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Subject: West Pasco Class I Landfill - WQMPER - March 2023
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Water Quality Monitoring Plan Evaluation

West Pasco Class I Landfill
2nd Semester 2020 – 2nd Semester 2022

March 2023

PASCO COUNTY FLORIDA
OPEN SPACES. VIBRANT PLACES.

Prepared For:

Pasco County Utilities

JASON M. GORRIE
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3/30/2023

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The seal certifies the engineering information included herein provides reasonable assurance of meeting the requirements of Chapters 62-701 of the Florida Administrative Code.

1.0 INTRODUCTION

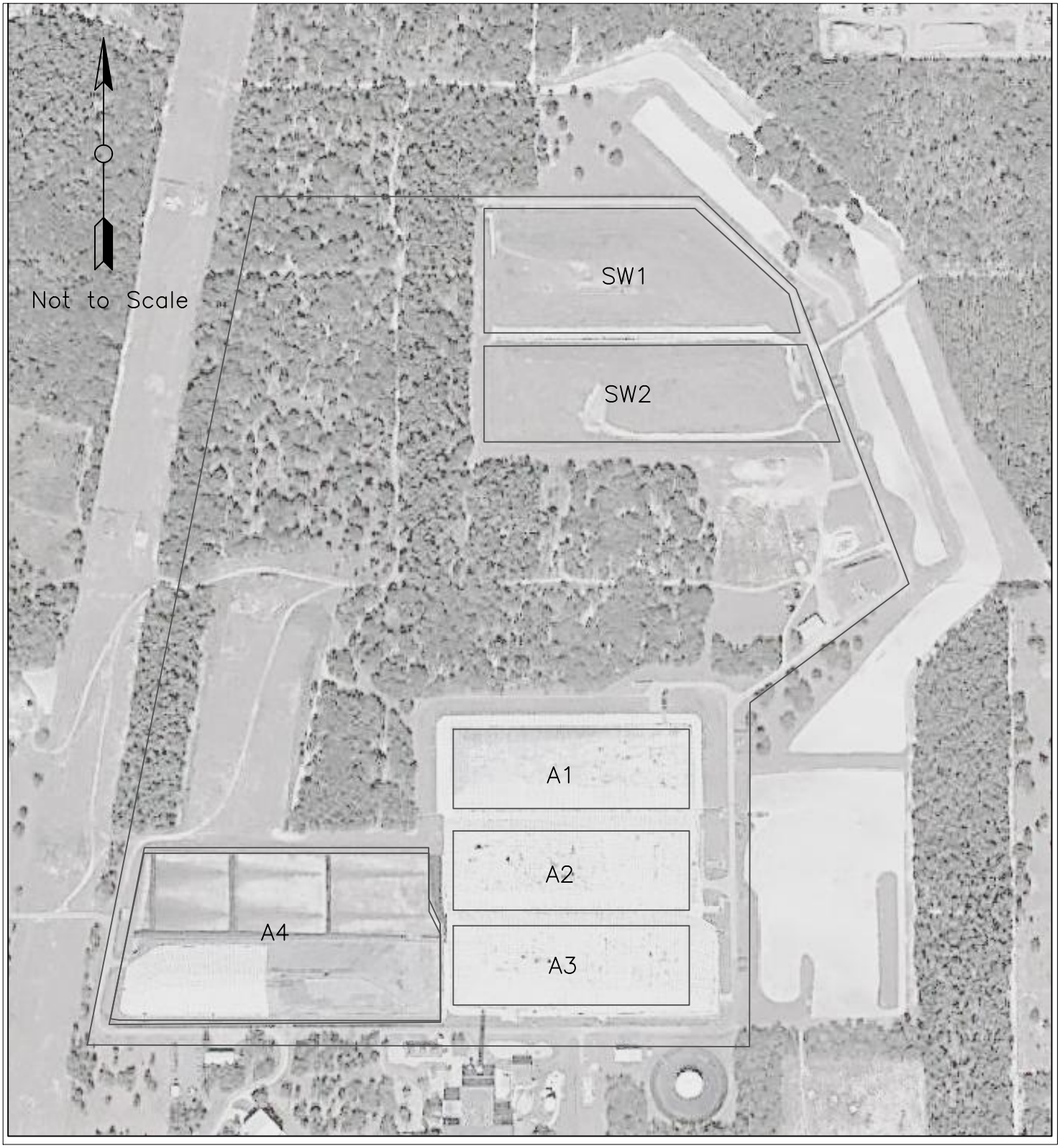
JMG Engineeering, Inc. (JMG) has prepared this Monitoring Plan Evaluation Report (Report) on behalf of Pasco County (County) for the West Pasco Class I Landfill [WACS ID No. 45799]. This Report was prepared in accordance with the criteria outlined in the approved Florida Department of Environmental Protection (FDEP) Water Quality Monitoring Plan that is a component of the Conditions of Certification for Site Certification PA 87-23G issued to the Pasco County Resource Recovery Facility. This Report includes a summary and evaluation of the groundwater analytical data from the monitoring events performed at the Landfill from the second semi-annual sampling event of 2020 through the second semi-annual sampling event of 2022 (hereafter referred to as "the evaluation period").

1.1 BACKGROUND

The West Pasco Class I Landfill is located at 14230 Hays Road, Spring Hill, Florida in northwest Pasco County, approximately 2.5 miles north of State Road 52. The property is approximately 800 acres in size. Other facilities on the property that are part of the Pasco County Solid Waste System include the Resource Recovery Facility (Waste-to-Energy Plant) and the West Pasco Class III Landfill.

Figure 1-1 is a site plan showing the property boundaries, adjacent roadways, the six disposal cells (Cells A-1, A-2, A-3, A-4, SW-1, and SW-2), and other features. Solid waste Cells SW-1 and SW-2 are used for the disposal of municipal solid waste (MSW) whenever the MSW cannot be combusted in the Resource Recovery Facility. The filling of Cell SW-1 began in June of 1990 and the filling of Cell SW-2 began in November of 2004. Cell SW-2 is the only cell being filled with MSW at this time.

Ash Cells A-1, A-2, A-3 and A-4 have been used for the disposal of ash produced from the combustion of MSW at the Resource Recovery Facility. The filling of Ash Cell A-1 occurred from 1990 to December 1996. The filling of Ash Cell A-2 occurred from December 1996 to May 2003. The filling of Ash Cell A-3 occurred from May 2003 to May 2011. Cell A-4 began receiving ash in May 2011 and is currently being used for ash disposal. The ash disposal and solid waste cells at the facility are all constructed with double liner systems that includes leachate collection.



Note: THIS FIGURE IS NOT TO SCALE AND THE LOCATIONS OF SOME ITEMS HAVE BEEN EXAGGERATED FOR CLARITY

JMG ENGINEERING INC

SITE PLAN
WEST PASCO CLASS I LANDFILL

FIGURE
1 – 1

2.0 WATER QUALITY MONITORING PLAN

The groundwater monitoring plan currently being implemented at the site is described in Attachment D of the Conditions of Certification for Power Plant Siting Certification No. PA 87-23E. The purpose of the plan is to monitor the groundwater and surface water (when necessary) at the site to confirm that the FDEP groundwater and surface water quality standards will not be violated beyond the Zone of Discharge (ZOD). Pursuant to Specific Condition I.B.4.a, the ZOD for the site extends horizontally 100 feet from the limits of the landfill liner and extends vertically to the top of the Floridan Aquifer.

2.1 GROUNDWATER MONITORING WELLS

The existing groundwater monitoring wells currently being used as part of the ongoing monitoring activities at the site are described in Attachment D of the Conditions of Certification. The current monitoring program includes the semi-annual sampling of nine (9) surficial aquifer groundwater monitoring wells, fourteen (14) upper Floridan aquifer groundwater monitoring wells, and three (3) piezometers. The currently sampled data points with their well identifications, current use, monitored zone, and their designations within the current monitoring plan are listed in the following tables.

Background Wells	
2MW-1	Surficial
2MW-2	Surficial
2MW-6	Surficial
2MW-27S	Surficial
4MW1	Floridan
4 MW-2	Floridan
4 MW-6	Floridan
2MW-15AD	Floridan
4MW-27	Floridan
4MW-27D	Floridan

Detection Wells	
2MW-13D	Surficial
2MW-17S	Surficial
2MW-24S	Surficial
2MW-25S	Surficial
2MW-26S	Surficial
4MW-11D	Floridan
4MW-12D	Floridan
4MW-13D	Floridan
4MW-14D	Floridan
2MW-18D	Floridan
2MW-19D	Floridan
2MW-24D	Floridan
2MW-25D	Floridan
2MW-26D	Floridan

Compliance Wells	
4MW-4	Floridan
4MW-5	Floridan

Piezometers	
2MW-27D	Floridan
2MW-4	Surficial
2MW-5	Surficial

2.2 GROUNDWATER QUALITY PARAMETERS

Attachment D, Condition 2.C of the Conditions of Certification requires semi-annual sampling of the background, detection, and compliance groundwater monitoring wells set in the surficial aquifer and Floridan aquifer. In accordance with Conditions of Certification, samples collected from these groundwater monitoring wells have been analyzed for the following field and laboratory parameters:

2.2.1 Field Parameters

- Static water level in wells before purging
- Dissolved oxygen
- pH

- Specific conductivity
- Temperature
- Turbidity
- Colors and sheen (by observation)

2.2.2 Laboratory Parameters

- Ammonia – N, Total
- Chlorides
- Iron
- Mercury
- Nitrate
- Sodium
- Total Dissolved Solids (TDS)
- Those parameters listed in 40 CFR 258 Appendix I

2.3 SURFACE WATER MONITORING

There are no surface water monitoring locations designated at the facility. However, in the event that a discharge to surface water from the facility should occur, samples would be collected in accordance with the Conditions of Certification. There were no discharges to surface water from the facility during the reporting period.

3.0 WATER QUALITY MONITORING PLAN EVALUATION

This evaluation of the current Water Quality Monitoring Plan was based on the historical data set collected over the REPORTING period July 2020 to present. The following paragraphs summarize the key water quality observations, the changes that have been implemented, and the proposed changes for the future monitoring plan.

3.1 EVALUATION OF HISTORICAL ANALYTICAL DATA

Water quality at the SITE has remained generally consistent over the past 2.5 years when compared to the data collected during the previous 2.5-year evaluation period (2018 to 2020). The Floridan aquifer wells continue to exhibit water quality within applicable standards, which supports the conclusion that the contaminants associated with the buried wastes within the landfill have not escaped the liner system. No impacts to the Floridan aquifer monitoring wells were observed over the permit period.

The hydrogeologic setting at the site is relatively unique. As has been observed in previous Groundwater Monitoring Plan Evaluation Reports, the presence of a surficial aquifer is practically non-existent. The Lithologic Description that was prepared for the Class I injection well that was recently completed confirms the absence of any clay confining unit separating a surficial aquifer from the Floridan aquifer. Most of the monitoring wells that were installed to monitor a surficial aquifer remain consistently dry.

Historical water quality data summary tables have been prepared for each of the groundwater monitoring wells and surface water sampling locations. The data from the past five (5) sampling events are presented in the historical water quality summary tables provided in Appendix C. The specific and relevant water quality observations from each of the sampling locations are discussed in the following paragraphs.

3.2 SURFICIAL AQUIFER

As stated above, the presence of a surficial aquifer at the site is practically non-existent. Of the nine monitoring wells that are designated “surficial” monitoring wells, only three (2MW-2, 2MW-17S, and 2MW-27S) consistently produced enough water to be sampled throughout the period. 2MW-2 and 2MW-27S serve as background wells and 2MW-17S serves as a detection well. There are two piezometers that measure the potentiometric surface level of the surficial aquifer (2MW-4 and 2MW-5), however, both of these wells were consistently dry throughout the evaluation period.

2MW-2

Surficial aquifer background groundwater monitoring well 2MW-2 is located near the southeast corner of the property, and is part of the well pair 2MW-2/4MW-2 used for evaluation of the hydraulic gradient across the site. The water quality observed in this well is indicative of background conditions, with only pH observed below the Secondary Drinking Water Standard (SDWS) acceptable range.

Sampling of this well should continue in the future groundwater monitoring plan.

2MW-17S

Surficial aquifer background groundwater monitoring well 2MW-17S is located near the northern edge of the SW-1 disposal cell and within the zone of discharge for the landfill. The water quality observed in this well is comparable to background conditions. pH was below the Primary Drinking Water Standard (PDWS) acceptable range, and nitrate was detected above the PDWS throughput the observation period.

3.3 FLORIDAN AQUIFER

Water quality in the upper Floridan aquifer has not exhibited impacts from the buried wastes within the landfill over the period of record. The historical data tables for the fourteen Floridan aquifer groundwater monitoring wells indicate good water quality with only pH and dissolved oxygen being observed above standards over the permit period. No significant and attributable detections of organics or metals have been observed in the Floridan aquifer groundwater monitoring wells sampled as part of the current monitoring plan.

