

August 5, 2020

Ms. Alexis Black
Solid Waste Section
Department of Environmental Protection
13051 N Telecom Pkwy
Temple Terrace, FL 33637-0926

RE: Citrus County Class I Central Landfill
Compliance Monitoring Report – First Semiannual 2020 Resample (20M6)
Permit No. 21375-025-SO-01
WACS Facility ID: 39859
Jones Edmunds Project No.: 03860-075-01

Dear Ms. Black:

During the First Semiannual 2020 sampling event at the Citrus County Class I Central Landfill, Arsenic exceeded the PDWS of 10 µg/L in well MW-20 for the first time. MW-20 was resampled on June 4, 2020. Presented in the table below are the results of the resample event compared to the original results.

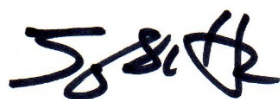
Sample Location	Parameter	First Semiannual 2020 Result	June 4, 2020 Resample Result
MW-20	Arsenic	11.4 µg/L	12.2 µg/L

Bold = Concentrations at or above groundwater standard.

The resample result was reported as 12.2 µg/L and confirms the original result of 11.4 µg/L reported during the First Semiannual 2020 sampling event. MW-20 is located north of the active cell in the center of the site. We will continue to monitor the concentrations of Arsenic in this well and perform trend analysis in the semiannual reports. Due to the location of this well and the ongoing assessment at the site, no further action is proposed for the exceedance at this time.

If you have any questions regarding this report, please contact me at (352) 377-5821 or thays@jonesedmunds.com

Sincerely,



Troy D. Hays, PG
Senior Manager/Vice President
730 NE Waldo Road
Gainesville, FL 32641

M:\EnvDocs\Citrus County\2020\20M6\20M6 Resample_Citrus_Letter.docx

Ms. Alexis Black
August 5, 2020
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Attachment 1: Analysis Results Compared to Groundwater Standards
Attachment 2: Parameter Monitoring Report Forms
Attachment 3: Original Laboratory Data Including Chain-Of-Custody Forms
Attachment 4: Field Data Forms

xc: Henry Norris, Citrus County
Dan Sherlock, Citrus County
Traci Shoenrock, Citrus County

ATTACHMENT 1

ANALYSIS RESULTS COMPARED TO GROUNDWATER STANDARDS

PARAMETERS AT OR ABOVE THE LABORATORY DETECTION LIMIT
 CITRUS COUNTY CENTRAL LANDFILL
 APRIL 2020 THROUGH JUNE 2020

PARAMETER		CONDUCTIVITY (FIELD)	DEPTH TO WATER FROM MEASURE PT	DISSOLVED OXYGEN (FIELD)	GROUND- WATER ELEVATION	pH (FIELD)	REDOX POTENTIAL	TEMPER- ATURE (FIELD)	TURBIDITY (FIELD)	ARSENIC
STANDARD UNITS		(1) uS/cm	(1) ft	(1) ppm	(1) ft, NGVD	6.5-8.5 S.U.** S.U.	(1) mV	(1) deg C	(1) NTU	10 µg/L* µg/L
Compliance										
MW-20	04/01/2020	843	112.72	0.23	7.04	6.17	-65.6	24.9	1.43	11.4
MW-20	06/04/2020	867	113.36	0.20	6.40	6.18	-91.2	25.6	1.07	12.2

- LEGEND**
 * =Primary Drinking Water Standard
 ** =Secondary Drinking Water Standard
 *** =Chapter 62-777 - Groundwater Cleanup Target Level (GCTL)
 (1) =No Standard
 - =Not Analyzed

I = Value is between the Method Detection Level (MDL) and the Reporting Detection Level (RDL)
 J = Estimated value
 V = Analyte found in associated method blank
 Q = Estimated value; analyte analyzed after acceptable holding time

