



November 28, 2017

Melissa Madden
Environmental Consultant-Solid Waste
Florida Department of Environmental Protection – Southwest District
13051 North Telecom Parkway, Suite 101
Temple Terrace, FL 33637

RE: Citrus County Central Landfill
Landfill Gas Assessment and Groundwater Delineation Report
Permit No. 21375-025-SO-01
WACS Facility ID: 39859
Jones Edmunds Project No.: 03860-056-01

Dear Ms. Madden,

This report presents the findings and details the field work that was completed at the Citrus County Central Landfill to further investigate landfill gas migration and to delineate the groundwater exceedances at the site. FDEP approved the June 6, 2017 Landfill Gas Assessment and Groundwater Delineation Plan (Plan), which proposed the work detailed in this report. All investigation work in the Plan has been completed. This report follows the outline of the Plan.

Landfill Gas Monitoring Probe Installation

The Plan detailed the installation of 11 new landfill gas monitoring probes along the northern and eastern property boundaries. The new probes are GP-20 through GP-30 and they were installed at the locations shown on the site map included as Attachment 1. The probes were installed according to the Plan as detailed below:

- Sonic Drilling Technology was used to install the probes.
- The probes are 1-inch diameter PVC.
- The probes have 10-foot screens with 0.020 inch slots.
- The screened intervals were packed with pea gravel.
- The seal on top of the pea gravel was bentonite chips and fine sand.
- The probe annulus was grouted to the surface.
- The probes are finished with either stick up or flush mount locking protective casings depending on the location at the site.

The total depth of each probe (existing and new) is displayed in Table 1. Additionally, all of the landfill gas probes at the site were retrofitted with dedicated tubing that extends down to varying depths within the screened interval of each probe. Different colored tubing was used for probes with multiple tubing lengths. Table 1 includes the tubing colors and depths that are in each probe for sample measurement.

Table 1: Landfill Gas Probe Details

Gas Probe ID	Probe Depth (ft)	Length of Slotted Pipe (ft)	Solid Pipe Length Below Grade (ft)	Tubing lengths		
				Length of Clear (ft)	Length of Blue (ft)	Length of Black (ft)
GP-1	40	35	5	40	20	NA
GP-2	40	35	5	40	20	NA
GP-3	40	35	5	40	20	NA
GP-4	40	35	5	40	20	NA
GP-5	40	35	5	40	20	NA
GP-6	40	35	5	40	20	NA
GP-7	40	35	5	40	20	NA
GP-8	40	35	5	40	20	NA
GP-9	40	35	5	40	20	NA
GP-10	40	35	5	40	20	NA
GP-11	40	35	5	40	20	NA
GP-12	80	75	5	75	50	25
GP-13	80	75	5	75	50	25
GP-14	80	75	5	75	50	25
GP-15	80	75	5	75	50	25
GP-16	80	75	5	75	50	25
GP-17	80	75	5	75	50	25
GP-18	80	75	5	75	50	25
GP-19	75	70	5	70	50	25
GP-20	110	10	100	NA	105	NA
GP-21	120	10	110	NA	115	NA
GP-22	75	10	65	70	NA	NA
GP-23	105	10	95	100	NA	NA
GP-24	75	10	65	70	NA	NA
GP-25	105	10	95	100	NA	NA
GP-26	75	10	65	70	NA	NA
GP-27	105	10	95	100	NA	NA
GP-28	75	10	65	70	NA	NA
GP-29	105	10	95	100	NA	NA
GP-30	110	10	100	NA	105	NA

Landfill Gas Monitoring

Landfill gas was measured in all of the probes, at each depth indicated in the table above, and in all of the groundwater monitoring wells on November 20 and 21, 2017. The gas data is tabulated and included as

Attachment 2 to this report. This data will also be submitted under separate cover as the fourth quarter 2017 landfill gas monitoring report for the site.

There were no detections of Methane in any of the landfill gas monitoring probes at any depths; however, most of the probes detected carbon dioxide and decreased concentrations of oxygen indicating landfill gas in the probes. Based on this initial sampling of the probes at the varying depths, Methane does not exceed 100% of the LEL at the compliance boundary and the site is in compliance with the landfill gas migration rule.

Methane was above 100% of the LEL in some of the groundwater monitoring wells and MW-9, MW-15, MW-17, and PZ-1 had measureable concentrations of Methane in them below 100% of the LEL. The groundwater wells that had Methane concentrations above 100% of the LEL are discussed below:

- MW-3: Methane concentration of 42% Volume, MW-3 is one of the background wells and is located on the southeast corner of the site.
 - LFG Probes GP-16 and GP-20 are east of MW-3. There was no Methane detected in these probes.
 - LFG Probes GP-15 and GP-30 are south of MW-3. There was no Methane detected in these probes.
 - LFG Probes GP-20 and GP-30 include tubing to 105 feet.
 - The Methane observed in MW-3 appears to be delineated.
- MW-5: Methane concentration of 7.5% Volume, MW-5 is one of the piezometers/intermediate wells located in the middle of the site between the active and closed landfills.
 - There are no LFG Probes near this groundwater well.
- MW-6: Methane concentration of 36% Volume, MW-6 is one of the piezometers/intermediate wells located in the middle of the site between the active and closed landfills.
 - There are no LFG Probes near this groundwater well.
- MW-7: Methane concentration of 41% Volume, MW-7 is one of the background wells and is located on the east side of the active landfill near Phase 2.
 - LFG Probes GP-18 and GP-21 are northeast of MW-7. There was no Methane detected in these probes.
 - LFG Probe GP-17 is southeast of MW-3. There was no Methane detected in this probe.
 - The Methane observed in MW-7 appears to be delineated.
- MW-16: Methane concentration of 78% Volume, MW-16 is one of the piezometers/intermediate wells located in the middle of the site between the active and closed landfills.
 - There are no LFG Probes near this groundwater well.
- MW-20: Methane concentration of 41% Volume, MW-20 is the detection well north of the Phase 3 Active Landfill.
 - There are no LFG Probes near this groundwater well as it is in the center of the site.
- MW-21: Methane concentration of 7.5% Volume, MW-21 is one of the compliance wells and is located north of the closed landfill area.

- Newly installed Groundwater Monitoring well MW-22 is north of MW-21 and screened at the same interval. No Methane was measured in MW-22.
 - LFG Probes GP-2, GP-24, and GP-25 are north of MW-21 near the property boundary. There was no Methane detected in these probes.
 - The Methane observed in MW-21 appears to be delineated.
- PZ-2: Methane concentration of 7% Volume, PZ-2 is one of the piezometers associated with the initial Rule 62-780 investigation. It is located north of the closed landfill area between MW-18 and MW-22.
 - LFG Probes GP-2, GP-24, and GP-25 are northeast of PZ-2 near the property boundary. There was no Methane detected in these probes.
 - LFG Probes GP-3, GP-27, and GP-26 are all northwest of PZ-2 near the property boundary. There was no Methane detected in these probes.
 - The Methane observed in PZ-2 appears to be delineated.

The results from the initial measurements conducted in the new landfill gas monitoring probes along with the existing probes retrofitted with tubing installed to varying depths indicate that the Site is in compliance with the landfill gas migration rules.

Active Landfill Gas Extraction on the Closed Landfill Cells

As discussed in previous reports, the groundwater exceedances at the site are caused by landfill gas in contact with the groundwater. Exceedances caused by landfill gas were first observed in MW-10, which is north of the closed landfill cells. The corrective actions for groundwater and landfill gas delineation/control began in response to exceedances in MW-10. In 2010, a solar powered gas extraction system was installed near MW-10 and it was successful in remediating the groundwater near the water table in that area; however, there have been more recent groundwater exceedances in MW-19 and MW-21 that have the same characteristics as the MW-10 exceedances. These wells are also on the north site of the closed landfill. To remediate the groundwater at the site near the closed landfill, the gas extraction efficiency needs to be increased.

To increase the gas extraction efficiency near the closed landfill, the County and Jones Edmunds are moving forward with installing a dedicated blower system connected to the passive landfill gas vents on the top of the closed landfill. The system is currently in design and a permit application will be submitted to FDEP for approval before construction.

Groundwater Delineation Wells

Three groundwater delineation wells –MW-18D, MW-19D, and MW-22–were installed along the north side of the closed landfill area as detailed in the Plan. All three wells were installed using Sonic Drilling Technology and they were installed to the depths detailed in the Plan. Attachment 3 includes the FDEP Well Completion Reports, boring logs, well development logs, and Water Management District permits for each well. Attachment 4 includes the updated site survey with the location and elevation information for each well.

The new wells were sampled on August 17, 2017 for field parameters, Iron, Benzene, Vinyl Chloride, and Dichloromethane (Methylene Chloride). There were no detections of any of the VOCs and the only parameters reported outside State groundwater protection standards were:

- MW-18D: pH 5.90 S.U. and Iron 939 µg/L.

- MW-19D: pH 6.15 S.U. and Iron 22,200 µg/L.

The Second Semiannual 2017 groundwater monitoring report for the Citrus County Central Landfill was submitted to FDEP on September 25, 2017. The background concentrations for pH ranged from 4.75 to 5.09 S.U. indicating that the groundwater at the site has a naturally low pH. The background Iron concentrations ranged from below the laboratory detection limit up to 1740 µg/L indicating that the site has naturally elevated Iron in the groundwater.

Attachment 5 is a summary table of the sampling results from the new wells. Attachment 6 presents a summary table of all groundwater parameters reported at or above the laboratory detection limit during this sampling event. Attachment 7 presents Parameter Monitoring Report forms. The original Laboratory Data including Chain of Custody forms and the Field Data Sheets are included in Attachments 8 and 9, respectively.

Conclusions

Landfill gas measurements collected from the new probes coupled with measurements from the existing landfill gas monitoring probes, which were retrofitted with tubing to varying depths, showed that Methane is not exceeding 100% of the LEL at the landfill gas compliance boundary. The site is currently in compliance with the landfill gas migration rule.

The newly installed groundwater delineation wells did not report any detections of the parameters of concern at the site: Benzene, Vinyl Chloride, or Dichloromethane. Two of the wells reported exceedances of Iron and levels of pH below the State standard. Based on the initial sampling of the new delineation wells, the VOC plume north of the closed landfill is delineated and contained onsite.

Recommendations

Landfill gas data will continue to be collected quarterly. The data will be collected from:

- Each tubing depth in all of the older probes.
- All of the newly installed probes.
- All of the onsite groundwater monitoring wells.

The data will be compiled and submitted quarterly in accordance with the Rule and the current operations permit for the landfill. If after one year of data collection the new monitoring network continues to indicate that there is no Methane migrating past the compliance boundary, the County will request a reduction in the LFG monitoring requirements.

Groundwater monitoring will be conducted semiannually in accordance with the current permit. Newly installed delineation wells MW-18D, MW-19D, and MW-22 will be sampled with the semiannual monitoring events for the parameters listed in Permit No. 231375-025-SO-01, Appendix 3: Water Quality Monitoring Plan, Specific Condition II. 4. Assessment wells MW-18 and MW-19 are sampled for these parameters. The results of the sampling of the new delineation wells will be included in the semiannual groundwater monitoring reports for 2018. The necessity of these wells being incorporated into the permit or if additional sampling is necessary will be evaluated following the Second Semiannual 2018 sampling event.

The initial sampling events in the new gas monitoring network and the groundwater monitoring wells show that the site is in compliance with the landfill gas migration rule and that the groundwater exceedances that caused the execution of the consent order are delineated onsite. The County requests FDEP's consideration of closing out the consent order and continuing any investigation under the authority of Rule 62-780.

If you have any questions or comments on this report or any of the County's efforts to ensure that the Central landfill is in compliance, please call me at 352-377-5821 or email at thays@jonesedmunds.com.

Sincerely,



Troy D. Hays, PG
Sr. Manager/Vice President

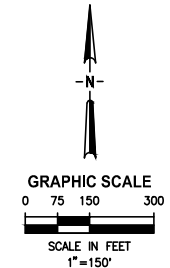
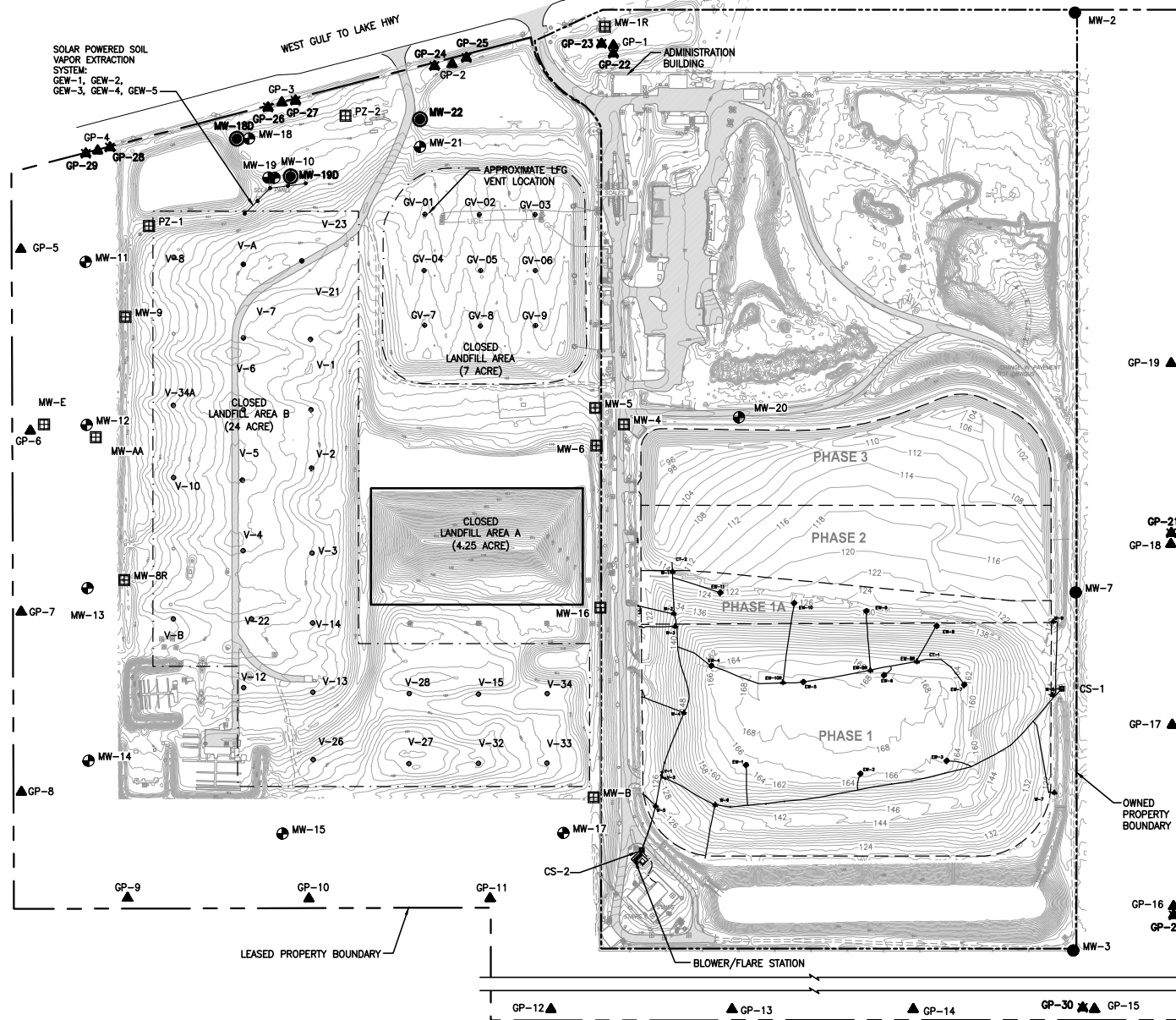
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xc: Henry Norris, Citrus County
Ray Oates, PG, Citrus County

- Attachment 1: Site Map
- Attachment 2: Landfill Gas Monitoring Data
- Attachment 3: Groundwater Monitoring Well Installation Reports
- Attachment 4: Site Survey
- Attachment 5: Analysis Results Compared To Groundwater Standards
- Attachment 6: Groundwater Parameters At or Above the Laboratory Detection Limit
- Attachment 7: Parameter Monitoring Reports
- Attachment 8: Original Laboratory Data Including Chain-of-Custody Forms
- Attachment 9: Field Data Sheets

ATTACHMENT 1

SITE MAP



LEGEND

- EW-1 LFG EXTRACTION WELL
- EW-10 DOWNSLOPE LFG EXTRACTION WELL
- EW-BR REMOTE LFG EXTRACTION WELLHEAD
- CS-2 CONDENSATE SUMP
- MW-7 BACKGROUND WELLS
- MW-13 COMPLIANCE MONITORING WELL
- V-33 PASSIVE GAS VENT
- GV-06 PASSIVE GAS VENT (INSTALLED 2009)
- PZ-1 PIEZOMETERS
- MW-9 PIEZOMETERS
- GP-1 GAS PROBE
- W-7 LEACHATE CLEANOUT RISER WELLHEAD
- GP-21 NEW LFG PROBE
- MW-22 NEW GW MONITORING WELL

NOTES:

1. TOPOGRAPHIC CONTOURS PREPARED BY PICKETT SURVEYING, DATED 05/15/16, AND KUCERA SOUTH DATED 04/12/08.
2. EXISTING LFG VENTS MAY NOT BE LABELED AS SHOWN.