4MW-1

Floridan aquifer background groundwater monitoring well 4MW-1 is located southern perimeter of the property and is part of the well pair 2MW-1/4MW-1. Over the observation period, the field parameters have been observed within applicable standards. The other parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-2

Floridan aquifer background groundwater monitoring well 4MW-2 is located on the southern perimeter of the property and is part of the well pair 2MW-2/4MW-2 used for evaluation of the hydraulic gradient across the site. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-6

Floridan aquifer background groundwater monitoring well 4MW-6 is located near the eastern perimeter of the property and is upgradient of the solid waste disposal cells SW-1 and SW-2. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

2MW-15AD

Floridan aquifer background groundwater monitoring well 2MW-15AD is located approximately 100 feet to the south of ash disposal cell A-3. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

2MW-27D

Floridan aquifer background groundwater monitoring well 2MW-27D is located approximately 100 feet to the south of ash disposal cell A-4. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-27

Floridan aquifer background groundwater monitoring well 4MW-27 is located approximately 100 feet to the south of ash disposal cell A-3 and immediately adjacent to 2MW-27D. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-27D

Floridan aquifer background groundwater monitoring well 4MW-27D is located approximately 100 feet to the south of ash disposal cell A-4 and immediately adjacent to 2MW-27D, 2MW27S, and 4MW-27. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-11D

Floridan aquifer detection groundwater monitoring well 4MW-11D is located approximately 100 feet to the north of ash disposal cell A-1. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-12D

Floridan aquifer detection groundwater monitoring well 4MW-12D is located approximately 100 feet to the north of ash disposal cell A-1. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-13D

Floridan aquifer detection groundwater monitoring well 4MW-13D is located approximately 100 feet to the north of ash disposal cell A-1. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-14D

Floridan aquifer detection groundwater monitoring well 4MW-14D is located on the western edge of ash disposal cell A-1. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

2MW-18D

Floridan aquifer detection groundwater monitoring well 2MW-18D is located approximately 100 feet to the north of solid waste disposal cell SW-1. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

2MW-19D

Floridan aquifer detection groundwater monitoring well 2MW-19D is located approximately 100 feet to the west of solid waste disposal cell SW-2. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

2MW-24D

Floridan aquifer detection groundwater monitoring well 2MW-24D is located approximately 100 feet to the north of ash disposal cell A-4. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

2MW-25D

Floridan aquifer detection groundwater monitoring well 2MW-25D is located approximately 100 feet to the north of ash disposal cell A-4. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

2MW-26D

Floridan aquifer detection groundwater monitoring well 2MW-26D is located approximately 100 feet to the west of ash disposal cell A-4. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-4

Floridan aquifer compliance groundwater monitoring well 4MW-4 is located approximately 600 feet to the north of solid waste disposal cell SW-1. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

4MW-5

Floridan aquifer compliance groundwater monitoring well 4MW-5 is located approximately 1400 feet to the west of solid waste disposal cell SW-1. Over the observation period, the field parameters have been observed within applicable standards. The laboratory analyzed parameters were observed within their applicable standards or minimum criteria, and do not warrant discussion.

3.4 SUPPLY WELLS/OTHER WELLS

The current Water Quality Monitoring Plan does not include sampling or level measurement of any other wells on the site.

3.5 COMPARISON OF UPGRADIENT TO DOWNGRADIENT WATER QUALITY

Groundwater quality changes that could be attributable to the landfill operation were evaluated by comparing the water quality from the upgradient Floridan aquifer monitoring wells 4MW1 and 4MW-2 to several of the downgradient Floridan aquifer monitoring wells. Ordinarily, such an evaluation would be conducted for the surficial aquifer, however, the hydrogeological setting of the site precludes such an analysis. Generally, the groundwater quality has remained relatively consistent over the permit period, with the following observations:

pH

Over the evaluation period, pH values have been recorded with a range of 4.7 to 8.3 SU in the background water quality wells. The vast majority of the pH values were between 7.0 and 8.0. The pH values in the downgradient monitoring wells (both detection and compliance) were similar, ranging from 5.75 to 8.02. The pH values do not appear to be significantly affected by the buried wastes within the landfill.

Conductivity

Conductivity values in the background wells were consistent with previously observed readings during every sampling event in the evaluation period. Background monitoring well 4MW-1 has historically exhibited elevated conductivity and chloride concentrations. This is most likely attributable to the well's proximity (and downgradient location) to the no-longer-used wastewater effluent sprayfield associated with the Shady Hills Wastewater Treatment Facility. Excluding the data from background well 4MW-1, the background conductivity concentrations ranged from 62 umhos/cm to 702 umhos/cm. The conductivity values observed in the downgradient wells (both detection and compliance) were similar to the background concentrations and ranged from around 240 umhos/cm up to 719 umhos/cm. Values have been relatively consistent over the permit period. These observations support the position that groundwater in the downgradient direction has not been affected by the buried wastes within the landfill.

Total Dissolved Solids (TDS)

The TDS values observed in the background water quality wells were below the PDWS of 500 mg/l during every sampling event in the permit period. TDS values observed in the downgradient wells exhibited no increase above background, with TDS concentrations ranging from 98 mg/l to 440 mg/l. These observations indicate that impacts to water quality are not occurring as groundwater is moving under the liner system of the landfill.

Metals

Sodium and barium are the only Appendix I metals that were consistently detected in the downgradient detection and compliance wells, albeit in concentrations significantly below Safe Drinking Water

Standards. Please refer to the summary of results in Appendix C for a complete listing. The results indicate that impacts to water quality are not occurring as groundwater is moving under the liner system of the landfill.

Organics

Other than infrequent and occasional detections of acetone (which is indicative of sampling equipment residual cleaning contamination), there were no detections of organics throughout the evaluation period. Please refer to the summary of results in Appendix C for a complete listing. The results indicate that impacts to water quality are not occurring as groundwater is moving through and under the liner system of the landfill.

3.6 TRENDS AND CORRELATIONS

As expected, there are some correlations between sodium, chloride, TDS, and conductivity. However, based on the concentrations in relation to increasing trends and standard exceedances, there does not appear to be any significant trends necessitating a revisitation of monitoring at the facility.

Comparisons of monitoring wells in different zones such as shallow, middle, deep zones, or in the case of the surficial aquifer and different depths within the Floridan aquifer, show that groundwater quality in many of the well clusters track and fluctuate similarly between the zones. However, since the wells at clusters are in different zones of the Floridan aquifer where there are different flow regimes with varying flow velocity and other conditions, not all wells fluctuate and track similarly for all parameters.

4.0 EVALUATION OF GROUNDWATER ELEVATION HYDROGRAPHS AND CONTOUR MAPS

In accordance with Rule 62-701.510(8)(b), part 7, FAC, this section includes interpretation of the groundwater contour maps and also presents hydrographs and groundwater flow rates for the 2H20 – 2H22 report period. Hydrographs for the groundwater elevation data are presented in Figures 4-1 through 4-3. Contour maps for the surficial aquifer and Floridan aquifer groundwater elevations during the report period are included in Appendix A. For the purposes of this report, only the groundwater elevations in Class I monitoring wells are shown in the hydrographs (Figure 2-1) and discussed in the following sections.

4.1 Groundwater Elevation Hydrographs

Monitoring well 2MW-4 is screened in sediments that would comprise the surficial aquifer if saturated but remained dry during the report period. Several surficial aquifer monitoring wells were reported as "dry" but contained enough water to get an accurate measure of the groundwater elevation for some of the report period events. For these instances they were reported as dry because the wells purged dry prior to sampling due to low levels in the wells and/or very slow recharge or recovery rates. Static water level readings were unable to be obtained for surficial monitoring wells 2MW-1, 2MW-4, 2MW-5, 2MW-6, 2MW-13D, 2MW-25S, and 2MW-26S throughout the evaluation period.

Monitoring wells 4MW-1, 4MW-2, 4MW-4, 4MW-5, 4MW-6, 4MW-11D, 4MW-12D, 4MW-13D, 4MW-14D, 2MW-15AD, 2MW-18D, 2MW-19D, 2MW-24D, 2MW-25D, 2MW-26D, 2MW-27D, 4MW-27, and 4MW-27D are screened in the Floridan aquifer and were all under saturated conditions during the report period.

Hydrographs presented in Figures 4-1 through 4-3 show that groundwater elevations fluctuated up to approximately 4 feet throughout the report period with high elevations during the fall events (October and November) and lower elevations during spring events (April and May). Surficial aquifer elevations (that were able to be obtained) are generally consistent with those of the Floridan aquifer.

4.2 Groundwater Elevation Contour Maps

Contour maps for the surficial and Floridan aquifers as measured and reported throughout the 2H20 – 2H22 report period are included in Appendix A. Consistent with previous mapping and reporting, the groundwater flow direction in the surficial aquifer, where present, and the Floridan aquifer was generally from southeast to northwest. Flow directions and gradients appear to be generally consistent with time.

4.3 Groundwater Flow Rate Calculations

Horizontal groundwater flow rates were estimated using site-specific data gathered during the evaluation period and from site-specific constants derived during previous studies. To estimate the horizontal groundwater flow rate, the average linear velocity of each groundwater unit was calculated using the following equation:

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

where:

v = average linear groundwater velocity
K = hydraulic conductivity (CDM, 2010)
i = hydraulic gradient
n = effective porosity (assumed)

The hydraulic gradient (*i*) was calculated from well measurements obtained at opposite ends of the landill site as shown in Tables 4-1 and 4-2 below.

Table 4-2
Calculated Range of Groundwater Velocities

Well Pair 4MW-2 and 4MW-5					
Water Level Collection Date	Horizontal Difference (ft)	Horizontal Hydraulic Gradient (ft/ft)	Hydraulic Conductivity (ft/day)	Effective Porosity (%)	Linear Velocity (ft/year)
2H 2020	5000	0.00139	9.0	15	30.4
1H 2021		0.00137			30.1
2H 2021		0.00115			25.2
1H 2022		0.00125			27.3
2H 2022		0.00109			23.9
				Average Linear Velocity	27.4

Table 4-2
Calculated Range of Groundwater Velocities

Well Pair 4MW-1 and 4MW-4					
Water Level Collection Date	Horizontal Difference (ft)	Horizontal Hydraulic Gradient (ft/ft)	Hydraulic Conductivity (ft/day)	Effective Porosity (%)	Linear Velocity (ft/year)
2H 2020	4900	0.00159	9.0	15	34.7
1H 2021		0.00151			33.1
2H 2021		0.00116			25.3
1H 2022		0.00142			31.2
2H 2022		miss			miss
				Average Linear Velocity	31.1

The Floridan aquifer hydraulic conductivity determined and utilized in previous reports is 9.0 feet/day and the effective porosity is 15 percent (or 0.15). Using these values and the average surficial aquifer hydraulic gradient listed in Tables 4.1 and 4.2[1], the average groundwater flow rate in the Floridan aquifer is approximately 25 to 30 feet/year.

[1] 4MW-1 was dry during the 2H22 semester, precluding its use to determine a horizontal hydraulic gradient.

