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To: Tafuni, Steven
Cc: Marissa Alexander; Fischer, Shane; Rodriguez, Whitney; SWD_Waste
Subject: Hardee County Landfill Permit No. 38414-016-SO/01 - Technical Groundwater Quality Monitoring Report
Attachments: Hardee County Landfill_Technical Report_07302021.pdf

Good Afternoon Steven:

Please see the attached Technical Groundwater Quality Monitoring Report for the Hardee County Landfill. Feel free to reach out if you have any questions.

Have a great weekend,
Dave

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Technical Water Quality Monitoring Report – Second Half 2018 through Second Half 2020

Hardee County Landfill

Hardee County, Florida

Hardee County
Board of County Commissioners
685 Airport Road
Wauchula, Florida 33873

SCS ENGINEERS

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Technical Water Quality Monitoring Report – Second Half 2018 through Second Half 2020

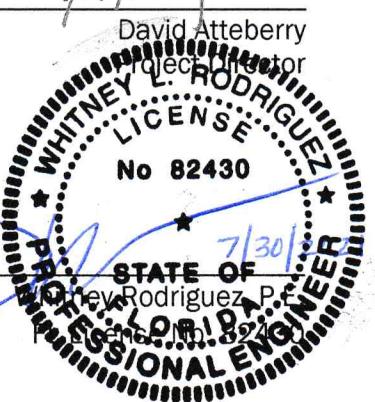
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1 INTRODUCTION

SCS Engineers (SCS) on behalf of Hardee County (the County) prepared this Technical Water Quality Monitoring Report for the Hardee County Landfill (Site) located at 685 Airport Road, Wauchula, Florida (**Figure 1**).

This report was prepared in accordance with Florida Department of Environmental Protection (FDEP) Permit/Certification No. 38414-016-SO/01, Water Quality Monitoring Plan; FDEP Standard Operating Procedures (Chapter 62-160, Florida Administrative Code [FAC]); and FDEP Solid Waste Water Quality Monitoring Requirements (Chapter 62-701.510(8)(b), FAC). Locations of monitoring sites are shown on **Figure 2**. This technical report includes a summary and evaluation of the groundwater and surface water analytical data from monitoring events performed at the Site from December 2018 through December 2020 (the technical report period). The following lists the specific data and information included in this report.

- Tabular displays of data which shows that a monitoring parameter has been detected, graphical displays of constituents that frequently exceeded applicable standards, and hydrographs for all monitoring wells;
- Trend analyses of any monitoring parameters consistently detected;
- Comparisons among shallow, middle, and deep zone wells;
- Comparisons between background water quality and the water quality in detection and compliance wells;
- Correlations between related parameters such as total dissolved solids (TDS) and specific conductance;
- Discussion of erratic and/or poorly correlated data;
- An interpretation of the groundwater contour maps, including an evaluation of groundwater flow rates; and
- An evaluation of the adequacy of the water quality monitoring frequency and sampling locations based upon site conditions.

Water quality sampling and physical readings and measurements were performed by Atkins North America, Inc. (Atkins). Fieldwork, sampling methodologies, data evaluation, and data Quality Assurance/Quality Control (QA/QC) were conducted in accordance with FAC Chapter 62-160 Standard Operating Procedures (DEP-SOP-001/01), the facility's Water Quality Monitoring Plan, and the Site's solid waste permit. Laboratory analyses were performed in accordance with Chapter 62-160, FAC DEP-SOP-002/01 and the Site's solid waste permit.

2 GEOLOGIC AND HYDROGEOLOGIC CHARACTERISTICS

Figure 2 shows the topography of the Site. The regional geologic units, which comprise the subsurface beneath the Site consist of, in descending order, the undifferentiated Pleistocene to Recent age deposits, the Bone Valley Formation, the Hawthorne Formation, the Tampa Limestone, the Suwannee Limestone, and the Ocala Limestone. The Pleistocene to Recent age deposits are clastics and comprised of sand, silt, and clay. They measure approximately 25 feet thick beneath the County. The clastics overlay the Bone Valley and Hawthorne Formations, a heterogeneous sequence of phosphatic, sandy, clayey, calcareous, and dolomitic sediments, which is 200 to 300 feet thick throughout the region. Underlying the Bone Valley and Hawthorne Formations, in descending order, are the Miocene Tampa Limestone, the Oligocene Suwannee Limestone, and the Eocene Ocala Limestone. These formations generally consist of tan, granular limestone and interbedded dolomite, and collectively reach a thickness of approximately 200 feet in the County.

A hydrogeological investigation, dated March 17, 1993, was performed at the Site by Mevers and Associates. This report indicated the Site was underlain by a 10 to 15-foot thick surficial aquifer consisting mainly of fine sand to clayey fine sand. These results were consistent with the site soil conditions reported by Envisors, Inc., in 1982. According to Envisors, Inc., the surficial aquifer was separated from the deeper Floridan aquifer by a continuous confining clay layer that varied in thickness from 14 feet to 35 feet with an average thickness of approximately 25 feet thick.

Local hydrogeology is characterized by three aquifers underlying the County and the Site:

- Surficial aquifer system
- Intermediate aquifer system
- Floridan aquifer system

The surficial aquifer system is contained within the Pleistocene to Recent age deposits. The surficial aquifer is generally undeveloped as a source of potable water in the County, with only a small volume used for lawn irrigation and stock watering. The direction of groundwater flow in the surficial aquifer in the County is generally to the west and south. This pattern is interrupted locally where the aquifer discharges into streams, lakes, or low swampy areas.

The intermediate aquifer system occurs within the Hawthorne Formation. The intermediate aquifer system supplies most of the water for domestic and irrigation use in the County. The quality of water in the intermediate aquifer is generally good. In the southeastern portion of the County, concentrations of dissolved solids are less than 500 parts per million.

The Floridan aquifer system in the County occurs within the carbonates of the Tampa Limestone, Suwannee Limestone, and the Ocala Limestone. Water from the Floridan aquifer is used primarily for irrigation, with minor amounts used for industrial purposes, and occasionally for public and domestic water supplies.

SEMI-ANNUAL GROUNDWATER FLOW ASSESSMENT

For this technical report, SCS performed a groundwater flow assessment of the surficial aquifer for the period extending from December 2018 through December 2020 (technical report evaluation period). Water table and potentiometric maps generated for the monitoring events are presented in Appendix A. Potentiometric maps from December 2018 through December 2020 were prepared by Atkins and SCS obtained these maps from the FDEP website Oculus.

Surficial Aquifer

Potentiometric maps of the surficial aquifer were prepared by Atkins using groundwater level elevations collected from the surficial wells during the sampling events which comprise this evaluation period. Hydrographs for each well are provided in **Appendix A**. Based on the potentiometric maps, groundwater flow direction is toward the south-southeast.

GROUNDWATER VELOCITY

The groundwater velocity in the surficial aquifer beneath the Site was calculated using a form of Darcy's law, $V = k(dh/dl)/\theta$, where:

- V = groundwater velocity in feet per day (ft/day)
- k = hydraulic conductivity of the surficial aquifer (ft/day) [2.46 ft/day used for calculations]
- dh/dl = hydraulic gradient of the surficial aquifer (ft/ft)
- θ = effective porosity of the surficial aquifer (unitless) [0.20 used for calculations]

In April 2009, SCS performed slug tests on monitoring wells MW-10R and MW-12R. The results of these tests were provided in the *Groundwater Flow Evaluation for the Hardee County Landfill* dated June 1, 2009. Based on these tests, the average hydraulic conductivity of the surficial aquifer ranged from 0.67 ft/day (MW-12R) to 2.46 ft/day (MW-10R). For the purposes of this evaluation, the most conservative (highest) hydraulic conductivity of 2.46 ft/day was used to calculate surficial groundwater flow velocity. The effective porosity of the sands of the surficial aquifer was estimated to be 0.20.

Two different hydraulic gradients were used for groundwater velocity calculations at the Site for the December 2018 through December 2020 sampling events. The first hydraulic gradient was calculated from the western portion of the landfill (area between MW-12R and MW-14) and the second hydraulic gradient was calculated from the eastern portion of the landfill (area between MW-1 and MW-10R). Based on the aquifer characteristics discussed above, the groundwater flow velocity in the surficial aquifer ranges from 0.019 to 0.047 ft/day or 6.8 to 17.0 feet per year (ft/year). The maximum groundwater flow velocity was used in evaluating the adequacy of the County groundwater monitoring plan; however, it should be noted that 17.0 ft/year is a liberal estimate of the groundwater flow velocity onsite. Groundwater flow velocity may be lower at other locations across the Site. Groundwater velocity calculations for the sampling events in this technical reporting period are provided in **Table 1**.

Table 1. Groundwater Velocity Calculations
Hardee County Landfill

Sampling Event	Aquifer	Location	Hydraulic Conductivity (feet/day)	Change in Head (dh) (feet)	Distance (dl) (feet)	Hydraulic Gradient (dh/dl) (feet/feet)	Porosity (n _e)	Velocity (feet/day)	Velocity (feet/year)	Comments
Dec-18	Surficial	Western portion of landfill	2.46	3.25	1,030	3.2E-03	0.20	0.039	14.2	Between MW-12R and MW-14
	Surficial	Eastern portion of landfill	2.46	2.68	1,420	0.0019	0.20	0.023	8.5	Between MW-1 and MW-10R
May-19	Surficial	Western portion of landfill	2.46	3.64	1,030	0.0035	0.20	0.043	15.9	Between MW-12R and MW-14
	Surficial	Eastern portion of landfill	2.46	2.57	1,420	0.0018	0.20	0.022	8.1	Between MW-1 and MW-10R
Dec-19	Surficial	Western portion of landfill	2.46	3.91	1,030	0.0038	0.20	0.047	17.0	Between MW-12R and MW-14
	Surficial	Eastern portion of landfill	2.46	2.60	1,420	0.0018	0.20	0.023	8.2	Between MW-1 and MW-10R
May-20	Surficial	Western portion of landfill	2.46	3.06	1,030	0.0030	0.20	0.037	13.3	Between MW-12R and MW-14
	Surficial	Eastern portion of landfill	2.46	2.15	1,420	0.0015	0.20	0.019	6.8	Between MW-1 and MW-10R
Dec-20	Surficial	Western portion of landfill	2.46	2.77	1,030	0.0027	0.20	0.033	12.1	Between MW-12R and MW-14
	Surficial	Eastern portion of landfill	2.46	2.18	1,420	0.0015	0.20	0.019	6.9	Between MW-1 and MW-10R

Notes:

Hydraulic conductivity values reported in the Groundwater Flow Evaluation for the Hardee County Landfill dated June 1, 2009.

dh and dl calculations used values from the Hardee County Landfill Water Table Elevation Contour Maps prepared by Atkins for the sampling event listed

Velocity calculation based on modified Darcy equation.

3 MONITORING PROGRAM

According to Site's permit, the landfill monitoring program consists of monitoring the surficial aquifer groundwater quality at eight monitoring wells (MW-1, MW-2, MW-4, MW-10R, MW-11, MW-12R, MW-13, and MW-14) and surface water quality at one location (SW-2).

GROUNDWATER MONITORING PROGRAM

The surficial aquifer groundwater quality is currently monitored at two background wells (MW-1 and MW-4) and six detection monitoring wells (MW-2, MW-10R, MW-11, MW-12R, MW-13, and MW-14) located at the Site. Well locations are shown on **Figure 2**. The construction details for the active monitoring wells comprising the monitoring system are included in **Table 2**.

The current permit requires semi-annual sampling of the background and detection monitoring wells for the field and laboratory parameters listed below.

Field Parameters

- Static water level before purging
- Specific conductivity
- pH
- Dissolved oxygen
- Turbidity
- Temperature
- Color and sheens (by observation)

Laboratory Parameters

- Total ammonia – N
- Iron
- Chlorides
- Mercury
- Nitrate
- Sodium
- TDS
- Those parameters listed in 40 Code of Federal Regulations (CFR) Part 258, Appendix I

In addition, surface water samples must be collected on a semi-annual basis at SW-2.

Table 2. Existing Monitoring Well Construction Details
Hardee County Landfill

Well Identifier	WACS ID	Well Designation	Aquifer Monitored	Top of Casing Elevation (Ft NGVD)	Ground Surface Elevation (Ft NGVD)	Total Depth (Ft BTOC)	Well Diameter (Inches)
Monitoring Wells							
MW-1	296	Background	Surficial	87.97	86.24	11.00	4
MW-2	297	Detection	Surficial	85.86	83.75	10.50	4
MW-4	299	Background	Surficial	87.16	84.09	18.90	2
MW-10R	22930	Detection	Surficial	88.56	85.49	15.12	2
MW-11	21882	Detection	Surficial	88.11	85.17	13.90	2
MW-12R	22931	Detection	Surficial	89.00	85.71	23.25	2
MW-13	29063	Detection	Surficial	88.88	NM	23.00	2
MW-14	29064	Detection	Surficial	88.16	NM	23.00	2
Piezometers							
MW-6	301	Piezometer	Surficial	88.25	85.06	NA	2
MW-7	302	Piezometer	Surficial	87.88	84.98	NA	2
P-7	NA	Piezometer	Surficial	84.47	82.41	NA	2
P-8	NA	Piezometer	Surficial	85.32	83.25	NA	2
P-11	NA	Piezometer	Surficial	88.69	86.16	NA	2
P-13	NA	Piezometer	Surficial	87.96	87.98	NA	2
P-14	NA	Piezometer	Surficial	87.31	84.05	NA	2
P-17	NA	Piezometer	Surficial	88.82	85.88	NA	2
P-18	NA	Piezometer	Surficial	88.74	84.37	NA	2
P-19	NA	Piezometer	Surficial	86.73	84.14	NA	2
P-20	NA	Piezometer	Surficial	87.60	84.68	NA	2
P-21	NA	Piezometer	Surficial	86.63	83.57	NA	2
P-22	NA	Piezometer	Surficial	87.04	84.09	NA	2
P-23	NA	Piezometer	Surficial	86.45	83.71	NA	2
Staff Gauges							
SG-1	NA	NA	NA	80.51#	NA	NA	NA
SG-2	NA	NA	NA	78.57#	NA	NA	NA

Notes:

NM = Not measured

NA = Not applicable or available

= Lag bolt/zero elevation

NGVD = National Geodetic Vertical Datum

Ft = Feet

BTOC = Below Top of Casing

Well information was obtained from Table 1 in Atkin's Semi-Annual Sampling Report dated June 21, 2019, and the Hardee County Solid Waste Permit No. 38414-016-SO/01.

SURFACE WATER MONITORING PROGRAM

Surface water is currently only monitored at the SW-2 location shown on **Figure 2**. The surface water sampling location is sampled semi-annually for the following parameters:

Field Parameters

- Specific conductivity
- pH
- Dissolved oxygen
- Turbidity
- Temperature
- Color and sheens (by observation)

Laboratory Parameters (Unfiltered)

- Unionized ammonia
- Total organic carbon (TOC)
- Total hardness (as milligrams per liter [mg/L] CaCO₃)
- Total nitrogen
- Total phosphorus (as mg/L P)
- Chemical oxygen demand (COD)
- Chlorophyll A
- Fecal coliform
- Nitrate
- Biochemical oxygen demand (BOD₅)
- Iron
- TDS
- Mercury
- Total suspended solids (TSS)
- Those parameters listed in 40 CFR 258, Appendix I

BACKGROUND AND PREVIOUS FINDINGS

The Site is an active Class I landfill, which encompasses approximately 100 acres of land in Hardee County, Florida. In November 2013, the County received a construction permit (38414-015-SC/01) for Phase II Section II Construction. Phase II Section II is located along the west side of the current waste placement area. Additionally, in November 2013, the County received an operation permit for Phase II Sections I and II. In 2014, the County completed construction of the waste cell for Phase II Section II. This required abandonment of two existing monitoring wells, abandonment of multiple piezometers, and installation of two new monitoring wells. According to the facility's operating permit (38414-016-SO/01), the water quality monitoring network is designed to monitor the groundwater in the surficial aquifer and the surface water.

The groundwater monitoring network includes eight monitoring wells, which are designated MW-1, MW-2, MW-4, MW-10R, MW-11, MW-12R, MW-13, and MW-14. The facility's permit designates MW-1 and MW-4 as background wells and the other wells as detection wells. Item 3 of Appendix 3 (Water Quality Monitoring Plan) lists the monitoring wells and piezometers applicable to the facility's current operation permit.

There are two other monitoring wells, MW-6 and MW-7, which are designated by the permit as piezometers, along with 12 other piezometers. Please note the following former piezometers have been abandoned and are no longer included in the operating permit: PZ-1, PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-9, PZ-10, PZ-15, and PZ-16. The layout of the Site is presented in **Figure 2**.

Item 4 of Appendix 3 (Water Quality Monitoring Plan) of the facility's operation permit specifies that groundwater samples shall be collected from the monitoring wells on a semi-annual basis for the parameters listed above. Item 8 of Appendix 3 (Water Quality Monitoring Plan) of the facility's operation permit calls for the collection of a surface water sample from one location, which is designated SW-2. The surface water sample is normally collected during both semi-annual sampling events during the year if sufficient water is present. The groundwater and surface water sampling points are shown on **Figure 2**.