PROPOSED MONITORING NETWORK FIGURE
CITRUS COUNTY CENTRAL LANDFILL
CITRUS COUNTY, FLORIDA

ATTACHMENT 2

LANDFILL GAS MONITORING DATA

**LANDFILL GAS MONITORING RESULTS
CITRUS COUNTY CENTRAL LANDFILL**

FOURTH QUARTER 2017

General Data								
Date:	11/20/2017 & 11/21/2017			Sampler:		Steve Messick		
Start Time:	10:00 AM on 11/20/2017 & 9:05 AM on 11/21/2017			Sky Conditions:		Clear on 11/20/2017 & Cloudy on 11/21/2017		
Air Temperature (deg C):	17°C on 11/20/2017 & 18°C on 11/21/2017			Measuring Device:		Eagle RKI (SN E084039)		
Sampling Data								
						Methane		
Station I.D.	Date Sampled	Time Sampled	Depth of Intake (Feet)	O2 %Volume	CO2 %Volume	Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	Station Type
GP-1	11/20/2017	14:26	20	18.7	2.6	0.0	-	Gas Well
GP-1	11/20/2017	14:29	40	18.2	3.0	0.0	-	Gas Well
GP-2	11/20/2017	14:07	20	17.9	3.0	0.0	-	Gas Well
GP-2	11/20/2017	14:10	40	16.5	4.2	0.0	-	Gas Well
GP-3	11/20/2017	13:48	20	19.4	1.4	0.0	-	Gas Well
GP-3	11/20/2017	13:50	40	19.7	1.2	0.0	-	Gas Well
GP-4	11/20/2017	10:03	20	19.4	2.0	0.0	-	Gas Well
GP-4	11/20/2017	10:06	40	18.3	3.2	0.0	-	Gas Well
GP-5	11/20/2017	10:15	20	19.2	2.2	0.0	-	Gas Well
GP-5	11/20/2017	10:18	40	18.4	3.4	0.0	-	Gas Well
GP-6	11/20/2017	10:22	20	19.3	2.0	0.0	-	Gas Well
GP-6	11/20/2017	10:26	40	20.9	0.4	0.0	-	Gas Well
GP-7	11/20/2017	10:31	20	20.0	1.4	0.0	-	Gas Well
GP-7	11/20/2017	10:34	40	19.7	1.6	0.0	-	Gas Well
GP-8	11/20/2017	10:37	20	20.0	1.2	0.0	-	Gas Well
GP-8	11/20/2017	10:40	40	19.0	1.2	0.0	-	Gas Well
GP-9	11/20/2017	10:44	20	20.2	1.4	0.0	-	Gas Well
GP-9	11/20/2017	10:46	40	19.9	1.6	0.0	-	Gas Well
GP-10	11/20/2017	10:49	20	16.0	5.4	0.0	-	Gas Well
GP-10	11/20/2017	10:52	40	14.2	7.0	0.0	-	Gas Well
GP-11	11/20/2017	10:56	20	19.7	1.6	0.0	-	Gas Well
GP-11	11/20/2017	10:59	40	18.4	1.4	0.0	-	Gas Well
GP-12	11/20/2017	11:03	25	20.0	1.4	0.0	-	Gas Well
GP-12	11/20/2017	11:06	50	19.7	1.6	0.0	-	Gas Well
GP-12	11/20/2017	11:09	75	19.8	1.2	0.0	-	Gas Well
GP-13	11/20/2017	11:13	25	18.9	1.6	0.0	-	Gas Well
GP-13	11/20/2017	11:16	50	18.3	1.8	0.0	-	Gas Well
GP-13	11/20/2017	11:19	75	18.4	1.8	0.0	-	Gas Well
GP-14	11/20/2017	11:22	25	20.0	0.8	0.0	-	Gas Well
GP-14	11/20/2017	11:25	50	19.4	1.0	0.0	-	Gas Well

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Sampling Data								
						Methane		
Station I.D.	Date Sampled	Time Sampled	Depth of Intake (Feet)	O2 %Volume	CO2 %Volume	Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	Station Type
GP-14	11/20/2017	11:28	75	19.4	1.0	0.0	-	Gas Well
GP-15	11/20/2017	11:35	25	20.2	1.2	0.0	-	Gas Well
GP-15	11/20/2017	11:37	50	20.0	1.2	0.0	-	Gas Well
GP-15	11/20/2017	11:40	75	20.2	1.2	0.0	-	Gas Well
GP-16	11/20/2017	11:46	25	19.4	1.2	0.0	-	Gas Well
GP-16	11/20/2017	11:49	50	19.3	1.4	0.0	-	Gas Well
GP-16	11/20/2017	11:51	75	19.3	1.4	0.0	-	Gas Well
GP-17	11/20/2017	11:58	25	16.1	4.4	0.0	-	Gas Well
GP-17	11/20/2017	12:00	50	16.1	4.2	0.0	-	Gas Well
GP-17	11/20/2017	12:03	75	16.5	3.8	0.0	-	Gas Well
GP-18	11/20/2017	12:07	25	19.8	1.2	0.0	-	Gas Well
GP-18	11/20/2017	12:09	50	19.7	1.2	0.0	-	Gas Well
GP-18	11/20/2017	12:11	75	19.8	1.2	0.0	-	Gas Well
GP-19	11/20/2017	12:17	25	20.0	1.2	0.0	-	Gas Well
GP-19	11/20/2017	12:19	50	20.0	1.2	0.0	-	Gas Well
GP-19	11/20/2017	12:22	75	19.9	1.2	0.0	-	Gas Well
GP-20	11/20/2017	11:54	105	17.7	1.4	0.0	-	Gas Well
GP-21	11/20/2017	12:14	115	20.6	0.0	0.0	-	Gas Well
GP-22	11/20/2017	14:33	70	17.4	0.0	0.0	-	Gas Well
GP-23	11/20/2017	14:36	100	12.1	2.4	0.0	-	Gas Well
GP-24	11/20/2017	14:16	70	9.0	0.0	0.0	-	Gas Well
GP-25	11/20/2017	14:13	100	16.6	1.0	0.0	-	Gas Well
GP-26	11/20/2017	13:55	70	15.0	3.4	0.0	-	Gas Well
GP-27	11/20/2017	13:59	100	16.5	2.8	0.0	-	Gas Well
GP-28	11/20/2017	10:00	70	18.3	0.4	0.0	-	Gas Well
GP-29	11/20/2017	10:10	100	20.9	0.0	0.0	-	Gas Well
GP-30	11/20/2017	15:19	105	18.2	1.4	0.0	-	Gas Well
Admin Building	11/21/2017	12:03	-	20.9	0.0	0.0	-	Structure
Mod Bldg	11/21/2017	12:26	-	20.9	0.0	0.0	-	Structure
Shop	11/21/2017	12:18	-	20.9	0.0	0.0	-	Structure

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Sampling Data								
						Methane		
Station I.D.	Date Sampled	Time Sampled	Depth of Intake (Feet)	O2 %Volume	CO2 %Volume	Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	Station Type
Scale House	11/21/2017	12:14	-	20.9	0.0	0.0	-	Structure
Treatment Facility	11/21/2017	12:00	-	20.9	0.0	0.0	-	Structure
Firing Range	11/21/2017	11:33	-	20.9	0.0	0.0	-	9 Structures
Haz Waste Drop off Center	11/21/2017	9:05	-	20.9	0.0	0.0	-	3 Structures
MW-1R	11/20/2017	14:39	100	18.0	2.8	0.0	-	Groundwater Well
MW-2	11/20/2017	12:27	100	20.6	0.4	0.0	-	Groundwater Well
MW-3	11/21/2017	8:57	100	5.9	32.2	-	42.0	Groundwater Well
MW-5	11/21/2017	9:43	100	7.0	22.8	-	7.5	Groundwater Well
MW-6	11/21/2017	9:35	100	6.9	24.6	-	36.0	Groundwater Well
MW-7	11/21/2017	8:50	100	6.0	32.2	-	41.0	Groundwater Well
MW-8R	11/21/2017	11:04	100	10.5	14.4	0.0	-	Groundwater Well
MW-9	11/21/2017	10:56	100	6.5	8.0	36.0	-	Groundwater Well
MW-10	11/20/2017	14:59	100	9.8	17.4	0.0	-	Groundwater Well
MW-11	11/20/2017	9:52	100	20.9	0.0	0.0	-	Groundwater Well
MW-12	11/20/2017	9:34	100	18.4	3.0	0.0	-	Groundwater Well
MW-13	11/20/2017	9:22	100	20.9	0.2	0	-	Groundwater Well
MW-14	11/20/2017	9:00	100	20.9	0.0	0.0	-	Groundwater Well
MW-15	11/20/2017	9:05	100	10.8	11.6	26	-	Groundwater Well
MW-16	11/21/2017	9:08	100	4.5	35.6	-	78.0	Groundwater Well
MW-17	11/20/2017	9:12	100	10.7	11.6	24.0	-	Groundwater Well
MW-18	11/21/2017	10:29	100	14.0	8.8	0.0	-	Groundwater Well
MW-18D	11/21/2017	10:19	100	15.0	6.8	0.0	-	Groundwater Well
MW-19	11/20/2017	15:03	100	11.7	16.6	0.0	-	Groundwater Well
MW-19D	11/21/2017	10:37	100	13.8	9.0	0.0	-	Groundwater Well
MW-20	11/21/2017	9:20	100	6.6	26.2	-	41.0	Groundwater Well
MW-21	11/21/2017	11:50	100	3.7	26.4	-	7.5	Groundwater Well
MW-22	11/20/2017	14:22	100	9.2	7.8	0.0	-	Groundwater Well
MW-AA	11/20/2017	9:29	100	18.5	3.0	0.0	-	Groundwater Well
MW-B	11/21/2017	11:12	100	11.6	14.8	0.0	-	Groundwater Well
MW-E	11/20/2017	9:44	100	20.9	0.0	0.0	-	Groundwater Well

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						Methane		
Station I.D.	Date Sampled	Time Sampled	Depth of Intake (Feet)	O2 %Volume	CO2 %Volume	Peak Recorded Concentration as % LEL	Peak Recorded Concentration as % Volume	Station Type
PZ-1	11/21/2017	10:47	100	6.4	7.8	37	-	Groundwater Well
PZ-2	11/21/2017	10:11	100	6.7	23.7	-	7	Groundwater Well

ATTACHMENT 3

GROUNDWATER MONITORING WELL INSTALLATION REPORTS



Florida Department of Environmental Protection

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

DEP Form # 62-701.900(30)

Form Title: Monitoring Well Completion Report

Effective Date: January 6, 2010

Incorporated in Rule 62-701.510(3), F.A.C.

MONITORING WELL COMPLETION REPORT

DATE: November 27, 2017

FACILITY NAME: Citrus County Class I Central Landfill

DEP PERMIT NO.: 21375-025-SO-01 WACS FACILITY ID NO.: 39859

WACS MONITORING SITE NUM.: 30343 WACS WELL NO.: MW-18D (Assessment Well)

WELL TYPE: BACKGROUND ☐ DETECTION ☐ COMPLIANCE ☐

LATITUDE: 28 ° 51 ' 17.1630 " LONGITUDE: 82 ° 26 ' 30.4637 "

(see back for LAT / LONG requirements):

Coordinate Accuracy +/- 0.07 Datum NAD 1983 Elevation Datum NGVD 1929

Collection Method Real-Time Kinematic GPS Collection Date August 31, 2017

Collector Name Mark T. Thomas Collector Affiliation Citrus County Div of Eng Survey Section

AQUIFER MONITORED: Floridan

DRILLING METHOD: Sonic Geoprobe DATE INSTALLED: July 31, 2017

INSTALLED BY: Huss Drilling Inc.

BORE HOLE DIAMETER: 8 inch TOTAL DEPTH: 140 ft (BLS)

CASING TYPE: Schedule 40 PVC CASING DIAMETER: 2 inch CASING LENGTH: 130 ft

SCREEN TYPE: slotted PVC SCREEN SLOT SIZE: 0.010 inch SCREEN LENGTH: 10 ft

SCREEN DIAMETER: 2 inch SCREEN INTERVAL: 130 ft TO 140 ft (BLS)

FILTER PACK TYPE: silica fine sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 140 ft TO 127 ft (BLS)

SEALANT TYPE: Fine Sand SEALANT INTERVAL: 127 ft TO 124 ft (BLS)

GROUT TYPE: Cement GROUT INTERVAL: 124 ft TO 0 ft (BLS)

TOP OF CASING ELEVATION (NGVD): 115.68 ft GROUND SURFACE ELEVATION (NGVD): _____

DESCRIBE WELL DEVELOPMENT: ESP - surge and purge

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 5.86 ft

DATE AND TIME MEASURED: August 3, 2017 8:55 AM*

REMARKS: clear, no odor, no sheen

* pre-development well level reading, no reading taken post-development

NAME OF PERSON PREPARING REPORT: Elizabeth D Kennelley

Jones Edmunds & Associates, Inc., 352-377-5821 ext 1416, ekennelley@jonesedmunds.com

(Name, Organization, Phone No., E-mail)

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way Ste 200B
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
13051 N. Telecom Pky.
Temple Terrace, FL
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
239-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600



Florida Department of Environmental Protection

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

DEP Form # 62-701.900(30)

Form Title: Monitoring Well Completion Report

Effective Date: January 6, 2010

Incorporated in Rule 62-701.510(3), F.A.C.

MONITORING WELL COMPLETION REPORT

DATE: November 27, 2017

FACILITY NAME: Citrus County Class I Central Landfill

DEP PERMIT NO.: 21375-025-SO-01 WACS FACILITY ID NO.: 39859

WACS MONITORING SITE NUM.: 30344 WACS WELL NO.: MW-19D (Assessment Well)

WELL TYPE: BACKGROUND ☐ DETECTION ☐ COMPLIANCE ☐

LATITUDE: 28 ° 51 ' 16.3427 " LONGITUDE: 82 ° 26 ' 29.5432 "

(see back for LAT / LONG requirements):

Coordinate Accuracy +/- 0.07 Datum NAD 1983 Elevation Datum NGVD 1929

Collection Method Real-Time Kinematic GPS Collection Date August 31, 2017

Collector Name Mark T. Thomas Collector Affiliation Citrus County Div of Eng Survey Section

AQUIFER MONITORED: Floridan

DRILLING METHOD: Sonic Geoprobe DATE INSTALLED: July 29, 2017

INSTALLED BY: Huss Drilling Inc.

BORE HOLE DIAMETER: 8 inch TOTAL DEPTH: 160 ft (BLS)

CASING TYPE: Schedule 40 PVC CASING DIAMETER: 2 inch CASING LENGTH: 155 ft

SCREEN TYPE: slotted PVC SCREEN SLOT SIZE: 0.010 inch SCREEN LENGTH: 5 ft

SCREEN DIAMETER: 2 inch SCREEN INTERVAL: 155 ft TO 160 ft (BLS)

FILTER PACK TYPE: silica fine sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 160 ft TO 153 ft (BLS)

SEALANT TYPE: Fine Sand SEALANT INTERVAL: 153 ft TO 150 ft (BLS)

GROUT TYPE: Cement GROUT INTERVAL: 150 ft TO 0 ft (BLS)

TOP OF CASING ELEVATION (NGVD): 113.59 ft GROUND SURFACE ELEVATION (NGVD): _____

DESCRIBE WELL DEVELOPMENT: ESP - surge and purge

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 5.72 ft

DATE AND TIME MEASURED: August 2, 2017 4:00 PM*

REMARKS: clear, no odor, no sheen, good recharge

* pre-development well level reading, no reading taken post-development

NAME OF PERSON PREPARING REPORT: Elizabeth D Kennelley

Jones Edmunds & Associates, Inc., 352-377-5821 ext 1416, ekennelley@jonesedmunds.com

(Name, Organization, Phone No., E-mail)

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way Ste 200B
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
13051 N. Telecom Pky.
Temple Terrace, FL
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
239-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600



Florida Department of Environmental Protection

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

DEP Form # 62-701.900(30)

Form Title: Monitoring Well Completion Report

Effective Date: January 6, 2010

Incorporated in Rule 62-701.510(3), F.A.C.