FIGURE 4-1
Background Monitoring Wells

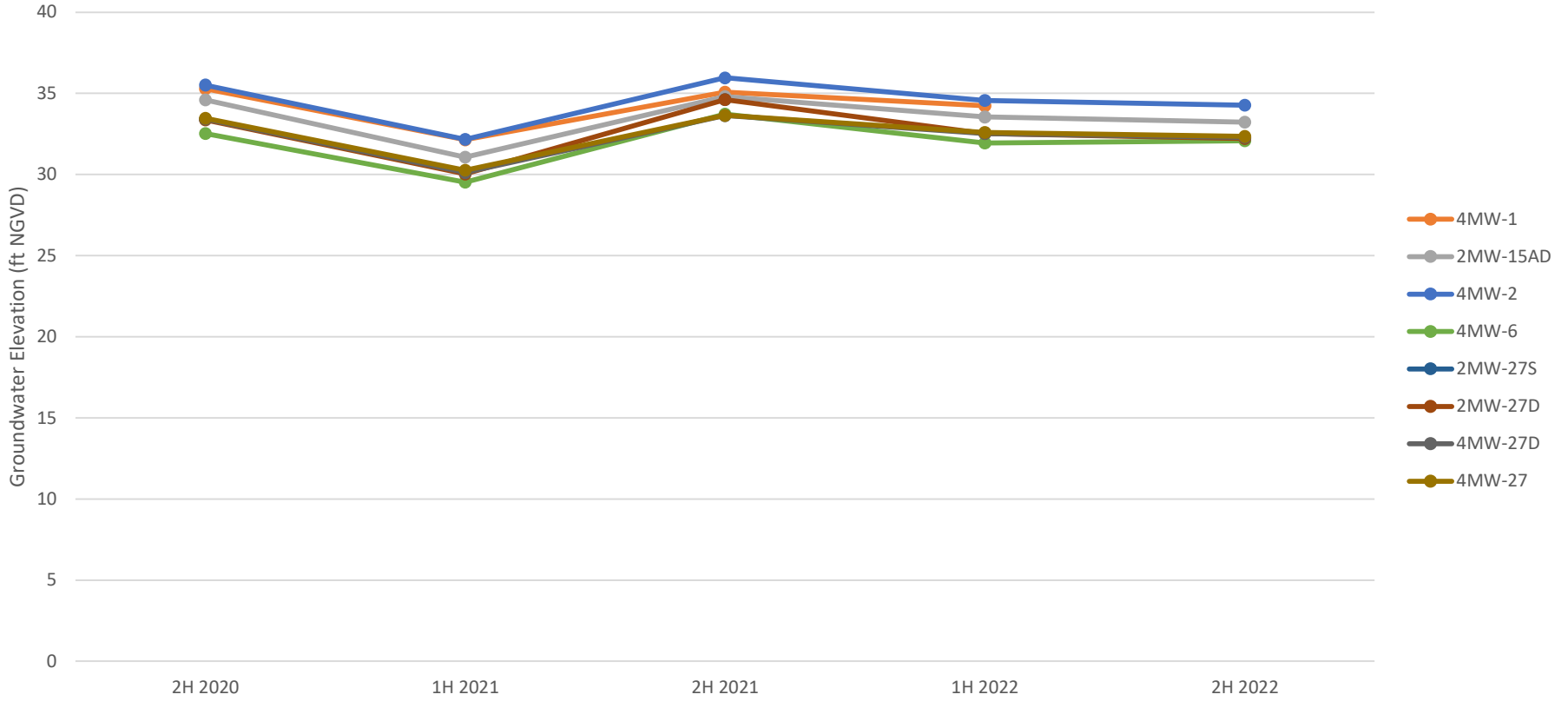


FIGURE 4-2
Detection Monitoring Wells

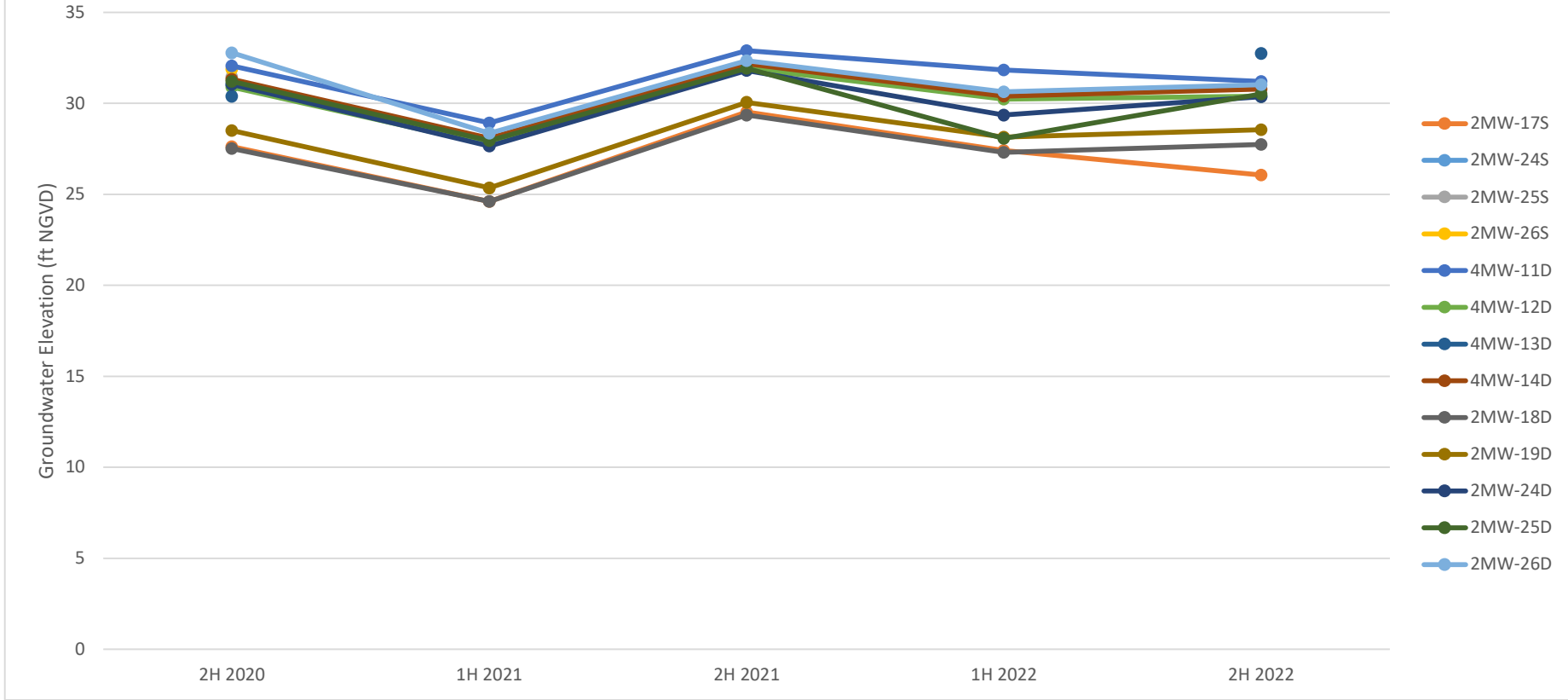
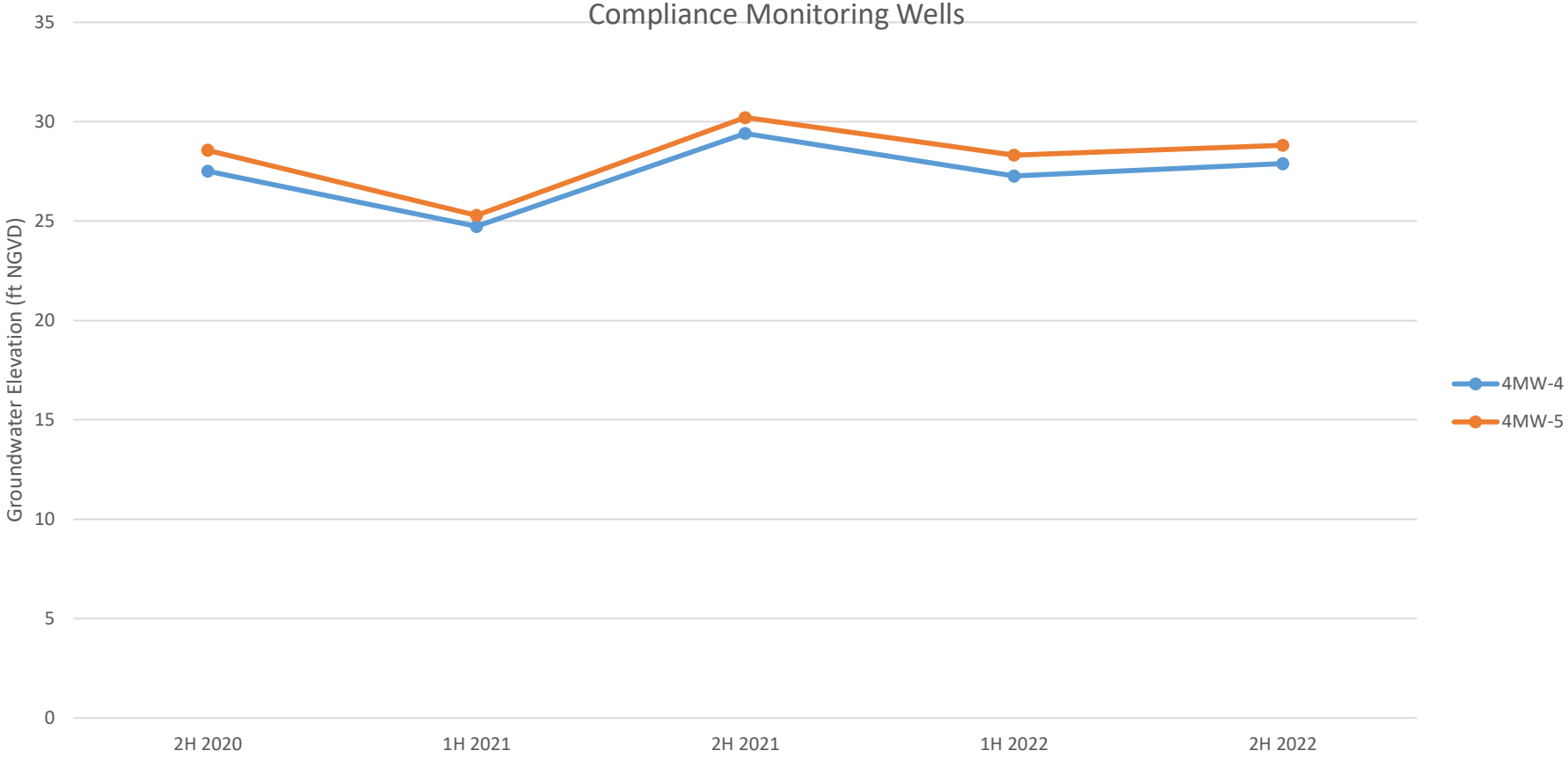


FIGURE 4-3
Compliance Monitoring Wells



5.0 CONCLUSIONS AND RECOMMENDATIONS

This report is being submitted in accordance with the requirements of 62-701.510(8)(b), F.A.C. as the Water Quality Monitoring Plan Evaluation Report (WQMPER) for the West Pasco Resource Recovery Class I Landfill located at 14230 Hays Road, Spring Hill, Florida. The report period for this WQMPER includes five water quality monitoring events from the second semiannual sampling period of 2020 through the second semiannual sampling of 2022. The monitoring well network consists of a total of 29 wells: 9 surficial aquifer monitoring wells, 14 Floridan aquifer monitoring wells, and 3 piezometers. There are no surface water monitoring locations designated at the facility and during the report period there were no discharges to surface water that would have necessitated sampling.

5.1 CONCLUSIONS

- Groundwater elevations fluctuated 3 to 5 feet during the report period. The groundwater elevations in all wells tracked consistently and closely from drier to wetter periods, and differences between wells in different aquifers or zones were very small.

- Several monitoring wells were reported as “dry” during the report period which was an indication of either the groundwater level being too low to sample or the level being low combined with extremely low recharge or recovery rate of the wells which prevented adequate sampling.

- Consistent with mapping and reporting prior to the report period, the groundwater flow direction in the surficial aquifer, where present, and the Floridan aquifer were generally from southeast to northwest. Flow directions and gradients appear to be generally consistent with time.

- Overall water quality monitoring results during the 2020 – 2022 report period were very good. There are no detections which should cause concern for compliance or operations.

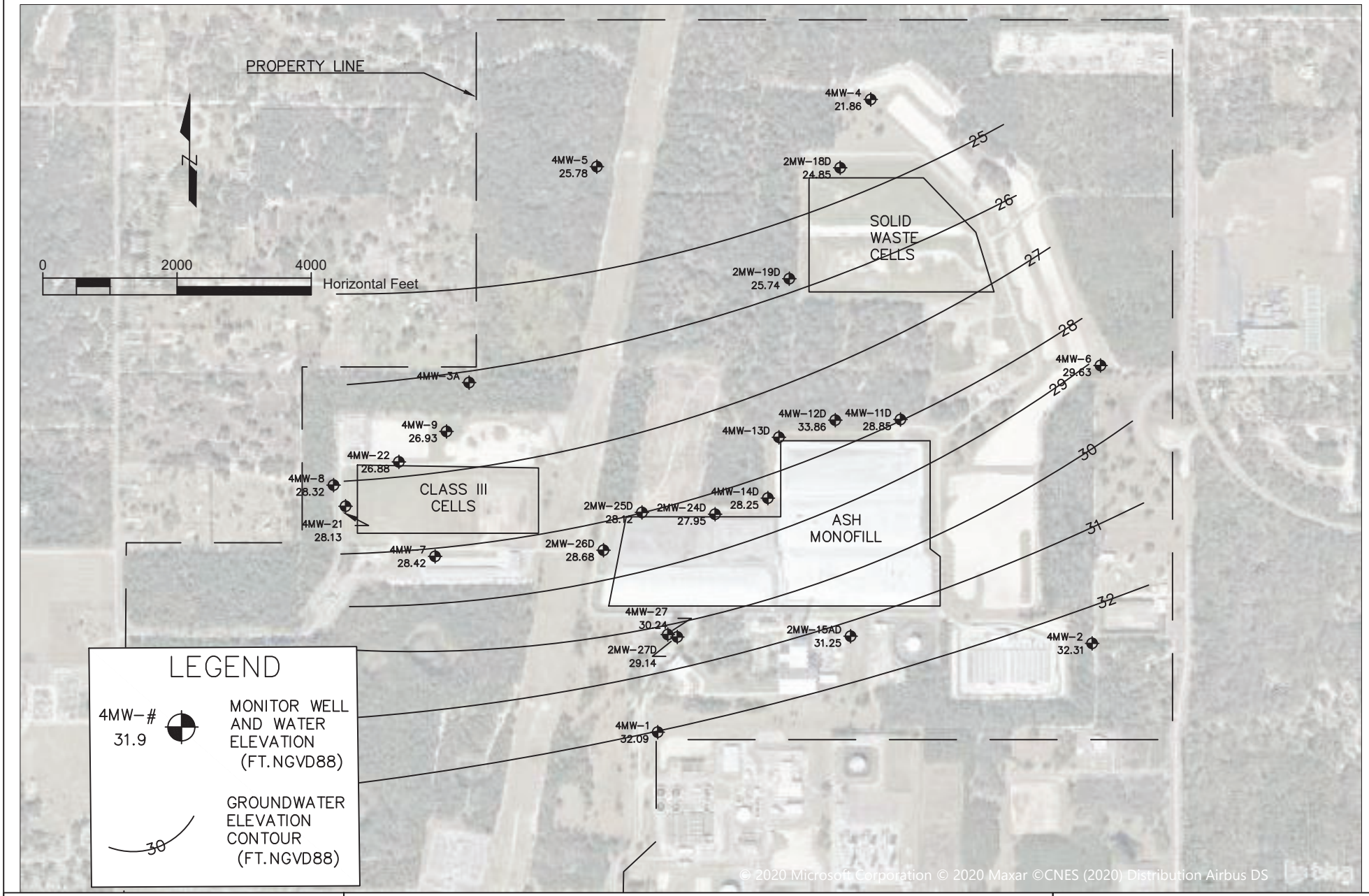
- No significant trends in water quality were determined that would require further investigation or evaluation.