SURFICIAL AQUIFER GROUNDWATER QUALITY

Water quality data for the groundwater parameters monitored during this reporting period were evaluated in accordance with Chapter 62-701, FAC. Selected data tables and graphs are presented to support the groundwater monitoring plan evaluation.

Semi-annual reporting of the results of groundwater sampling is performed in accordance with the Site Permit. **Appendix B** includes tables listing the water quality detections and exceedances for the technical reporting period. In accordance with Chapter 62-701, FAC, groundwater results were compared to primary drinking water standards (PDWSs) and secondary drinking water standards (SDWSs) listed in Chapter 62-550, FAC. For this routine groundwater monitoring report, groundwater cleanup target levels (GCTLs) in Rule 62-777, FAC, were used for constituents that do not have a PDWS or SDWS. GCTLs are used as a screening value for those parameters that do not have an established PDWS or SDWS, which may require further consideration or review.

Graphs of water quality data and water quality trends for selected detected constituents are included in **Appendix C**. Graphs are provided for constituents that frequently exceeded applicable standards and/or exhibited significant trends in their concentrations over time. The following section discusses exceedances and includes related trends, where appropriate. The relationship between TDS and specific conductance is presented following the exceedances discussion.

Metals Exceedances and Trends

Metals with concentrations in excess of applicable groundwater standards or GCTLs for at least one sampling event in the two and one-half year period of record include:

- Arsenic
- Iron

These exceedances are discussed below and are highlighted in **Appendix B**. Applicable trends are discussed below and are based on the time series plots in **Appendix C**.

Arsenic

The arsenic PDWS of 10 micrograms per liter ($\mu\text{g}/\text{L}$) was exceeded at monitoring well MW-4 (background well) during the sampling events of the technical reporting period. Arsenic concentrations in MW-4 were between 10.1 $\mu\text{g}/\text{l}$ and 15.6 $\mu\text{g}/\text{L}$ during the reporting period. Arsenic

concentrations in the background wells were generally higher than those reported in the detection wells during the reporting period.

Trend analyses for arsenic concentrations indicate a range of concentrations with stable trends occurring in various wells (**Appendix C**). The arsenic concentrations were generally consistent with historical results across the Site. Arsenic concentrations have remained stable (not trending up or down) at the monitoring wells sampled during the technical reporting period except at MW-2. Monitoring well MW-2 displayed an increasing trend during the reporting period but concentrations are below the PDWS.

Iron

The SDWS of 300 µg/L for iron was exceeded at the monitoring wells sampled, except monitoring well MW-12R, at least once during the technical reporting period. Iron concentrations were consistently above the SDWS during each sampling event of this technical report at background wells MW-1 and MW-4 as well as monitoring wells MW-2 and MW-10R. Iron exceedances ranged from 305 µg/L to 35,000 µg/L. Iron concentrations in the background wells ranged from 3,900 µg/L to 7,290 µg/L at MW-1 and 5,580 µg/L to 11,400 µg/L at MW-4 during the reporting period. Iron concentrations in the detection wells were similar to or lower than those reported in the background wells except for the iron concentrations detected at MW-10R, which were higher than the concentrations reported at the background wells.

Trend analyses for iron concentrations indicate a wide range of concentrations with stable trends occurring in various wells (**Appendix C**). The iron concentrations were generally consistent with historical results across the Site. Iron concentrations have remained stable at the monitoring wells sampled during the technical reporting period except at MW-4. The iron concentrations at MW-4 increased during the reporting period. Based on the iron exceedances observed in the background monitoring wells and lack of increasing indicator parameters, the iron impacts are likely due to natural background conditions.

Inorganic Parameters Exceedances and Trends

Inorganic parameters with concentrations in excess of or outside of applicable groundwater standards or GCTLs for at least one sampling event in the two and one-half year period of record include:

- TDS
- Field pH
- Ammonia
- Nitrate

These exceedances are discussed below and are highlighted in **Appendix B**. Applicable trends are discussed below and are based on the time series plots in **Appendix C**.

Total Dissolved Solids

The FDEP SDWS of 500 mg/L for TDS was exceeded during the final three sampling events of the reporting period in monitoring well MW-12R, and the last sampling event of the monitoring period in monitoring wells MW-13 and MW-14. The TDS exceedances ranged from 502 mg/L to 1,200 mg/L.

Trend analyses for TDS concentrations indicate a range of concentrations with stable trends occurring in various wells (**Appendix C**). The TDS concentrations were generally consistent with historical results across the Site except for the exceedances noted at MW-12R, and MW-13 and MW-14 during the last sampling event of the reporting period.

Total Dissolved Solids/Specific Conductance Correlation

A simple ratio was calculated to evaluate the correlation between TDS and specific conductance (SCond) data. The ratio between TDS and SCond may be evaluated using standard water/wastewater analysis methods to assess the accuracy of the laboratory methods. A generally acceptable correlation is a TDS to SCond ratio of 0.55 to 0.70. Ratios outside this range may indicate that one or both measurements are suspect.

A summary of the TDS/SCond ratios for the reporting period is presented in **Table 3**. The determined ratios are within the acceptable range or just slightly outside the range. Overall, there are few large deviations. The deviations are most likely due to differences in field sampling techniques and do not affect the quality of the reported data.

**Table 3. Total Dissolved Solids/Specific Conductivity Ratio
Hardee County Landfill**

Well ID	Zone	Dec 18	May 19	Dec 19	May 20	Dec 20
Detection Monitoring Wells						
MW-2	Surficial	0.65	0.63	0.57	0.65	0.61
MW-10R	Surficial	0.55	0.11	0.55	0.58	0.50
MW-11	Surficial	1.11	0.01	0.99	0.71	0.75
MW-12R	Surficial	0.56	0.24	0.60	0.60	0.66
MW-13	Surficial	0.44	0.10	0.64	0.31	0.52
MW-14	Surficial	0.59	0.44	0.62	0.53	0.62
Background Monitoring Wells						
MW-1	Surficial	1.24	1.39	1.49	1.22	1.39
MW-4	Surficial	0.75	0.96	0.94	0.80	0.79

Note:

Yellow shaded value indicates ratio is outside the generally accepted correlation of 0.55 to 0.70.

pH

The FDEP SDWS range of 6.5 to 8.5 standard units (SU) for pH was not met at monitoring wells MW-1, MW-4, MW-10R, MW-11, MW-13, and MW-14 at least once during the technical reporting period. Field pH was consistently lower than the SDWS range during each sampling event of this technical report at MW-1 and MW-11, and during the first four sampling events of the reporting period at monitoring wells MW-4 and MW-13. pH measurements in the background wells ranged from 4.23 to 4.83 SU at MW-1 and 5.94 to 6.66 SU at MW-4 during the reporting period. pH measurements in the detection wells were similar to or greater than those reported in background wells.

Trend analyses for pH measurements indicate a range of measurements with stable trends occurring in various wells and a decreasing trend occurring in monitoring well MW-1 (**Appendix C**). The pH measurements were generally consistent with historical values across the Site. Generally, pH measurements have remained stable at the monitoring wells sampled during the technical reporting period. Low groundwater pH in this region is the result of low pH in precipitation, rapid recharge, and little buffering capacity of the surficial sands. The pH levels observed at the Site are characteristic of the groundwater in this region of Florida.

No pH measurements were above the SDWS range of 6.5 to 8.5 SU during the technical reporting period.

Ammonia

The GCTL of 2.8 mg/L for ammonia was exceeded at monitoring wells MW-11, MW-12R, MW-13, and MW-14 during the final event (December 2020) of the reporting period. These were the only ammonia exceedances during the reporting period. For this reason a trend analysis was not performed. With the exception of the December 2020 sampling event, ammonia concentrations were consistent with historical values.

Nitrate

The PDWS of 10 mg/L for nitrate was exceeded at monitoring wells MW-11, MW-12R, and MW-13 during the final event (December 2020) of the reporting period. These were the only nitrate exceedances during the reporting period. For this reason a trend analysis was not performed. With the exception of the December 2020 sampling event, nitrate concentrations were consistent with historical values.

Ammonia and nitrate were detected at concentrations exceeding the applicable cleanup standards during the December 2020 sampling event, the last sampling event of the technical monitoring period. These were first time exceedances during the monitoring period. These concentrations are higher than historical norms and will be tracked in future monitoring events.

Organic Parameters Results

Organic parameters were not detected above their respective PDWS, SDWS, and GCTLs during the technical reporting period.

SURFACE WATER QUALITY

Surface water quality standards applicable to the Site are listed in Chapter 62-302, FAC. Appendix B lists the detections at surface water location SW-2 during the technical reporting period.

Fecal coliform was detected above the maximum contaminant level of 800 most probable number of fecal coliforms per 100 milliliters (mpn/100 mL) at SW-2, at an estimated value of 2,420 mpn/100 mL only during the December 2019 sampling event during the technical reporting period. The lab indicated this an estimated value. It should be noted the surface water sampling location (SW-2) is downstream of a wetland area used by vultures, deer, and wild pigs. According to the *Review of Semi-Annual Sampling Results* dated January 15, 2020, prepared by Atkins, this result was attributed to the combination of heavy rainfall and wildlife activity in the wetlands upstream of the sampling location in the days prior to sampling. This parameter will be closely monitored in future surface water sampling events.

The dissolved oxygen concentration at SW-2 was lower than the Surface Water Criteria of greater than 5.0 mg/L during the first three events of the technical reporting period. The dissolved oxygen concentrations at SW-2 are consistent with historically low values and are likely to be background concentrations.

The conductivity measurement during the May 2019 sampling event was 3,670 microSiemens per centimeter ($\mu\text{S}/\text{cm}$), which is greater than the criteria of 1,275 $\mu\text{S}/\text{cm}$. This was the only sampling event during the technical reporting period that conductivity was above the criteria.

The pH measurement during the December 2019 sampling event was 5.48 SU, which is outside of the standard range of 6-8.5 SU. This was the only sampling event during the technical reporting period that pH was outside of the standard range.

Iron was detected at SW-2 at a concentration of 19.9 mg/L, which exceeds the standard of 1 mg/L, during the May 2020 sampling event. The Atkins report noted the concentrations of certain metals, especially iron, as well as other parameters, such as TDS, Hardness, and Total Suspended Solids (TSS), were at significantly higher concentrations during this sampling event than during other recent surface water sampling events, and attributed this to lower water levels and difficulty collecting a sample.

Unionized-ammonia was detected at a concentration of 0.0431 mg/L, exceeding the standard of 0.02 mg/L, during the December 2020 sampling event. This was the only time during the technical reporting period unionized ammonia was detected above the cleanup standard.

Other concentrations of sampled parameters did not exceed their respective Surface Water Criteria during the technical reporting period.

4 LEACHATE INDICATOR PARAMETERS TRENDS

No significant leachate indicator trends were noted during the technical reporting period.

COMPARISON AMONG SHALLOW, MIDDLE, AND DEEP WELLS

The wells at the Site are located in the surficial aquifer. There are no deep wells located onsite. Zone comparisons of geologic and hydrogeologic characteristics, including groundwater flow patterns and velocity, are included in Section 2 of this report. Groundwater quality and adequacy of well locations within the zones are discussed in Sections 3 and 5 of this report, respectively.

ERRATIC AND POORLY CORRELATED DATA

No other erratic or poorly correlated data were observed in the water quality analyses.

5 ADEQUACY OF MONITORING PROGRAM

This section assesses the adequacy of the monitoring program to observe potential effects of the Site operations on groundwater and surface water.

MONITORING FREQUENCY

Groundwater monitoring frequency for the Site is semi-annual and appears to provide sufficient data to evaluate trends in concentrations and plan appropriate evaluation monitoring where necessary. The frequency of monitoring is sufficient to observe changes in groundwater quality and implement evaluation and corrective action before there are adverse effects on the adjacent beneficial use of the water quality.

MONITORING PARAMETERS

Current routine monitoring parameters include various volatile organic, metals, and inorganic constituents required by Chapter 62-550 and 62-701, FAC, and expected waste characteristics. There have been no findings that indicate a need to modify the routine parameter list. Consequently, the Site will maintain the current groundwater quality monitoring parameters.

SURFICIAL AQUIFER MONITORING ADEQUACY

The existing monitoring wells were located based on groundwater flow direction. Locations were selected to monitor hydraulically upgradient groundwater and groundwater that appeared to be affected by the presence of the landfill.

Table 2 lists monitoring wells and piezometers at the Site and the aquifers the wells monitor. Background and detection monitoring wells are included during the routine semi-annual monitoring events. This section discusses the adequacy of well locations for monitoring and the adequacy of the semi-annual sampling frequency.

Monitoring Well Geographic Location

Geographic location is guided by the direction of lateral groundwater flow in the aquifers beneath the Site. The December 2020 water level map is thought to be representative of the flow of the shallow surficial aquifer. Typically, background wells would be located at the hydraulically upgradient end of the flow arrows with detection wells located at the downgradient end within the zone of discharge. The following discusses the locations of monitoring wells at the Site.

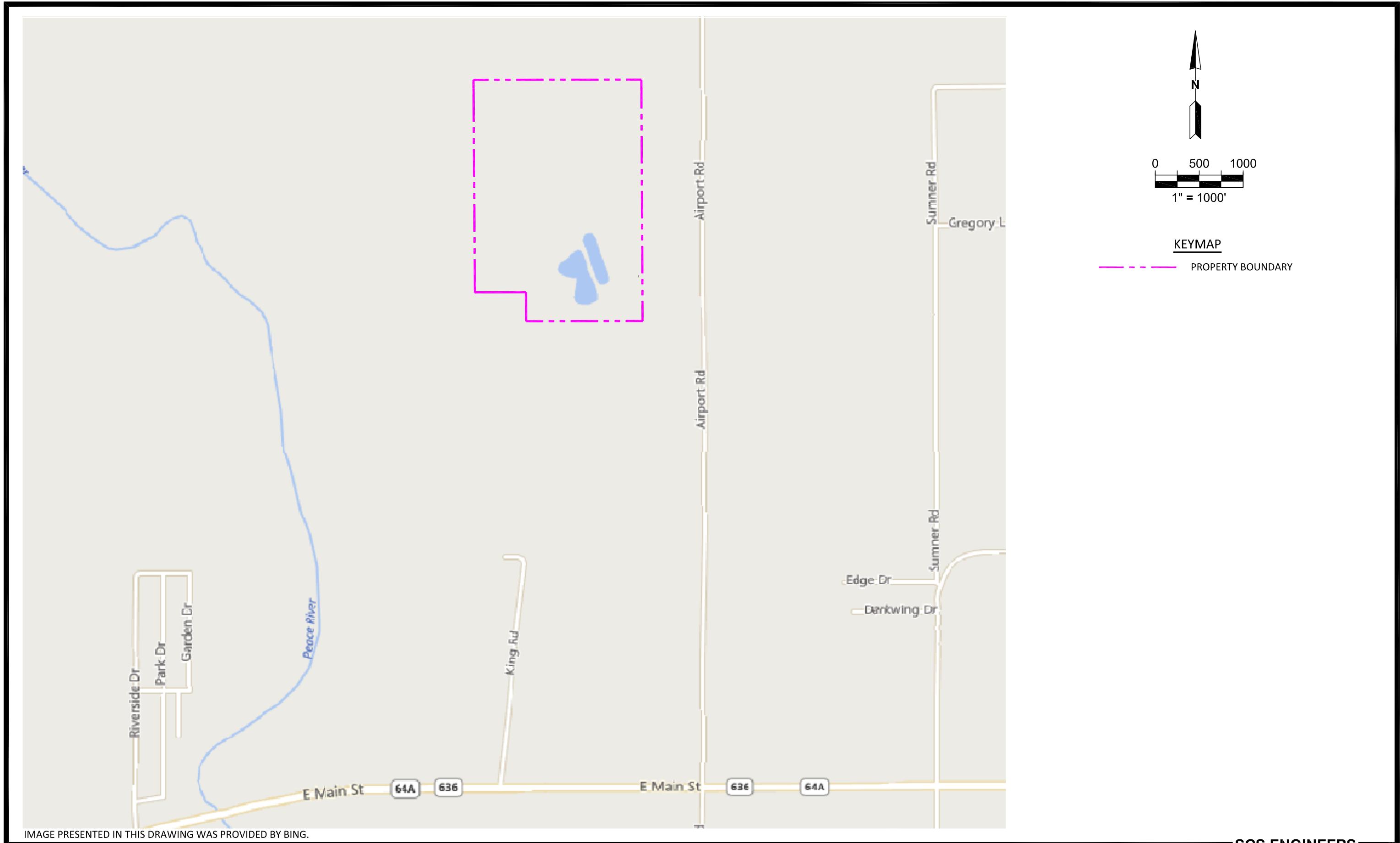
Currently, there are two surficial aquifer background monitoring wells at the Site (MW-1 and MW-4). These monitoring wells are located hydraulically upgradient from the landfill and appear to provide sufficient surficial aquifer background data for the Site.

The geographic location of the detection wells and surface water sampling location appears to be adequate and effective in monitoring groundwater and surface water quality variations (respectively) and meet the spacing requirements in Chapter 62-701.510, FAC. The screen locations at each of the surficial aquifer monitoring well locations appear to adequately monitor the surficial aquifer for water quality purposes.

PROPOSED ACTIONS

At this time, there are no new proposed actions.

