug/L to 300,000 ug/L
Max Concentration:	300,000 ug/L at MWB-34(S) in 1H 2017
Standard:	250,000 ug/L SDWS
Exceedances:	MWB-34(S) in 1H 2017

Parameter	Iron
Wells:	All shallow and intermediate wells
Concentrations:	64 ug/L to 5400 ug/L
Max Concentration:	5,400 ug/L in MWB-2(S) in 1H 2016
Standard:	300 ug/L SDWS
Exceedances:	Several but considered consistent with background

Parameter	Nitrate
Wells:	Most shallow wells
Concentrations:	1 ug/L to 20,000 ug/L
Max Concentration:	20,000 ug/L at MWB-34(S) in 2H 2017
Standard:	10,000 ug/L SDWS
Exceedances:	MWB-34(S) in 2H 2017

Parameter	Sodium
Wells:	All shallow and intermediate wells
Concentrations:	1,300 ug/L to 130,000 ug/L
Max Concentration:	130,000 ug/L in MWB-34(S) in 1H 2017
Standard:	160,000 ug/L PDWS
Exceedances:	None

Parameter	Total Dissolved Solids
Wells:	All shallow and intermediate wells
Concentrations:	27,000 ug/L to 980,000 ug/L
Max Concentration:	980,000 ug/L at MWB-33(S) in 1H 2017
Standard:	500,000 ug/L SDWS
Exceedances:	MWB-20(S) in 2H 2016; MWB-33(S) in 1H 2017; MWB-21(S) in 2H 2017; MWB-34(S) in 2H 2017 and 1H 2018

3.1.4 Field Parameters

Several field parameters were monitored during semi-annual events, including pH, specific conductance, and turbidity.

ph: pH ranged from 3.1 to 6.6 in shallow and intermediate wells, with most readings in the 4-5 range. pH generally was consistent from shallow to intermediate wells.

Specific conductance: Conductivity values ranged from 23 micro mhos to 1,640 micro mhos. Intermediate wells had consistently lower conductivity values than shallow wells.

Turbidity: Turbidity measurements ranged from less than 1 NTU to 140 NTU, with the highest readings during the reporting period at MWB-2(S) and the side gradient wells SBMW-1(S) and 2(S). SGMW-1(S) was not sampled in 2H 2017 or 1H 2018 due to elevated turbidity readings attributed to a likely damaged well casing. The well is being replaced in April 2018.

3.2 Surface Water

Surface water samples were collected from SW-1 and SW-3 only in 1H 2016, 2H 2016, and 1H 2017. SW-B was added in 2H 2017. SW-4, SW-5, SW-6, and SW-7 were sampled for the first time in 1H 2018 while construction of the expanded stormwater system was ongoing and only Phase 6 was receiving waste. During the 1H 2018 sampling, SW-B was dry, and the pond with SW-4 was isolated from the system and SW-4 was not discharging. The following sections provide a summary of parameters detected in surface water samples. Trend charts for several parameters are included in Appendix A.

3.2.1 Appendix I Volatile Organic Compounds

VOCs were detected during only two events and, with the exception of chloromethane detections from 1H 2018 that are pending resampling, did not exceed any relevant standards. The remaining detections are presumed lab contamination and were not confirmed in the subsequent event. Chloromethane is a naturally occurring compound used in the past as a refrigerant. Though not a lab contaminant, it is known to periodically be detected with no apparent source. Planned resampling will confirm if these were false positive detections.

Parameter	Acetone
Locations:	SW-1, SW-3
Concentrations:	4.8 ug/L to 12 ug/L
Max Concentration:	12 ug/L at SW-3 in 2H 2017
Standard:	Not established
Exceedances:	None - common lab contaminant

Parameter	2, Butanone
Locations:	SW-1, SW-3
Concentrations:	0.5 ug/L to 7 ug/L

Max Concentration:	7 ug/L at SW-3 in 2H 2017
Standard:	Not established
Exceedances:	None - common lab contaminant

Parameter	Carbon Disulfide
Locations:	SW-3
Concentrations:	0.23 ug/L
Max Concentration:	0.23 ug/L at SW-3 in 2H 2017
Standard:	None established
Exceedances:	None - common lab contaminant

Parameter	Chloromethane
Locations:	SW-1, SW-4, SW-5, SW-6, SW-7
Concentrations:	40-190 ug/L
Max Concentration:	190 ug/L at SW-5 in 1H 2018
Standard:	5.67 ug/L Class I WQS; 470.8 ug/L Class III WQS
Exceedances:	SW-1, SW-4, SW-5, SW-6, SW-7 exceeded Class I WQS (pending resample)

3.2.2 Appendix I Metals and Mercury

All Appendix I metals except for cadmium, silver, and thallium were detected in surface water in at least one location through the period. For Phases 1-5, TRL continues to implement agreed upon BMPs to limit sediment transport and turbidity in the SW-3 pond. Metals concentrations that have been associated with high turbidity (e.g. lead) have generally decreased in SW-1 and SW-3 relative to the prior reporting period and, overall, have remained relatively constant during the reporting period with perhaps a slight downward bias. For instance, the highest concentrations of lead, iron, and turbidity through the reporting period at SW-3 occurred in 1H 2016 and the lowest turbidity and TDS occurred in 1H 2018. Periodic exceedances of the lead standard occurred, along with a few other exceedances, with no discernable trend. Low hardness readings in surface water locations result in low calculated standards that are very near the laboratory reporting limits. Ongoing final closure of this section of the landfill should further reduce sediment transport.

Detections of metals at apparently elevated concentrations in SW-4, SW-5, SW-6, and SW-7 during the 1H 2018 sampling event were unexpected. These ponds were built for the Phase 6-14 expansion and this was the first sampling event in which they were sampled. There is currently no evidence to suggest these detections are related to the issue that has existed at Phases 1-5. Phases 1-5 are largely capped and are almost entirely isolated from the new retention ponds. No ash has been accepted in Phases 1-5 for approximately 1.5 years and none that was accepted in the past remains exposed. No ash has been disposed of in Phase 6. A limited

amount of contaminated soil associated with the City of Jacksonville ash project has been disposed of in Phase 6 since December 2017. This contaminated soil was managed in accordance with the solid waste permit. The soil was stockpiled on top of the landfill with silt fence surrounding the area, mixed 50/50 with mulch, and utilized for daily cover only on interior top slopes away from exterior slopes.

Importantly, high turbidity and the highest metals concentrations were found at SW-4, which does not receive any runoff from the landfill itself, but instead only receives flow from the perimeter interceptor ditch which captures shallow groundwater and surface water run-on flowing onto the Trail Ridge property from the west. This indicates that the detections are correlated with turbidity and suggest a non-landfill source. While it is true that SW-5 and SW-6 could be impacted from runoff from Phase 6, there are no obvious indicators of leachate impacts in adjacent wells or in that pond. It is possible that those points, as well as SW-7 which can receive discharge from both new retention ponds, were also impacted from upgradient non-landfill sources. On April 9th, 2018, in addition to other resampling, TRL intends to resample the surface water points for both dissolved and total metals, as well as chloromethane, and may perform additional investigatory sampling to determine the source of the detections. Results will be communicated with the Department and included in future semiannual reports.

Parameter	Antimony
Locations:	SW-B, SW-1, SW-3, SW-4, SW-5, SW-6
Concentrations:	0.19 ug/L to 1.2 ug/L
Max Concentration:	1.2 ug/L at SW-3 in 2H 2017
Standard:	14 ug/L Class I WQS; 4,300 ug/L Class III WQS
Exceedances:	None

Parameter	Arsenic
Locations:	SW-3
Concentrations:	2.31 ug/L to 2.41 ug/L
Max Concentration:	2.41 ug/L at SW-3 in 1H 2016
Standard:	10 ug/L Class I WQS; 50 ug/L Class III WQS
Exceedances:	None

Parameter	Barium
Locations:	All surface water points
Concentrations:	19 ug/L to 72 ug/L
Max Concentration:	72 ug/L at SW-4 in 1H 2018
Standard:	1000 ug/L Class I WQS
Exceedances:	None

Parameter	Beryllium
Locations:	SW-1, SW-3, SW-5

Concentrations:	0.2 ug/L to 0.58 ug/L
Max Concentration:	0.58 ug/L at SW-5 in 1H 2018
Standard:	0.0077 ug/L Class I WQS; 0.3 ug/L Class III WQS
Exceedances:	Several (1H 2018 pending resample)

Parameter	Chromium
Locations:	All surface water points
Concentrations:	1.8 ug/L to 18 ug/L
Max Concentration:	18 ug/L at SW-5 in 1H 2018
Standard:	Calculated
Exceedances:	None

Parameter	Cobalt
Locations:	SW-1, SW-3
Concentrations:	0.53 ug/L to 3 ug/L
Max Concentration:	3 ug/L at SW-3 in 1H 2018
Standard:	NA
Exceedances:	NA

Parameter	Copper
Locations:	SW-B, SW-1, SW-3, SW-5
Concentrations:	1.9 ug/L to 7.1 ug/L
Max Concentration:	7.1 ug/L at SW-3 in 1H 2016
Standard:	Calculated
Exceedances:	None

Parameter	Lead
Locations:	SW-1, SW-3, SW-4, SW-5
Concentrations:	1.1 ug/L to 17 ug/L
Max Concentration:	17 ug/L at SW-3 in 1H 2016
Standard:	Calculated
Exceedances:	SW-1 1H 2016, 2H 2017, 1H 2018 (pending resample) SW-3 1H 2016, 2H 2017, 1H 2018 (pending resample) SW-4 1H 2018 (pending resample) SW-5 1H 2018 (pending resample)

Parameter	Mercury
Locations:	All surface water points
Concentrations:	0.0042 ug/L to 0.087 ug/L
Max Concentration:	0.087 ug/L at SW-5 in 1H 2018 (pending resample)
Standard:	0.012 ug/L Class III WQS

Exceedances:	SW-B in 2H 2017 SW-1 in 1H 2016, 1H 2017, and 2H 2017 SW-3 in 1H 2016, 2H 2016, 1H 2017, and 2H 2017

Parameter	Nickel
Locations:	SW-1, SW-3
Concentrations:	1.2 ug/L to 6.9 ug/L
Max Concentration:	6.9 ug/L at SW-3 in 1H 2016
Standard:	Calculated
Exceedances:	None

Parameter	Selenium
Locations:	SW-B, SW-1, SW-3, SW-4, SW-5, SW-6
Concentrations:	0.68 ug/L to 5.1 ug/L
Max Concentration:	5.1 ug/L at SW-3 in 1H 2016
Standard:	5 ug/L Class I and III WQS
Exceedances:	SW-3 in 1H 2016

Parameter	Vanadium
Locations:	SW-B, SW-1, SW-3, SW-4
Concentrations:	0.06 ug/L to 21 ug/L
Max Concentration:	21 ug/L at SW-3 in 1H 2016
Standard:	NA
Exceedances:	NA

Parameter	Zinc
Locations:	All surface water points
Concentrations:	5.9 ug/L to 110 ug/L
Max Concentration:	110 ug/L at SW-3 in 2H 2017
Standard:	Calculated
Exceedances:	None

3.2.3 Other Water Quality Parameters

With the exception of fecal coliform, other water parameters generally tracked with detections of Appendix I metals in the ponds. Fecal coliform was highly elevated at SW-1, SW-3, and SW-B in 2H 2017. The cause of the elevated readings was unknown, but the fact they occurred at all monitored sites including SW-B (the background location) suggests a non-landfill source or lab issue. The readings were not confirmed in 1H 2018, though a minor exceedance remained at SW-1. This could be related to natural causes.

Parameter	Iron
Locations:	All
Concentrations:	300 ug/L to 2900 ug/L
Max Concentration:	2900 ug/L at SW-5 in 1H 2018 (pending resample)
Standard:	1000 ug/L Class I and III WQS
Exceedances:	SW-1 in 1H 2016, 2H 2017, 1H 2018 SW-3 in 1H 2016, 1H 2017, 2H 2017, 1H 2018 SW-4, SW-5, SW-7 in 1H 2018 (pending resample)

Parameter	Nitrate
Locations:	SW-1, SW-3, SW-5, SW-6
Concentrations:	0.016 mg/L to 4.7 mg/L
Max Concentration:	4.7 mg/L at SW-3 in 1H 2018
Standard:	10 mg/L Class I WQS
Exceedances:	None

Parameter	Unionized Ammonia
Locations:	SW-B, SW-1, SW-3, SW-5, SW-6, SW-7
Concentrations:	.0099 ug/L to 15 ug/L
Max Concentration:	15 ug/L at SW-3 in 1H 2018
Standard:	20 ug/L Class I and III WQS
Exceedances:	None

Parameter	Fecal Coliform
Locations:	SW-B, SW-1, SW-3, SW-6, SW-7
Concentrations:	56 CFUs/100 mL to 48,000 CFUs/100 mL
Max Concentration:	48,000 CFUs/100 mL at SW-3 in 2H 2017
Standard:	800 CFUs/100 mL Class III WQS
Exceedances:	SW-B 2H 2017 SW-1 1H 2017, 2H 2017, 1H 2018 SW-3 2H 2017

3.2.4 Field Parameters

Several field parameters were monitored during semi-annual events, including pH, specific conductance, and turbidity.

ph: pH ranged from 6.1 to 7.65 in surface water. Locations SW-1 and SW-3 have historically had pH levels less than 6.5 at times.

Dissolved oxygen: Values ranged from 1.8 mg/L to 18.5 mg/L. Values less than 5 mg/L are considered an issue for Class III surface waters. Surface water points have historically been below this threshold on a sporadic basis.

- Turbidity: Turbidity measurements ranged from less than 24.5 NTUs to 173.9 NTUs, with the highest readings occurring in SW-3. Turbidity was greater than 29 NTUs several times in the reporting period, several of which may have been 29 NTUs greater than background. Turbidity is closely correlated to rainfall events and is expected to improve in SW-3 as the final capping progresses. During their initial sampling event in 1H 2018, elevated turbidity was observed in SW-4, SW-5, SW-7, and to a lesser degree SW-6. Note that SW-B, a background surface water sample point, exhibited turbidity of 24.5 NTU during the 2H 2017 event (the only event it was sampled during the reporting period). Only SW-4 and SW-5 were greater than 29 NTU above this amount, though turbidities in SW-6 and SW-7 were likely elevated. SW-4 had the highest turbidity and does not receive any runoff from the active landfill areas. SW-6 had the lowest turbidity and is the point nearest the active area of the landfill (Phase 6). Elevated turbidities were likely related to ongoing construction of the stormwater management system.

4.0 GROUNDWATER FLOW RATE AND DIRECTION

Groundwater elevations were measured during the last five semiannual sampling events since the last Technical Report that was submitted in March 2016. The depths to groundwater in each well were recorded and elevations were calculated. These results are included in Table 1. Hydrographs for all wells were developed using these elevations for all three well zones: shallow, intermediate, and deep. The hydrographs are included for these zones in Appendix B. Review of the hydrographs indicated the water levels in site monitoring wells varied up to 5 feet over this period. This is consistent with previous reports and periods.

Potentiometric maps for each zone were developed for each semi-annual monitoring event and were submitted to FDEP with each event report. The horizontal hydraulic gradients were determined on each map for these submittals. In the previous Technical Report submitted by Golder and Associates in 2016, horizontal hydraulic gradients were determined based on the gradient across the site between specific up-gradient to down-gradient wells. To be consistent, the same up-gradient and down-gradient wells were compared for each zone:

Shallow	MWB-3(S) up-gradient and MWB-11(S) down-gradient
Intermediate	MWB-3(I) up-gradient and MWB-11(I) down-gradient
Deep	MWB-31(D) up-gradient and MWB-34(D) down-gradient

The gradient was then used to calculate the flow direction and, along with the hydraulic conductivity and effective porosity, the velocity of groundwater. These calculations are shown for each event and zone in Appendix A. The flow lines run from the topographic high point of the site on the west side to the low point on the east. The horizontal hydraulic gradient will show the horizontal flow lines that are determined within this Appendix.

It should be also noted that the vertical gradient of groundwater flow at the site indicates a downward movement of groundwater flow on the west end of the facility (up-gradient) while there tends to be an upward movement of groundwater flow at the east end of the facility (down-gradient -in the valley). This suggests the area to the west is predominantly a recharge area while the area to the east is predominantly a discharge area.

4.1 Shallow Zone

Groundwater elevations in the shallow surficial aquifer zone ranged from approximately 105 feet to 148 feet above mean sea level during the reporting period. Water levels in individual wells varied slightly between events. The average hydraulic gradient for the shallow zone was 0.013 ft/ft (Appendix B). The average groundwater flow rate was calculated at 0.487 ft/day or 177.8 ft/year. This is consistent with the prior reporting period.

4.2 Intermediate Zone

Groundwater elevations in the intermediate aquifer zone ranged from approximately 101 feet to 141 feet above mean sea level during the reporting period. Water levels in individual wells varied slightly between events. The average hydraulic gradient for the shallow zone was 0.0113 ft/ft (Appendix B). The average groundwater flow rate was calculated at 0.606 ft/day or 221.2 ft/year. This is slightly higher than the prior reporting period.

4.3 Deep Zone

Groundwater elevations in the deep zone ranged from approximately 113 feet to 138 feet above mean sea level during the reporting period. Water levels in individual wells varied slightly between events. The average hydraulic gradient for the shallow zone was 0.0077 ft/ft (Appendix B). The average groundwater flow rate was calculated at 0.0212 ft/day or 7.7 ft/year. This is consistent with the prior reporting period.

5.0 DATA EVALUATION AND RECOMMENDATIONS

5.1 Trend Analysis

5.1.1 Groundwater Flow Trends

Groundwater flow was consistently to the east in all monitored zones during the reporting period. Water level fluctuations were typically on the order of 0-5 feet with the largest variation in the shallow zone. Water level elevations fluctuated slightly over the reporting period, likely in response to rainfall. Groundwater flow velocities were consistent with past reporting periods.

It should be also noted that the vertical gradient of groundwater flow at the site indicates a downward movement of groundwater flow on the west side of the facility (up-gradient or high

point) while there tends to be an upward movement of groundwater flow at the east side of the facility (down-gradient or low elevation). This suggests the area to the west is predominantly a recharge area while the area to the east is predominantly a discharge area.

With the expansion of Phases 6-14, an interceptor ditch was constructed on the west to capture shallow groundwater which migrates on to the Trail Ridge property from the west. This interceptor ditch conveys both captured groundwater and any surface water run on to a retention pond with sampling point SW-4. This will have the effect of lowering groundwater elevations in the landfill area but should not impact the quantity of water discharging to the east of the expansion.

5.1.2 Water Quality Trends

Ground Water

There were isolated detections of Appendix I VOCs at a few wells during the reporting period. Most of these were low level detections between the PQL and MDL. All, pending 2018 resampling, were below applicable standards and attributed to false positives or isolated events. There were no trends or repeat detections of VOCs in groundwater.

Appendix I metals were detected at most wells at the site, primarily at low levels between the PQL and MDL. While there were numerous detections, there were no exceedances of primary or secondary drinking water standards, no obvious increasing trends over time, no increasing trends from upgradient (background) to downgradient (detection), no indications of downward migration or impacts to intermediate wells, and no other indications of metals impacts related to releases from the landfill.

Other parameters did show minor potential impacts from landfill operations and potential trends. As initially reported in 2017, a leachate release in the vicinity of MWB-34(S) occurred that was quickly remediated. Subsequently, there have been isolated detections of VOCs (not confirmed) and elevated levels of chloride, sodium, nitrate and ammonia. The impact appears minor and isolated. There is no evidence of migration laterally or vertically. Beyond MWB-34(S), the only wells exhibiting upward trends of note (clear trend confirmed by multiple parameters) were shallow wells MWB-3(S) and MWB-22(S). Both have increasing trends for chloride, sodium, TDS, and conductivity, though all detected parameters remained below standards. It is unclear if this trend is related to landfill operations, but it is unlikely at MWB-3(S) because it is an upgradient well. Other wells, including all intermediate wells, had no significant trends indicating ongoing releases.

Surface Water

There were isolated detections of Appendix I VOCs in surface water during the reporting period. Most of these were low level detections between the PQL and MDL. All detections, pending 2018

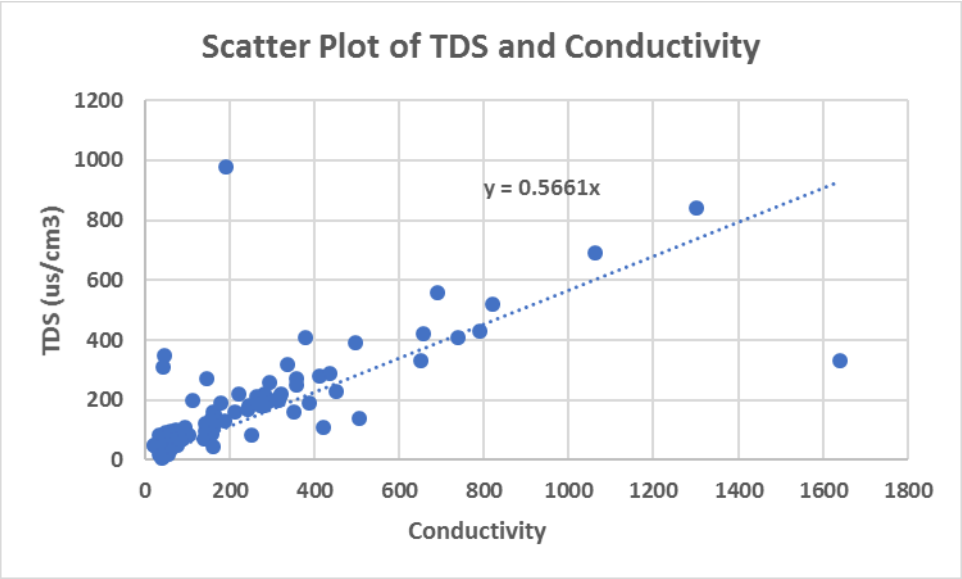
resampling for chloromethane, were at or below applicable standards and attributed to false positives or isolated events. There were no trends or repeat detections of VOCs in groundwater.

Metals concentrations that have been associated with high turbidity (e.g. lead) have generally decreased at SW-1 and SW-3 relative to the prior reporting period and have remained relatively constant during the reporting period with perhaps a slight downward bias. For instance, the highest concentrations of lead, iron, and turbidity through the reporting period at SW-3 occurred in 1H 2016 and the lowest turbidity TDS occurred in 1H 2018. Periodic exceedances of the lead standard occurred, along with a few other exceedances, with no discernable trend. Low hardness readings in surface water locations results in low calculated standards that are very near the laboratory reporting limits. Ongoing final closure of this section of the landfill should further reduce sediment transport.

With only a single monitoring event completed, there are no trends yet at SW-B or SW-4 through SW-7. The initial sampling event for SW-4 through SW-7 had a number of elevated metals, including lead and mercury which exceed surface water quality standards. As explained Section 3.2, these detections seem correlated with turbidity and it is possible the detections are related to off-site, non-landfill sources. TRL plans to resample and conduct additional investigation.

5.2 TDS/Conductivity Parameter Correlation

TDS and specific conductivity are commonly used to evaluate the precision and accuracy of data. TDS and conductivity both measure dissolved ions in solution and thus should be reasonably correlated. The commonly accepted ratio of TDS to conductivity ranges from 0.55 to 0.70. Data which falls out of this range may be erroneous. The following graph shows a scatterplot of TDS and conductivity for all groundwater wells for the reporting period. The Y intercept was set to zero.



The plot shows there is generally good correlation between the two parameters, with the slope of the line at 0.56 which is within the generally accepted range. There are a few readings that are outliers, likely due to measurement error or highly turbid samples. If these outliers are removed, the correlation is better. Review of the actual ratios on a per sample basis reveals most samples (approximately 75%) are outside the acceptable range. This indicates there is potential measurement error in either conductivity or TDS which could be related to field measurement errors, lab measurement errors, calibration errors, or the influence of elevated turbidities. The findings most likely represent errors or variations in the field conductivity measurements and do not affect the overall quality of monitoring data.

5.3 Erratic or Poorly Correlated Data

Other than isolated detections of VOCs that were attributed to false positives, there was no erratic or poorly correlated data.

5.4 Monitoring Program Evaluation and Recommendations

Based on the site hydrogeology, current site layout and calculated groundwater flow velocities, the permitted groundwater monitoring network appears adequate to detect landfill related releases. Monitoring results are consistent with prior reporting periods and do not vary significantly from event to event. SGMW-1(S) is being replaced in an attempt to reduce turbidity.

Impacts at SW-1 and SW-3 remain, though most parameters are stable or slightly decreasing. Additional investigation is required into the potential source of detections in the new stormwater retention ponds and the monitoring system or approach may require modification based upon these findings. Site personnel should continue to implement the agreed upon BMPs to limit sediment transport, reduce turbidities in the site retention ponds, and prevent potential impacts from waste runoff.

6.0 REFERENCES

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

Florida Department of Environmental Protection, DEP-SOP-001/01

Florida Department of Environmental Protection, Notice of Permit, June 16, 2014, Permit Number 0013493-025-SO-01.

Golder Associates, Semi-Annual Groundwater and Surface Water Monitoring Report for the 1H 2016 through 1H 2017 Monitoring Periods, Trail Ridge Landfill, Duval County Florida, Permit No. 0013493-025-SO-01.

Carlson Environmental Consultants, PC, Semi-Annual Groundwater and Surface Water Monitoring Report for the 2H 2017 through 1H 2018 Monitoring Periods, Trail Ridge Landfill, Duval County Florida, Permit No. 0013493-025-SO-01.

TABLES

TABLE 1 Water Level Measurements Trail Ridge Landfill, Jacksonville, Florida			1H 2016		2H 2016		1H 2017		2H 2017		1H 2018	
Well ID	TOC											
	Elevation	Screened Interval	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation	Depth to Water	Groundwater Elevation
	(ft MSL)	(ft BTOC)	(ft BTOC)	(ft MSL)	(ft BTOC)	(ft MSL)	(ft BTOC)	(ft MSL)	(ft BTOC)	(ft MSL)	(ft BTOC)	(ft MSL)
Shallow Wells												
MWB-2(S)	146.64	10.00 to 20.00	9.40	137.24	DRY	<126.64	DRY	<126.64	3.91	142.73	7.94	138.70
MWB-3(S)	154.38	10.00 to 20.00	8.10	146.28	10.38	144.00	9.68	144.7	6.21	148.17	7.62	146.76
MWB-7(S)	123.29	10.00 to 20.00	10.02	113.27	11.17	112.12	11.7	111.59	8.32	114.97	10.37	112.92
MWB-11{S)	120.81	9.50 to 19.50	12.40	108.41	DRY	<101.31	13.42	107.39	9.31	111.5	11.18	109.63
MWB-12(S)	124.63	14.50 to 24.50	10.78	113.85	11.73	112.90	11.53	113.1	7.86	116.77	10.15	114.48
MWB-13(S)	126.05	16.56 to 26.56	14.23	111.82	DRY	<99.49	DRY	<99.49	11.81	114.24	13.19	112.86
MWB-14(S)	126.05								Below pump		Below pump	
MWB-20(S)	121.01	10.00 to 20.00	9.40	111.61	10.55	110.46	10.68	110.33	6.52	114.49	9.13	111.88
MWB-21(S)	122.84	13.00 to 18.00	10.78	112.06	11.34	111.50	11.54	111.3	9.22	113.62	10.61	112.23
MWB-22(S)	126.97	16.00 to 26.00	12.10	114.87	12.92	114.05	12.7	114.27	9.67	117.3	11.53	115.44
MWB-23(S)	125.34								13.43	111.91	14.36	110.98
MWB-24(S)	126.04								5.61	120.43	7.17	118.87
MWB-25(S)	125.22								6.61	118.61	7.82	117.40
MWB-26(S)	126.55								6.27	120.28	7.13	119.42
MWB-27(S)	128.42	10.50 to 15.50	7.53	120.89	10.09	118.33	8.72	119.7	6.15	122.27	7.06	121.36
MWB-29(S)	138.02	10.00 to 20.00	8.02	130.00	9.41	128.61	8.91	129.11	6.85	131.17	8.17	129.85
MWB-32(S)	124.64	14.90 to 19.90	8.70	115.94	10.65	113.99	9.71	114.93	6.77	117.87	8.23	116.41
MWB-33(S)	125.9	10.30 to 20.30	10.42	115.48	11.65	114.25	11.19	114.71	9.12	116.78	9.96	115.94
MWB-34(S)	125.78	13.36 to 18 36	9.18	116.6	10.57	115.21	9.98	115.80	7.17	118.61	8.58	117.20
MWB-35(S)	147.79	10.00 to 15.00					9.16	138.63	4.30	143.49	7.02	140.77
MWB-39(S)	126.85	11.00 to 21.00					14.65	112.20	12.35	114.5	13.57	113.28
MWB-40(S)	115.41	11.00 to 21.00					10.63	104.78	9.60	105.81	8.59	106.82
SGMW-1(S)	138.86	5.00 to 15.00					15.54	123.32	15.08	123.78	15.43	123.43
SGMW-2(S)	130.55	5.00 to 15.00					16.07	114.48	15.49	115.06	15.72	114.83
Intermediate Wells												
MWB-2(I)	145.73	51.50 to 61.50	11.25	134.48	14.23	131.5	13.5	132.23	9.08	136.65	10.28	135.45
MWB-3(I)	151.86	52.00 to 62.00	14.41	137.45	16.18	135.68	15.85	136.01	12.86	139.00	13.71	138.15
MWB-7(I)	121.53	55.00 to 65.00	10.53	111.00	9.40	112.13	8.71	112.82	7.18	114.35	7.56	113.97
MWB-11(IR)	120.43	45.00 to 55.00	19.8	100.63	16.59	103.84	16.2	104.23	14.72	105.71	15.13	105.30
IVIWB-12(I)	124.62	61.50 to 71.50	11.02	113.6	11.65	112.97	11.08	113.54	8.96	115.66	9.17	115.45
MWB-13(I)	125.98	50.40 to 60.40	17.81	108.17	19.62	106.36	19.5	106.48	16.41	109.57	16.74	109.24
MWB-14(I)	125.92								10.55	115.37	10.81	115.11
MWB-25(I)	124.03								6.48	117.55	6.71	117.32
MWB-27(I)	128.63	52.50 to 62.50	8.74	119.89	11.47	117.16	10.66	117.97	7.88	120.75	7.52	121.11
MWB-29(I)	138.08	53.50 to 63.50	8.07	130.01	10.58	127.50	10.07	128.01	6.66	131.42	7.02	131.06
MWB-32(I)	124.79	54.56 to 64.56	9.42	115.37	11.54	113.25	10.7	114.09	8.2	116.59	8.30	116.49
MWB-34(I)	125.8	43.95 to 53.95	10.46	115.34	12.32	113.48	11.58	114.22	9.1	116.7	9.51	116.29
MWB-35(I)	147.93	50.00 to 60.00					10.6	137.33	7.34	140.59	8.65	139.28
MWB-39(I)	126.76	55.00 to 60.00					13.56	113.2	11.89	114.87	12.45	114.31
Deep Wells												
MWB-7(D)	121.65	107.00 to 117.00	5.32	116.33	5,80	115.85	5.16	116.49	3.76	117.89	4.06	117.59
MWB-12(D)	124.56	102.00 to 112.00	8.56	116.00	9.37	115.19	8.73	115.83	7.18	117.38	7.62	116.94
MWB-14(D)	125.87								10.6	115.27	10.82	115.05
MWB-25(D)	124.64								7.26	117.38	7.25	117.39
MWB-27(D)	128.88	110.00 to 110.00	9.12	119.76	11.85	117.03	11.03	117.85	8.25	120.63	7.89	120.99
MWB-29(D)	138.18	100.50 to 110.50	8.18	130.00	10.70	127.48	10.16	128.02	6.79	131.39	7.13	131.05
MWB-31(D)	156.15	119.00 to 129.00	19.05	137.10	21.16	134.99	20.71	135.44	17.61	138.54	18.32	137.83
MWB-32(D)	124.93	98.81 to 108.81	9.76	115.17	11.78	113.15	10.93	114.00	8.31	116.62	8.55	116.38
MWB-34(D)	125.92	90.78 to 100.78	11.2	114.72	12.54	113.38	11.77	114.15	9.38	116.54	9.72	116.20

Table 2A - 1H 2016
Summary of Groundwater Analytical Results - Shallow - Shaded Cells Are Detections
Trail Ridge Landfill, Jacksonville, Florida
I = Detection between MDL and PQL
J = Estimated Value

				1H 2016												
Parameter	**Unit**	**MCL**	**SMCL**	**MWB-2S**	**MWB-3S**	**MWB-11S**	**MWB-12S**	**MWB-13S**	**MWB-20S**	**MWB-21S**	**MWB-22S**	**MWB-27S**	**MWB-29S**	**MWB-32S**	**MWB-33S**	**MWB-34S**
Laboratory Method EPA 8260																
1,1,1,2-Tetrachloroethane	ug/L			<0.37	< 0.37	< 0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,1,1 -Trichloroethane	ug/L	200		<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	< 0.37	< 0.37
1,1,2,2-Tetrachloroethane	ug/L			<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	< 0.62
1,1,2-Trichloroethane	ug/L	5		<0.33	<0.33	<0.33	<0.33	<0.33	<0 33	< 0.33	<0.33	< 0.33	< 0.33	< 0.33	<0.33	<0.33
1,1-Dichloroethane	ug/L			<0.38	< 0.38	<0.38	<0.38	< 0.38	< 0.38	< 0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1-Dichloroethene	ug/L	7		< 0.36	< 0.36	< 0.36	<0.36	<0.36	<0.36	< 0.36	< 0.36	<0.36	<0.36	< 0.36	<0.36	<0.36
1,2,3-Trichloropropane	ug/L			< 0.39	<0.39	<0.39	<0.39	<0.39	<0.39	< 0.39	< 0.39	< 0.39	<0.39	< 0.39	<0.39	<0.39
1,2-Dlbromo-3-Chloropropane	ug/L	0.2		< 0.0054	< 0.0050	< 0.0049	< 0.0052	< 0.0050	< 0.0051	< 0.0051	< 0.0048	< 0.0049	< 0.0049	< 0.0052	< 0.0051	< 0.0049
1,2-Dibromoethane (EDB)	ug/L	0.02		< 0.0024	< 0.0022	< 0.0022	< 0.0023	< 0.0022	< 0.0022	< 0.0022	< 0.0021	< 0.0021	< 0.0021	< 0.0023	< 0.0022	< 0.0022
1,2-Dichlorobenzene	ug/L	600		<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	< 0.37	< 0.37	< 0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	ug/L	3		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5
1,2-Dichloropropane	ug/L	5		<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	< 0.67	< 0.67	<0.67	< 0.67	< 0.67	<0 67
1,4-Dichlorobenzene	ug/L	75		<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	< 0.46	<0.46	<0.46	<0.46	<0.46	< 0.46	< 0.46
2-Butanone	ug/L			< 3.4	< 3.4	< 3.4	<3.4	<3.4	<3.4	<3.4	<3.4	< 3.4	<3.4	< 3.4	<3.4	<3.4
2-Hexanone	ug/L			<2	<2	<2	<2	< 2	<2	<2	<2	<2	< 2	<2	< 2	< 2
4-Methyl-2-pentanone	ug/L			<2.1	<2.1	<2.1	< 2.1	< 2.1	< 2.1	<2.1	< 2.1	<2.1	<2.1	<2.1	< 2.1	<2.1
Acetone	ug/L			< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7	< 7
Acrylonitrile	ug/L			< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	ug/L	1		< 0.43	< 0.43	< 0.43	<0.43	<0.43	<0.43	<0 43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43
Bromochloromethane	ug/L			<0.45	<0.45	<0.45	< 0.45	< 0.45	< 0.45	<0.45	< 0.45	<0.45	<0.45	<0.45	< 0.45	< 0.45
Bromodichloromethane	ug/L			<0.44	< 0.44	< 0.44	<0 44	<0.44	<0.44	<0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44
Bromoform	ug/L			<0.43	< 0.43	< 0.43	< 0.43	<0.43	<0.43	<0.43	< 0.43	< 0,43	<0.43	<0.43	<0.43	<0 43
Bromomethane	ug/L			<2.5	<2.5	<2.5	<2.5	< 2.5	<2.5	<2.5	<25	<2.5	<2.5	<2.5	< 2.5	< 2.5
Carbon disulfide	ug/L			< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon tetrachloride	ug/L	3		<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	< 0.33	<0.33	< 0.33	< 0.33
Chlorobenzene	ug/L	100		< 0.26	< 0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	< 0 .26	< 0.26	< 0.26	<0.26	<0.26
Chloroethane	ug/L			<2.5	<2.5	<2.5	< 2.5	< 2.5	< 2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Chloroform	ug/L			<0.5	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0,5	<0.5	< 0.5	< 0.5	<0.5	< 0.5	<0.5
Chloromethane	ug/L			< 0.4	<0.4	<0.4	< 0.4	< 0.4	< 0.4	<04	< 0.4	< 0.4	< 0.4	<0.4	<0.4	< 0.4
cis-1,2-Dichloroethene	ug/L	70		<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	< 0.41	< 0.41	< 0.41	< 0.41	<0 41	< 0.41	<0 41
cis-1,3-Dlchloropropene	ug/L			< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Dibromochloromethane	ug/L			<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	< 0.32	<0.32	<0.32	<0.32	< 0.32	< 0.32
Dibromomethane	ug/L			<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	< 0.35	< 0.35	< 0.35	< 0.35	< 0 35	<0.35
Ethylbenzene	ug/L	700		<0.33	<0 33	<0.33	<0.33	<0.37	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	< 0.33	<0.33
Iodomethane	ug/L			< 5	<5	<5	< 5	< 5	< 5	<5	< 5	< 5	<5	<5	<5	<5
Methylene chloride	ug/L	5		< 2.5	< 2.5	< 2.5	<2.5	< 2.5	< 2.5	<2.5	<2.5	< 2.5	<2.5	< 2.5	<2.5	<2.5
Styrene	ug/L	100		< 0 27	<0.27	<0.27	<0.27	<0,27	< 0.27	<0.27	<0.27	<0.27	< 0.27	<0 27	< 0.27	<0 27
Tetrachloroethene	ug/L	3		< 0.74	< 0.74	< 0.74	<0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74	< 0.74
Toluene	ug/L	1000		< 0.48	< 0.48	< 0.48	<0.48	< 0.48	<0.48	<0.48	< 0.48	< 0.48	<0.48	< 0.48	< 0.48	< 0,48
trans-1,2-Dichloroethene	ug/L	100		<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	< 0.37	<0.37	< 0.37	<0.37	<0.37	< 0.37	<0.37
trans-1,3-Dichloropropene	ug/L			< 0.42	< 0.42	< 0.42	<0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42
trans-1,4-Dichloro-2-butene	ug/L			<0.51	<0.51	<0.51	<0.51	< 0.51	< 0.51	<0.51	<0.51	<0.51	<0.51	<0 51	< 0.51	<0 51
Trichloroethene	ug/L	3		<0.48	< 0.48	< 0.48	<0.48	<0.48	<0 48	<0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48	< 0.48
Trichlorofluoromethane	ug/L			<0.42	< 0.42	< 0.42	< 0.42	<0.42	<0.42	<0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42
Vinyl acetate	ug/L			<0.81	<0.81	<0.81	< 0.81	<0.81	< 0.81	<0.81	<0.81	<0.81	< 0.81	<0.81	< 0.81	<0.81
Vinyl chloride	ug/L	1		< 0.5	< 0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5	< 0.5	<0.5	< 0.5	< 0.5
Xylenes, Total	ug/L	10000		<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	< 0.23
Laboratory Method EPA 300.0																
Chloride	mg/L		250	5.5	8.1	17	42	14	120	8.4	14	35	8.6	13	9.6	14
Laboratory Method EPA 350.1																
Ammonia (N)	mg/L			< 0.10	< 0.10	0.10 I	0.14 I	0.20 I	2.3	0.43	0.12 I	1.2	0.16 I	0.61	0.55	0.41
boratory Method EPA 353.2 (Nitrate (I																
Nitrate (N)	mg/L	10		0.082	0.2	0.41	0.98	0.38	0.038 I	0.37	< 0.01	2.7	0.013 I	0.011 I	0.21	6.5
Laboratory Method SM18 2540 C																
Total Dissolved Solids (TDS)	mg/L		500	350	62	110	250	180	230	82	210	180	45	120	200	430
Laboratory Method EPA 7470																
Mercury	ug/L	2		0.098 I	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Laboratory Method EPA 6020																
Antimony	ug/L	6		<0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50	<0.50	< 0.50	< 0.50	< 0.50	1.1 I
Arsenic	ug/L	10		2.11	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Barium	ug/L	2000		35	12	57	7.5	5.1	30	16	3.4 I	6.9	10	26	9.1	4.5 I
Beryllium	ug/L	4		0.29 I	< 0.17	0.17 I	< 0.17	< 0.17	0.17 I	<0.17	<0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
Cadmium	ug/L	5		<0.15	< 0.15	< 0.15	< 0.15	<0.15	<0.15	< 0.15	<0.15	< 0.15	< 0.15	< 0.15	<0.15	<0.15
Chromium	ug/L	100		13	< 1.6	< 1.6	3.2 I	3.6 I	< 1.6	< 1.6	< 1.6	2.9 I	< 1.6	1.7 I	< 1.6	< 1.6
Cobalt	ug/L			2.1	<0.12	0.47 1	0.14 I	0.12 1	0.35 I	<0.12	< 0.12	0.12 I	0.22 I	0.34 I	< 0.12	0.27 I
Copper	ug/L		1000	3.6 I	< 1.7	< 1.7	2.2 I	2.7 I	< 1.7	2.6 I	< 1.7	2.6 I	< 1.7	< 1.7	< 1.7	4.1 I
Iron	ug/L		300	5400	1100	650	340	780	220	76 I	87 I	89 I	370	700	110	140
Lead	ug/L	15		8.6	< 0.98	<0.98	1.31	<0.98	<0.98	<0.98	<0.98	< 0.98	<0.98	< 0.98	<0.98	<0.98
Nickel	ug/L	100		5.6	< 1.9	< 1.9	< 1.9	1.9 1	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9	< 1.9
Selenium	ug/L	50		10	< 1	< 1	14	3.3	< 1.0	1.5 I	1.1 I	1.3 I	1.5 I	1.5 I	1.5 I	7
Silver	ug/L		100	< 0.10	< 0.10	< 0.10	<0.10	<0.10	< 0.10	<0.10	<0.10	< 0.10	<0.10	< 0.10	<0.10	< 0.10
Sodium	ug/L	160,000		8400	5100	10000	32000	14000	52000	4100	10000	26000	6800	8500	8200	33000
Thallium	ug/L	2		<0.49	<0.49	<0.49	<0.49	<0.49	< 0.49	<0.49	< 0.49	<0.49	<0.49	< 0.49	< 0.49	<0.49
Vanadium	ug/L			14	< 3.8	< 3.8	43	27	< 5.3	7.21	< 5.3	15	< 5.3	< 5.3	22	48
Zinc	ug/L		5000	10.1	<9.6	< 9.6	<9.6	< 9.6	< 9.6	<9.6	< 9.6	<9.6	<9.6	< 9.6	< 9.6	27