- Sporadic and anomalous high concentrations, some above standards or GCTLs, were detected throughout the report period. These data are not interpreted as groundwater quality concerns but are attributed to field or laboratory method errors or inconsistencies. Exceptions to this conclusion include pH in 2MW-2 and MW-17S which was measured at low levels; however, lower pH is typically expected in surficial aquifer groundwater quality.

5.2 ADEQUACY OF THE MONITORING FREQUENCY AND SAMPLING LOCATIONS

Monitoring should continue in accordance with the currently approved WQMP.

APPENDIX A
Groundwater Contour Maps



PASCO COUNTY FLORIDA
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WEST PASCO RESOURCE RECOVERY FACILITY

Floridan Groundwater Map

1st Semi-Annual 2021

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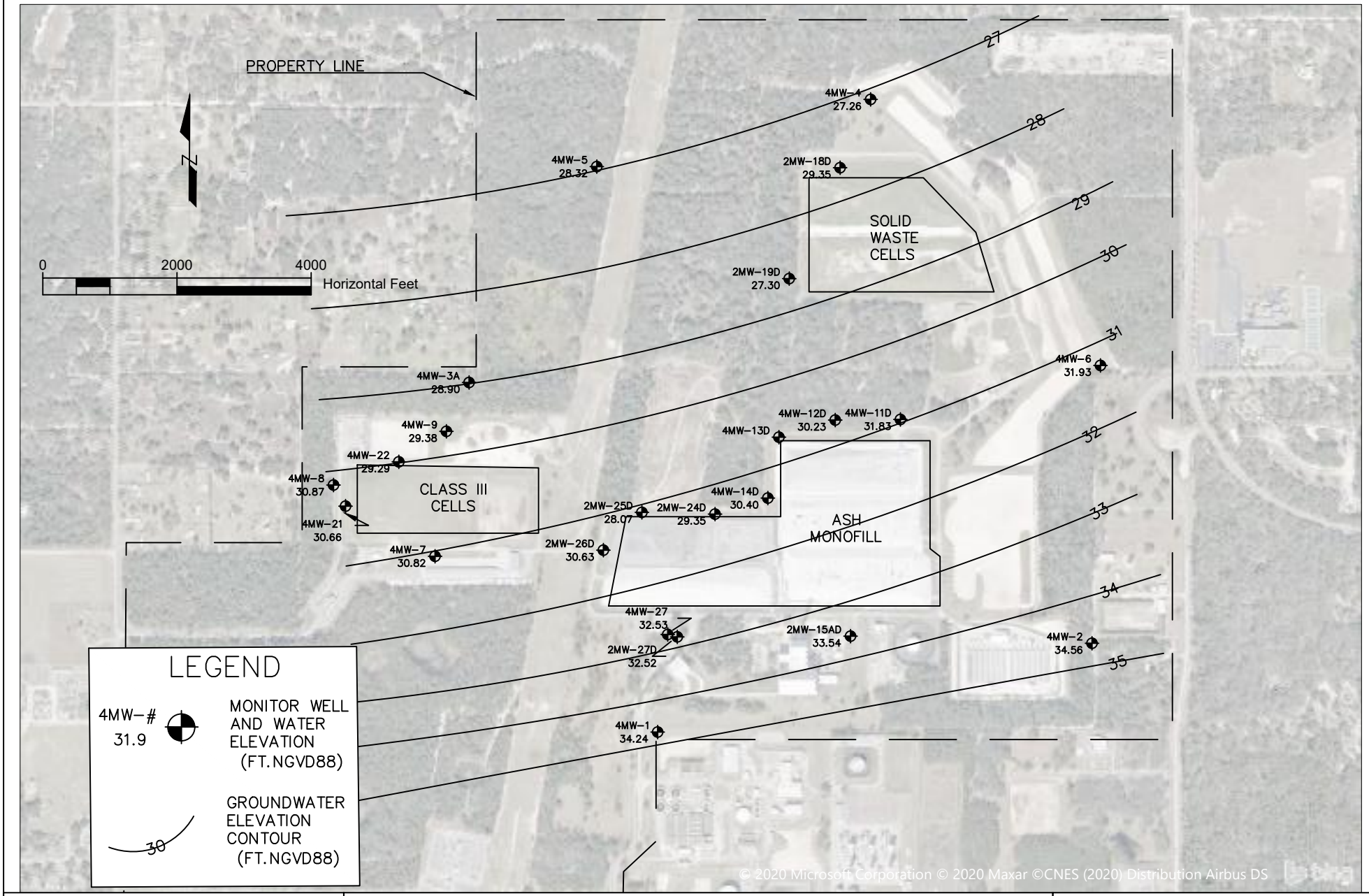
APPROVED
JASON GORRIE, PE



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Floridan Groundwater Map

1st Semi-Annual 2022

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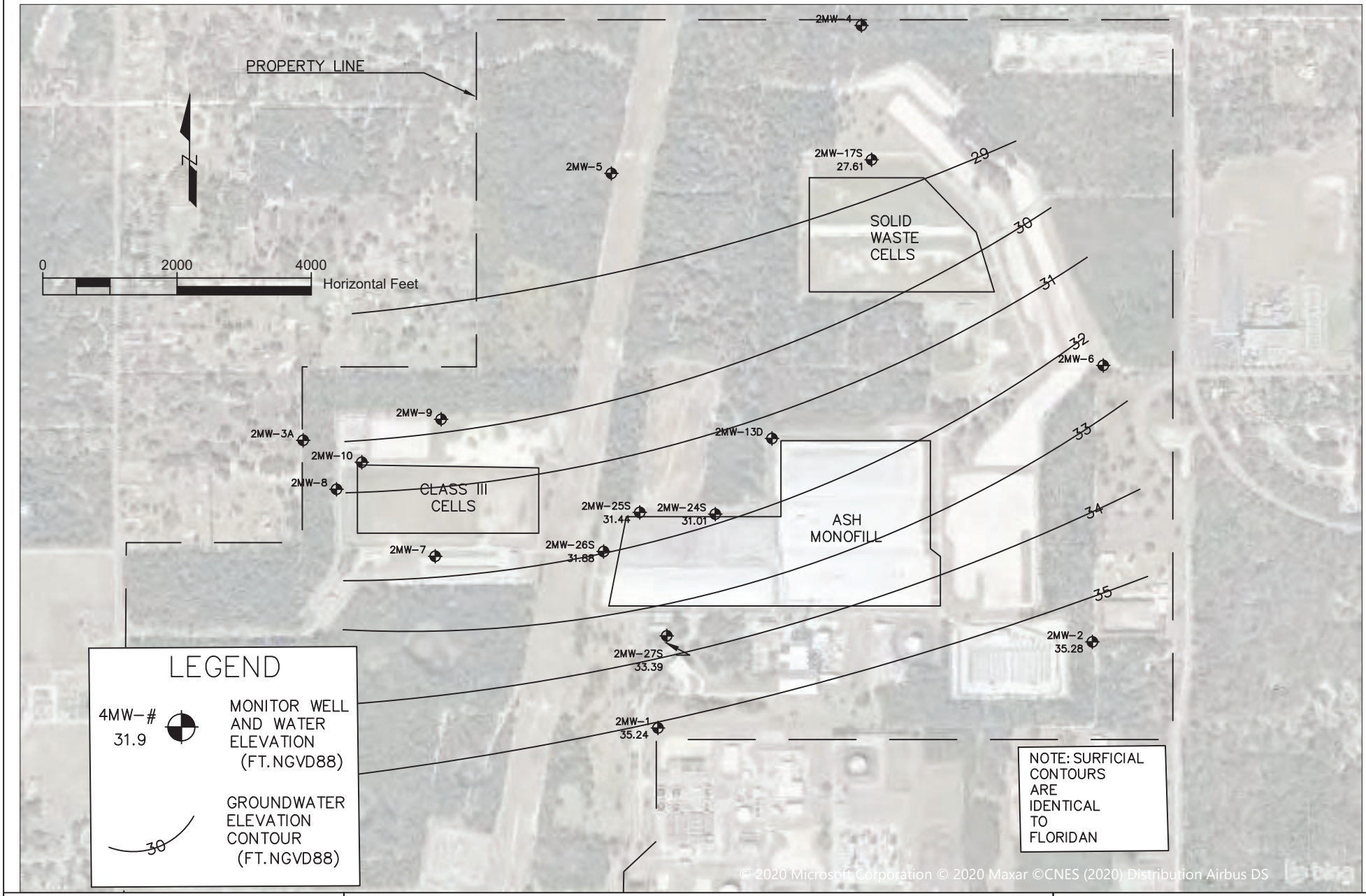

PASCO COUNTY FLORIDA
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WEST PASCO RESOURCE RECOVERY FACILITY

Surficial Aquifer Groundwater Map
2nd Semi-Annual 2020

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JASON GORRIE, PE

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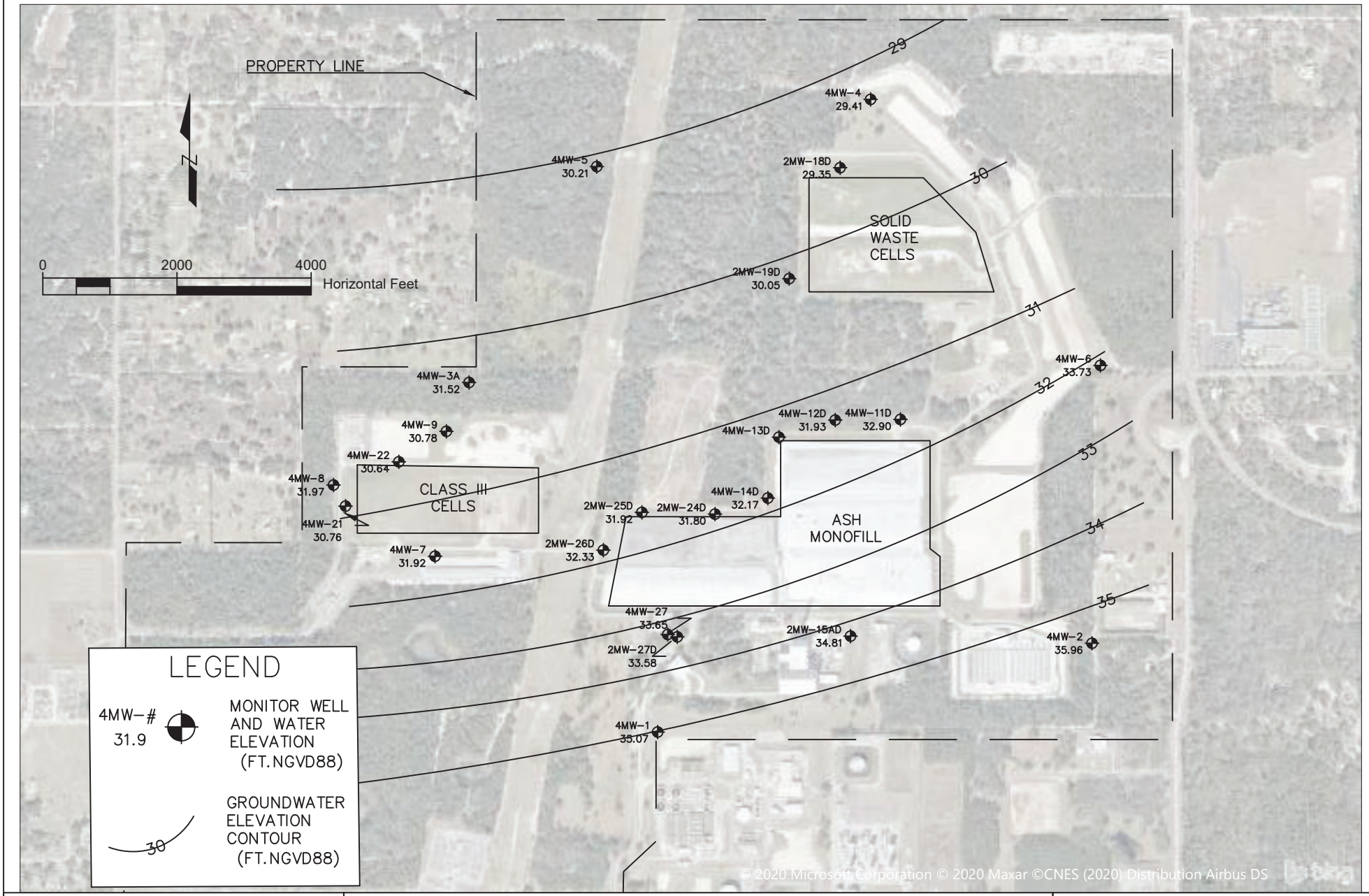

PASCO COUNTY FLORIDA
OPEN SPACES. VIBRANT PLACES.