Figures



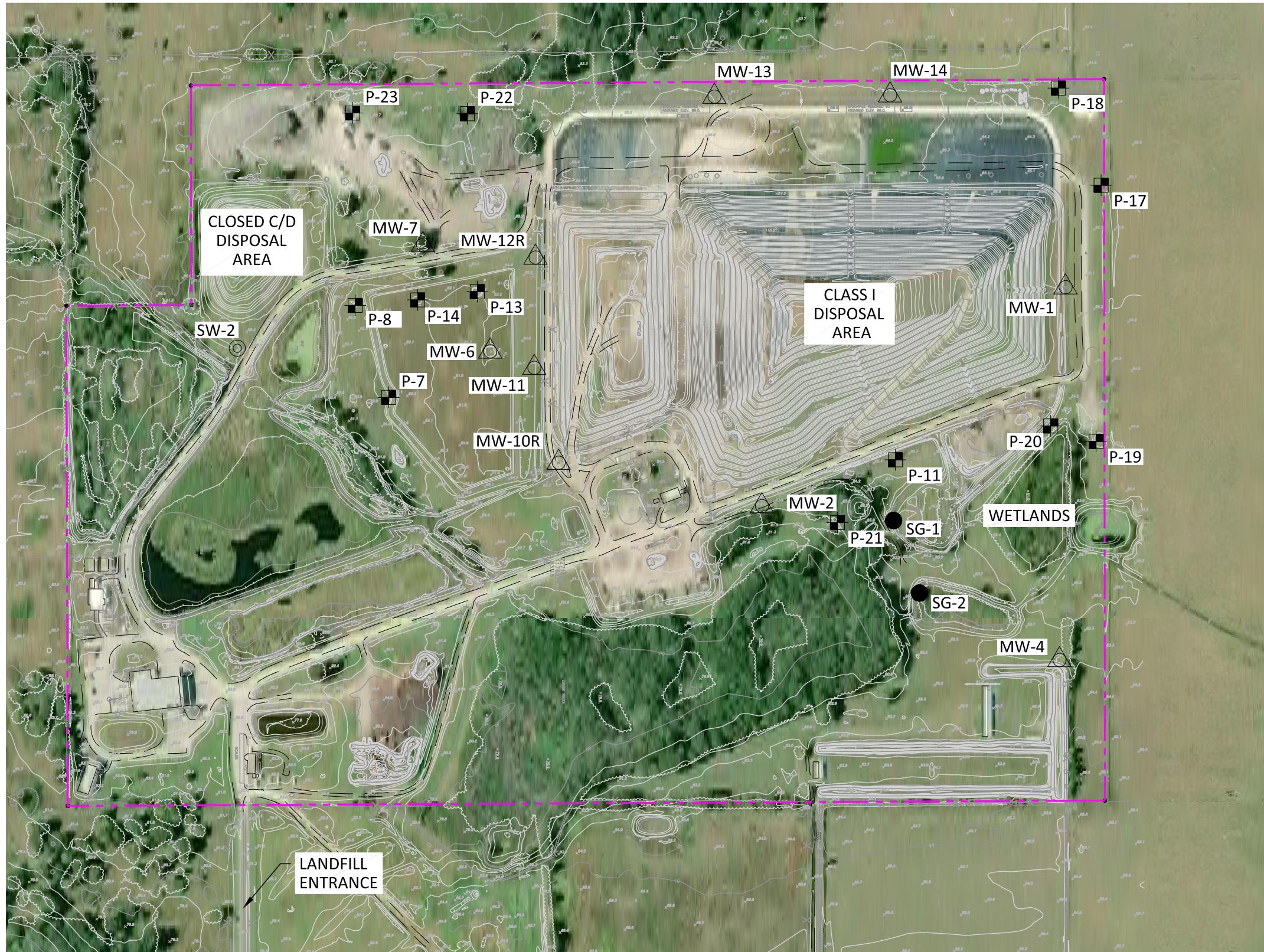


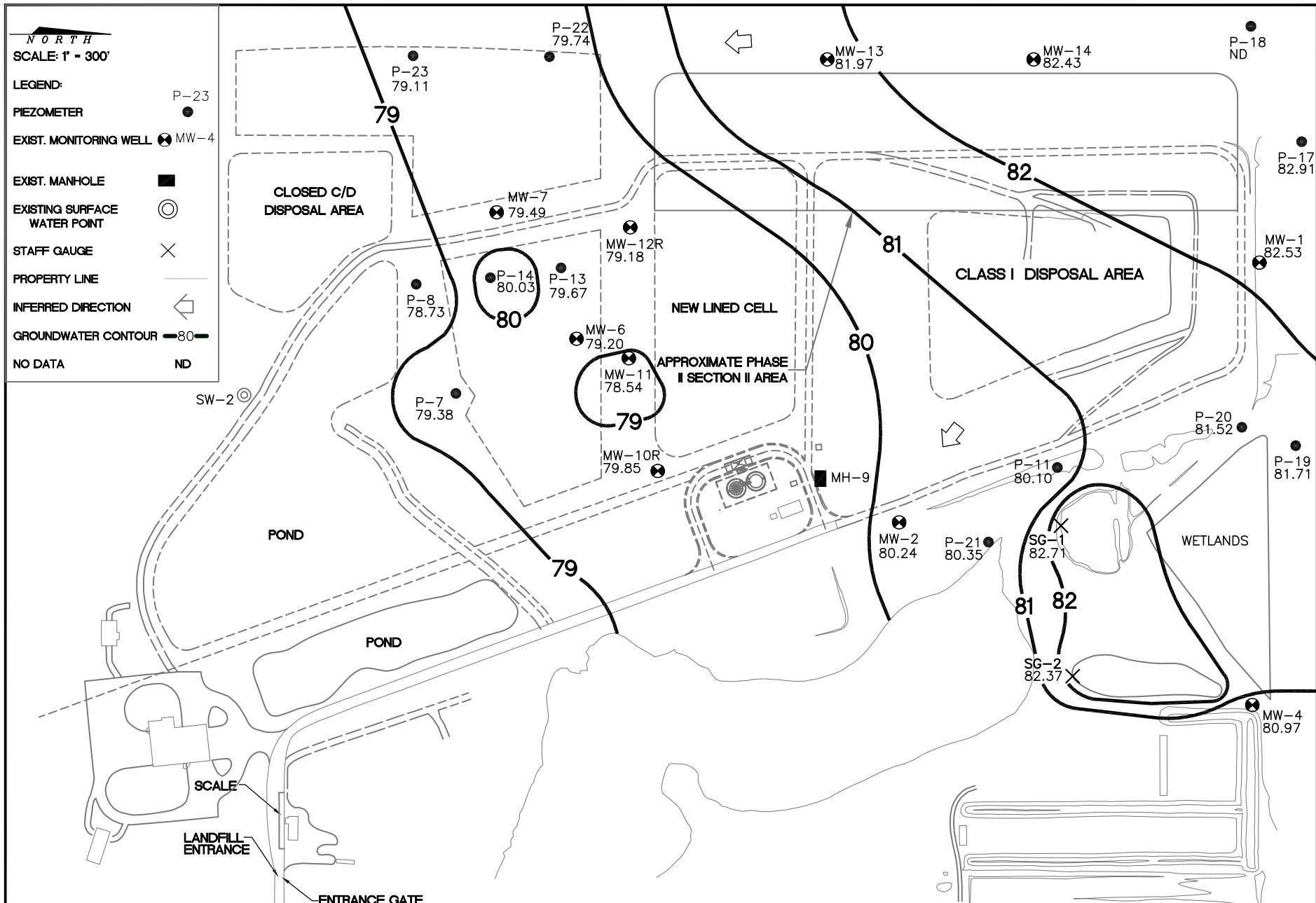
IMAGE PRESENTED IN THIS DRAWING WAS PROVIDED BY BING.

SURVEY SOURCE NOTE:
TOPOGRAPHIC SURVEY PERFORMED BY:
PICKETT & ASSOCIATES, INC.
475 SOUTH FIRST AVENUE
BARTOW, FLORIDA 33830
PHONE: (863) 533-9095
PHOTO DATE: APRIL 3, 2012