MONITORING WELL COMPLETION REPORT

DATE: November 27, 2017

FACILITY NAME: Citrus County Class I Central Landfill

DEP PERMIT NO.: 21375-025-SO-01 WACS FACILITY ID NO.: 39859

WACS MONITORING SITE NUM.: 30345 WACS WELL NO.: MW-22 (Assessment Well)

WELL TYPE: BACKGROUND ☐ DETECTION ☐ COMPLIANCE ☐

LATITUDE: 28 ° 51 ' 17.8811 " LONGITUDE: 82 ° 26 ' 25.1896 "

(see back for LAT / LONG requirements):

Coordinate Accuracy +/- 0.07 Datum NAD 1983 Elevation Datum NGVD 1929

Collection Method Real-Time Kinematic GPS Collection Date August 31, 2017

Collector Name Mark T. Thomas Collector Affiliation Citrus County Div of Eng Survey Section

AQUIFER MONITORED: Floridan

DRILLING METHOD: Sonic Geoprobe DATE INSTALLED: August 1, 2017

INSTALLED BY: Huss Drilling Inc.

BORE HOLE DIAMETER: 8 inch TOTAL DEPTH: 125 ft (BLS)

CASING TYPE: Schedule 40 PVC CASING DIAMETER: 2 inch CASING LENGTH: 105 ft

SCREEN TYPE: slotted PVC SCREEN SLOT SIZE: 0.010 inch SCREEN LENGTH: 20 ft

SCREEN DIAMETER: 2 inch SCREEN INTERVAL: 125 ft TO 105 ft (BLS)

FILTER PACK TYPE: silica fine sand FILTER PACK GRAIN SIZE: 20/30

INTERVAL COVERED: 125 ft TO 102 ft (BLS)

SEALANT TYPE: Fine Sand SEALANT INTERVAL: 102 ft TO 100 ft (BLS)

GROUT TYPE: Cement GROUT INTERVAL: 100 ft TO 0 ft (BLS)

TOP OF CASING ELEVATION (NGVD): 113.79 ft GROUND SURFACE ELEVATION (NGVD): _____

DESCRIBE WELL DEVELOPMENT: ESP - surge and purge

POST DEVELOPMENT WATER LEVEL ELEVATION (NGVD): 5.07 ft

DATE AND TIME MEASURED: August 4, 2017 1:30 PM*

REMARKS: clear, no odor, no sheen, good recharge

* pre-development well level reading, no reading taken post-development

NAME OF PERSON PREPARING REPORT: Elizabeth D Kennelley

Jones Edmunds & Associates, Inc., 352-377-5821 ext 1416, ekennelley@jonesedmunds.com

(Name, Organization, Phone No., E-mail)

Northwest District
160 Government Center
Pensacola, FL 32501-5794
850-595-8360

Northeast District
7825 Baymeadows Way Ste 200B
Jacksonville, FL 32256-7590
904-807-3300

Central District
3319 Maguire Blvd., Ste. 232
Orlando, FL 32803-3767
407-894-7555

Southwest District
13051 N. Telecom Pky.
Temple Terrace, FL
813-632-7600

South District
2295 Victoria Ave., Ste. 364
Fort Myers, FL 33901-3881
239-332-6975

Southeast District
400 North Congress Ave.
West Palm Beach, FL 33401
561-681-6600



STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT,
REPAIR, MODIFY, OR ABANDON A WELL

- ☒ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
☐ Delegated Authority (If Applicable)

PLEASE FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

The water well contractor is responsible for completing
this form and forwarding the permit application to the
appropriate delegated authority where applicable.

Permit No. 861252
Florida Unique ID _____
Permit Stipulations Required (See Attached)
23.39
62-524 Quad No. Q3920 Delineation No. _____
CUPWUP Application No. _____
ABOVE THIS LINE FOR OFFICIAL USE ONLY

1. Tiiff/Forestry, Withlacoochee 3900 COMMONWEALTH TALL. FI TALLAHASSEE FL 32399
*Owner, Legal Name if Corporation *Address *City *State *ZIP *Telephone Number
2. 380 W GULF TO LAKE HWY Lecanto
*Well Location - Address, Road Name or Number, City
3. 18E19S01 20000
*Parcel ID No. (PIN) or Alternate Key (Circle One) Lot Block Unit
4. 1 19 18 Citrus Subdivision Check if 62-524: Yes X No
*Section or Land Grant *Township *Range *County
5. Stephanie S Stallsmith 9342 (352) 567-9500 stephanie@hussdrilling.com
*Water Well Contractor *License Number *Telephone Number E-mail Address
6. 35920 STATE ROAD 52 DADE CITY FL 33525
*Water Well Contractor's Address City State ZIP
7. *Type of Work: X Construction Repair Modification Abandonment *Reason for Repair, Modification, or Abandonment
8. *Number of Proposed Wells 3
9. *Specify Intended Use(s) of Well(s):
 Domestic Landscape Irrigation Agricultural Irrigation Site Investigation
 Bottled Water Supply Recreation Area Irrigation Livestock X Monitoring
 Public Water Supply (Limited Use/DOH) Nursery Irrigation Test
 Public Water Supply (Community or Non-Community/DEP) Commercial/Industrial Earth-Coupled Geothermal
 Class I Injection Golf Course Irrigation HVAC Supply
Class V Injection: Recharge Commercial/Industrial Disposal Aquifer Storage and Recovery Drainage
Remediation: Recovery Air Sparge Other (Describe) _____
 Other (Describe) _____ (Note: Not all types of wells are permitted by a given permitting authority)
10. *Distance from Septic System if ≤ 200 ft. _____ 11. Facility Description _____ 12. Estimated Start Date 07/24/2017
13. *Estimated Well Depth 160 ft. *Estimated Casing Depth 155.0 ft. *Primary Casing Diameter 2 in. Open Hole: From _____ To _____ ft.
14. Estimated Screen Interval: From 155.0 To 160.0 ft.
15. *Primary Casing Material: Black Steel Galvanized X PVC Stainless Steel
 Not Cased Other: _____
16. Secondary Casing: Telescope Casing Liner Surface Casing Diameter _____ in.
17. Secondary Casing Material: Black Steel Galvanized PVC Stainless Steel Other _____
18. *Method of Construction, Repair, or Abandonment: Auger Cable Tool Jetted Rotary X Sonic
 Combination (Two or More Methods) Hand Driven (Well Point, Sand Point) Hydraulic Point (Direct Push)
 Horizontal Drilling Plugged by Approved Method Other (Describe) _____
19. Proposed Grouting Interval for the Primary, Secondary, and Additional Casing:
From 0.0 To 151.0 Seal Material (Bentonite X Neat Cement Other)
From _____ To _____ Seal Material (Bentonite Neat Cement Other)
From _____ To _____ Seal Material (Bentonite Neat Cement Other)
From _____ To _____ Seal Material (Bentonite Neat Cement Other)
20. Indicate total number of existing wells on site 0 List number of existing unused wells on site 0
21. *Is this well or any existing well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUPWUP)
or CUPWUP Application? Yes X No If yes, complete the following: CUP/WUP No. _____ District Well ID No. _____
22. Latitude 28 51 18.36 Longitude 82 26 24.45
23. Data Obtained From: GPS X Map Survey Datum: NAD 27 X NAD 83 WGS 84

I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water
use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well
construction. I further certify that all information provided in this application is accurate and that I will obtain
necessary approval from other federal, state, or local governments, if applicable. I agree to provide a well
completion report to the District within 30 days after completion of the construction, repair, modification, or
abandonment authorized by this permit, or the permit expiration, whichever occurs first.

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my
responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon this well; or, I certify that I am
the agent for the owner, that the information provided is accurate, and that I have informed the owner of his
responsibilities as stated above. Owner consents to allowing personnel of this WMD or Delegated Authority access to
the well site during the construction, repair, modification, or abandonment authorized by this permit.

Digitally Signed _____ 9342 Digitally Signed _____ 6/7/2017
*Signature of Contractor *License No. *Signature of Owner or Agent *Date

DO NOT WRITE BELOW THIS LINE - FOR OFFICIAL USE ONLY

Approval Granted By Victoria Rayborn STATUS: ISSUED Issue Date 06/07/2017 Expiration Date 09/05/2017 Hydrologist Approval _____
Fee Received \$50.00 Receipt No. 32767963 Check No. _____

THIS PERMIT IS NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD OR DELEGATED AUTHORITY. THE
PERMIT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL CONSTRUCTION, REPAIR, MODIFICATION, OR ABANDONMENT ACTIVITIES.



STATE OF FLORIDA WELL COMPLETION REPORT

☒ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
☐ Delegated Authority (If Applicable) _____

PLEASE, FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

Date Stamp
Received:
Aug 22, 2017 11:55 am

Official Use Only

1. *Permit Number <u>861252</u>		*CUP/WUP Number _____		*DID Number _____		62-524 Delineation No. _____	
2. *Number of permitted wells constructed, repaired, or abandoned <u>3</u>		*Number of permitted wells not constructed, repaired, or abandoned <u>0</u>					
3. *Owner's Name <u>Tilft/Forestry, Withlacoochee</u>		4. *Completion Date <u>07/28/2017</u>		5. Florida Unique ID _____			
6. <u>380 W GULF TO LAKE HWY</u>		<u>Lecanto</u>		<u>34452</u>			
*Well Location - Address, Road Name or Number, City, ZIP							
7. *County <u>Citrus</u>		*Section <u>1</u>		Land Grant _____		*Township <u>19</u> *Range <u>18</u>	
8. Latitude <u>28 51 16.33</u>		Longitude <u>82 26 28.67</u>					
9. Data Obtained From: <u>GPS</u> <input checked="" type="checkbox"/> <u>Map</u> <input checked="" type="checkbox"/> <u>Survey</u> <input type="checkbox"/> Datum: <u>NAD 27</u> <input checked="" type="checkbox"/> <u>NAD 83</u> <input type="checkbox"/> <u>WGS 84</u>							
10. *Type of Work: <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Repair <input type="checkbox"/> Modification <input type="checkbox"/> Abandonment							
11. *Specify Intended Use(s) of Well(s):							
<input type="checkbox"/> Domestic		<input type="checkbox"/> Landscape Irrigation		<input type="checkbox"/> Agricultural Irrigation		<input type="checkbox"/> Site Investigation	
<input type="checkbox"/> Bottled Water Supply		<input type="checkbox"/> Recreation Area Irrigation		<input type="checkbox"/> Livestock		<input checked="" type="checkbox"/> Monitoring	
<input type="checkbox"/> Public Water Supply (Limited Use/DOH)		<input type="checkbox"/> Commercial/Industrial		<input type="checkbox"/> Nursery Irrigation		<input type="checkbox"/> Test	
<input type="checkbox"/> Public Water Supply (Community or Non-Community/DEP)		<input type="checkbox"/> Golf Course Irrigation		<input type="checkbox"/> Earth-Coupled Geothermal		<input type="checkbox"/> HVAC Supply	
<input type="checkbox"/> Class I Injection				<input type="checkbox"/> HVAC Return			
Class V Injection: <input type="checkbox"/> Recharge <input type="checkbox"/> Commercial/Industrial Disposal <input type="checkbox"/> Aquifer Storage and Recovery <input type="checkbox"/> Drainage							
Remediation: <input type="checkbox"/> Recovery <input type="checkbox"/> Air Sparge <input type="checkbox"/> Other (Describe) _____							
<input type="checkbox"/> Other (Describe) _____							
12. *Drill Method: <input type="checkbox"/> Auger <input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary <input type="checkbox"/> Combination (Two or More Methods) <input type="checkbox"/> Jetted <input checked="" type="checkbox"/> Sonic							
<input type="checkbox"/> Horizontal Drilling <input type="checkbox"/> Hydraulic Point (Direct Push) <input type="checkbox"/> Other _____							
13. *Measured Static Water Level _____ ft. Measured Pumping Water Level _____ ft. After _____ Hours at _____ GPM							
14. *Measuring Point (Describe) _____ Which is _____ ft. Above/Below Land Surface *Flowing: <input type="checkbox"/> Yes <input type="checkbox"/> No							
15. *Casing Material: <input type="checkbox"/> Black Steel <input type="checkbox"/> Galvanized <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Not Cased <input type="checkbox"/> Other _____							
16. *Total Well Depth <u>165.0</u> ft. Cased Depth <u>160.0</u> ft. *Open Hole: From _____ To _____ ft. *Screen: From _____ To _____ ft. Slot Size _____							
17. *Abandonment: <input type="checkbox"/> Other (Explain) _____							
From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
18. *Surface Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
19. *Primary Casing Diameter and Depth:							
Dia <u>2.00</u> in. From <u>0.00</u> ft. To <u>160.00</u> ft.		No. of Bags <u>31.00</u>		Seal Material (Check One): <input checked="" type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
20. *Liner Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
21. *Telescope Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
Dia _____ in. From _____ ft. To _____ ft.		No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____			
22. Pump Type (If Known):							
<input type="checkbox"/> Centrifugal <input type="checkbox"/> Jet <input type="checkbox"/> Submersible <input type="checkbox"/> Turbine							
Horsepower _____ Pump Capacity (GPM) _____							
Pump Depth _____ ft. Intake Depth _____ ft.							
23. Chemical Analysis (When Required):							
Iron _____ ppm Sulfate _____ ppm Chloride _____ ppm							
____ Laboratory Test _____ Field Test Kit							
24. Water Well Contractor:							
*Contractor Name <u>Stephanie S Stallsmith</u> *License Number <u>9342</u> E-mail Address <u>stephanie@hussdrilling.com</u>							
*Contractor's Signature Digitally Signed _____ *Driller's Name (Print or Type) <u>Bubba Tait</u>							
(I certify that the information provided in this report is accurate and true.)							

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
 2379 BROAD STREET, BROOKSVILLE, FL 34604-6899
 PHONE: (352) 796-7211 or (800) 423-1476
 WWW.SWFWMD.STATE.FL.US

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 4049 REID STREET, PALATKA, FL 32178-1429
 PHONE: (386) 329-4500
 WWW.SJRWMD.COM

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
 152 WATER MANAGEMENT DR., HAVANA, FL 32333-4712
 (U.S. Highway 90, 10 miles west of Tallahassee)
 PHONE: (850) 539-5999
 WWW.NWFWMD.STATE.FL.US

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
 P.O. BOX 24680
 3301 GUN CLUB ROAD
 WEST PALM BEACH, FL 33416-4680
 PHONE: (561) 686-8800
 WWW.SFWMD.GOV

SUWANNEE RIVER WATER MANAGEMENT DISTRICT
 9225 CR 49
 LIVE OAK, FL 32060
 PHONE: (386) 362-1001 or (800) 226-1066 (Florida only)
 WWW.MYSUWANNEERIVER.COM

*DRILL CUTTINGS LOG (Examine cuttings every 20 ft. or at formation changes. Note cavities and depth to producing zone. Grain Size: F=Fine, M=Medium, and C=Coarse)					
From 0.0 ft.	To 15.0 ft.	Color BROWN	Grain Size (F, M, C) FINE	Material SAND	
From 15.0 ft.	To 27.0 ft.	Color BROWN	Grain Size (F, M, C) MEDIUM	Material SAND AND CLAY	
From 27.0 ft.	To 75.0 ft.	Color BROWN	Grain Size (F, M, C) FINE	Material SAND	
From 75.0 ft.	To 80.0 ft.	Color BROWN	Grain Size (F, M, C) MEDIUM	Material SAND AND CLAY	
From 80.0 ft.	To 88.0 ft.	Color WHITE	Grain Size (F, M, C) SOFT	Material LIMESTONE	
From 88.0 ft.	To 165.0 ft.	Color BROWN	Grain Size (F, M, C) FINE	Material SAND	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	
From _____ ft.	To _____ ft.	Color _____	Grain Size (F, M, C) _____	Material _____	

Comments: Finish: SCREENED OR SANDPOINT

*Detailed Site Map of Well Location

Give distances from all reference points or structures, septic systems, sanitary hazards, and contamination sources within 500 ft. of well.