WEST PASCO RESOURCE RECOVERY FACILITY

Floridan Groundwater Map

2nd Semi-Annual 2021

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JASON GORRIE, PE

C:\Users\4310haw\OneDrive – SCS Engineers\Desktop\WORK FILES\09222055.01F001_GW Oct 2022.dwg Dec 07, 2022 – 4:19pm Layout Name: 11 X 17 LAYOUT By: 4310haw

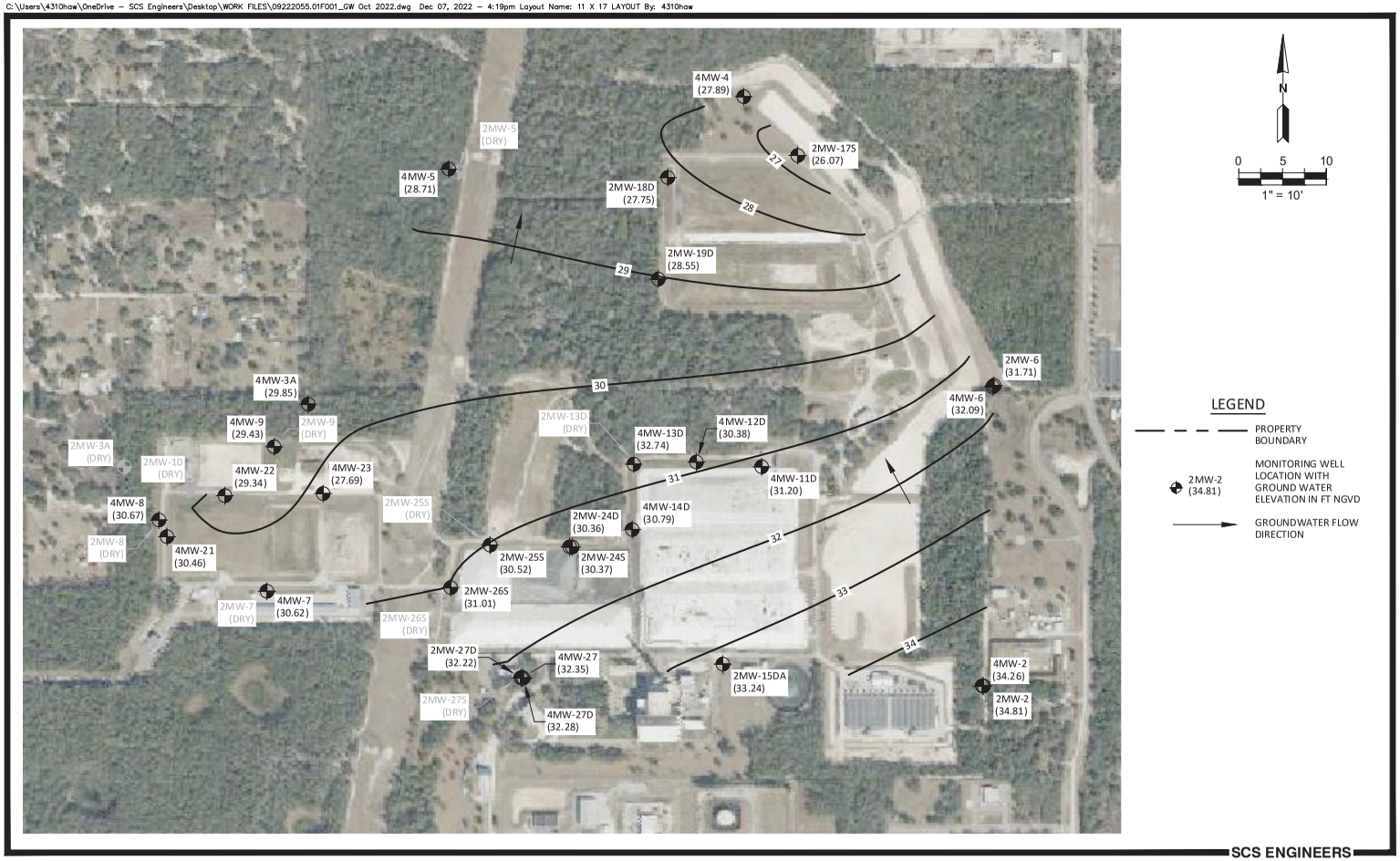
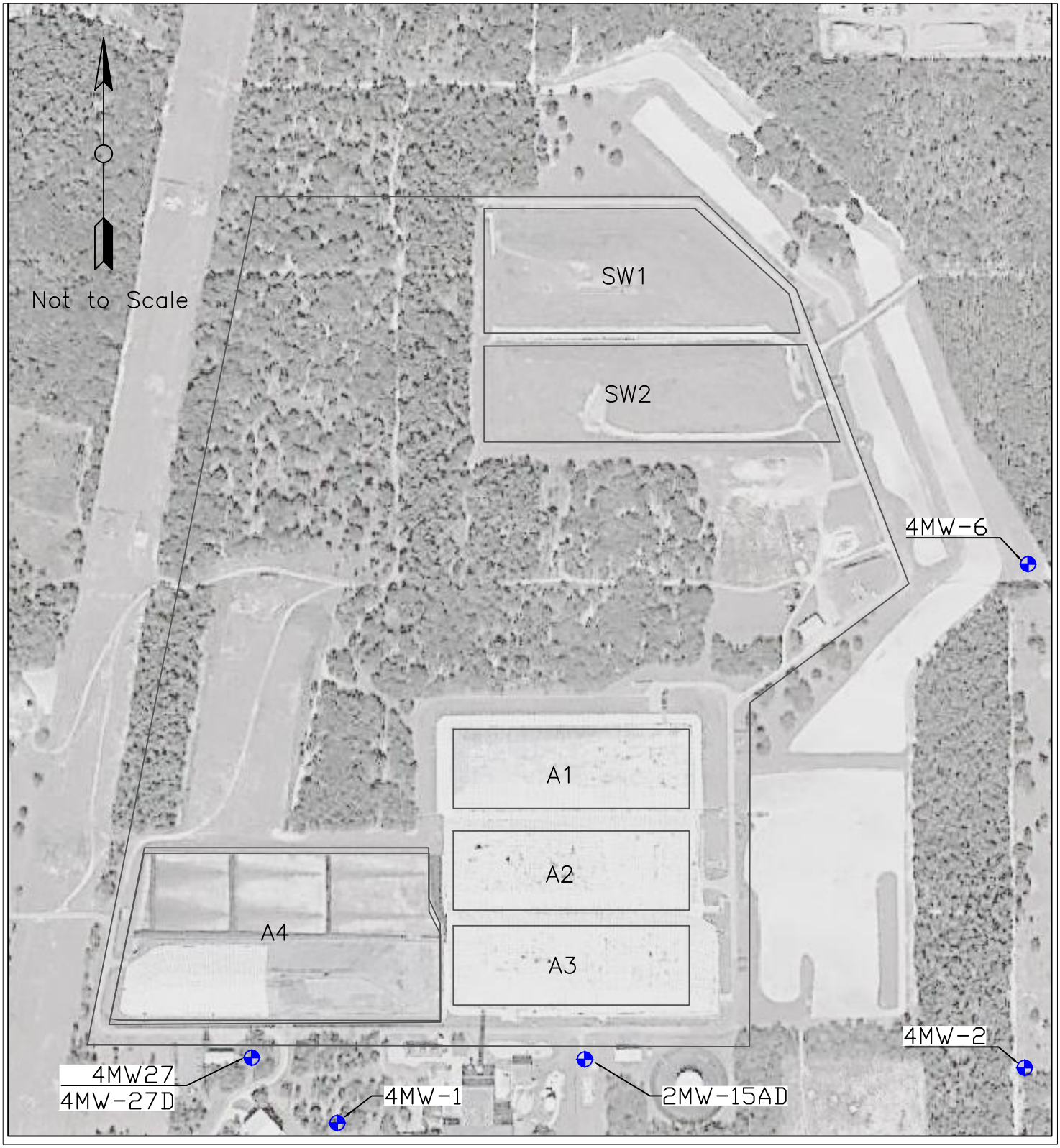


