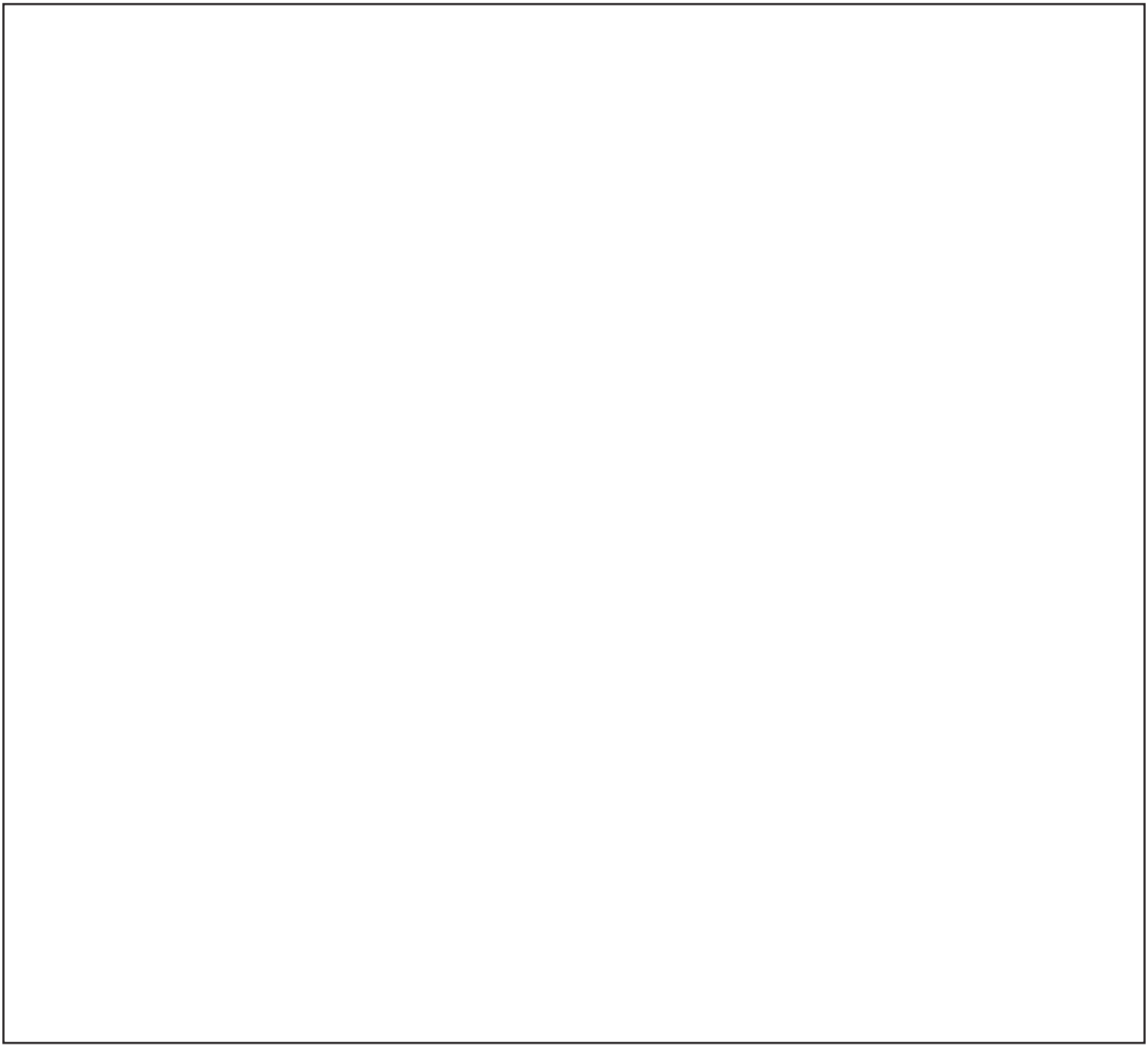
Southwest Florida
Water Management District

Well Construction and Water Quality at the ROMP TR 19-3A – Heather Well Site in Hernando County, Florida

Southwest Florida Water Management District
Geohydrologic Data Section

January 2023



Cover Photo: Permanent monitor wells at the ROMP TR 19-3A – Heather well site in Hernando County, Florida in order from left to right: ROMP TR 19-3A Saltwater Interface Monitor, ROMP TR 19-3A U Fldn Aq Monitor, ROMP TR 19-3A Surf Aq Monitor. Photograph by Joel Durkee.

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By Kristina D. Mallams

January 2023

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The hydrogeologic evaluations and interpretations contained in *Well Construction and Water Quality at the ROMP TR 19-3A – Well Site in Hernando County, Florida* have been prepared by or approved by a licensed Professional Geologist in the State of Florida, in accordance with Chapter 492, Florida Statutes.

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State of Florida License No. PG 2922

Date: 01/25/2023

Foreword

The Geohydrologic Data Section (GEO) administers the Regional Observation and Monitor-well Program (ROMP) at the Southwest Florida Water Management District (District). The ROMP was started in 1974 in response to the need for hydrogeologic information by the District. The focus of the ROMP is to quantify the flow characteristics and water quality of the groundwater systems that serve as the primary source of water supply within southwest Florida. The original design of the ROMP consisted of an inland 10-mile grid network composed of 122 well sites and a coastal transect network composed of 24 coastal monitor transects of two to three well sites each. The number of wells at a well site varies with specific regional needs; usually two to five permanent monitor wells are constructed at each site. The numbering system for both networks generally increases from south to north with ROMP-labeled wells representing the inland grid network and TR-labeled wells representing the coastal transect network.

In addition to the ROMP, the GEO section oversees construction of monitor wells and performs aquifer testing activities for other District programs and projects. The broad objectives at each well site are to determine the hydrogeology, water quality, and hydraulic properties of the units present, and to install wells for long-term monitoring. Site activities include exploratory coring and testing, well construction, and aquifer performance testing. These activities provide data for the hydrogeologic and groundwater quality characterization of the well sites. These characterizations are used to ensure the monitor wells are properly designed for intended hydrologic targets. At the completion of each well site, a summary report is generated and can be found at the District's website at www.watermatters.org/data. The monitor wells form the backbone of the District's long-term aquifer monitoring networks, which supply critical data for the District's regional models, hydrologic conditions reporting, and regulatory water use permitting.

M. Ted Gates

Manager

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Conversion Factors and Datums

Multiply	By	To obtain
	Length	
inch (in.)	2.54	centimeter (cm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
acre	4,047	square meter (m^2)
square foot (ft^2)	0.09290	square meter (m^2)
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
gallon (gal)	3.785	liter (L)
cubic foot (ft^3)	0.02832	cubic meter (m^3)
	Flow rate	
foot per day (ft/d)	0.3048	meter per day (m/d)
cubic foot per day (ft^3/d)	0.02832	cubic meter per day (m^3/d)
gallon per minute (gal/min)	0.06309	liter per second (L/s)
gallon per day (gal/d)	0.003785	cubic meter per day (m^3/d)
	Specific capacity	
gallon per minute per foot [(gal/min)/ft)]	0.2070	liter per second per meter [(L/s)/m]

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

°F=(1.8×°C)+32

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows:

°C=(°F-32)/1.8

Vertical coordinate information is referenced to the “North American Vertical Datum of 1988 (NAVD 88).”