STATE OF FLORIDA WELL COMPLETION REPORT

☒ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
☐ Delegated Authority (If Applicable) _____

PLEASE, FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

Date Stamp
Received:
Aug 22, 2017 11:55 am

Official Use Only

1. *Permit Number <u>861262</u>		*CUPWUP Number _____		*DID Number _____		62-524 Delineation No. _____	
2. *Number of permitted wells constructed, repaired, or abandoned <u>3</u>		*Number of permitted wells not constructed, repaired, or abandoned <u>0</u>					
3. *Owner's Name <u>Tiitt/Forestry, Withlacoochee</u>		4. *Completion Date <u>07/28/2017</u>		5. Florida Unique ID _____			
6. <u>380 W GULF TO LAKE HWY</u>		<u>Lecanto</u>		<u>34452</u>			
*Well Location - Address, Road Name or Number, City, ZIP							
7. *County <u>Citrus</u>		*Section <u>1</u>		Land Grant _____		*Township <u>19</u> *Range <u>18</u>	
8. Latitude <u>28 51 17.10</u>		Longitude <u>82 26 29.93</u>					
9. Data Obtained From: <u>GPS</u> <input checked="" type="checkbox"/> <u>Map</u> <input checked="" type="checkbox"/> <u>Survey</u> _____		Datum: <u>NAD 27</u> <input checked="" type="checkbox"/> <u>NAD 83</u> _____		<u>WGS 84</u>			
10. *Type of Work: <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Repair <input type="checkbox"/> Modification <input type="checkbox"/> Abandonment							
11. *Specify Intended Use(s) of Well(s):							
<input type="checkbox"/> Domestic		<input type="checkbox"/> Landscape Irrigation		<input type="checkbox"/> Agricultural Irrigation		<input type="checkbox"/> Site Investigation	
<input type="checkbox"/> Bottled Water Supply		<input type="checkbox"/> Recreation Area Irrigation		<input type="checkbox"/> Livestock		<input checked="" type="checkbox"/> Monitoring	
<input type="checkbox"/> Public Water Supply (Limited Use/DOH)		<input type="checkbox"/> Commercial/Industrial		<input type="checkbox"/> Nursery Irrigation		<input type="checkbox"/> Test	
<input type="checkbox"/> Public Water Supply (Community or Non-Community/DEP)		<input type="checkbox"/> Golf Course Irrigation		<input type="checkbox"/> Earth-Coupled Geothermal		<input type="checkbox"/> HVAC Supply	
<input type="checkbox"/> Class I Injection				<input type="checkbox"/> HVAC Return			
Class V Injection: <input type="checkbox"/> Recharge <input type="checkbox"/> Commercial/Industrial Disposal <input type="checkbox"/> Aquifer Storage and Recovery <input type="checkbox"/> Drainage							
Remediation: <input type="checkbox"/> Recovery <input type="checkbox"/> Air Sparge <input type="checkbox"/> Other (Describe) _____							
Other (Describe) _____							
12. *Drill Method: <input type="checkbox"/> Auger <input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary <input type="checkbox"/> Combination (Two or More Methods) <input type="checkbox"/> Jetted <input checked="" type="checkbox"/> Sonic							
<input type="checkbox"/> Horizontal Drilling <input type="checkbox"/> Hydraulic Point (Direct Push) <input type="checkbox"/> Other _____							
13. *Measured Static Water Level <u>0.0</u> ft. Measured Pumping Water Level _____ ft. After _____ Hours at _____ GPM							
14. *Measuring Point (Describe) _____ Which is _____ ft. Above _____ Below Land Surface *Flowing: <input type="checkbox"/> Yes <input type="checkbox"/> No							
15. *Casing Material: <input type="checkbox"/> Black Steel <input type="checkbox"/> Galvanized <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Not Cased <input type="checkbox"/> Other _____							
16. *Total Well Depth <u>140.0</u> ft. Cased Depth <u>130.0</u> ft. *Open Hole: From _____ To _____ ft. *Screen: From _____ To _____ ft. Slot Size _____							
17. *Abandonment: <input type="checkbox"/> Other (Explain) _____							
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
18. *Surface Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
19. *Primary Casing Diameter and Depth:							
Dia <u>2.00</u> in. From <u>0.00</u> ft. To <u>130.00</u> ft. No. of Bags <u>15.00</u>		Seal Material (Check One): <input checked="" type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
20. *Liner Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
21. *Telescope Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
22. Pump Type (If Known):				23. Chemical Analysis (When Required):			
<input type="checkbox"/> Centrifugal <input type="checkbox"/> Jet <input type="checkbox"/> Submersible <input type="checkbox"/> Turbine				Iron _____ ppm Sulfate _____ ppm Chloride _____ ppm			
Horsepower _____ Pump Capacity (GPM) _____				<input type="checkbox"/> Laboratory Test <input type="checkbox"/> Field Test Kit			
Pump Depth _____ ft. Intake Depth _____ ft.							
24. Water Well Contractor:							
*Contractor Name <u>Stephanie S Stallsmith</u>		*License Number <u>9342</u>		E-mail Address <u>stephanie@hussdrilling.com</u>			
*Contractor's Signature <u>Digitally Signed</u>				*Driller's Name (Print or Type) <u>Bubba Tait</u>			
(I certify that the information provided in this report is accurate and true.)							

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
152 WATER MANAGEMENT DR., HAVANA, FL 32333-4712
(U.S. Highway 90, 10 miles west of Tallahassee)
PHONE: (850) 539-5999
WWW.NWFWMD.STATE.FL.US

SUWANNEE RIVER WATER MANAGEMENT DISTRICT
9225 CR 49
LIVE OAK, FL 32060
PHONE: (386) 362-1001 or (800) 226-1066 (Florida only)
WWW.MYSUWANNEERIVER.COM

*DRILL CUTTINGS LOG (Examine cuttings every 20 ft. or at formation changes. Note cavities and depth to producing zone. Grain Size: F=Fine, M=Medium, and C=Coarse)

[illegible]

Comments: Finish: SCREENED OR SANDPOINT

***Detailed Site Map of Well Location**



Give distances from all reference points or structures, septic systems, sanitary hazards, and contamination sources within 500 ft. of well.



STATE OF FLORIDA WELL COMPLETION REPORT

☒ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
☐ Delegated Authority (If Applicable) _____

PLEASE, FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

Date Stamp
Received:
Aug 22, 2017 11:55 am

Official Use Only

1. *Permit Number <u>861252</u>		*CUP/WUP Number _____		*DID Number _____		62-524 Delineation No. _____	
2. *Number of permitted wells constructed, repaired, or abandoned <u>3</u>		*Number of permitted wells not constructed, repaired, or abandoned <u>0</u>					
3. *Owner's Name <u>Tilft/Forestry, Withlacoochee</u>		4. *Completion Date <u>07/28/2017</u>		5. Florida Unique ID _____			
6. <u>380 W GULF TO LAKE HWY</u>		<u>Lecanto</u>		<u>34452</u>			
*Well Location - Address, Road Name or Number, City, ZIP							
7. *County <u>Citrus</u>		*Section <u>1</u>		Land Grant _____		*Township <u>19</u> *Range <u>18</u>	
8. Latitude <u>28 51 18.36</u>		Longitude <u>82 26 24.41</u>					
9. Data Obtained From: <u>GPS</u> <input checked="" type="checkbox"/> <u>Map</u> <input checked="" type="checkbox"/> <u>Survey</u>		Datum: <u>NAD 27</u> <input checked="" type="checkbox"/> <u>NAD 83</u>		<u>WGS 84</u>			
10. *Type of Work: <input checked="" type="checkbox"/> Construction <input type="checkbox"/> Repair <input type="checkbox"/> Modification <input type="checkbox"/> Abandonment							
11. *Specify Intended Use(s) of Well(s):							
<input type="checkbox"/> Domestic		<input type="checkbox"/> Landscape Irrigation		<input type="checkbox"/> Agricultural Irrigation		<input type="checkbox"/> Site Investigation	
<input type="checkbox"/> Bottled Water Supply		<input type="checkbox"/> Recreation Area Irrigation		<input type="checkbox"/> Livestock		<input checked="" type="checkbox"/> Monitoring	
<input type="checkbox"/> Public Water Supply (Limited Use/DOH)		<input type="checkbox"/> Commercial/Industrial		<input type="checkbox"/> Nursery Irrigation		<input type="checkbox"/> Test	
<input type="checkbox"/> Public Water Supply (Community or Non-Community/DEP)		<input type="checkbox"/> Golf Course Irrigation		<input type="checkbox"/> Earth-Coupled Geothermal		<input type="checkbox"/> HVAC Supply	
<input type="checkbox"/> Class I Injection				<input type="checkbox"/> HVAC Return			
Class V Injection: <input type="checkbox"/> Recharge <input type="checkbox"/> Commercial/Industrial Disposal <input type="checkbox"/> Aquifer Storage and Recovery <input type="checkbox"/> Drainage							
Remediation: <input type="checkbox"/> Recovery <input type="checkbox"/> Air Sparge <input type="checkbox"/> Other (Describe) _____							
Other (Describe) _____							
12. *Drill Method: <input type="checkbox"/> Auger <input type="checkbox"/> Cable Tool <input type="checkbox"/> Rotary <input type="checkbox"/> Combination (Two or More Methods) <input type="checkbox"/> Jetted <input checked="" type="checkbox"/> Sonic							
<input type="checkbox"/> Horizontal Drilling <input type="checkbox"/> Hydraulic Point (Direct Push) <input type="checkbox"/> Other _____							
13. *Measured Static Water Level <u>0.0</u> ft. Measured Pumping Water Level _____ ft. After _____ Hours at _____ GPM							
14. *Measuring Point (Describe) _____ Which is _____ ft. Above _____ Below Land Surface *Flowing: <input type="checkbox"/> Yes <input type="checkbox"/> No							
15. *Casing Material: <input type="checkbox"/> Black Steel <input type="checkbox"/> Galvanized <input checked="" type="checkbox"/> PVC <input type="checkbox"/> Stainless Steel <input type="checkbox"/> Not Cased <input type="checkbox"/> Other _____							
16. *Total Well Depth <u>125.0</u> ft. Cased Depth <u>105.0</u> ft. *Open Hole: From _____ To _____ ft. *Screen: From _____ To _____ ft. Slot Size _____							
17. *Abandonment: <input type="checkbox"/> Other (Explain) _____							
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
18. *Surface Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
19. *Primary Casing Diameter and Depth:							
Dia <u>2.00</u> in. From <u>0.00</u> ft. To <u>105.00</u> ft. No. of Bags <u>22.50</u>		Seal Material (Check One): <input checked="" type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
20. *Liner Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
21. *Telescope Casing Diameter and Depth:							
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
Dia _____ in. From _____ ft. To _____ ft. No. of Bags _____		Seal Material (Check One): <input type="checkbox"/> Neat Cement <input type="checkbox"/> Bentonite <input type="checkbox"/> Other _____					
22. Pump Type (If Known):							
<input type="checkbox"/> Centrifugal <input type="checkbox"/> Jet <input type="checkbox"/> Submersible <input type="checkbox"/> Turbine		23. Chemical Analysis (When Required):					
Horsepower _____ Pump Capacity (GPM) _____		Iron _____ ppm Sulfate _____ ppm Chloride _____ ppm					
Pump Depth _____ ft. Intake Depth _____ ft.		<input type="checkbox"/> Laboratory Test <input type="checkbox"/> Field Test Kit					
24. Water Well Contractor:							
*Contractor Name <u>Stephanie S Stallsmith</u>		*License Number <u>9342</u>		E-mail Address <u>stephanie@hussdrilling.com</u>			
*Contractor's Signature <u>Digitally Signed</u>		*Driller's Name (Print or Type) <u>Bubba Tait</u>					
(I certify that the information provided in this report is accurate and true.)							

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
152 WATER MANAGEMENT DR., HAVANA, FL 32333-4712
(U.S. Highway 90, 10 miles west of Tallahassee)
PHONE: (850) 539-5999
WWW.NWFWMD.STATE.FL.US

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
P.O. BOX 24680
3301 GUN CLUB ROAD
WEST PALM BEACH, FL 33416-4680
PHONE: (561) 686-8800
WWW.SFWMD.GOV

SUWANNEE RIVER WATER MANAGEMENT DISTRICT
9225 CR 49
LIVE OAK, FL 32060
PHONE: (386) 362-1001 or (800) 226-1066 (Florida only)
WWW.MYSUWANNEERIVER.COM

*DRILL CUTTINGS LOG (Examine cuttings every 20 ft. or at formation changes. Note cavities and depth to producing zone. Grain Size: F=Fine, M=Medium, and C=Coarse)

[illegible]

Comments: Finish: SCREENED OR SANDPOINT

***Detailed Site Map of Well Location**



Give distances from all reference points or structures, septic systems, sanitary hazards, and contamination sources within 500 ft. of well.

WELL DEVELOPMENT FIELD REPORT

PROJECT NAME / NUMBER: Citrus County Central LF. 03860-058-01-3000 PAGE: 1 of 1

WELL NUMBER: MW-22 DATE: 8/4/17

WEATHER CONDITIONS: Cloudy, 35°C, Wind 0-5 SW

DEVELOPER (s): S. Messick / Drillers: Huss

DEVELOPMENT TECHNIQUE: ESP (Grundfos) - surge and purge

TOTAL WELL DEPTH (Initial): 125.49 WELL DIAMETER: 2" PVC

TOTAL WELL DEPTH (Final): 125.57 SCREEN LENGTH: 20 ft.

DEPTH TO WATER: 108.72 WELL VOLUME: 2.7 gpv

		PUMP			PUMP						
		GALLONS	DEPTH	RATE	TURB.	SETTING					
TIME	DTW	PURGED	(ft)	(gpm)	(NTU)	(HZ)	COMMENTS				
1330	108.72	—	125		>1000	400	Orange/brown color				
		±50									
1432		±60	116	1.0		268	Temp	Cond.	D.O.	pH	ORP
1502	108.83	30	116	1.0	7.14	268	25.5	519	0.68	6.95	31.0
1532	108.86	30	116	1.0	1.95	268	25.4	582	0.64	6.85	35.7
1602	108.85	30	116	1.0	0.42	268	25.4	530	0.60	6.81	38.3
Total purged		±200									
purge water clear, no sand, no odor, no slt/n.											
	</										

ADDITIONAL COMMENTS: I began by surging the entire water column. Then pumped at 400hz (Max) until dry (±5 gallons), allowed to recharge then repeated. After a short while, purge water cleared from orange/brown to light white/gray and well could be pumped at 400hz with out going dry. I then purge well with pump at mid screen at 1.0 gpm and began taking field readings. This well looks good

To sample: pump mid way in water column ±116ft at 268hz

WELL DEVELOPMENT FIELD REPORT

Citrus County Central LF.

PROJECT NAME / NUMBER: 03860-058-01-3000

PAGE: 1 of 1

WELL NUMBER: MW-19D

DATE: 8/2/17

WEATHER CONDITIONS: Cloudy w/light rain, 25°C, wind 3 mph

DEVELOPER (s): S. MessioK / Drillers: Huss

DEVELOPMENT TECHNIQUE: ESP (Grundfos pump), surge and purge

TOTAL WELL DEPTH (Initial): 165.70

WELL DIAMETER: 2" pvc

TOTAL WELL DEPTH (Final): 165.70

SCREEN LENGTH: 5 feet

DEPTH TO WATER: 107.87

WELL VOLUME: 9.25 gpv

TIME	DTW	PUMP GALLONS PURGED	DEPTH (ft)	RATE (gpm)	TURB. (NTU)	PUMP SETTING (HZ)	COMMENTS
0900	107.87	—	bottom	1.0	—	280	temp Cond D.O. pH ORP
0930	131.04	30	163	1.0	3.41	280	24.5/388µS/3.41/6.51/83.6
							sandy gray/brown color w/sand in purge water
1000	127.5	30	163	1.0	6.51	280	24.8/168/0.27/5.63/-245.2
1010	Increased pump speed to					310 Hz	still sandy gray/brown color
1100	137.32	72.5	163	1.25	3.52	310	24.5/160/0.20/5.56/-266.3
							mostly clear now - surging
							entire water column
1230	137.07	94	163	1.25	2.20	310	24.4/133/0.45/5.44/-198.0
							mostly clear
1330	136.35	75	163	1.25	1.71	310	24.3/127/0.48/5.50/-176.1
1430		75	163	1.25	1.44	310	24.2/124/0.40/5.54/-152.6
1530		75	163	1.25	1.19	310	24.3/120/0.21/5.44/-143.7
1600	134.46	37.5	163	1.25	1.05	310	24.3/120/0.77/5.44/-138.1
Total purged		490					
purge water is clear, no odor, no sheen, good recharge							

ADDITIONAL COMMENTS: I surged the entire water column and then pumped from just off the bottom. I then moved pump thru the 5 foot screened section to clean out bottom of well best I can. At 280 hz to purge rate is 1 gpm. I ran it at that rate and surged entire water column. Pretty good recharge here and well is running clear to slightly white/sandy brown. Continue purging & surging well and taking field readings.