Table 2A - 2H 2016

Summary of Groundwater Analytical Results - Shallow - Shaded Cells Are Detections

Trail Ridge Landfill, Jacksonville, Florida

				2H 2016												
Parameter	**Unit**	**MCL**	**SMCL**	**MWB-2S**	**MWB-3S**	**MWB-11S**	**MWB-12S**	**MWB-13S**	**MWB-20S**	**MWB-21S**	**MWB-22S**	**MWB-27S**	**MWB-29S**	**MWB-32S**	**MWB-33S**	**MWB-34S**
Laboratory Method EPA 8260																
1,1,1,2-Tetrachloroethane	ug/L			NA	<0.37	<0.37	<0.37	NA	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,1,1 -Trichloroethane	ug/L	200		NA	<0.37	<0.37	<0.37	NA	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,1,2,2-Tetrachloroethane	ug/L			NA	<0.62	<0.62	<0.62	NA	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62	<0.62
1,1,2-Trichloroethane	ug/L	5		NA	<0.33	<0.33	<0.33	NA	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
1,1-Dichloroethane	ug/L			NA	<0.38	<0.38	<0.38	NA	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38	<0.38
1,1-Dichloroethene	ug/L	7		NA	<0.36	<0.36	<0.36	NA	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36	<0.36
1,2,3-Trichloropropane	ug/L			NA	<0.39	<0.39	<0.39	NA	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dlbromo-3-Chloropropane	ug/L	0.2		NA	< 0.0049	< 0.0048	< 0.0049	NA	< 0.0048	< 0.0049	< 0.0049	< 0.0048	< 0.0049	< 0.0049	< 0.0049	< 0.0049
1,2-Dibromoethane (EDB)	ug/L	0.02		NA	< 0.0021	< 0.0021	< 0.0022	NA	< 0.0021	< 0.0022	< 0.0021	< 0.0021	< 0.0022	< 0.0022	< 0.0021	< 0.0021
1,2-Dichlorobenzene	ug/L	600		NA	<0.37	<0.37	<0.37	NA	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
1,2-Dichloroethane	ug/L	3		NA	< 0.5	< 0.5	< 0.5	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
1,2-Dichloropropane	ug/L	5		NA	<0.67	<0.67	<0.67	NA	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67
1,4-Dichlorobenzene	ug/L	75		NA	< 0.46	< 0.46	< 0.46	NA	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46	< 0.46
2-Butanone	ug/L			NA	<3.4	<3.4	<3.4	NA	< 3.4	<3.4	<3.4	<3.4	<3.4	<3.4	< 3.4	<3.4
2-Hexanone	ug/L			NA	<2	< 2	< 2	NA	<2	<2	<2	<2	< 2	< 2	<2	<2
4-Methyl-2-pentanone	ug/L			NA	<2.1	<2.1	<2.1	NA	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1	<2.1
Acetone	ug/L			NA	< 7	<7	< 7	NA	< 7	<7	< 7	<7	<7	<7	< 7	< 7
Acrylonitrile	ug/L			NA	< 10	< 10	< 10	NA	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	ug/L	1		NA	<0.43	<0.43	<0.43	NA	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Bromochloromethane	ug/L			NA	<0.45	<0.45	<0.45	NA	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45
Bromodichloromethane	ug/L			NA	<0.44	<0.44	<0.44	NA	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44
Bromoform	ug/L			NA	<0.43	<0.43	<0.43	NA	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43	<0.43
Bromomethane	ug/L			NA	< 2.5	< 2.5	< 2.5	NA	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5
Carbon disulfide	ug/L			NA	< 1	< 1	< 1	NA	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Carbon tetrachloride	ug/L	3		NA	<0.33	<0.33	<0.33	NA	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Chlorobenzene	ug/L	100		NA	<0.26	<0.26	<0.26	NA	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26	<0.26
Chloroethane	ug/L			NA	<2.5	<2.5	<2.5	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Chloroform	ug/L			NA	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chloromethane	ug/L			NA	<0.4	< 0.4	<0.4	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
cis-1,2-Dichloroethene	ug/L	70		NA	<0.41	<0.41	<0.41	NA	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41	<0.41
cis-1,3-Dlchloropropene	ug/L			NA	<0.4	<0.4	<0.4	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Dibromochloromethane	ug/L			NA	<0.32	<0.32	<0.32	NA	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32
Dibromomethane	ug/L			NA	<0.35	<0.35	<0.35	NA	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35	<0.35
Ethylbenzene	ug/L	700		NA	<0.33	<0.33	<0.33	NA	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Iodomethane	ug/L			NA	<5	<5	<5	NA	<5	<5	< 5	<5	< 5	<5	<5	< 5
Methylene chloride	ug/L	5		NA	<2.5	<2.5	< 2.5	NA	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Styrene	ug/L	100		NA	<0.27	<0.27	<0.27	NA	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27
Tetrachloroethene	ug/L	3		NA	<0.74	<0.74	<0.74	NA	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74	<0.74
Toluene	ug/L	1000		NA	<0.48	<0.48	<0.48	NA	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
trans-1,2-Dichloroethene	ug/L	100		NA	<0.37	<0.37	<0.37	NA	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37	<0.37
trans-1,3-Dichloropropene	ug/L			NA	<0.42	<0.42	<0.42	NA	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
trans-1,4-Dichloro-2-butene	ug/L			NA	<0.51	<0.51	<0.51	NA	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51	<0.51
Trichloroethene	ug/L	3		NA	<0.48	<0.48	<0.48	NA	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48
Trichlorofluoromethane	ug/L			NA	<0.42	<0.42	<0.42	NA	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42	<0.42
Vinyl acetate	ug/L			NA	<0.81	<0.81	<0.81	NA	<0.81	<0.81	<0.81	<0.81	<0.81	<0.81	<0.81	<0.81
Vinyl chloride	ug/L	1		NA	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Xylenes, Total	ug/L	10000		NA	<0.23	<0.23	<0.23	NA	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23
Laboratory Method EPA 300.0																
Chloride	mg/L		250	NA	7.6	16	44	NA	280	25	10	33	17	12	6.8	21
Laboratory Method EPA 350.1																
Ammonia (N)	mg/L			NA	<0.10	<0.10	0.22 I	NA	3.8	<0.10	0.11	1.1	0.35	0.68	0.72	1.1
boratory Method EPA 353.2 (Nitrate (																
Nitrate (N)	mg/L	10		NA	<0.010	0.018 I	0.038 I	NA	0.072	7	<0.10	<0.10	0.037 I	<0.10	<0.10	0.099
Laboratory Method SM18 2540 C																
Total Dissolved Solids (TDS)	mg/L		500	NA	35	87	200	NA	560	210	180	160	84	99	120	220
Laboratory Method EPA 7470																
Mercury	ug/L	2		NA	< 0.080	< 0.080	< 0.080	NA	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080	< 0.080
Laboratory Method EPA 6020																
Antimony	ug/L	6		NA	<0.50	<0.50	<0.50	NA	<0.50	0.501	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	ug/L	10		NA	<1.5	< 1.5	< 1.5	NA	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Barium	ug/L	2000		NA	15	68	5.8	NA	26	19	19	7.5	20	27	8.3	6.8
Beryllium	ug/L	4		NA	<0.17	<0.17	<0.17	NA	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17
Cadmium	ug/L	5		NA	<0.15	<0.15	<0.15	NA	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Chromium	ug/L	100		NA	< 1.6	< 1.6	<1.6	NA	1.9 I	2.4 I	< 1.6	1.7 I	< 1.6	< 1.6	< 1.6	1.7 I
Cobalt	ug/L			NA	<0.12	0.53	<0.12	NA	0.22 I	0.17 I	<0.12	0.18 I	0.22 I	0.35 I	<0.12	0.35 I
Copper	ug/L		1000	NA	< 1.7	< 1.7	<1.7	NA	< 1.7	4.81	< 1.7	< 1.7	< 1.7	< 1.7	< 1.7	1.71
Iron	ug/L		300	NA	2700	1400	200	NA	280	190	120	250	420	790	130	430
Lead	ug/L	15		NA	<0.98	<0.98	<0.98	NA	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98	<0.98
Nickel	ug/L	100		NA	< 1.9	< 1.9	< 1.9	NA	< 1.9	< 1.9	< 1.9	2.41	< 1.9	< 1.9	< 1.9	< 1.9
Selenium	ug/L	50		NA	< 1	< 1	2.4 I	NA	< 1	7.4	<1	<1	<1	< 1	<1	2.4 I
Silver	ug/L		100	NA	<0.10	<0.10	<0.10	NA	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Sodium	ug/L	160,000		NA	4100	11000	25000	NA	120000	15000	9100	26000	13000	8400	4000	18000
Thallium	ug/L	2		NA	<0.49	<0.49	<0.49	NA	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49	<0.49
Vanadium	ug/L			NA	<3.8	<3.8	15	NA	5.7 I	16	<5.3	6.1 I	<5.3	<5.3	<5.3	13
Zinc	ug/L		5000	NA	<9.6	<9.6	<9.6	NA	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	10 I

Table 2A - 1H 2017

Summary of Groundwater Analytical Results - Shallow - Shaded Cells Are Detections

Trail Ridge Landfill, Jacksonville, Florida

				1H 2017																	
Parameter	**Unit**	**MCL**	**SMCL**	**MWB-2S**	**MWB-3S**	**MWB-11S**	**MWB-12S**	**MWB-13S**	**MWB-20S**	**MWB-21S**	**MWB-22S**	**MWB-27S**	**MWB-29S**	**MWB-32S**	**MWB-33S**	**MWB-34S**	**MWB-35S**	**MWB-39S**	**MWB-40S**	**SGMW-1S**	**SGMW-2S**
Laboratory Method EPA 8260																					
1,1,1,2-Tetrachloroethane	ug/L			--	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	--	< 0.26
1,1,1 -Trichloroethane	ug/L	200		--	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	--	< 0.22
1,1,2,2-Tetrachloroethane	ug/L			--	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
1,1,2-Trichloroethane	ug/L	5		--	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	--	< 0.30
1,1-Dichloroethane	ug/L			--	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	--	< 0.14
1,1-Dichloroethene	ug/L	7		--	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
1,2,3-Trichloropropane	ug/L			--	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	--	< 0.30
1,2-Dlbromo-3-Chloropropane	ug/L	0.2		--	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11	--	< 0.11
1,2-Dibromoethane (EDB)	ug/L	0.02		--	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	--	< 0.020
1,2-Dichlorobenzene	ug/L	600		--	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
1,2-Dichloroethane	ug/L	3		--	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
1,2-Dichloropropane	ug/L	5		--	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
1,4-Dichlorobenzene	ug/L	75		--	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	--	< 0.22
2-Butanone	ug/L			--	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	12	< 0.43	< 0.43	< 0.43	--	< 0.43
2-Hexanone	ug/L			--	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	--	< 0.44
4-Methyl-2-pentanone	ug/L			--	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	--	< 0.47
Acetone	ug/L			--	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	72	< 2.1	< 2.1	< 2.1	--	< 2.1
Acrylonitrile	ug/L			--	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	--	< 1.1
Benzene	ug/L	1		--	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Bromochloromethane	ug/L			--	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	--	< 0.17
Bromodichloromethane	ug/L			--	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	--	< 0.25
Bromoform	ug/L			--	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	--	< 0.43
Bromomethane	ug/L			--	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	--	< 0.24
Carbon disulfide	ug/L			--	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	--	< 0.21
Carbon tetrachloride	ug/L	3		--	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	--	< 0.36
Chlorobenzene	ug/L	100		--	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	--	< 0.21
Chloroethane	ug/L			--	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	--	< 0.33
Chloroform	ug/L			--	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
Chloromethane	ug/L			--	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	--	< 0.21
cis-1,2-Dichloroethene	ug/L	70		--	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	--	< 0.24
cis-1,3-Dlchloropropene	ug/L			--	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Dibromochloromethane	ug/L			--	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	--	< 0.33
Dibromomethane	ug/L			--	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	--	< 0.26
Ethylbenzene	ug/L	700		--	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	--	< 0.24
Iodomethane	ug/L			--	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Methylene chloride	ug/L	5		--	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	--	< 2.5
Styrene	ug/L	100		--	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
Tetrachloroethene	ug/L	3		--	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	--	< 0.36
Toluene	ug/L	1000		--	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
trans-1,2-Dichloroethene	ug/L	100		--	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
trans-1,3-Dichloropropene	ug/L			--	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
trans-1,4-Dichloro-2-butene	ug/L			--	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	--	< 1.8
Trichloroethene	ug/L	3		--	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	--	< 0.29
Trichlorofluoromethane	ug/L			--	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	--	< 0.32
Vinyl acetate	ug/L			--	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	--	< 0.19
Vinyl chloride	ug/L	1		--	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
Xylenes, Total	ug/L	10000		--	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	--	< 0.53
Laboratory Method EPA 300.0																					
Chloride	mg/L		250	--	8.4	16	60	16	160	18	14	78	28	11	12	300	4.6 I	25	29	--	6
Laboratory Method EPA 350.1																					
Ammonia (N)	mg/L			--	0.06	0.18	0.06	0.05	0.69	0.43	0.12	0.71	1.1	0.74	0.89	0.71	0.05	1	0.18	--	0.04
boratory Method EPA 353.2 (Nitrate (I																					
Nitrate (N)	mg/L	10		--	< 0.050	0.057 I	0.30 I	1.4	3.5	1.6	< 0.050	0.16 I	< 0.050	< 0.050	0.050 J	3.3	< 0.050	< 0.050	0.24 I	--	< 0.050
Laboratory Method SM18 2540 C																					
Total Dissolved Solids (TDS)	mg/L		500	--	27	97	270	190	320	140	190	260	110	44	200	980	330	91	--	--	35
Laboratory Method EPA 7470																					
Mercury	ug/L	2		--	0.015 I	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	0.016 I	< 0.011	< 0.011	< 0.011	0.015 I	< 0.011	< 0.011	< 0.011	--	0.028 I
Laboratory Method EPA 6020																					
Antimony	ug/L	6		--	< 0.50	0.090 I	0.25 I	0.17 I	0.14 I	0.18 I	0.089 I	0.22 I	0.048 I	< 0.046	0.098 I	1.2	< 0.046	0.059 I	< 0.046	--	< 0.046
Arsenic	ug/L	10		--	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	< 8.5	--	< 8.5
Barium	ug/L	2000		--	16	57	10	8.7	18	7.9	3.1	8.1	13	20	14	7.5	9	3.8	190	--	61
Beryllium	ug/L	4		--	< 0.13	0.22 I	< 0.13	< 0.13	< 0.13	0.13 I	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	0.55	--	0.48
Cadmium	ug/L	5		--	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	--	< 0.32
Chromium	ug/L	100		--	1.1 B	1.1	4.9 B	8.7 B	3	3.8 B	1.2 B	3.3 B	2.3 B	1.2	1.7	4.5	1.1	1.7	1	--	3.9
Cobalt	ug/L			--	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.60	< 0.060	< 0.60	< 0.60	< 0.61	< 0.60	< 0.60	--	--	< 0.60
Copper	ug/L		1000	--	< 2.5	< 2.5	4.8	6.4	< 2.5	2.8 I	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	6	< 2.5	< 2.5	--	--	< 2.5
Iron	ug/L		300	--	740	1800	940	1800	170 I	130 I	63 I	64 I	350	610	470	2000	100 I	3000	--	--	600
Lead	ug/L	15		--	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	< 1.3	--	1.3 I
Nickel	ug/L	100		--	< 1.1	< 1.1	< 1.1	3.2 I	< 1.1	< 1.1	< 1.1	1.3 I	< 1.1	< 1.1	< 1.1	3.4 I	< 1.1	< 1.1	< 1.1	--	< 1.1
Selenium	ug/L	50		--	< 0.58	< 0.58	8.7	4.3 I	< 0.58	0.58 I	< 0.58	2.3 I	< 0.58	< 0.58	0.71 I	2.9 I	< 0.58	0.84 I	< 0.58	--	< 0.58
Silver	ug/L		100	--	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.45	< 0.44	< 0.44	--		< 0.44
Sodium	ug/L	160,000		--	4400	9300	31000	12000	56000	9800	7600	44000	18000	6400	8800	130000	2500	14000	12000	--	3500
Thallium	ug/L	2		--	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	< 0.057	--	< 0.057
Vanadium	ug/L			--	1.7	3.7	37	34	6.5	2.9	0.70 I	31	6.5	1.2 I	6.8	81	2.3	2.3	--	--	9.3
Zinc	ug/L		5000	--	10	6.8 I	17	20	8.3 I	12	10	12	12	16	7.1 I	14	9.5 I	9.7 I	--	--	8.1 I

Table 2A - 2H 2017

Summary of Groundwater Analytical Results - Shallow - Shaded Cells Are Detections

Trail Ridge Landfill, Jacksonville, Florida

				2H 2017																		
Parameter	**Unit**	**MCL**	**SMCL**	**MWB-2S**	**MWB-3S**	**MWB-11S**	**MWB-12S**	**MWB-13S**	**MWB-20S**	**MWB-21S**	**MWB-22S**	**MWB-27S**	**MWB-29S**	**MWB-32S**	**MWB-33S**	**MWB-34S**	**MWB-35S**	**MWB-39S**	**MWB-40S**	**SGMW-1S**	**SGMW-2S**
Laboratory Method EPA 8260																						
1,1,1,2-Tetrachloroethane	ug/L			< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	--	< 0.26
1,1,1 -Trichloroethane	ug/L	200		< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	--	< 0.22
1,1,2,2-Tetrachloroethane	ug/L			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
1,1,2-Trichloroethane	ug/L	5		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	--	< 0.30
1,1-Dichloroethane	ug/L			< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	--	< 0.14
1,1-Dichloroethene	ug/L	7		< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
1,2,3-Trichloropropane	ug/L			< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	--	< 0.30
1,2-Dlbromo-3-Chloropropane	ug/L	0.2		<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	--	<0.11
1,2-Dibromoethane (EDB)	ug/L	0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	<0.02
1,2-Dichlorobenzene	ug/L	600		< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
1,2-Dichloroethane	ug/L	3		< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
1,2-Dichloropropane	ug/L	5		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
1,4-Dichlorobenzene	ug/L	75		< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	--	< 0.22
2-Butanone	ug/L			< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	--	< 0.43
2-Hexanone	ug/L			< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	--	< 0.44
4-Methyl-2-pentanone	ug/L			< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	--	< 0.47
Acetone	ug/L			< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	2.2 I	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	< 2.1	--	< 2.1
Acrylonitrile	ug/L			< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	--	< 1.1
Benzene	ug/L	1		< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	0.34 I	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Bromochloromethane	ug/L			< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	--	< 0.17
Bromodichloromethane	ug/L			< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	--	< 0.25
Bromoform	ug/L			< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	--	< 0.43
Bromomethane	ug/L			< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	--	< 0.24
Carbon disulfide	ug/L			< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	0.45 I	0.21 I	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	--	< 0.21
Carbon tetrachloride	ug/L	3		< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	--	< 0.36
Chlorobenzene	ug/L	100		< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	--	< 0.21
Chloroethane	ug/L			< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	--	< 0.33
Chloroform	ug/L			< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
Chloromethane	ug/L			< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	--	< 0.21
cis-1,2-Dichloroethene	ug/L	70		< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	--	< 0.24
cis-1,3-Dlchloropropene	ug/L			< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Dibromochloromethane	ug/L			< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	--	< 0.33
Dibromomethane	ug/L			< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	--	< 0.26
Ethylbenzene	ug/L	700		< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	--	< 0.24
Iodomethane	ug/L			< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Methylene chloride	ug/L	5		< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	--	< 2.5
Styrene	ug/L	100		< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
Tetrachloroethene	ug/L	3		< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	--	< 0.36
Toluene	ug/L	1000		< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
trans-1,2-Dichloroethene	ug/L	100		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
trans-1,3-Dichloropropene	ug/L			< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
trans-1,4-Dichloro-2-butene	ug/L			< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	--	< 1.8
Trichloroethene	ug/L	3		< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	--	< 0.29
Trichlorofluoromethane	ug/L			< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	--	< 0.32
Vinyl acetate	ug/L			< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	--	< 0.19
Vinyl chloride	ug/L	1		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
Xylenes, Total	ug/L	10000		< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	--	< 0.53
Laboratory Method EPA 300.0																						
Chloride	mg/L		250	1.6 I	14	25	46	120	170	170	46	12	22	10	9.6	83	4 I	25	190		8.1
Laboratory Method EPA 350.1																						
Ammonia (N)	mg/L			0.1	<0.01	0.14	0.03	0.19	3.4	1.6	0.08	0.1	0.98	0.53	0.57	0.28	0.08	0.58	1.8		0.8
boratory Method EPA 353.2 (Nitrate (																						
Nitrate (N)	mg/L	10		0.10 I	<0.050	0.16 I	3	0.38 I	0.44 I	<0.050	0.27 I	0.2 I	<0.050	<0.050	.087 I	20	<0.050	<0.050	<0.050		<0.050
Laboratory Method SM18 2540 C																						
Total Dissolved Solids (TDS)	mg/L		500	310	51	130	270	330	410	520	290	160	110	84	95	840	35	170	410		57
Laboratory Method EPA 7470																						
Mercury	ug/L	2		0.06 I	<0.011	<0.011	<0.011	0.02 I	0.013 I	<0.011	<0.011	0.012 I	<0.011	0.014 I	0.02 I	<0.011	<0.011	<0.011	<0.011		0.06 I
Laboratory Method EPA 6020																						
Antimony	ug/L	6		0.1 I	0.064 I	0.24 I	0.57 I	0.4 I	0.17 I	0.46 I	0.59 I	0.27 I	0.14 I	0.19 I	0.13 I	1.6	<0.046	<0.046	0.1 I	--	<0.046
Arsenic	ug/L	10		<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	<8.5	--	<8.5
Barium	ug/L	2000		19	14	52	14	5.5	18	9.7	7.5	8.1	13	18	16	29	4.9	6	760	--	100
Beryllium	ug/L	4		0.3 I	0.16 I	0.16 I	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	<0.13	1	--	0.76
Cadmium	ug/L	5		<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	<0.32	--	<0.32
Chromium	ug/L	100		2	1.8	1.1	2.8	2.2	4.8	4.8	1.5	3.5	1.2	3	1.8	2.9	1.4	1.3	4	--	7
Cobalt	ug/L			<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	0.93 I	<0.6	<0.6	<0.6	1.3 I	<0.6	<0.6	<0.6	<0.6	1.2 I	--	<0.6
Copper	ug/L		1000	4	<2.5	<2.5	<2.5	3.8 I	2.7 I	6.5	<2.5	5.3	<2.5	2.7 I	3.7 I	14	<2.5	<2.5	<2.5	--	<2.5
Iron	ug/L		300	1600	360	840	310	430	200 I	110 I	150 I	110 I	240	540	400	150 I	160 I	230	7900	--	850
Lead	ug/L	15		3.7 I	1.3 I	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3	--	2.1 I
Nickel	ug/L	100		<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	2.4 I	--	<1.1
Selenium	ug/L	50		0.82 I	<0.58	1.6 I	11	3.2 I	1.4 I	1.1 I	<0.58	0.95 I	<0.58	0.92 I	1.2 I	2.6 I	<0.58	0.7 I	1.9 I	--	2.1 I
Silver	ug/L		100	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	--	<0.44
Sodium	ug/L	160,000		6500	5600	11000	18000	18000	85000	74000	13000	9900	13000	5700	6500	74000	2200	11000	74000	--	3600
Thallium	ug/L	2		<0.057	<0.057	0.092 I	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	--	<0.057
Vanadium	ug/L			3.2	2.2	5.2	58	37	16	7.7	4.2	43	2.9	3.8	13	84	1.9	1.8	20	--	15
Zinc	ug/L		5000	19	11	7 I	8 I	9.5 I	11	13	7.4 I	9.8 I	7.6 I	12	9.5 I	66	12	6 I	6 I	--	11

Table 2A - 1H 2018

Summary of Groundwater Analytical Results - Shallow - Shaded Cells Are Detections

Trail Ridge Landfill, Jacksonville, Florida

				1H 2018																		
Parameter	**Unit**	**MCL**	**SMCL**	**MWB-2S**	**MWB-3S**	**MWB-11S**	**MWB-12S**	**MWB-13S**	**MWB-20S**	**MWB-21S**	**MWB-22S**	**MWB-27S**	**MWB-29S**	**MWB-32S**	**MWB-33S**	**MWB-34S**	**MWB-35S**	**MWB-39S**	**MWB-40S**	**SGMW-1S**	**SGMW-2S**
Laboratory Method EPA 8260																						
1,1,1,2-Tetrachloroethane	ug/L			<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	<0.54	--	<0.54
1,1,1 -Trichloroethane	ug/L	200		< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	--	< 0.22
1,1,2,2-Tetrachloroethane	ug/L			< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
1,1,2-Trichloroethane	ug/L	5		< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	--	< 0.30
1,1-Dichloroethane	ug/L			< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	--	< 0.14
1,1-Dichloroethene	ug/L	7		< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
1,2,3-Trichloropropane	ug/L			<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	<0.91	--	<0.91
1,2-Dlbromo-3-Chloropropane	ug/L	0.2		<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	--	<0.11
1,2-Dibromoethane (EDB)	ug/L	0.02		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	--	<0.02
1,2-Dichlorobenzene	ug/L	600		< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
1,2-Dichloroethane	ug/L	3		< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
1,2-Dichloropropane	ug/L	5		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
1,4-Dichlorobenzene	ug/L	75		< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	--	< 0.22
2-Butanone	ug/L			< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	--	< 0.43
2-Hexanone	ug/L			< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	--	< 0.44
4-Methyl-2-pentanone	ug/L			< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	--	< 0.47
Acetone	ug/L			< 2.1	< 2.1	3.4	2.7	< 2.1	< 2.1	< 2.1	3.8	4.1	5.2	6.5	2.1	4	4.2	< 2.1	2.4	--	< 2.1
Acrylonitrile	ug/L			< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	--	< 1.1
Benzene	ug/L	1		< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Bromochloromethane	ug/L			< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	--	< 0.17
Bromodichloromethane	ug/L			<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	<0.46	--	<0.46
Bromoform	ug/L			<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	<0.44	--	<0.44
Bromomethane	ug/L			<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	--	<0.29
Carbon disulfide	ug/L			<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	<0.67	--	<0.67
Carbon tetrachloride	ug/L	3		< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	--	< 0.36
Chlorobenzene	ug/L	100		< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	--	< 0.21
Chloroethane	ug/L			< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	--	< 0.33
Chloroform	ug/L			< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	--	< 0.18
Chloromethane	ug/L			120	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	150	--	< 0.21
cis-1,2-Dichloroethene	ug/L	70		< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	--	< 0.24
cis-1,3-Dlchloropropene	ug/L			< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Dibromochloromethane	ug/L			< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	--	< 0.33
Dibromomethane	ug/L			< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	--	< 0.26
Ethylbenzene	ug/L	700		< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	--	< 0.24
Iodomethane	ug/L			< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	--	< 0.16
Methylene chloride	ug/L	5		< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	--	< 2.5
Styrene	ug/L	100		< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
Tetrachloroethene	ug/L	3		< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	--	< 0.36
Toluene	ug/L	1000		< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	--	< 0.23
trans-1,2-Dichloroethene	ug/L	100		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
trans-1,3-Dichloropropene	ug/L			<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	--	<0.21
trans-1,4-Dichloro-2-butene	ug/L			< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	--	< 1.8
Trichloroethene	ug/L	3		< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	--	< 0.29
Trichlorofluoromethane	ug/L			< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	--	< 0.32
Vinyl acetate	ug/L			< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	--	< 0.19
Vinyl chloride	ug/L	1		< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	--	< 0.20
Xylenes, Total	ug/L	10000		< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	--	< 0.53
Laboratory Method EPA 300.0																						
Chloride	mg/L		250	3.9 I	18	22	18	84	14	32	110	11	15	9.8	10	62	4.5	23	37	--	7.6
Laboratory Method EPA 350.1																						
Ammonia (N)	mg/L			0.04	0.06	0.06	0.02	0.18	0.38	1.4	0.1	0.09	0.24	0.71	0.87	7.3	0.01 I	3.4	1.4	--	0.04
boratory Method EPA 353.2 (Nitrate (																						
Nitrate (N)	mg/L	10		0.11 I	<0.05	0.083 I	0.15	0.63	0.18 I	<0.05	<0.05	1.6	<0.05	<0.05	<0.05	0.98	<0.05	<0.05	<0.05	--	<0.05
Laboratory Method SM18 2540 C																						
Total Dissolved Solids (TDS)	mg/L		500	85	72	150	200	390	110	160	420	140	72	71	220	690	19	280	220	--	56
Laboratory Method EPA 7470																						
Mercury	ug/L	2		.037 I	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	0.016 I	<0.011	<0.011	0.039 I	0.025 I	<0.011	<0.011	<0.011	--	0.043 I
Laboratory Method EPA 6020																						
Antimony	ug/L	6		<0.11	<0.11	<0.11	0.35 I	0.25 I	<0.11	<0.11	0.25 I	<0.11	<0.11	<0.11	0.19 I	0.62 I	<0.11	<0.11	<0.11	--	<0.11
Arsenic	ug/L	10		<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	<9	--	<9
Barium	ug/L	2000		6.1	20	66	3	4.5	5.5	15	5.2	7.7	22	15	8.9	7.8	4.7	3.3	53	--	100
Beryllium	ug/L	4		<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	--	0.84
Cadmium	ug/L	5		<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	<0.45	--	<0.45
Chromium	ug/L	100		1.9 I	<1.6	<1.6	1.6 I	2.4 I	1.9 I	<1.6	1.7 I	2.8 I	<1.6	<1.6	1.9 I	2.5	<1.6	<1.6	4.6	--	8.3
Cobalt	ug/L			<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	--	<1.9
Copper	ug/L		1000	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	<3.2	7.3	<3.2	<3.2	6.1	--	<3.2
Iron	ug/L		300	550	460	1900	160 I	260	<100	280	110 I	130 I	700	510	160 I	440	150 I	<100	800	--	920
Lead	ug/L	15		<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	<2.9	--	3.1 I
Nickel	ug/L	100		<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	<6	--	<6
Selenium	ug/L	50		<0.58	<0.58	<0.58	3.2 I	2.0 I	0.64 I	<0.58	0.68 I	0.68 I	<0.58	<0.58	0.78 I	1.7 I	<0.58	0.8 I	1.7 I	--	1.2 I
Silver	ug/L		100	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	<9.6	--	<9.6
Sodium	ug/L	160,000		2700	6100	1200	15000	22000	10000	10000	50000	6400	7800	6200	5400	71000	1900	19000	29000	--	3600
Thallium	ug/L	2		<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	<0.057	--	<0.057
Vanadium	ug/L			4	1.4	3.9	29	23	6.7	2.3	4.1	10	0.98 I	3	7.4	31	1.1	2.1	15	--	19
Zinc	ug/L		5000	<33	<33	<33	<33	<33	<33	<33	<33	<33	<33	<33	<33	56 I	<33	<33	140	--	<33

Table 2B
Summary of Groundwater Analytical Results - Intermediate - Shaded Cells are Detections
Trail Ridge Landfill, Jacksonville, Florida
I = Detected between MDL and PQL
J = Estimated Value

1H 2016													
Parameter	**Unit**	**MCL**	**SMCL**	**MWB2I**	**MWB3I**	**MWB11(IR)**	**MWB12I**	**MWB13I**	**MWB27I**	**MWB29I**	**MWB32I**	**MWB34I**	
Laboratory Method EPA 300.0													
Chloride	mg/L		250	6.7	6.4	5.9	5.1	5.2	6.5	6	5.2	5.4	
Laboratory Method EPA 350.1													
Ammonia (N)	mg/L			0.18 I	< 0.10	<0.10	1.1 I	1.0 I	0.13 I	<0.10	< 0.10	< 0.10	
Laboratory Method EPA 353.2 (Nitrate (N))													
Nitrate (N)	mg/L	10		< 0.01	<0.01	<0.01	<0.01	< 0.01	<0.01	< 0.01	<0.01	< 0.01	
Laboratory Method EPA 6020													
Iron	ug/L		300	380	990	420	320	320	430	450	400	420	
Sodium	ug/L	160000		4600	4100	3700	3600	3500	3700	4100	3400	3700	
Laboratory Method SM18 2540 C													
Total Dissolved Solids (TDS)	mg/L		500	16	47	5	11	14	21	33	68	37	
2H 2016													
Parameter	**Unit**	**MCL**	**SMCL**	**MWB2I**	**MWB3I**	**MWB11(IR)**	**MWB12I**	**MWB13I**	**MWB27I**	**MWB29I**	**MWB32I**	**MWB34I**	
Laboratory Method EPA 300.0													
Chloride	mg/L		250	6.2	6.1	5.1	5	5	5.2	5.8	5	5.2	
Laboratory Method EPA 350.1													
Ammonia (N)	mg/L			<0.10	<0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	
Laboratory Method EPA 353.2 (Nitrate (N))													
Nitrate (N)	mg/L	10		<0.01	<0.01	0.018	<0.01	<0.01	0.018	<0.01	<0.01	<0.01	
Laboratory Method EPA 6020													
Iron	ug/L		300	320	860	440	350	290	440	410	380	380	
Sodium	ug/L	160000		4300	3800	3100	3100	3000	3400	3900	3400	3400	
Laboratory Method SM18 2540 C													
Total Dissolved Solids (TDS)	mg/L		500	38	51	56	85	54	63	41	47	47	
1H 2017													
Parameter	**Unit**	**MCL**	**SMCL**	**MWB2I**	**MWB3I**	**MWB11(IR)**	**MWB12I**	**MWB13I**	**MWB27I**	**MWB29I**	**MWB32I**	**MWB34I**	**MWB-35I**	**MWB-39I**
Laboratory Method EPA 300.0														
Chloride	mg/L		250	6.7	6.7	5.4	5.4	5.4	5.6	6.1	5.3	5.4	4.4	5.2
Laboratory Method EPA 350.1														
Ammonia (N)	mg/L			0.09	0	0.07	0.2	0.12	0.12	0.12	< 0.01	0.04	0.01 I	0.02
Laboratory Method EPA 353.2 (Nitrate (N))														
Nitrate (N)	mg/L	10		< 0.050	< 0.050 J	< 0.050	< 0.050	< 0.050	0.12	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050
Laboratory Method EPA 6020														
Iron	ug/L		300	350	760	370	310	330	430	430	78 I	390	540	300
Sodium	ug/L	160000		4300	3700	3200	3400	3300	3600	3800	3200	3400	2600	3500
Laboratory Method SM18 2540 C														
Total Dissolved Solids (TDS)	mg/L		500	28	27	34	41	41	51	33	24	37	22	40
2H 2017														
Parameter	**Unit**	**MCL**	**SMCL**	**MWB2I**	**MWB3I**	**MWB11(IR)**	**MWB12I**	**MWB13I**	**MWB27I**	**MWB29I**	**MWB32I**	**MWB34I**	**MWB-35I**	**MWB-39I**
Laboratory Method EPA 300.0														
Chloride	mg/L		250	7.2	6.8	5.8	5.5	5.5	5.8	6.3	5	5.3	3.8	5
Laboratory Method EPA 350.1														
Ammonia (N)	mg/L					0.04	0.06	0.04	0.06	0.05	0.03	0.06	0.13	0.04
Laboratory Method EPA 353.2 (Nitrate (N))				0.03	<0.010									
Nitrate (N)	mg/L	10		<0.05	<0.50	<0.050	<0.050	<.050	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050
Laboratory Method EPA 6020														
Iron	ug/L		300	330	740	360	390	380	470	400	140 I	410	1000	280
Sodium	ug/L	160000		3500	2900	2600	2700	2500	2800	3100	2800	2800	1300	2700
Laboratory Method SM18 2540 C														
Total Dissolved Solids (TDS)	mg/L		500	36	37	41	49	46	49	48	36	38	28	37
1H 2018														
Parameter	**Unit**	**MCL**	**SMCL**	**MWB2I**	**MWB3I**	**MWB11(IR)**	**MWB12I**	**MWB13I**	**MWB27I**	**MWB29I**	**MWB32I**	**MWB34I**	**MWB-35I**	**MWB-39I**
Laboratory Method EPA 300.0														
Chloride	mg/L		250	7.2	7.5	5.9	5.5	5.4	5.8	6.2	5.2	5.5	4	5.2
Laboratory Method EPA 350.1														
Ammonia (N)	mg/L			0.01	0.04	0.02	0.04	0.04	0.04	0.04	0.02	0.06	0.15	0.06
Laboratory Method EPA 353.2 (Nitrate (N))														
Nitrate (N)	mg/L	10		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Laboratory Method EPA 6020														
Iron	ug/L		300	330	710	290	330	290	380	350	<100	350	840	270
Sodium	ug/L	160000		3700	3300	2900	3000	2900	3000	3300	2600	2800	1300	2700
Laboratory Method SM18 2540 C														
Total Dissolved Solids (TDS)	mg/L		500	35	42	46	59	39	56	57	23	34	21	22