Elevation, as used in this report, refers to distance above the vertical datum.

Abbreviations and Acronyms

µmhos/cm	micromhos per centimeter
µg/L	micrograms per Liter
als	above land surface
Aq	aquifer
bls	below land surface
bmp	below measuring point
CH 1	ROMP TR 19-3A Corehole 1
CH 2	ROMP TR 19-3A Corehole 2
CGWQMN	Coastal Groundwater Quality Monitoring Network
cm	centimeter
CME	Central Mining Equipment
CPS	counts per second
District	Southwest Florida Water Management District
EDP	Environmental Data Portal
FGS	Florida Geological Survey
fig.	figure
Fldn	Floridan
ft.	foot or feet
Geo.	Geohydrologic Data Section
GFWFC	Game and Fresh Water Fish Commission
gpm	gallons per minute
gpm/ft	gallons per minute per foot
Huss	Huss Drilling, Incorporated
ID	inside diameter
mg/L	milligrams per Liter
N/A	not applicable
NAVD 88	North American Vertical Datum of 1988
NDWRAP	Northern District Water Resources Assessment Project
NDDP	Northern District Drilling Plan
No.	number
OD	outside diameter
PVC	polyvinyl chloride
ROMP TR	Regional Observation and Monitor-well Program Coastal Transect
$SrSO_4$	celestite
SID	Station Identification
SU	Standard Unit
Surf	surficial
TDS	total dissolved solids
TIITF	Trustees of the Internal Improvement Trust Fund
U	Upper
UFANMN	Upper Floridan aquifer Nutrient Monitoring Network
WCP	well construction permit
WQMP	Water Quality Monitoring Program

Well Construction and Water Quality at the ROMP TR 19-3A – Heather Well Site in Hernando County, Florida

By Kristina D. Mallams

Introduction

The Geohydrologic Data Section of the Southwest Florida Water Management District (District) conducted a hydrogeologic investigation at the Regional Observation and Monitor–well Program Coastal Transect (ROMP TR) 19-3A – Heather well site in Hernando County. The data collected at the ROMP TR 19-3A – Heather (herein referred to as ROMP TR 19-3A) well site will be used by the District to align with its mission to manage and protect water resources. The primary objectives of the ROMP TR 19-3A well site are to infill the ROMP Coastal Transect network, delineate the vertical and geographic extent of the saltwater interface within the Upper Floridan aquifer, and construct wells for long-term water level and water quality monitoring. Data from this well site will help refine the groundwater flow models that are used to evaluate future water supply, establish minimum flow and level criteria, monitor groundwater quality in areas potentially impacted by saltwater intrusion, and monitor nutrient loading in the Upper Floridan aquifer. The ROMP TR 19-3A well site was selected for further investigation to support the Northern District Drilling Plan (NDDP) which supports the Northern District Water Resources Assessment Project (NDWRAP), the Upper Floridan Aquifer Nutrient Monitoring Network (UFANMN), and the Coastal Groundwater Quality Monitoring Network (CGWQMN) under the Water Quality Monitoring Program (WQMP). The NDWRAP was initiated to assess the impacts of groundwater withdrawals, monitor the saltwater/freshwater interface, identify areas of poor groundwater quality, determine the nature of flow to major springs, and monitor groundwater levels in both the surficial and Upper Floridan aquifers in the northern six-county region of the District. The northern District encompasses all of Hernando, Citrus, and Sumter Counties as well as portions of Lake, Marion, and Levy Counties. Figure 1 presents a map of the NDDP sites. The UFANMN is designed to track regional trends of nitrates within the Upper Floridan aquifer in the northern portion of the District. The CGWQMN is designed to monitor the landward movement of the saltwater interface.

Permanent monitor wells constructed at this site include a surficial aquifer monitor, an Upper Floridan aquifer monitor, and a saltwater interface monitor. Long-term water level data will be collected from all three monitor wells. The Upper Floridan aquifer monitor well will be integrated into the WQMP as part of the UFANMN to monitor nitrate concentration and the saltwater interface monitor well will be incorporated into the WQMP as part of the CGWQMN to monitor the saltwater interface.

The ROMP TR 19-3A well site was completed on October 16, 2019. This report details the well construction, lithostratigraphy, hydrostratigraphy, and water quality at the ROMP TR 19-3A well site.

Acknowledgments

Special thanks to Huss Drilling, Incorporated, for their continued professionalism in assisting the District in data collection at the ROMP TR 19-3A well site.

Site Location

The ROMP TR 19-3A well site is in western Hernando County approximately 1.5 miles north-northwest of Weeki Wachee Springs near the intersection of State Road 50 and U.S. Highway 19. It is in the northwest ¼ of the southeast ¼ of Section 27, Township 22 South, and Range 17 East at latitude 28° 32’ 25.98” North and longitude 82° 35’ 09.42” West (fig. 2). The land surface elevation is 22.7 feet above the North American Vertical Datum of 1988 (NAVD 88). The ROMP TR 19-3A well site is located on a perpetual easement granted by the Trustees of the Internal Improvement Trust Fund (TIITF) and Game and Fresh Water Fish Commission (GFWFC).

From the District’s headquarters located south of Brooksville in Hernando County, the ROMP TR 19-3A well site can be found by heading north on U.S. Highway 41 towards Spring Hill Drive. Head west on Spring Hill Drive for 3 miles to State Road 589 North. Head north on State Road 589 North for 3 miles and exit onto State Road 50/Cortez Boulevard. Head west on State Road 50/Cortez Boulevard and continue for 8 miles. Turn north on Commercial Way (U.S. Highway 19) for 1.4 miles. Turn west at the Heather Subdivision entrance at St. Andrews Boulevard. Continue west on St. Andrews Boulevard and turn southwest at Heather Boulevard. After 0.5 miles, turn northwest on Glasgow Road. At the end of Glasgow Road, proceed through the wooden gate onto the