To sample: purge at 0.5 gpm @ 280 hz - monitor drawdown

Citrus County Central LF.

PAGE: 1 of 2

DATE: 8/3/17

DEVELOPER (s): S. Messick / Drillers: Huss

WELL DIAMETER: 2" PVC

SCREEN LENGTH: 10 foot

WELL VOLUME: 4.2 gpv

ADDITIONAL COMMENTS: I begin by surging entire water column, then pumped from bottom at 400 Hz. Looks like mostly quick gel so I moved pump up in column 5 Ft. still quick gel, pumping slowly, raised pump 5 more feet. Now at top of screen, well went dry, allowed to recharge and again surged entire water column. Pumped at 400 Hz until dry - gradually I got rid of all visual signs of quick gel. Because of poor recharge, this well is hard to develop. Continue surge and purge fast until 1610 then slow well purge rate enough so I could get some field readings. Will continue this well tomorrow.

Note: It rained most of the day today

Citrus County Central LF.

PAGE: 2 of 2

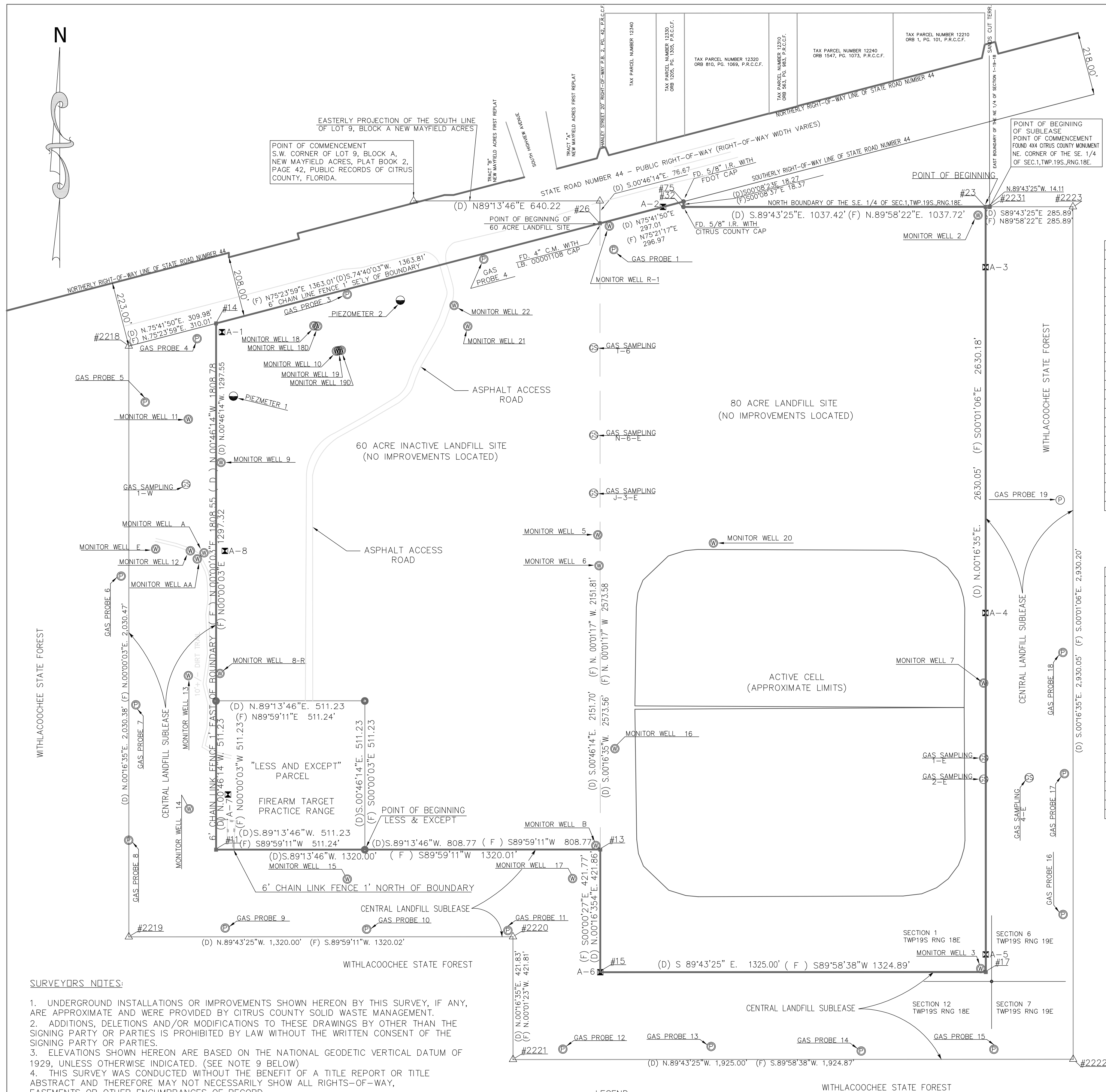
DATE: 8/4/17 Day 2

ADDITIONAL COMMENTS: To begin I surged entire water column and purged from bottom and mid-screen. Pumped at 400 Hz to begin to clean out bottom of well. Then moved up thru entire water column. Finally pumping from mid-well screen.

To sample this well: be careful placing pump into water column
place pump @ 126 ft, pump @ $\frac{1}{2}$ - 20 gpm which is about 260-285 Hz.
monitor draw down

ATTACHMENT 4

SITE SURVEY



SURVEYORS NOTES:

1. UNDERGROUND INSTALLATIONS OR IMPROVEMENTS SHOWN HEREON BY THIS SURVEY, IF ANY, ARE APPROXIMATE AND WERE PROVIDED BY CITRUS COUNTY SOLID WASTE MANAGEMENT.
2. ADDITIONS, DELETIONS AND/OR MODIFICATIONS TO THESE DRAWINGS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED BY LAW WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.
3. ELEVATIONS SHOWN HEREON ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929, UNLESS OTHERWISE INDICATED. (SEE NOTE 9 BELOW)
4. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF A TITLE REPORT OR TITLE ABSTRACT AND THEREFORE MAY NOT NECESSARILY SHOW ALL RIGHTS--OF--WAY, EASEMENTS OR OTHER ENCUMBRANCES OF RECORD.
5. REFERENCE BENCH MARKS, FLORIDA DEPARTMENT OF TRANSPORTATION BENCH MARK No.544 PUBLISHED ELEVATION 115.22' N.G.V.D. 1929 AND FL DEP BENCHMARK CITRUS 14, NAVD '88 ELEVATION OF 135.09' (NGVD '29 ELEVATION OF 135.93')
6. THERE ARE INTERNAL IMPROVEMENTS THAT WERE NOT LOCATED BY THIS SURVEY.
7. BEARINGS AS SHOWN HEREON, ARE BASED ON THE NORTH BOUNDARY OF THE SE 1/4 OF SECTION 1, TO SHIPHOLE COUNTRY, RANGE 18 EAST, HAVING A BEARING OF N.89°58'22"E PER FLORIDA STATE PLANE COORDINATES.
8. "X-Y" COORDINATES SHOWN ON TABLES REFLECT FLORIDA STATE PLANE, WEST ZONE, NORTH AMERICAN DATUM OF 1983. THESE COORDINATES ARE BASED ON NATIONAL GEODETIC SURVEY CONTROL STATIONS "CITRUS 13" AND "CITRUS 14", AND WERE DERIVED USING REAL TIME KINEMATIC GLOBAL POSITIONING SYSTEMS, WITH AN ESTIMATED ACCURACY OF $\pm 0.07'$, AND CONVENTIONAL SURVEY METHODS MEETING FLORIDA SURVEY STANDARDS.
9. CONVERSION FROM NAVD 1988 TO NGVD 1929 FOR THIS SITE IS $+0.84'$.
10. THE SPECIFIC PURPOSE OF THIS SURVEY MAP IS TO SHOW UPDATED NGVD '29 ELEVATIONS OF THE MONITORING WELLS SHOWN HEREON, NO X OR Y COORDINATES OR ELEVATIONS OF GAS MONITORING PROBES WERE REVISITED. BOUNDARY DATA SHOWN HEREON WAS PREVIOUSLY PRODUCED BY THIS OFFICE.

LEGEND:

△	=	DESCRIPTIVE POINT
⊙	=	MONITORING WELL
⊖	=	PEIZOMETER
⊕	=	GAS PROBE
⊗	=	GAS SAMPLING
⊗	=	AERIAL TARGET
NGVD =	NATIONAL GEODETIC VERTICAL DATUM OF 1929	
NAVD =	NORTH AMERICAN VERTICAL DATUM OF 1988	
(D) =	DIMENSION/INFORMATION BASED ON DEED	
(F) =	DIMENSION/INFORMATION BASED ON FIELD MEASURE	
I.R. =	IRON ROD	
C.M. =	CONCRETE MONUMENT	
DOT =	FLORIDA DEPARTMENT OF TRANSPORTATION	
DEP =	FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	
TWP =	TOWNSHIP	
RGE =	RANGE	

DESCRIPTION AS FURNISHED

A PORTION OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, TALLAHASSEE MERIDIAN, CITRUS COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCE AT THE NORTHEAST CORNER OF THE SOUTHEAST 1/4 OF SECTION 1, TOWNSHIP 19, SOUTH, RANGE 18 EAST, TALLAHASSEE MERIDIAN, THENCE S.02°57'25"E. ALONG THE SOUTHEAST 1/4 OF SECTION 1, TOWNSHIP 19, SOUTH, RANGE 18 EAST, TO THE SOUTHWEST CORNER OF SAID SECTION 1, A DISTANCE OF 110.00 FEET TO THE POINT OF BEGINNING, SAID POINT BEING THE NORTHEAST CORNER OF THOSE LANDS DESCRIBED IN OFFICIAL RECORD BOOK 759, PAGE 889, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA; THENCE S.00°16'53"E., A DISTANCE OF 2,630.05 FEET; THENCE N.89°43'25"W. PARALLEL WITH THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SECTION 1, A DISTANCE OF 1,328.00 FEET; THENCE E.00°00'33"E., A DISTANCE OF 150.00 FEET TO THE POINT OF BEGINNING, SAID POINT BEING THE NORTHEAST CORNER OF THOSE LANDS DESCRIBED IN OFFICIAL RECORD BOOK 759, PAGE 889, PUBLIC RECORDS OF CITRUS COUNTY, FLORIDA; THENCE N.75°41'50"E. ALONG SAID SOUTH RIGHT-OF-WAY LINE, A DISTANCE OF 297.01 FEET; THENCE DEPARTING SAID SOUTH RIGHT-OF-WAY LINE, S.00°08'23"E., A DISTANCE OF 1,328.00 FEET TO THE POINT OF BEGINNING, SAID POINT BEING THE NORTHEAST CORNER OF SECTION 1, THENCE S.89°43'25"E. ALONG THE NORTH BOUNDARY OF THE SOUTHEAST 1/4 OF SAID SECTION 1, A DISTANCE OF 1,037.42 FEET TO THE POINT OF BEGINNING.

CONTAINING 79.87 ACRES, MORE OR LESS.

AND

A PORTION OF SECTION 19, TOWNSHIP 19 SOUTH, RANGE 18 EAST BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCE AT THE SOUTHWEST CORNER OF LOT 9, BLOCK A, NE 1/4 SECTION 19, TOWNSHIP 19 SOUTH, RANGE 18 EAST, HILLSBORO COUNTY, FLORIDA, THENCE N.89.134°E., ON AN EASTERLY PROJECTION OF THE SOUTH LINE OF SAID LOT 9, BLOCK A, A DISTANCE OF 840.22 FEET, THENCE S.0°46'14"W., A DISTANCE OF 132.00 FEET, THENCE S.19°19'13"W., A DISTANCE OF 1363.81 FEET TO THE CENTERLINE OF STATE ROAD NO. 44, SAID POINT ALSO BEING THE POINT OF BEGINNING OF THE CENTERLINE OF SAID ROAD NO. 44, THENCE S.19°19'13"W., A DISTANCE OF 1320 FEET, THENCE N.0°46'14"W., A DISTANCE OF 1808.78 FEET TO A POINT THAT IS 150 FEET FROM, MEASURED AT A RIGHT ANGLE TO, THE CENTERLINE OF SAID STATE ROAD NO. 44, THENCE S.19°19'13"W., A DISTANCE OF 1363.81 FEET TO THE CENTERLINE OF STATE ROAD NO. 44, A DISTANCE OF 1363.81 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPT

A PORTION OF SECTION 10, TOWNSHIP 19 SOUTH, RANGE 18 EAST, CITRUS COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCE AT THE SW CORNER OF LOT 9, TRACT 10, TOWNSHIP 19 SOUTH, RANGE 18 EAST, CITRUS COUNTY, FLORIDA; THENCE S.89°43'22"E. ALONG THE SOUTH LINE OF SAID LOT 9, 100.00 FEET; THENCE S.89°43'22"E. ALONG THE DISTANCE OF 150.00 FEET TO THE POINT OF BEGINNING; THENCE S.00°16'35"W. A DISTANCE OF 76.75 FEET TO THE POINT WHERE THE LINE IS 150 FEET SOUTHEASTERLY FROM, WHEN MEASURED AT A RIGHT ANGLE TO THE CENTERLINE OF STATE ROAD NO. 44; THENCE S.00°16'35"W. A DISTANCE OF 150.00 FEET TO THE POINT OF BEGINNING; THENCE A DISTANCE OF 808.77 FEET TO THE POINT OF BEGINNING; THENCE CONTINUE S.89°13'46"W. A DISTANCE OF 511.23 FEET; THENCE N.00°46'14"N. A DISTANCE OF 511.23 FEET; THENCE S.00°16'35"W. A DISTANCE OF 150.00 FEET; THENCE S.00°46'14"E. A DISTANCE OF 511.23 FEET TO THE POINT OF BEGINNING.

SAID EXCEPTION CONTAINING 6 ACRES, MORE OR LESS.