Table 3

Summary of Surface Water Analytical Results - Shaded Cells are Detections

Trail Ridge Landfill, Jacksonville, Florida

I = Detected Between MDL and PQL

J = Estimated Value

				1H 2016		2H 2016		1H 2017		2H 2017			1H 2018						
Parameter	**Unit**	**Class I WQS**	**Class III WQS**	**SW-1**	**SW-3**	**SW-1**	**SW-3**	**SW-1**	**SW-3**	**SW-1**	**SW-3**	**SW-B**	**SW-1**	**SW-3**	**SW-B**	**SW-4**	**SW-5**	**SW-6**	**SW-7**
Laboratory Method EPA 8260																			
1,1,1,2-Tetrachloroethane	ug/L			< 0.37	< 0.37	<0.37	< 0.37	< 0.26	<0.26	<0.26	<0.26	<0.26	<0.54	<0.54	-	<0.54	<0.54	<0.54	<0.54
1,1,1-Trichloroethane	ug/L			<0.37	< 0.37	<0.37	<0.37	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	<0.22	<0.22	-	<0.22	<0.22	<0.22	<0.22
1,1,2,2-Tetrachloroethane	ug/L	0.17	10.8	< 0.62	< 0.62	<0.62	< 0.62	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
1,1,2-Trichloroethane	ug/L			< 0.33	< 0.33	<0.33	< 0.33	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	<0.3	<0.3	-	<0.3	<0.3	<0.3	<0.3
1,1-Dichloroethane	ug/L			< 0.38	< 0.38	<0.38	< 0.38	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	<0.14	<0.14	-	<0.14	<0.14	<0.14	<0.14
1,1-Dichlonjethene	ug/L	7	3.2	<0.36	< 0.36	<0.36	<0.36	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	<0.18	<0.18	-	<0.18	<0.18	<0.18	<0.18
1,2,3-Trichloropropane	ug/L			<0.39	< 0.39	<0.39	<0.39	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30	<0.91	<0.91	-	<0.91	<0.91	<0.91	<0.91
1,2-Dibromo-3-Chloropropane	ug/L			< 0.0056	< 0.005	< 0.0049	< 0.0050	< 0.0056	< 0.0052	< 0.0052	< 0.0052	< 0.0052	<0.11	<0.11	-	<0.11	<0.11	<0.11	<0.11
1,2-Dibromoethane	ug/L			< 0.0025	< 0.002	< 0.0022	< 0.0022	< 0.0025	< 0.0023	< 0.0023	< 0.0023	< 0.0023	<.02	<.02	-	<.02	<.02	<.02	<.02
1,2-Dichlorobenzene	ug/L			< 0.37	< 0.37	<0.37	<0.37	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	<0.18	<0.18	-	<0.18	<0.18	<0.18	<0.18
1,2-Dichloroethane	ug/L			< 0.50	< 0.50	<0.50	< 0.50	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	<0.23	<0.23	-	<0.23	<0.23	<0.23	<0.23
1,2-Dichloropropane	ug/L			< 0.67	< 0.67	<0.67	<0.67	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	<0.66	<0.66	-	<0.66	<0.66	<0.66	<0.66
1,4-Dichlorobenzene	ug/L			< 0.46	< 0.46	<0.46	<0.46	< 0.22	< 0.22	< 0.22	< 0.22	< 0.22	<0.22	<0.22	-	<0.22	<0.22	<0.22	<0.22
2-Butanone	ug/L			<3.4	< 3.4	< 3.4	<3.4	< 0.43	< 0.43	0.5 I	7	<0..43	<0.43	<0.43	-	<0.43	<0.43	<0.43	<0.43
2-Hexanone	ug/L			<2.0	<2.0	<2.0	<2.0	< 0.44	< 0.44	< 0.44	< 0.44	< 0.44	<0.71	<0.71	-	<0.71	<0.71	<0.71	<0.71
4-Methyl-2-pentanone	ug/L			<2.1	<2.1	<2.1	<2.1	< 0.47	< 0.47	< 0.47	< 0.47	< 0.47	<0.47	<0.47	-	<0.47	<0.47	<0.47	<0.47
Acetone	ug/L			< 7.0	< 7.0	< 7.0	<7.0	< 2.1	< 2.1	4.8 I	12	<2.1	<2.1	<2.1	-	<2.1	<2.1	<2.1	<2.1
Acrylonitrile	ug/L			< 10	< 10	< 10	< 10	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	< 1.1	-	< 1.1	< 1.1	< 1.1	< 1.1
Benzene	ug/L	1.18	71.28	< 0.43	< 0.43	<0.43	<0.43	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	-	< 0.16	< 0.16	< 0.16	< 0.16
Bromochloromethane	ug/L			<0.45	< 0.45	<0.45	<0.45	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	-	< 0.17	< 0.17	< 0.17	< 0.17
Bromodichloromethane	ug/L	0.27	22	<0.32	< 0.32	<0.32	<0.32	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	<0.46	<0.46	-	<0.46	<0.46	<0.46	<0.46
Bromoform	ug/L	4.3	360	<0.43	< 0.43	<0.43	<0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	<0.44	<0.44	-	<0.44	<0.44	<0.44	<0.44
Bromomethane	ug/L			<2.5	<2.5	<2.5	<2.5	< 0.24	< 0.24	<0.24	0.23 I	<0.24	<0.29	<0.29	-	<0.29	<0.29	<0.29	<0.29
Carbon disulfide	ug/L			< 1.0	< 1.0	< 1.0	< 1.0	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	<0.67	<0.67	-	<0.67	<0.67	<0.67	<0.67
Carbon tetrachloride	ug/L	3	4.42	< 0.33	< 0.33	<0.33	< 0.33	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	<0.36	<0.36	-	<0.36	<0.36	<0.36	<0.36
Chlorobenzene	ug/L			< 0.26	< 0.26	<0.26	<0.26	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	<0.21	<0.21	-	<0.21	<0.21	<0.21	<0.21
Chloroethane	ug/L			< 2.5	< 2.5	<2.5	<2.5	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	<0.33	<0.33	-	<0.33	<0.33	<0.33	<0.33
Chloroform	ug/L	5,67	470.8	<0.50	< 0.50	<0.50	<0.50	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	<0.18	<0.18	-	<0.18	<0.18	<0.18	<0.18
Chloromethane	ug/L	5.67	470.8	< 0.40	< 0.40	<0.40	< 0.40	< 0.21	< 0.21	< 0.21	< 0.21	< 0.21	40	<0.21	-	150	190	72	79
cls-1,2-Dichloroethene	ug/L			< 0.41	< 0.41	<0.41	< 0.41	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	<0.24	<0.24	-	<0.24	<0.24	<0.24	<0.24
cis-1,3-Dichloropropene	ug/L			<0.40	< 0.40	<0.40	< 0.40	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	<0.16	<0.16	-	<0.16	<0.16	<0.16	<0.16
DIbromochloromethane	ug/L	0.41	34	< 0.32	< 0.32	<0.32	< 0.32	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	<0.33	<0.33	-	<0.33	<0.33	<0.33	<0.33
Dibromomethane	ug/L			< 0.35	< 0.35	<0.35	<0.35	< 0.26	< 0.26	< 0.26	< 0.26	< 0.26	<0.26	<0.26	-	<0.26	<0.26	<0.26	<0.26
Ethylbenzene	ug/L			< 0.33	< 0.33	<0.33	<0.33	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	<0.24	<0.24	-	<0.24	<0.24	<0.24	<0.24
Iodomethane	ug/L			< 5.0	< 5.0	<5.0	<5.0	< 0.16	< 0.16	< 0.16	< 0.16	< 0.16	<0.16	<0.16	-	<0.16	<0.16	<0.16	<0.16
Methylene chloride	ug/L	4.65	1580	< 2.5	< 2.5	<2.5	<2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	<2.5	<2.5	-	<2.5	<2.5	<2.5	<2.5
Styrene	ug/L			< 0.27	< 0.27	< 0.27	< 0.27	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	<0.23	<0.23	-	<0.23	<0.23	<0.23	<0.23
Tetrachloroethene	ug/L	3	8.85	< 0.74	< 0.74	< 0.74	< 0.74	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36	<0.36	<0.36	-	<0.36	<0.36	<0.36	<0.36
Toluene	ug/L			< 0.48	< 0.48	<0.48	<0.48	< 0.23	< 0.23	< 0.23	< 0.23	< 0.23	<0.23	<0.23	-	<0.23	<0.23	<0.23	<0.23
trans-1,2-Dichloroethene	ug/L			< 0.37	< 0.37	<0.37	<0.37	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
trans-1,3-Dichloropropene	ug/L			< 0.42	< 0.42	<0.42	<0.42	< 0.18	< 0.18	< 0.18	< 0.18	< 0.18	<0.21	<0.21	-	<0.21	<0.21	<0.21	<0.21
trans-1,4-Dichloro-2-butene	ug/L			< 0.51	< 0.51	<0.51	<0.51	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8	<1.8	<1.8	-	<1.8	<1.8	<1.8	<1.8
Trichloroethene	ug/L	3	80.7	<0.48	< 0.48	<0.48	<0.48	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	<0.29	<0.29	-	<0.29	<0.29	<0.29	<0.29
Trichlorofluoromethane	ug/L			<0.42	< 0.42	<0.42	< 0.42	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	<0.32	<0.32	-	<0.32	<0.32	<0.32	<0.32
Vinyl acetate	ug/L			<0.81	< 0.81	<0.81	< 0.81	< 0.19	< 0.19	< 0.19	< 0.19	< 0.19	<0.19	<0.19	-	<0.19	<0.19	<0.19	<0.19
Vinyl chloride	ug/L			<0.50	< 0.50	< 0.50	<0.50	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2
Xylenes, Total	ug/L			< 0.23	< 0.23	<0.23	<0.23	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	<0.53	<0.53	-	<0.53	<0.53	<0.53	<0.53
Laboratory Method EPA 6020																			
Antimony	ug/L	14	4300	<0.5	1.01	<0.5	0.8	0.26 I,V	0.93 B	0.4 I	1.2	0.31	0.96	1.1	-	0.19	0.23	0.31	0.11
Arsenic	ug/L	10	50	< 1.5	2.41	<1.5	2.31	< 8.5	< 8.5	<8.5	<8.5	<8.5	<9	<9	-	<9	<9	<9	<9
Barium	ug/L	1000		61	64	19	41	38	42	44	69	19	36	30	-	72	76	52	45
Beryllium	ug/L	0.0077	0.13	0.21 1	0.271	<0.17	<0.17	< 0.13	0.20 I	0.18 I	0.57	<0.13	<0.4	<0.4	-	<0.4	0.58 I	<0.4	<0.4
Cadmium	ug/L	Calc	Calc	< 0.15	< 0.15	<0.15	<0.15	< 0.32	< 0.32	<0.32	<0.32	<0.32	<0.45	<0.45	-	<0.45	<0.45	<0.45	<0.45
Chromium	ug/L	Calc	Calc	13	15	<1.6	4.9 I	1.8	7.3	5.9	7.9	4.8	4.6	5.3	-	13	18	5.2	5.5
Cobalt .	ug/L			0.53	1.1	<0.12	0.63	< 0.60	< 0.60	1 I	2 I	<0.6	<1.9	3	-	<1.9	<1.9	<1.9	<1.9
Copper	ug/L	Calc	Calc	2.81	7.1	2.31	1.91	< 2.5	4.7	<2.5	4.2	5.2	3.4 I	5.1	-	<3.2	3.2 I	<3.2	<3.2
Iron	ug/L	1000	1000	1300	2600	300	600	620	1100	1200	1800	550	1300	1500	-	1900	2900	870	1300
Lead	ug/L	Calc	Calc	9.3	17	1.1	4.6	< 1.3	5.5 I	3.1 I	6.9 I	<1.3	4.4 I	5.7 I	-	7.5	9.5	<2.9	<2.9
Nickel	ug/L	Calc	Calc	2.21	6.9	< 1.9	5.6	< 1.1	2.1 I	1.2 I	4.2 I	<1.1	<6	<6	-	<6	<6	<6	<6
Selenium	ug/L	5	5	3.9	5.1	<1.0	1.1 I	< 0.58	0.94 I	1 I	1.7 I	0.68 I	0.61 I	0.72 I	-	2 I	1.9 I	0.93 I	<0.58
Silver	ug/L	0.07	0,07	< 0.1	< 0.1	< 0.1	<0.1	< 0.44	< 0.44	<0.44	<0.44	<0.44	<9.6	<9.6	-	<9.6	<9.6	<9.6	<9.6
Thallium	ug/L	1.7	6.3	< 0.49	< 0.49	<0.49	<0.49	< 0.057	< 0.057	<0.057	<0.057	<0.057	<0.057	<0.057	-	<0.057	<0.057	<0.057	<0.057
Vanadium	ug/L			8.5 1	21	<5.3	7.21	1.4 I	10	8.2	16	8.5	6.8	8.5	-	27	29	11	9
Zinc	ug/L	Calc	Calc	< 9.6	23	< 9.6	<9.6	5.9 I	13	16	110	30	<33	35 I		<33	<33	<33	<33
Laboratory Method EPA 1631																			
Mercury	ug/L	0.012	0.012	0.064	0.054	0.0042	0.02	0.022 I	0.032 I	0.036 I	0.067 I	0.016 I	0.017 I	0.011 I	-	0.049 I	0.087 I	0.02 I	0.028 I
Laboratory Method EPA 353.2 (Nitrate (N))																			
Nitrate (N)	mg/L	10		0.016 1	4.3	<0.010	0.35	0.17 I	0.78 I	<0.010	<0.010	<0.010	4.3	4.7 J	-	<0.05	0.84	1.3	<0.05
Laboratory Method EPA 305.4																			
Phosphorus- Total	mg/L			< 0.41	0.21	0.079	0.13	< 0.050	0.18	0.1	0.27	.087 I	0.15	<0.05	-	0.45	0.34	<0.05	<0.05
Laboratory Method FDEP DEP-SOP																			
Ammonia- Un-ionized (NH3)	ug/L	20	20	< 0.017	< 0.017	< 0.017	0.0099	0.084	0.01	0.86 I	4.7 I	0.037 I	7.2 I	15	-	<0.095	0.64 I	1.6 I	0.6 I
Laboratory Method SM1S 10200 H																			
Chlorophyll a	mg/m'			< 0.5	9.9	25	7.2	3.2	6.7	6.7	8	17	7.1	30	-	24	3.6	2.1	3.6
Laboratory Method SM18 2340 B																			
Hardness- Calculated	mg/L			39	160	87	150	83	150	62	150	78	120	130	-	90	78	96	60
Laboratory Method SM1S 2540 C																			
Residues- Filterable (TDS)	mg/L			330	440	140	420	220	410	200	330	140	300	280	-	200	290	180	110
Laboratory Method SM1S 2540 D																			
Residues- Nonfilterable (TSS)	mg/L			12	32	14	13	3.8	26	13	64	31	16	23	-	76	13	1.3 I	44
Laboratory Method SM1S 5210 B																			
BOD	mg/L			5.6	5.6	4.4	4.3	< 2.0	3.7 J	3.8	150	3.4	5.6	110	-	4.1	3.6	<2	3.8
Laboratory Method SMI8 5220 D																			
Chemical Oxygen Demand	mg/L			100	57	43	82	88	100	120	93	38	57	53	-	19	39	39	21
Laboratory Method SM18 5310 C																			
Carbon- Total Organic	mg/L			33	22	10	28	21	20	35	25	7.3	25	18	-	6.2	11	12	6.4
Laboratory Method SM18 9222 D (MF)																			
Coliform Fecal	CFU/100 mL	800	800	567	56	480	420	5000	63	13000	48000	4200	1800	100	-	<100	<100	300	700
Laboratory Method Total Nitrogen																			
Nitrogen- Total	mg/L			2.3	7.3	0.93	4.5	0.98	8.5	1.9	3.7	0.76	8.2	8.2	-	0.79	2.1	2.1	0.5
Laboratory Method SM18 4500 PF																			
Orthophosphate				0.026 I	<0.016	< 0.016 Q	< 0.016 Q								-				
Ammonia (N)	mg/L							0.12	3.8	0.36	1.1	0.02	2.3	1.7		<.008	0.03	0.06	0.06

TABLE 4
Groundwater and Surface Water Field Parameter Summary
Trail Ridge Landfill, Jacksonville, Florida

	pH (SU)	Dissolved Oxygen (mg/L)	Specific Conductivity (uS/cm)	Temperature (°C)	Turbidity (NTU)	Color (by observation)	Sheen
Drinking Water SMCL:	6.5 to 8.5	~	-	-	~	~	~
Class I/III WQS	Vary 1 Unit	<5.0	1,275 or 50%	-	29>BG	~	~
1H 2016							
Shallow Wells							
MWB-2(S)	4.97	1.4	47	21,3	139.3	Brown	None
MWB-3(S)	4.45	0.2	57	18.7	3.41	None	None
MWB-11(S)	4.03	0.1	160	21.4	1.63	None	None
MWB-12(S)	5.59	1.3	359	21.6	40.01	Brown Tint	None
MWB-13(S)	5.77	0.4	282	21.6	11.03	Yellow Tint	None
MWB-20(S)	4.13	0.1	451	20.6	4.27	None	None
MWB-21(S)	4.9	0.2	103	22.6	2.99	None	None
MWB-22(S)	5.91	0.1	319	21.6	1.23	None	None
MWB-27(S)	5.31	0.1	246	18.4	3.4	None	None
MWB-29(S)	4.4	0	59	18.4	1.51	None	None
MWB-32(S)	5.01	0.1	143	21.5	6.82	Brownish/Yellow Tint	None
MWB-33(S)	5.86	0.2	314	22.3	4.15	Slight Yellow Tint	None
MWB-34(S)	6.26	0.3	789	22	2.34	Slight Yellow Tint	None
Intermediate Wells							
MWB-2(I)	4.6	0.2	38	21.5	1	None	None
MWB-3{I)	4.55	0	41	20.7	0.17	None	None
MWB-11(IR)	4.77	0	40	24.3	3.71	None	None
MWB-12(I)	4.75	0.1	44	24.5	0.78	None	None
MWB-13(I)	5	0.1	41	25.5	3.45	None	None
MWB-27(I)	5.32	0.1	54	20.7	3.81	None	None
MWB-29(I)	4.93	0	44	23.4	7.31	None	None
MWB-32(I)	5.24	0.1	44	21.9	10.46	Slight White Tint	None
MWB-34(I)	5.03	0	46	25.6	4.9	None	None
Surface Water							
SW-1	6.32	7.9	99	11.7	114.8	Dark Brown	None
SW-3	6.64	4.3	519	15.7	173.9	Brown	None
2H 2016							
Shallow Wells							
MWB-2(S)	NA	NA	NA	NA	NA	NA	NA
MWB-3(S)	4.55	0.2	61	25.7	3.81	None	None
MWB-11(S)	4.1	0.5	159	26.5	3.27	None	None
MWB-12(S)	5.65	1.4	296	27.3	11.96	Lt. Brown	None
MWB-13(S)	NA	NA	NA	NA	NA	NA	NA
MWB-20(S)	4.01	0.4	691	36.4	5.19	None	None
MWB-21(S)	4.96	0.3	265	27.1	4.02	Sit. Yellow	None
MWB-22(S)	5.87	0.2	274	27.2	3.08	None	None
MWB-27(S)	5.18	0	353	26.1	4.74	None	None
MWB-29(S)	4.44	0	101	28.7	1.98	None	None
MWB-32(S)	4.74	0	72	25.6	7.24	None	None
MWB-33{S)	5.48	0.2	163	26.8	3.83	Sit. Yellow	None
MWB-34(S)	5.88	0	283	26.4	4.56	None	None
Intermediate Wells							
MWB-2(I)	4.56	0.2	35	22	2.42	None	None
MWB-3(I)	4.62	0.1	41	23.1	2.52	None	None
MWB-11(IR)	4.71	0	38	25.7	4.87	None	None
MWB-12(I)	4.84	0.2	42	25.4	2.48	None	None
MWB-13(I)	5.06	0.2	40	27.2	4.04	None	None
MWB-27(1)	5.32	0	41	23.6	3.97	None	None
MWB-29(1)	4.93	0	31	26.1	17.22	None	None
MWB-32(I)	5.36	0	22	23.6	44.88	Whitish Tint	None
MWB-34(I)	5.07	0	23	26.3	8.24	None	None
Surface Water							
SW-1	6.34	3.2	221	28.6	12.3	Sit. Yellow	None
SW-3	6.85	3.7	696	29.4	53.57	Brown	None

TABLE 4 - Cont.
Groundwater and Surface Water Field Parameter Summary
Trail Ridge Landfill, Jacksonville, Florida

	pH (SU)	Dissolved Oxygen (mg/L)	Specific Conductivity (uS/cm)	Temperature (°C)	Turbidity (NTU)	Color (by observation)	Sheen
Drinking Water SMCL:	6.5 to 8.5	~	-	-	~	~	~
Class I/III WQS	Vary 1 Unit	<5.0	1,275 or 50%	-	29>BG	~	~
1H 2017							
Shallow Wells							
MWB-2(S)	--	--	--	--	--	--	--
MWB-3(S)	4.31	0.3	62	20.9	3.46	None	None
MWB-11(S)	3.91	0.4	146	22.6	3.78	None	None
MWB-12(S)	5.43	1.4	387	22	55.03	Brown Tint	None
MWB-13(S)	5.81	0.5	337	22.2	13.78	Yellow Tint	None
MWB-20(S)	4.24	0.3	505	23.7	5.49	None	None
MWB-21(S)	5.03	0.3	179	23.2	3.77	None	None
MWB-22(S)	6.05	0.2	293	22	1.9	None	None
MWB-27(S)	5.13	0.4	421	19.6	5.16	Lt Brown Tint	None
MWB-29(S)	4.1	0.3	161	19	2.39	None	None
MWB-32(S)	4.78	0.2	112	20.6	9.16	Slight Brown Tint	None
MWB-33(S)	5.44	0.4	192	23.1	5.77	Slight Yellow Tint	None
MWB-34(S)	6.08	0.4	1640	23.2	4.46	Slight Yellow Tint	None
MWB-35(S)	4.47	0.3	50	20.8	2.81	None	None
MWB-39(S)	5.99	0.3	474	21.6	12.43	Slight Yellow Tint	None
MWB-40(S)	4.45	0.3	171	20.9	6.6	None	None
SGMW-1(S)	*No sample collected*						
SGMW-2(S)	4.96	0.2	44	21.6	54.7	Brown Tint	None
Intermediate Wells							
MWB-2(I)	4.47	0.2	39	21.6	1.49	None	None
MWB-3(I)	4.55	0	42	21.6	1.53	None	None
MWB-11(IR)	4.63	0	37	24.9	4.3	None	None
MWB-12(I)	5.26	0.2	42	25.3	1.44	None	None
MWB-13(I)	5.19	0.3	38	25.5	2.95	None	None
MWB-27(I)	5.11	0.1	54	21.2	3.72	None	None
MWB-29(I)	4.63	0.1	42	24	4.16	None	None
MWB-32(I)	5.17	0.1	43	21.1	9.81	Very Slight White Tint	None
MWB-34(I)	5.05	0	43	25.7	3.67	None	None
MWB-35(I)	5.06	0.2	43	21.9	5.71	None	None
MWB-39(I)	5.64	0.6	45	22.3	16.81	Slight Tan Tint	None
Surface Water							
SW-1	6.27	3.8	300	17.3	8.9	Yellow Tint	None
SW-3	6.79	3.7	577	18.5	53.94	Light Brown	None
2H 2017							
Shallow Wells							
MWB-2(S)	5.08	2.50	42.00	27.70	87.52	Brown Tint	None
MWB-3(S)	4.34	0.80	77.00	26.20	8.29	None	None
MWB-11(S)	4.02	0.70	188.00	25.80	5.55	None	None
MWB-12(S)	5.41	1.00	358.00	26.40	9.02	Brown Tint	None
MWB-13(S)	5.67	1.10	650.00	26.90	4.32	Light Tan	None
MWB-20(S)	4.74	0.80	378.00	27.90	18.01	Light Tan	None
MWB-21(S)	5.50	0.40	820.00	28.70	4.98	Light Tan	None
MWB-22(S)	5.83	0.20	436.00	26.80	2.93	None	None
MWB-27(S)	5.62	0.80	161.00	26.00	18.99	Light Tan	None
MWB-29(S)	4.34	0.30	155.00	28.30	3.98	None	None
MWB-32(S)	5.73	0.10	253.00	24.90	40.16	Light Brown	None
MWB-33(S)	4.91	0.50	143.00	27.00	13.72	Slight Yellow Tint	None
MWB-34(S)	6.31	0.30	1302.00	25.90	4.37	Slight Yellow Tint	None
MWB-35(S)	4.53	0.10	40.00	26.60	5.32	None	None
MWB-39(S)	5.48	0.10	242.00	27.20	14.56	Slight Yellow Tint	None
MWB-40(S)	4.05	0.10	739.00	27.60	10.77	Tan	None
SGMW-1(S)	*No sample collected*						
SGMW-2(S)	4.93	0.00	52.00	26.40	44.29	Brown Tint	None
Intermediate Wells							
MWB-2(I)	4.17	0.40	40.00	23.60	2.60	None	None
MWB-3(I)	4.29	0.40	41.00	23.40	3.05	None	None
MWB-11(IR)	4.51	0.10	36.00	27.20	9.08	Light Tan	None
MWB-12(I)	4.87	0.20	42.00	26.70	2.77	None	None
MWB-13(I)	4.72	0.10	38.00	27.00	9.06	None	None
MWB-27(I)	5.03	0.20	53.00	23.70	3.25	None	None
MWB-29(I)	4.44	0.40	43.00	25.90	8.13	None	None
MWB-32(I)	4.89	0.30	43.00	22.40	5.82	Slight Yellow Tint	None
MWB-34(I)	4.62	0.40	42.00	26.00	5.98	None	None
MWB-35(I)	4.29	0.20	40.00	22.80	4.49	None	None
MWB-39(I)	4.71	0.20	42.00	26.00	4.54	None	None
Surface Water							
SW-1	6.51	3.70	175.00	175.00	43.13	Brown	None
SW-3	6.72	1.80	426.00	426.00	110.50	Brown	None
SW-B	6.10	4.70	197.00	197.00	24.47	Very Light Tan	None

TABLE 4 - Cont.
Groundwater and Surface Water Field Parameter Summary
Trail Ridge Landfill, Jacksonville, Florida

	pH (SU)	Dissolved Oxygen (mg/L)	Specific Conductivity (uS/cm)	Temperature (°C)	Turbidity (NTU)	Color (by observation)	Sheen
Drinking Water SMCL:	6.5 to 8.5	~	-	-	~	~	~
Class I/III WQS	Vary 1 Unit	<5.0	1,275 or 50%	-	29>BG	~	~
1H 2018							
Shallow Wells							
MWB-2(S)	4.75	2.20	34.00	20.10	30.31	Light Brown	None
MWB-3(S)	4.17	1.10	89.00	19.70	4.75	None	None
MWB-11(S)	3.92	0.50	163.00	21.40	6.24	None	None
MWB-12(S)	5.61	1.40	278.00	20.60	12.10	Tan	None
MWB-13(S)	5.86	1.30	498.00	22.10	4.18	Light Tan	None
MWB-20(S)	4.49	0.30	95.00	22.80	12.74	Light Tan	None
MWB-21(S)	4.95	0.60	213.00	23.90	3.41	None	None
MWB-22(S)	5.92	0.20	657.00	21.50	2.71	None	None
MWB-27(S)	5.29	0.80	159.00	19.10	11.00	Light Tan	None
MWB-29(S)	4.23	1.10	87.00	19.20	3.42	None	None
MWB-32(S)	5.11	0.10	140.00	22.50	5.75	Light Tan	None
MWB-33(S)	5.81	0.10	321.00	22.80	4.42	Slight Yellow Tint	None
MWB-34(S)	6.38	0.10	1062.00	22.60	3.50	Slight Yellow Tint	None
MWB-35(S)	3.85	0.10	36.00	18.70	5.01	None	None
MWB-39(S)	5.72	0.40	412.00	21.00	5.88	Slight Yellow Tint	None
MWB-40(S)	4.80	0.00	220.00	20.60	17.06	Amber/tan	None
SGMW-1(S)	*No sample collected*						
SGMW-2(S)	4.80	0.00	50.00	22.30	31.37	Tan	None
Intermediate Wells							
MWB-2(I)	4.46	0.30	38.00	21.70	2.89	None	None
MWB-3(I)	4.38	0.70	42.00	21.80	2.92	None	None
MWB-11(IR)	4.64	0.10	35.00	25.10	4.51	None	None
MWB-12(I)	4.89	0.10	41.00	25.00	3.47	None	None
MWB-13(I)	4.83	0.10	38.00	25.80	3.40	None	None
MWB-27(I)	5.20	0.50	52.00	21.20	3.87	None	None
MWB-29(I)	4.75	1.20	41.00	24.20	4.54	None	None
MWB-32(I)	5.02	0.50	43.00	22.30	3.57	None	None
MWB-34(I)	4.95	0.50	42.00	26.00	4.33	None	None
MWB-35(I)	4.63	0.30	35.00	21.30	3.17	None	None
MWB-39(I)	4.99	0.00	41.00	23.20	3.92	None	None
Surface Water							
SW-1	6.79	7.20	437.00	20.60	22.43	Light Tan	None
SW-3	7.21	4.60	456.00	22.20	20.55	Light Tan	None
SW-B	*Sample Location Dry*						
SW-4	7.11	7.10	198.00	29.30	96.24	Light Tan	None
SW-5	7.65	6.70	195.00	22.20	166.30	Brown	None
SW-6	7.61	6.60	265.00	25.40	34.48	Light Brown	None
SW-7	7.31	7.10	149.00	20.60	55.50	Tan	None

TABLE 5

Surface Water Quality Standard Calculations Trail Ridge Landfill, Jacksonville, Florida

Parameter	Units	WQS Class 1 & Class III	1H 2016				2H 2016			
			SW-1		SW-3		SW-1		SW-3	
		Total Hardness [1]	39		160		87		150	
		lnH [2]	3.66		5.08		4.47		5.01	
			Result (total)	Standard	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard
Cadmium	ug/L	Measured <e^ (0.7409[lnH]-4.719)	< 0.15	0.1	<0.15	0.4	<0.15	0.2	< 0.15	0.4
Chromium	ug/L	Measured < e^ (0.819[inH]+0.6848)	13	40	15	127	< 1.6	77	4.91	120
Copper	ug/L	Measured <e^ (0.8545lnH]-1.702)	2.8 1	4.2	7.1	14	2.3 I	8.3	1.91	13
Lead	ug/L	Measured <e^ (1.273[lnH]-4.705)	9.3	1	17	5.8	1.1 I	2.7	4.6	5.3
Nickel	ug/L	Measured <e^ (0.846[lnHl+0.0584)	2.2 1	24	6.9	78	< 1.9	46	5.6	74
Zinc	ug/L	Measured <e^ (0.8473[lnH]+0.884)	< 9.6	54	23	178	<9.6	106	<9.6	169

Parameter	Units	WQS Class 1 & Class III	1H 2017				2H 2017					
		Total Hardness [1]	SW-1		SW-3		SW-1		SW-3		SW-B	
		lnH [2]	83		150		62		150		78	
			4.42		5.01		4.13		5.01		4.36	
Cadmium	ug/L	Measured <e^ (0.7409[lnH]-4.719)	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard
Chromium	ug/L	Measured < e^ (0.819[inH]+0.6848)	< 0.32	0.2	< 0.32	0.4	<.032	0.2	<.0.32	0.4	<.0.32	0.2
Copper	ug/L	Measured <e^ (0.8545lnH]-1.702)	1.8	74	7.3	120	5.9	58.3	7.9	120.1	4.8	70.3
Lead	ug/L	Measured <e^ (1.273[lnH]-4.705)	< 2.5	8	4.7	13	<2.5	6.2	4.2	13.2	5.2	7.5
Nickel	ug/L	Measured <e^ (0.846[lnHl+0.0584)	< 1.3	2.5	5.5 I	5.3	3.1 I	1.7	6.9 I	5.3	<1.3	2.3
Zinc	ug/L	Measured <e^ (0.8473[lnH]+0.884)	< 1.1	45	2.1 I	74	1.2 I	34.8	4.2 I	73.5	<1.1	42.3
			5.9 I	102	13	169	16	79.9	110 J	168.9	30	97.1

Parameter	Units	WQS Class 1 & Class III	1H 2018													
		Total Hardness [1]	SW-1		SW-3		SW-B		SW-4		SW-5		SW-6		SW-7	
		lnH [2]	120		130				90		78		96		60	
			4.79		4.87				4.50		4.36		4.56		4.09	
Cadmium	ug/L	Measured <e^ (0.7409[lnH]-4.719)	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard	Result (total)	Standard
Chromium	ug/L	Measured < e^ (0.819[inH]+0.6848)	<0.45	0.3	<0.45	0.3	NS		<0.45	0.3	<0.45	0.2	<0.45	0.3	<0.45	0.2
Copper	ug/L	Measured <e^ (0.8545lnH]-1.702)	4.6	100.1	5.3	106.8	NS		13	79.1	18	70.3	5.2	83.3	5.5	56.7
Lead	ug/L	Measured <e^ (1.273[lnH]-4.705)	3.4 I	10.9	5.1 I	11.7	NS		<3.2	8.5	3.2 I	7.5	<3.2	9.0	<3.2	6.0
Nickel	ug/L	Measured <e^ (0.846[lnHl+0.0584)	4.4 I	4.0	5.7 I	4.4	NS		7.5	2.8	9.5	2.3	<2.9	3.0	<2.9	1.7
Zinc	ug/L	Measured <e^ (0.8473[lnH]+0.884)	<6.0	60.9	<6.0	65.1	NS		<6.0	47.7	<6.0	42.3	<6.0	50.4	<6.0	33.9
			<33	139.8	35 I	149.6	NS		<33	109.6	<33	97.1	<33	115.7	<33	77.7

ug/L - micrograms per liter

WQS - Water Quality Standard, Class I (potable), Class III (freshwater) provided in FDEP Chapter 62-302

*- According to FDEP Rule 62-302.530, if H is less than 25 than 25 shall be used in the calculations

[1]- Total mesured total hardness (H) is reported in mg/L of $CaCO_3$ in the laboratory report

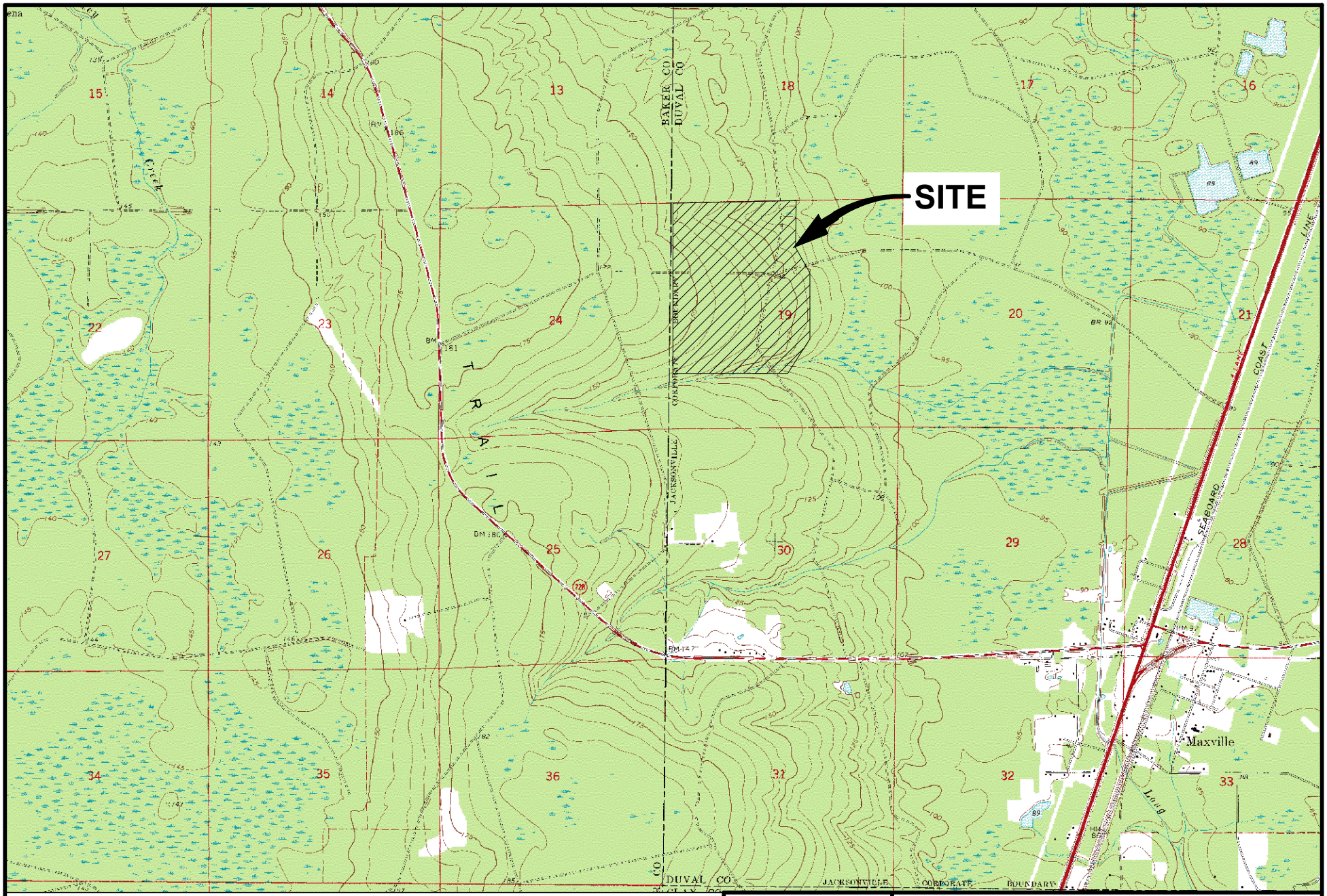
[2]- "ln H" means the natural logarithm of total hardness expressed as mg/L of $CaCO_3$

I - result is qualified because the detection was between method detection limits and practical quantitation limits.

J - Estimated value

Bold values indicate detections above the laboratory detection limit; yellow cells indicate result exceeded WQS.