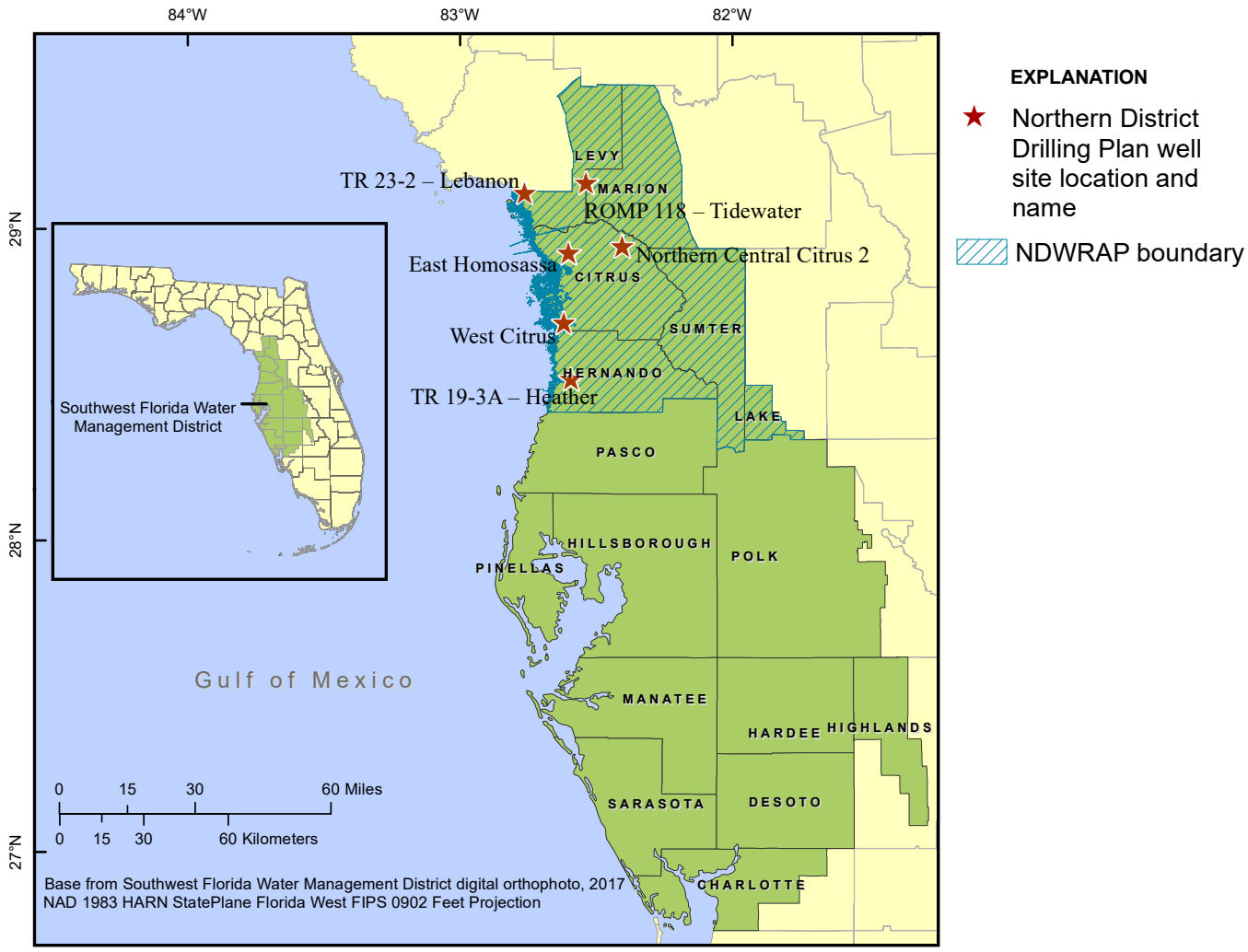


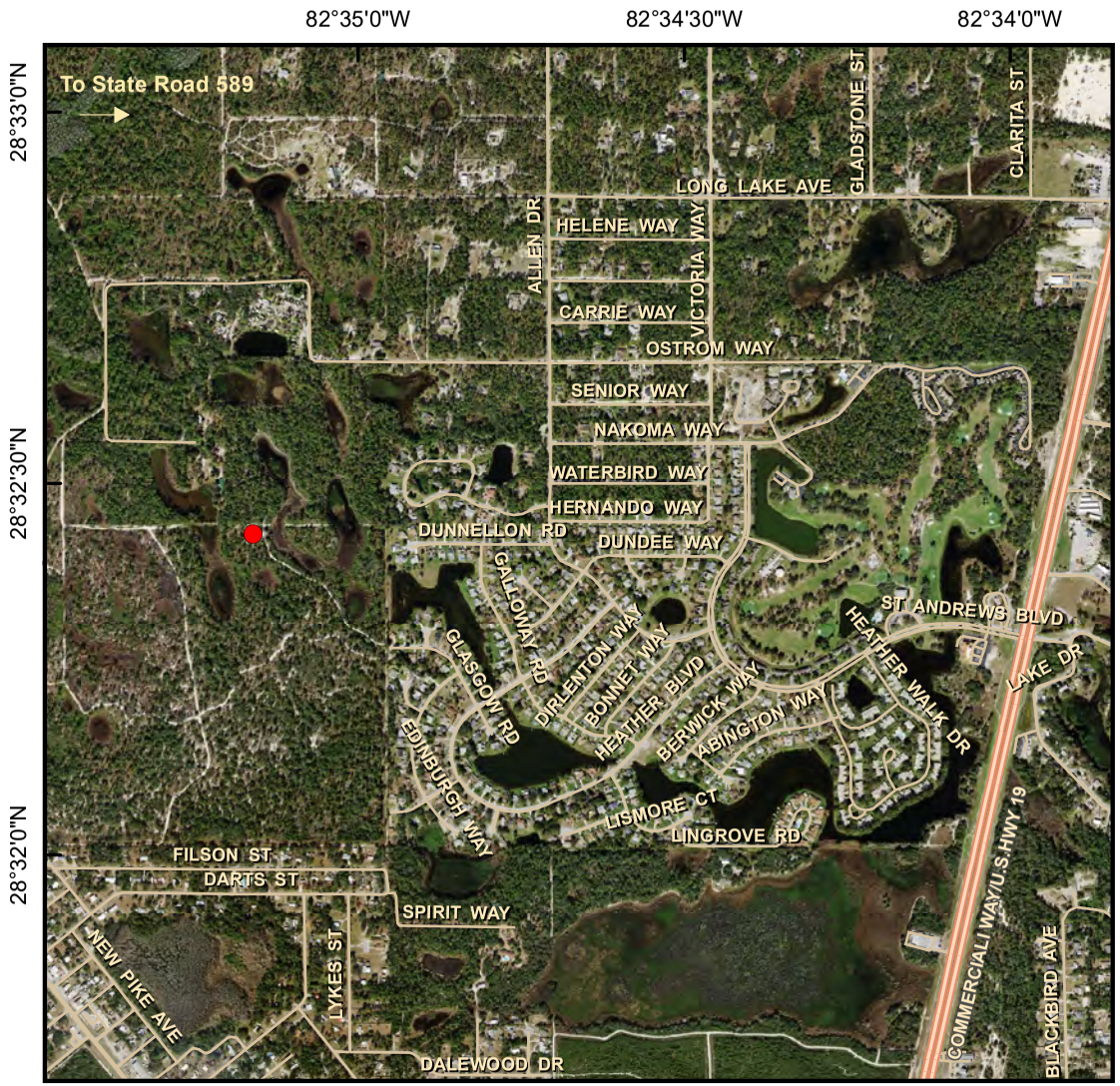
Figure 1. Northern District Drill Plan well sites with NDWRAP boundary.