ATTACHMENT 2

PARAMETER MONITORING REPORT FORMS

Citrus County Central Landfill Parameter Monitoring Report

PART III Analytical Results

Facility WACS #: SWD/09/39859

Test Site ID #: 23691

Well Name: MW-20

Classification of Ground Water: GII

Ground Water Elevation (NGVD): 6.40

Sampling Date/Time: 6/4/2020 10:33:00 AM

Report Period: JUNE 2020

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
082546	DEPTH TO WATER FROM MEASURE PT	BP	No	DEP SOP	6/4/2020 10:33:00 AM	113.36	Ft	Ft
082545	GROUNDWATER ELEVATION	BP	No	DEP SOP	6/4/2020 10:33:00 AM	6.40	Ft	Ft
000094	CONDUCTIVITY (FIELD)	BP	No	EPA 120.1	6/4/2020 10:33:00 AM	867	umhos/cm	0umhos/cm
000406	pH (FIELD)	BP	No	EPA 150.1	6/4/2020 10:33:00 AM	6.18	pH Units	pH Units
000010	TEMPERATURE (FIELD)	BP	No	EPA 170.1	6/4/2020 10:33:00 AM	25.6	°C	0°C
082078	TURBIDITY (FIELD)	BP	No	EPA 180.1	6/4/2020 10:33:00 AM	1.07	NTU	0NTU
000299	DISSOLVED OXYGEN (FIELD)	BP	No	EPA 360.1	6/4/2020 10:33:00 AM	0.20	mg/L	0mg/L
001002	ARSENIC	BP	No	EPA 6020B	6/9/2020 12:37:00 PM	12.2	ug/L	5.00ug/L
046480	REDOX POTENTIAL (FIELD)	BP	No	SM2580B	6/4/2020 10:33:00 AM	-91.2	mV	-999mV

ATTACHMENT 3

**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

Friday, June 12, 2020

Jones Edmunds & Associates, Inc. (JO006)

Attn: Elizabeth Kennelley

730 N.E.Waldo Road Bldg.A

Gainesville, FL 32641

RE: Laboratory Results for

Project Number: 39859, Project Name/Desc: Citrus Co. LF

ENCO Workorder(s): AD03692

Dear Elizabeth Kennelley,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Friday, June 5, 2020.

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 if applicable. 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,

David Camacho

Project Manager

Enclosure(s)



www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: MW-20		Lab ID: AD03692-01		Sampled: 06/04/20 10:33		Received: 06/05/20 15:25	
<u>Parameter</u>	<u>Preparation</u>	<u>Hold Date/Time(s)</u>		<u>Prep Date/Time(s)</u>		<u>Analysis Date/Time(s)</u>	
EPA 6020B	EPA 3005A	12/01/20		06/08/20 10:05		06/09/20 12:37	
Field	NO PREP	06/04/20	10:47	06/04/20	10:33	06/04/20 10:33	
Field	NO PREP	06/05/20	10:33	06/05/20	10:33	06/04/20 10:33	
Field	NO PREP	06/06/20	10:33	06/04/20	10:33	06/04/20 10:33	

SAMPLE DETECTION SUMMARY

Client ID: MW-20

Lab ID: AD03692-01

<u>Analyte</u>	<u>Results</u>	<u>Flag</u>	<u>MDL</u>	<u>PQL</u>	<u>Units</u>	<u>Method</u>	<u>Notes</u>
Arsenic - Total	12.2		5.00	10.0	ug/L	EPA 6020B	
Depth to Water	113.36				Ft	Field	
Dissolved Oxygen	0.20		0	0	mg/L	Field	
pH	6.18				pH Units	Field	
Specific Conductance (EC)	867		0	0	umhos/cm	Field	
Temperature	25.6		0	0	°C	Field	
Turbidity	1.07		0	0	NTU	Field	
Water Elevation	6.4				Ft	Field	

ANALYTICAL RESULTS

Description: MW-20

Lab Sample ID: AD03692-01

Received: 06/05/20 15:25

Matrix: Ground Water

Sampled: 06/04/20 10:33

Work Order: AD03692

Project: Citrus Co. LF

Sampled By: Steve Messick

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

<u>Analyte [CAS Number]</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Batch</u>	<u>Method</u>	<u>Analyzed</u>	<u>By</u>	<u>Notes</u>
Arsenic [7440-38-2]	12.2		ug/L	1	5.00	10.0	0F08011	EPA 6020B	06/09/20 12:37	SSE	