FIGURE 2: GROUNDWATER CONTOUR MAP
PASCO COUNTY RESOURCE RECOVERY FACILITY
09222055.01

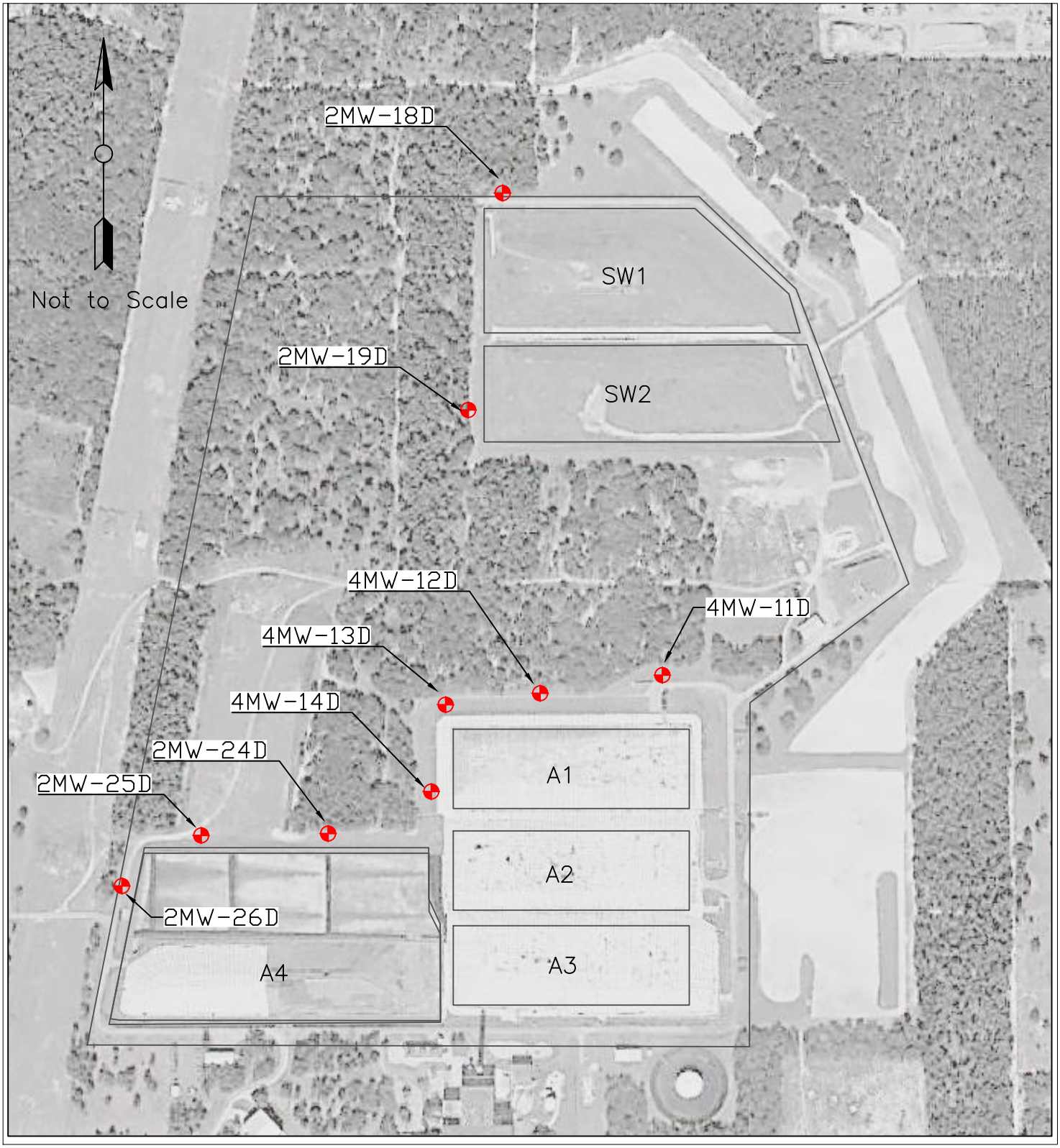
APPENDIX B
Monitoring Well Locations



Note: THIS FIGURE IS NOT TO SCALE AND THE LOCATIONS OF SOME ITEMS HAVE BEEN EXAGGERATED FOR CLARITY

JMG ENGINEERING INC

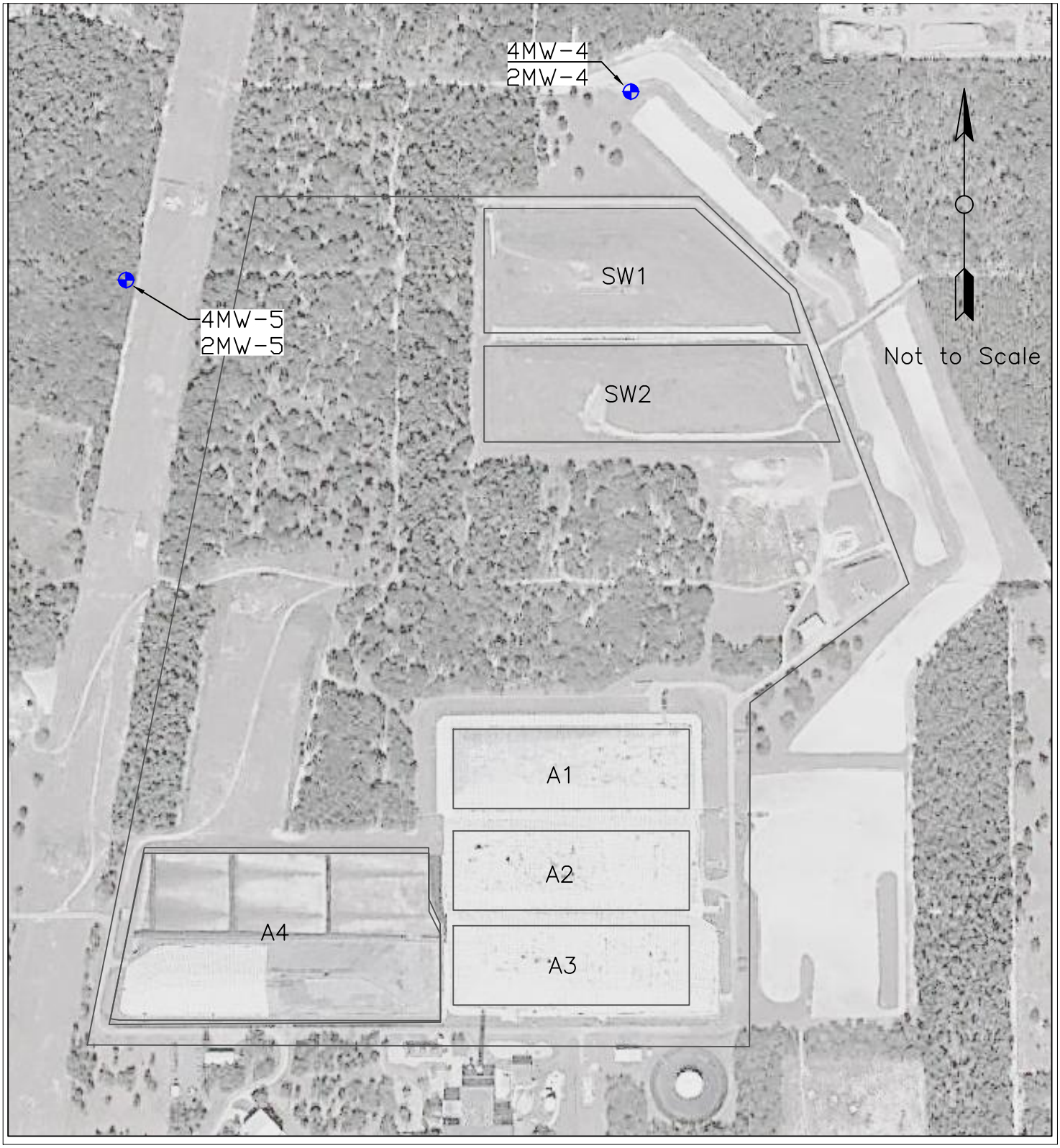
FLORIDAN BACKGROUND WELLS
WEST PASCO CLASS I LANDFILL



Note: THIS FIGURE IS NOT TO SCALE AND THE LOCATIONS OF SOME ITEMS HAVE BEEN EXAGGERATED FOR CLARITY

JMG ENGINEERING INC

FLORIDAN DETECTION WELLS
WEST PASCO CLASS I LANDFILL



Note: THIS FIGURE IS NOT TO SCALE AND THE LOCATIONS OF SOME ITEMS HAVE BEEN EXAGGERATED FOR CLARITY

JMG ENGINEERING INC

FLORIDAN COMPLIANCE WELLS
WEST PASCO CLASS I LANDFILL

APPENDIX C
Analytical Data Summary Tables

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-1

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	0.56										NS
dissolved oxygen (mg/l) (field)	4.4										NS
temperature (°C) (field)	26.23										NS
pH (field)	5.14	dry	dry	dry	dry	dry	dry	dry	dry	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)	40										500**
chloride (mg/l)	5										250**
nitrate (mg/l)	1.6										10*
Metals Detected (ug/l)											
barium	32.6										2000*
chromium	15.8										100*
copper	6.3										1000*
iron	1.8										300**
lead	0.008										15*
nickel	3.6										100*
sodium	2400										160000*
vanadium	5.6										5000
zinc	0.011										500*
Organic Parameters Detected (ug/l)											
none											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-2

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	112	94	101	90				72	67	62	NS
dissolved oxygen (mg/l) (field)	6.94	4.66	7.5	7.76				8.98	8.6	6.04	NS
temperature (°C) (field)	24.4	23.27	23.76	24.74				22.13	24.7	25.31	NS
pH (field)	5.43	5.06	5.86	4.63	dry	dry	dry	5.37	5.33	4.72	(6.5 - 8.5)**
total dissolved solids (mg/l)	19	50	57	49				45	17	62	500**
ammonia (mg/l)	ND	ND	ND	ND				ND	ND	ND	NS
chloride (mg/l)	6	5.7	5.3	6.4				4.6	4.9	3.5	250**
nitrate (mg/l)	7	3.7	5.4	0.24				1.53	1.42	1.4	10*
Metals Detected (ug/l)											
barium	57.4	44.8	46	40				28.1	25	21	2000*
arsenic	ND	ND	ND	ND				ND	4.4	ND	10*
cadmium	ND	ND	ND	ND				ND	ND	0.13	5*
copper	ND	ND	ND	3.1				ND	ND	1.6	1000*
iron	25.5	18.1	ND	25				32.7	42.2	ND	300**
sodium	ND	3.3	3100	3500				2300	1900	2200	160000*
Organic Parameters Detected (ug/l)											
acetone	ND	ND	ND	3				ND	ND	ND	6300

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highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-4

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)											NS
dissolved oxygen (mg/l) (field)											NS
temperature (°C) (field)											NS
pH (field)						dry	dry	dry	dry	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)											500**
chloride (mg/l)											250**
nitrate (mg/l)											10*
Metals Detected (ug/l)											
iron (ug/l)											
sodium (ug/l)											
vanadium											
barium											
Organic Parameters Detected (ug/l)											

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mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-5

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)											NS
dissolved oxygen (mg/l) (field)											NS
temperature (°C) (field)											NS
pH (field)						dry	dry	dry	dry	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)											500**
chloride (mg/l)											250**
nitrate (mg/l)											10*
Metals Detected (ug/l)											
iron (ug/l)											
sodium (ug/l)											
vanadium											
barium											
Organic Parameters Detected (ug/l)											

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highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-6

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	807	767									NS
dissolved oxygen (mg/l) (field)	1.26	2.2									NS
temperature (°C) (field)	25.74	26.42									NS
pH (field)	6.58	6.89	dry	dry	dry	dry	dry	dry	dry	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)	453	414									500**
chloride (mg/l)	81.1	93.2									250**
nitrate (mg/l)	0.6	1.1									10*
Metals Detected (ug/l)											
barium	40.1	31.1									2000*
cadmium	1.3	0.33									5*
iron	634	52.7									300**
lead	2.9										15*
sodium	35.2	43.2									160000*
vanadium	ND	1.6									49***
Organic Parameters Detected (ug/l)											
chloroform	ND	0.9									100*

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**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-13D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)									420		NS
dissolved oxygen (mg/l) (field)									2.87		NS
temperature (°C) (field)									27.93		NS
pH (field)	dry	dry	dry	dry	dry	dry	dry	dry	7.26	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)									224		500**
ammonia (mg/l)									ND		NS (1)
chloride (mg/l)									15.2		250**
nitrate (mg/l)									0.05		10*
Metals Detected (ug/l)											
sodium									7700		160000*
Organic Parameters Detected (ug/l)											
none											

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***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-15DA

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	328	302	318	355	288	305	283	310	292	311	NS
dissolved oxygen (mg/l) (field)	3.44	2.98	3.07	2.83	2.86	3.43	3.39	3.02	4.45	3.63	NS
temperature (°C) (field)	24.65	25.11	24.67	25.17	25.14	25.84	25.59	25.1	25.19	32.2	NS
pH (field)	7.39	7.33	7.24	8.27	7.43	7.38	7.56	7.01	7.31	7.55	(6.5 - 8.5)**
total dissolved solids (mg/l)	170	180	160	190	160	140	140	181	140	170	500**
ammonia (mg/l)	ND	ND	ND	ND	ND	ND	ND	0.17	ND	ND	NS (1)
chloride (mg/l)	9.4	8.4	8.8	15	9	6.8	7.05	7	miss	5.8	250**
nitrate (mg/l)	0.43	0.13	0.21	0.64	0.09	0.37	0.14	0.25	0.26	0.53	10*
Metals Detected (ug/l)											
barium	10	9.4	9.3	12	8.3	5.9	9	9.2	9	11	2000*
arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	10*
chromium	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND	100*
iron	ND	33.3	140	42	66	38	38	30.4	38	ND	300**
lead	ND	ND	ND	ND	ND	5.1	ND	ND	ND	ND	15*
nickel	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	100*
sodium	4900	4200	1300	6100	3900	3600	3400	3700	3400	3500	160000*
vanadium	ND	2	ND	ND	ND	2.8	4.4	2	4.4	1.8	49***
Organic Parameters Detected (ug/l)		none									
acetone	ND	ND	ND	5.7	ND	ND	ND	ND	ND	ND	6300***

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ND = Not Detected
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ug/l = micrograms per liter
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highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-17S

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	335	346	247	171			240	282	258	485	NS
dissolved oxygen (mg/l) (field)	5.45	5.63	5.92	4.48			4.03	7.36	7.11	1.66	NS
temperature (°C) (field)	25.63	26.45	25.13	26.22			24.96	25.58	24.87	25.49	NS
pH (field)	5.94	6.17	6.36	6.41	dry	dry	6.32	5.75	6.76	7.15	(6.5 - 8.5)**
total dissolved solids (mg/l)	272	230	190	74			98	162	144	260	500**
chloride (mg/l)	32.1	7.6	4.1	3.3			6.42	3.7	3.7	20	250**
nitrate (mg/l)	11.7	16.1	14	1.1			5.54	12.6	11.2	3.2	10*
Metals Detected (ug/l)											
arsenic	ND	ND	2.1	ND			ND	ND	4.1	ND	10*
barium	21.5	16.1	14	8.1			13	13.8	13.2	17	2000*
cadmium	ND	ND	ND	ND			ND	0.38	ND	0.35	5*
chromium	ND	ND	ND	1.2			ND	ND	ND	4.4	100*
cobalt	ND	ND	ND	ND			ND	ND	ND	1.1	100-
copper	ND	ND	ND	ND			ND	ND	ND	1.3	1000**
iron	ND	14.2	79	33			ND	32.5	ND	200	300*
nickel	ND	ND	ND	1			ND	2.3	ND	ND	100*
lead	ND	ND	ND	ND			ND	ND	ND	2	15*
mercury	ND	ND	ND	ND			ND	ND	ND	0.32	2*
sodium	13600	5100	6700	2000			2800	2600	2500	5600	160000*
antimony	ND	ND	5.5	ND			ND	ND	ND	8.1	6*
Organic Parameters Detected (ug/l)											
none											

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highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-18D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	503	493	443	472	476	464	454	471	463	477	NS
dissolved oxygen (mg/l) (field)	2.66	2.01	1.58	3.62	2.26	2.95	2.24	2.58	3.19	3.12	NS
temperature (°C) (field)	25.43	24.42	23.45	25.41	24.85	25.28	24.82	24.55	24.73	25.34	NS
pH (field)	7.04	7.06	7.31	7.2	7.2	7.14	7.02	6.6	7.24	7.26	(6.5 - 8.5)**
total dissolved solids (mg/l)	289	297	270	260	260	240	220	361	268	270	500**
ammonia (mg/l)	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	NS
chloride (mg/l)	27.2	27.5	26	25	24	24	23.3	19.5	22.9	29	250**
nitrate (mg/l)	1.3	0.64	0.66	0.59	0.41	0.51	1.44	0.96	0.81	0.94	10*
Metals Detected (ug/l)											
arsenic	ND	ND	2	ND	ND	ND	ND	ND	ND	0.91	10*
barium	10.8	10	10	9.5	9.4	3.7	9.3	9.8	9.3	11	2000*
cadmium						ND	ND	0.68	ND	ND	5*
iron	ND	15.4	27	37	56	30	ND	28	ND	67	300**
nickel	ND	ND	0.91	ND	ND	ND	ND	ND	ND	ND	100*
sodium	12300	10900	10000	9900	9800	8400	9800	9300	9600	10000	160000*
vanadium	ND	2.9	ND	ND	ND	2.9	ND	2.5	2.8	2.2	5000***
antimony	ND	ND	ND	ND	7.3	ND	ND	ND	ND	ND	6*
Organic Parameters Detected (ug/l)											
none											

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West Pasco Class I Landfill
Laboratory Analytical Data
2MW-19D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	449	455	401	438	438	442	433	442	429	475	NS
dissolved oxygen (mg/l) (field)	2.14	3.05	1.33	2.35	2.72	1.99	2.99	2.87	3.34	0.93	NS
temperature (°C) (field)	25.95	24.9	24.54	26.03	25.95	25.66	25.45	23.62	25.69	25.75	NS
pH (field)	7.15	7.09	7.31	7.37	7.21	7.16	7.19	6.69	7.34	7.2	(6.5 - 8.5)**
total dissolved solids (mg/l)	253	259	240	230	230	220	180	306	232	260	500**
chloride (mg/l)	16.6	17.6	17	16	17	17	20.1	15.4	15.9	18	250**
nitrate (mg/l)	0.39	0.24	0.29	0.22	0.13	0.49	0.49	0.47	0.55	0.51	10*
Metals Detected (ug/l)											
arsenic	ND	ND	2.8	ND	ND	ND	ND	ND	ND	ND	10*
barium	8.9	9.2	9.4	9.3	10	3.8	8.8	8.9	8.9	10	2000*
cadmium	ND	ND	ND	ND	ND	ND	ND	0.48	ND	ND	5*
chromium	ND	ND	16	ND	1.2	ND	ND	ND	ND	ND	100*
iron	ND	26.6	120	38	ND	36	ND	65.8	ND	ND	300**
nickel	ND	ND	1.6	1.4	ND	ND	ND	ND	ND	ND	100*
sodium	7400	7400	7200	7100	7000	6700	6900	6500	6600	6800	160000*
vanadium	ND	2.6	ND	6.4	ND	3	ND	2.3	2.2	1.9	5000***
antimony	ND	ND	5.3	ND	ND	ND	ND	ND	ND	ND	6*
Organic Parameters Detected (ug/l)											
none											