FIGURES



NOTES:

1. BACKGROUND IMAGE FROM USGS 7.5 MINUTE QUADRANGLE MAXVILLE, FL 1970 (PHOTOINSPECTED 1984.)

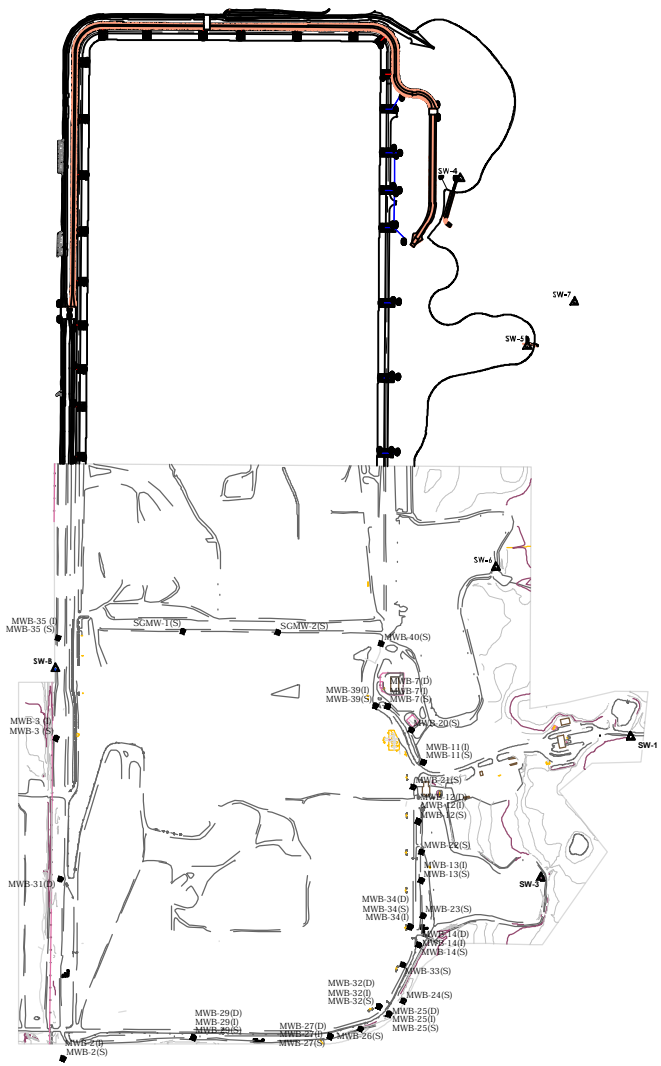
N

0 3000 6000

GRAPHIC SCALE (FEET)

CEC

FIGURE 1:
SITE LOCATION
TRAIL RIDGE LANDFILL
JACKSONVILLE, FL



LEGEND

	2' CONTOURS
	10' CONTOURS
MWB-3	GROUNDWATER MONITORING WELL
(S)	SHALLOW LEVEL WELL
(I)	INTERMEDIATE LEVEL WELL
(D)	DEEP LEVEL WELL
SW-B	SURFACE WATER SAMPLING POINT

NOTES:

1. THE TOPOGRAPHIC MAP WAS PREPARED BY SOUTHERN RESOURCES MAPPING COORPORATION FROM A PHOTOGRAPHIC FLY OVER COMPLETED JANUARY 25, 2017 AND WAS COMPILED IN FEBRUARY 2017.

2. BASE MAP OF NORTHERN PORTION OF EXPANSION AREA PROVIDED BY CDM AND IS BASED ON CONFORMED CONSTRUCTION DRAWINGS FOR THE EXPANSION AREA RETENTION PONDS. THIS PORTION OF THE MAP IS NOT AN AS-BUILT AND LOCATIONS ARE APPROXIMATE.

N

0 1000 2000

GRAPHIC SCALE (FEET)

CEC

FIGURE 2:
SITE LAYOUT AND SAMPLING LOCATIONS
TRAIL RIDGE LANDFILL
JACKSONVILLE, FL

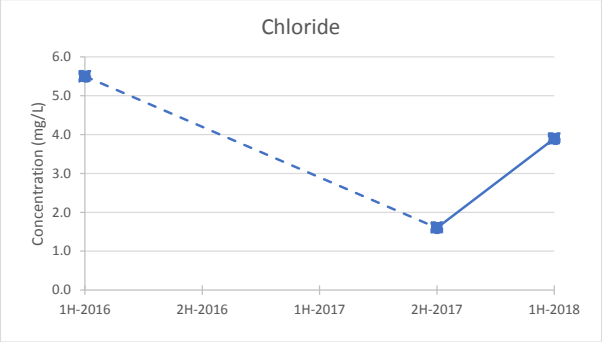
APPENDICES

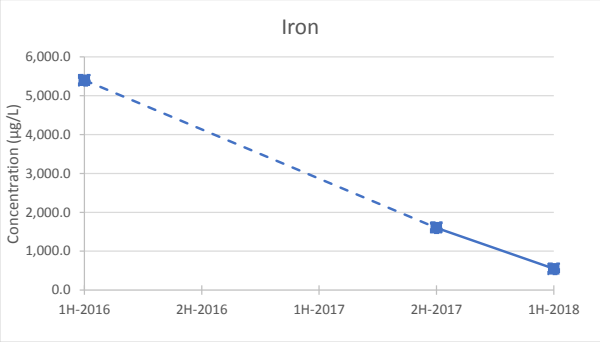
Appendix A
Parameter Trend Plots

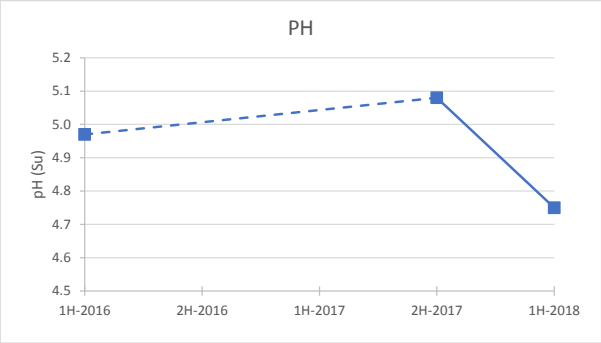
APPENDIX A

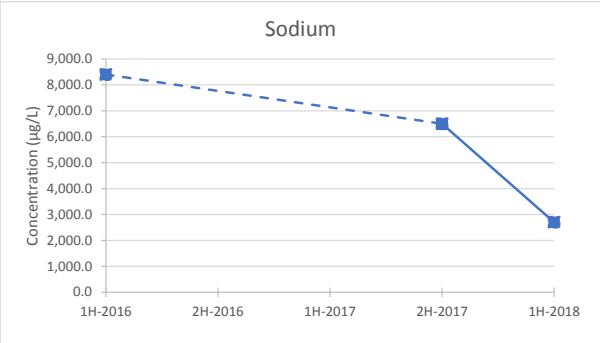
MWB-2(S)

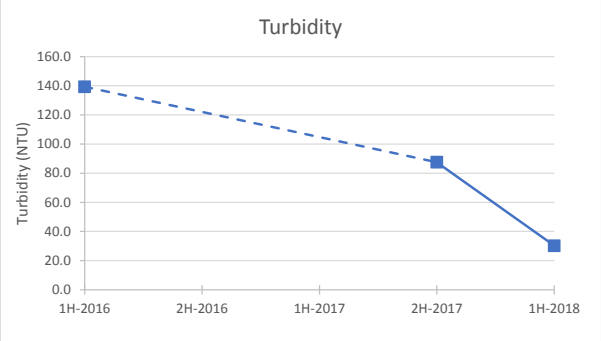
*Dashed lines indicate where select parameters were not sampled

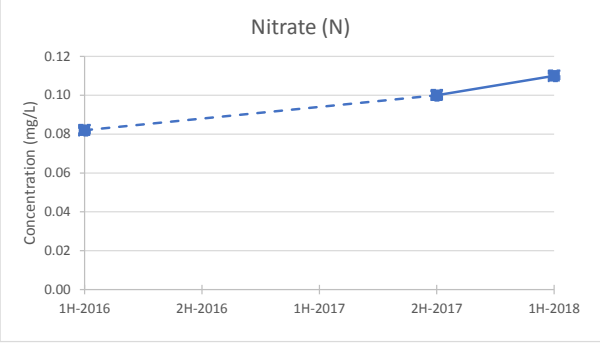


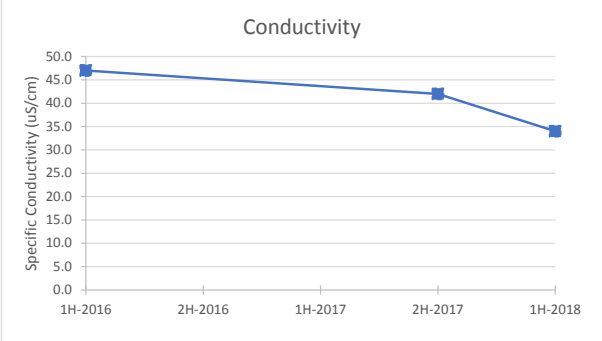


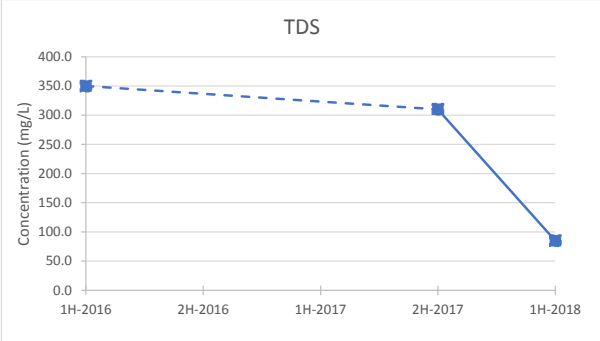








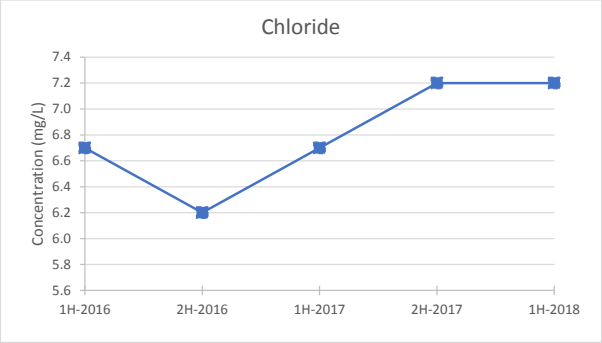


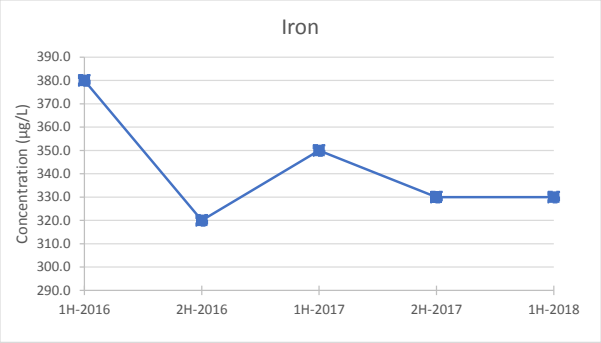


March 2018

APPENDIX A

MWB-2(I)


Chloride
Concentration (mg/L)
7.4
7.2
7.0
6.8
6.6
6.4
6.2
6.0
5.8
5.6
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Iron
Concentration (µg/L)
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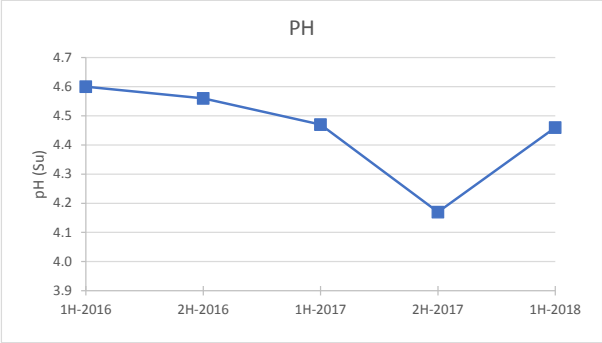
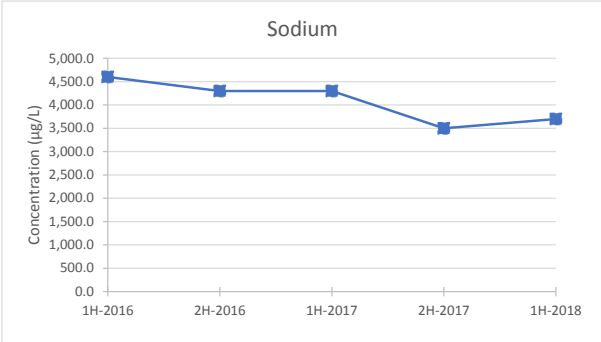
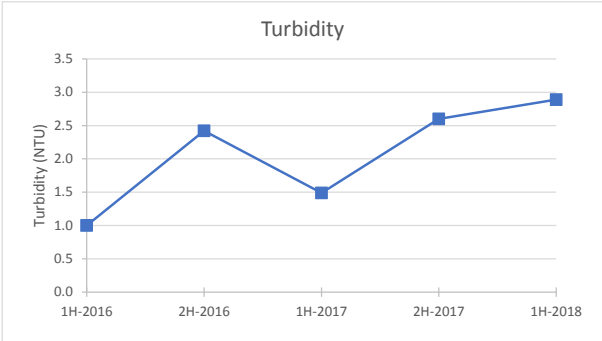
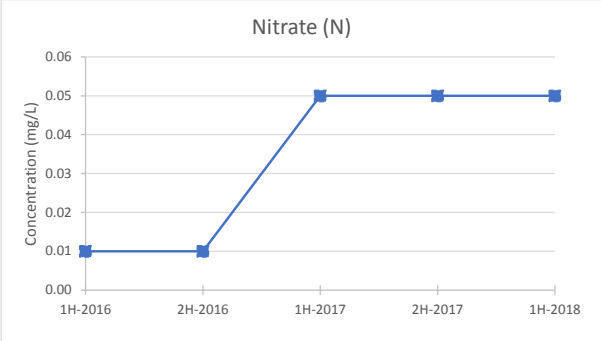
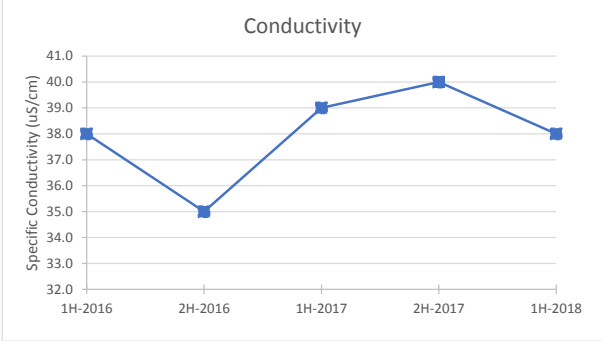
380.0
370.0
360.0
350.0
340.0
330.0
320.0
310.0
300.0
290.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

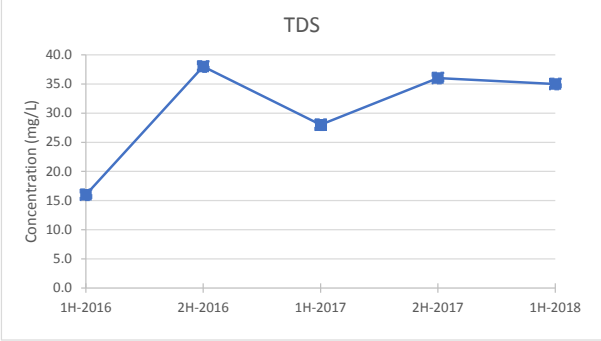

PH
pH (Su)
4.7
4.6
4.5
4.4
4.3
4.2
4.1
4.0
3.9
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
5,000.0
4,500.0
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

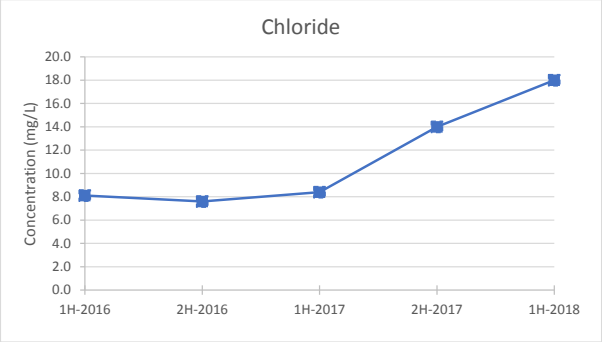

Nitrate (N)
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

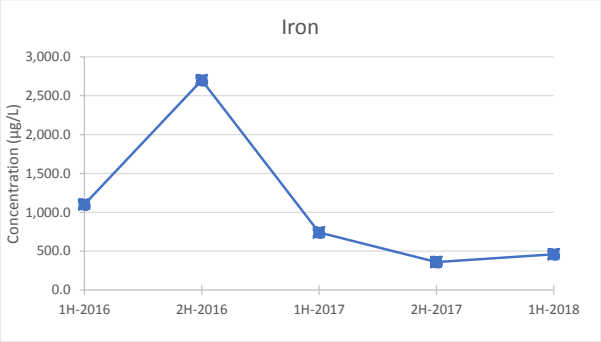

Conductivity
Specific Conductivity (uS/cm)
41.0
40.0
39.0
38.0
37.0
36.0
35.0
34.0
33.0
32.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

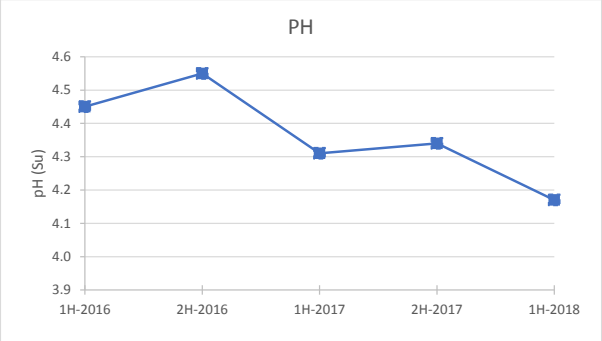

TDS
Concentration (mg/L)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

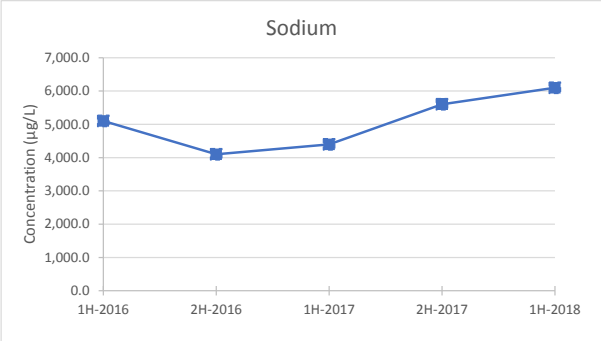
APPENDIX A

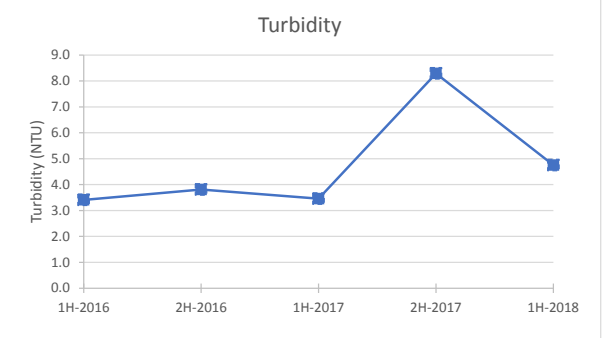
MWB-3(S)

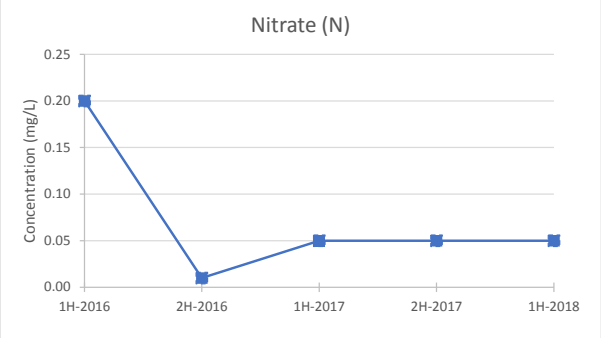


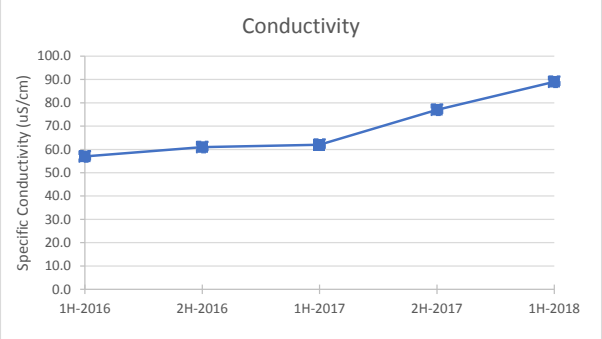


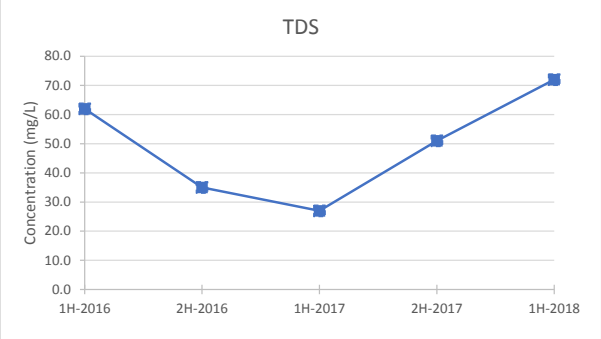






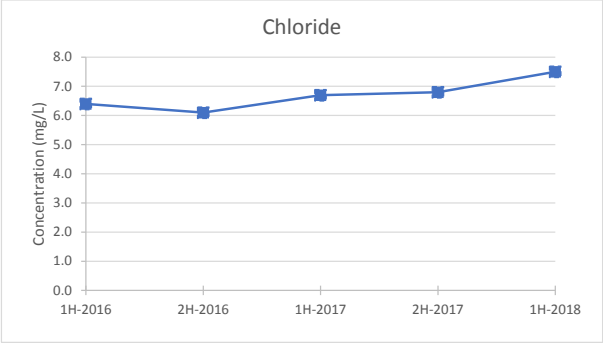


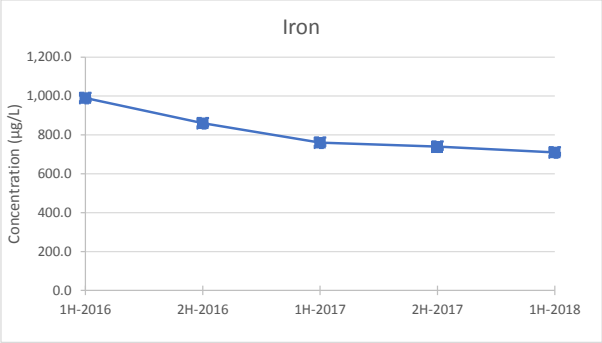


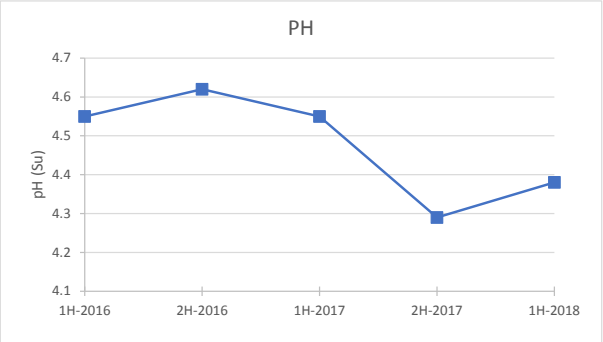


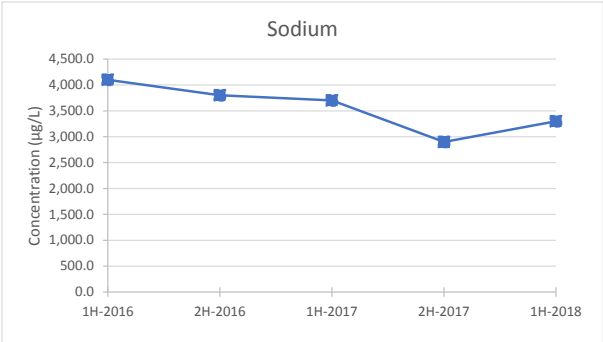
APPENDIX A

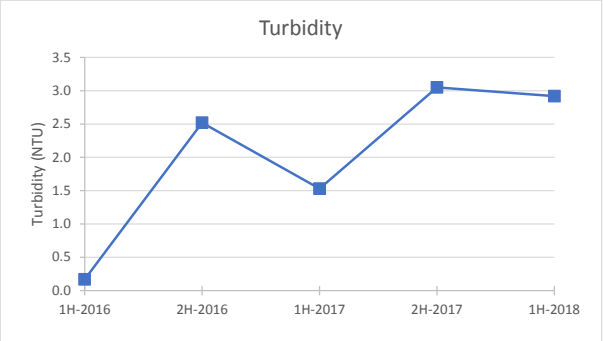
MWB-3(I)

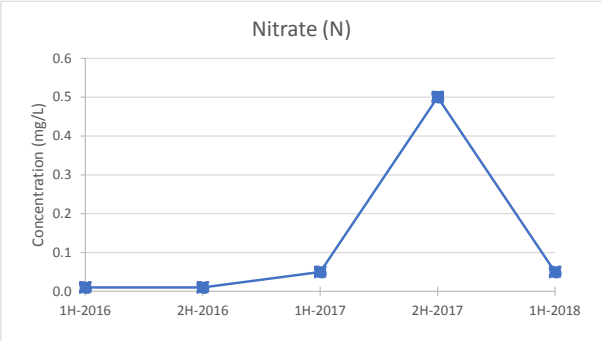

Chloride
Concentration (mg/L)
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

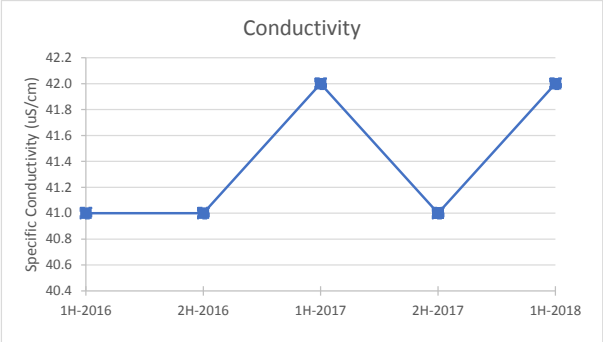

Iron
Concentration (µg/L)
1,200.0
1,000.0
800.0
600.0
400.0
200.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

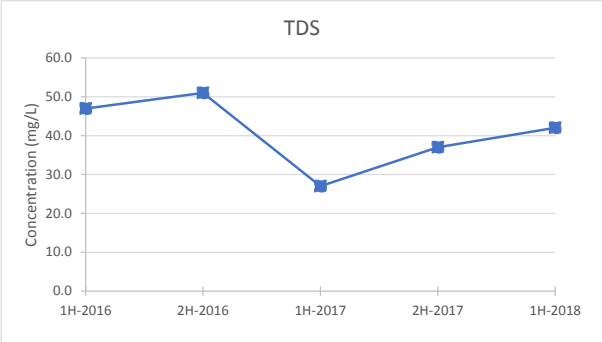

PH
pH (Su)
4.7
4.6
4.5
4.4
4.3
4.2
4.1
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
4,500.0
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

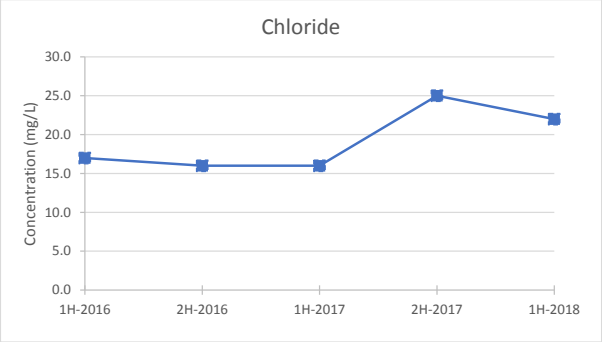

Nitrate (N)
Concentration (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

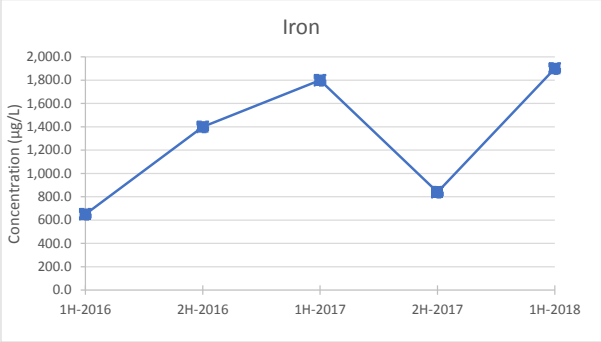

Conductivity
Specific Conductivity (uS/cm)
42.2
42.0
41.8
41.6
41.4
41.2
41.0
40.8
40.6
40.4
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

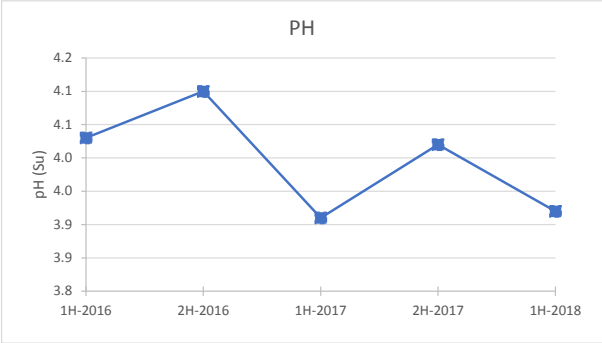

TDS
Concentration (mg/L)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

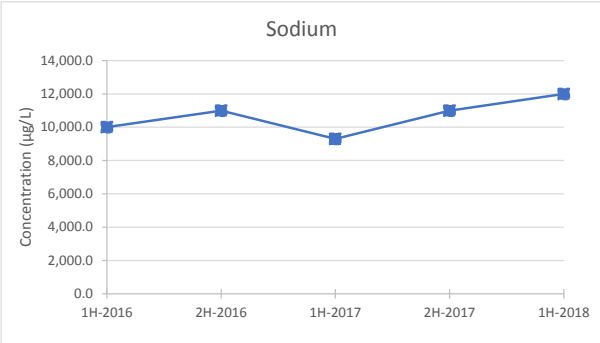
APPENDIX A

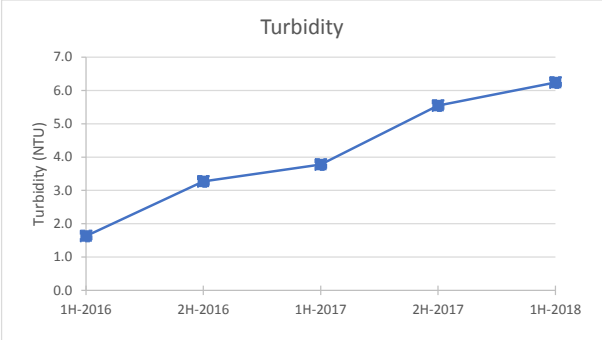
MWB-11(S)

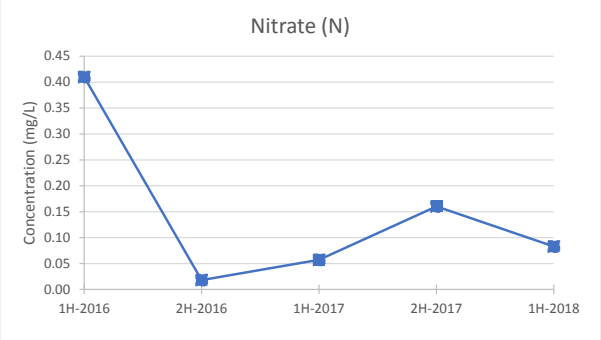


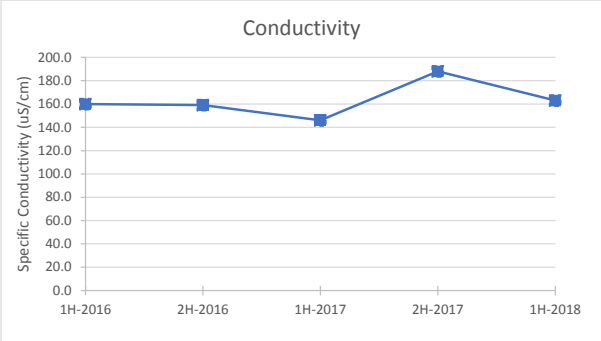


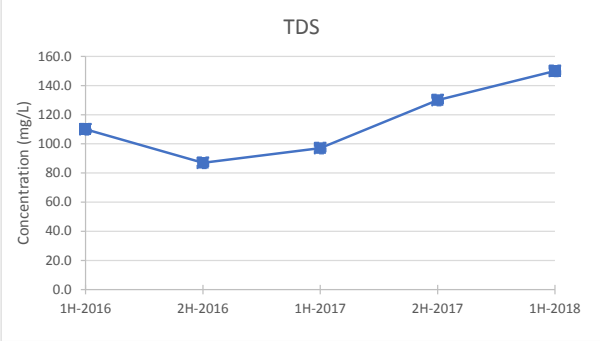








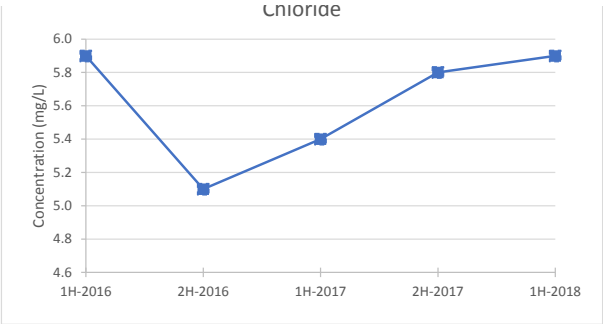


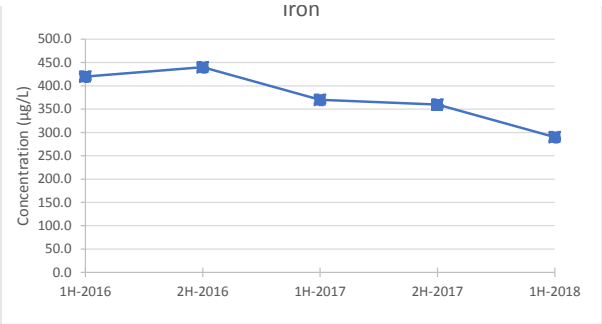


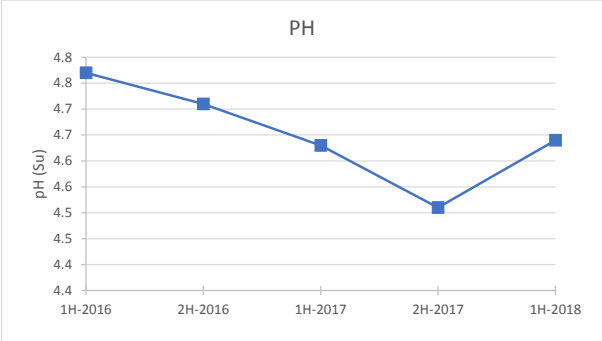
March 2018

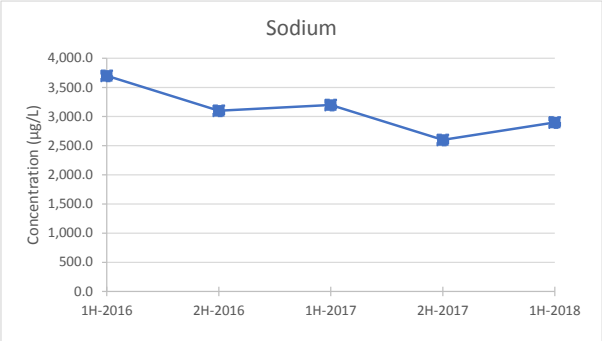
APPENDIX A

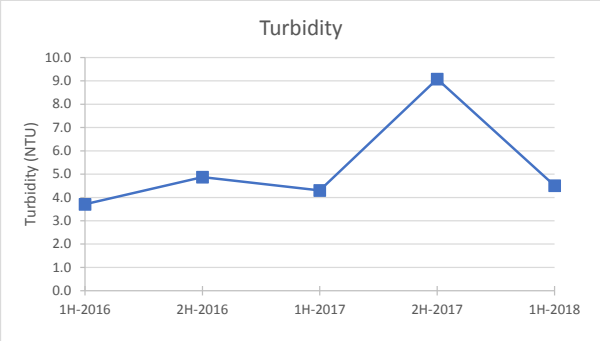
MWB-11(IR*)*

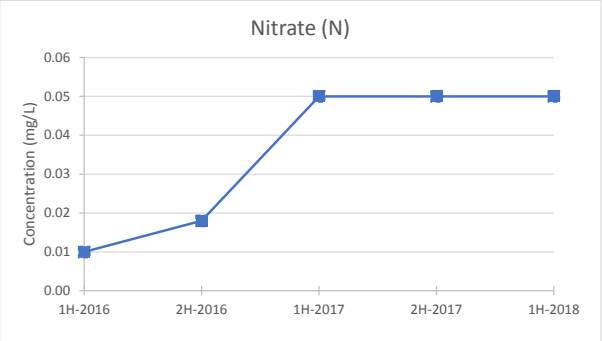

Chloride
Concentration (mg/L)
6.0
5.8
5.6
5.4
5.2
5.0
4.8
4.6
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

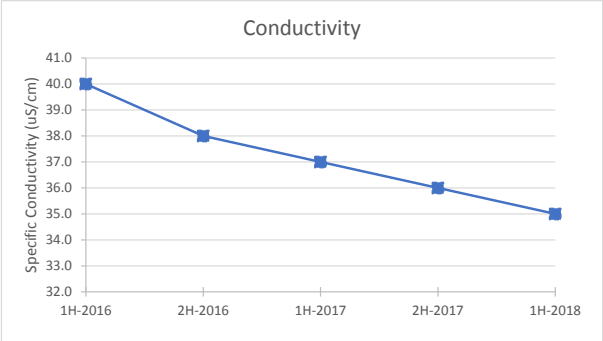

Iron
Concentration (µg/L)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

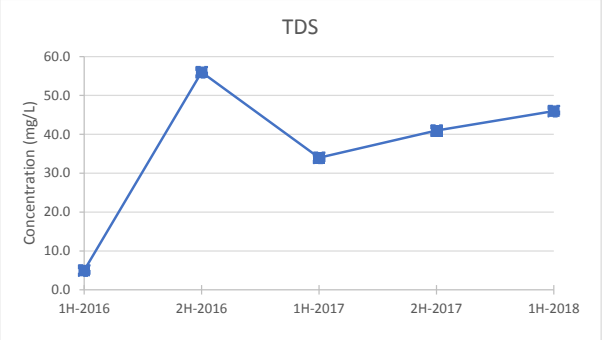

PH
pH (Su)
4.8
4.8
4.7
4.7
4.6
4.6
4.5
4.5
4.4
4.4
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