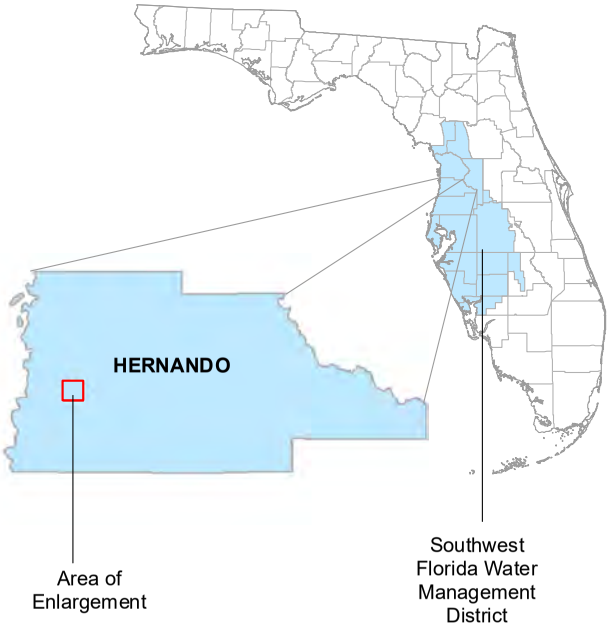
dirt road for 0.3 miles to the well site, located on the west side of the road.

The ROMP TR 19-3A well site is in the northern Land O' Lakes Karst Plain Province in the Ocala Karst District (Williams et al, 2022). The Ocala Karst District is the largest area of eogenetic karst in the United States, extending from the southeastern Florida Panhandle and northwestern peninsular Florida southeast to west-central peninsular Florida. This District is a major recharge area of the Floridan aquifer system. The Land O' Lakes Karst Plain Province is a coastal karst plain, consisting of dry sinkholes and shallow wetland depressions. This province is located in the southwestern portion of the Ocala Karst District, from southwestern Hernando County and central and western Pasco County, southward into northern Pinellas and Hillsborough counties (Williams et al, 2022). Western Hernando County is a highly karstic region in Florida, where carbonate rock units may be at land surface, but the dissolution of these rock units results in an irregular and hummocky topography. The ROMP TR 19-3A well site is in the Upper Coastal Drainage Basin within the Weeki Wachee Springshed. The Weeki Wachee Springshed is an important hydrological feature of the area as it discharges groundwater from the Upper Floridan aquifer to the headwaters of the Weeki Wachee River.

Methods

The ROMP TR 19-3A well site investigation was conducted using a variety of methods to collect hydrogeologic data including lithologic, water quality, water level, and geophysical data. The following sections provide the data collection method details specific to the ROMP TR 19-3A well site. Data collected at this well site are available for download from the District's website: www.swfwmd.state.fl.us (accessed August 2021) using the Environmental Data Portal (EDP) and the Geohydrologic Data Map Viewer. As of November 2019, available data includes water level and water quality data. This report, stratigraphy, and geophysical logs are available for download from the District's website via the Geohydrologic Data Map Viewer: https://swfwmd.maps.arcgis.com/apps/





Base from Southwest Florida Water Management District digital orthophoto, 2020
NAD 1983 HARN StatePlane Florida West FIPS 0902 Feet Projection

0 0.25 0.5 Miles

0 0.25 0.5 Kilometers

EXPLANATION

ROMP TR 19-3A – Heather
Section/Township/Range: S27/T22S/R17E
Latitude: 28° 32' 25.98" N
Longitude: 82° 35' 09.42" W

Directions

From the District's headquarters located south of Brooksville in Hernando County, the ROMP TR 19–3A well site can be found by heading north on U.S. Highway 41 towards Spring Hill Drive. Head west on Spring Hill Drive for 3 miles to State Road 589 North. Head north on State Road 589 North for 3 miles and exit onto State Road 50/Cortez Boulevard. Head west on State Road 50/Cortez Boulevard and continue for 8 miles. Turn north on Commercial Way (U.S. Highway 19) for 1.4 miles. Turn west at the Heather Subdivision entrance at St. Andrews Boulevard. Continue west on St. Andrews Boulevard and turn southwest at Heather Boulevard. After 0.5 miles, turn northwest on Glasgow Road. At the end of Glasgow Road, proceed through the wooden gate onto the dirt road for 0.3 miles to the well site on the west side of the road.

Figure 2. Location of the ROMP TR 19-3A – Heather well site in Hernando County, Florida.

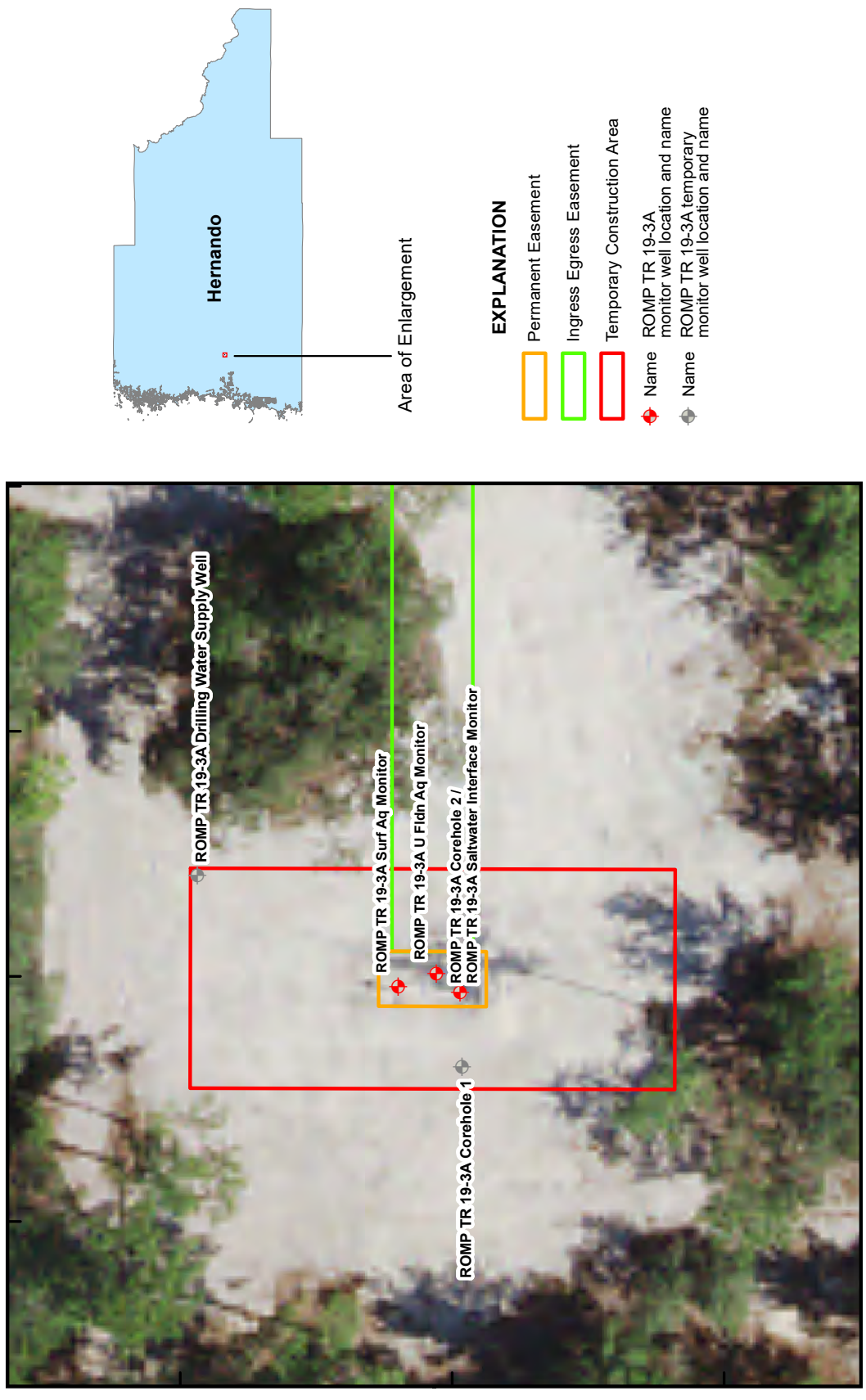


Figure 3. Well site layout for the ROMP TR 19-3A – Heather well site in Hernando County, Florida.

webappviewer/index.html?id=5cfe38abbae84d1fadfdf0953c3126bc (accessed August 2021). Well construction details and survey data are also available for download from the EDP using the Advanced Metadata Retrieval application.