Field Parameters

<u>Analyte [CAS Number]</u>	<u>Results</u>	<u>Flag</u>	<u>Units</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Batch</u>	<u>Method</u>	<u>Analyzed</u>	<u>By</u>	<u>Notes</u>
Depth to Water	113.36		Ft	1			0F08021	Field	06/04/20 10:33	DMC	
Dissolved Oxygen	0.20		mg/L	1	0	0	0F08021	Field	06/04/20 10:33	DMC	
Oxidation/Reduction Potential	-91.2		mV	1	-999	-999	0F08021	Field	06/04/20 10:33	DMC	
pH	6.18		pH Units	1			0F08021	Field	06/04/20 10:33	DMC	
Specific Conductance (EC)	867		umhos/cm	1	0	0	0F08021	Field	06/04/20 10:33	DMC	
Temperature	25.6		°C	1	0	0	0F08021	Field	06/04/20 10:33	DMC	
Turbidity	1.07		NTU	1	0	0	0F08021	Field	06/04/20 10:33	DMC	
Water Elevation	6.4		Ft	1			0F08021	Field	06/04/20 10:33	DMC	

QUALITY CONTROL DATA

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 0F08011 - EPA 3005A

Blank (0F08011-BLK1)

Prepared: 06/08/2020 10:05 Analyzed: 06/09/2020 11:07

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	5.00	U	10.0	ug/L							U

Blank (0F08011-BLK2)

Prepared: 06/08/2020 10:05 Analyzed: 06/09/2020 11:09

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.500	U	1.00	ug/L							U

LCS (0F08011-BS1)

Prepared: 06/08/2020 10:05 Analyzed: 06/09/2020 11:12

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	456		10.0	ug/L	500		91	80-120			

Matrix Spike (0F08011-MS1)

Prepared: 06/08/2020 10:05 Analyzed: 06/09/2020 11:19

Source: AD03347-01

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	464		10.0	ug/L	500	5.06	92	75-125			

Matrix Spike Dup (0F08011-MSD1)

Prepared: 06/08/2020 10:05 Analyzed: 06/09/2020 11:23

Source: AD03347-01

Analyte	Result	Flaq	POL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	462		10.0	ug/L	500	5.06	91	75-125	0.5	20	

FLAGS/NOTES AND DEFINITIONS

PQL	PQL: Practical Quantitation Limit. The PQL presented is the laboratory MRL.
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	Presumptive evidence of presence of material.
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.
[CALC]	Calculated analyte - MDL/MRL reported to the highest reporting limit of the component analyses.



730 NE Waldo Road
Gainesville, Florida 32641
Ph. (352) 377-5821 • Fax: (352) 377-3166

3910 S. Washington Avenue, Suite 210
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1100 Cesery Blvd.
Jacksonville, Florida 32211
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324 S. Hyde Park Ave., Suite 250
Tampa, Florida 33606
Ph. (813) 258-0703 • Fax: (813) 254-6860