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highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-24D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	551	540		520	523	522	533	534	489	537	NS
dissolved oxygen (mg/l) (field)	3.87	2.35		1.68	2.98	2.78	2.5	2.83	2.4	0.54	NS
temperature (°C) (field)	25.67	25.99		25.57	25.88	25.06	24.51	24.7	25.88	27.78	NS
pH (field)	7.02	7.09	dry	7.08	7.15	7.07	7.08	6.26	7.49	7.32	(6.5 - 8.5)**
total dissolved solids (mg/l)	245	314		290	280	290	230	314	322	340	500**
chloride (mg/l)	41.4	42.1		41	42	43	50	42.9	45.2	49	250**
nitrate (mg/l)	1.6	1.4		1.2	1.21	1.32	1.31	1.3	1.32	1.7	10*
Metals Detected (ug/l)											
arsenic	ND	ND		2.7	ND	ND	ND	ND	ND	ND	10*
barium	17	16.2		16	16	13	16	16.9	17	17	2000*
cadmium	ND	ND		ND	ND	ND	ND	ND	0.37	ND	5*
chromium	ND	2		ND	ND	ND	ND	2.4	ND	ND	100*
copper	ND	2.6		ND	ND	ND	ND	ND	ND	ND	1000*
iron	ND	145		51	ND	ND	ND	ND	ND	ND	300**
nickel	ND	2.9		1.3	ND	ND	ND	ND	ND	ND	100*
sodium	20900	19900		19000	20000	19000	21000	20600	19400	23000	160000*
vanadium	ND	1.9		ND	6.8	1.7	ND	1.2	1.8	ND	5000***
Organic Parameters Detected (ug/l)											
none											

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highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-24S

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	335	445			477	463				312	NS
dissolved oxygen (mg/l) (field)	5.55	4.22			3.66	3.54				3.93	NS
temperature (°C) (field)	25.78	26.77			25.44	28.53				27.11	NS
pH (field)	6.2	6.51	dry	dry	6.72	6.87	dry	dry	dry	6.45	(6.5 - 8.5)**
total dissolved solids (mg/l)	179	265			270	200				310	500**
chloride (mg/l)	11.4	12.5			24	29				29	250**
nitrate (mg/l)	4.6	5.8			2.93	1.95				2	10*
Metals Detected (ug/l)											
barium	44.9	32.7			23	15				24	2000*
cadmium	1.7	0.56			ND	ND				0.16	5*
chromium	29.3	13.9			5.3	ND				ND	100*
cobalt	ND	ND			ND	ND				0.44	
copper	12.7	ND			ND	ND				ND	1000*
iron	8520	3200			1000	35				59	300**
lead	13.6	ND			3.9	ND				ND	15*
nickel	30.3	12.2			2.9	ND				ND	100
sodium	7000	6600			9900	13000				12000	NS
vanadium	50.6	21.6			12	1				ND	5000
zinc	22.4	ND			ND	ND				ND	500*
Organic Parameters Detected (ug/l)											
none											

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***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-25D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	710	694	618	658	639		642	661	586	621	NS
dissolved oxygen (mg/l) (field)	1.79	3.43	1.7	2.51	2.27		2.31	2.46	2.43	0.23	NS
temperature (°C) (field)	26.39	27.35	25.87	26.27	26.33		25.4	26.8	27.09	29.37	NS
pH (field)	6.97	7.06	7.36	7.04	7.13	dry	7.02	6.34	6.97	7.16	(6.5 - 8.5)**
total dissolved solids (mg/l)	360	377	400	380	390		320	415	379	400	500**
chloride (mg/l)	66.8	79.7	76	75	73		75.5	69.8	64.5	61	250**
nitrate (mg/l)	1.7	1.4	1.7	1.3	1.19		1.39	2	1.78	1.5	10*
Metals Detected (ug/l)											
arsenic	ND	ND	ND	4	ND		ND	ND	4.9	ND	10*
barium	23.5	23.6	22	22	20		21	23.5	22.7	20	2000*
cadmium	ND	ND	ND	ND	ND		ND	ND	0.42	0.08	5*
chromium	ND	3.6	ND	ND	ND		ND	ND	ND	ND	100*
iron	ND	187	200	57	140		ND	ND	ND	ND	300**
nickel	ND	5.1	2.4	1.8	1.9		1.5	ND	ND	1.9	100*
sodium	33400	34100	34000	34000	32000		34000	34600	31500	31000	160000*
vanadium	ND	1.9	ND	ND	ND		ND	1.2	2.1	ND	5000***
antimony	ND	ND	ND	9.5	ND		ND	ND	ND	ND	6*
Organic Parameters Detected (ug/l)											
none											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-25S

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)											NS
dissolved oxygen (mg/l) (field)											NS
temperature (°C) (field)											NS
pH (field)	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)											500**
ammonia (mg/l)											NS (1)
chloride (mg/l)											250**
nitrate (mg/l)											10*
Metals Detected (ug/l)											
Organic Parameters Detected (ug/l)											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-26D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	575	542	492	542	528	548	558	559	508	551	NS
dissolved oxygen (mg/l) (field)	1.57	2.41	1.3	2.39	2.88	5.32	2.02	2.89	2.49	0.68	NS
temperature (°C) (field)	25.87	26.19	25.3	25.6	25.4	27.14	24.09	25.2	25.7	28.04	NS
pH (field)	7.07	7.15	7.47	8.02	7.24	7.15	7.08	6.59	7.06	7.37	(6.5 - 8.5)**
total dissolved solids (mg/l)	293	285	310	300	310	250	270	310	336	360	500**
chloride (mg/l)	52.7	47.1	51	50	51	54	59.4	51.2	54.1	53	250**
nitrate (mg/l)	0.39	0.37	0.3	0.38	0.27	0.33	0.2	0.31	0.24	0.59	10*
Metals Detected (ug/l)											
arsenic	ND	ND	2.2	ND	ND	ND	ND	ND	ND	ND	10*
barium	17.3	15.9	16	16	15	11	16	17.5	17	18	2000*
cadmium	ND	ND	ND	ND	ND	ND	ND	ND	0.35	ND	5*
copper	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1	1000**
iron	ND	17	ND	ND	ND	ND	ND	ND	ND	ND	300**
nickel	ND	2.3	1.8	1.5	1.5	ND	1.4	ND	ND	2.3	100*
sodium	26600	23800	25000	24000	24000	25000	26000	26900	25500	27000	160000*
vanadium	ND	1.4	ND	ND	ND	1.6	ND	1.3	2.2	ND	5000***
Organic Parameters Detected (ug/l)											
none											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-26S

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)											NS
dissolved oxygen (mg/l) (field)											NS
temperature (°C) (field)											NS
pH (field)	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)											500**
ammonia (mg/l)											NS (1)
chloride (mg/l)											250**
nitrate (mg/l)											10*
Metals Detected (ug/l)											
Organic Parameters Detected (ug/l)											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-27D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	759	748	751	723	691	692	702	702	590	647	NS
dissolved oxygen (mg/l) (field)	3.18	3.07	1.67	3.47	2.6	2.96	2.63	2.33	2.57	0.32	NS
temperature (°C) (field)	26.87	25.4	24.91	24.87	25.07	21.02	25.13	23.31	25.12	25.1	NS
pH (field)	7.17	7.18	7.12	7.6	7.24	7.19	7.18	7.45	7.12	7.26	(6.5 - 8.5)**
total dissolved solids (mg/l)	397	400	430	420	390	340	370	405	380	400	500**
ammonia (mg/l)	ND	ND	ND	ND	0.25	ND	ND	ND	ND	ND	NS
chloride (mg/l)	93.8	97.6	100	93	87	89	96.2	19.9	miss	75	250**
nitrate (mg/l)	1.5	1.6	1.3	1.5	1.45	1.48	1.64	1.41	1.33	1.5	10*
Metals Detected (ug/l)											
arsenic	ND	ND	ND	2.2	ND	ND	ND	ND	ND	ND	10*
barium	29.4	28.4	26	23	25	21	27	27.6	27	24	2000*
chromium	ND	ND	1.1	ND	ND	1.6	2	ND	2	ND	100*
copper	ND	ND	ND	ND	ND	ND	ND	2.9	ND	ND	1000*
iron	116	55.1	32	ND	72	160	230	ND	230	ND	300**
nickel	3.3	3.5	3.1	2.1	ND	5.9	3.6	2.4	3.6	2.5	100*
sodium	46000	47000	44000	36000	41000	41000	43000	43600	43000	43000	160000*
vanadium	ND	2.4	ND	5.3	ND	3.1	5.2	1.5	5.2	ND	49***
Organic Parameters Detected (ug/l)											
acetone	15.3	ND	ND	ND	ND	ND	ND	17.7	ND	ND	6300***
chloroform	0.51	1.2	0.96	0.8	ND	ND	ND	ND	ND	ND	100*

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
2MW-27S

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	807	767									NS
dissolved oxygen (mg/l) (field)	1.26	3.07									NS
temperature (°C) (field)	25.74	25.4									NS
pH (field)	6.58	6.89	dry	dry	dry	dry	dry	dry	dry	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)	453	414									500**
ammonia (mg/l)	ND	ND									NS (1)
chloride (mg/l)	81.1	93.2									250**
nitrate (mg/l)	0.6	1.1									10*
Metals Detected (ug/l)											
barium	40.1	31.1									2000*
cadmium	1.3	0.33									5*
iron	634	52.7									300**
nickel	2.9	3.4									100*
sodium	35.2	43.2									160000*
vanadium		1.6									49***
Organic Parameters Detected (ug/l)											
chloroform	ND	0.9									100*

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-1

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	837	972	906	858	836	792	748	898	770		NS
dissolved oxygen (mg/l) (field)	1.32	1.41	1.52	2.44	2.59	2.76	1.23	1.59	1.86		NS
temperature (°C) (field)	25.56	25.81	25.38	26.77	25.44	27.04	25.2	27.2	26.43		NS
pH (field)	6.98	7.01	7.14	7.12	7.1	7	7.07	6.32	7.4		(6.5 - 8.5)**
total dissolved solids (mg/l)	479	515	510	490	84	400	380	480	380	dry	500**
ammonia (mg/l)	ND	ND	ND	ND		ND	ND	ND	ND		NS (1)
chloride (mg/l)	107	115	120	120	110	96	92.6	105	miss		250**
nitrate (mg/l)	1.9	2.4	1.9	1.5	1.36	1.84	1.32	1.92	1.33		10*
Metals Detected (ug/l)											
barium	29	34.8	33	32	31	25	28	33.1	28		2000*
copper	4.1	ND	ND	ND	ND	ND	ND	ND	ND		100*
nickel	3.7	5.1	5.4	2.6	ND	4.8	3.4	5.4	3.4		100*
cadmium						ND	0.49	ND	0.49		5*
sodium	57600	68400	64000	57000	58000	58000	49000	62100	49000		160000*
vanadium	ND	2.1	ND	ND	ND	2.5	6.5	2.4	6.5		49***
Organic Parameters Detected (ug/l)		none									
acetone	ND	ND	ND	5.1	ND	ND	ND	ND	ND		6300***
chloroform	ND	ND	ND	1.3	ND	ND	ND	ND	ND		100*

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-2

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	213	213	220	215	226	218	216	219	217	190	NS
dissolved oxygen (mg/l) (field)	2.47	4.85	2.1	3.04	1.68	2.25	2.37	2.5	2.89	1.68	NS
temperature (°C) (field)	24.26	22.82	25.8	25.22	24.33	25.52	23.21	22.94	24.95	24.01	NS
pH (field)	6.4	7.7	7.22	7.82	7.74	7.6	7.66	7.21	7.53	7.74	(6.5 - 8.5)**
total dissolved solids (mg/l)	47	117	100	110	100	90	82	23000 [B]	82	170	500**
ammonia (mg/l)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS (1)
chloride (mg/l)	5.5	5.5	5.2	5.2	5.4	5.7	5.66	5.8	miss	4.7	250**
nitrate (mg/l)	1.2	1.3	1.1	0.87	0.9	0.9	1.06	0.73	0.62	0.73	10*
Metals Detected (ug/l)											
arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	10*
barium	7.1	7.1	6.9	7.2	7.2	5.7	7.3	7.1	7.3	6.3	2000*
copper	5.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1000**
zinc	ND	ND	ND	ND	ND	ND	ND	17.1	ND	ND	5000*
nickel	ND	ND	ND	ND	ND	2.4	ND	ND	ND	ND	100*
sodium	2900	3000	2700	2800	3100	2600	2700	2600	2700	2900	160000*
vanadium	5.5	5.3	4.8	6.2	4.8	6.1	4.7	5.9	4.7	5.2	49***
Organic Parameters Detected (ug/l)											
acetone	ND	ND	ND	9.3	ND	ND	ND	ND	ND	ND	6300***

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
[B] = apparent laboratory error
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-4

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)						440	425	418	427	409	NS
dissolved oxygen (mg/l) (field)						2.74	2.6	3.63	3.31	2.03	NS
temperature (°C) (field)						25.9	26.98	24.1	26.18	25.61	NS
pH (field)						7.11	6.97	6.75	7.75	7.23	(6.5 - 8.5)**
total dissolved solids (mg/l)						230	190	333	226	230	500**
chloride (mg/l)						18	18.1	14.8	15.5	17	250**
nitrate (mg/l)						0.27	0.38	0.41	0.31	0.65	10*
Metals Detected (ug/l)											
iron						27	ND	107	96.2	41	300**
sodium						6000	5400	5600	5600	5700	160000*
copper						ND	4.9	ND	ND	ND	1000**
lead						ND	3.7	ND	ND	ND	15*
cadmium						ND	0.66	0.47	0.41	0.09	5*
vanadium						3.8	ND	3.6	3.9	2.5	NS
barium						3.8	9	8.7	8.6	8.5	2000*
Organic Parameters Detected (ug/l)											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-5