FIGURE 2. SITE PLAN
HARDEE COUNTY LANDFILL

Appendix A

Potentiometric Maps and Hydrographs

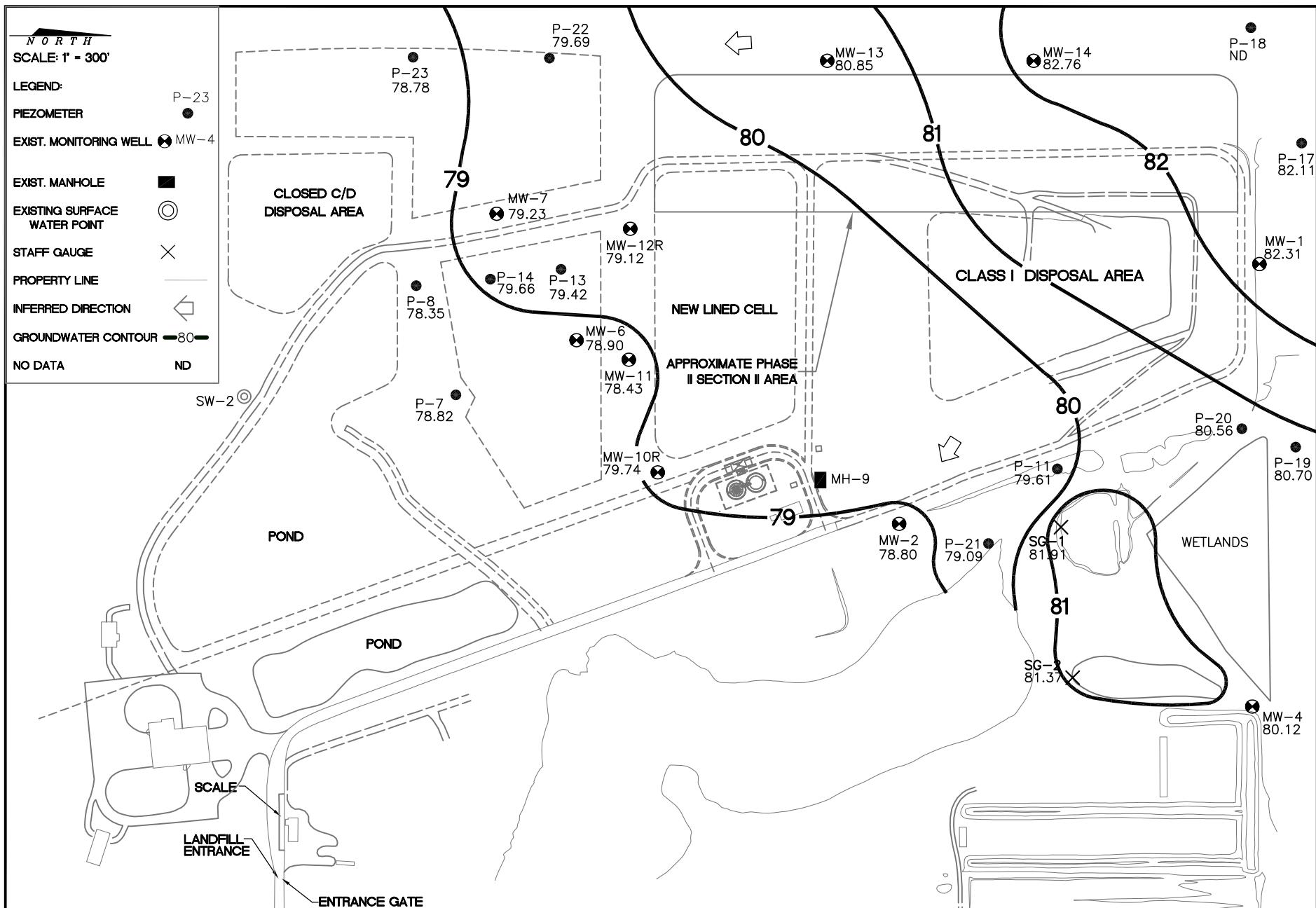


ATKINS

HARDEE COUNTY LANDFILL

**WATER TABLE
ELEVATION CONTOUR MAP
SECOND HALF 2018**

FIGURE 2

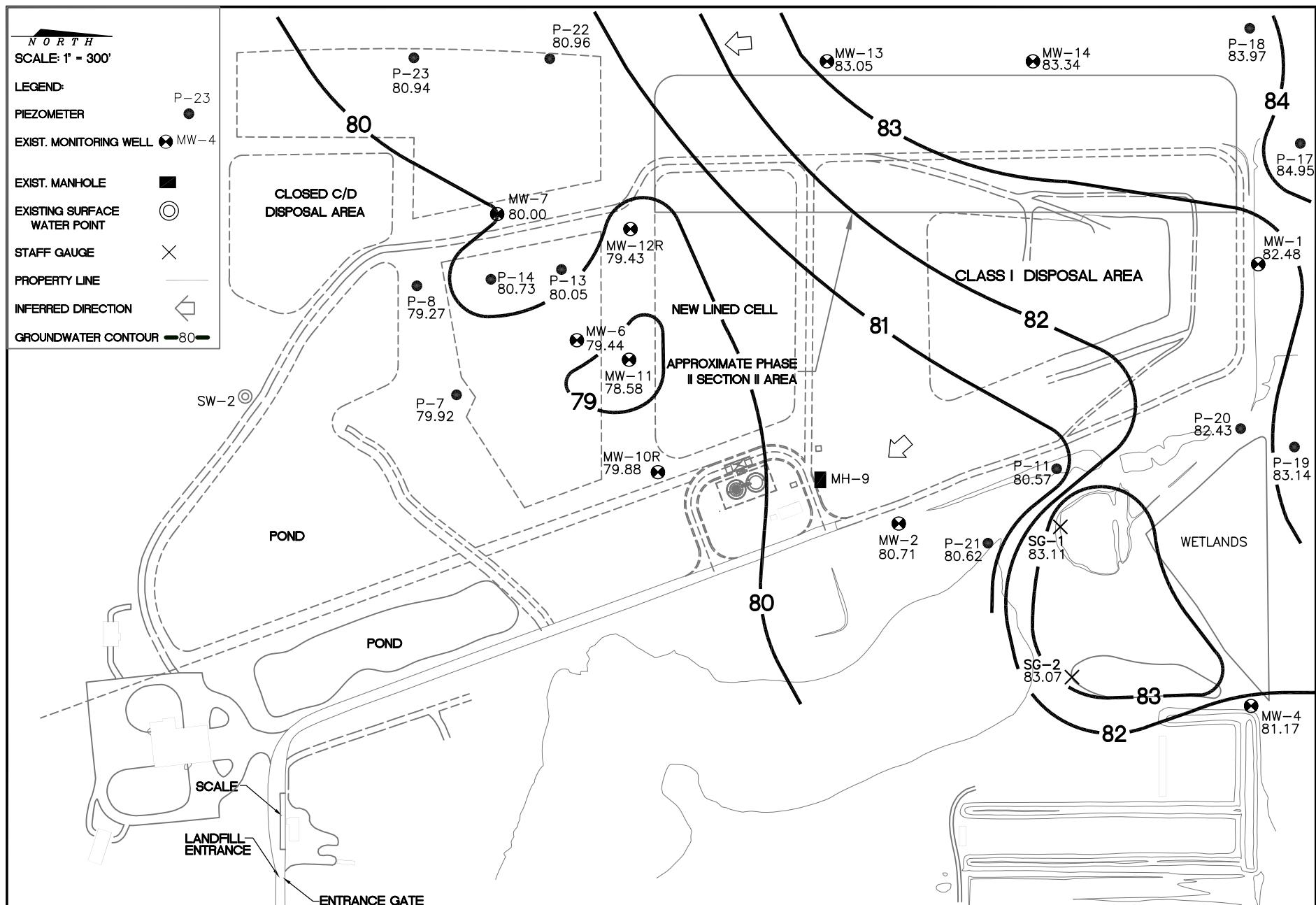


ATKINS

HARDEE COUNTY
LANDFILL

WATER TABLE
ELEVATION CONTOUR MAP
FIRST HALF 2019

FIGURE 2

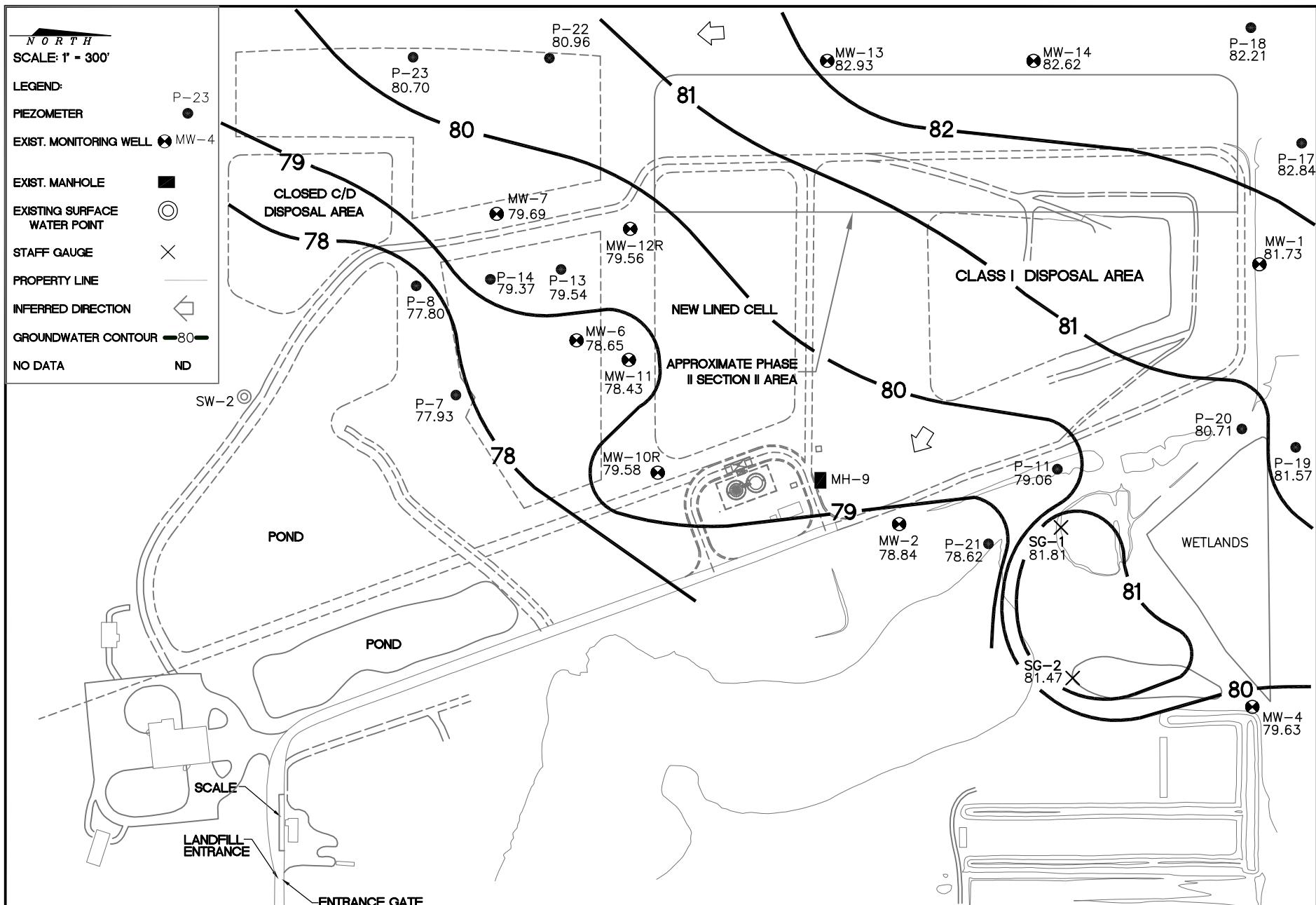


ATKINS

HARDEE COUNTY LANDFILL

**WATER TABLE
ELEVATION CONTOUR MAP
SECOND HALF 2019**

FIGURE 2

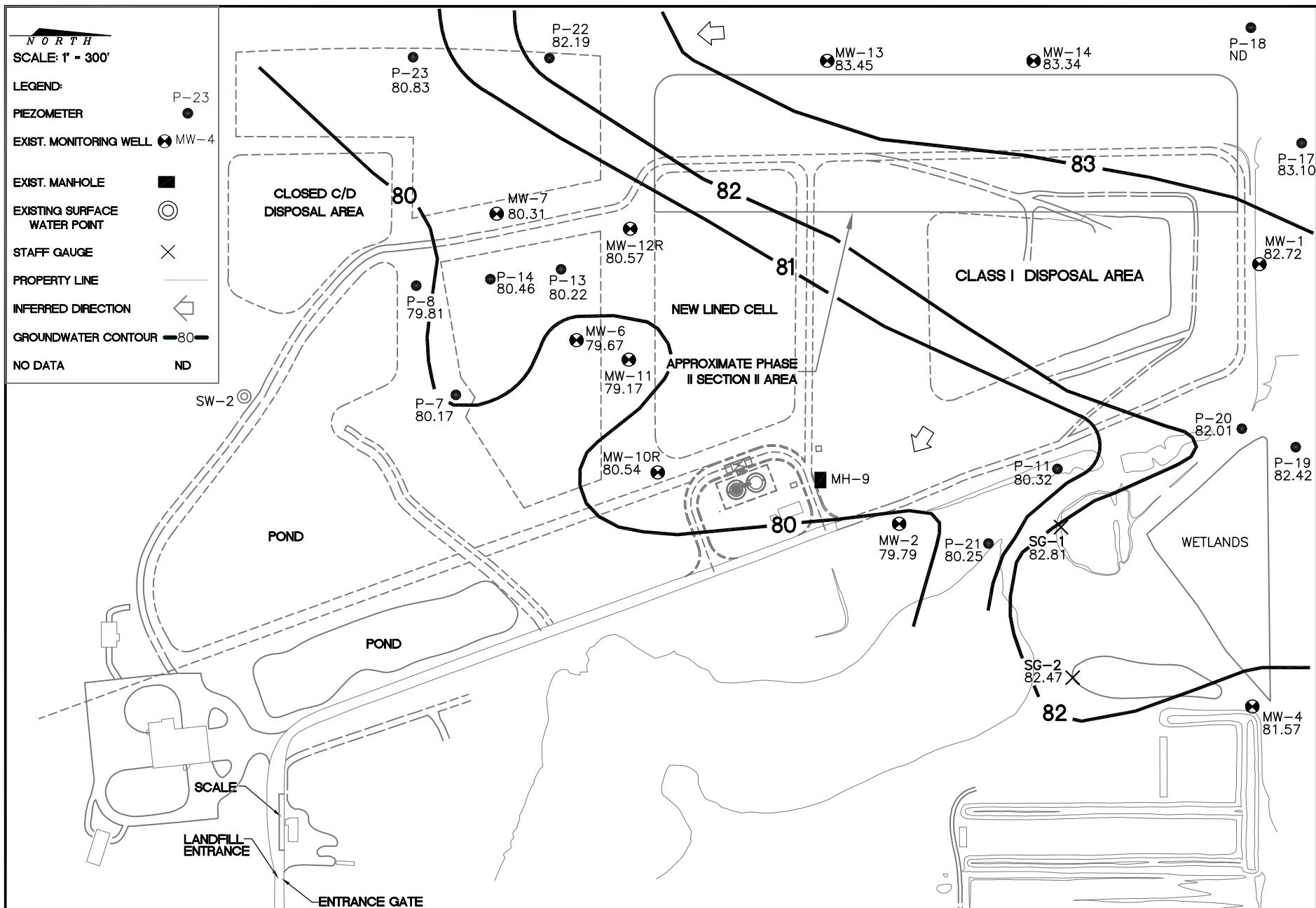


ATKINS

HARDEE COUNTY
LANDFILL

WATER TABLE
ELEVATION CONTOUR MAP
FIRST HALF 2020

FIGURE 2



ATKINS

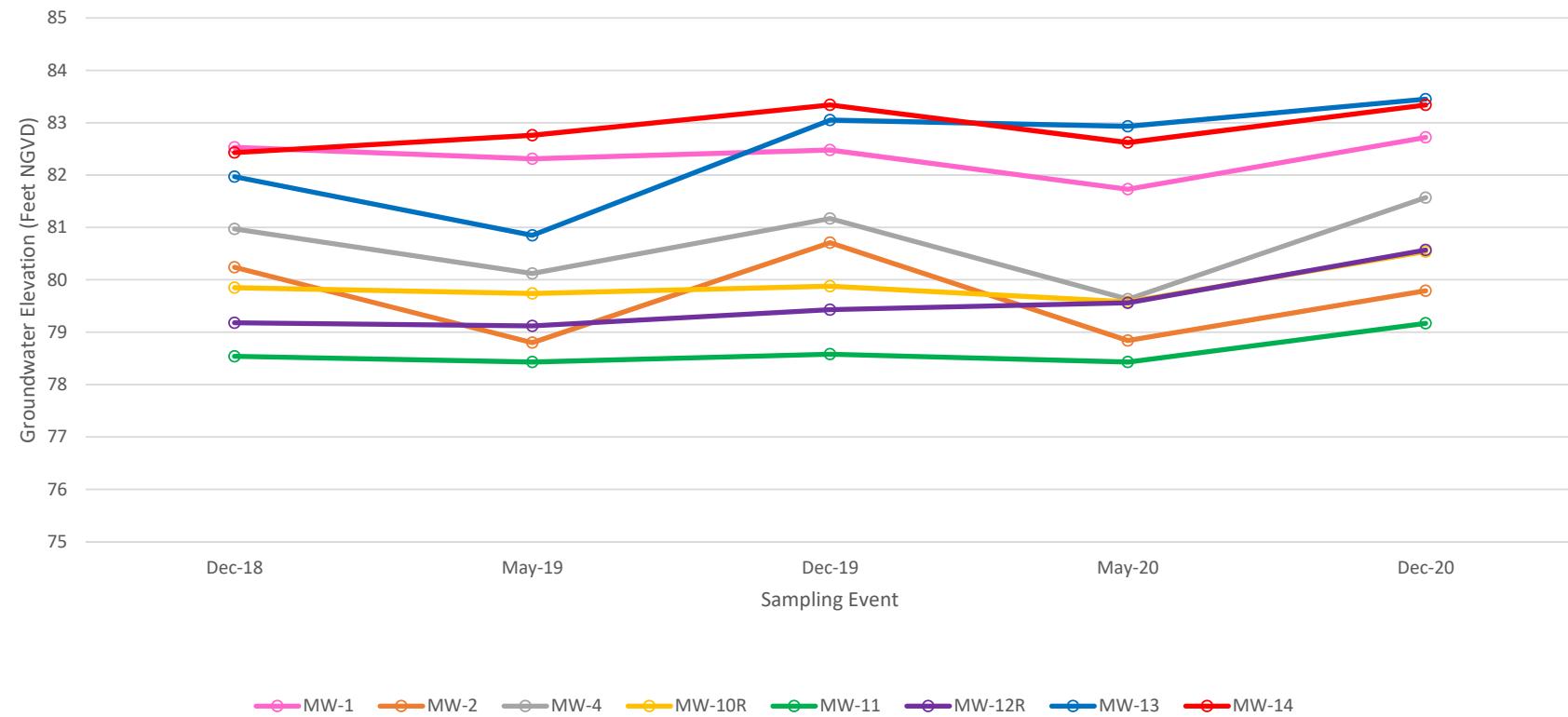
**HARDEE COUNTY
LANDFILL**

**WATER TABLE
ELEVATION CONTOUR MAP
SECOND HALF 2020**

FIGURE 2

Hardee County Landfill

Time Series Plot for Groundwater Elevation



Appendix B

Tables of Exceedances and Detections

Table 2
Groundwater Analytical Summary
Hardee County Landfill
Second Half 2018

Analyte	Monitoring Well:		MW-1	MW-2	MW-4	MW-10R	MW-11	MW-12R	MW-13	MW-14
	Sample Date:		12/18/2018	12/18/2018	12/18/2018	12/19/2018	12/19/2018	12/18/2018	12/18/2018	12/18/2018
	Standard ⁽¹⁾	Units								
Field Measurements										
Groundwater Elevation		ft	82.53	80.24	80.97	79.85	78.54	79.18	81.97	82.34
Temperature		deg. C	22.83	22.95	22.07	25.65	24.00	25.10	24.45	22.78
pH	6.5-8.5	STD	4.83	6.92	6.38	6.52	5.59	6.66	5.49	6.58
Conductivity		uS/cm	147	545	353	730	72	533	118	449
Dissolved Oxygen (DO)		mg/l	1.86	1.30	0.24	0.28	0.62	0.85	0.32	0.90
Turbidity		NTU	18.9	3.94	3.62	12.90	18.7	1.79	1.20	1.35
Inorganics (Appendix I parameters only)										
Nitrate (as N)	10	mg/l	0.0539	0.0435	0.0395	0.033	0.0100 U	0.034	0.0256	0.284
TDS	500	mg/l	182.0	356	264	402	80.0	298	52.0	266
Chloride	250	mg/l	15.2	20.9	19.2	33.2	9.34	25.0	7.34 I	6.22 I
Antimony	0.006	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	0.01	mg/l	0.004	0.00100 U	0.0132	0.00580	0.00100 U	0.00100 U	0.00100 U	0.0046
Barium	2	mg/l	0.0097	0.0196	0.0094	0.0184	0.0083	0.00540	0.00200 U	0.00360 I
Beryllium	0.004	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Cadmium	0.005	mg/l	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	0.1	mg/l	0.0153	0.00100 U	0.00480	0.0012 I	0.00200	0.00110 I	0.00100 U	0.00100 U
Cobalt	0.14	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Copper	1	mg/l	0.0026	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Lead	0.015	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Mercury	0.002	mg/l	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U
Nickel	0.1	mg/l	0.0032	0.00140 I	0.0010 I	0.00210	0.00100 U	0.0023	0.00100 U	0.00100 U
Selenium	0.05	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Silver	0.1	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Thallium	0.002	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Vanadium	0.049	mg/l	0.0166	0.005	0.0153	0.00320	0.0056	0.00270	0.00220	0.00210
Zinc	5	mg/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0139 I	0.033	0.0100 U	0.0100 U
Ammonia (as N)	2.8	mg/l	0.0164 I	0.0100 U	0.119	1.16	0.0100 U	0.0806	0.0100 U	0.157
Iron	0.3	mg/l	4.42	1.99	5.58	35.0	0.253	0.136	0.418	0.186
Sodium	160	mg/l	9.81	16.5	9.48	26.8	5.65	29.4	5.96	6.06
Organics										
1,1,1,2-Tetrachloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,1-Trichloroethane	200	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,2,2-Tetrachloroethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
1,1,2-Trichloroethane	5	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethene	7	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloroethane	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloropropene	5	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
2-Butanone (MEK)		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
2-Hexanone		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Acetone	6300	ug/l	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Acrylonitrile		ug/l	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
Benzene	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromochloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromodichloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromoform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Carbon Disulfide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Carbon Tetrachloride	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlorobenzene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Dibromoacetonmethane		ug/l	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
Dibromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Ethylbenzene	700	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Methyl Iodide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methyl Isobutyl ketone		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Para-dichlorobenzene	75	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Styrene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Tetrachloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Toluene	1000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichlorofluoromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Vinyl Acetate		ug/l	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl chloride	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Xylenes	10000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
cis-1,2-Dichloroethene	70	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
cis-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
o-Dichlorobenzene	600	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,2-Dichloroethene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,3 - Trichloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
1,2 - Dibromoethane (EDB)		ug/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
1,2 - dibromo-3-chloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U

⁽¹⁾ - Maximum Contaminant Level (MCL) or Secondary Drinking Water Standard (SDWS), as established in Chapter 62-550. Analyte concentrations shown with shading represent an exceedance of the MCL or SDWS.

U = Compound was analyzed but not detected; I = Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Table 2
Groundwater Analytical Summary
Hardee County Landfill
First Half 2019

Analyte	Monitoring Well:		MW-1	MW-2	MW-4	MW-10R	MW-11	MW-12R	MW-13	MW-14
	Sample Date:		5/14/2019	5/14/2019	5/14/2019	5/15/2019	5/15/2019	5/14/2019	5/14/2019	5/14/2019
	Standard ⁽¹⁾	Units								
Field Measurements										
Groundwater Elevation		ft	82.31	78.80	80.12	79.74	78.43	79.12	80.85	82.76
Temperature		deg. C	23.60	23.98	22.22	24.28	23.80	24.12	23.91	24.67
pH	6.5-8.5	STD	4.79	6.88	6.33	6.55	5.37	6.60	5.19	6.69
Conductivity		uS/cm	153	488	302	3425	5395	1017	596	656
Dissolved Oxygen (DO)		mg/l	0.44	0.59	0.48	0.30	0.19	0.38	1.89	0.95
Turbidity		NTU	19.5	8.81	2.31	19.1	51.1	1.57	1.56	1.35
Inorganics (Appendix I parameters only)										
Nitrate (as N)	10	mg/l	0.0100 U	0.0472	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0808	0.0102 I
TDS	500	mg/l	212.0	308	290	378	70.0	242	62.0	286
Chloride	250	mg/l	17.4	20.6	14.7	43.4	6.17 I	11.4	9.21	22.9
Antimony	0.006	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	0.01	mg/l	0.0051	0.00100 U	0.0118	0.00420	0.00100 U	0.00360	0.00100 U	0.0027
Barium	2	mg/l	0.0117	0.0232	0.0126	0.0233	0.0081	0.00480	0.00200 U	0.0041
Beryllium	0.004	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Cadmium	0.005	mg/l	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U	0.000200 U
Chromium	0.1	mg/l	0.0216	0.00100 U	0.00510	0.00100 U	0.00140 I	0.00100 U	0.00100 U	0.00100 U
Cobalt	0.14	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Copper	1	mg/l	0.00180 I	0.00100 U	0.00100 U	0.00100 U	0.0044	0.00100 U	0.00100 U	0.00100 U
Lead	0.015	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Mercury	0.002	mg/l	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U
Nickel	0.1	mg/l	0.0033	0.0160 I	0.00130 I	0.00200	0.00100 U	0.00120 I	0.00100 U	0.00160 I
Selenium	0.05	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Silver	0.1	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Thallium	0.002	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Vanadium	0.049	mg/l	0.0138	0.0021	0.0167	0.00320	0.0032	0.00190 I	0.00190 I	0.00100 U
Zinc	5	mg/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0190 I	0.0231	0.0100 U	0.0100 U
Ammonia (as N)	2.8	mg/l	0.153	0.0919	0.727	1.03	0.0100 U	0.219	0.0638	0.224
Iron	0.3	mg/l	4.92	2.60	8.32	26.5	0.264	0.204	0.310	0.162
Sodium	160	mg/l	10.2	16.4	8.29	23.6	5.56	12.2	6.36	18.2
Organics										
1,1,1,2-Tetrachloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,1-Trichloroethane	200	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,2,2-Tetrachloroethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
1,1,2-Trichloroethane	5	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethene	7	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloroethane	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloropropene	5	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
2-Butanone (MEK)		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Hexanone		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Acetone	6300	ug/l	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Acrylonitrile		ug/l	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
Benzene	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromochloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromodichloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromoform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Carbon Disulfide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Carbon Tetrachloride	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlorobenzene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Dibromoacetonmethane		ug/l	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
Dibromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Ethylbenzene	700	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Methyl Iodide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methyl Isobutyl ketone		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Para-dichlorobenzene	75	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Styrene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Tetrachloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Toluene	1000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichlorofluoromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Vinyl Acetate		ug/l	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl chloride	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Xylenes	10000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
cis-1,2-Dichloroethene	70	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
cis-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
o-Dichlorobenzene	600	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,2-Dichloroethene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,3 - Trichloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
1,2 - Dibromoethane (EDB)		ug/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
1,2 - dibromo-3-chloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U

⁽¹⁾ - Maximum Contaminant Level (MCL) or Secondary Drinking Water Standard (SDWS), as established in Chapter 62-550. Analyte concentrations shown with shading represent an exceedance of the MCL or SDWS.