SUBLEASE DESCRIPTION:

A PORTION OF SECTIONS 1 AND 12, TOWNSHIP 19 SOUTH, RANGE 18 EAST AND SECTION 6, TOWNSHIP 19 SOUTH, RANGE 19 EAST, CITRUS COUNTY, FLORIDA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGIN AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 19 SOUTH, RANGE 18 EAST, CITRUS COUNTY, FLORIDA; THENCE SOUTH 89°43'25" EAST ALONG AN EASTERLY CURVATURE OF THE NORTH BOUNDARY OF THE SOUTHEAST QUARTER OF SAID SECTION 1, A DISTANCE OF 1,320.00 FEET; THENCE SOUTH 0°16'35" WEST, A DISTANCE OF 2,930.05 FEET; THENCE NORTH 89°43'25" WEST PARALLEL WITH THE NORTH BOUNDARY OF THE SOUTHEAST QUARTER OF SAID SECTION 1, A DISTANCE OF 1,925.00 FEET; THENCE NORTH 0°16'35" EAST, A DISTANCE OF 421.83 FEET; THENCE NORTH 0°16'35" WEST PARALLEL WITH THE SOUTHERLY RIGHT-OF-WAY LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 1, A DISTANCE OF 1,320.00 FEET; THENCE NORTH 0°16'35" EAST, A DISTANCE OF 2,030.38 FEET TO A POINT OF INTERSECTION WITH THE SOUTHERLY RIGHT-OF-WAY LINE OF STATE ROAD NUMBER 44; SAID POINT BEING 150.0 FEET FROM, WHEN MEASURED AT A BEARING OF 0°16'35" EAST, THE POINT OF INTERSECTION OF THE SOUTHERLY RIGHT-OF-WAY LINE OF STATE ROAD 44; THENCE SOUTHERLY RIGHT-OF-WAY LINE, A DISTANCE OF 809.98 FEET; THENCE DEPARTING SAID SOUTHERLY RIGHT-OF-WAY LINE SOUTH 0°16'35" WEST, A DISTANCE OF 1,808.41 FEET; THENCE SOUTH 89°43'25" EAST PARALLEL WITH THE NORTH BOUNDARY OF THE SOUTHEAST QUARTER OF SAID SECTION 1, A DISTANCE OF 1,320.00 FEET; THENCE SOUTH 0°16'35" WEST, A DISTANCE OF 1,320.00 FEET; THENCE SOUTH 89°43'25" EAST PARALLEL WITH THE NORTH BOUNDARY OF THE SOUTHEAST QUARTER OF SAID SECTION 1, A DISTANCE OF 1,325.00 FEET; THENCE NORTH 0°16'35" EAST, A DISTANCE OF 2,630.05 FEET TO A POINT OF INTERSECTION WITH THE NORTH BOUNDARY OF THE SOUTHEAST QUARTER OF SAID SECTION 1; THENCE SOUTH 89°43'25" EAST ALONG THE NORTH BOUNDARY OF THE SOUTHEAST QUARTER OF SAID SECTION 1, A DISTANCE OF 1,411.00 FEET TO A POINT OF BEGINNING.

SAID PARCEL CONTAINING 55.55 ACRES, MORE OR LESS.

AERIAL TARGET NUMBER	X COORDINATE	Y COORDINATE	ELEVATION
A-1	514415.7043	1643723.8932	110.16'
A-2	515930.77 231	1644154.1668	116.16'
A-3	517039.1853	1643947.0030	130.79'
A-4	517038.7010	1642758.8531	126.06'
A-5	517039.9417	1641584.9931	119.62'
A-6	515715.2180	1641523.9862	109.08'
A-7	514435.8577	1642134.6139	115.28'
A-8	514425.2393	1642971.9717	109.56'

REVISIONS	JOB No. 15-039
	PROJ. No. 15-458
	DRAWN BY: MTT
	DWG. No. 15039-A
	MAP DATE: 6-11-2015
	SCALE: 1" = 200'
	SHEET No. 1 OF 1
	FIELD DATE: 6-11-2015
09.14.2017-Correct/Identity of Mon. Well 18D on map	FB L4 AND L5
08.31.2017-Additional Monitoring Well locations:	
MW-18D, MW-19D, & MW 22; Field Date 08.22.17	SEC. 01,TWP. 19 S, RNG 18 E
F.B. L-5, Pgs 45-47	

SPECIFIC PURPOSE SURVEY

Citrus County
Division of Engineering
Survey Section

3600 WEST SOVEREIGN PATH, SUITE 241
LECANTO, FLORIDA. 34461
(352) 527-5498 FAX (352) 527-5476

SEPTEMBER 14, 2017

Date _____

Not valid without the original raised seal and signature of a Florida licensed Surveyor and Mapper

ATTACHMENT 5

ANALYSIS RESULTS COMPARED TO GROUNDWATER STANDARDS

**ANALYSIS RESULTS COMPARED TO GROUNDWATER
STANDARDS AND/OR GUIDANCE CONCENTRATIONS
CITRUS COUNTY CENTRAL LANDFILL
AUGUST 2017 Initial Sampling**

PARAMETER		pH (FIELD)	IRON
STANDARD		6.5-8.5 S.U.**	300 µg/L**
Assessment			
MW-18D	8/17/2017	5.90	939
MW-19D	8/17/2017	6.15	22200
MW-22	8/17/2017	-	-

LEGEND

* =Primary Drinking Water Standard
 ** =Secondary Drinking Water Standard
 *** =Chapter 62-777 Groundwater Cleanup Target Levels (GCTL)
 @ =Analysis Result is at Groundwater Standard
 - =Analysis Result is not at or outside Groundwater Standard
 NS =Not Sampled
 NM =Not Measured

Note:

This table displays analysis results which were reported at or outside Groundwater Standards.
 Analysis results notated with "@" indicate that the analysis result was reported at the Groundwater Standard.
 Analysis results which were reported above the laboratory detection limit (reporting limit), but not at or above the Groundwater Standard are not displayed in this table.

ATTACHMENT 6

GROUNDWATER PARAMETERS AT OR ABOVE THE LABORATORY DETECTION LIMIT

PARAMETERS AT OR ABOVE THE LABORATORY DETECTION LIMIT
CITRUS COUNTY CENTRAL LANDFILL
AUGUST 2017 INITIAL SAMPLING

PARAMETER		CONDUCTIVITY (FIELD)	DISSOLVED OXYGEN (FIELD)	GROUND- WATER ELEVATION	pH (FIELD)	REDOX POTENTIAL	TEMPER- ATURE (FIELD)	TURBIDITY (FIELD)	IRON
STANDARD UNITS		(1) uS/cm	(1) ppm	(1) ft, NGVD	6.5-8.5 S.U.** S.U.	(1) mV	(1) deg C	(1) NTU	300 µg/L** µg/L
Assessment									
MW-18D	8/17/2017	215	0.52	6.24	5.90	17.4	26.8	14.1	939
MW-19D	8/17/2017	242	0.21	5.97	6.15	-164.5	26.5	4.39	22200
MW-22	8/17/2017	492	0.16	5.26	6.61	-48.0	24.7	3.91	241
QAQC									
EQUBLK	8/17/2017	-	-	-	-	-	-	-	<22.0

LEGEND		
*	=Primary Drinking Water Standard	I = Value is between the Method Detection Level (MDL) and the Reporting Detection Level (RDL)
**	=Secondary Drinking Water Standard	J = Estimated value
***	=Chapter 62-777 Groundwater Cleanup Target Levels (GCTL)	V = Analyte found in associated method blank
(1)	=No Standard	Q = Estimated value; analyte analyzed after acceptable holding time
-	=Not Analyzed	

ATTACHMENT 7

PARAMETER MONITORING REPORT FORMS

Citrus County Central Landfill

Parameter Monitoring Report

PART III Analytical Results

Facility WACS #: SWD/09/39859

Test Site ID #:

Well Name: MW-18D

Classification of Ground Water: GII

Ground Water Elevation (NGVD): 6.24

Sampling Date/Time: 8/17/2017 3:40:00 PM

Report Period: AUGUST 2017 Initial Sampling

Well Purged: Yes

Well Type: ☐ Background ☐ Intermediate
☐ Compliance ☐ Water Supply
☐ Detection ☐ Piezometer
☒ Assessment ☐ Leachate
☐ Other ☐ Surface Water

STORET CODE	PARAMETER MONITORED	SAMPLING METHOD	FIELD FILTERED	ANALYSIS METHOD	ANALYSIS DATE/TIME	ANALYSIS RESULT *	UNITS	DETECTION LIMIT/UNITS
082545	GROUNDWATER ELEVATION	SP	No	DEP SOP	8/17/2017 3:40:00 PM	6.24	ft, NGVD	ft, NGVD
000094	CONDUCTIVITY (FIELD)	SP	No	EPA 120.1	8/17/2017 3:40:00 PM	215	µmhos/cm	0µmhos/cm
000406	pH (FIELD)	SP	No	EPA 150.1	8/17/2017 3:40:00 PM	5.90	pH units	pH Units
000010	TEMPERATURE (FIELD)	SP	No	EPA 170.1	8/17/2017 3:40:00 PM	26.8	°C	0°C
082078	TURBIDITY (FIELD)	SP	No	EPA 180.1	8/17/2017 3:40:00 PM	14.1	NTU	0NTU
000299	DISSOLVED OXYGEN (FIELD)	SP	No	EPA 360.1	8/17/2017 3:40:00 PM	0.52	mg/L	0mg/L
001045	IRON	SP	No	EPA 6010D	8/25/2017 1:47:00 PM	939	µg/L	22.0µg/L
034030	BENZENE	SP	No	EPA 8260B	8/29/2017 3:20:00 PM	<0.71	µg/L	0.71µg/L
034423	DICHLOROMETHANE	SP	No	EPA 8260B	8/29/2017 3:20:00 PM	<2.0	µg/L	2.0µg/L
039175	VINYL CHLORIDE	SP	No	EPA 8260B	8/29/2017 3:20:00 PM	<0.71	µg/L	0.71µg/L
046480	REDOX POTENTIAL (FIELD)	SP	No	SM18 2580 B	8/17/2017 3:40:00 PM	17.4	mV	-999mV

Citrus County Central Landfill

Parameter Monitoring Report

PART III Analytical Results

Facility WACS #: SWD/09/39859

Test Site ID #:

Well Name: MW-19D

Classification of Ground Water: GII

Ground Water Elevation (NGVD): 5.97

Sampling Date/Time: 8/17/2017 1:57:00 PM

Report Period: AUGUST 2017 Initial Sampling

Well Purged: Yes

Well Type: ☐ Background ☐ Intermediate
☐ Compliance ☐ Water Supply
☐ Detection ☐ Piezometer
☒ Assessment ☐ Leachate
☐ Other ☐ Surface Water

STORET CODE	PARAMETER MONITORED	SAMPLING METHOD	FIELD FILTERED	ANALYSIS METHOD	ANALYSIS DATE/TIME	ANALYSIS RESULT *	UNITS	DETECTION LIMIT/UNITS
082545	GROUNDWATER ELEVATION	SP	No	DEP SOP	8/17/2017 1:57:00 PM	5.97	ft, NGVD	ft, NGVD
000094	CONDUCTIVITY (FIELD)	SP	No	EPA 120.1	8/17/2017 1:57:00 PM	242	µmhos/cm	0µmhos/cm
000406	pH (FIELD)	SP	No	EPA 150.1	8/17/2017 1:57:00 PM	6.15	pH units	pH Units
000010	TEMPERATURE (FIELD)	SP	No	EPA 170.1	8/17/2017 1:57:00 PM	26.5	°C	0°C
082078	TURBIDITY (FIELD)	SP	No	EPA 180.1	8/17/2017 1:57:00 PM	4.39	NTU	0NTU
000299	DISSOLVED OXYGEN (FIELD)	SP	No	EPA 360.1	8/17/2017 1:57:00 PM	0.21	mg/L	0mg/L
001045	IRON	SP	No	EPA 6010D	8/25/2017 1:44:00 PM	22200	µg/L	22.0µg/L
034030	BENZENE	SP	No	EPA 8260B	8/29/2017 2:51:00 PM	<0.71	µg/L	0.71µg/L
034423	DICHLOROMETHANE	SP	No	EPA 8260B	8/29/2017 2:51:00 PM	<2.0	µg/L	2.0µg/L
039175	VINYL CHLORIDE	SP	No	EPA 8260B	8/29/2017 2:51:00 PM	<0.71	µg/L	0.71µg/L
046480	REDOX POTENTIAL (FIELD)	SP	No	SM18 2580 B	8/17/2017 1:57:00 PM	-164.5	mV	-999mV

Citrus County Central Landfill Parameter Monitoring Report

PART III Analytical Results

Facility WACS #: SWD/09/39859

Test Site ID #:

Well Name: MW-22

Classification of Ground Water: GII

Ground Water Elevation (NGVD): 5.26

Sampling Date/Time: 8/17/2017 3:55:00 PM

Report Period: AUGUST 2017 Initial Sampling

Well Purged: Yes

Well Type: ☐ Background ☐ Intermediate
☐ Compliance ☐ Water Supply
☐ Detection ☐ Piezometer
☒ Assessment ☐ Leachate
☐ Other ☐ Surface Water

STORET CODE	PARAMETER MONITORED	SAMPLING METHOD	FIELD FILTERED	ANALYSIS METHOD	ANALYSIS DATE/TIME	ANALYSIS RESULT *	UNITS	DETECTION LIMIT/UNITS
082545	GROUNDWATER ELEVATION	SP	No	DEP SOP	8/17/2017 5:23:00 PM	5.26	ft, NGVD	ft, NGVD
000094	CONDUCTIVITY (FIELD)	SP	No	EPA 120.1	8/17/2017 3:55:00 PM	492	µmhos/cm	0µmhos/cm
000406	pH (FIELD)	SP	No	EPA 150.1	8/17/2017 3:55:00 PM	6.61	pH units	pH Units
000010	TEMPERATURE (FIELD)	SP	No	EPA 170.1	8/17/2017 3:55:00 PM	24.7	°C	0°C
082078	TURBIDITY (FIELD)	SP	No	EPA 180.1	8/17/2017 3:55:00 PM	3.91	NTU	0NTU
000299	DISSOLVED OXYGEN (FIELD)	SP	No	EPA 360.1	8/17/2017 3:55:00 PM	0.16	mg/L	0mg/L
001045	IRON	SP	No	EPA 6010D	8/25/2017 1:49:00 PM	241	µg/L	22.0µg/L
034030	BENZENE	SP	No	EPA 8260B	8/29/2017 3:50:00 PM	<0.71	µg/L	0.71µg/L
034423	DICHLOROMETHANE	SP	No	EPA 8260B	8/29/2017 3:50:00 PM	<2.0	µg/L	2.0µg/L
039175	VINYL CHLORIDE	SP	No	EPA 8260B	8/29/2017 3:50:00 PM	<0.71	µg/L	0.71µg/L
046480	REDOX POTENTIAL (FIELD)	SP	No	SM18 2580 B	8/17/2017 3:55:00 PM	-48.0	mV	-999mV

Citrus County Central Landfill

Parameter Monitoring Report

PART III Analytical Results

Facility WACS #: SWD/09/39859

Test Site ID #:

Well Name: EQUBLK (AA05866-04)

Classification of Ground Water:

Ground Water Elevation (NGVD):

Sampling Date/Time: 8/17/2017 3:58:00 PM

Report Period: AUGUST 2017 Initial Sampling

Well Purged:

Well Type: ☐ Background ☐ Intermediate
☐ Compliance ☐ Water Supply
☐ Detection ☐ Piezometer
☐ Assessment ☐ Leachate
☒ Other ☐ Surface Water

STORET CODE	PARAMETER MONITORED	SAMPLING METHOD	FIELD FILTERED	ANALYSIS METHOD	ANALYSIS DATE/TIME	ANALYSIS RESULT *	UNITS	DETECTION LIMIT/UNITS
001045	IRON	BP	No	EPA 6010D	8/25/2017 1:52:00 PM	<22.0	µg/L	22.0µg/L
034030	BENZENE	BP	No	EPA 8260B	8/24/2017 3:37:00 PM	<0.71	µg/L	0.71µg/L
034423	DICHLOROMETHANE	BP	No	EPA 8260B	8/24/2017 3:37:00 PM	<2.0	µg/L	2.0µg/L
039175	VINYL CHLORIDE	BP	No	EPA 8260B	8/24/2017 3:37:00 PM	<0.71	µg/L	0.71µg/L

Citrus County Central Landfill Parameter Monitoring Report

PART III Analytical Results

Facility WACS #: SWD/09/39859

Test Site ID #:

Well Name: **TRIP1** (AA05866-05)

Classification of Ground Water:

Ground Water Elevation (NGVD):

Sampling Date/Time: 8/17/2017

Report Period: AUGUST 2017 Initial Sampling

Well Purged:

Well Type: ☐ Background ☐ Intermediate
☐ Compliance ☐ Water Supply
☐ Detection ☐ Piezometer
☐ Assessment ☐ Leachate
☒ Other ☐ Surface Water

STORET CODE	PARAMETER MONITORED	SAMPLING METHOD	FIELD FILTERED	ANALYSIS METHOD	ANALYSIS DATE/TIME	ANALYSIS RESULT *	UNITS	DETECTION LIMIT/UNITS
034030	BENZENE		No	EPA 8260B	8/24/2017 4:07:00 PM	<0.71	µg/L	0.71µg/L
034423	DICHLOROMETHANE		No	EPA 8260B	8/24/2017 4:07:00 PM	<2.0	µg/L	2.0µg/L
039175	VINYL CHLORIDE		No	EPA 8260B	8/24/2017 4:07:00 PM	<0.71	µg/L	0.71µg/L

ATTACHMENT 8

ORIGINAL LABORATORY DATA INCLUDING CHAIN-OF-CUSTODY FORMS



ENCO Laboratories

Accurate.