Lithologic Sampling

Huss Drilling, Incorporated (Huss) collected lithologic samples from land surface to a total depth of 740 feet below land surface (bls) from May 21 through August 8, 2019. Shallow exploratory coring and testing were conducted from land surface to 400 feet at the ROMP TR 19-3A Core hole 1 (herein referred to as core hole 1), using a post hole digger, Failing 1500 Water Well Rig, split-spoon sampler, HQ (3.06-inch internal diameter) steel coring rods, and the wireline retrieval method. A post hole digger was used to dig a pilot hole from land surface to 4 feet bls. Next, lithologic samples were collected in two-foot lengths every four feet, using the split-spoon sampler method. The split-spoon sampler was advanced using a 140-pound hammer through NWJ (2.55-inch internal diameter) steel rods, which acted as temporary casing and held the borehole open. The split-spoon sampling method was conducted on the upper unconsolidated sediments from four to 36 feet bls, where limestone was encountered, and the split-spoon sampler could not advance. The wireline core drilling method was used from 36 to 400 feet bls in core hole 1 using water starting at 40 feet bls. Core samples were collected in 10-foot sections. The purpose of coring core hole 1 was to locate any sand-filled cavities expected to occur in this karstic region of Florida and to identify appropriate surface and intermediate casing depths for the saltwater interface monitor well construction.

Next, Huss relocated the Failing 1500 drill rig to the ROMP TR 19-3A Core hole 2 (herein referred to as core hole 2) location and resumed continuous lithologic sampling from 321 to 740 feet bls using HQ coring rods and the wireline retrieval method. Core samples were collected in 10-foot sections. The collection of lithologic samples from 321 to 400 feet bls at core hole 2 overlapped the lithologic samples collected from core hole 1. The samples were used to characterize the hydrostratigraphy of the site and to aid in the design of the monitor wells. Both core holes were cleaned of cuttings between core runs using the airlift discharge method. All lithologic samples from the core holes were boxed, labeled, described, photographed, and sent to the Florida Geological Survey (FGS) for archiving.

Hydraulic Testing

Near daily static water levels were recorded using a Solinst water level meter before the start of exploratory core drilling. Composite water levels were collected in core hole 1, from 100 to 400 feet bls, and 400 to 740 feet bls in core hole 2. Drilling mud was used during coring and drilling above these depths in core hole 1 and core hole 2, influencing the natural water levels; therefore, no hydraulic data was collected. Isolated water level data were also collected from the core holes during a packer test. After the off-bottom packer was inflated, the water level in the core rods was recorded after the water level stabilized. Discharge rates were collected and estimated using a v-notch weir tank. Composite discharge rates were collected every 20 feet from 100 feet to 400 feet bls in core hole 1 and every 20 feet from 400 to 740 feet bls in core hole 2. Near daily composite discharge rates were collected in core hole 1 and core hole 2 but were not useful during analysis because of multiple discrepancies in the data. Isolated discharge rates using the off-bottom packer were collected every 60 feet from 80 to 400 feet in core hole 1 and from 380 to 700 feet bls in core hole 2. Following the well construction completion of the temporary and permanent wells, specific capacity tests were conducted. On June 4, 2019, core hole 1 well was developed at 1.8 gpm and had a specific capacity of 0.17 gpm/ft. Following the completion of the ROMP TR 19-3A Surf Aq Monitor on June 6, 2019, the well was developed for approximately 140 minutes at 1.2 gpm and had a specific capacity of 1.3 gpm/ft. On June 12, 2019, Huss completed the ROMP TR 19-3A U Fldn Aq Monitor well and developed it for approximately 70 minutes. The specific capacity of the well was calculated at 3.87 gpm/ft. On September 3, 2019, the ROMP TR 19-3A Saltwater Interface was developed for approximately 110 minutes at 15 gpm and had a specific capacity of 5.6 gpm/ft.

Water Quality Sampling

Fifteen groundwater samples were collected while core drilling at the ROMP TR 19-3A well site to target the 1,000 milligrams per Liter (mg/L) chloride isochlor. This chloride concentration identifies the vertical and geographic extent of the saltwater interface. Six discrete groundwater samples were collected from core hole 1 and nine discrete groundwater samples were collected from core hole 2 for laboratory analysis. Field samples were collected every 20 feet between core runs from the airlift discharge to monitor specific conductance, pH, and temperature. Discrete samples were collected every 60 feet using an off-bottom packer to isolate 20-foot intervals within the borehole. A 3-inch submersible pump was used to discharge water from the well and directed into a v-notch weir to estimate the discharge rate. A portion of each sample was analyzed in the field for specific conductance, pH, temperature, chloride, and sulfate. The specific conductance, pH, and temperature were measured with a YSI Pro DSS Multimeter and the chloride and sulfate were measured using a YSI 9300 Photometer. The remainder of each sample was processed and delivered to the District's Chemistry Laboratory for additional parameter analyses (Southwest Florida Water Management District, 2020).

Geophysical Logging

Borehole geophysical logs are used to delineate stratigraphic units, identify permeable zones and confining units, characterize water quality, and help determine well casing points and grouting requirements. All logs were collected from both core holes by District staff using District-owned Century® geophysical logging equipment (table 1 and appendix A).

After the completion of core hole 1, the 9511A induction tool was run from land surface to 393.7 feet bls on June 6, 2019, and the 8144C multifunction tool was run from land surface to 396.6 feet bls on June 10, 2019. Geophysical logging occurred during multiple stages of construction in core hole 2. After the completion of exploratory coring and testing to 740 feet bls, the 8144C multifunction tool, the 9165C caliper/gamma-ray tool, and the 9511C induction tool collected data from land surface to 740 feet bls on August 12, 2019. District staff collected geophysical data using the 8144C multifunction tool and the 9165C caliper/gamma-ray tool from land surface to 624 feet bls on August 22, 2019. District staff anticipated collecting geophysical data to the depth of 670 feet bls, however, a ledge was encountered at 624 feet bls, preventing the tools from advancing. After the final 4-inch Schedule 40 polyvinyl chloride (PVC) casing was installed to 670 feet bls, the 9165C caliper/gamma-ray tool collected data from land surface to 735 feet bls on September 10, 2019.