U = Compound was analyzed but not detected; I = Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

Table 2
Groundwater Analytical Summary
Hardee County Landfill
Second Half 2019

Analyte	Monitoring Well:		MW-1	MW-2	MW-4	MW-10R	MW-11	MW-12R	MW-13	MW-14
	Sample Date:		12/18/2019	12/18/2019	12/18/2019	12/19/2019	12/19/2019	12/18/2019	12/18/2019	12/18/2019
	Standard ⁽¹⁾	Units								
Field Measurements										
Groundwater Elevation		ft	82.48	80.71	81.17	79.88	78.58	79.43	83.05	83.34
Temperature		deg. C	21.57	21.87	21.44	23.47	22.35	22.56	21.61	21.34
pH	6.5-8.5	STD	4.73	6.89	6.38	6.51	5.82	6.85	5.61	6.39
Conductivity		uS/cm	168	754	310	643	138	976	209	604
Dissolved Oxygen (DO)		mg/l	1.09	1.02	1.19	0.48	0.58	1.42	0.37	0.94
Turbidity		NTU	19.5	8.51	2.36	7.34	33.1	1.34	7.23	2.27
Inorganics (Appendix I parameters only)										
Nitrate (as N)	10	mg/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.674	1.02	0.0200 U	0.0828
TDS	500	mg/l	250	430	292	356	136	582	134	372
Chloride	250	mg/l	18.0	34.1	11.1	34.4	10.5	56.8	21.5	20.6
Antimony	0.006	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	0.01	mg/l	0.0063	0.00190 I	0.0156	0.00100 U	0.0042	0.00670	0.00100 U	0.0024
Barium	2	mg/l	0.0106	0.0273	0.0101	0.0216	0.0163	0.00940	0.00490	0.0074
Beryllium	0.004	mg/l	0.000500 U	0.000500 U	0.000500 U	0.00190	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Cadmium	0.005	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Chromium	0.1	mg/l	0.0378	0.00100 U	0.00600	0.00290	0.00120 I	0.00120 I	0.00100 U	0.00130 I
Cobalt	0.14	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00120 I	0.00100 U	0.00100 U
Copper	1	mg/l	0.00160 I	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.0028	0.00100 U	0.00100 U
Lead	0.015	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00200	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Mercury	0.002	mg/l	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U
Nickel	0.1	mg/l	0.0033	0.0027	0.00120 I	0.00120 I	0.0033	0.0142	0.00130 I	0.00680
Selenium	0.05	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Silver	0.1	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Thallium	0.002	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Vanadium	0.049	mg/l	0.0166	0.0029	0.0210	0.00810	0.0039	0.00920	0.00170 I	0.00210
Zinc	5	mg/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0148 I	0.0283	0.0100 U	0.0100 U
Ammonia (as N)	2.8	mg/l	0.205	0.0734	1.35 J	0.751	0.135	0.192	0.191	1.18
Iron	0.3	mg/l	7.29	7.02	9.65	0.305	31.5	0.110	1.62	1.08
Sodium	160	mg/l	13.3	27.0	8.55	9.81	23.0	51.4	9.73	14.8
Organics										
1,1,1,2-Tetrachloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,1-Trichloroethane	200	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,2,2-Tetrachloroethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
1,1,2-Trichloroethane	5	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethene	7	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloroethane	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloropropene	5	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
2-Butanone (MEK)		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Hexanone		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Acetone	6300	ug/l	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U
Acrylonitrile		ug/l	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
Benzene	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromochloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromodichloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromoform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Carbon Disulfide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Carbon Tetrachloride	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlorobenzene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlormethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Dibromoacetonitrile		ug/l	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
Dibromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Ethylbenzene	700	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Methyl Iodide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methyl Isobutyl Ketone		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Para-dichlorobenzene	75	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Styrene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Tetrachloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Toluene	1000	ug/l	0.500 U	0.500 U	0.610 I	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichlorofluoromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Vinyl Acetate		ug/l	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl chloride	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Xylenes	10000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
cis-1,2-Dichloroethene	70	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
cis-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
o-Dichlorobenzene	600	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,2-Dichloroethene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,3 - Trichloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
1,2 - Dibromoethane (EDB)		ug/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
1,2 - dibromo-3-chloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U

⁽¹⁾ - Maximum Contaminant Level (MCL) or Secondary Drinking Water Standard (SDWS), as established in Chapter 62-550. Analyte concentrations shown with shading represent an exceedance of the MCL or SDWS.

U = Compound was analyzed but not detected; I = Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

J = estimated value; one or more QC components exceeds QC limits

Table 2
Groundwater Analytical Summary
Hardee County Landfill
First Half 2020

Analyte	Monitoring Well:		MW-1	MW-2	MW-4	MW-10R	MW-11	MW-12R	MW-13	MW-14
	Sample Date:		5/12/2020	5/12/2020	5/12/2020	5/13/2020	5/13/2020	5/12/2020	5/12/2020	5/12/2020
	Standard ⁽¹⁾	Units								
Field Measurements										
Groundwater Elevation		ft	81.73	78.84	79.63	79.58	78.43	79.56	82.93	82.62
Temperature		deg. C	23.76	22.50	20.92	24.43	23.54	25.12	23.90	23.59
pH	6.5-8.5	STD	4.68	6.77	5.94	6.34	5.49	6.92	5.20	6.25
Conductivity		uS/cm	146	582	246	674	170	837	156	502
Dissolved Oxygen (DO)		mg/l	1.32	1.40	1.04	1.26	1.47	1.89	0.70	1.68
Turbidity		NTU	17.5	17.20	3.98	4.48	19.2	2.82	3.45	5.98
Inorganics (Appendix I parameters only)										
Nitrate (as N)	10	mg/l	0.0200 U	0.0593	0.0200 U	0.0200 U	1.64	6.67	0.0200 U	0.138
TDS	500	mg/l	178	376	196	394	120	502	48.0	268
Chloride	250	mg/l	17.6	25.0	9.63	32.9	13.6	40.8	16.1	14.7
Antimony	0.006	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	0.01	mg/l	0.0027	0.00140 I	0.0101	0.00400	0.00100 U	0.00270	0.00100 U	0.0029
Barium	2	mg/l	0.0103	0.0281	0.0113	0.0206	0.0212	0.00940	0.00420	0.0067
Beryllium	0.004	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Cadmium	0.005	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Chromium	0.1	mg/l	0.0482	0.00100 U	0.00520	0.00130 I	0.00180 I	0.00110 I	0.00100 U	0.00160 I
Cobalt	0.14	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00120 I	0.00100 U	0.00130 I	0.00100 U	0.00100 U
Copper	1	mg/l	0.00180 I	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.0028	0.00100 U	0.00100 U
Lead	0.015	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Mercury	0.002	mg/l	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U
Nickel	0.1	mg/l	0.0030	0.0028	0.00180 I	0.0031	0.00190 I	0.0137	0.00160 I	0.00540
Selenium	0.05	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Silver	0.1	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Thallium	0.002	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Vanadium	0.049	mg/l	0.0192	0.0028	0.0143	0.00460	0.0084	0.0171	0.00300	0.00470
Zinc	5	mg/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0140 I	0.0100 U	0.0100 U
Ammonia (as N)	2.8	mg/l	0.285	0.0436	1.53 J	0.680	0.0336	0.0362	0.056	1.18
Iron	0.3	mg/l	3.90	3.11	8.41	19.9	0.247	0.0478	0.952	0.606
Sodium	160	mg/l	10.8	21.6	8.66	20.80	13.6	29.9	8.52	11.6
Organics										
1,1,1,2-Tetrachloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,1-Trichloroethane	200	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,2,2-Tetrachloroethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
1,1,2-Trichloroethane	5	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethene	7	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloroethane	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloropropane	5	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
2-Butanone (MEK)		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Hexanone		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Acetone	6300	ug/l	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	5.98 I
Acrylonitrile		ug/l	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
Benzene	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromochloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromodichloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromoform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Carbon Disulfide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Carbon Tetrachloride	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlorobenzene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlormethane	2.7	ug/l	0.500 U	0.990 I	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Dibromoacetonitrile		ug/l	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
Dibromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Ethylbenzene	700	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Methyl Iodide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methyl Isobutyl ketone		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Para-dichlorobenzene	75	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Styrene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Tetrachloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Toluene	1000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichlorofluoromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Vinyl Acetate		ug/l	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl chloride	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Xylenes	10000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
cis-1,2-Dichloroethene	70	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
cis-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
o-Dichlorobenzene	600	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,2-Dichloroethene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,3 - Trichloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
1,2 - Dibromoethane (EDB)		ug/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
1,2 - dibromo-3-chloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U

⁽¹⁾ - Maximum Contaminant Level (MCL) or Secondary Drinking Water Standard (SDWS), as established in Chapter 62-550. Analyte concentrations shown with shading represent an exceedance of the MCL or SDWS.

U = Compound was analyzed but not detected; I = Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

J = estimated value; one or more QC components exceeds QC limits

Table 2
Groundwater Analytical Summary
Hardee County Landfill
Second Half 2020

Analyte	Monitoring Well:		MW-1	MW-2	MW-4	MW-10R	MW-11	MW-12R	MW-13	MW-14
	Sample Date:		12/29/2020	12/29/2020	12/29/2020	12/30/2020	12/29/2020	12/29/2020	12/29/2020	12/29/2020
	Standard ⁽¹⁾	Units								
Field Measurements										
Groundwater Elevation		ft	82.72	79.79	81.57	80.54	79.17	80.57	83.45	83.34
Temperature		deg. C	22.57	21.67	22.50	24.39	24.23	24.67	23.07	22.1
pH	6.5-8.5	STD	4.23	6.88	6.66	6.57	6.11	6.75	6.65	6.38
Conductivity		uS/cm	204	806	609	743	509	1825	2116	1129
Dissolved Oxygen (DO)		mg/l	2.40	2.32	0.35	0.69	0.41	0.80	0.46	1.82
Turbidity		NTU	12.1	10.0	4.86	16.1	145	10.2	8.49	3.18
Inorganics (Appendix I parameters only)										
Nitrate (as N)	10	mg/l	0.0526	0.0200 U	0.0200 U	0.0200 U	13.6	98.7	81.8	4.66
TDS	500	mg/l	284	492	480	370	384	1200	1110	698
Chloride	250	mg/l	22.4	24.4	7.38 I	30.3	29.5	58.4	63.6	38.9
Antimony	0.006	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U
Arsenic	0.01	mg/l	0.0056	0.0028	0.0112	0.00400	0.0038	0.0054	0.0029	0.0022
Barium	2	mg/l	0.0088	0.0171	0.0107	0.0100	0.0446	0.0144	0.0086	0.0076
Beryllium	0.004	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Cadmium	0.005	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U
Chromium	0.1	mg/l	0.0294	0.00100 U	0.00560	0.00100 U	0.0107	0.00310	0.00180 I	0.00100 U
Cobalt	0.14	mg/l	0.00120 I	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00300	0.00110 I	0.00100 U
Copper	1	mg/l	0.00170 I	0.00100 U	0.00100 U	0.00100 U	0.00170 I	0.0117	0.00530	0.00100 U
Lead	0.015	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.007	0.00100 U	0.00100 U	0.00100 U
Mercury	0.002	mg/l	0.0000200 U	0.0000200 U	0.0000200 U	0.0000200 U	0.000116	0.0000358	0.000056	0.0000200 U
Nickel	0.1	mg/l	0.0051	0.0022	0.00180 I	0.0027	0.0048	0.0188	0.0202	0.0096
Selenium	0.05	mg/l	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00200 U	0.00310 I	0.00200 U	
Silver	0.1	mg/l	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U	0.000500 U
Thallium	0.002	mg/l	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00100 U	0.00180 I	0.00100 U	0.00100 U
Vanadium	0.049	mg/l	0.0161	0.0056	0.0207	0.00390	0.0134	0.0214	0.00720	0.00310
Zinc	5	mg/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0243	0.0202	0.0100 U	0.0100 U
Ammonia (as N)	2.8	mg/l	0.0100 U	0.0100 U	0.213	1.16	21.8	9.51	62.3	12.8
Iron	0.3	mg/l	5.97	4.92	11.4	26.7	1.15	0.177	0.221	0.317
Sodium	160	mg/l	14.5	24.6	7.44	19.0	15.1	37.9	27.2	18.2
Organics										
1,1,1,2-Tetrachloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,1-Trichloroethane	200	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,2,2-Tetrachloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1,2-Trichloroethane	5	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,1-Dichloroethene	7	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloroethane	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
1,2-Dichloropropane	5	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
2-Butanone (MEK)		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
2-Hexanone		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Acetone	6300	ug/l	5.00 U	10.3	5.00 U	5.00 U	74.8 I	9.01 I	5.00 U	5.00 U
Acrylonitrile		ug/l	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U	0.300 U
Benzene	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromochloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromodichloromethane		ug/l	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U
Bromoform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Bromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Carbon Disulfide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Carbon Tetrachloride	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlorobenzene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chloroform		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Chlormethane	2.7	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Dibromoacetonitrile		ug/l	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U	0.400 U
Dibromomethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Ethylbenzene	700	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Methyl Iodide		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methyl Isobutyl Ketone		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Methylene chloride		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Para-dichlorobenzene	75	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Styrene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Tetrachloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Toluene	1000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichloroethene	3	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Trichlorofluoromethane		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Vinyl Acetate		ug/l	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Vinyl chloride	1	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
Xylenes	10000	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
cis-1,2-Dichloroethene	70	ug/l	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
cis-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
o-Dichlorobenzene	600	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,2-Dichloroethene	100	ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,3-Dichloropropene		ug/l	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,2,3 - Trichloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
1,2 - Dibromoethane (EDB)		ug/l	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
1,2 - dibromo-3-chloropropane		ug/l	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U

⁽¹⁾ - Maximum Contaminant Level (MCL) or Secondary Drinking Water Standard (SDWS), as established in Chapter 62-550. Analyte concentrations shown with shading represent an exceedance of the MCL or SDWS.