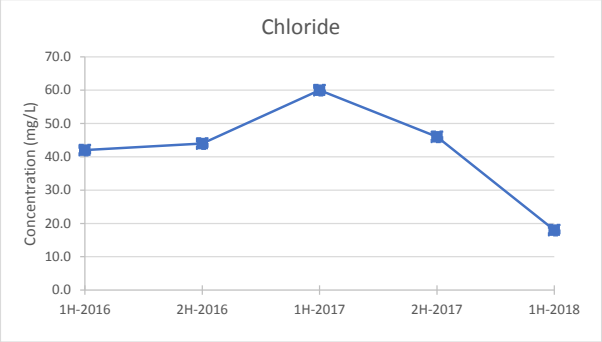

Nitrate (N)
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

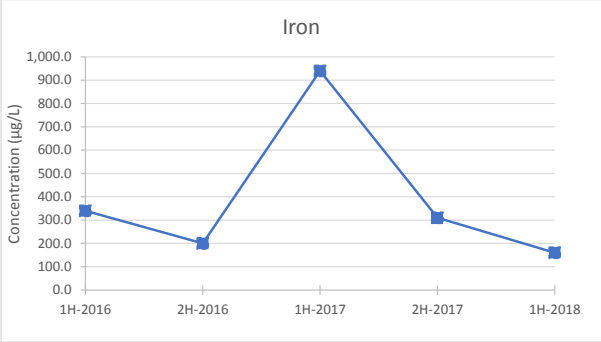

Conductivity
Specific Conductivity (uS/cm)
41.0
40.0
39.0
38.0
37.0
36.0
35.0
34.0
33.0
32.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

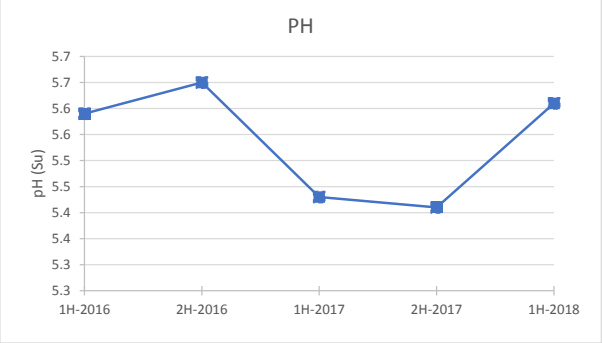

TDS
Concentration (mg/L)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

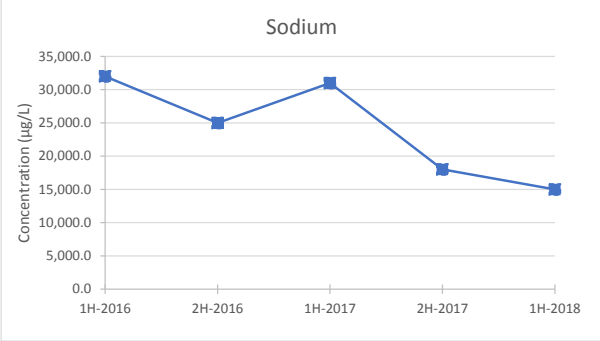
APPENDIX A

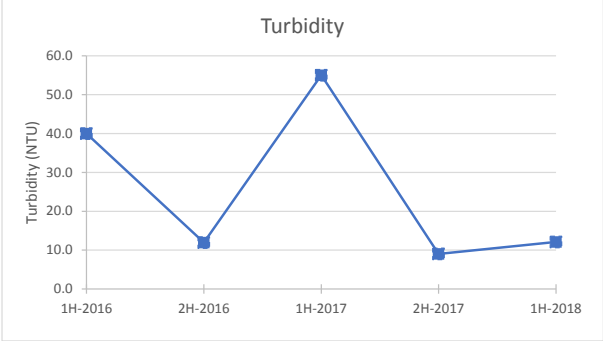
MWB-12(S)

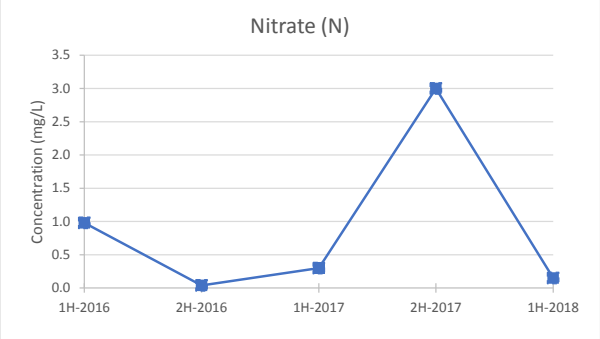


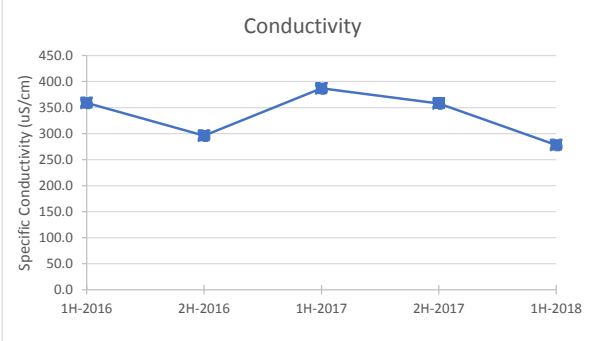


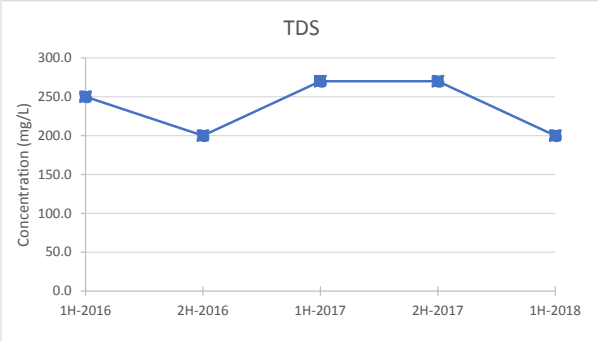






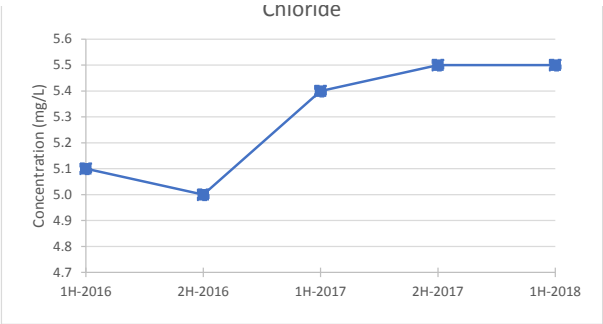


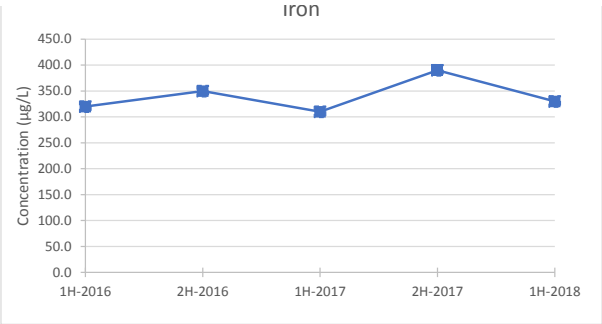


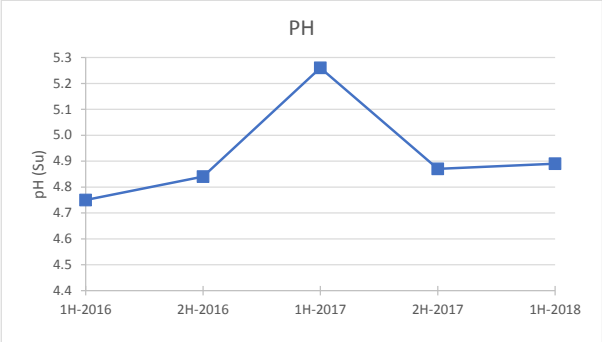


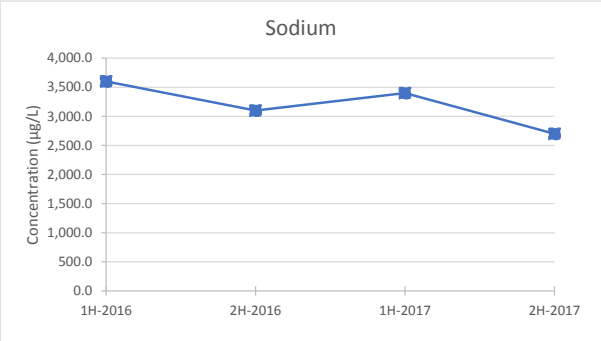
APPENDIX A

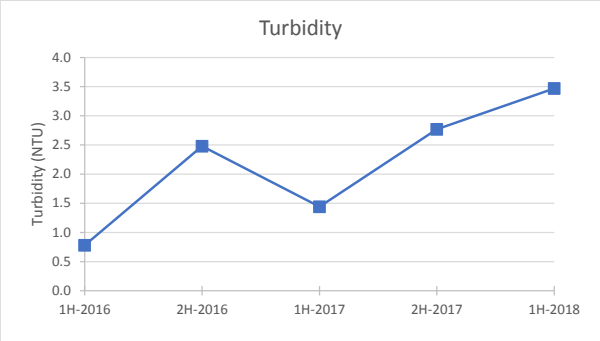
MWB-12(I)

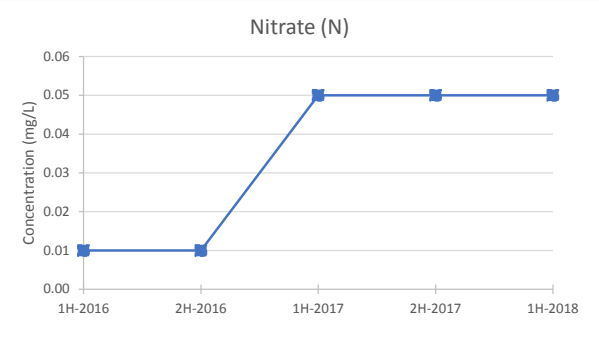

Chloride
Concentration (mg/L)
5.6
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

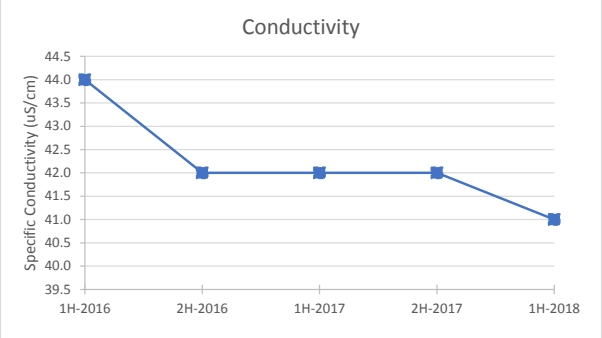

Iron
Concentration (µg/L)
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

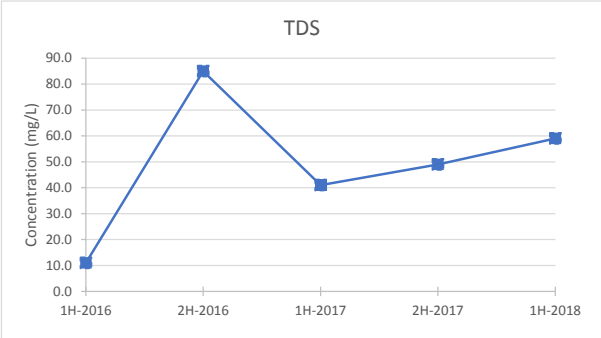

PH
pH (Su)
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
4.4
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017


Turbidity
Turbidity (NTU)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

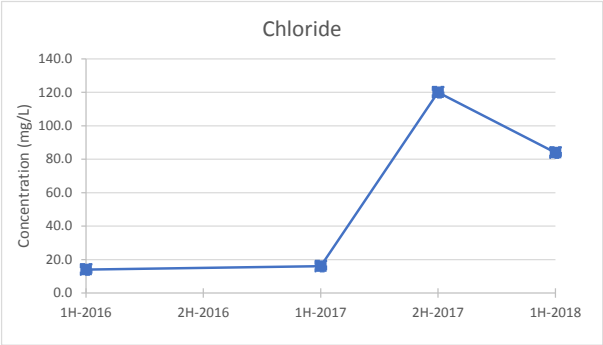

Nitrate (N)
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

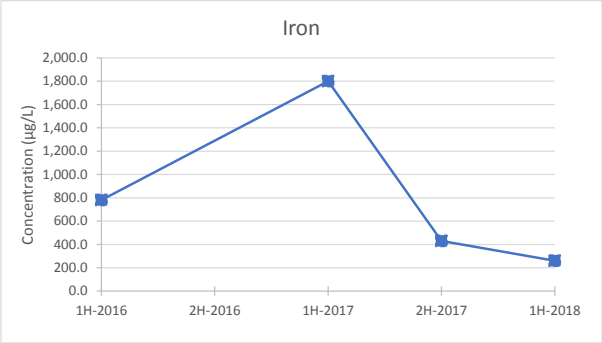

Conductivity
Specific Conductivity (uS/cm)
44.5
44.0
43.5
43.0
42.5
42.0
41.5
41.0
40.5
40.0
39.5
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

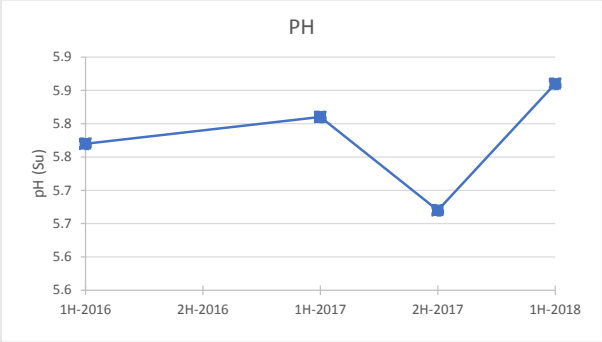

TDS
Concentration (mg/L)
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

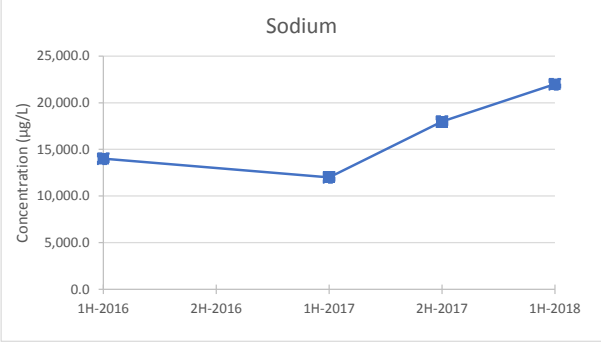
APPENDIX A

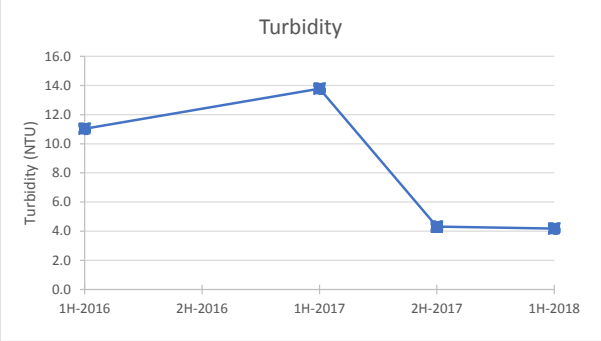
MWB-13(S)

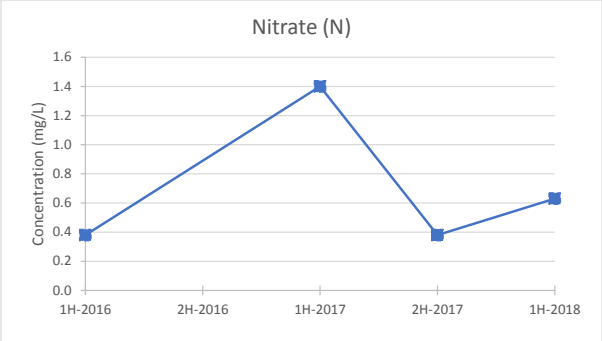


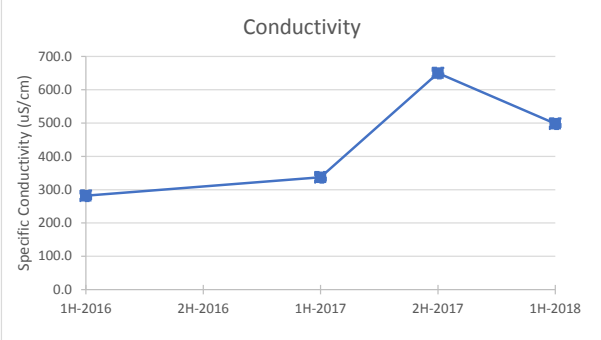


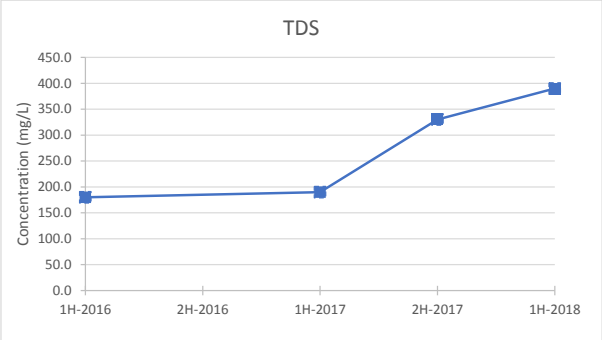












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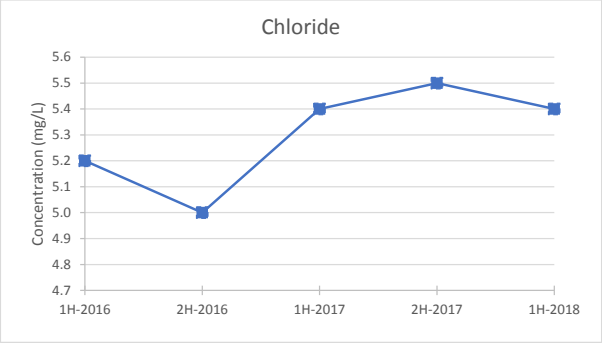
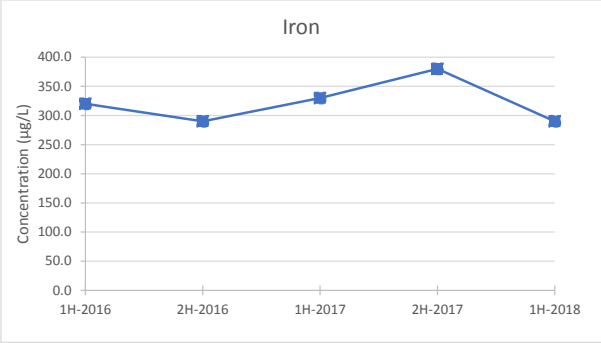
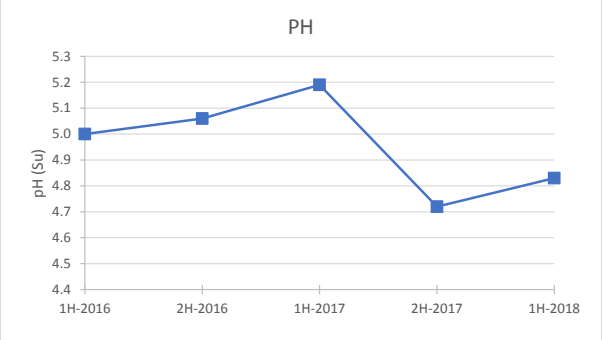
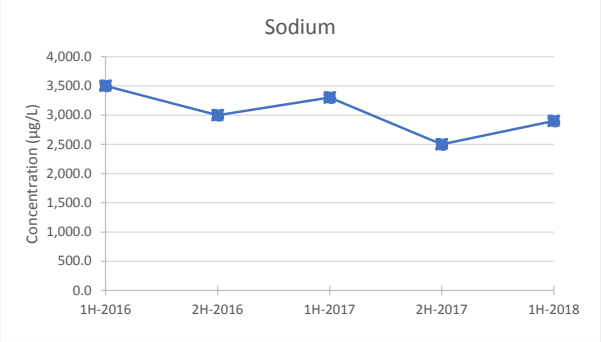
APPENDIX A

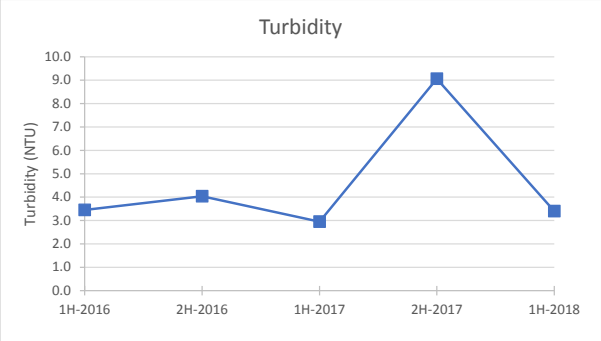
MWB-13(I)

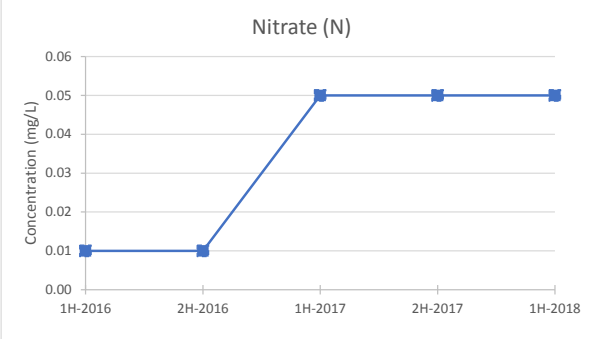

Chloride
Concentration (mg/L)
5.6
5.5
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

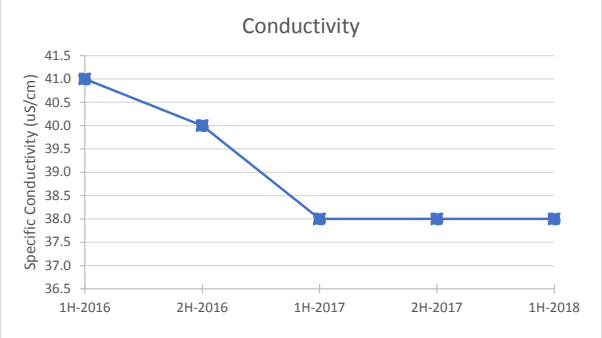

Iron
Concentration (µg/L)
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

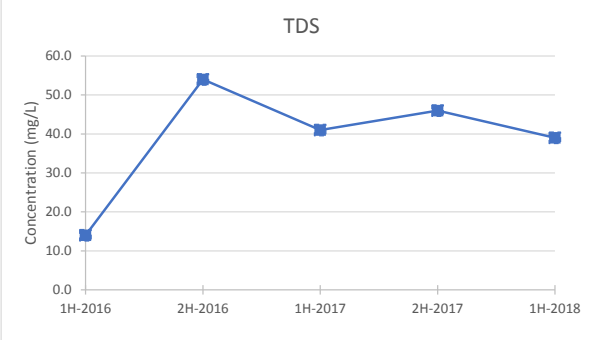

PH
pH (Su)
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
4.4
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Nitrate (N)
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Conductivity
Specific Conductivity (uS/cm)
41.5
41.0
40.5
40.0
39.5
39.0
38.5
38.0
37.5
37.0
36.5
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


TDS
Concentration (mg/L)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

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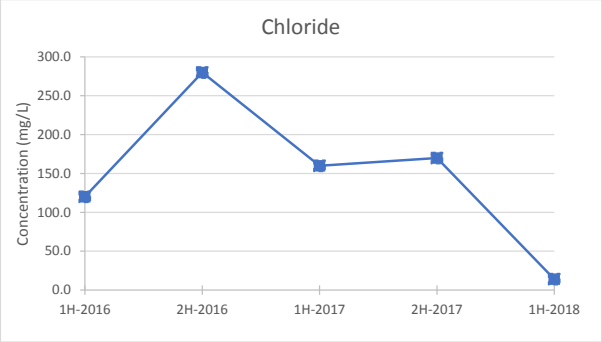
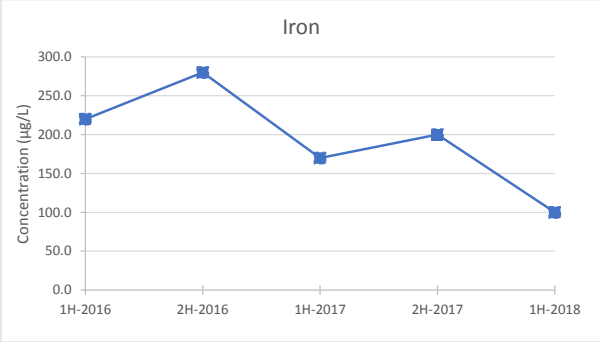
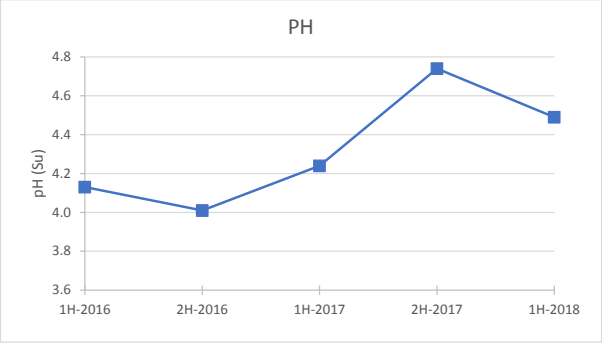
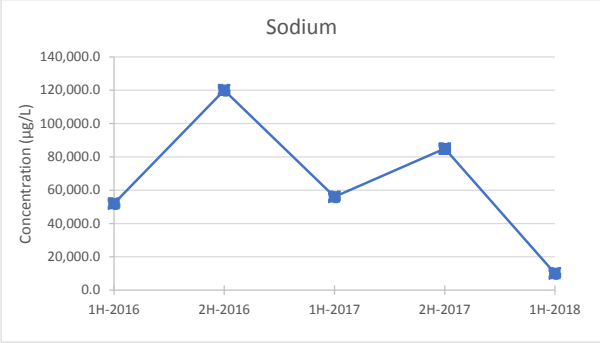
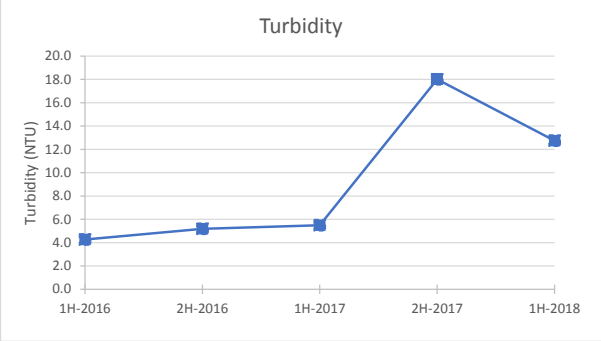
MWB-20(S)

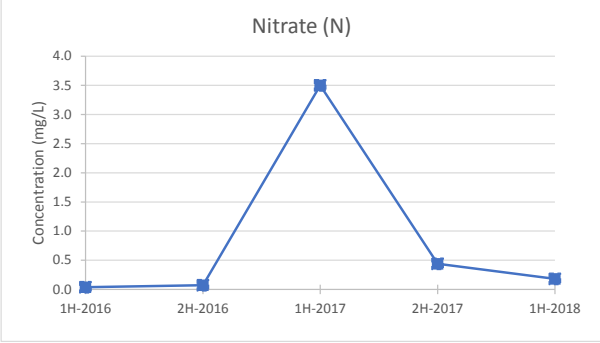


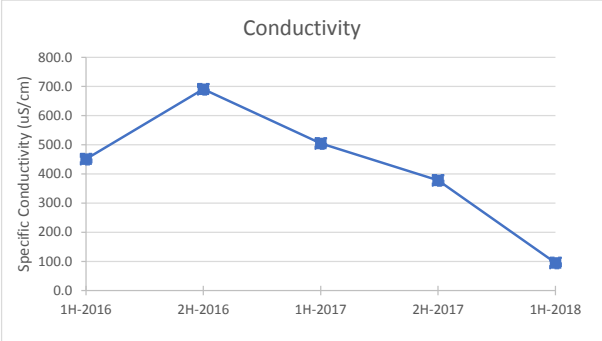


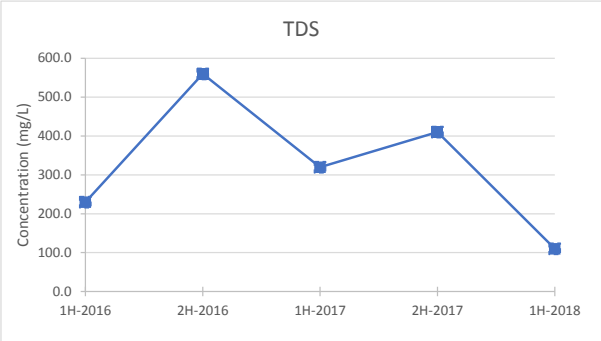












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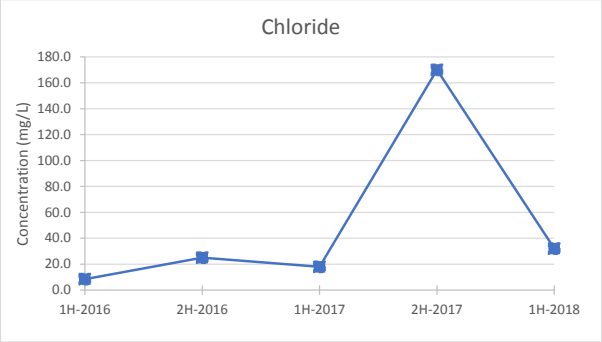
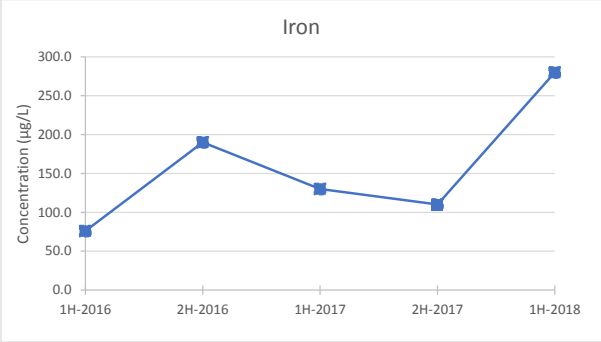
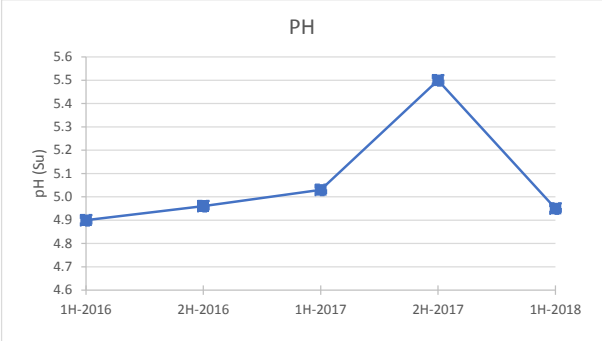
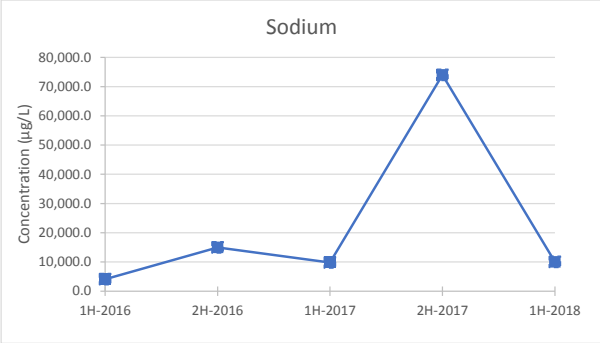
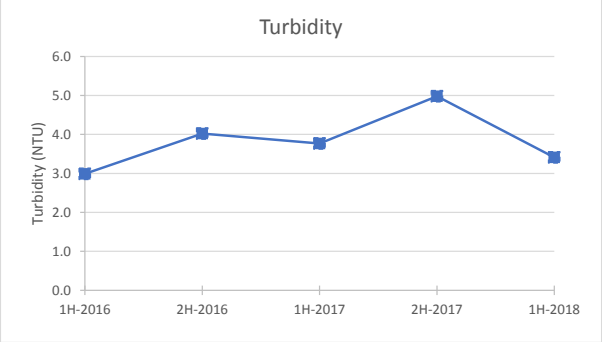
MWB-21(S)

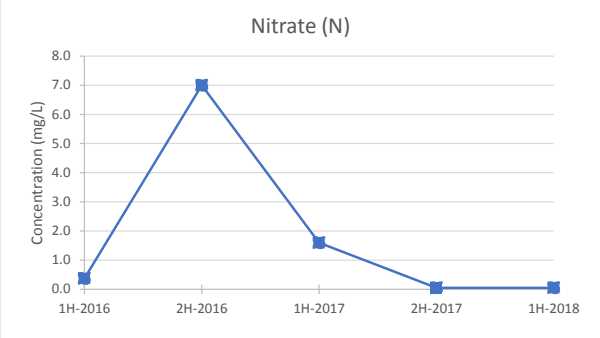


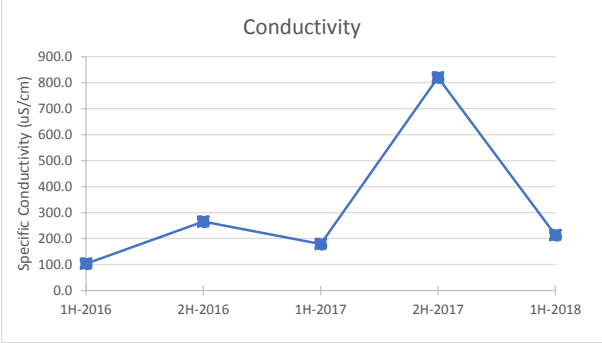


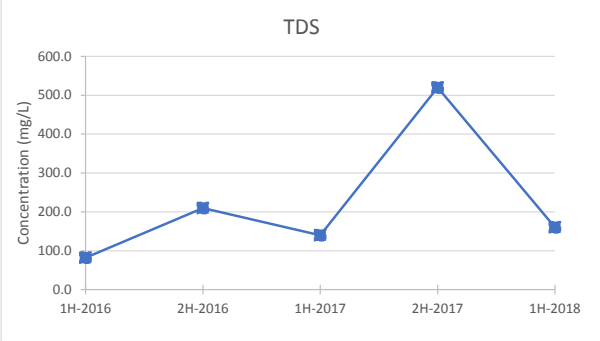






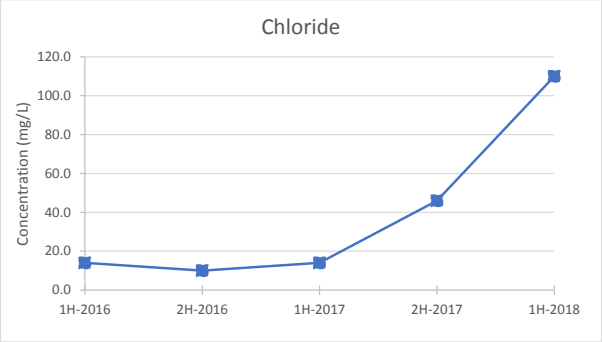


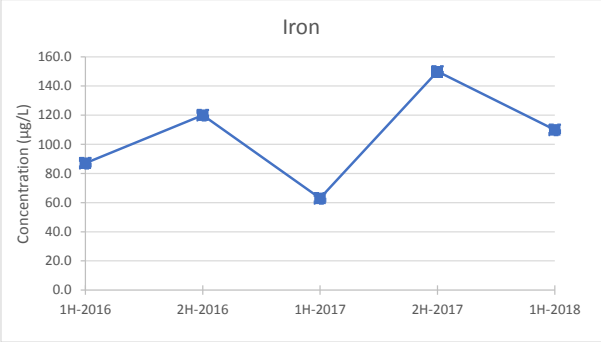


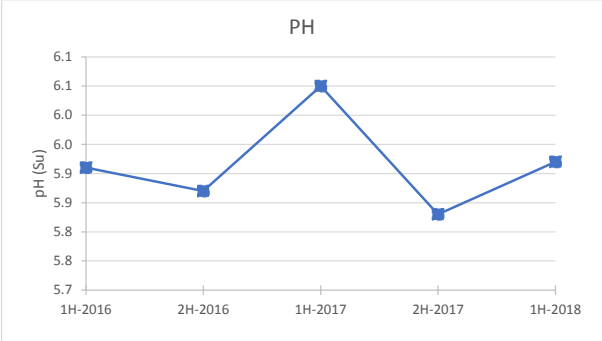


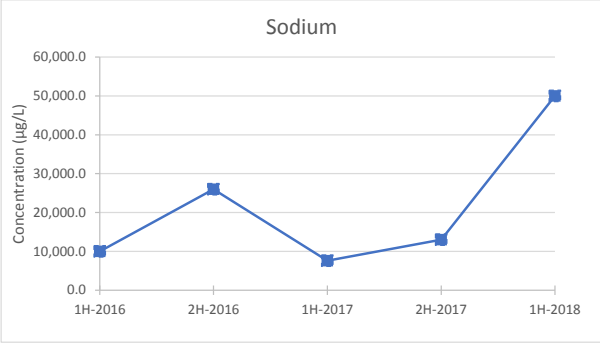
APPENDIX A

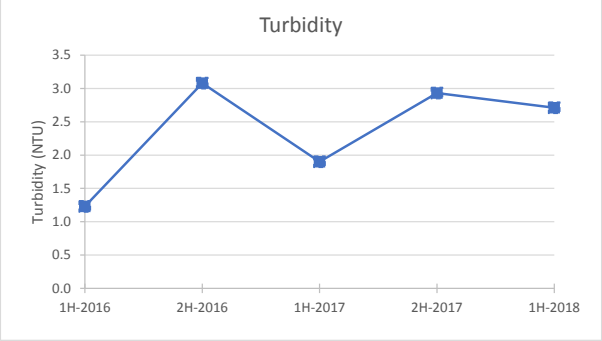
MWB-22(S)