AD03602

2383

Lab Tracking Number

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE <i>Citrus County Central Class I Lt.</i>					PROJECT NO. <i>13370-001-01</i>					MATRIX TYPE					REQUIRED ANALYSIS					PAGE <i>1</i> OF <i>1</i>						
SAMPLER(S) NAME <i>Steve Messick</i>										<div style="display: flex; flex-direction: column; align-items: center;"><div style="writing-mode: vertical-rl; transform: rotate(180deg);">SURFACE WATER</div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">GROUND WATER</div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">WASTEWATER</div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">DRINKING WATER</div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">SOIL/SOLID/SEDIMENT</div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">NONAQUEOUS LIQUID (or solvent, etc.)</div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">AIR</div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">SLUDGE</div><div style="writing-mode: vertical-rl; transform: rotate(180deg);">OTHER</div></div> <div style="margin-top: 20px;"><i>ARSENIC</i></div>										<input checked="" type="checkbox"/> STANDARD REPORT DELIVERY <input type="checkbox"/> EXPEDITED REPORT REQUIRED						
CLIENT NAME <i>Jones Edmunds & Assoc. Inc.</i>																										
LABORATORY NAME AND ADDRESS <i>ENCO Lab - Orlando, FL.</i>																										
SAMPLE										FIELD IDENTIFICATION NUMBER										PRESERVATIVE					Date Due: _____	
STATION	DATE	TIME	GRAB	COMP						NUMBER OF CONTAINERS SUBMITTED					REMARKS											
<i>mw-20</i>	<i>6-4-20</i>	<i>1033</i>	<i>✓</i>		<i>20M656-20</i>					<i>✓</i>						<i>1</i>					<i>Re-sample</i>					
2																										
3																										
4																										
5																										
6																										
7																										
8																										
9																										
10																										
11																										
12																										
13																										
14																										
INITIAL KITS RECEIVED BY <i>Steve Messick</i>					DATE <i>6/3/20</i>	TIME <i>1700</i>	RELINQUISHED BY: (SIGNATURE) <i>Steve Messick</i>					DATE <i>6/4/20</i>	TIME <i>1145</i>	RECEIVED BY: (SIGNATURE) <i>Dawn L. ...</i>					DATE <i>6-5-20</i>	TIME <i>1525</i>						
RELINQUISHED BY: (SIGNATURE)					DATE	TIME	RECEIVED BY: (SIGNATURE)					DATE	TIME	RELINQUISHED BY: (SIGNATURE)					DATE	TIME						
SHIPPING METHOD <i>Priority by Greyhound Bus - Gainesville, FL.</i>							SHIPMENT ORIGIN <i>Citrus Co. Central - Lecanto, FL.</i>							SHIPMENT DESTINATION <i>ENCO Lab - Orlando, FL.</i>												
RECEIVED FOR LABORATORY BY: (SIGNATURE)					DATE	TIME	CUSTODY INTACT <input type="checkbox"/> YES <input type="checkbox"/> NO		LAB LOG NO.		REMARKS <i>Sample bottle from stock</i>															

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

Project Name: **Citrus County Central Class 1 Landfill**
Project Number: **13370-001-01**
Date: **6/4/2020**
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 4

FIELD DATA FORMS

GROUNDWATER SAMPLING LOG

SITE NAME: Citrus County Central Class I LF		SITE LOCATION: Lecanto, Florida	
WELL NO: MW-20 Flush Mount	WELL WACS NO: 23691	SAMPLE ID: 20M6CC-20	DATE: 6-4-20

PURGING DATA

WELL DIAMETER(in): 2" PVC	TUBING DIAMETER (in): 1/4"	SCREEN LENGTH: 20 ft From 105.70 ft to 125.70 ft	STATIC DEPTH TO WATER (feet): 113.36	PURGE PUMP TYPE: Dedicated BP
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY $1 \text{ WELL VOLUME} = (125.70 \text{ feet} - 113.36 \text{ feet}) \times 0.16 \text{ gallons/foot} = 2.0 \text{ gallons}$				Water Level measured with: MAM-6NV-03 PURGE METHOD: 2.5
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) $1 = 0.15 \text{ gallons} + (0.0026 \text{ gallons/foot} \times 130 \text{ feet}) + 0.123 \text{ gallons} = 0.61 \text{ gallons}$				
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 124		FINAL PUMP OR TUBING DEPTH IN WELL (feet): 124		PURGING INITIATED AT: 0911
				PURGING ENDED AT: 1031
				TOTAL VOLUME PURGED (gallons): 10.0

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)
0927	2.0	2.0	0.12	114.04	6.10	25.7	805	0.67	0.93	None Clear	None	-76.0
0943	2.0	4.0		114.04	6.15	25.7	843	0.54	1.03			-82.7
0959	2.0	6.0		114.04	6.16	25.7	855	0.39	0.98			-87.8
1015	2.0	8.0		114.04	6.18	25.7	864	0.22	0.95			-92.8
1031	2.0	10.0		114.04	6.18	25.6	867	0.20	1.07			-91.2