U = Compound was analyzed but not detected; I = Reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

J = estimated value; one or more QC components exceeds QC limits

Table 3
Surface Water Analytical Summary
Hardee County Landfill
Second Half 2018

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		12/19/2018
	Standard(1)	Units	
Field Measurements			
Temperature		deg. C	14.83
pH	6-8.5	STD	6.79
Conductivity	1275	uS/cm	314
Dissolved Oxygen (DO)	>5	mg/l	1.49
Turbidity	29+	NTU	2.31
Inorganics			
Nitrate (as N)		mg/l	0.0100 U
Nitrite (as N)		mg/l	0.0200 U
Total Dissolved Solids (TDS)		mg/l	212
Aluminum	1.5	mg/l	0.0206
Ammonia (as N)		mg/l	0.0100 U
Antimony	4.3	mg/l	0.00200 U
Arsenic	0.05	mg/l	0.00100 U
Barium		mg/l	0.0066
Beryllium	0.00013	mg/l	0.000500 U
Cadmium	Note 2	mg/l	0.000200 U
Chromium	Note 3	mg/l	0.00100 U
Cobalt		mg/l	0.00100 U
Copper	Note 4	mg/l	0.00100 U
Iron	1	mg/l	0.760
Lead	Note 5	mg/l	0.00100 U
Mercury	0.000012	mg/l	0.0000200 U
Nickel	Note 6	mg/l	0.00100 U
Selenium	5	mg/l	0.00200 U
Silver	0.00007	mg/l	0.000500 U
Thallium	0.0063	mg/l	0.00100 U
Vanadium	0.049	mg/l	0.00120 I
Zinc	Note 7	mg/l	0.0100 U
Fecal coliform	800	mpn/100ml	178
Total Hardness (as CaCO ₃)		mg/l	139
Total Organic Carbon (TOC)		mg/l	29.2 J
Total Nitrogen		mg/l	1.15
Total Phosphorus		mg/l	0.726
Total Suspended Solids (TSS)		mg/l	1.00 U
Un-ionized Ammonia	0.02	mg/l	0.000100 U
Biological Oxygen Demand (BOD)		mg/l	2.00 U
Chemical Oxygen Demand (COD)		mg/l	75.6
Chlorophyll A		ug/l	0.770
Total Kheldahl Nitrogen (TKN) (as N)		mg/l	1.15
Organics			
1,1,1,2-Tetrachloroethane		ug/l	0.500 U
1,1,1-Trichloroethane	270	ug/l	0.500 U
1,1,2,2-Tetrachloroethane	10.8	ug/l	0.100 U
1,1,2-Trichloroethane	16	ug/l	0.500 U
1,1-Dichloroethane		ug/l	0.500 U
1,1-Dichloroethene	3.2	ug/l	0.500 U
1,2-Dichloroethane	37	ug/l	0.500 U
1,2-Dichloropropane	14	ug/l	0.200 U

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
		Date of Test:	12/19/2018
	Standard(1)	Units	
1,2,3-Trichloropropane	0.2	ug/l	0.0200 U
1,2-Dibromoethane (EDB)	13	ug/l	0.0100 U
1,2-Dibromo-3-chloropropane		ug/l	0.0200 U
2-Butanone (MEK)	120000	ug/l	1.00 U
2-Hexanone		ug/l	0.500 U
Acetone	1700	ug/l	5.00 U
Acrylonitrile	0.2	ug/l	0.300 U
Benzene	71.28	ug/l	0.500 U
Bromochloromethane		ug/l	0.100 U
Bromodichloromethane	49.7	ug/l	0.100 U
Bromoform		ug/l	0.500 U
Bromomethane	35	ug/l	0.500 U
Carbon disulfide	110	ug/l	1.00 U
Carbon tetrachloride	4.42	ug/l	0.500 U
Chlorobenzene	17	ug/l	0.500 U
Chloroethane		ug/l	0.500 U
Chloroform		ug/l	0.500 U
Chloromethane	470.8	ug/l	0.500 U
Dibromochloromethane		ug/l	0.400 U
Dibromomethane	1580	ug/l	0.500 U
Ethylbenzene	610	ug/l	0.500 U
Methyl iodide		ug/l	1.00 U
Methyl isobutyl ketone		ug/l	1.00 U
Methylene chloride		ug/l	1.00 U
Para-dichlorobenzene		ug/l	0.500 U
Styrene	460	ug/l	0.500 U
Tetrachloroethene	8.85	ug/l	0.500 U
Toluene	480	ug/l	0.500 U
Trichloroethene	80.7	ug/l	0.500 U
Trichlorofluoromethane		ug/l	0.500 U
Vinyl Acetate	700	ug/l	10.0 U
Vinyl chloride	2.4	ug/l	0.500 U
Xylenes	370	ug/l	0.500 U
cis-1,2-Dichloroethene	3.2	ug/l	0.200 U
cis-1,3-Dichloropropene	12	ug/l	0.500 U
o-Dichlorobenzene		ug/l	0.500 U
trans-1,2-Dichloroethene	11000	ug/l	0.500 U
trans-1,3,-Dichloropropene	12	ug/l	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U

Abbreviations: mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nephelometric turbidity units; mpn/100ml = most probable number (of bacteria colonies) per 100 ml. U = less than method detection limit (MDL) I = between MDL and practical quantitation limit J = estimated value

(1) Surface water standards presented in Chapter 62-302, FAC. Analyte concentrations shown with shading represent an exceedance of the regulatory level. Value of hardness is used to determine calculated standards below.

(2) Cd less than or equal to e(0.7852(lnH)-3.49)

(3) Cr less than or equal to e(0.819(lnH)+0.6848)

(4) Cu less than or equal to e(0845(lnH)-1.702)

(5) Pb less than or equal to e(1.273(lnH)-4.705)

(6) Ni less than or equal to e(0.846(lnH)+0.0584)

(7) Zn less than or equal to e(0.8473(lnH)+0.884)

Table 3
Surface Water Analytical Summary
Hardee County Landfill
First Half 2019

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		5/15/2019
	Standard(1)	Units	
Field Measurements			
Temperature		deg. C	22.93
pH	6-8.5	STD	6.87
Conductivity	1275	uS/cm	3670
Dissolved Oxygen (DO)	>5	mg/l	1.61
Turbidity	29+	NTU	10.1
Inorganics			
Nitrate (as N)		mg/l	0.0100 U
Nitrite (as N)		mg/l	0.0200 U
Total Dissolved Solids (TDS)		mg/l	212
Aluminum	1.5	mg/l	0.0206
Ammonia (as N)		mg/l	0.0100 U
Antimony	4.3	mg/l	0.00200 U
Arsenic	0.05	mg/l	0.00100 U
Barium		mg/l	0.0066
Beryllium	0.00013	mg/l	0.000500 U
Cadmium	Note 2	mg/l	0.000200 U
Chromium	Note 3	mg/l	0.00100 U
Cobalt		mg/l	0.00100 U
Copper	Note 4	mg/l	0.00100 U
Iron	1	mg/l	0.760
Lead	Note 5	mg/l	0.00100 U
Mercury	0.000012	mg/l	0.0000200 U
Nickel	Note 6	mg/l	0.00100 U
Selenium	5	mg/l	0.00200 U
Silver	0.00007	mg/l	0.000500 U
Thallium	0.0063	mg/l	0.00100 U
Vanadium	0.049	mg/l	0.00120 I
Zinc	Note 7	mg/l	0.0100 U
Fecal coliform	800	mpn/100ml	178
Total Hardness (as CaCO ₃)		mg/l	139
Total Organic Carbon (TOC)		mg/l	29.2 J
Total Nitrogen		mg/l	1.15
Total Phosphorus		mg/l	0.726
Total Suspended Solids (TSS)		mg/l	1.00 U
Un-ionized Ammonia	0.02	mg/l	0.000100 U
Biological Oxygen Demand (BOD)		mg/l	2.00 U
Chemical Oxygen Demand (COD)		mg/l	75.6
Chlorophyll A		ug/l	0.770
Total Kheldahl Nitrogen (TKN) (as N)		mg/l	1.15
Organics			
1,1,1,2-Tetrachloroethane		ug/l	0.500 U
1,1,1-Trichloroethane	270	ug/l	0.500 U
1,1,2,2-Tetrachloroethane	10.8	ug/l	0.100 U
1,1,2-Trichloroethane	16	ug/l	0.500 U
1,1-Dichloroethane		ug/l	0.500 U
1,1-Dichloroethene	3.2	ug/l	0.500 U
1,2-Dichloroethane	37	ug/l	0.500 U
1,2-Dichloropropane	14	ug/l	0.200 U

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
		Date of Test:	5/15/2019
	Standard(1)	Units	
1,2,3-Trichloropropane	0.2	ug/l	0.0200 U
1,2-Dibromoethane (EDB)	13	ug/l	0.0100 U
1,2-Dibromo-3-chloropropane		ug/l	0.0200 U
2-Butanone (MEK)	120000	ug/l	1.00 U
2-Hexanone		ug/l	0.500 U
Acetone	1700	ug/l	5.00 U
Acrylonitrile	0.2	ug/l	0.300 U
Benzene	71.28	ug/l	0.500 U
Bromochloromethane		ug/l	0.100 U
Bromodichloromethane	49.7	ug/l	0.100 U
Bromoform		ug/l	0.500 U
Bromomethane	35	ug/l	0.500 U
Carbon disulfide	110	ug/l	1.00 U
Carbon tetrachloride	4.42	ug/l	0.500 U
Chlorobenzene	17	ug/l	0.500 U
Chloroethane		ug/l	0.500 U
Chloroform		ug/l	0.500 U
Chloromethane	470.8	ug/l	0.500 U
Dibromochloromethane		ug/l	0.400 U
Dibromomethane	1580	ug/l	0.500 U
Ethylbenzene	610	ug/l	0.500 U
Methyl iodide		ug/l	1.00 U
Methyl isobutyl ketone		ug/l	1.00 U
Methylene chloride		ug/l	1.00 U
Para-dichlorobenzene		ug/l	0.500 U
Styrene	460	ug/l	0.500 U
Tetrachloroethene	8.85	ug/l	0.500 U
Toluene	480	ug/l	0.500 U
Trichloroethene	80.7	ug/l	0.500 U
Trichlorofluoromethane		ug/l	0.500 U
Vinyl Acetate	700	ug/l	10.0 U
Vinyl chloride	2.4	ug/l	0.500 U
Xylenes	370	ug/l	0.500 U
cis-1,2-Dichloroethene	3.2	ug/l	0.200 U
cis-1,3-Dichloropropene	12	ug/l	0.500 U
o-Dichlorobenzene		ug/l	0.500 U
trans-1,2-Dichloroethene	11000	ug/l	0.500 U
trans-1,3,-Dichloropropene	12	ug/l	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U

Abbreviations: mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nephelometric turbidity units; mpn/100ml = most probable number (of bacteria colonies) per 100 ml. U = less than method detection limit (MDL) I = between MDL and practical quantitation limit J = estimated value

(1) Surface water standards presented in Chapter 62-302, FAC. Analyte concentrations shown with shading represent an exceedance of the regulatory level. Value of hardness is used to determine calculated standards below.

(2) Cd less than or equal to e(0.7852(lnH)-3.49)

(3) Cr less than or equal to e(0.819(lnH)+0.6848)

(4) Cu less than or equal to e(0845(lnH)-1.702)

(5) Pb less than or equal to e(1.273(lnH)-4.705)

(6) Ni less than or equal to e(0.846(lnH)+0.0584)

(7) Zn less than or equal to e(0.8473(lnH)+0.884)

Table 3
Surface Water Analytical Summary
Hardee County Landfill
Second Half 2019

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		12/19/2019
	Standard(1)	Units	
Field Measurements			
Temperature		deg. C	14.87
pH	6-8.5	STD	5.48
Conductivity	1275	uS/cm	401
Dissolved Oxygen (DO)	>5	mg/l	1.96
Turbidity	29+	NTU	3.28
Inorganics			
Nitrate (as N)		mg/l	0.0200 U
Nitrite (as N)		mg/l	0.0200 U
Total Dissolved Solids (TDS)		mg/l	296
Aluminum	1.5	mg/l	0.0100 U
Ammonia (as N)		mg/l	2.20
Antimony	4.3	mg/l	0.00200 U
Arsenic	0.05	mg/l	0.00140 I
Barium		mg/l	0.0082
Beryllium	0.00013	mg/l	0.000500 U
Cadmium	Note 2	mg/l	0.00100 U
Chromium	Note 3	mg/l	0.00100 U
Cobalt		mg/l	0.00100 U
Copper	Note 4	mg/l	0.00100 U
Iron	1	mg/l	0.763
Lead	Note 5	mg/l	0.00100 U
Mercury	0.000012	mg/l	0.00000500 U
Nickel	Note 6	mg/l	0.00160 I
Selenium	5	mg/l	0.00200 U
Silver	0.00007	mg/l	0.000500 U
Thallium	0.0063	mg/l	0.00100 U
Vanadium	0.049	mg/l	0.00100 U
Zinc	Note 7	mg/l	0.0100 U
Fecal coliform	800	mpn/100ml	2,420 J
Total Hardness (as CaCO ₃)		mg/l	141
Total Organic Carbon (TOC)		mg/l	28.4
Total Nitrogen		mg/l	4.80
Total Phosphorus		mg/l	1.26
Total Suspended Solids (TSS)		mg/l	1.75 I
Un-ionized Ammonia	0.02	mg/l	0.000880
Biological Oxygen Demand (BOD)		mg/l	5.86
Chemical Oxygen Demand (COD)		mg/l	70.4
Chlorophyll A		ug/l	1.55
Total Kheldahl Nitrogen (TKN) (as N)		mg/l	4.80
Organics			
1,1,1,2-Tetrachloroethane		ug/l	0.500 U
1,1,1-Trichloroethane	270	ug/l	0.500 U
1,1,2,2-Tetrachloroethane	10.8	ug/l	0.100 U
1,1,2-Trichloroethane	16	ug/l	0.500 U
1,1-Dichloroethane		ug/l	0.500 U
1,1-Dichloroethene	3.2	ug/l	0.500 U
1,2-Dichloroethane	37	ug/l	0.500 U
1,2-Dichloropropane	14	ug/l	0.200 U

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
		Date of Test:	12/19/2019
	Standard(1)	Units	
1,2,3-Trichloropropane	0.2	ug/l	0.0200 U
1,2-Dibromoethane (EDB)	13	ug/l	0.0100 U
1,2-Dibromo-3-chloropropane		ug/l	0.0200 U
2-Butanone (MEK)	120000	ug/l	1.00 U
2-Hexanone		ug/l	0.500 U
Acetone	1700	ug/l	5.00 U
Acrylonitrile	0.2	ug/l	0.300 U
Benzene	71.28	ug/l	0.500 U
Bromochloromethane		ug/l	0.100 U
Bromodichloromethane	49.7	ug/l	0.100 U
Bromoform		ug/l	0.500 U
Bromomethane	35	ug/l	0.500 U
Carbon disulfide	110	ug/l	1.00 U
Carbon tetrachloride	4.42	ug/l	0.500 U
Chlorobenzene	17	ug/l	0.500 U
Chloroethane		ug/l	0.500 U
Chloroform		ug/l	0.500 U
Chloromethane	470.8	ug/l	0.500 U
Dibromochloromethane		ug/l	0.400 U
Dibromomethane	1580	ug/l	0.500 U
Ethylbenzene	610	ug/l	0.500 U
Methyl iodide		ug/l	1.00 U
Methyl isobutyl ketone		ug/l	1.00 U
Methylene chloride		ug/l	1.00 U
Para-dichlorobenzene		ug/l	0.500 U
Styrene	460	ug/l	0.500 U
Tetrachloroethene	8.85	ug/l	0.500 U
Toluene	480	ug/l	0.500 U
Trichloroethene	80.7	ug/l	0.500 U
Trichlorofluoromethane		ug/l	0.500 U
Vinyl Acetate	700	ug/l	10.0 U
Vinyl chloride	2.4	ug/l	0.500 U
Xylenes	370	ug/l	0.500 U
cis-1,2-Dichloroethene	3.2	ug/l	0.200 U
cis-1,3-Dichloropropene	12	ug/l	0.500 U
o-Dichlorobenzene		ug/l	0.500 U
trans-1,2-Dichloroethene	11000	ug/l	0.500 U
trans-1,3,-Dichloropropene	12	ug/l	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U

Abbreviations: mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nephelometric turbidity units; mpn/100ml = most probable number (of bacteria colonies) per 100 ml. U = less than method detection limit (MDL) I = between MDL and practical quantitation limit J = estimated value; one or more QC components exceeds QC limits

(1) Surface water standards presented in Chapter 62-302, FAC. Analyte concentrations shown with shading represent an exceedance of the regulatory level. Value of hardness is used to determine calculated standards below.