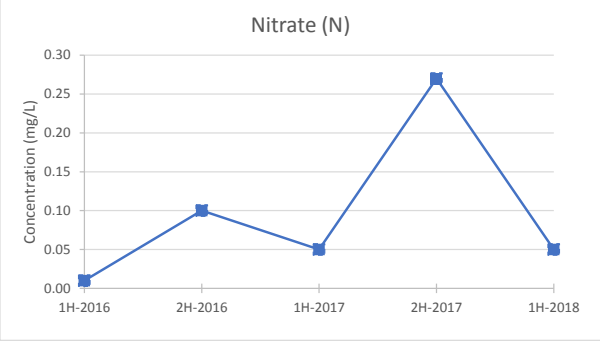


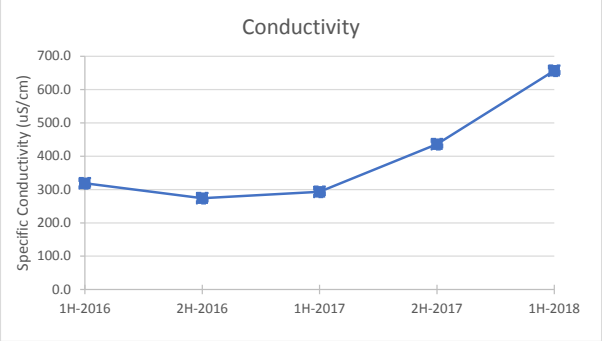


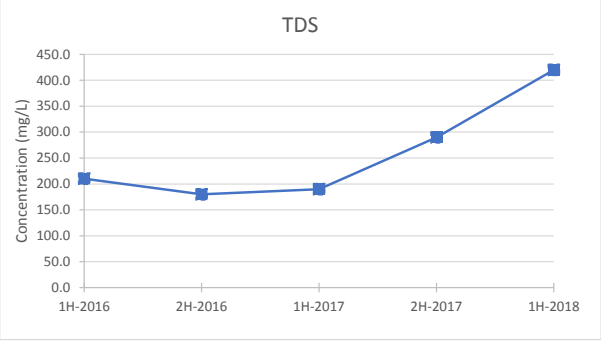






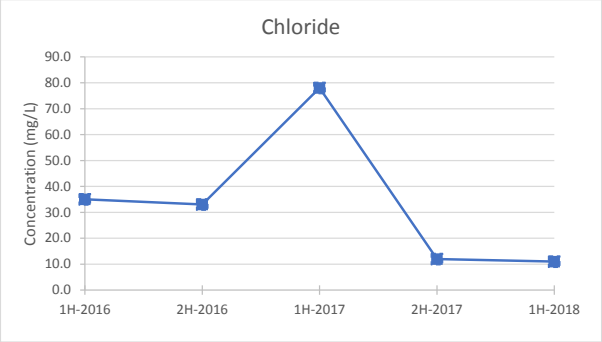


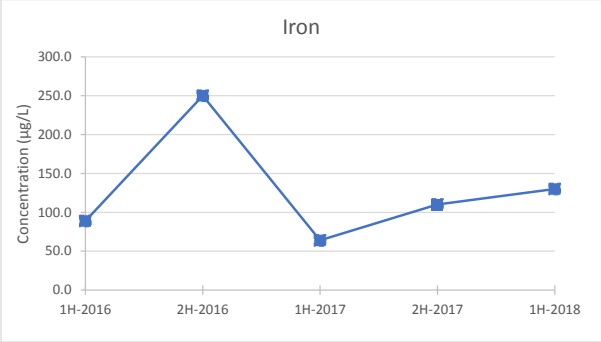


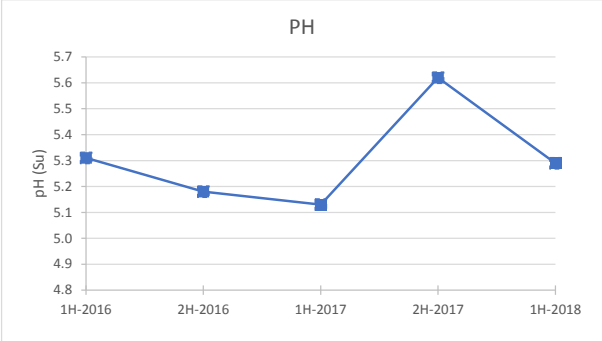


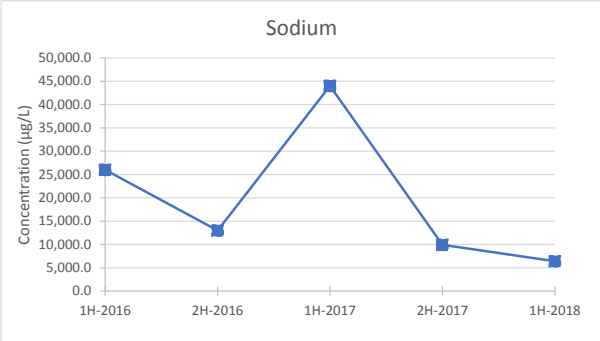
APPENDIX A

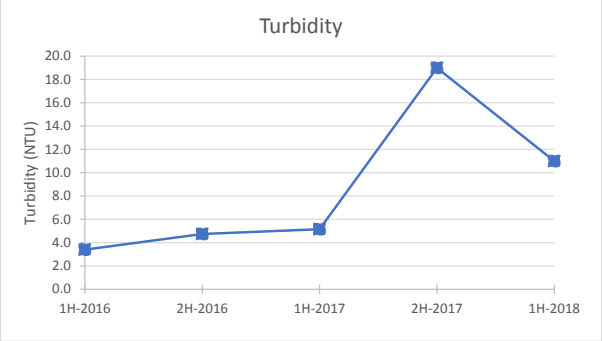
MWB-27(S)

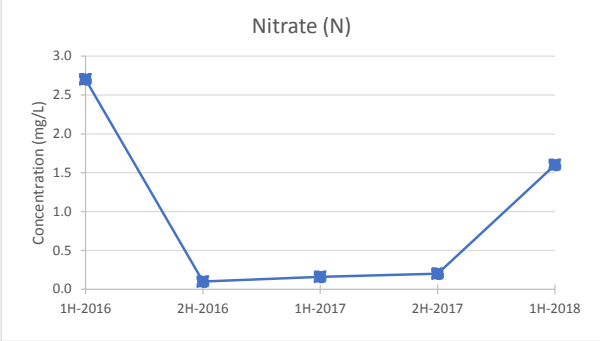


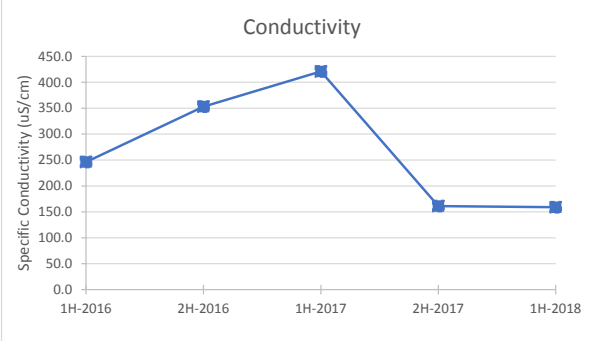


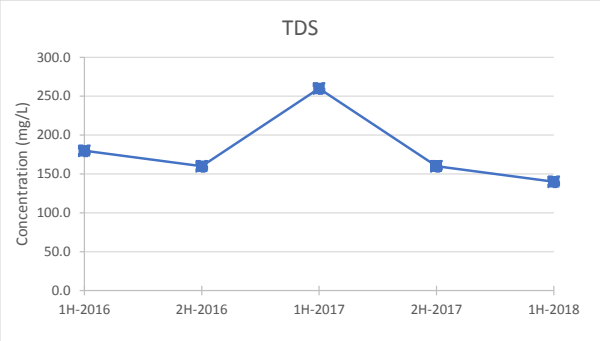






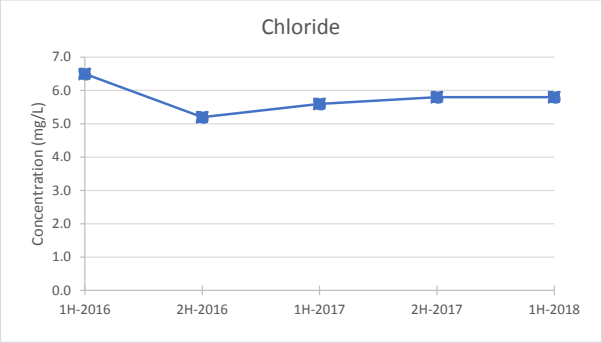


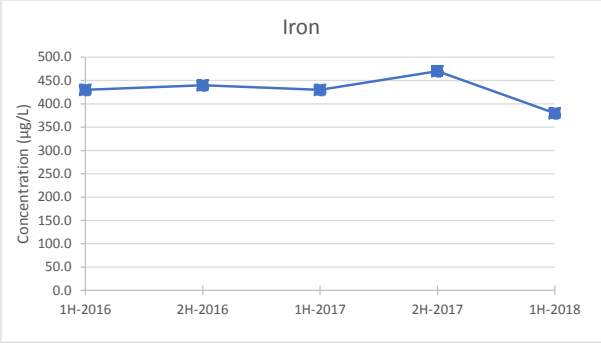


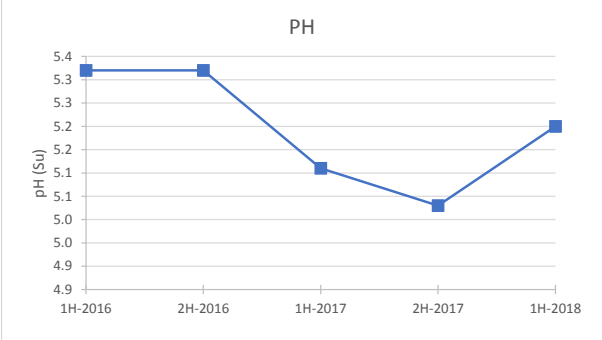


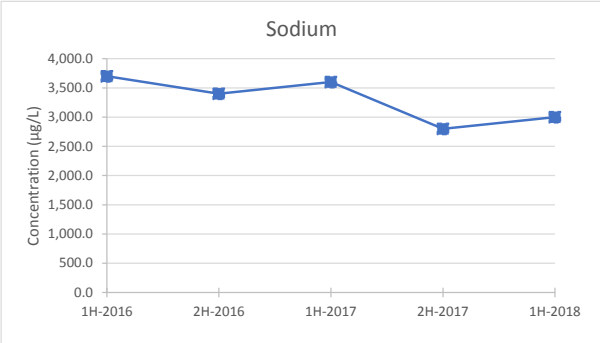
APPENDIX A

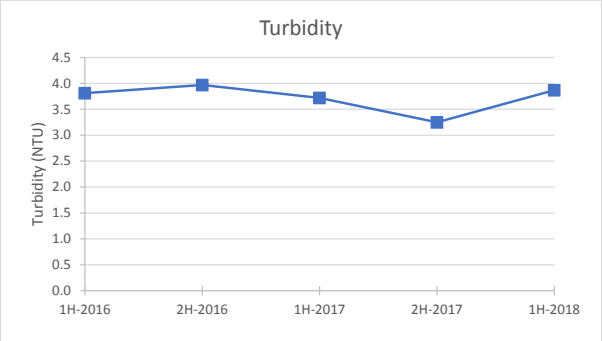
MWB-27(I)

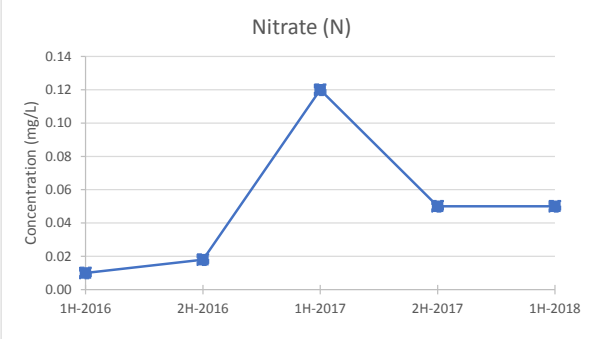

Chloride
Concentration (mg/L)
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

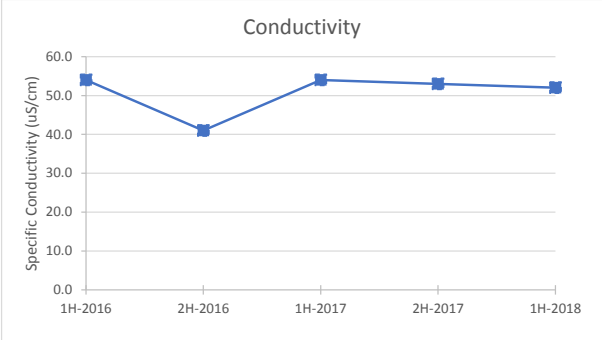

Iron
Concentration (µg/L)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

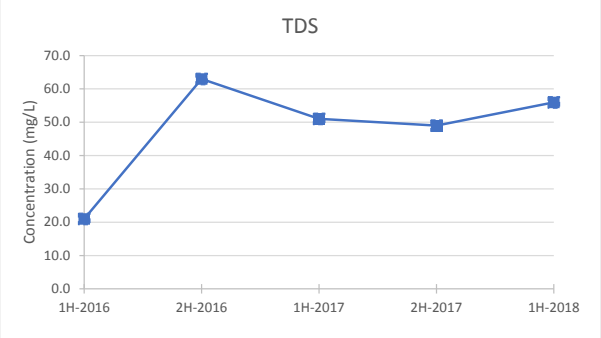

PH
pH (Su)
5.4
5.3
5.3
5.2
5.2
5.1
5.1
5.0
5.0
4.9
4.9
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

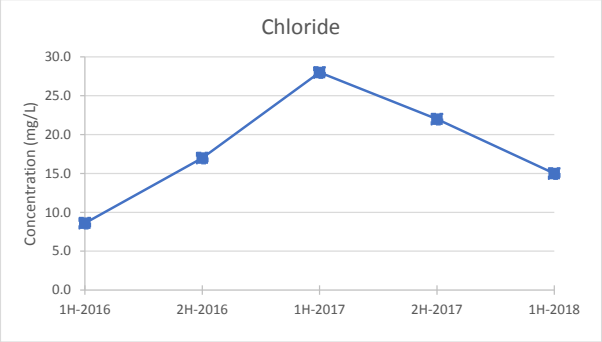

Nitrate (N)
Concentration (mg/L)
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

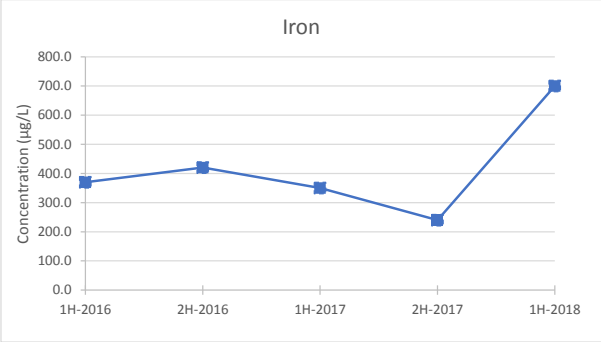

Conductivity
Specific Conductivity (uS/cm)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

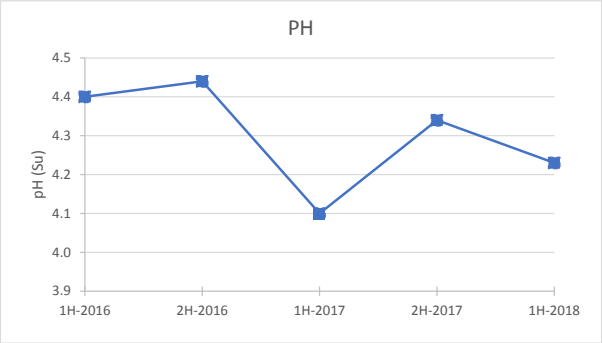

TDS
Concentration (mg/L)
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

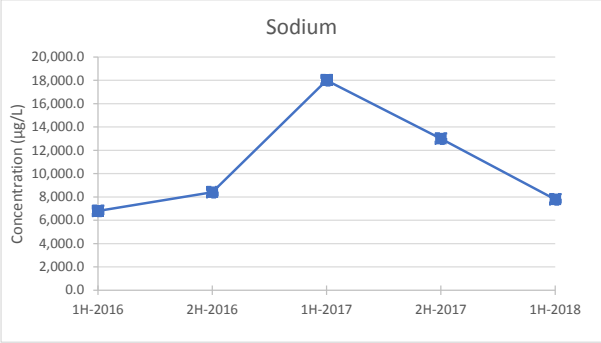
APPENDIX A

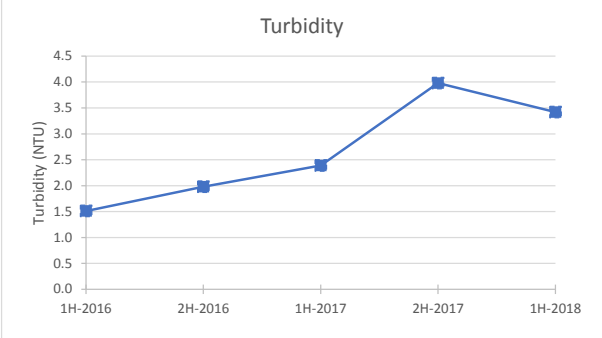
MWB-29(S)

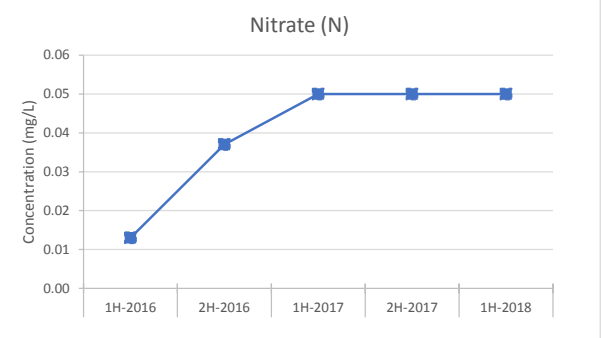


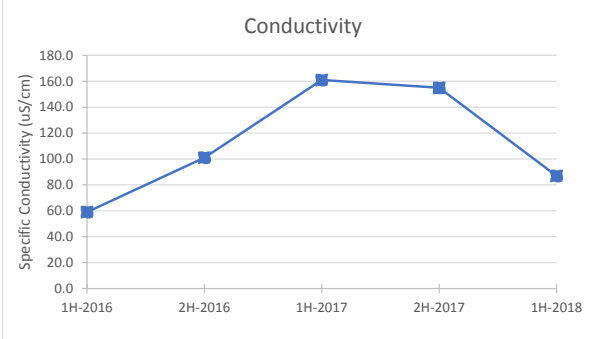


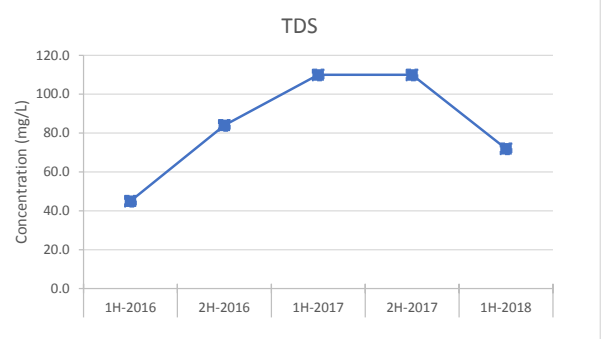






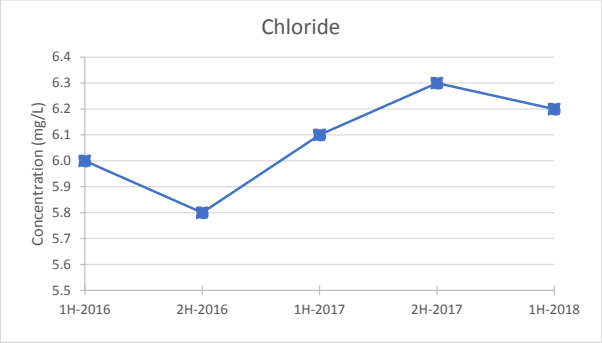


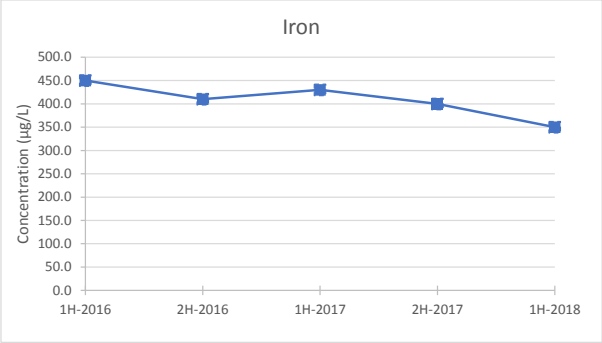


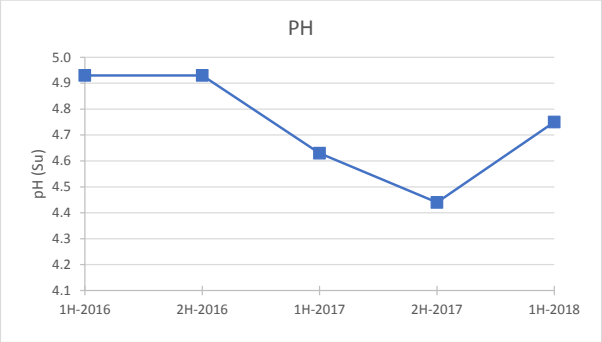


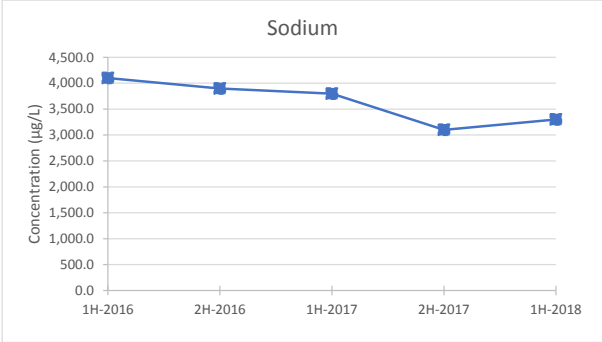
APPENDIX A

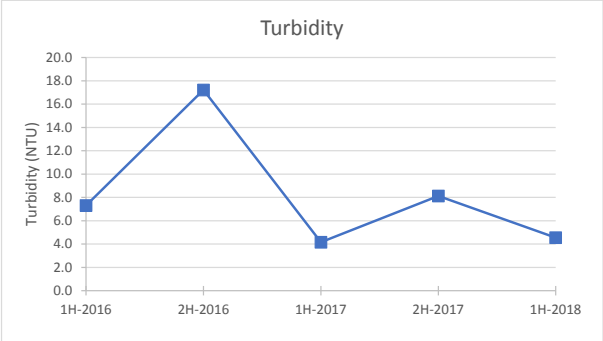
MWB-29(I)

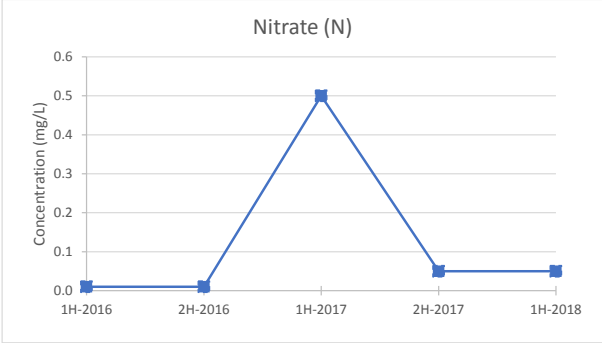

Chloride
Concentration (mg/L)
6.4
6.3
6.2
6.1
6.0
5.9
5.8
5.7
5.6
5.5
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

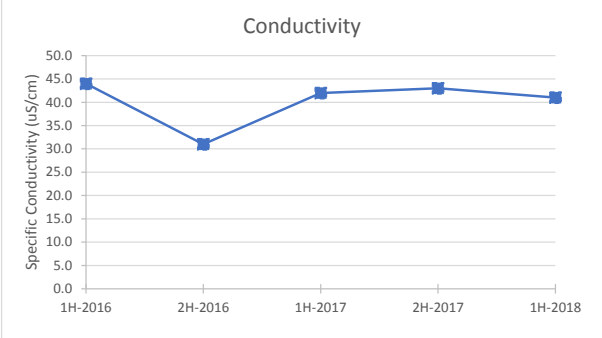

Iron
Concentration (µg/L)
500.0
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

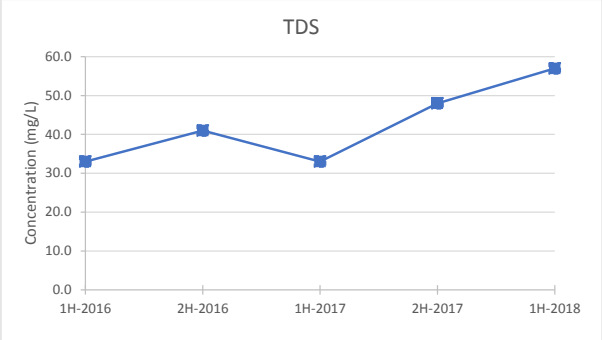

PH
pH (Su)
5.0
4.9
4.8
4.7
4.6
4.5
4.4
4.3
4.2
4.1
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
4,500.0
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

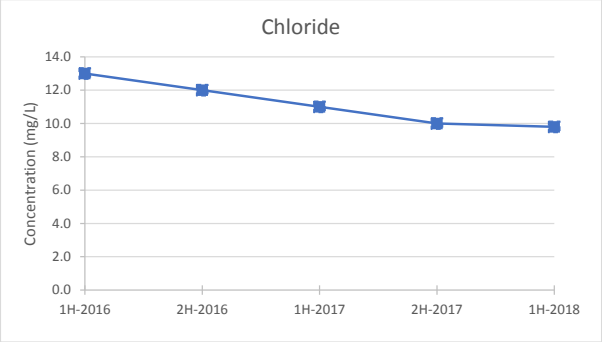

Nitrate (N)
Concentration (mg/L)
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

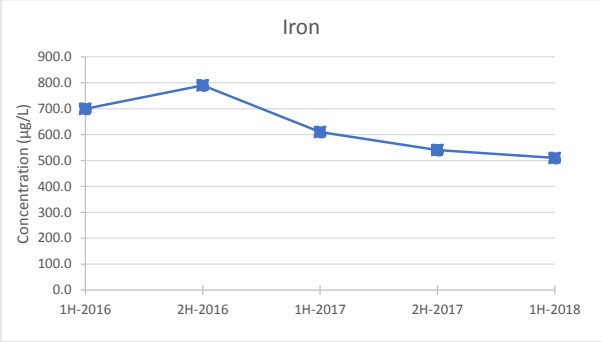

Conductivity
Specific Conductivity (uS/cm)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

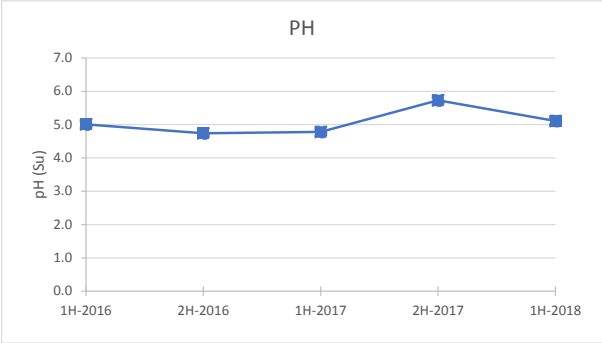

TDS
Concentration (mg/L)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

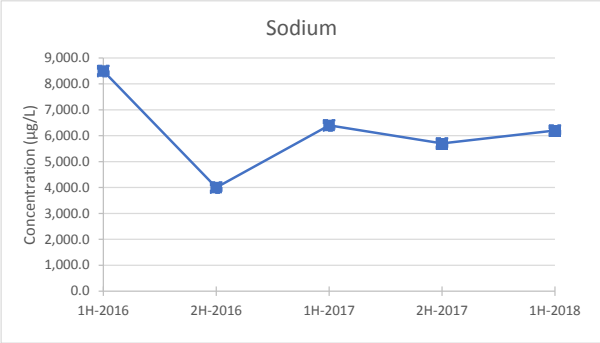
APPENDIX A

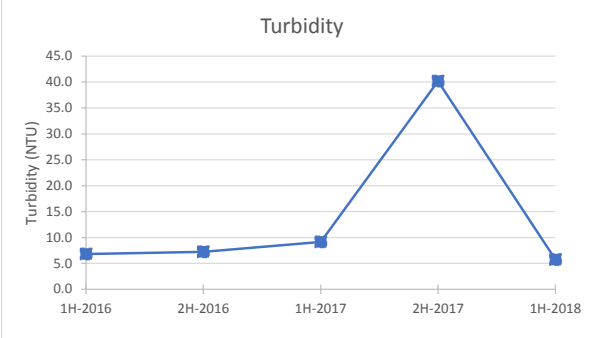
MWB-32(S)

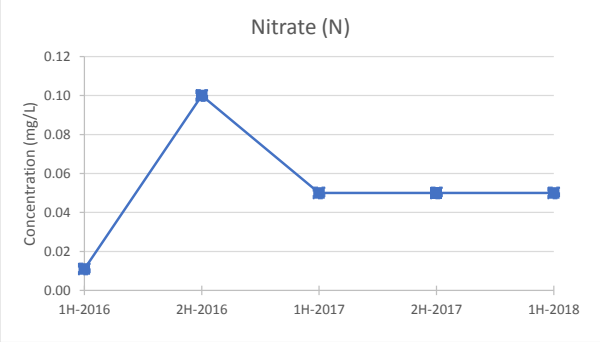


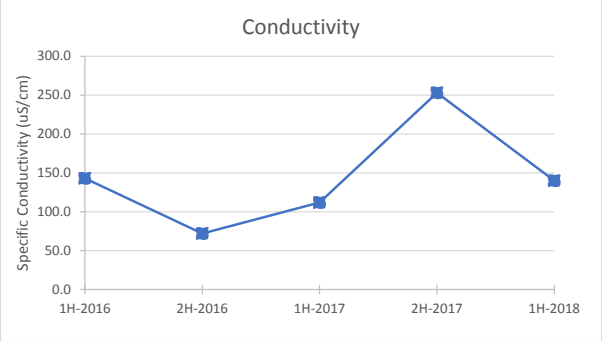


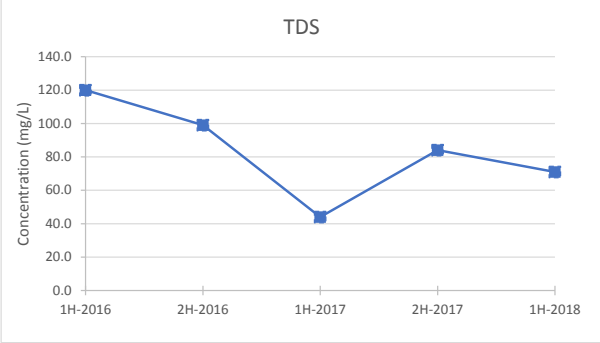








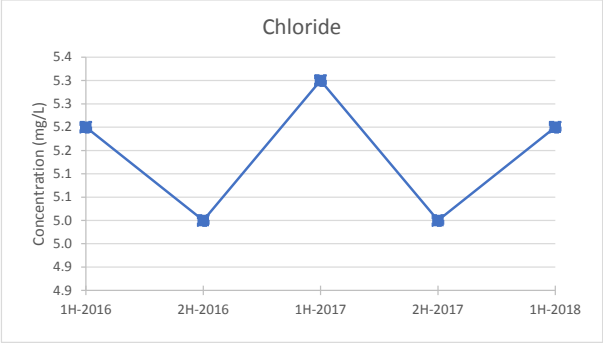


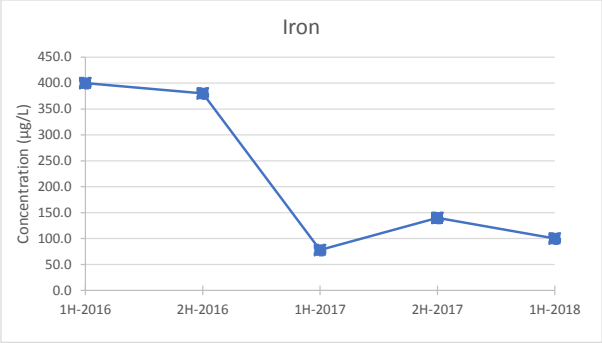


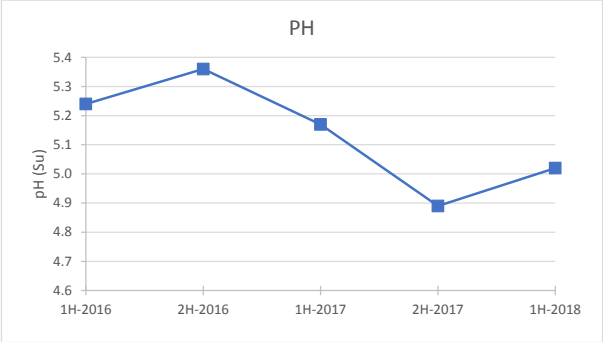
March 2018

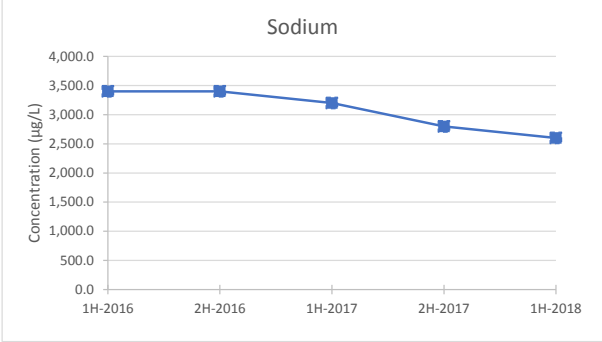
APPENDIX A

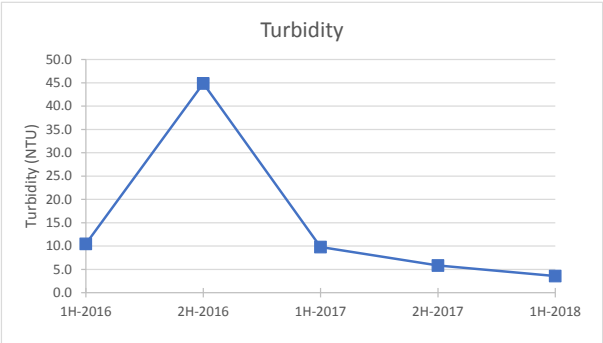
MWB-32(I)

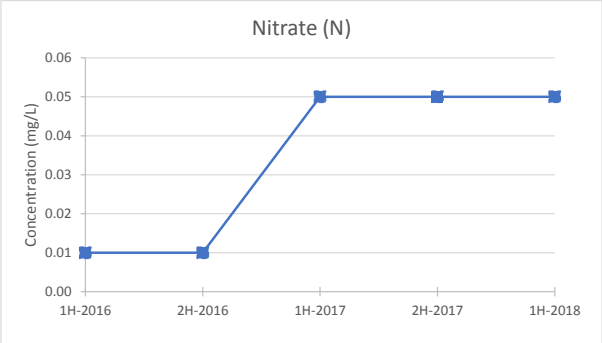

Chloride
Concentration (mg/L)
5.4
5.3
5.3
5.2
5.2
5.1
5.1
5.0
5.0
4.9
4.9
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

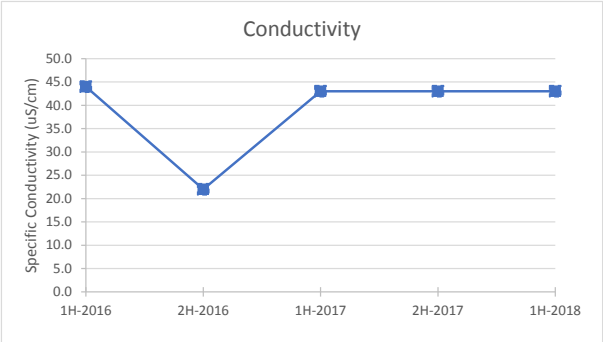

Iron
Concentration (µg/L)
450.0
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

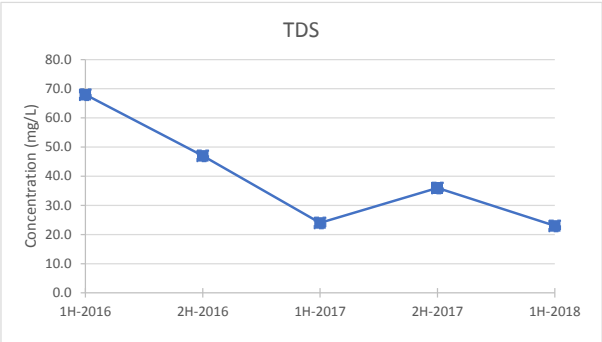

PH
pH (Su)
5.4
5.3
5.2
5.1
5.0
4.9
4.8
4.7
4.6
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

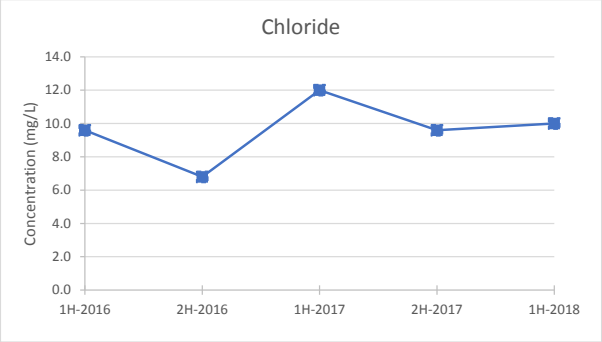

Nitrate (N)
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

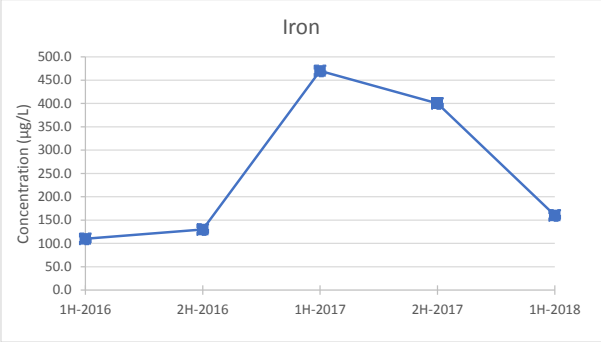

Conductivity
Specific Conductivity (uS/cm)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

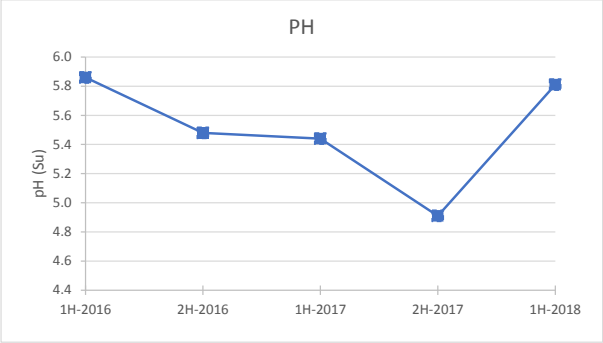

TDS
Concentration (mg/L)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

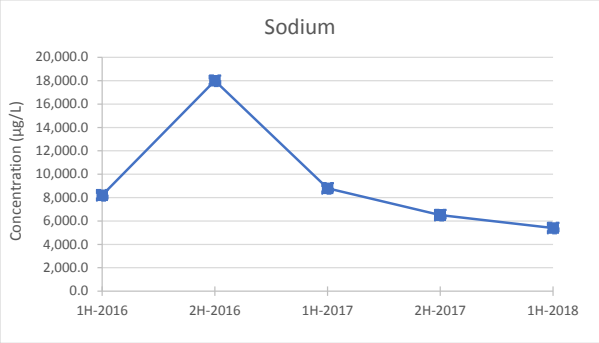
APPENDIX A

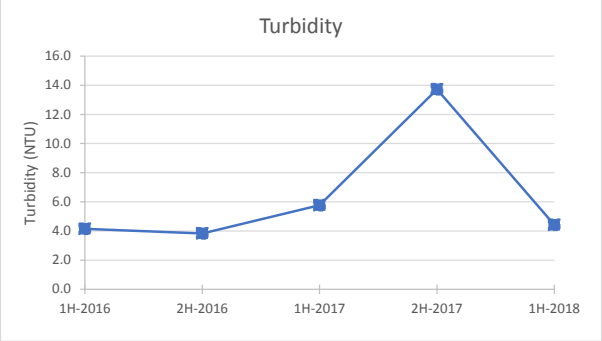
MWB-33(S)