SAMPLING DATA

SAMPLED BY (Print) / AFFILIATION: Steve Messick / Jones Edmunds & Associates Inc.		SAMPLER(S) SIGNATURES: <i>Steve Messick</i>		SAMPLING INITIATED AT: 1033	SAMPLING ENDED AT: 1034
PUMP OR TUBING DEPTH IN WELL (feet): 124		SAMPLE PUMP VOC Sampling Rate 100-400 mL/min: <input checked="" type="checkbox"/> FLOW RATE Other Samples Rate (mL / min): 47-475		TUBING MATERIAL CODE: PE	SAMPLING EQUIPMENT CODE: DBP
FIELD DECONTAMINATION: Y <input checked="" type="radio"/> N		FIELD-FILTERED: Y <input checked="" type="radio"/> N FILTER SIZE: <input type="text"/> µm Filtration Equipment Type: <input type="text"/>		DUPLICATE: Y <input type="radio"/> N <input checked="" type="radio"/>	

SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOL	PRES. USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL PH*	
20M6CC-20	1	PE	250mL	HN03	None	5.2	Arsenic

REMARKS: *Very light film on top of purge water in purge bucket.*
 • Verified Sample pH as <2 or >12 (as applicable) at **MW-20**
 ** Screened interval referenced is depth below Top of Casing
 Sky Conditions: **Cloudy** Ambient Air Temperature: **25°C** Rain moving in (1005hrs)
 Approx. Wind Speed and Direction: **0-4MPH S**
 Grundfos Settings: **—** HZ Peristaltic Setting: **—**
 Bladder Pump: CPM **2** Refill/Discharge **15/15** sec Pressure **60** PSI
 Total Tubing Length: **0** feet (New Tubing)

COMMENTS: Total Well Depth = **—** by **—** date **—**
 Flush mount well, vented > 15 Minutes before reading water level. ✓



CALIBRATION LOG

 Page 1 of 1

Meter ID:

YSI-GNV-03

RQ:

20M6CC-

Project:

Citrus County Central Landfill Class 1

Temperature (Quarterly) FT 1400

Date of Last Temperature Verification

04/15/2020

DO (FT 1500)	Name	Date	Time ET	Temp. (°C)	DO Chart (mg/L)	Meter DO (mg/L)	Pass/Fail
Calibr.	Steve Messick	6-4-20	0842	29.9	7.57	7.56	P / F
ICV	↓	↓	0850	29.9	7.57	7.58	P / F
CCV	↓	↓	1048	26.1	8.09	8.16	P / F
Calibr.							P / F
ICV							P / F
CCV							P / F
Calibr.							P / F
ICV							P / F
CCV							P / F
Calibr.							P / F
ICV							P / F
CCV							P / F

DO Acceptance Criteria from Table ± 0.3 mg/L.

Spec. Cond. (FT 1200)	Name	Date	Time ET	Lot #	Expir. Date	Standard (μ mhos/cm)	Meter Read. (μ mhos/cm)	Pass/Fail
Calibr.	Steve Messick	6-4-20	0852	CC19044	10/01/20	1413	1413	P / F
ICV	↓	↓	0854	CC19273	12/10/20	84	84	P / F
CCV	↓	↓	1050	CC19273	12/10/20	84	85	P / F
CCV	↓	↓	1051	CC19044	10/01/20	1413	1415	P / F
Calibr.								P / F
ICV								P / F
CCV								P / F
CCV								P / F
Calibr.								P / F
ICV								P / F
CCV								P / F
CCV								P / F
Calibr.								P / F
ICV								P / F
CCV								P / F
CCV								P / F