Well Construction

Monitor well construction at the ROMP TR 19-3A well site was completed by Huss and supervised by a District geologist and/or District drilling staff. Five wells were constructed at this site, including two temporary wells and three permanent long-term monitor wells (fig. 3). The temporary wells constructed were the ROMP TR 19-3A Drilling Water Supply well and core hole 1. The permanent monitor wells (Station Names italicized herein refer to table 2) constructed were the surficial aquifer monitor well (*ROMP TR 19-3A Surf Aq Monitor well*), the Upper Floridan aquifer monitor well (*ROMP TR 19-3A U Fldn Aq Monitor well*), and the saltwater interface monitor well, formally as core hole 2 (*ROMP TR 19-3A Saltwater Interface Monitor well*). The permanent wells were equipped with water level recorders by the District's Hydrologic Data Section for long-term groundwater level monitoring. Additionally, the Upper Floridan aquifer monitor and the saltwater interface monitor wells were entered into the District's Water Quality Monitoring Program for long-term water quality monitoring.

A summary of ROMP TR 19-3A well construction details is provided in table 2. Well construction as-built diagrams for the drilling water supply, core holes 1 and 2, surficial aquifer monitor well, Upper Floridan aquifer monitor well, and saltwater interface monitor well are presented in appendix B. Daily logs for coring and well construction operations are available from the District's online document storage data-

Table 1. Summary of geophysical logs collected at the ROMP TR 19-3A – Heather well site in Hernando County, Florida

[MM/DD/YYYY, month/day/year; ft, feet; bls, below land surface; ROMP TR, Regional Observation and Monitor-well Program Coastal Transect; PVC, polyvinyl chlroide; The multifunction tool includes natural gamma-ray, single-point resistance, short normal 16-inch resistivity, long normal 64-inch resistivity, fluid resistivity, spontaneous potential, specific conductance, and temperature parameters]

Date (MM/DD/YYYY)	Well Name	Log Depth (ft bls)	Casing Type	Casing Depth (ft bls)	Borehole Diameter (inches)	Tool Type	Tool Number	Comments
06/10/2019	ROMP TR 19-3A Corehole 1	396.4	Temporary Steel Casing	41	4	Multifunction	8144C	
08/12/2019	ROMP TR 19-3A Corehole 2	742.2	Temporary Steel Casing	550	4	Multifunction; Caliper/ Gamma-ray	8144C; 9165C	
08/12/2019	ROMP TR 19-3A Corehole 2	737.7	Temporary Steel Casing	550	4	Induction	9511C	
08/22/2019	ROMP TR 19-3A Corehole 2	640	PVC	317	8	Multifunction; Caliper/ Gamma-ray	8411C; 9165C	Caliper/Gamma-ray logging tool could not advance past 624 ft.
09/10/2019	ROMP TR 19-3A Corehole 2	735.6	PVC	670	4	Caliper/Gamma-ray	9165C	

base. Additional well construction details can be found in the District's EDP.

Drilling Water Supply

The ROMP TR 19-3A Drilling Water Supply Well (herein referred to as the drilling water supply well) was constructed on the temporary easement on May 15, 2019. The drilling water supply well was constructed using a Central Mining Equipment (CME) 75 core drilling rig and 10.5-inch outside diameter (OD)/6.25-inch inside diameter (ID), 5-foot length hollow stem augers. The total depth of the well was 35 feet bls. Four-inch Schedule 40, 0.010-inch slotted PVC well screen was installed from 15 to 35 feet bls, and 4-inch Schedule 40 PVC casing was installed from one foot above land surface to 15 feet bls (table 2, appendix B, fig. B1). Twenty-six 50-pound bags of 6-20 silica sand were installed in the annulus from land surface to 35 feet bls. The well was constructed under Well Construction Permit (WCP) number 877839. This well was open to the undifferentiated sand and clay sediments within the upper portion of the Upper Floridan aquifer. The water table was estimated at 7.1 feet bls. After well construction was complete, the well was developed with a 2-inch submersible pump. The specific capacity was estimated at 0.46 gpm/ft. The well was intended to be used as a water supply during construction of core hole 1, however, it did not yield enough water. Therefore, Huss utilized a mobile water tank to supply water for the construction of core hole 1. The drilling water supply well was plugged on June 6, 2019, by Huss.

Core Hole 1

Core hole 1 was constructed on the temporary easement between May 21 and June 4, 2019, under WCP 877961, using a Failing 1500 drilling rig. The purpose of this temporary well was to locate any sand-filled cavities expected in this area, to identify an appropriate casing depth for constructing the saltwater interface monitor well, and to serve as a water supply well to the remaining exploratory coring and testing and well construction phases. A post-hole digger was used to remove the overlying sediments and shell pad from land surface to four feet bls. Non-continuous lithologic samples were collected from the unconsolidated sediments using the split-spoon sampling method from four to 36 feet bls, the depth where limestone was encountered, and the split-spoon sampler could not advance. Five-inch steel temporary casing was installed from land surface to 40 feet bls to hold back unconsolidated sediments. Exploratory coring and testing were conducted using the wireline method from 36 to 400 feet bls. As exploratory coring and testing advanced, a 4-inch working casing was set to 100 feet bls on May 23, 2019, and advanced again to 200 feet bls on June 3, 2019. Well construction specifications are presented in table 2 and the well as-built diagram is depicted in appendix B, figure B2. Core hole 1 was plugged on September 5, 2019, by Huss.

Core Hole 2

Between June 13 and August 8, 2019, Huss constructed core hole 2 on the permanent easement using a Failing 1500 drilling rig under the WCP 877845 (table 2). A 24-inch nominal borehole was drilled from land surface to 32 feet bls and 18-inch schedule 40 PVC surface casing was installed from land surface to 32 feet bls. Next, a 16-inch nominal hole was drilled from 32 to 63 feet bls and installed 63 feet of 12-inch schedule 40 PVC casing. A 12-inch diameter nominal hole was drilled from 63 to 321 feet bls and 8-inch schedule 40 PVC casing with centralizers from land surface to 317 feet bls. A temporary 4-inch HWT steel casing was installed from land surface to 321 feet bls, then lowered to 550 feet bls after coring to the depth of 555 feet bls. Well construction specifications are presented in table 2 and the well as-built diagram is depicted in appendix B, figure B6. Core hole 2 was converted to the saltwater interface monitor well.

Surficial Aquifer Monitor Well

On June 6, 2019, Huss constructed the surficial aquifer monitor well on the permanent easement using a CME 75 core drilling rig under WCP 877846 (table 2). Well construction specifications are in table 2 and the well as-built diagram is depicted in appendix B, figure B3. The surficial aquifer monitor well was installed to monitor the undifferentiated sands to determine if a surficial aquifer is present at this well site and to evaluate long-term groundwater interaction with the Upper Floridan aquifer. Analysis of long-term water levels suggests there is no surficial aquifer present at the ROMP TR 19-3A well site, and the surficial aquifer monitor well monitors the shallow Upper Floridan aquifer. Ten-inch OD/6.25-inch ID, 5-foot hollow stem augers were used to construct the open hole from land surface to 26 feet bls. Fifteen feet of 4-inch Schedule 40 0.010-inch slotted PVC well screen was installed from 11 to 26 feet bls and 14 feet of 4-inch Schedule 40 PVC casing was installed from three feet above land surface (als) to 11 feet bls. Twenty-eight 50-pound bags of silica sand and 2.5 50-pound bags of Portland Type II cement were used to seal the well. A lockable metal cover and a 2-foot by 2-foot concrete pad were installed around the well.