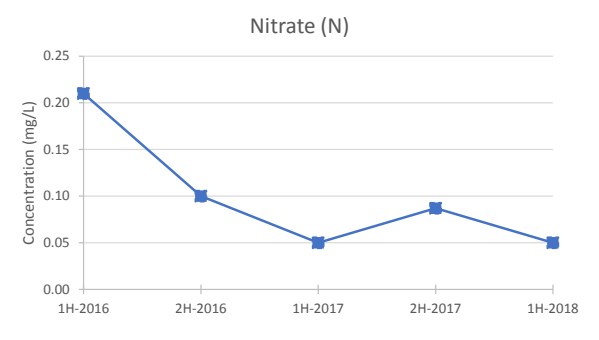


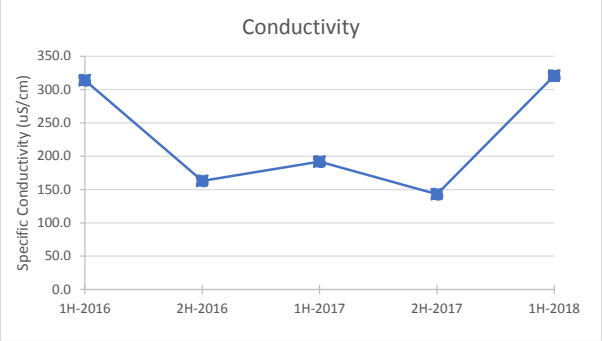


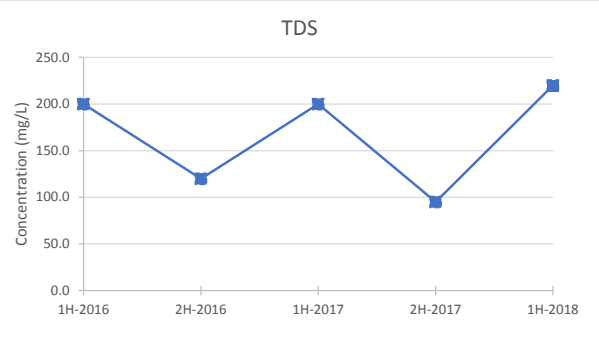








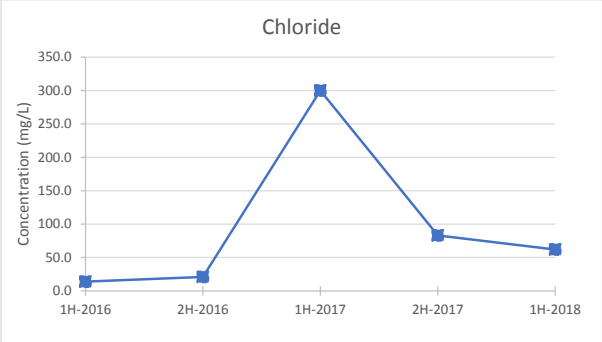


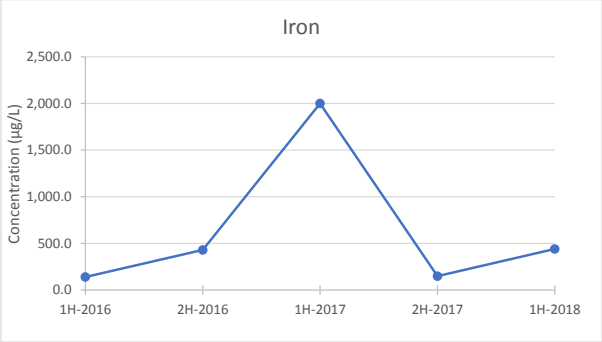


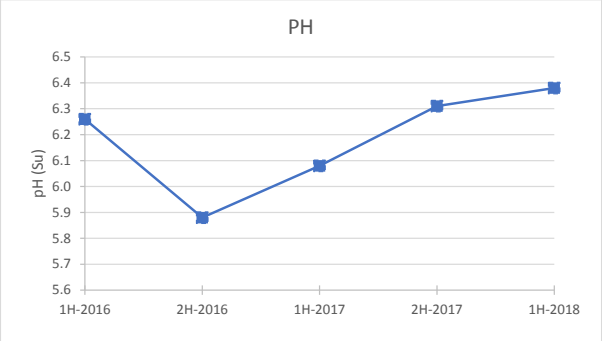
APPENDIX A

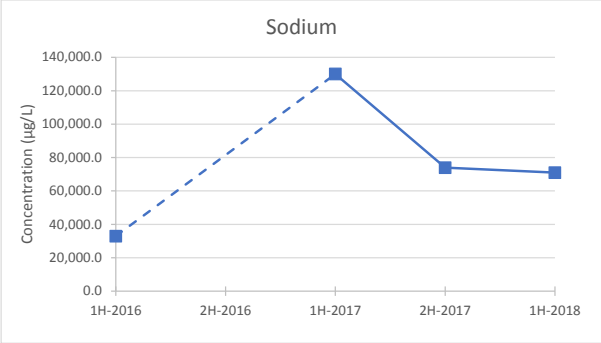
MWB-34(S)

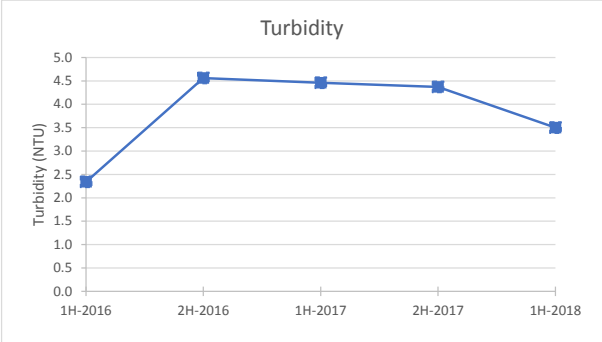
*Dashed lines indicate where select parameters were not sampled

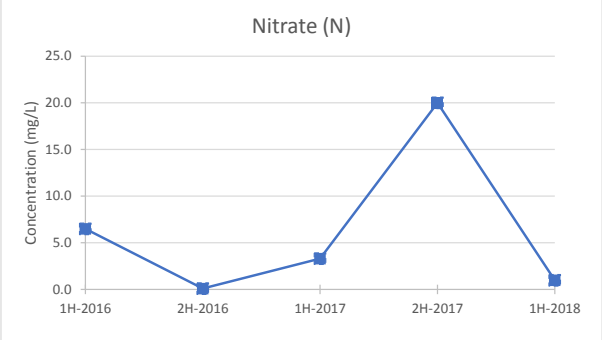


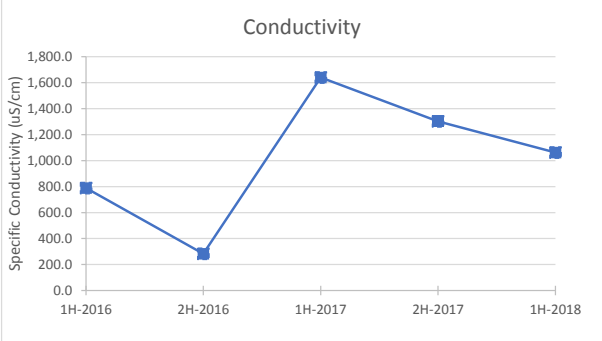


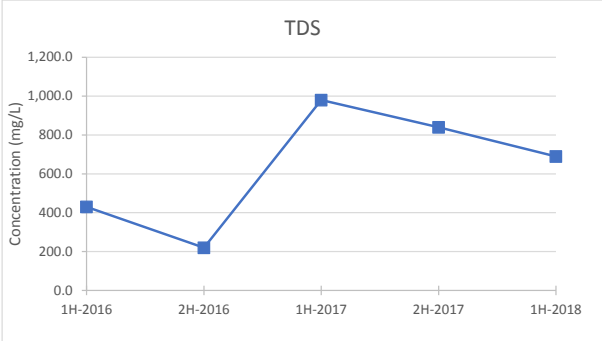












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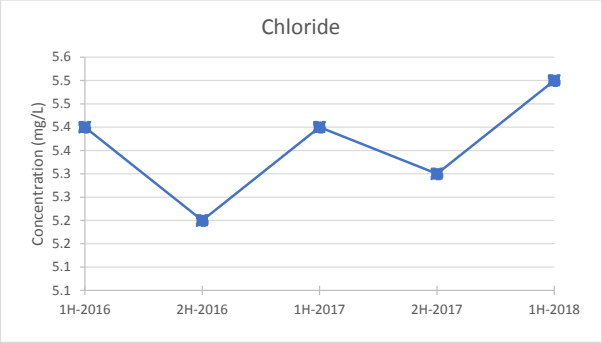
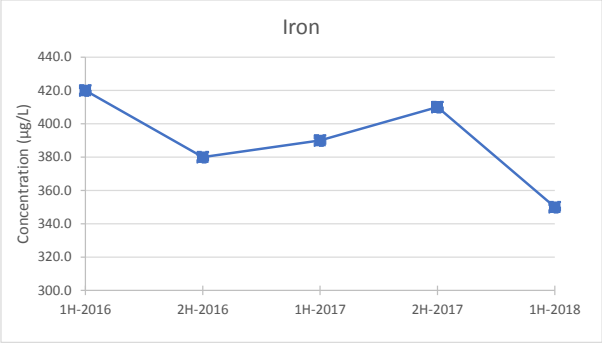
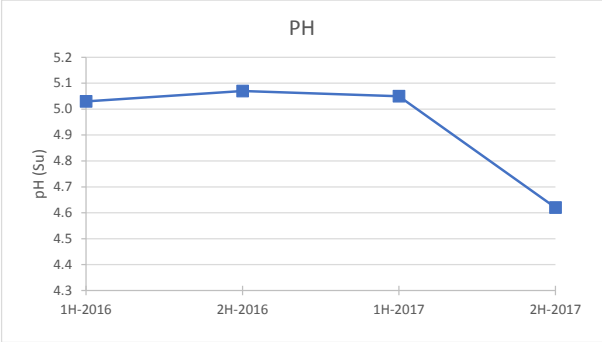
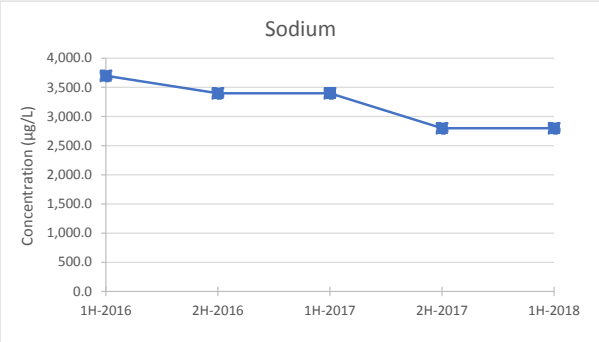
APPENDIX A

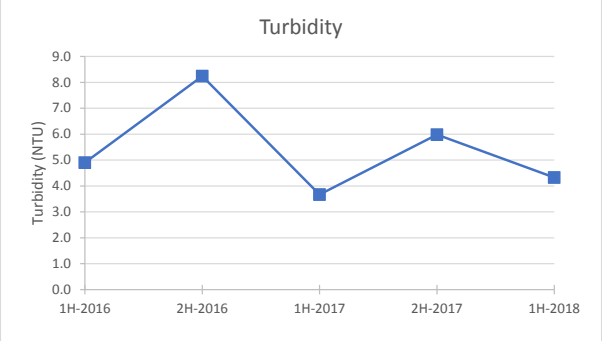
MWB-34(I)

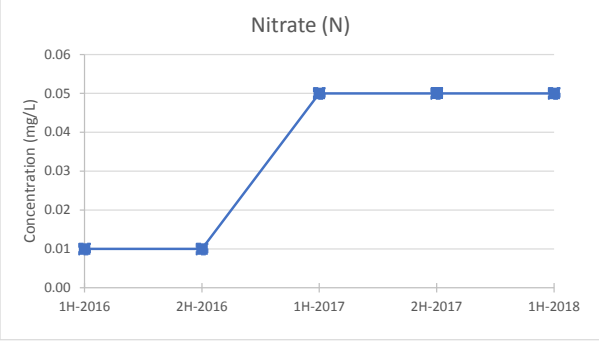

Chloride
Concentration (mg/L)
5.6
5.5
5.5
5.4
5.4
5.3
5.3
5.2
5.2
5.1
5.1
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

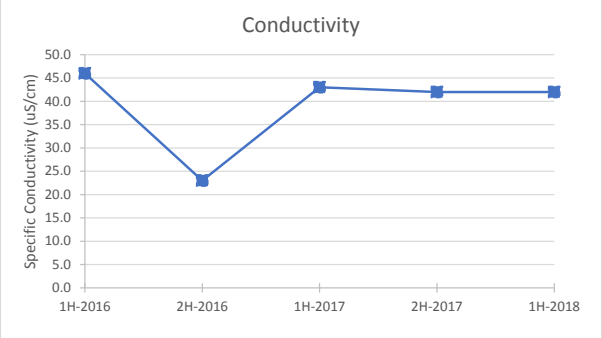

Iron
Concentration (µg/L)
440.0
420.0
400.0
380.0
360.0
340.0
320.0
300.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

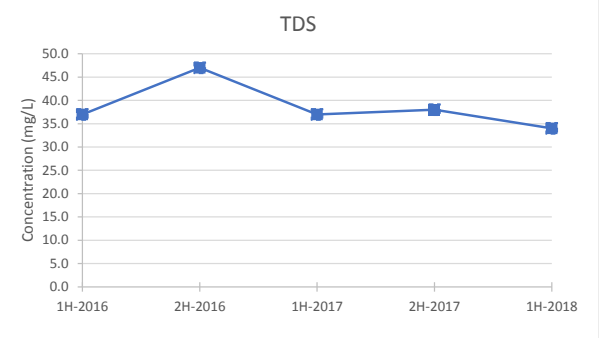

PH
pH (Su)
5.2
5.1
5.0
4.9
4.8
4.7
4.6
4.5
4.4
4.3
1H-2016
2H-2016
1H-2017
2H-2017


Sodium
Concentration (µg/L)
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Nitrate (N)
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

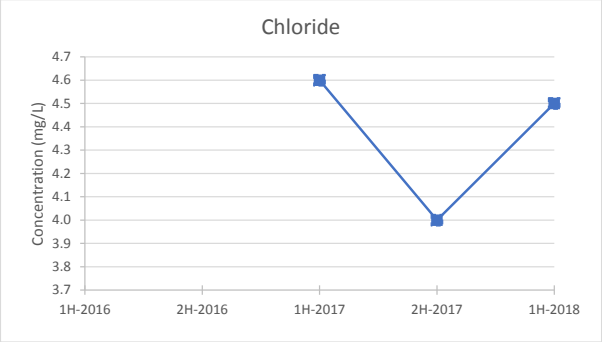

Conductivity
Specific Conductivity (uS/cm)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

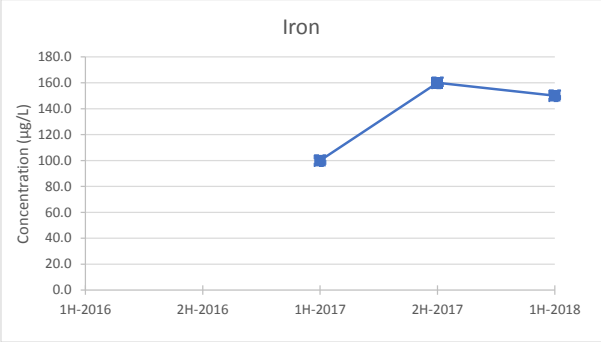

TDS
Concentration (mg/L)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

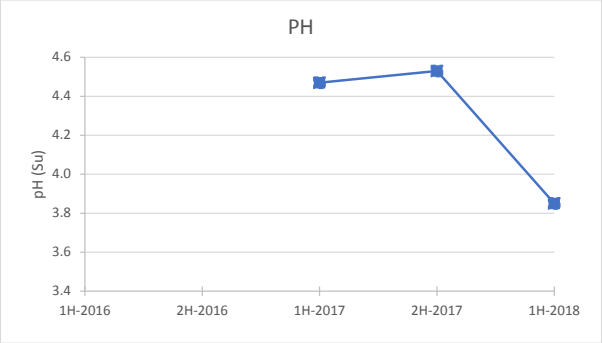
APPENDIX A

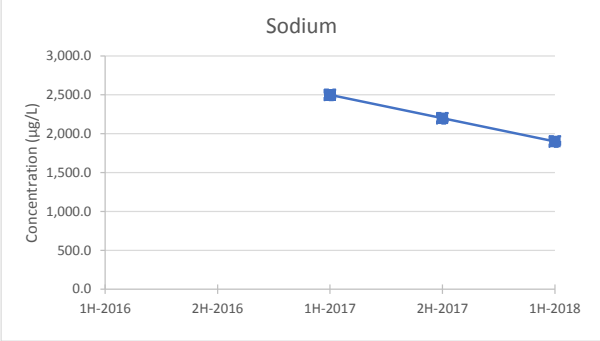
MWB-35(S)

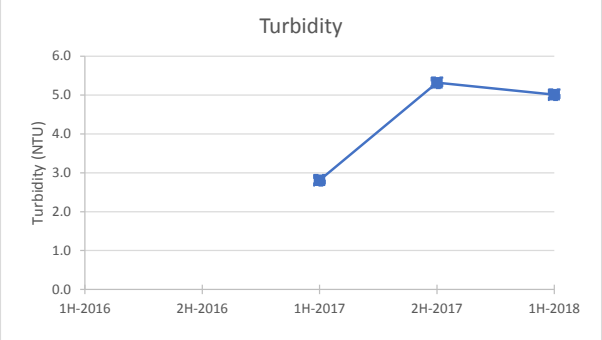
*Dashed lines indicate where select parameters were not sampled

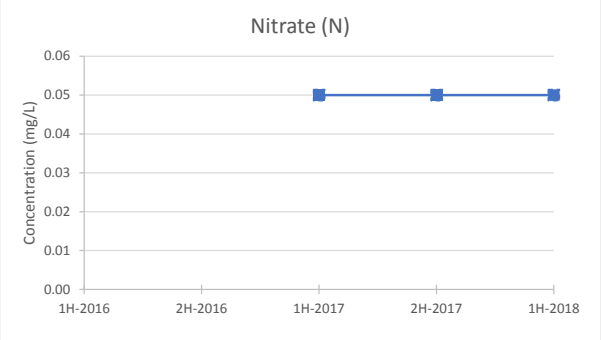


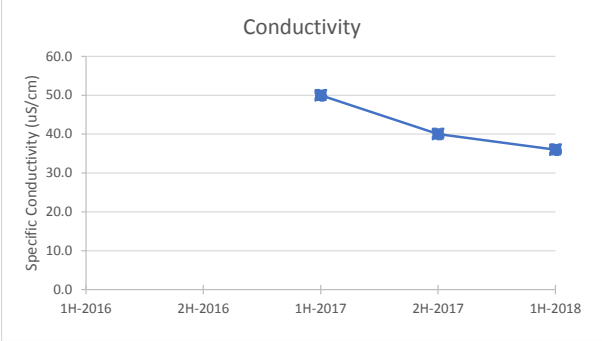


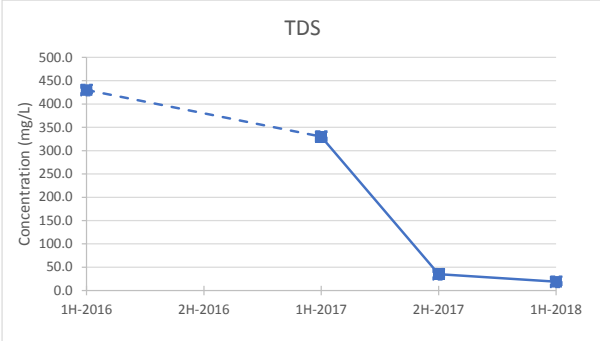






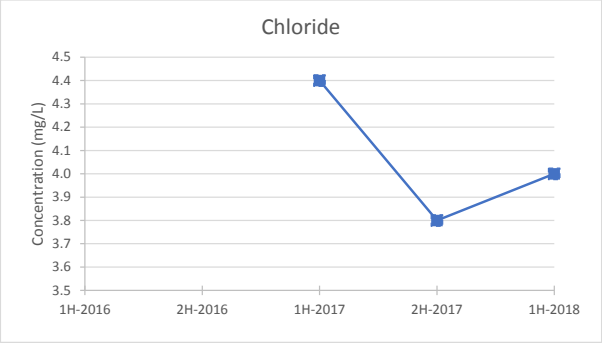


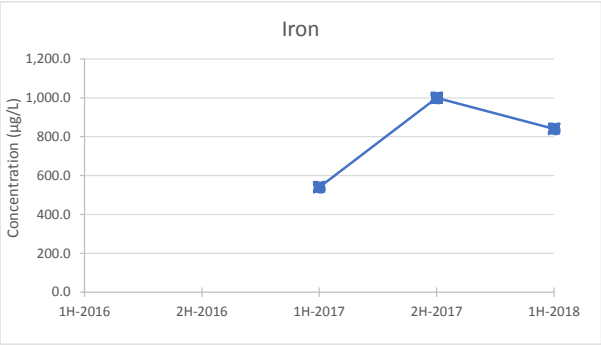


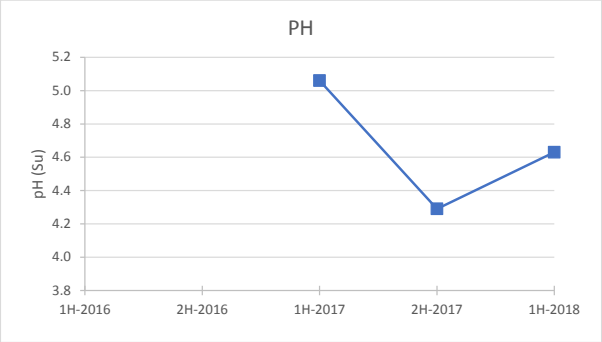


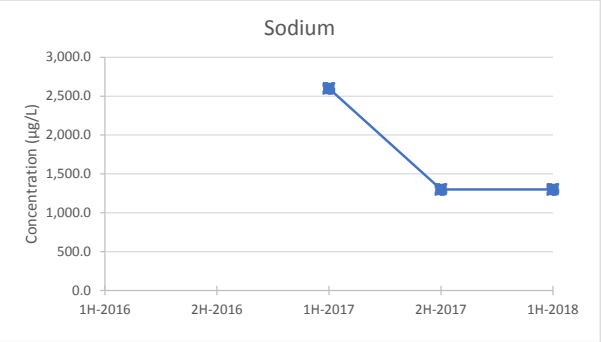
APPENDIX A

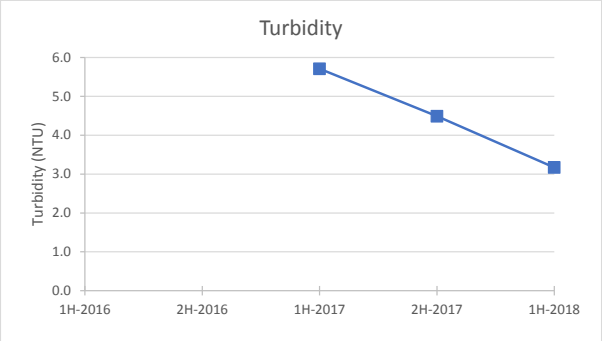
MWB-35(I)

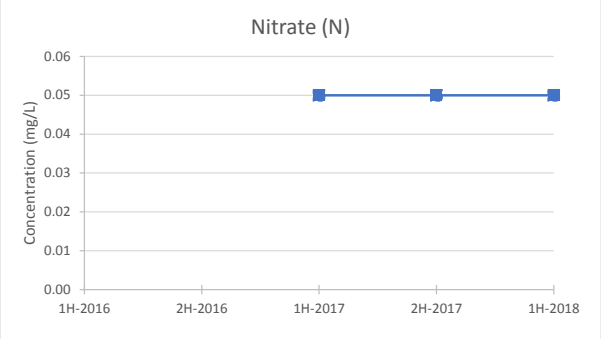

Chloride
Concentration (mg/L)
4.5
4.4
4.3
4.2
4.1
4.0
3.9
3.8
3.7
3.6
3.5
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

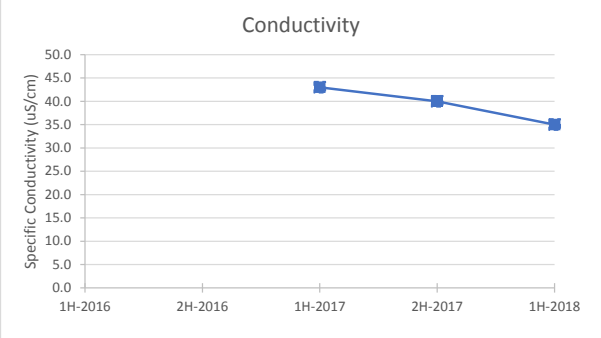

Iron
Concentration (µg/L)
1,200.0
1,000.0
800.0
600.0
400.0
200.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

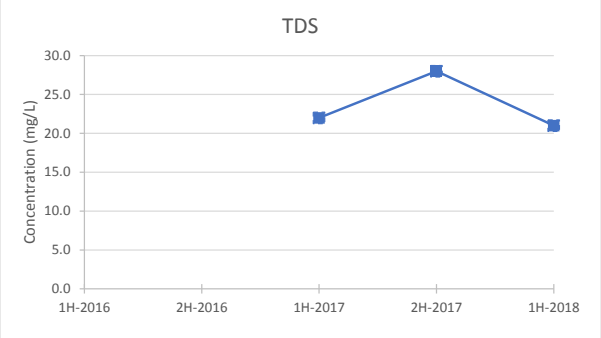

PH
pH (Su)
5.2
5.0
4.8
4.6
4.4
4.2
4.0
3.8
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

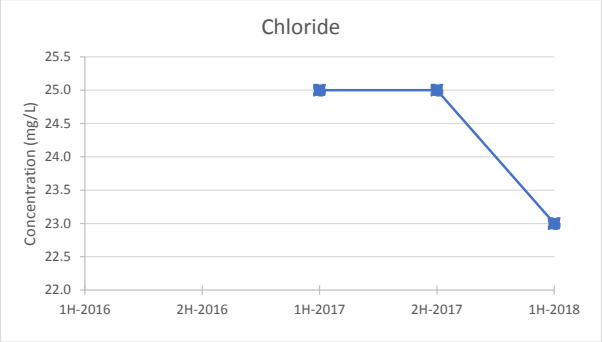

Nitrate (N)
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

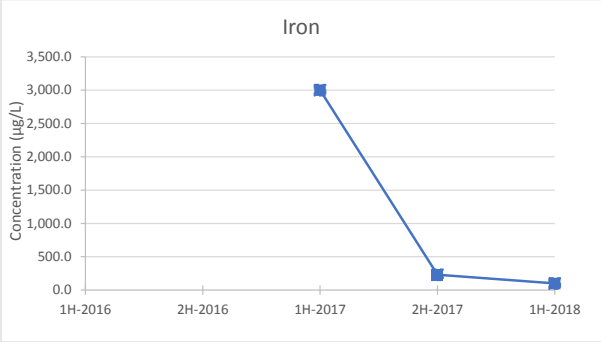

Conductivity
Specific Conductivity (uS/cm)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

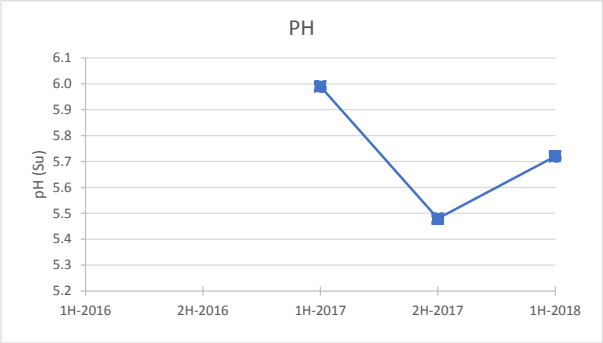

TDS
Concentration (mg/L)
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

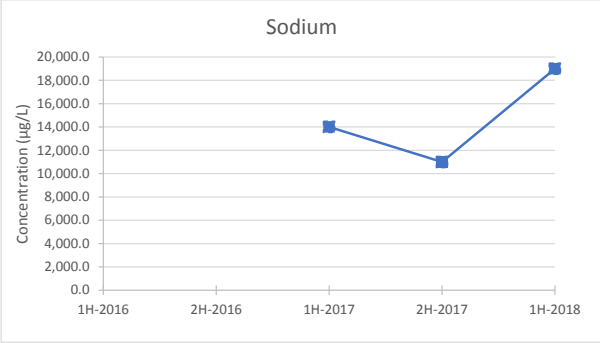
APPENDIX A

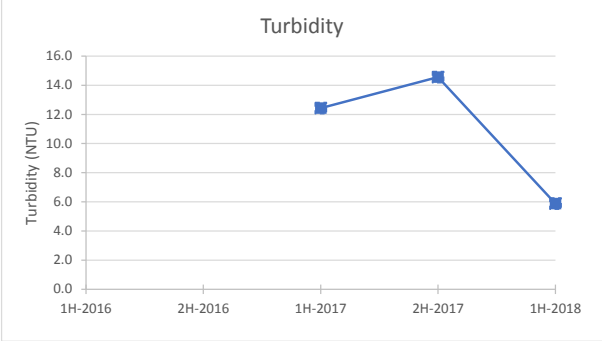
MWB-39(S)

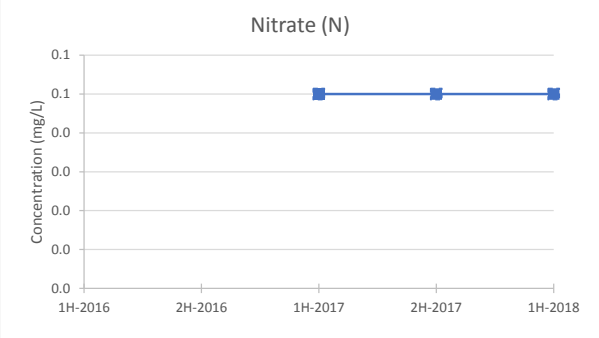


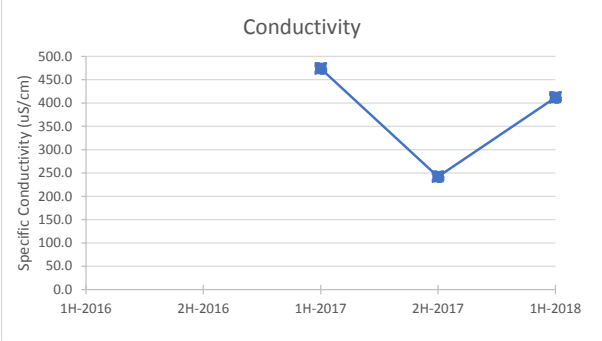


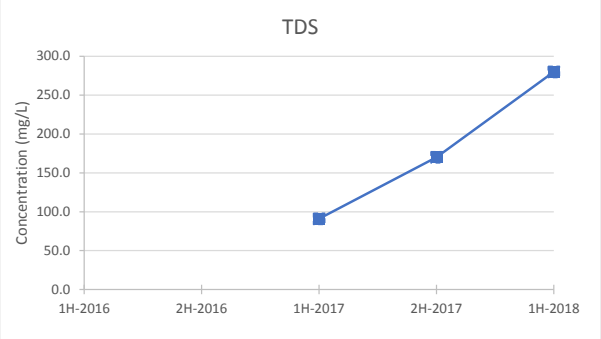








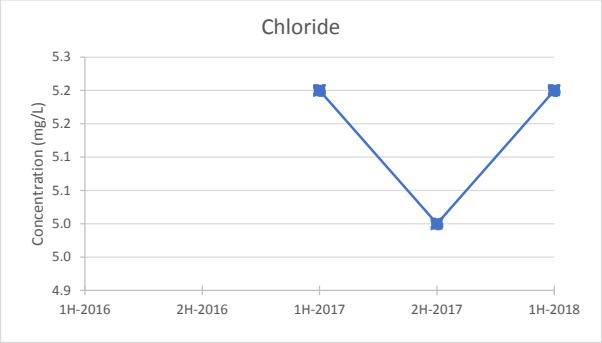


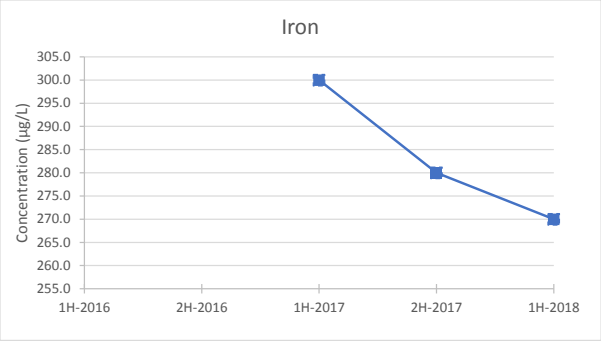


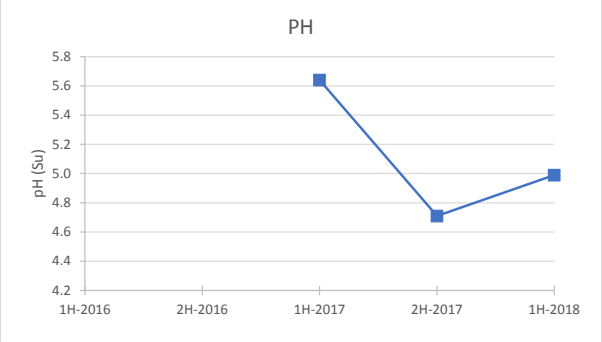
March 2018

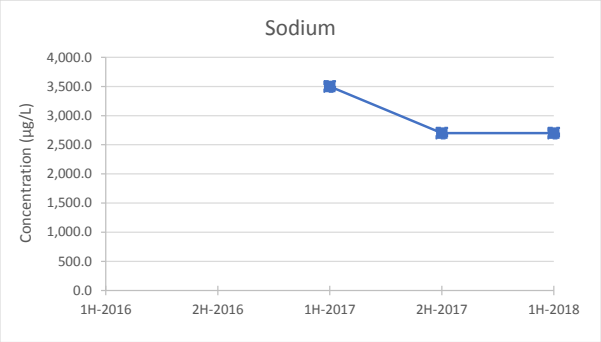
APPENDIX A

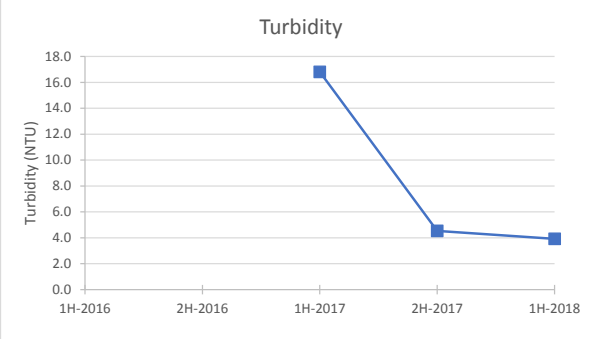
MWB-39(I)

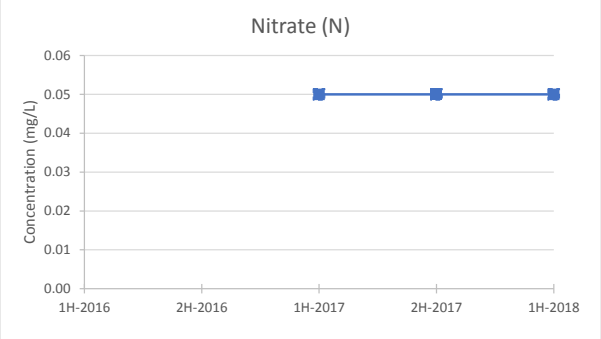

Chloride
Concentration (mg/L)
5.3
5.2
5.2
5.1
5.1
5.0
5.0
4.9
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

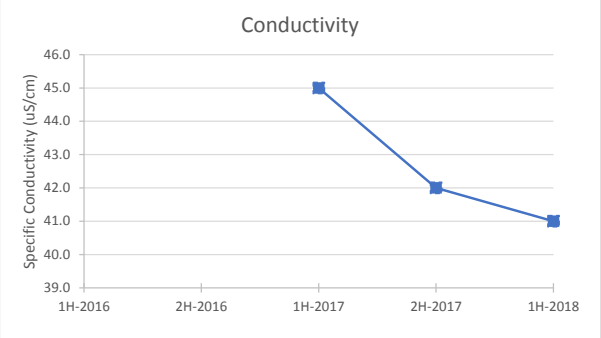

Iron
Concentration (µg/L)
305.0
300.0
295.0
290.0
285.0
280.0
275.0
270.0
265.0
260.0
255.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

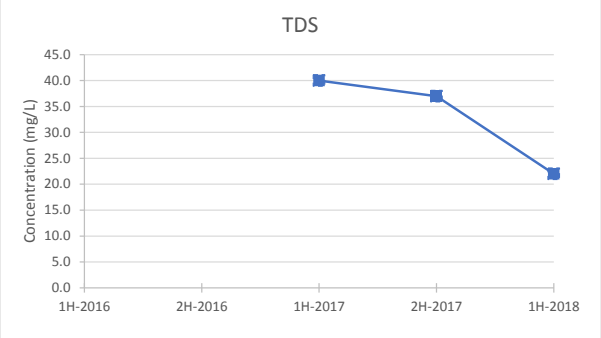

PH
pH (Su)
5.8
5.6
5.4
5.2
5.0
4.8
4.6
4.4
4.2
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Sodium
Concentration (µg/L)
4,000.0
3,500.0
3,000.0
2,500.0
2,000.0
1,500.0
1,000.0
500.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018


Turbidity
Turbidity (NTU)
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

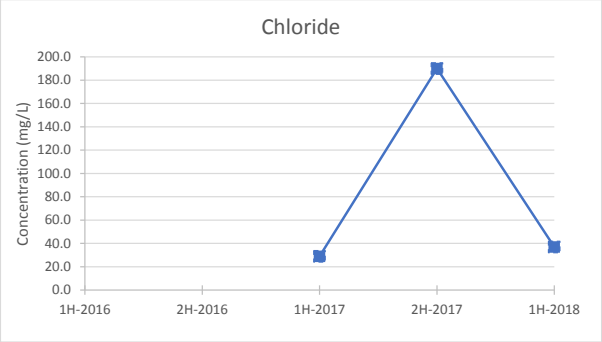

Nitrate (N)
Concentration (mg/L)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

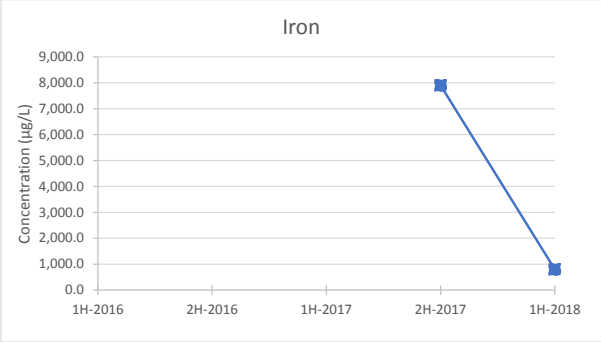

Conductivity
Specific Conductivity (uS/cm)
46.0
45.0
44.0
43.0
42.0
41.0
40.0
39.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

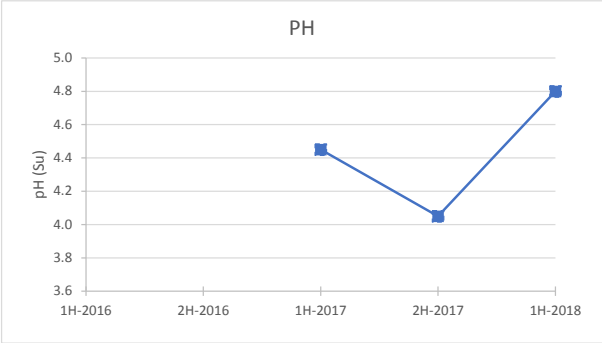

TDS
Concentration (mg/L)
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1H-2016
2H-2016
1H-2017
2H-2017
1H-2018