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)						591	601	594	597	555	NS
dissolved oxygen (mg/l) (field)						2.48	1.38	2.91	2.39	2.04	NS
temperature (°C) (field)						24.94	25.65	24.04	24.95	24.16	NS
pH (field)						7.15	7.02	6.67	7.21	7.23	(6.5 - 8.5)**
total dissolved solids (mg/l)						330	330	334	299	320	500**
chloride (mg/l)						52	64.2	54.6	52.4	55	250**
nitrate (mg/l)						0.76	0.81	0.72	0.68	0.99	10*
Metals Detected (ug/l)											
barium						11	11	11.5	10.7	10	300**
arsenic						ND	2.7	3.6	ND	1.1	10*
iron						ND	ND	ND	ND	120	300**
nickel						0.91	1.3	ND	ND	ND	100*
cadmium						1.4	ND	0.36	ND	ND	5*
sodium						26000	26000	25000	23500	24000	160000*
Organic Parameters Detected (ug/l)											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-6

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	156	160	1.56	158	156	157	154	159	144	153	NS
dissolved oxygen (mg/l) (field)	5.2	4.39	5.41	5.71	5.75	5.29	3.65	5.97	6.15	5.39	NS
temperature (°C) (field)	25.42	32.95	24.9	27.24	24.21	26.03	25.98	24.47	25.74	25.9	NS
pH (field)	7.57	7.94	7.65	8.04	7.93	7.87	7.64	7.18	8.11	8.04	(6.5 - 8.5)**
total dissolved solids (mg/l)	82	63	98	62	76	54	62	73	100	92	500**
ammonia (mg/l)	ND	ND	ND	ND	ND	ND	0.12	ND	0.21	ND	NS (1)
chloride (mg/l)	4.8	4.5	4	4	4.1	4	4.48	ND	miss	3.8	250**
nitrate (mg/l)	0.5	0.51	0.57	0.41	0.46	0.46	0.54	0.49	0.54	0.83	10*
Metals Detected (ug/l)											
arsenic	ND	ND	2.4	2	ND	ND	ND	ND	ND	ND	10*
barium	ND	4.4	4.5	5.1	4.6	22	4.9	5	4.9	4.8	2000*
iron						25	ND	ND	ND	ND	300*
chromium	ND	ND	1.2	1.3	ND	ND	1.1	ND	ND	ND	100*
copper	5.5	ND	ND	ND	ND	2	4.1	ND	ND	ND	100*
lead						7	ND	ND	ND	ND	15*
sodium	2600	2400	2500	2500	2500	2600	2400	2500	2400	2600	160000*
vanadium	ND	3.8	ND	ND	ND	4.1	ND	4	ND	3.6	49***
Organic Parameters Detected (ug/l)											
none											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-11D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	325	337	305	423	367	383	393	506	607	719	NS
dissolved oxygen (mg/l) (field)	2.25	2.2	2.41	5.51	2.42	3.79	3.66	4.28	4.01	1.95	NS
temperature (°C) (field)	24.89	25.16	23.99	25.47	25.14	25.66	26.08	23.4	25.8	30.22	NS
pH (field)	7.23	7.25	7.5	7.37	7.35	7.32	7.17	6.63	7.23	7.22	(6.5 - 8.5)**
total dissolved solids (mg/l)	182	158	180	270	190	190	170	259	336	440	500**
ammonia (mg/l)	ND	ND	ND	ND	ND	ND	ND	0.22	ND	ND	
chloride (mg/l)	14	14.8	18	40	26	27	30.7	60.7	94.4	110	250**
nitrate (mg/l)	0.59	0.71	0.71	0.82	0.68	0.85	0.78	0.9	0.87	1.1	10*
Metals Detected (ug/l)											
barium	7.2	6.8	7.3	9.2	7.7	3.5	8.6	9.4	12.3	15	2000*
aresenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.96	10*
chromium	ND	ND	ND	2	ND	ND	ND	ND	ND	2.6	100*
copper	ND	ND	ND	ND	ND	ND	4.3	ND	ND	2.5	1000**
iron	ND	10.5	70	270	ND	46	38	37.9	67.9	200	300**
cadmium	ND	ND	ND	ND	ND	ND	0.46	ND	0.33	0.16	5*
lead	ND	ND	ND	3.2	ND	ND	2	ND	ND	0.48	15*
nickel	ND	ND	ND	1.1	ND	ND	ND	ND	ND	ND	100*
sodium	5700	5300	5500	7800	8100	6700	8200	14200	22400	28000	160000*
vanadium	ND	1.7	ND	5.2	ND	2.2	ND	1.9	2.2	2	5000***
zinc	10.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	500*
antimony	ND	ND	4.5	ND	ND	ND	ND	ND	ND	ND	6*
Organic Parameters Detected (ug/l)											
none											

MCL = Maximum Contaminant Level
ND = Not Detected
NS = No Standard
*** = Primary Drinking Water Standard**
**** = Secondary Drinking Water Standard**
***** = Groundwater Cleanup Target Level**
ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-12D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	383	389	340	379	383	384	385	396	402	404	NS
dissolved oxygen (mg/l) (field)	2.21	2.16	2.23	3.82	3.21	2.35	2.53	2.48	2.97	2.88	NS
temperature (°C) (field)	25.72	25.56	24.9	25.4	25.31	26.13	25.38	25	25.62	2611	NS
pH (field)	7.18	7.22	7.41	7.53	7.33	7.2	7.2	6.8	7.25	7.38	(6.5 - 8.5)**
total dissolved solids (mg/l)	217	185	200	200	170	180	150	239	263	210	500**
ammonia (mg/l)	ND	ND	ND	ND	ND	ND	ND	0.18	ND	ND	
chloride (mg/l)	16.3	15.3	16	16	18	20	22.1	19.2	20.2	27	250**
nitrate (mg/l)	0.74	0.76	0.65	0.7	0.64	0.67	0.73	0.76	0.7	1.1	10*
Metals Detected (ug/l)											
barium	7	6.8	7.1	6.8	6.9	3.4	6.8	6.5	7.1	7.4	2000*
aresenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.94	10*
cadmium	ND	ND	ND	ND	ND	ND	ND	ND	0.34	0.085	5*
sodium	7300	7000	6700	6200	6900	6700	6400	6100	6200	7100	160000*
vanadium	ND	1.4	ND	6.3	ND	1.9	ND	1.3	1.8	ND	5000***
zinc	20.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	500*
Organic Parameters Detected (ug/l)											
none											

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ug/l = micrograms per liter
mg/l = milligrams per liter
highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-13D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	442	445	448	388	431						NS
dissolved oxygen (mg/l) (field)	6.84	1.13	1.3	2.2	1.79						NS
temperature (°C) (field)	27.64	27.55	28.76	27.67	27.5						NS
pH (field)	7.23	7.11	6.91	7.37	7.22	dry	dry	dry	dry	dry	(6.5 - 8.5)**
total dissolved solids (mg/l)	223	224	240	220	170						500**
chloride (mg/l)	17.4	16.3	18	17	18						250**
nitrate (mg/l)	0.04		0.019	0.025	0.05						10*
Metals Detected (ug/l)											
barium	8.5	8.9	7.8	8.2	6.9						2000*
copper	2.9	ND	ND	ND	ND						1000*
iron	ND	50.3	ND	ND	ND						300**
nickel	ND	ND	ND	1	ND						100*
sodium	9200	8900	8400	8800	6900						160000*
vanadium	ND	1.6	5.4	ND	ND						5000***
Organic Parameters Detected (ug/l)											
none											

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highlighted value exceeds standard

West Pasco Class I Landfill
Laboratory Analytical Data
4MW-14D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	398	393	347	357	385	375	376	381	382	431	NS
dissolved oxygen (mg/l) (field)	2.86	1.37	1.45	2.48	3.77	2.7	2.05	2.87	2.18	2.51	NS
temperature (°C) (field)	27.82	27.77	26.23	27.41	27.63	27.16	26.47	25.8	28.1	28.25	NS
pH (field)	7.22	7.26	7.49	7.43	7.37	7.24	7.28	6.8	7.52	7.42	(6.5 - 8.5)**
total dissolved solids (mg/l)	224	187	190	200	190	180	140	193	198	240	500**
ammonia (mg/l)	ND	ND	ND	ND	ND	ND	ND	0.11	ND	ND	
chloride (mg/l)	20	18.4	19	18	19	20	19.6	15.4	18.4	34	250**
nitrate (mg/l)	0.63	0.64	0.57	0.64	0.58	0.62	0.63	0.56	0.58	0.88	10*
Metals Detected (ug/l)											
barium	11.4	11	11	ND	11	7.1	10	9.9	10.2	13	2000*
arsenic	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.86	10*
chromium	ND	ND	1.2	1.7	1.4	ND	ND	14.2	ND	ND	100*
copper	4.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1000*
iron	52.4	85.1	64	180	96	29	78	124	137	200	300**
lead	ND	ND	2	2.9	ND	ND	ND	ND	ND	ND	15*
nickel	ND	ND	1.4	1.1	ND	ND	ND	2.1	ND	ND	100*
sodium	10700	10100	9700	9600	10000	8700	9400	8700	8300	1100	160000*
vanadium	ND	1.6	5.1	ND	ND	2.4	ND	ND	2	ND	5000***
Organic Parameters Detected (ug/l)											
none											

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West Pasco Class I Landfill
Laboratory Analytical Data
4MW-27

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	666	277	629	647	276	miss	580	637	538	505	NS
dissolved oxygen (mg/l) (field)	1.66	2.43	3.21	4.29	3.75	miss	2.35	2.97	2.5	2.14	NS
temperature (°C) (field)	24.72	23.47	25.26	24.44	24.77	miss	24.94	21.39	27.15	25.08	NS
pH (field)	7.51	7.47	7.23	7.61	7.59	miss	7.3	8.31	7.25	7.71	(6.5 - 8.5)**
total dissolved solids (mg/l)	390	337	350	360	150	140	320	357	344	370	500**
ammonia (mg/l)	0.057	ND	ND	ND	0.24	miss	ND	0.046	0.61	ND	NS
chloride (mg/l)	94.6	79.5	84	87	5	6.8	83.1	80	77.5	81	250**
nitrate (mg/l)	0.3	0.23	0.21	0.2	0.04	0.043	0.11	0.09	0.07	0.67	10*
Metals Detected (ug/l)											
arsenic	ND	ND	2.5	ND	ND	ND	2.6	ND	ND	ND	10*
barium	20.1	18.6	20	21	10	5.9	20	21.4	20.6	24	2000*
cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.085	5*
copper	ND	ND	ND	ND	ND	ND	5.3	ND	ND	ND	1000**
lead	ND	ND	ND	ND	ND	5.1	4.5	ND	ND	ND	15*
iron	70.3	128	83	86	58	38	130	145	138	ND	300**
nickel	ND	2.2	1.9	1.9	ND	ND	2.6	2.7	ND	2.4	100*
sodium	37.6	32.8	34000	37000	3400	36000	33000	36800	35100	42000	160000*
vanadium	17.2	13.6	14	15	ND	2.8	16	11.4	10.6	33	49***
Organic Parameters Detected (ug/l)											
acetone	2.6	ND	ND	ND	ND	ND	ND	21	ND	ND	NS
tetrachloroethene	3	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS

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West Pasco Class I Landfill
Laboratory Analytical Data
4MW-27D

General Parameters	1st Half 2018	2nd Half 2018	1st Half 2019	2nd Half 2019	1st Half 2020	2nd Half 2020	1st Half 2021	2nd Half 2021	1st Half 2022	2nd Half 2022	MCL Standard
conductivity (umhos/cm) (field)	284	748	279	275	599	275	277	280	279	271	NS
dissolved oxygen (mg/l) (field)	1.94	3.07	1.74	2.1	2.95	3.59	3.14	2.91	3.47	0.99	NS
temperature (°C) (field)	25.56	25.4	25.01	26.26	25.92	27.03	23.89	24.8	25.67	24.64	NS
pH (field)	7.51	7.18	7.27	7.58	7.36	7.53	7.56	7.05	7.37	7.71	(6.5 - 8.5)**
total dissolved solids (mg/l)	131	123	150	360	350	310	100	155	139	200	500**
ammonia (mg/l)	0.22	0.25	0.23			ND	0.21	0.25	0.23	ND	NS (1)
chloride (mg/l)	5.4	4.9	4.6	89	83	77	5.19	5.5	5.4	4.5	250**
nitrate (mg/l)	ND	ND	ND	0.2	0.2	0.04	0.007	0.012	0.012	0.32	10*
Metals Detected (ug/l)											
barium	10.3	10.8	10	21	21	13	10	9.8	10	9.7	2000*
iron	80.5	69.2	170	86	120	110	66	68.7	56.1	81	300**
lead	ND	ND	ND	ND	ND	4.3	ND	ND	ND	ND	15*
nickel	ND	ND	ND	1.9	ND	2.8	ND	ND	ND	ND	100*
sodium	32000	30000	29000	37000	37000	34000	2900	2900	2600	3700	160000*
vanadium	ND	13.1	ND	15	ND	12	ND	ND	ND	ND	49***
Organic Parameters Detected (ug/l)											
none											

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