(2) Cd less than or equal to e(0.7852(lnH)-3.49)

(3) Cr less than or equal to e(0.819(lnH)+0.6848)

(4) Cu less than or equal to e(0845(lnH)-1.702)

(5) Pb less than or equal to e(1.273(lnH)-4.705)

(6) Ni less than or equal to e(0.846(lnH)+0.0584)

(7) Zn less than or equal to e(0.8473(lnH)+0.884)

Table 3
Surface Water Analytical Summary
Hardee County Landfill
First Half 2020

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		5/13/2020
	Standard(1)	Units	
Field Measurements			
Temperature		deg. C	ND
pH	6-8.5	STD	7.93 Q*
Conductivity	1275	umhos/cm	496*
Dissolved Oxygen (DO)	>5	mg/l	ND
Turbidity	29+	NTU	ND
Inorganics			
Nitrate (as N)		mg/l	0.0935
Nitrite (as N)		mg/l	0.0200 U
Total Dissolved Solids (TDS)		mg/l	356
Aluminum	1.5	mg/l	1.38
Ammonia (as N)		mg/l	0.340
Antimony	4.3	mg/l	0.00200 U
Arsenic	0.05	mg/l	0.0072
Barium		mg/l	0.180
Beryllium	0.00013	mg/l	0.000500 U
Cadmium	Note 2	mg/l	0.00100 U
Chromium	Note 3	mg/l	0.00580
Cobalt		mg/l	0.00170 I
Copper	Note 4	mg/l	0.00630
Iron	1	mg/l	19.9
Lead	Note 5	mg/l	0.00200
Mercury	0.000012	mg/l	0.00000792
Nickel	Note 6	mg/l	0.00840
Selenium	5	mg/l	0.00200 U
Silver	0.00007	mg/l	0.000500 U
Thallium	0.0063	mg/l	0.00100 U
Vanadium	0.049	mg/l	0.0230
Zinc	Note 7	mg/l	1.02
Fecal coliform	800	mpn/100ml	416
Total Hardness (as CaCO ₃)		mg/l	428
Total Organic Carbon (TOC)		mg/l	45.6
Total Nitrogen		mg/l	20.8
Total Phosphorus		mg/l	40.0
Total Suspended Solids (TSS)		mg/l	828
Un-ionized Ammonia	0.02	mg/l	0.0147
Biological Oxygen Demand (BOD)		mg/l	178
Chemical Oxygen Demand (COD)		mg/l	229
Chlorophyll A		ug/l	ND**
Total Kheldahl Nitrogen (TKN) (as N)		mg/l	20.7
Organics			
1,1,1,2-Tetrachloroethane		ug/l	0.500 U
1,1,1-Trichloroethane	270	ug/l	0.500 U
1,1,2,2-Tetrachloroethane	10.8	ug/l	0.100 U
1,1,2-Trichloroethane	16	ug/l	0.500 U
1,1-Dichloroethane		ug/l	0.500 U
1,1-Dichloroethene	3.2	ug/l	0.500 U
1,2-Dichloroethane	37	ug/l	0.500 U
1,2-Dichloropropane	14	ug/l	0.200 U
1,2,3-Trichloropropane	0.2	ug/l	0.0200 U

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		5/13/2020
	Standard(1)	Units	
1,2-Dibromoethane (EDB)	13	ug/l	0.0100 U
1,2-Dibromo-3-chloropropane		ug/l	0.0200 U
2-Butanone (MEK)	120000	ug/l	2.55
2-Hexanone		ug/l	0.500 U
Acetone	1700	ug/l	11.2
Acrylonitrile	0.2	ug/l	0.300 U
Benzene	71.28	ug/l	0.500 U
Bromochloromethane		ug/l	0.100 U
Bromodichloromethane	49.7	ug/l	0.100 U
Bromoform		ug/l	0.500 U
Bromomethane	35	ug/l	0.500 U
Carbon disulfide	110	ug/l	1.00 U
Carbon tetrachloride	4.42	ug/l	0.500 U
Chlorobenzene	17	ug/l	0.500 U
Chloroethane		ug/l	0.500 U
Chloroform		ug/l	0.500 U
Chloromethane	470.8	ug/l	0.500 U
Dibromochloromethane		ug/l	0.400 U
Dibromomethane	1580	ug/l	0.500 U
Ethylbenzene	610	ug/l	0.500 U
Methyl iodide		ug/l	1.00 U
Methyl isobutyl ketone		ug/l	1.00 U
Methylene chloride		ug/l	1.00 U
Para-dichlorobenzene		ug/l	0.500 U
Styrene	460	ug/l	0.500 U
Tetrachloroethene	8.85	ug/l	0.500 U
Toluene	480	ug/l	0.500 U
Trichloroethene	80.7	ug/l	0.500 U
Trichlorofluoromethane		ug/l	0.500 U
Vinyl Acetate	700	ug/l	10.0 U
Vinyl chloride	2.4	ug/l	0.500 U
Xylenes	370	ug/l	0.500 U
cis-1,2-Dichloroethene	3.2	ug/l	0.200 U
cis-1,3-Dichloropropene	12	ug/l	0.500 U
o-Dichlorobenzene		ug/l	0.500 U
trans-1,2-Dichloroethene	11000	ug/l	0.500 U
trans-1,3,-Dichloropropene	12	ug/l	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U

ND = No data, insufficient water for field measurements; * = Data provided by laboratory

** = Chlorophyll A analysis not performed due to interference from sediment in sample

Abbreviations: mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nephelometric turbidity units; mpn/100ml = most probable number (of bacteria colonies) per 100 ml. U = less than method detection limit (MDL) I = between MDL and practical quantitation limit Q = sample held beyond acceptable holding time

(1) Surface water standards presented in Chapter 62-302, FAC. Analyte concentrations shown with shading represent an exceedance of the regulatory level. Value of hardness is used to determine calculated standards below.

(2) Cd less than or equal to e(0.7852(InH)-3.49)

(3) Cr less than or equal to e(0.819(InH)+0.6848)

(4) Cu less than or equal to e(0845(InH)-1.702)

(5) Pb less than or equal to e(1.273(InH)-4.705)

(6) Ni less than or equal to e(0.846(InH)+0.0584)

(7) Zn less than or equal to e(0.8473(InH)+0.884)

Table 3
Surface Water Analytical Summary
Hardee County Landfill
Second Half 2020

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		12/30/2020
	Standard(1)	Units	
Field Measurements			
Temperature		deg. C	16.27
pH	6-8.5	STD	6.29
Conductivity	1275	umhos/cm	445
Dissolved Oxygen (DO)	>5	mg/l	5.32
Turbidity	29+	NTU	3.17
Inorganics			
Nitrate (as N)		mg/l	0.0200 U
Nitrite (as N)		mg/l	0.0200 U
Total Dissolved Solids (TDS)		mg/l	284
Aluminum	1.5	mg/l	0.0159 I
Ammonia (as N)		mg/l	7.56
Antimony	4.3	mg/l	0.00200 U
Arsenic	0.05	mg/l	0.00190 I
Barium		mg/l	0.006
Beryllium	0.00013	mg/l	0.000500 U
Cadmium	Note 2	mg/l	0.00100 U
Chromium	Note 3	mg/l	0.00130 I
Cobalt		mg/l	0.0100 U
Copper	Note 4	mg/l	0.0100 U
Iron	1	mg/l	0.428
Lead	Note 5	mg/l	0.0100 U
Mercury	0.000012	mg/l	0.00000500 U
Nickel	Note 6	mg/l	0.00200
Selenium	5	mg/l	0.00200 U
Silver	0.00007	mg/l	0.000500 U
Thallium	0.0063	mg/l	0.00100 U
Vanadium	0.049	mg/l	0.0014 I
Zinc	Note 7	mg/l	0.0100 U
Fecal coliform	800	mpn/100ml	313
Total Hardness (as CaCO ₃)		mg/l	132
Total Organic Carbon (TOC)		mg/l	34.1
Total Nitrogen		mg/l	10.2
Total Phosphorus		mg/l	0.821
Total Suspended Solids (TSS)		mg/l	1.00 U
Un-ionized Ammonia	0.02	mg/l	0.0431
Biological Oxygen Demand (BOD)		mg/l	2.00 U
Chemical Oxygen Demand (COD)		mg/l	85.7
Chlorophyll A		ug/l	1.06
Total Kheldahl Nitrogen (TKN) (as N)		mg/l	10.2
Organics			
1,1,1,2-Tetrachloroethane		ug/l	0.500 U
1,1,1-Trichloroethane	270	ug/l	0.500 U
1,1,2,2-Tetrachloroethane	10.8	ug/l	0.100 U
1,1,2-Trichloroethane	16	ug/l	0.500 U
1,1-Dichloroethane		ug/l	0.500 U
1,1-Dichloroethene	3.2	ug/l	0.500 U
1,2-Dichloroethane	37	ug/l	0.500 U
1,2-Dichloropropane	14	ug/l	0.200 U
1,2,3-Trichloropropane	0.2	ug/l	0.0200 U

Analyte	Location:		SW-2
	Sample Identifier:		SW-2
	Date of Test:		12/30/2020
	Standard(1)	Units	
1,2-Dibromoethane (EDB)	13	ug/l	0.0100 U
1,2-Dibromo-3-chloropropane		ug/l	0.0200 U
2-Butanone (MEK)	120000	ug/l	1.00 U
2-Hexanone		ug/l	0.500 U
Acetone	1700	ug/l	5.00 U
Acrylonitrile	0.2	ug/l	0.300 U
Benzene	71.28	ug/l	0.500 U
Bromochloromethane		ug/l	0.100 U
Bromodichloromethane	49.7	ug/l	0.100 U
Bromoform		ug/l	0.500 U
Bromomethane	35	ug/l	0.500 U
Carbon disulfide	110	ug/l	1.00 U
Carbon tetrachloride	4.42	ug/l	0.500 U
Chlorobenzene	17	ug/l	0.500 U
Chloroethane		ug/l	0.500 U
Chloroform		ug/l	0.500 U
Chloromethane	470.8	ug/l	0.500 U
Dibromochloromethane		ug/l	0.400 U
Dibromomethane	1580	ug/l	0.500 U
Ethylbenzene	610	ug/l	0.500 U
Methyl iodide		ug/l	1.00 U
Methyl isobutyl ketone		ug/l	1.00 U
Methylene chloride		ug/l	1.00 U
Para-dichlorobenzene		ug/l	0.500 U
Styrene	460	ug/l	0.500 U
Tetrachloroethene	8.85	ug/l	0.500 U
Toluene	480	ug/l	0.500 U
Trichloroethene	80.7	ug/l	0.500 U
Trichlorofluoromethane		ug/l	0.500 U
Vinyl Acetate	700	ug/l	10.0 U
Vinyl chloride	2.4	ug/l	0.500 U
Xylenes	370	ug/l	0.500 U
cis-1,2-Dichloroethene	3.2	ug/l	0.200 U
cis-1,3-Dichloropropene	12	ug/l	0.500 U
o-Dichlorobenzene		ug/l	0.500 U
trans-1,2-Dichloroethene	11000	ug/l	0.500 U
trans-1,3,-Dichloropropene	12	ug/l	0.500 U
trans-1,4-Dichloro-2-butene		ug/l	1.00 U

Abbreviations: mg/l = milligrams per liter; ug/l = micrograms per liter; NTU = nephelometric turbidity units; mpn/100ml = most probable number (of bacteria colonies) per 100 ml. U = less than method detection limit (MDL) I = between MDL and practical quantitation limit Q = sample held beyond acceptable holding time

(1) Surface water standards presented in Chapter 62-302, FAC. Analyte concentrations shown with shading represent an exceedance of the regulatory level. Value of hardness is used to determine calculated standards below.

- (2) Cd less than or equal to e(0.7852(InH)-3.49)
- (3) Cr less than or equal to e(0.819(InH)+0.6848)
- (4) Cu less than or equal to e(0.845(InH)-1.702)
- (5) Pb less than or equal to e(1.273(InH)-4.705)
- (6) Ni less than or equal to e(0.846(InH)+0.0584)
- (7) Zn less than or equal to e(0.8473(InH)+0.884)

Appendix C

Time Series Plots of Water Quality Trends

GSI MANN-KENDALL TOOLKIT

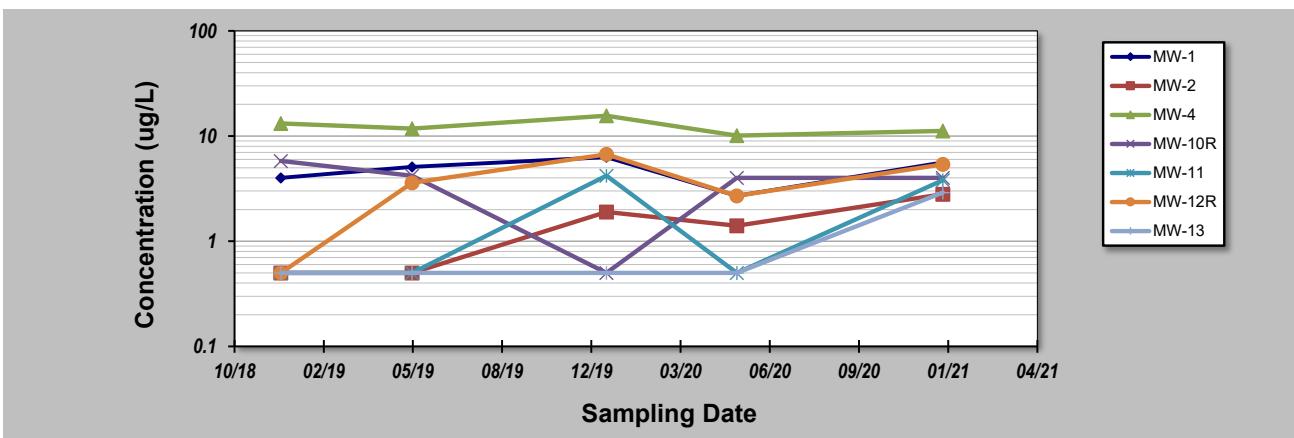
for Constituent Trend Analysis

Evaluation Date: **12-Jul-21**
 Facility Name: **Hardee County Landfill**
 Conducted By: **Dave Atteberry**

Job ID: **09199033.29**
 Constituent: **Arsenic**
 Concentration Units: **ug/L**

Sampling Point ID: **MW-1 MW-2 MW-4 MW-10R MW-11 MW-12R MW-13**

Sampling Event	Sampling Date	ARSENIC CONCENTRATION (ug/L)						
1	12/18/2018	4	0.5	13.2	5.8	0.5	0.5	0.5
2	5/14/2019	5.1	0.5	11.8	4.2	0.5	3.6	0.5
3	12/18/2019	6.3	1.9	15.6	0.5	4.2	6.7	0.5
4	5/12/2020	2.7	1.4	10.1	4	0.5	2.7	0.5
5	12/29/2020	5.6	2.8	11.2	4	3.8	5.4	2.9
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10								
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20								
Coefficient of Variation:	0.30	0.69	0.17	0.52	1.01	0.64	1.10	
Mann-Kendall Statistic (S):	2	7	-4	-5	3	4	4	
Confidence Factor:	59.2%	92.1%	75.8%	82.1%	67.5%	75.8%	75.8%	
Concentration Trend:	No Trend	Prob. Increasing	Stable	Stable	No Trend	No Trend	No Trend	



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing;
 $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0,$ and $COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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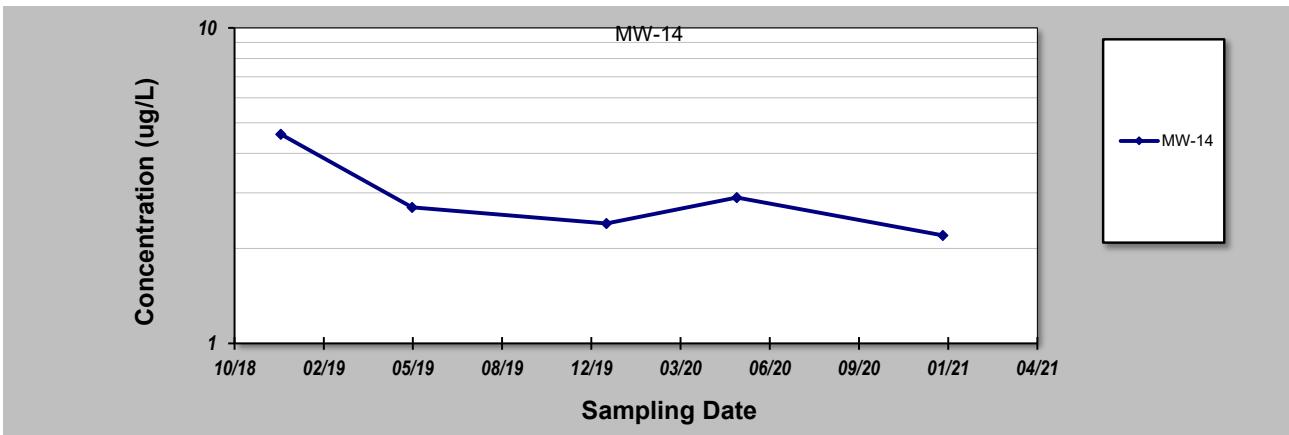
for Constituent Trend Analysis

Evaluation Date: **12-Jul-21**
 Facility Name: **Hardee County Landfill**
 Conducted By: **Dave Atteberry**

Job ID: **09199033.29**
 Constituent: **Arsenic**
 Concentration Units: **ug/L**

Sampling Point ID: **MW-14**

Sampling Event	Sampling Date	ARSENIC CONCENTRATION (ug/L)									
1	12/18/2018	4.6									
2	5/14/2019	2.7									
3	12/18/2019	2.4									
4	5/12/2020	2.9									
5	12/29/2020	2.2									
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20											
Coefficient of Variation:	0.32										
Mann-Kendall Statistic (S):	-6										
Confidence Factor:	88.3%										
Concentration Trend:	Stable										



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing;
 $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\%$ and $S>0 =$ No Trend; $< 90\%$, $S\leq 0$, and $COV \geq 1 =$ No Trend; $< 90\%$ and $COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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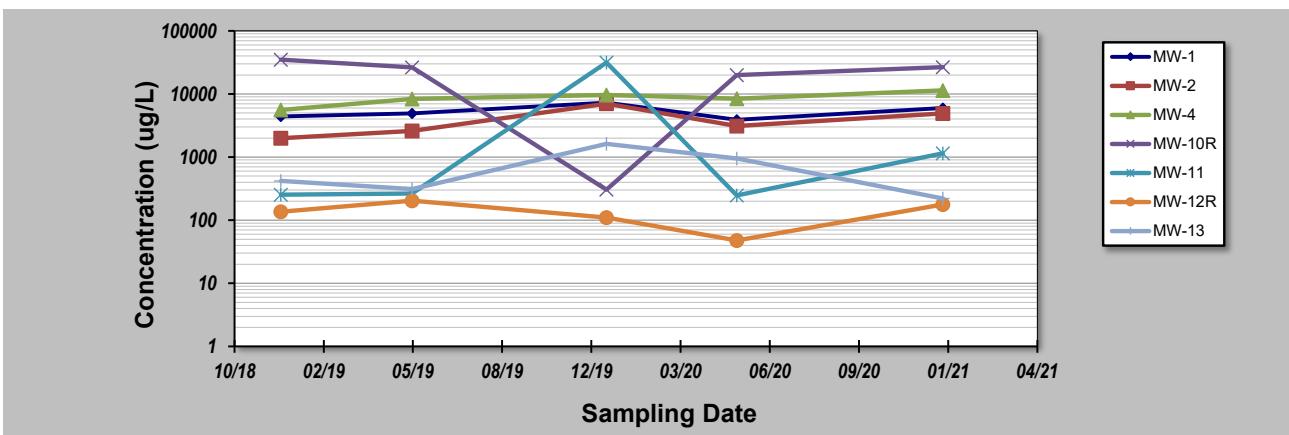
for Constituent Trend Analysis