Timely.

Responsive.

Innovative.

10775 Central Port Drive

Orlando FL, 32824

Phone: 407.826.5314 FAX: 407.850.6945

Wednesday, August 30, 2017

Jones Edmunds & Associates, Inc. (JO006)

Attn: Elizabeth Kennelley

730 N.E.Waldo Road Bldg.A

Gainesville, FL 32641

RE: Laboratory Results for

Project Number: 03860-056-01, Project Name/Desc: Citrus Co. LF

ENCO Workorder(s): AA05866

Dear Elizabeth Kennelley,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Friday, August 18, 2017.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Orlando. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Carlene S Pasipanki For David Camacho

Project Manager

Enclosure(s)

LAB #		AA05866-01	AA05866-02	AA05866-03	AA05866-04	AA05866-05	-
MATRIX	Minimum	Ground Water	Ground Water	Ground Water	Ground Water	WATER	-
SAMPLE ID	Reporting Limit	MW-19D	MW-18D	MW-22	EQUIPMENT BLANK 1	TRIP BLANK 1	-

Volatile Organic Compounds by GCMS (Water)

Vinyl chloride	1.0 ug/L	<0.71 [11]	<0.71 [11]	<0.71 [11]	<0.71 [11]	<0.71 [11]	-
Methylene chloride	5.0 ug/L	<2.0 [11]	<2.0 [11]	<2.0 [11]	<2.0 [11]	<2.0 [11]	-
Benzene	1.0 ug/L	<0.71 [11]	<0.71 [11]	<0.71 [11]	<0.71 [11]	<0.71 [11]	-
Dibromofluoromethane	53-146	93%	77%	98%	125%	118%	-
Toluene-d8	41-146	103%	81%	103%	115%	112%	-
4-Bromofluorobenzene	41-142	93%	74%	100%	131%	125%	-

Field Parameters (Water)

Specific Conductance (EC)	0 umhos/cm	242	215	492	-	-	-
Dissolved Oxygen	0 mg/L	0.21	0.52	0.16	-	-	-
pH	pH Units	6.15	5.90	6.61	-	-	-
Oxidation/Reduction Potential	-999 mV	-164.5	17.4	-48.0	-	-	-
Temperature	0 °C	26.5	26.8	24.7	-	-	-
Turbidity	0 NTU	4.39	14.1	3.91	-	-	-
Depth to Water	Ft	107.62	109.44	108.53	-	-	-

Metals (total recoverable) by EPA 6000/7000 Series Methods (Water)

Iron	50.0 ug/L	22200	939	241	<22.0	-	-
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QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sample Notes
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Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 7H24027 - EPA 3005A

Blank (7H24027-BLK1) Prepared: 08/24/2017 12:17 Analyzed: 08/25/2017 12:42

Iron 22.0 U 50.0 ug/L

Blank (7H24027-BLK2) Prepared: 08/24/2017 12:17 Analyzed: 08/25/2017 12:45

Iron 22.0 U 50.0 ug/L

LCS (7H24027-BS1) Prepared: 08/24/2017 12:17 Analyzed: 08/25/2017 12:48

Iron 1030 50.0 ug/L 1000 103 80-120

Matrix Spike (7H24027-MS1) Source: CA12838-01 Prepared: 08/24/2017 12:17 Analyzed: 08/25/2017 12:53

Iron 1490 50.0 ug/L 1000 547 94 75-125

Matrix Spike Dup (7H24027-MSD1) Source: CA12838-01 Prepared: 08/24/2017 12:17 Analyzed: 08/25/2017 12:55

Iron 1580 50.0 ug/L 1000 547 103 75-125 6 20

Post Spike (7H24027-PS1) Source: CA12838-01 Prepared: 08/24/2017 12:17 Analyzed: 08/25/2017 13:05

Iron 1.60 0.0500 mg/L 1.00 0.547 105 80-120

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sample Notes
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Volatile Organic Compounds by GCMS - Quality Control

Batch 7H24016 - EPA 5030B_MS

Blank (7H24016-BLK1) Prepared: 08/24/2017 00:00 Analyzed: 08/24/2017 14:00

Benzene 0.71 U 1.0 ug/L U

Methylene chloride 2.0 U 5.0 ug/L U

Vinyl chloride 0.71 U 1.0 ug/L U

Surrogate: 4-Bromofluorobenzene 69 ug/L 50.0 138 41-142

Surrogate: Dibromofluoromethane 60 ug/L 50.0 120 53-146

Surrogate: Toluene-d8 58 ug/L 50.0 115 41-146

LCS (7H24016-BS1) Prepared: 08/24/2017 00:00 Analyzed: 08/24/2017 12:32

Benzene 17 1.0 ug/L 20.0 86 56-136

Methylene chloride 18 5.0 ug/L 20.0 90 43-142

Vinyl chloride 19 1.0 ug/L 20.0 93 20-167

Surrogate: 4-Bromofluorobenzene 65 ug/L 50.0 130 41-142

Surrogate: Dibromofluoromethane 56 ug/L 50.0 113 53-146

Surrogate: Toluene-d8 59 ug/L 50.0 117 41-146

Matrix Spike (7H24016-MS1) Source: AA06049-10 Prepared: 08/24/2017 00:00 Analyzed: 08/24/2017 17:06

Benzene 18 1.0 ug/L 20.0 0.71 U 91 56-136

Methylene chloride 20 5.0 ug/L 20.0 2.0 U 99 43-142

Vinyl chloride 21 1.0 ug/L 20.0 0.71 U 106 20-167

Surrogate: 4-Bromofluorobenzene 68 ug/L 50.0 135 41-142

Surrogate: Dibromofluoromethane 60 ug/L 50.0 120 53-146

Surrogate: Toluene-d8 59 ug/L 50.0 119 41-146

Matrix Spike Dup (7H24016-MSD1) Source: AA06049-10 Prepared: 08/24/2017 00:00 Analyzed: 08/24/2017 17:35

Benzene 17 1.0 ug/L 20.0 0.71 U 84 56-136 8 14

Methylene chloride 19 5.0 ug/L 20.0 2.0 U 96 43-142 2 23

Vinyl chloride 20 1.0 ug/L 20.0 0.71 U 102 20-167 4 24

QUALITY CONTROL

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Sample Notes
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Volatiles Organic Compounds by GCMS - Quality Control

Batch 7H24016 - EPA 5030B_MS

Matrix Spike Dup (7H24016-MSD1) Continued	Source: AA06049-10		Prepared: 08/24/2017 00:00 Analyzed: 08/24/2017 17:35							
Surrogate: 4-Bromofluorobenzene	67		ug/L	50.0		134	41-142			
Surrogate: Dibromofluoromethane	58		ug/L	50.0		116	53-146			
Surrogate: Toluene-d8	57		ug/L	50.0		114	41-146			

Batch 7H29004 - EPA 5030B_MS

Blank (7H29004-BLK1)	Prepared: 08/29/2017 00:00 Analyzed: 08/29/2017 10:18									
Benzene	0.71 U	1.0	ug/L							U
Methylene chloride	2.0 U	5.0	ug/L							U
Vinyl chloride	0.71 U	1.0	ug/L							U
Surrogate: 4-Bromofluorobenzene	46		ug/L	50.0		91	41-142			
Surrogate: Dibromofluoromethane	47		ug/L	50.0		93	53-146			
Surrogate: Toluene-d8	51		ug/L	50.0		102	41-146			

LCS (7H29004-BS1)	Prepared: 08/29/2017 00:00 Analyzed: 08/29/2017 09:17									
Benzene	22	1.0	ug/L	20.0		112	56-136			
Methylene chloride	22	5.0	ug/L	20.0		108	43-142			
Vinyl chloride	19	1.0	ug/L	20.0		95	20-167			
Surrogate: 4-Bromofluorobenzene	48		ug/L	50.0		96	41-142			
Surrogate: Dibromofluoromethane	49		ug/L	50.0		97	53-146			
Surrogate: Toluene-d8	51		ug/L	50.0		103	41-146			

Matrix Spike (7H29004-MS1)	Source: AA05976-03		Prepared: 08/29/2017 00:00 Analyzed: 08/29/2017 13:51							
Benzene	23	1.0	ug/L	20.0	0.71 U	116	56-136			
Methylene chloride	22	5.0	ug/L	20.0	2.0 U	112	43-142			
Vinyl chloride	18	1.0	ug/L	20.0	0.71 U	92	20-167			
Surrogate: 4-Bromofluorobenzene	49		ug/L	50.0		98	41-142			
Surrogate: Dibromofluoromethane	48		ug/L	50.0		96	53-146			
Surrogate: Toluene-d8	51		ug/L	50.0		102	41-146			

Matrix Spike Dup (7H29004-MSD1)	Source: AA05976-03		Prepared: 08/29/2017 00:00 Analyzed: 08/29/2017 14:21							
Benzene	22	1.0	ug/L	20.0	0.71 U	110	56-136	5	14	
Methylene chloride	22	5.0	ug/L	20.0	2.0 U	112	43-142	0.09	23	
Vinyl chloride	18	1.0	ug/L	20.0	0.71 U	92	20-167	0.7	24	
Surrogate: 4-Bromofluorobenzene	49		ug/L	50.0		98	41-142			
Surrogate: Dibromofluoromethane	48		ug/L	50.0		96	53-146			
Surrogate: Toluene-d8	49		ug/L	50.0		98	41-146			

Special Notes

PQL	PQL: Practical Quantitation Limit.
B	Results are based upon membrane filter colony counts that are outside the method indicated ideal range.
I	The reported value is between the laboratory method detection limit (MDL) and the practical quantitation limit (PQL).
J	Estimated value.
K	Off-scale low; Actual value is known to be less than the value given.
L	Off-scale high; Actual value is known to be greater than value given.
M	Presence of analyte is verified but not quantified; the actual value is less than the MRL but greater than the MDL.
N	The analysis indicates the presence of an analyte for which there is presumptive evidence (85% or greater confidence) to make a "tentative identification".
P	Greater than 25% concentration difference was observed between the primary and secondary GC column. The lower concentration is reported.
O	Sampled, but analysis lost or not performed.
Q	Sample exceeded the accepted holding time.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected.
V	Indicates that the analyte was detected in both the sample and the associated method blank.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*	Not reported due to interference.
A-02	A-02 -48.0
A-02a	A-02a 5.90
[11] U = U =	Analyte included in the analysis, but not detected



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LABORATORY CERTIFICATION SUMMARY

Analysis	Matrix	Cert ID	Cert Number
Iron Total EPA 6010D	Water	NELAC	E87610
8260B	Water	NELAC	E83182



ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

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Page 1 of 1

Client Name Jones Edmunds & Associates, Inc. (JO006)		Project Number 03860-056-01	
Address 730 N.E. Waldo Road Bldg. A		Project Name/Desc Citrus Co. LF	
City/ST/Zip Gainesville, FL 32641		PO # / Billing Info	
Tel (352) 377-5821		Fax (352) 377-3166	
Reporting Contact Elizabeth Kennelley		Billing Contact Accounts Payable	
Sampler(s) Name, Affiliation (Print) Steve Messick, Jones Edmunds & Assoc. Inc.		Site Location / Time Zone La Canto, FL. / EST	
Sampler(s) Signature <i>Steve Messick</i>			

82006 (Benzene, Methylene Chloride, Vinyl Chloride)	Iron Total	Requested Analyses							
Preservation (See Codes) (Combine as necessary)									

Requested Turnaround Times	
Note: Rush requests subject to acceptance by the facility	
<input checked="" type="checkbox"/> Standard	
<input type="checkbox"/> Expedited	
Due <u> </u> / <u> </u> / <u> </u>	
Lab Workorder AA05866	

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers									Sample Comments
1	MW-19D (17M8CC-19D)	8/17/17	1357	G	GW	3	2	1							
2	MW-18D (17M8CC-18D)	↓	1540	G	GW	3	2	1						Field cleaned LRP flush w/ dist. water	
3	20UBLK#1 (17M8CC-ERR1)		1555	G	O	3	3	1							
4	MW-22 (17M8CC-22)		1723	G	GW	3	3	1						QA/QC	
5	TRIO Blank #1 (17M8CC-TB1)		—	—	O	2	2								
S. Messick															
← Total # of Containers							Received By							Date/Time 8/16/17	

Sample Kit Prepared By <i>ECG</i>	Date/Time 8/11/17 18:25	Relinquished By <i>Steve Messick</i>	Date/Time 8/11/17 18:25	Received By <i>Steve Messick</i>	Date/Time 8/16/17 @ 1730
Comments/Special Reporting Requirements Samples shipped by Greyhound Bus Priority from Gainesville, FL. to Orlando, FL. 1 Cooler		Relinquished By <i>Steve Messick</i>	Date/Time 8/17/17 @ 1800	Received By <i>Adriana Raining</i>	Date/Time 08/18/17 13:00
Cooler #'s & Temps on Receipt Med 214 1.4°C			Condition Upon Receipt <input checked="" type="checkbox"/> Acceptable <input type="checkbox"/> Unacceptable		

Matrix: GW-Groundwater SO-Soil DW-Drinking Water SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (detail in comments)

Note: All samples submitted to ENCO Labs are in accordance with the terms and conditions listed on the reverse of this form, unless prior written agreements exist.

Preservation: H-Ce H-HCl N-HNO3 S-H2SO4 NO-NaOH O-Other (detail in comments)

Jones, Edmunds, and Associates, Inc.
Environmental Consultants
730 NE Waldo Road
Gainesville, Florida 32641
(352) 377-5821 Fax (352) 377-3166

Please return a copy of this form with original lab report.

Field Data Information Form

Project Name: Citrus County - Central Class I Landfill

Project Number: 03860-056-01-6402

Date: 8/12/13

Sampler: Steve Messick

Laboratory: ENCO Lab - Orlando, Florida

[illegible]

TO BE SUBMITTED TO LABORATORY WITH CHAIN-OF-CUSTODY

Collection Method	Description:
BA	BAILER
BP	BLADDER PUMP
CP	CENTRIFUGAL PUMP
E	GRAB
M	METER READING
PP	PERISTALTIC PUMP
SP	SUBMERSIBLE OR IN-PLACE DEDICATED PUMP
Z	UNKNOWN

* Initial Depth to Water at Time of Sampling

ATTACHMENT 9

FIELD DATA SHEETS

GROUNDWATER SAMPLING LOG

SITE NAME: Citrus County – Central Landfill		SITE LOCATION: Lecanto, Florida	
WELL NO: MW-19D	SAMPLE ID: 17M8CC-19D	DATE: 8/17/17	

PURGING DATA

WELL DIAMETER (in) 2"pvc	TUBING DIAMETER (in): 3/8"	WELL SCREEN LENGTH: 5 ft From 160.50 to 165.70 BTOC	STATIC DEPTH TO WATER (feet): 107.62	PURGE PUMP TYPE: ESP
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY 1 WELL VOLUME = (165.70 feet - 107.62 feet) X 0.16 gallons/foot = 9.3 gallons Water Level Measured with: MPM-GNV-01				PURGE METHOD: 2.3 2.4 2.5 N/A FS2222 Full volumes
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) N/A 1 = 0 gallons + (0.006 gallons/foot X feet) + 0.123 gallons = gallons				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 113	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 115	PURGING INITIATED AT: 1311	PURGING ENDED AT: 1355	TOTAL VOLUME PURGED (gallons): 14.3

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR	ORP (mVolts)
1330	9.3	9.3	0.5	110.22	6.18	26.4	248	0.39	4.73	None Clear	None	-148.7
1350	2.5	11.8	↓	110.22	6.13	26.4	244	0.31	3.25	↓	↓	-152.4
1355	2.5	14.3	↓	110.22	6.15	26.5	242	0.21	4.39	↓	↓	-164.5

SAMPLING DATA

SAMPLED BY (Print) / AFFILIATION: Steve Messick / Jones, Edmunds & Assoc. Inc.		SAMPLER(S) SIGNATURES: <i>Steve Messick</i>		SAMPLING INITIATED AT: 1357	SAMPLING ENDED AT: 1400
PUMP OR TUBING DEPTH IN WELL (feet): 115	SAMPLE PUMP VOC Sampling Rate 100-400 ml/min ✓ FLOW RATE Other Samples Rate (mL / min): +/- 500		TUBING MATERIAL CODE: PE	SAMPLING EQUIPMENT CODE: ESP	
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N) FILTER SIZE: _____ µm Filtration Equipment Type: _____			DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOL	PRES. USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL PH	
17M8CC- 19D	2	CG	40 mL	HCL	None	N/A	8260B
17M8CC- 19D	1	PE	250 mL	HNO3	None	~2	Fe

REMARKS: Well screen length is from below top of casing (BTOC).