Upper Floridan Aquifer Monitor Well

From June 10 through June 12, 2019, Huss constructed the Upper Floridan aquifer monitor well on the permanent easement using a Failing 1500 drilling rig under WCP 877844 (table 2). Well construction specifications are depicted in appendix B, figure B4. A 12-inch nominal hole was drilled from land surface to 34 feet bls and 8-inch schedule 40-PVC surface casing was installed from one-foot als to 34 feet bls. Next, an 8-inch nominal hole was drilled from 34 to 65 feet bls. Sixty-eight feet of Schedule 40 Certa-Lok spline lock 4-inch PVC was installed and grouted from 65 feet bls to 3

feet als. An open hole was drilled below the 4-inch casing from 65 to 122 feet bls. A lockable metal cover and a 2-foot by 2-foot concrete pad were installed around the well. The Upper Floridan aquifer monitor well is open to the Ocala Limestone and was constructed to monitor the long-term water elevation and nitrate concentration of the Upper Floridan aquifer.

Saltwater Interface Monitor Well

From August 12 through August 29, 2019, Huss converted core hole 2 to the saltwater interface monitor well. The core hole was backfilled with sand from 740 to 670 feet, removed the 4-inch temporary steel working casing that was set to 550 feet, and reamed the 3-inch exploratory core hole with a 7 7/8-inch tri-cone bit to an 8-inch nominal hole from 317 to 670 feet bls. Two 4-inch by 8-inch formation packers were installed one foot and three feet from the bottom of the 4-inch Schedule 40 PVC Certa-Lok casing and wrapped in shredded plastic sheeting before casing installation and grouting from land surface to 670 feet bls. On August 29, 2019, the sand was drilled out of the 3-inch open interval. During the exploratory coring and testing phase, the middle confining unit II was encountered at 711.5 feet bls. To ensure future water level and water quality monitoring of the saltwater/freshwater interface is exclusively from the Upper Floridan aquifer, District staff proposed to back plug the bottom of the saltwater interface monitor well from 740 to 700 feet bls, leaving a 30-foot open interval in the lower portion of the Upper Floridan aquifer. On September 10, 2019, District staff used the District-owned Smeal 5T Pump Hoist rig and tremie method to back-plug the bottom of the saltwater interface monitor well under WCP 882303 (table 2). After the grout reached 711 feet bls, the formation would not allow the grout to ascend above 711 feet. After multiple unsuccessful grouting attempts made by District staff to grout above 711 feet bls, the saltwater interface monitor well was left open from 670 to 711 feet bls. A three-foot PVC riser, lockable metal cover, and a 2-foot by 2-foot concrete pad were installed around the well. The well construction specifications are depicted in appendix B, figure B5.

The final well configuration is open to the lower portion of the Upper Floridan aquifer; therefore, if chloride concentration increases, it will be detected in the saltwater interface monitor well before the Upper Floridan aquifer monitor well. The saltwater interface monitor well will monitor long-term water levels at the bottom of the Upper Floridan aquifer.

Table 2. Summary of well construction details at the ROMP TR 19-3A – Heather well site in Hernando County, Florida

[SID, Station Identification; ft, feet; bls, below land surface; MM/DD/YYYY, month/day/year; WCP, Well Construction Permit; No., number; --, no data; ROMP TR, Regional Observation and Monitor-well Program Coastal Transect; Surf, surficial; --, no data; PVC, polyvinyl chloride; Aq, aquifer; U, Upper; Fldn, Floridan]

SID	Well Name	Open Interval (ft bls - ft bls)	Casing Type	Casing Diameter (inches)	Start Date (MM/DD/YYYY)	Complete Date (MM/DD/YYYY)	Status	WCP No.
--	ROMP TR 19-3A drilling water supply	15-35 (10 slot screen)	PVC	4	05/15/2019	06/06/2019	Plugged	877839
918411	ROMP TR 19-3A Corehole 1	34-400	PVC	8	05/21/2019	09/05/2019	Plugged	877961, 877840
927467	ROMP TR 19-3A Surf Aq Monitor	11 - 26 (10 slot Screen)	PVC	4	06/06/2019	06/06/2019	Active	877846
927469	ROMP TR 19-3A U Fldn Aq Monitor	65 - 122	PVC	4	06/10/2019	06/12/2019	Active	877844
918412	ROMP TR 19-3A Corehole 2	317-740	PVC	8	06/13/2019	08/08/2019	Converted to SID 927471	877845, 882303
927471	ROMP TR 19-3A Saltwater Interface Monitor	670 - 711	PVC	4	08/12/2019	09/30/2019	Active	877845

Geology

The lithostratigraphy of the ROMP TR 19-3A well site is based on the lithologic samples collected from two separate exploratory core holes. Lithologic samples were collected from split-spoon sampling and wireline coring method, from land surface to 400 feet bls at core hole 1 and from 320 to 740 feet bls at core hole 2. The geologic units encountered at the well site include, in ascending order; the Avon Park Formation, the Ocala Limestone, the Suwannee Limestone, the undifferentiated Hawthorn group, and the undifferentiated sand and clay deposits. A stratigraphic column detailing the hydrogeology encountered at the well site is presented in figure 4. The lithologic log described by the FGS is presented in appendix C. Digital photographs of the core samples are presented in appendix D.

Avon Park Formation (Middle Eocene)

The middle Eocene age Avon Park Formation extends from 211.5 feet bls to beyond the total depth of exploration of 740 feet bls at the ROMP TR 19-3A well site. The top of the Avon Park Formation is based on the disappearance of foraminifera *Nummulites ocalanus, Nummulites wilcoxi*, and *Lepidocyclina ocalana*, index fossils characteristic of the Ocala Limestone. The upper surface of the Avon Park Formation was eroded before the overlying Ocala Limestone was deposited, making the contact unconformable (Cooke, 1945). From 211.5 to 257 feet, the lithology is very light orange to yellowish gray, fossiliferous packstone with an interbed of grainstone from 246 to 254 feet bls. Resistivity logs indicate a higher resistivity at these depths (appendix A, fig. A1). The first appearance of foraminifera *Neolaganum dalli* was identified at the depth of 250 feet bls. This foram is a key fossil of the Avon Park Formation. Less than one percent of organics and calcite are identified within the limestone.

The first appearance of dolostone begins at 257 feet bls. From 257 to 298 feet bls, the lithology ranges from highly weathered, poorly to moderately indurated dolostone with minimal secondary crystallization. The grayish-brown dolostone contains moderate amounts of organics and laminations. The dolomite alteration ranges from moderate (10 to 50 percent) to high (50 to 90 percent). Bryozoa and miliolid fossils, fragments, and molds were identified in the core samples.