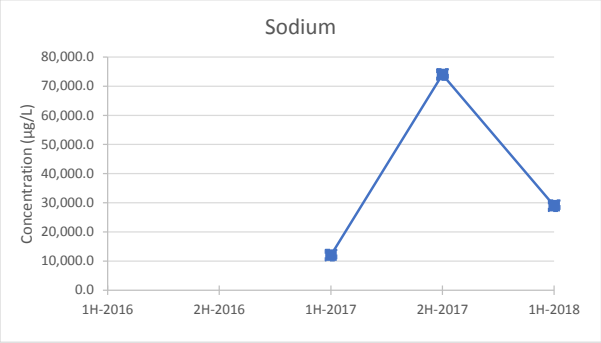
APPENDIX A

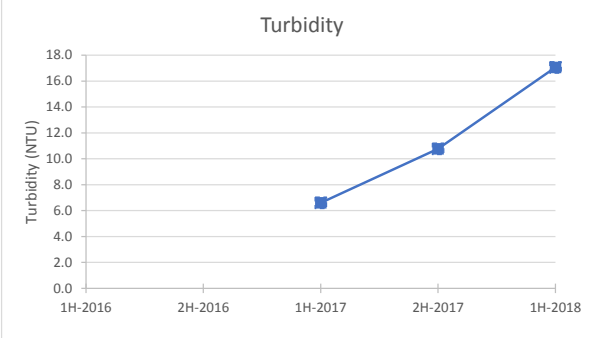
MWB-40(S)

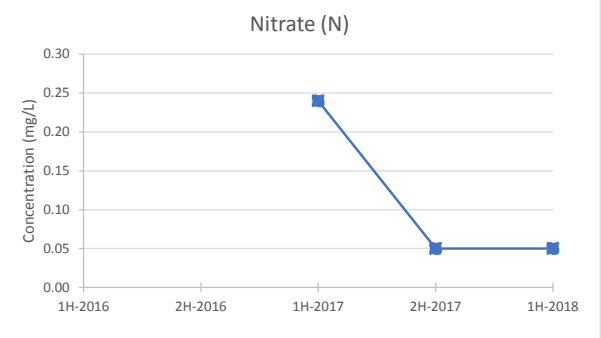


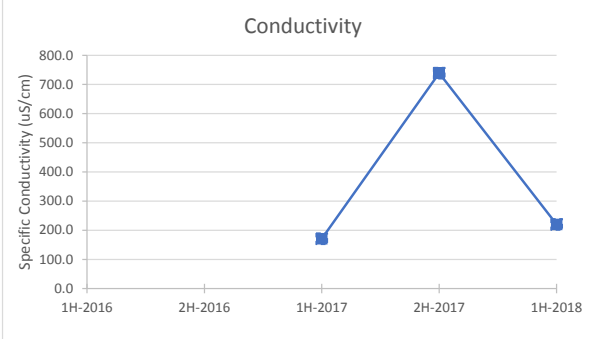


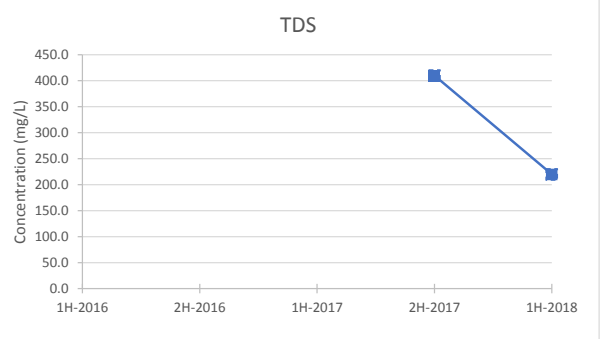






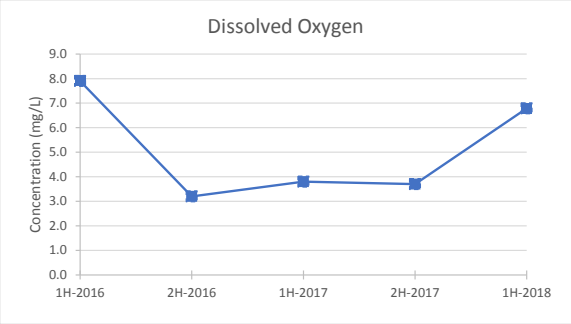


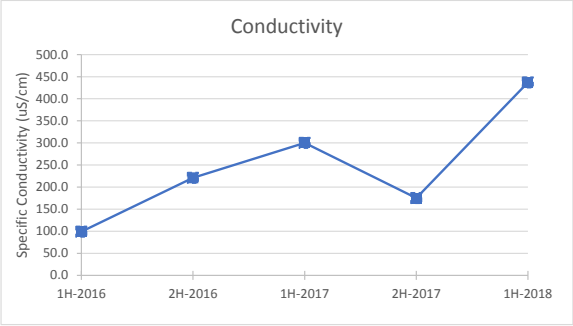


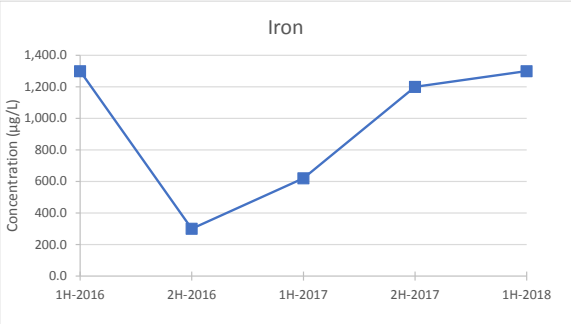


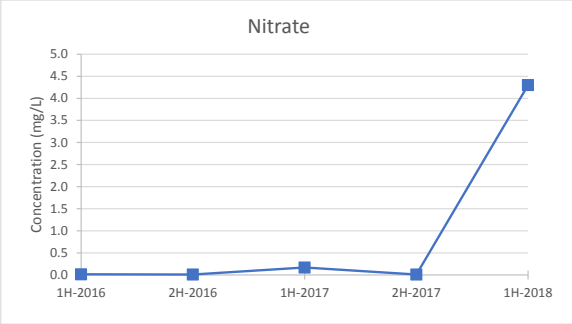
APPENDIX A

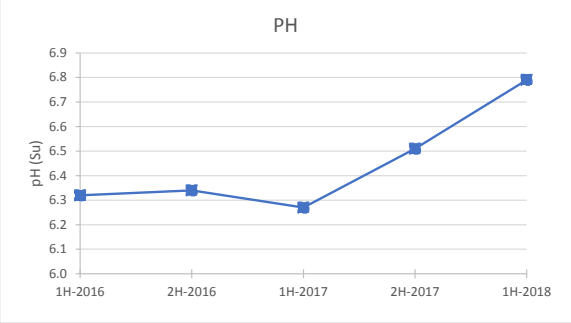
SW-1

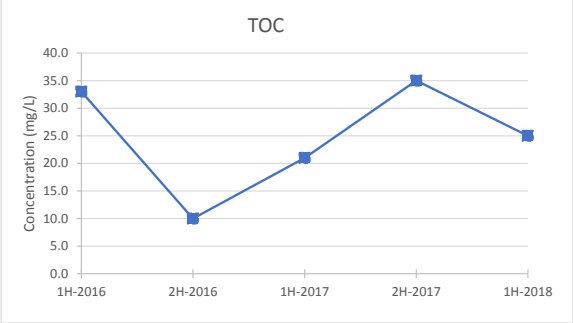


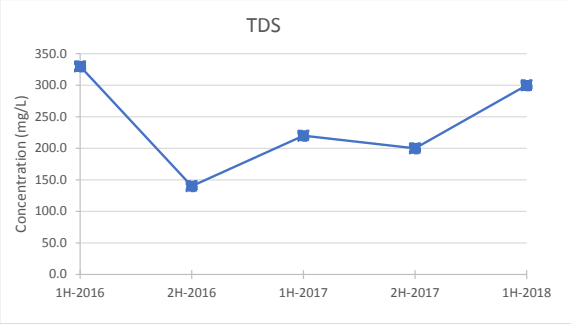


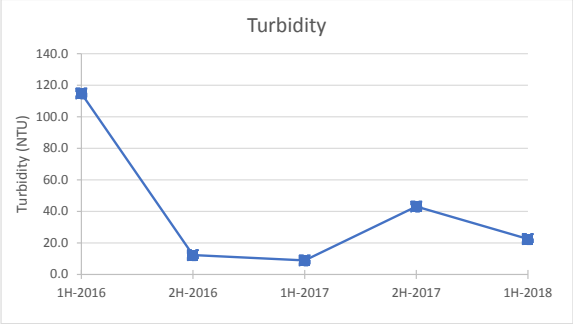


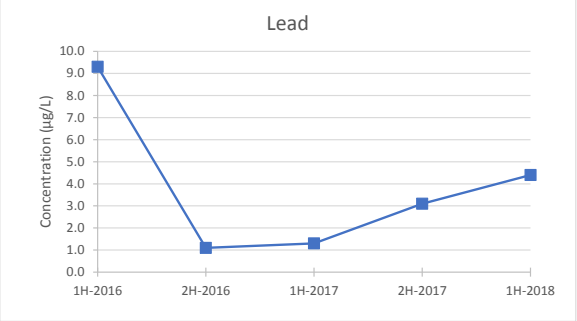






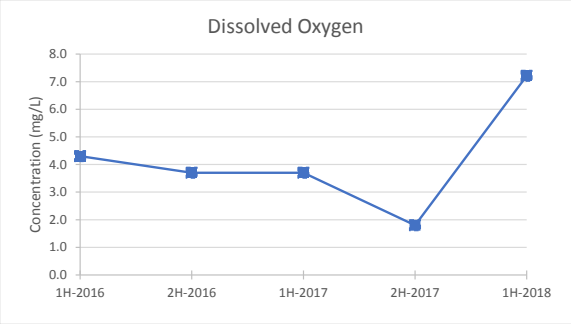


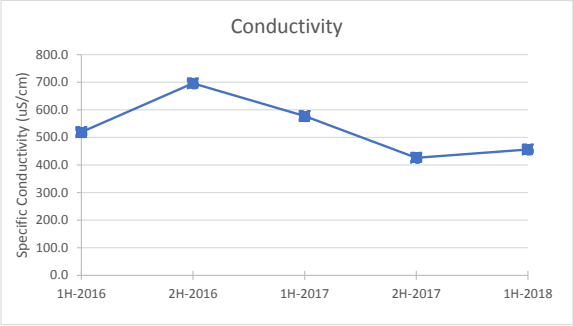


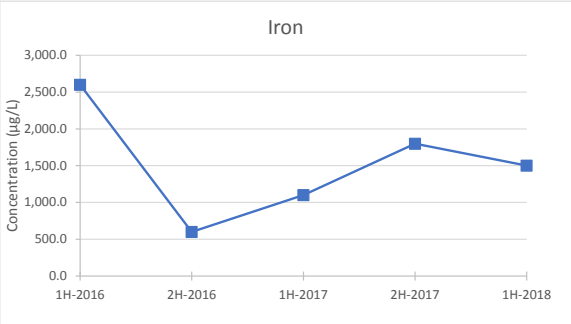


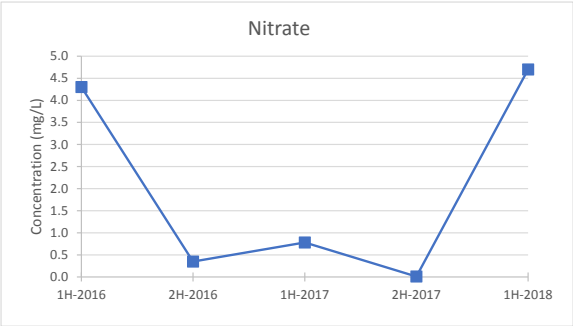
APPENDIX A

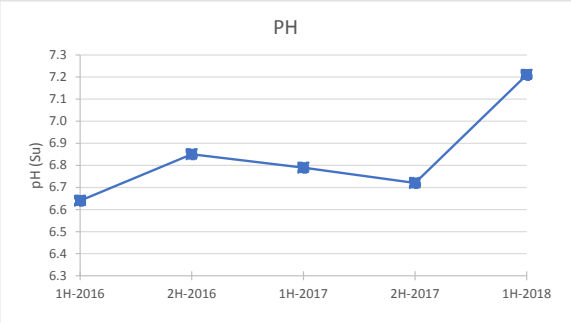
SW-3

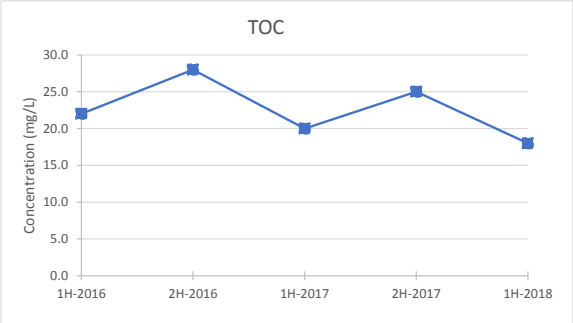


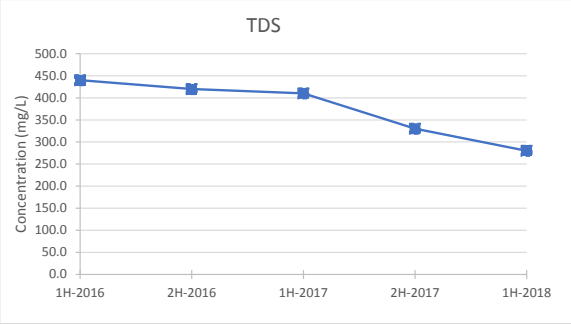


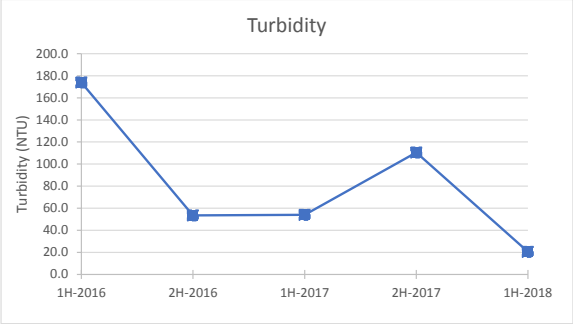


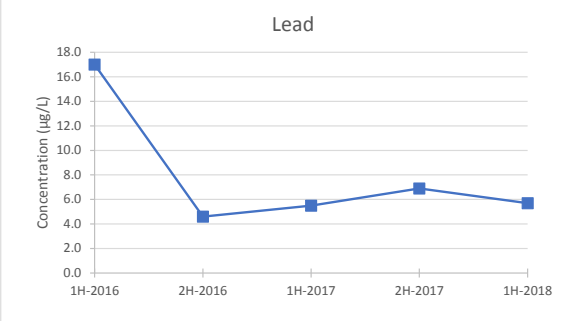




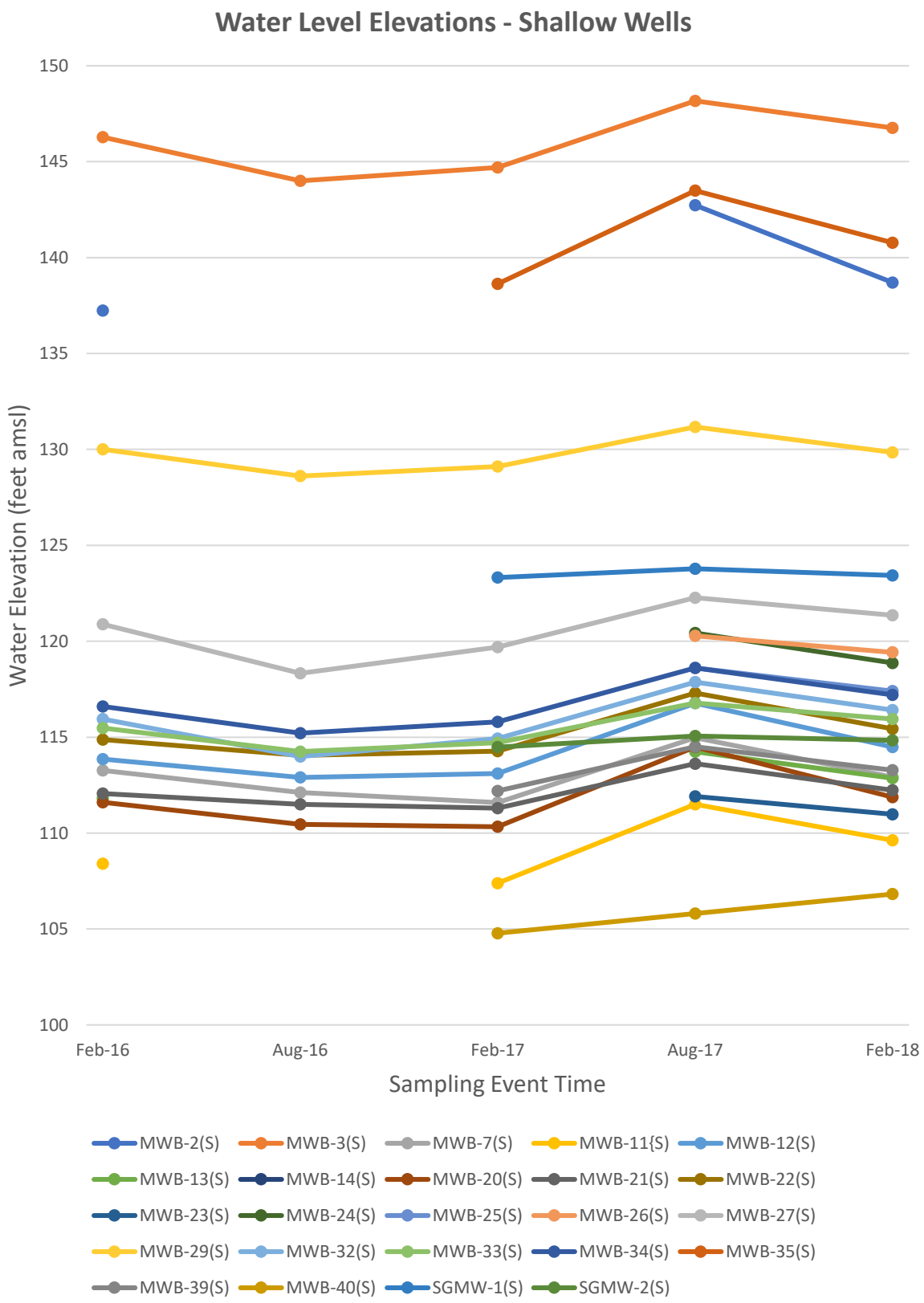


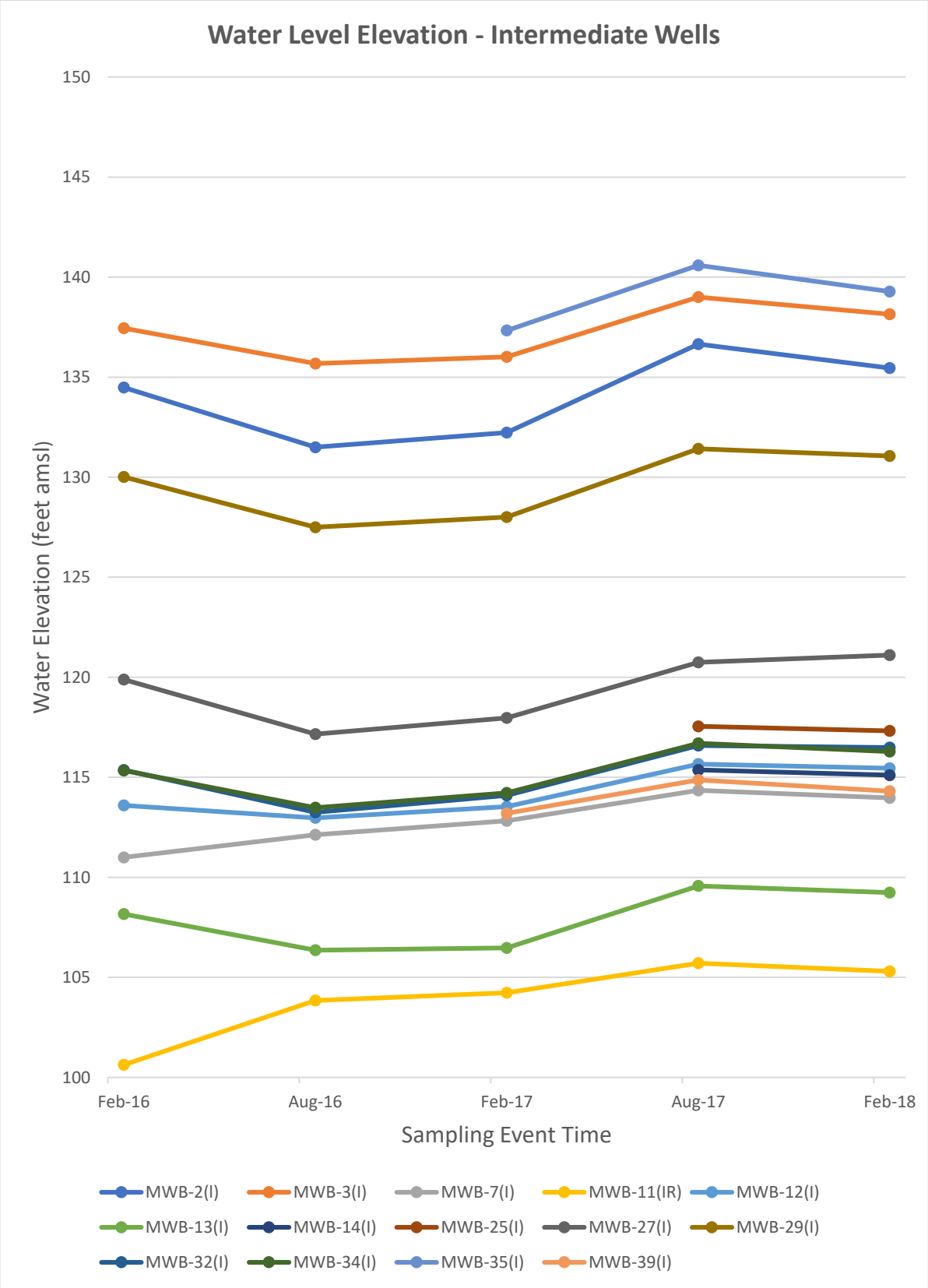


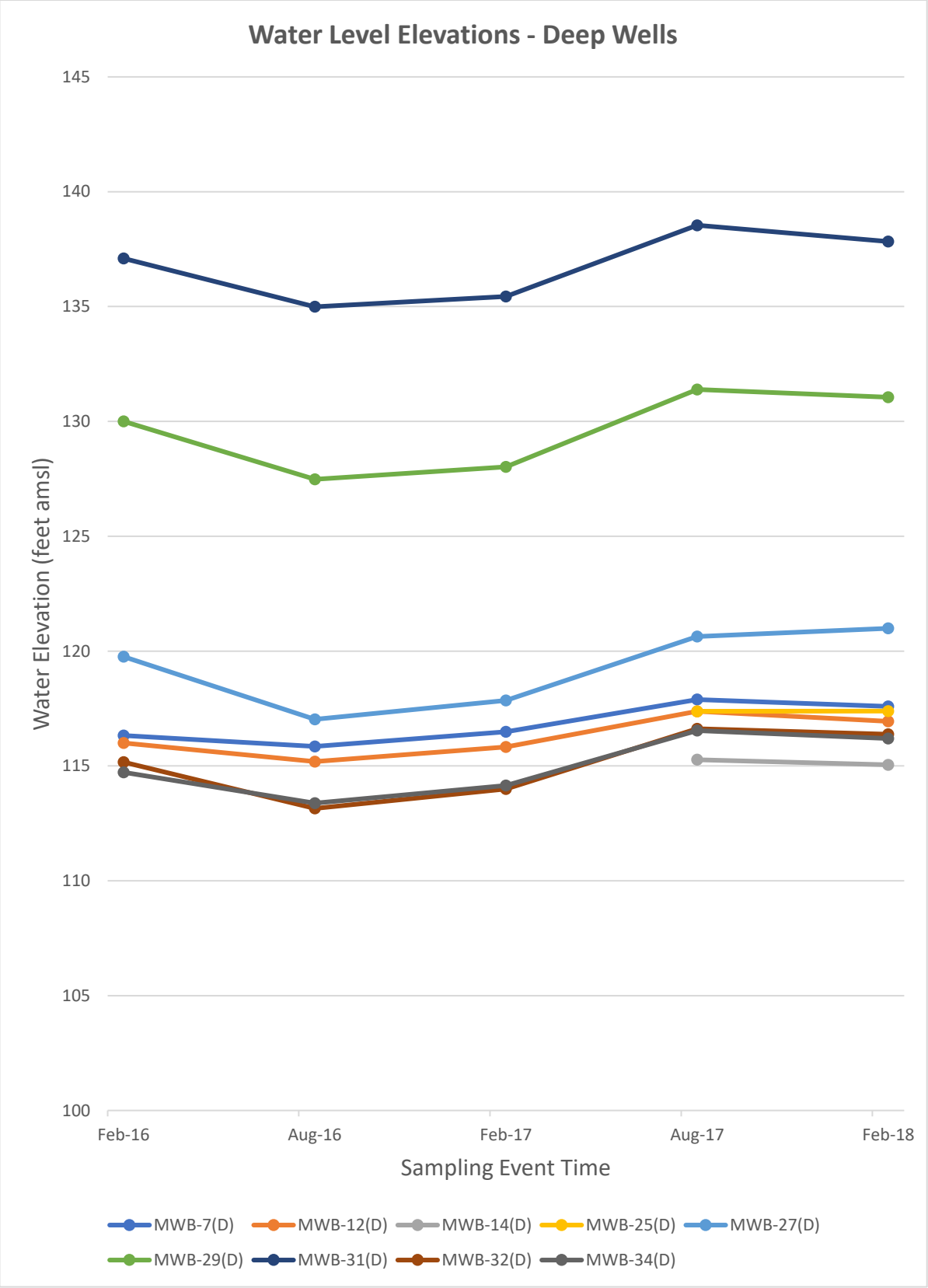




Appendix B
Hydrographs and Hydrogeologic Calculations


Water Level Elevations - Shallow Wells
150
145
140
135
130
125
120
115
110
105
100
Water Elevation (feet amsl)
Feb-16
Aug-16
Feb-17
Aug-17
Feb-18
Sampling Event Time
MWB-2(S)
MWB-3(S)
MWB-7(S)
MWB-11{S)
MWB-12(S)
MWB-13(S)
MWB-14(S)
MWB-20(S)
MWB-21(S)
MWB-22(S)
MWB-23(S)
MWB-24(S)
MWB-25(S)
MWB-26(S)
MWB-27(S)
MWB-29(S)
MWB-32(S)
MWB-33(S)
MWB-34(S)
MWB-35(S)
MWB-39(S)
MWB-40(S)
SGMW-1(S)
SGMW-2(S)


Water Level Elevation - Intermediate Wells
150
145
140
135
130
125
120
115
110
105
100
Water Elevation (feet amsl)
Feb-16
Aug-16
Feb-17
Aug-17
Feb-18
Sampling Event Time
MWB-2(I)
MWB-3(I)
MWB-7(I)
MWB-11(IR)
MWB-12(I)
MWB-13(I)
MWB-14(I)
MWB-25(I)
MWB-27(I)
MWB-29(I)
MWB-32(I)
MWB-34(I)
MWB-35(I)
MWB-39(I)


Water Level Elevations - Deep Wells
145
140
135
130
125
120
115
110
105
100
Water Elevation (feet amsl)
Feb-16
Aug-16
Feb-17
Aug-17
Feb-18
Sampling Event Time
MWB-7(D)
MWB-12(D)
MWB-14(D)
MWB-25(D)
MWB-27(D)
MWB-29(D)
MWB-31(D)
MWB-32(D)
MWB-34(D)

CARLSON ENVIRONMENTAL CONSULTANTS, PC
Appendix B: Hydrogeological Calculations

FACILITY:	Trail Ridge Landfill	**PRODUCED BY:**	Peter Walls
PERMIT NO.:	0013493-025-SO-01	**CHECKED BY:**	Jim Christiansen
PROJECT:	2018 Water Quality Technical Report	**DATE:**	4/2/2018

OBJECTIVE: Calculate average hydraulic gradient and flow rates for shallow, intermediate, and deep zones.

HORIZONTAL HYDRAULIC GRADIENT **SHALLOW ZONE**

$$i \quad \frac{h}{s} = \frac{\text{GWE U - GWE D}}{\text{distance btw UD}}$$

i	Hydraulic Gradient (dimensionless)
h	Difference of hydraulic head
s	Horizontal distance between two points (feet
GWE	Groundwater Elevation in well
U	Up-gradient well location
D	Down-gradient well location

DATA

Well U = MWB-3 (s)
Well D = MWB-11 (s)

Horizontal Distance between Well U and Well D = 2,950 ft

Sampling Event	GWE U (ft msl)	GWE D (ft msl)
1st-2016	146.28	108.41
2nd-2016	144.00	101.31
1st-2017	144.70	107.39
2nd-2017	148.17	111.50
1st-2018	146.76	109.63

SHALLOW HORIZONTAL HYDRAULIC GRADIENT CALCULATIONS:

1st-2016	146.28 - 108.41 / 2,950	=	37.87 / 2,950	=	0.0128	ft/ft
2nd-2016	144.00 - 101.31 / 2,950	=	42.69 / 2,950	=	0.0145	ft/ft
1st-2017	144.70 - 107.39 / 2,950	=	37.31 / 2,950	=	0.0126	ft/ft
2nd-2017	148.17 - 111.50 / 2,950	=	36.67 / 2,950	=	0.0124	ft/ft
1st-2018	146.76 - 109.63 / 2,950	=	37.13 / 2,950	=	0.0126	ft/ft

MINIMUM	is	0.0124	ft/ft
MAXIMUM	is	0.0145	ft/ft
AVERAGE	is	**0.0130**	**ft/ft**

CARLSON ENVIRONMENTAL CONSULTANTS, PC
Appendix B: Hydrogeological Calculations

FACILITY:	Trail Ridge Landfill	**PRODUCED BY:**	Peter Walls
PERMIT NO.:	0013493-025-SO-01	**CHECKED BY:**	Jim Christiansen
PROJECT:	2018 Water Quality Technical Report	**DATE:**	4/2/2018

OBJECTIVE: Calculate average hydraulic gradient and flow rates for shallow, intermediate, and deep zones.

GROUNDWATER FLOW RATE **SHALLOW ZONE**

$$v \quad \frac{K\,i}{n_e}$$

v	Average linear flow velocity (feet/day)
K	Horizontal hydraulic conductivity (feet/day)
i	Hydraulic Gradient (dimensionless) - *from previous page*
n_e	Effective porosity (dimensionless)

DATA

K	=	7.5 feet per day (ft/dy)
i	=	hydraulic conductivity - *from previous page*
n_e	=	20% (dimensionless)

Above data taken previously from site hydrogeological studies

SHALLOW GROUNDWATER FLOW RATE CALCULATIONS:

1st-2016	$\frac{7.5 \times 0.0128}{20\%}$	=	$\frac{0.0960}{0.20}$	=	0.480	ft/dy
2nd-2016	$\frac{7.5 \times 0.0145}{20\%}$	=	$\frac{0.1088}{0.20}$	=	0.544	ft/dy
1st-2017	$\frac{7.5 \times 0.0126}{20\%}$	=	$\frac{0.0945}{0.20}$	=	0.473	ft/dy
2nd-2017	$\frac{7.5 \times 0.0124}{20\%}$	=	$\frac{0.0930}{0.20}$	=	0.465	ft/dy
1st-2018	$\frac{7.5 \times 0.0126}{20\%}$	=	$\frac{0.0945}{0.20}$	=	0.473	ft/dy

MINIMUM	is	0.465	ft/dy
MAXIMUM	is	0.544	ft/dy
AVERAGE	is	**0.487**	**ft/dy**

CARLSON ENVIRONMENTAL CONSULTANTS, PC
Appendix B: Hydrogeological Calculations

FACILITY:	Trail Ridge Landfill	**PRODUCED BY:**	Peter Walls
PERMIT NO.:	0013493-025-SO-01	**CHECKED BY:**	Jim Christiansen
PROJECT:	2018 Water Quality Technical Report	**DATE:**	4/2/2018

OBJECTIVE: Calculate average hydraulic gradient and flow rates for shallow, intermediate, and deep zones.

HORIZONTAL HYDRAULIC GRADIENT **INTERMEDIATE ZONE**

$$i \quad \frac{h}{s} = \frac{\text{GWE U - GWE D}}{\text{distance btw UD}}$$

i	Hydraulic Gradient (dimensionless)
h	Difference of hydraulic head
s	Horizontal distance between two points (feet
GWE	Groundwater Elevation in well
U	Up-gradient well location
D	Down-gradient well location

DATA

Well U = MWB-3 (i)
Well D = MWB-11 (i)

Horizontal Distance between Well U and Well D = 2,950 ft

Sampling Event	GWE U (ft msl)	GWE D (ft msl)
1st-2016	137.45	100.63
2nd-2016	135.68	103.84
1st-2017	136.01	104.23
2nd-2017	139.00	105.71
1st-2018	138.15	105.30

INTERMEDIATE HORIZONTAL HYDRAULIC GRADIENT CALCULATIONS:

1st-2016	$\frac{137.45 - 100.63}{2,950}$	=	$\frac{36.82}{2,950}$	=	0.0125	ft/ft
2nd-2016	$\frac{135.68 - 103.84}{2,950}$	=	$\frac{31.84}{2,950}$	=	0.0108	ft/ft
1st-2017	$\frac{136.01 - 104.23}{2,950}$	=	$\frac{31.78}{2,950}$	=	0.0108	ft/ft
2nd-2017	$\frac{139.00 - 105.71}{2,950}$	=	$\frac{33.29}{2,950}$	=	0.0113	ft/ft
1st-2018	$\frac{138.15 - 105.30}{2,950}$	=	$\frac{32.85}{2,950}$	=	0.0111	ft/ft

MINIMUM	is	0.0108	ft/ft
MAXIMUM	is	0.0125	ft/ft
AVERAGE	is	**0.0113**	**ft/ft**

CARLSON ENVIRONMENTAL CONSULTANTS, PC
Appendix B: Hydrogeological Calculations

FACILITY:	Trail Ridge Landfill	**PRODUCED BY:**	Peter Walls
PERMIT NO.:	0013493-025-SO-01	**CHECKED BY:**	Jim Christiansen
PROJECT:	2018 Water Quality Technical Report	**DATE:**	4/2/2018

OBJECTIVE: Calculate average hydraulic gradient and flow rates for shallow, intermediate, and deep zones.

GROUNDWATER FLOW RATE **INTERMEDIATE ZONE**

$$v \quad \frac{K\,i}{n_e}$$

v	Average linear flow velocity (feet/day)
K	Horizontal hydraulic conductivity (feet/day)
i	Hydraulic Gradient (dimensionless) - *from previous page*
n_e	Effective porosity (dimensionless)

DATA

K	=	10.7 feet per day (ft/dy)
i	=	hydraulic conductivity - *from previous page*
n_e	=	20% (dimensionless)

Above data taken previously from site hydrogeological studies

INTERMEDIATE GROUNDWATER FLOW RATE CALCULATIONS:

1st-2016	10.7 x 0.0125 / 20%	=	0.134 / 0.20	=	0.670	ft/dy
2nd-2016	10.7 x 0.0108 / 20%	=	0.116 / 0.20	=	0.580	ft/dy
1st-2017	10.7 x 0.0108 / 20%	=	0.116 / 0.20	=	0.580	ft/dy
2nd-2017	10.7 x 0.0113 / 20%	=	0.121 / 0.20	=	0.605	ft/dy
1st-2018	10.7 x 0.0111 / 20%	=	0.119 / 0.20	=	0.595	ft/dy

MINIMUM	is	0.580	ft/dy
MAXIMUM	is	0.670	ft/dy
AVERAGE	is	**0.606**	**ft/dy**

CARLSON ENVIRONMENTAL CONSULTANTS, PC
Appendix B: Hydrogeological Calculations

FACILITY:	Trail Ridge Landfill	**PRODUCED BY:**	Peter Walls
PERMIT NO.:	0013493-025-SO-01	**CHECKED BY:**	Jim Christiansen
PROJECT:	2018 Water Quality Technical Report	**DATE:**	4/2/2018

OBJECTIVE: Calculate average hydraulic gradient and flow rates for shallow, intermediate, and deep zones.

HORIZONTAL HYDRAULIC GRADIENT **DEEP ZONE**

$$i \quad \frac{h}{s} = \frac{GWE\ U - GWE\ D}{distance\ btw\ UD}$$

i	Hydraulic Gradient (dimensionless)
h	Difference of hydraulic head
s	Horizontal distance between two points (feet
GWE	Groundwater Elevation in well
U	Up-gradient well location
D	Down-gradient well location

DATA

Well U = MWB-31 (D)
Well D = MWB-34 (D)

Horizontal Distance between Well U and Well D = 2,830 ft

Sampling Event	GWE U (ft msl)	GWE D (ft msl)
1st-2016	137.10	114.72
2nd-2016	134.99	113.38
1st-2017	135.44	114.15
2nd-2017	138.54	116.54
1st-2018	137.83	116.20

DEEP HORIZONTAL HYDRAULIC GRADIENT CALCULATIONS:

1st-2016	137.10 - 114.72 / 2,830	=	22.38 / 2,830	=	0.00791	ft/ft
2nd-2016	134.99 - 113.38 / 2,830	=	21.61 / 2,830	=	0.00764	ft/ft
1st-2017	135.44 - 114.15 / 2,830	=	21.29 / 2,830	=	0.00752	ft/ft
2nd-2017	138.54 - 116.54 / 2,830	=	22.00 / 2,830	=	0.00777	ft/ft
1st-2018	137.83 - 116.20 / 2,830	=	21.63 / 2,830	=	0.00764	ft/ft

MINIMUM	is	0.00752	ft/ft
MAXIMUM	is	0.00791	ft/ft
AVERAGE	is	**0.00770**	**ft/ft**

CARLSON ENVIRONMENTAL CONSULTANTS, PC
Appendix B: Hydrogeological Calculations

FACILITY:	Trail Ridge Landfill	**PRODUCED BY:**	Peter Walls
PERMIT NO.:	0013493-025-SO-01	**CHECKED BY:**	Jim Christiansen
PROJECT:	2018 Water Quality Technical Report	**DATE:**	4/2/2018

OBJECTIVE: Calculate average hydraulic gradient and flow rates for shallow, intermediate, and deep zones.

GROUNDWATER FLOW RATE **DEEP ZONE**

$$v \quad \frac{K\,i}{n_e}$$

v	Average linear flow velocity (feet/day)
K	Horizontal hydraulic conductivity (feet/day)
i	Hydraulic Gradient (dimensionless) - *from previous page*
n_e	Effective porosity (dimensionless)

DATA

K	=	0.55 feet per day (ft/dy)
i	=	hydraulic conductivity - *from previous page*
n_e	=	20% (dimensionless)

Above data taken previously from site hydrogeological studies

DEEP GROUNDWATER FLOW RATE CALCULATIONS:

1st-2016	0.55 x 0.00791 / 20%	=	0.00435 / 0.20	=	0.0218	ft/dy
2nd-2016	0.55 x 0.00764 / 20%	=	0.00420 / 0.20	=	0.0210	ft/dy
1st-2017	0.55 x 0.00752 / 20%	=	0.00414 / 0.20	=	0.0207	ft/dy
2nd-2017	0.55 x 0.00777 / 20%	=	0.00427 / 0.20	=	0.0214	ft/dy
1st-2018	0.55 x 0.00764 / 20%	=	0.00420 / 0.20	=	0.0210	ft/dy

MINIMUM	is	0.0207	ft/dy
MAXIMUM	is	0.0218	ft/dy
AVERAGE	is	**0. 0212**	**ft/dy**