Evaluation Date: **12-Jul-21**
 Facility Name: **Hardee County Landfill**
 Conducted By: **Dave Atteberry**

Job ID: **09199033.29**
 Constituent: **Iron**
 Concentration Units: **ug/L**

Sampling Point ID: **MW-1 MW-2 MW-4 MW-10R MW-11 MW-12R MW-13**

Sampling Event	Sampling Date	IRON CONCENTRATION (ug/L)						
1	12/18/2018	4420	1990	5580	35000	253	136	418
2	5/14/2019	4920	2600	8320	26500	264	204	310
3	12/18/2019	7290	7020	9650	305	31500	110	1620
4	5/12/2020	3900	3110	8410	19900	247	47.8	952
5	12/29/2020	5970	4920	11400	26700	1150	177	221
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20								
Coefficient of Variation:	0.25	0.52	0.25	0.60	2.08	0.45	0.83	
Mann-Kendall Statistic (S):	2	6	8	-2	2	-2	-2	
Confidence Factor:	59.2%	88.3%	95.8%	59.2%	59.2%	59.2%	59.2%	
Concentration Trend:	No Trend	No Trend	Increasing	Stable	No Trend	Stable	Stable	



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing;
 $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\%$ and $S>0 =$ No Trend; $< 90\%$, $S\leq 0$, and $COV \geq 1 =$ No Trend; $< 90\%$ and $COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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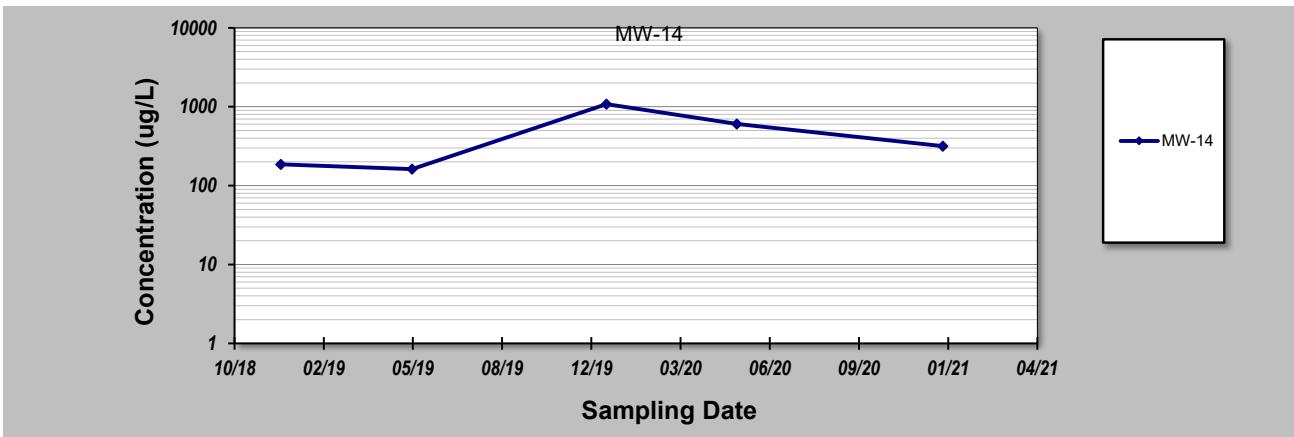
for Constituent Trend Analysis

Evaluation Date: **12-Jul-21**
 Facility Name: **Hardee County Landfill**
 Conducted By: **Dave Atteberry**

Job ID: **09199033.29**
 Constituent: **Iron**
 Concentration Units: **ug/L**

Sampling Point ID: **MW-14**

Sampling Event	Sampling Date	IRON CONCENTRATION (ug/L)											
1	12/18/2018	186											
2	5/14/2019	162											
3	12/18/2019	1080											
4	5/12/2020	606											
5	12/29/2020	317											
6													
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20													
Coefficient of Variation:	0.82												
Mann-Kendall Statistic (S):	2												
Confidence Factor:	59.2%												
Concentration Trend:	No Trend												



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing;
 $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\%$ and $S>0 =$ No Trend; $< 90\%$, $S\leq 0$, and $COV \geq 1 =$ No Trend; $< 90\%$ and $COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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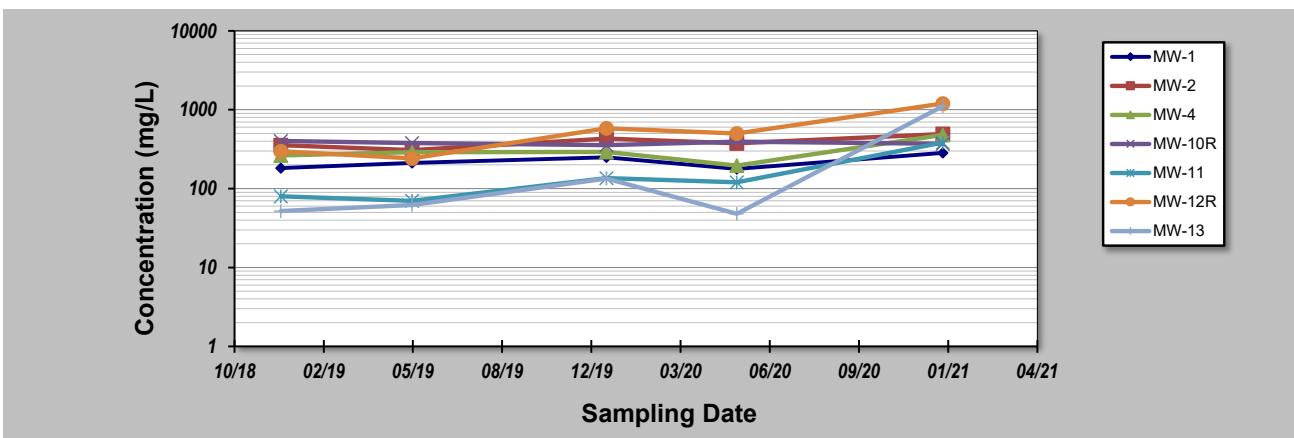
for Constituent Trend Analysis

Evaluation Date: **12-Jul-21**
 Facility Name: **Hardee County Landfill**
 Conducted By: **Dave Atteberry**

Job ID: **09199033.29**
 Constituent: **Total Dissolved Solids**
 Concentration Units: **mg/L**

Sampling Point ID: **MW-1 MW-2 MW-4 MW-10R MW-11 MW-12R MW-13**

Sampling Event	Sampling Date	TOTAL DISSOLVED SOLIDS CONCENTRATION (mg/L)						
1	12/18/2018	182	356	264	402	80	298	52
2	5/14/2019	212	308	290	378	70	242	62
3	12/18/2019	250	430	292	356	136	582	134
4	5/12/2020	178	376	196	394	120	502	48
5	12/29/2020	284	492	480	370	384	1200	1110
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Coefficient of Variation:	0.21	0.18	0.35	0.05	0.82	0.68	1.65	
Mann-Kendall Statistic (S):	4	6	4	-4	6	6	4	
Confidence Factor:	75.8%	88.3%	75.8%	75.8%	88.3%	88.3%	75.8%	
Concentration Trend:	No Trend	No Trend	No Trend	Stable	No Trend	No Trend	No Trend	



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing;
 $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0,$ and $COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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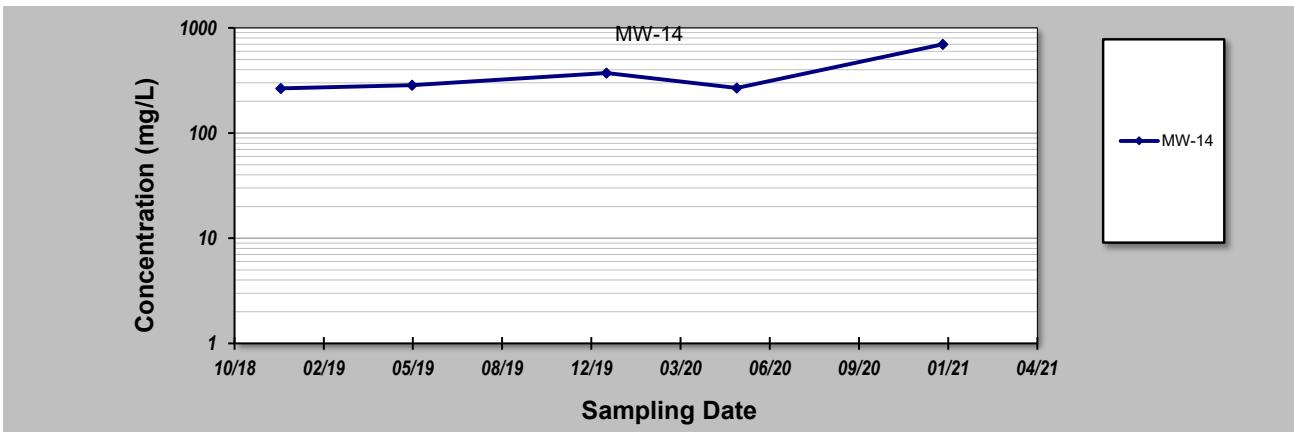
for Constituent Trend Analysis

Evaluation Date: **12-Jul-21**
 Facility Name: **Hardee County Landfill**
 Conducted By: **Dave Atteberry**

Job ID: **09199033.29**
 Constituent: **Total Dissolved Solids**
 Concentration Units: **mg/L**

Sampling Point ID: **MW-14**

Sampling Event	Sampling Date	TOTAL DISSOLVED SOLIDS CONCENTRATION (mg/L)									
1	12/18/2018	266									
2	5/14/2019	286									
3	12/18/2019	372									
4	5/12/2020	268									
5	12/29/2020	698									
6											
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20											
Coefficient of Variation:	0.49										
Mann-Kendall Statistic (S):	6										
Confidence Factor:	88.3%										
Concentration Trend:	No Trend										



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing; $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0,$ and $COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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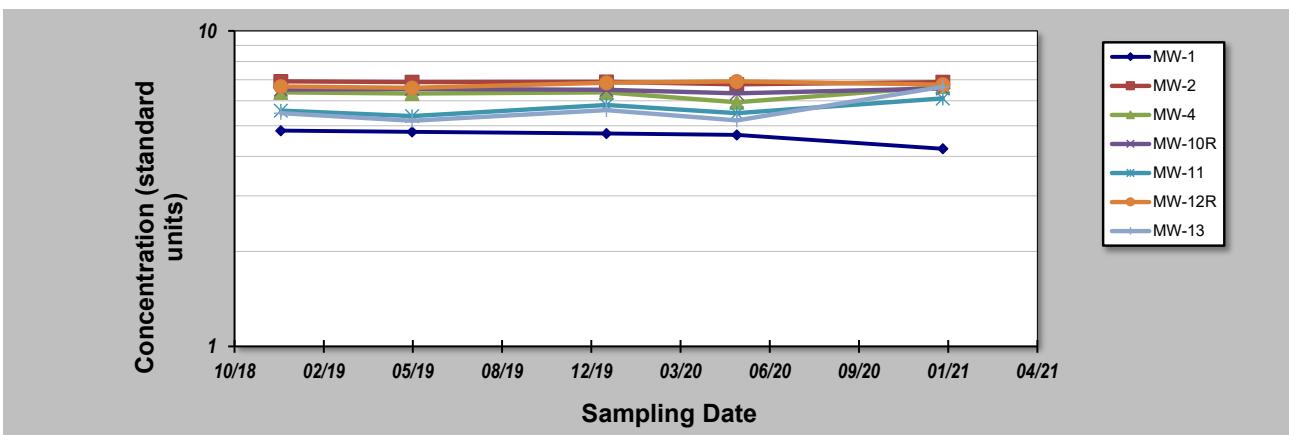
for Constituent Trend Analysis

Evaluation Date: **12-Jul-21**
 Facility Name: **Hardee County Landfill**
 Conducted By: **Dave Atteberry**

Job ID: **09199033.29**
 Constituent: **Field pH**
 Concentration Units: **standard units**

Sampling Point ID: **MW-1 MW-2 MW-4 MW-10R MW-11 MW-12R MW-13**

Sampling Event	Sampling Date	FIELD PH CONCENTRATION (standard units)						
1	12/18/2018	4.83	6.92	6.38	6.52	5.59	6.66	5.49
2	5/14/2019	4.79	6.88	6.33	6.55	5.37	6.6	5.19
3	12/18/2019	4.73	6.89	6.38	6.51	5.82	6.85	5.61
4	5/12/2020	4.68	6.77	5.94	6.34	5.49	6.92	5.2
5	12/29/2020	4.23	6.88	6.66	6.57	6.11	6.75	6.65
6								
7								
8								
9								
10								
11								
12								
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18								
19								
20								
Coefficient of Variation:	0.05	0.01	0.04	0.01	0.05	0.02	0.11	
Mann-Kendall Statistic (S):	-10	-5	1	0	4	4	4	
Confidence Factor:	99.2%	82.1%	50.0%	40.8%	75.8%	75.8%	75.8%	
Concentration Trend:	Decreasing	Stable	No Trend	Stable	No Trend	No Trend	No Trend	



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing;
 $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\% \text{ and } S>0 =$ No Trend; $< 90\%, S\leq 0,$ and $COV \geq 1 =$ No Trend; $< 90\% \text{ and } COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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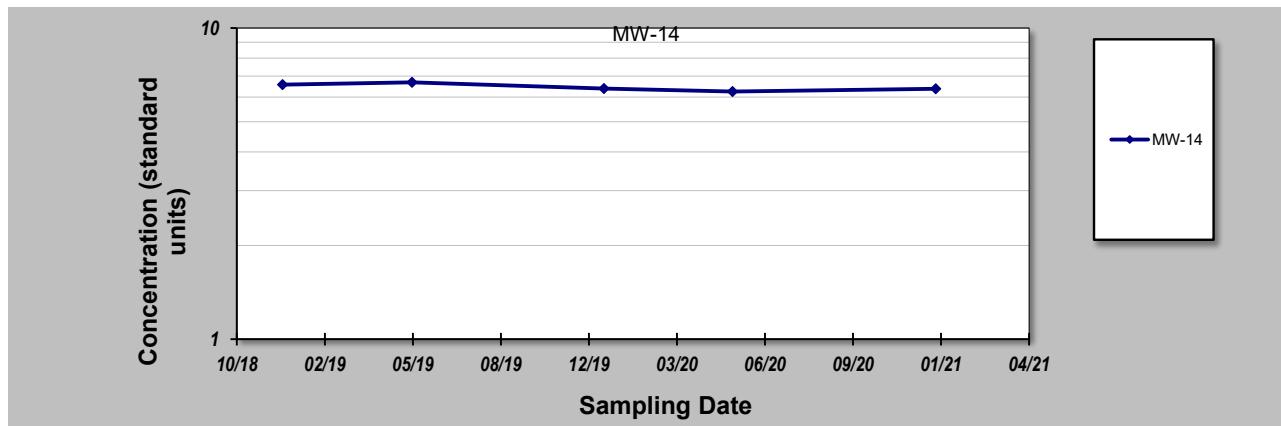
for Constituent Trend Analysis

Evaluation Date: **12-Jul-21**
 Facility Name: **Hardee County Landfill**
 Conducted By: **Dave Atteberry**

Job ID: **09199033.29**
 Constituent: **Field pH**
 Concentration Units: **standard units**

Sampling Point ID: **MW-14**

Sampling Event	Sampling Date	FIELD PH CONCENTRATION (standard units)																	
1	12/18/2018	6.58																	
2	5/14/2019	6.69																	
3	12/18/2019	6.39																	
4	5/12/2020	6.25																	
5	12/29/2020	6.38																	
6																			
7																			
8																			
9																			
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11																			
12																			
13																			
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15																			
16																			
17																			
18																			
19																			
20																			
Coefficient of Variation:	0.03																		
Mann-Kendall Statistic (S):	-6																		
Confidence Factor:	88.3%																		
Concentration Trend:	Stable																		



Notes:

- At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
- Confidence in Trend = Confidence (in percent) that constituent concentration is increasing ($S>0$) or decreasing ($S<0$): $>95\% =$ Increasing or Decreasing;
 $\geq 90\% =$ Probably Increasing or Probably Decreasing; $< 90\%$ and $S>0 =$ No Trend; $< 90\%$, $S\leq 0$, and $COV \geq 1 =$ No Trend; $< 90\%$ and $COV < 1 =$ Stable.
- Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

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