* Verified Sample pH as <2 or >12 (as applicable) at MW-19D

Sky Conditions: Cloudy Ambient Air Temperature: 33°C

Approx. Wind Speed and Direction: 0-5 W/NW

Bladder Pump: CPM —, Refill/Discharge — sec, Pressure — PSI

Grundfos Pump Setting: 268 Hz. Peristaltic Pump Setting: # —

Total Tubing Length: 130 ft.

storm moved in, had to get in truck
about 20 min.

Comments:

This is the first time this well has ever been sampled.

GROUNDWATER SAMPLING LOG

SITE NAME: Citrus County – Central Landfill		SITE LOCATION: Lecanto, Florida	
WELL NO: MW-18D	SAMPLE ID: 17M8CC-18D	DATE: 8/17/17	

PURGING DATA

WELL DIAMETER (in) 2"pvc	TUBING DIAMETER (in): 3/8"	WELL SCREEN LENGTH: 10 ft From 130.43 to 140.43 BTOC	STATIC DEPTH TO WATER (feet): 109.44	PURGE PUMP TYPE: ESP
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH – STATIC DEPTH TO WATER) X WELL CAPACITY 1 WELL VOLUME = (140.43 feet – 109.44 feet) X 0.16 gallons/foot = 5.0 gallons Water Level Measured with: MPM-GNV-01				PURGE METHOD: 2.3 2.4 2.5 N/A FS222 Full volumes
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) N/A 1 = 0 gallons + (0.006 gallons/foot X feet) + 0.123 gallons = gallons				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 119	FINAL PUMP OR TUBING DEPTH IN WELL (feet): 119	PURGING INITIATED AT: 1459	PURGING ENDED AT: 1538	TOTAL VOLUME PURGED (gallons): 7.8

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR	ORP (mVolts)
1524	5.0	5.0	0.2	114.29	5.88	26.8	221	0.64	11.0	Slight white Haze	None	95.0
1531	1.4	6.4	↓	114.33	5.95	26.7	225	0.55	12.6	↓	↓	47.4
1538	1.4	7.8	↓	114.33	5.90	26.8	215	0.52	14.1	↓	↓	17.4

SAMPLING DATA

SAMPLED BY (Print) / AFFILIATION: Steve Messick / Jones, Edmunds & Assoc. Inc.		SAMPLER(S) SIGNATURES: <i>Steve Messick</i>		SAMPLING INITIATED AT: 1540	SAMPLING ENDED AT: 1544
PUMP OR TUBING DEPTH IN WELL (feet): 119	SAMPLE PUMP VOC Sampling Rate 100-400 ml/min FLOW RATE Other Samples Rate (mL / min): +/- 750	TUBING MATERIAL CODE: PE		SAMPLING EQUIPMENT CODE: ESP	
FIELD DECONTAMINATION: (Y) N	FIELD-FILTERED: Y (N) FILTER SIZE: _____ µm Filtration Equipment Type: _____			DUPLICATE: Y (N)	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOL	PRES. USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL PH	
17M8CC- 18D	2	CG	40 mL	HCL	None	N/A	8260B
17M8CC- 18D	1	PE	250 mL	HNO3	None	≤ 2	Fe

REMARKS: Well screen length is from below top of casing (BTOC).

* Verified Sample pH as <2 or >12 (as applicable) at MW-18D
 Sky Conditions: Cloudy Ambient Air Temperature: 32°C
 Approx. Wind Speed and Direction: 0-5 W/NW

Bladder Pump: CPM _____ Refill/Discharge _____ sec, Pressure _____ PSI
 Grundfos Pump Setting: 265 Hz. Peristaltic Pump Setting: # _____
 Total Tubing Length: 140 ft.

Poor Recharge here, purge slowly.
 storms off and on today, slowing
 progress
 watch out for drawdown here

Comments:

This is the first time this well has ever been sampled.

GROUNDWATER SAMPLING LOG

SITE NAME: Citrus County – Central Landfill		SITE LOCATION: Lecanto, Florida	
WELL NO: EQUBLK-1	SAMPLE ID: 17M8CC-EQB1		DATE: 8/12/17

PURGING DATA

WELL DIAMETER (in) N/A		TUBING DIAMETER (in) 3/8"		WELL SCREEN LENGTH: ft From to BTOC			STATIC DEPTH TO WATER (feet):		PURGE PUMP TYPE: ESP			
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY									PURGE METHOD: 2.3 2.4 2.5 N/A FS2222 Full volumes			
1 WELL VOLUME = (feet - feet) X gallons/foot = gallons									Water Level Measured with: MPM-GNV-01			
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)												
1 = 0 gallons + (0.006 gallons/foot X feet) + 0.123 gallons = gallons												
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): N/A			FINAL PUMP OR TUBING DEPTH IN WELL (feet): N/A			PURGING INITIATED AT: N/A		PURGING ENDED AT: N/A		TOTAL VOLUME PURGED (gallons): N/A		
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR	ORP (mVolts)
S. Messick												

SAMPLING DATA

SAMPLED BY (Print) / AFFILIATION: Steve Messick / Jones, Edmunds & Assoc. Inc.		SAMPLER(S) SIGNATURES: <i>Steve Messick</i>		SAMPLING INITIATED AT: 1535	SAMPLING ENDED AT: 1558
PUMP OR TUBING DEPTH IN WELL (feet): N/A		SAMPLE PUMP VOC Sampling Rate 100-400 ml/min FLOW RATE Other Samples Rate (mL / min): +/- 500		TUBING MATERIAL CODE: PE	SAMPLING EQUIPMENT CODE: ESP
FIELD DECONTAMINATION: (Y) N		FIELD FILTERED: Y (N) FILTER SIZE: _____ µm Filtration Equipment Type: _____			DUPLICATE: Y (N)

[illegible]

REMARKS:

* Verified Sample pH as <2 or >12 (as applicable) at MW-19D
 Sky Conditions: Cloudy Ambient Air Temperature: 34°C
 Approx. Wind Speed and Direction: 0-7 SW

Bladder Pump: CPM , Refill/Discharge 7 sec, Pressure PSI
Grundfos Pump Setting: 97 Hz. Peristaltic Pump Setting: # .
Total Tubing Length: 130 ft.

Comments:

Field cleaned ESP Flush w/ dist. water Lot # 060317154 w F237
~~mo. to~~ 3/8" tubing Lot # 2981266-8
 Pump to tubing then used at well MW-22

GROUNDWATER SAMPLING LOG

SITE NAME: Citrus County - Central Landfill		SITE LOCATION: Lecanto, Florida	
WELL NO: MW-22	SAMPLE ID: 17M8CC-22	DATE: 8/17/17	

PURGING DATA

WELL DIAMETER (in) 2" pvc	TUBING DIAMETER (in): 3/8"	WELL SCREEN LENGTH: 20 ft From 105.57 to 125.57 BTOC	STATIC DEPTH TO WATER (feet): 108.53	PURGE PUMP TYPE: ESP
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY 1 WELL VOLUME = (125.57 feet - 108.53 feet) X 0.16 gallons/foot = 2.7 gallons Water Level Measured with: MPM-GNV-01				PURGE METHOD: 2.3 2.4 2.5 N/A FS2222 Full volumes
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) 1 = 0 gallons + (0.006 gallons/foot X 130 feet) + 0.123 gallons = gallons				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 117		FINAL PUMP OR TUBING DEPTH IN WELL (feet): 117		PURGING INITIATED AT:
				PURGING ENDED AT:
TOTAL VOLUME PURGED (gallons):				

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (µS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR	ORP (mVolts)
1639	2.7	2.7	0.2	108.63	6.63	24.8	480	0.26	22.5	Slight cloudy white	None	-88.0
1653	2.7	5.4	↓	108.63	6.62	24.7	487	0.18	7.38	↓	↓	-62.1
1707	2.7	8.1	↓	108.63	6.64	24.7	488	0.18	4.69	None Clear	↓	-55.9
1721	2.7	10.8	↓	108.63	6.61	24.7	492	0.16	3.91	↓	↓	-48.0

SAMPLING DATA

SAMPLED BY (Print) / AFFILIATION: Steve Messick / Jones, Edmunds & Assoc. Inc.		SAMPLER(S) SIGNATURES: <i>Steve Messick</i>		SAMPLING INITIATED AT: 1723	SAMPLING ENDED AT: 1736
PUMP OR TUBING DEPTH IN WELL (feet): 117		SAMPLE PUMP VOC Sampling Rate 100-400 ml/min ✓ FLOW RATE Other Samples Rate (mL / min): +/- 750		TUBING MATERIAL CODE: PE	SAMPLING EQUIPMENT CODE: ESP
FIELD DECONTAMINATION: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N		FIELD-FILTERED: Y <input checked="" type="checkbox"/> N <input type="checkbox"/> FILTER SIZE: _____ µm			DUPLICATE: Y <input checked="" type="checkbox"/> N <input type="checkbox"/>

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOL	PRES. USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL PH	
17M8CC-22	2	CG	40 mL	HCL	None	N/A	8260B
17M8CC-22	1	PE	250 mL	HNO3	None	≤ 2	Fe

REMARKS: Well screen length is from below top of casing (BTOC).

* Verified Sample pH as <2 or >12 (as applicable) at MW-22
 Sky Conditions: Cloudy Ambient Air Temperature: 34°C
 Approx. Wind Speed and Direction: 0-7 SW

Bladder Pump: CPM _____ Refill/Discharge T sec, Pressure _____ PSI
 Grundfos Pump Setting: 365 Hz. Peristaltic Pump Setting: # _____
 Total Tubing Length: 130 ft.

Comments:

This is the first time that this well has ever been sampled.

ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

10775 Central Port Dr.
Orlando, FL 32824
(407) 826-5314 Fax (407) 850-6945

4810 Executive Park Court, Suite 111
Jacksonville, FL 32216-6069
(904) 296-3007 Fax (904) 296-6210

102-A Woodwinds Industrial Ct.
Cary, NC 27511
(919) 467-3090 Fax (919) 467-3515

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Page 1 of 1

Client Name Jones Edmunds & Associates, Inc. (JO006)		Project Number 03860-056-01		<div> <div>82608 (Benzene, Methylene Chloride, Vinyl Chloride)</div> <div>Iron Total</div> </div>								Requested Turnaround Times	
Address 730 N.E. Waldo Road Bldg. A		Project Name/Desc Citrus Co. LF										Requested Analyses	
City/ST/Zip Gainesville, FL 32641		PO # / Billing Info								<input checked="" type="checkbox"/> Standard			
Tel (352) 377-5821	Fax (352) 377-3166	Reporting Contact Elizabeth Kennelley								<input type="checkbox"/> Expedited			
Sampler(s) Name, Affiliation (Print) <i>Steve Messick, Jones Edmunds & Assoc. Inc.</i>		Billing Contact Accounts Payable								Due <u> </u> / <u> </u> / <u> </u>			
Sampler(s) Signature <i>Steve Messick</i>		Site Location / Time Zone <i>Do canto, FL. / EST</i>								Lab Workorder AA05866			

[illegible]

Sample Kit Prepared By <i>ECG</i>	Date/Time <i>8/11/17 18:25</i>	Relinquished By <i>True Messick</i>	Date/Time <i>8/11/17 18:25</i>	Received By <i>True Messick</i>	Date/Time <i>8/11/17 @ 1730</i>
Comments/Special Reporting Requirements <i>Samples shipped by Greyhound Bus Priority from Gainesville, FL to Orlando, FL. 1 Cooler</i>		Relinquished By <i>True Messick</i>	Date/Time <i>8/11/17 @ 1800</i>	Received By	Date/Time
		Relinquished By	Date/Time	Received By	Date/Time
		Cooler #'s & Temps on Receipt			

Matrix : GW-Groundwater SO-Soil DW-Drinking Water SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (detail in comments)

Preservation: I-Ice H-HCl N-HNO3 S-H2SO4 NO-NaOH O-Other (detail in comments)

Note : All samples submitted to ENCO Labs are in accordance with the terms and conditions listed on the reverse of this form, unless prior written agreements exist.

REFERENCE FACTORS FOR FIELD SAMPLING DATA SHEETS

WELL CAPACITY (Gallons Per Foot):	0.75" = 0.02
	1" = 0.04
	1.25" = 0.06
	2" = 0.16
	3" = 0.37
	4" = 0.65
	5" = 1.02
	6" = 1.47
12" = 5.88	

TUBING INSIDE DIA. CAPACITY (Gal./Ft.):	1/8" = 0.0006
	3/16" = 0.0014
	1/4" = 0.0026
	5/16" = 0.004
	3/8" = 0.006
	1/2" = 0.010
	5/8" = 0.016

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene;
PP = Polypropylene; S = Silicone; T = Teflon; O = Other

SAMPLING/PURGING APP = After Peristaltic Pump B = Bailer BP = Bladder Pump
ESP = Electric Submersible Pump PP = Peristaltic Pump

EQUIPMENT CODES: RFPP = Reverse Flow Peristaltic Pump O = Other (Specify)
SM = Straw Method (Tubing Gravity Drain) VT = Vacuum Trap

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)

pH: ± 0.2 units

Temperature: ± 0.2 °C

Specific Conductance: $\pm 5\%$

Dissolved Oxygen: all readings $\leq 20\%$ saturation (see Table FS 2200-2)
optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater)

Turbidity: all readings ≤ 20 NTU
optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

<u>gal/min</u>	=	<u>ml/min</u>	<u>gal/min</u>	=	<u>ml/min</u>	<u>gal/min</u>	=	<u>ml/min</u>
0.026		100	0.211		800	0.396		1500
0.053		200	0.238		900	0.423		1600
0.079		300	0.264		1000	0.449		1700
0.106		400	0.291		1100	0.476		1800
0.132		500	0.317		1200	0.502		1900
0.159		600	0.343		1300	0.528		2000
0.185		700	0.370		1400			

GENERAL SAMPLING NOTES AND CONVENTIONS

1. All sampling was performed according to the FDEP Standard Operating Procedures as listed in DEP-SOP-001/01 (Field Procedures) dated March 31, 2008 (Effective 12/3/08).
2. Field cleaning and decontamination has been done in accordance with DEP-SOP-001/01 (Field Procedures), FC-1000.
3. Tubing and filter cartridge lot numbers for all sampling points and wells are the same as those listed for that tubing type on the Equipment Blank data form(s) covering that equipment system.
4. Tubing suppliers/manufacturers are named in the following list:
 - HDPE disposable tubing US Plastics
 - Tygon tubing Cole Parmer
 - Norprene tubing Cole Parmer
 - Silicon tubing Cole Parmer
5. Field instrument calibrations were conducted in accordance with DEP-SOP-001/01 (Field Procedures), FT1000.
6. Calibration solution and gas suppliers are named in the following list:
 - pH calibration solutions Cole Parmer/Oakton
 - Conductivity calibration solutions Cole Parmer/Oakton
 - Dissolved Oxygen probe membranes YSI
 - ORP calibration solutions YSI
 - Turbidity calibration solutions/gel standards Hach
 - TVA calibration gas cylinders Praxair
 - Eagle RKI calibration gas cylinders Praxair
7. All samples collected were grab samples.
8. All sample containers requiring added preservative were supplied pre-preserved from the laboratory. No additional preservative was added in the field.
9. A combination of a front-bumper-mounted gasoline generator and an electric air compressor or compressed nitrogen are used to power the Grundfos electric submersible pump and bladder pump systems, as appropriate.
10. Screened intervals are assumed to be at the bottom of all monitoring wells sampled.
11. Well purge method indications on the field data sheets correspond to DEP-SOP-001/01 (Field Procedures), FS2000 sections as indicated below:

<u>Data Sheet Designation</u>	<u>SOP Designation</u>
2.3	FS 2212.2.3
2.4	FS 2212.2.4
2.5	FS 2212.2.5
2222 or 3.7.1	FS 2222 or 2212.3.7.1
Private	FS 2215.1 & 2215.2 (Jones Edmunds SOP for private well sampling)

Comments or Exceptions