Conductivity Acceptance Criteria $\pm 5\%$

pH (FT 1100)	Name	Date	Time ET	Lot #	Expir. Date	Standard (S.U.)	Meter Read (S.U.)	Pass/Fail
Calibr.	Steve Messick	6-4-20	0855	CC643045	10/03/21	7.00	7.04	P / F
Calibr.	↓	↓	0856	CC643483	10/07/21	4.01	4.04	P / F
Calibr.	↓	↓	—	—	—	—	—	P / F
ICV	↓	↓	—	—	—	—	—	P / F
CCV	↓	↓	1053	CC643045	10/03/21	7.00	7.04	P / F
CCV	↓	↓	1054	CC643483	10/07/21	4.01	4.03	P / F
Calibr.								P / F
Calibr.								P / F
CCV								P / F
CCV								P / F
Calibr.								P / F
Calibr.								P / F
CCV								P / F
CCV								P / F
Calibr.								P / F
Calibr.								P / F
CCV								P / F
CCV								P / F

 Instrument pH Gain -5.182 Weekly (-4.579 to -5.597 acceptable) Date Determined 6-3-20

Turbidity Calibration Log (DEP SOPs FT1000 & FT1600)

PAGE / OF /

Regional Operations Centers

Meter ID: **TB-GNV-01**

Date of Last Calibration: **04-15-2020**

Project Name: **Citrus County Central Class 1 LF**

Quarterly Calibration

Sampler Name: **Steve Messick**

Date: **04-15-2020**

Time: **1600 Hrs. ETZ**

Standard Value (Use Primary Formazin Standards)	Exp. Date	Lot #	Type of Information Displayed During Calibration?	Value Displayed NTU	Calibration Pass / Fail (circle one)
<0.1 NTU	JUN -21	A0059	Meter Reading	0.1	P / F
20 NTU	JUN -21	A0062	Meter Reading	20.2	P / F
100 NTU	JUN -21	A0072	Meter Reading	99.6	P / F
800 NTU	JUN - 21	A0063	Meter Reading	800	P / F

Initial Calibration Verification (ICV) (Only perform ICV immediately after quarterly calibr. Do not use < 0.1 NTU standard for ICV.)

Sampler Name: **Steve Messick**

Date: **04-15-2020**

Time: **1600 Hrs. ETZ**

Standard Value (Use A Primary Formazin Standard)	Exp. Date	Lot #	Meter Reading NTU	Pass / Fail (circle one)
20 NTU	JUN - 21	A0062	20.2	P / F

Secondary Gel Standard Quarterly Verification (perform gel standard verification immediately after quarterly calib. and ICV)

Sampler Name: **Steve Messick**

Date: **04-15-2020**

Time: **1610 Hrs. ETZ**

Standard Value Range NTU	Previous Value Assigned NTU	Exp. Date	Lot #	Meter Reading NTU (new value assigned)	Acceptable Range, NTU (Calculate using new value assigned & acceptance criteria*)
0 – 10	3.56	N/A	N/A	3.28	<8
10 – 100	42.2	N/A	N/A	38.9	<8
100 - 1000	446	N/A	N/A	416	<7

Daily Continuing Calibration Verification (CCV) (required every day that meter is used)

Date	Time (24hr) ET	Sampler Name	Standard Type	Standard Value NTU	Exp. Date	Lot #	Meter Reading NTU	Pass / Fail
6-4-20	0844	Steve Messick	Gel	3.28	N/A	N/A	3.33	P / F
	0844		Gel	38.9			38.0	P / F
	0845		Blank Cell	<0.25			0.22	P / F
	1058		Gel	3.28			3.36	P / F
	1059		Gel	38.9			38.4	P / F
	1059		Blank Cell	<0.25			0.24	P / F
			GEL					P / F

*Acceptance Criteria: 0.1-10 NTU → ± 10 %; 11-40 NTU → ± 8 %; 41-100 NTU → ± 6.5 %; >100 NTU → ± 5 %;

Acceptable ranges for common standards: 20 NTU (18.4 - 21.6 NTU); 100 NTU (93.5 - 106.5 NTU); 800 NTU (760 - 840 NTU)

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 Airgas
 - Eagle Rkl calibration gas cylinders Airgas
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 is 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 unless otherwise noted.
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

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>=</u>	<u>ml/min</u>	<u>gal/min</u>	<u>=</u>	<u>ml/min</u>	<u>gal/min</u>	<u>=</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			