From 298 to 332 feet bls, the lithology is very light orange, well-indurated wackestone and packstone with low dolomitic recrystallization. The lithology change corresponds to a decrease in electrical resistivity (left kick) (appendix A, fig. A1). The calcilutite matrix contains organics that range from four to less than one percent. Pinpoint and intergranular porosities were observed. The first appearance of *Cushmania*

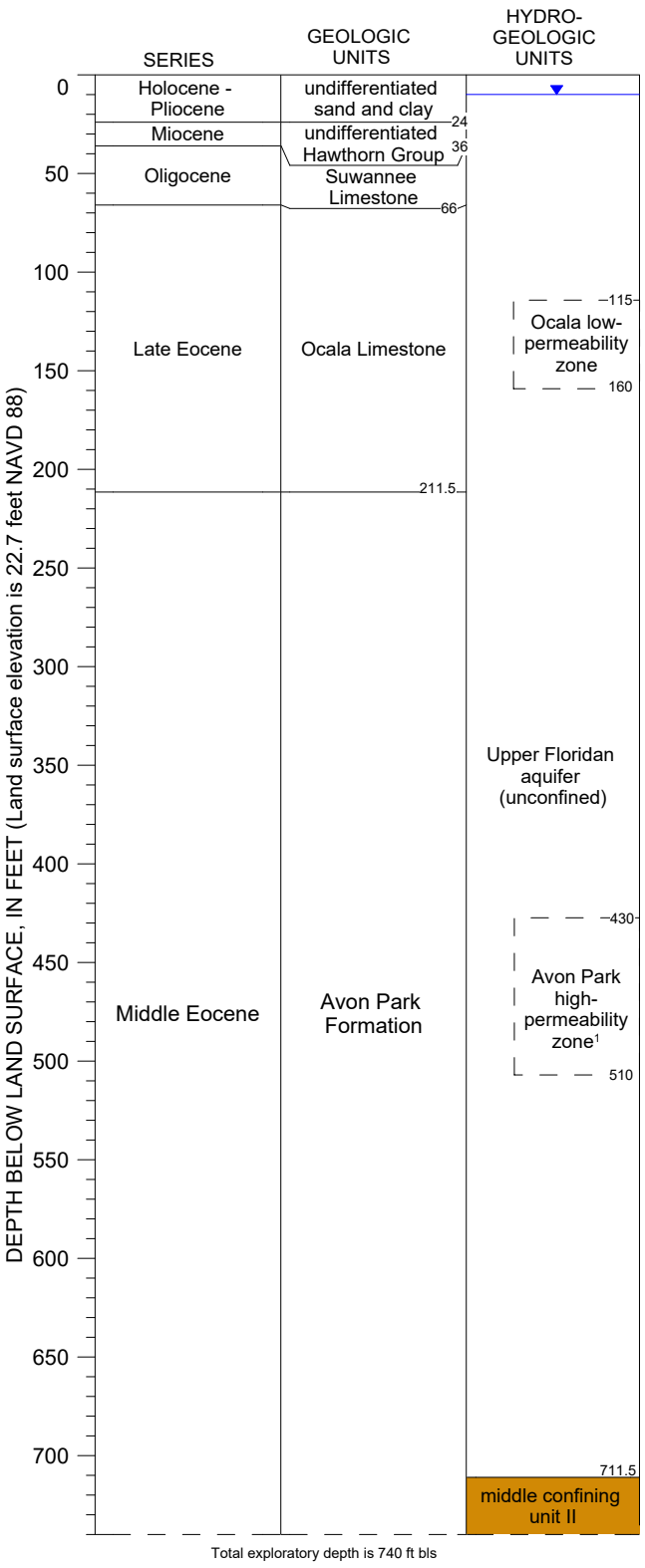


Figure 4. Stratigraphic column detailing the hydrogeologic setting at the ROMP TR 19-3A – Heather well site in Hernando County, Florida. The water level was measured on May 15, 2019.

[1] A high permeability fractured dolostone interval was encountered from 430 to 510 feet bls, which corresponds to the approximate northern extent of the regionally mapped Avon Park high-permeability zone. The fractures are not as developed and the permeability is less than typically observed for the Avon Park high-permeability zone likely because the unit is pinching out at this location.

(Dictyoconus) americana is identified at 327 feet bls. Other benthic foraminifera and miliolids were identified.

Highly altered, grayish brown to very light orange dolostone was described starting at 332 feet bls and continues until 380 feet bls. Elongated fractures were identified from 366 to 368.9 feet bls. Low recrystallization and a dolomitic matrix began at 332 feet bls. Lower electrical resistivity in this interval can be seen in appendix A, figure A1. *Neolaganum dalli* fossils reappeared throughout this section and ranged in size from 0.5 to 1.5 centimeters (cm).

Beginning at 380 to 405.7 feet bls, the lithology changes back to a very light orange packstone and wackestone containing intergranular porosity. Fossil fragments and fossil molds, including benthic foraminifera were identified in the core samples. Trace amounts of organics and chert were also observed.

Highly altered fossiliferous sucrosic dolostone was identified between 405.7 and 550 feet bls. Dolomitic alteration ranges from 50 to 100 percent. The main sources of porosity are intercrystalline and pinpoint, however, starting at 461 feet bls, fractures appear to increase the porosity. *Neolaganum dalli* were identified from 405.7 to 407.5 feet bls but as recrystallized fossil molds. Fossil molds and benthic foraminifera were present from 405 to 444 feet bls. From 444 to 550 feet bls, no preserved fossils were identified in the core samples. Organics range from one to six percent, with sections of thin organic laminations that have a mottled appearance.

From 550 to 700 feet bls, the lithology is predominantly very light orange to grayish brown, intergranular, poorly to moderately indurated, friable wackestone to mudstone. Exploratory coring became difficult because the friable rock falling from above endangered the core rods getting locked in the core hole. The lowest core recovery was 45 percent between 550 and 560 feet bls. Organic laminae are present from 602 to 637 feet bls, ranging from four to less than one percent. Non-fossiliferous limestone continued from 550 to 666.4 feet bls. Starting at 666.4 feet bls, fossil fragments such as miliolids and forams reappeared in the core samples.

From 700 to 740 feet bls, the lithology changes from limestone back to moderate yellowish brown to grayish brown, highly altered, fossiliferous dolostone. Anhydrite, gypsum, and celestite crystals appear in the core samples starting at 706 feet bls. At 713 feet bls, a cluster of bluish-gray celestite crystals up to 1 cm in length were identified in a 5-cm-wide circular void within the core. The average core recovery of the Avon Park Formation was 94 percent.

Ocala Limestone (Late Eocene)

At the ROMP TR 19-3A well site, the late Eocene age Ocala Limestone extends from 66 to 211.5 feet bls. The Ocala Limestone unconformably overlies the Avon Park Formation. From 66 to 76 feet bls, the Ocala Limestone was weathered with only 87 percent core recovery during exploratory coring and testing. The lithology is primarily very light orange to light yellowish orange, fossiliferous wackestone, and packstone, with some interbeds of grainstone. Induration improves from moderate to well at 86.6 feet bls, which is identified by an increase in electrical resistivity (appendix A, fig. A1). Organics ranging from four to less than one percent are present throughout the entire formation. An increase in organics observed between 80 and 90 feet bls correlates to an increase in counts per second (CPS) on the gamma-ray log in appendix A, figure A1.

An increase in fossil content appears at 121.6 feet bls; transitioning from nonfossilferous wackestone to fossiliferous packstone and grainstone. From 121.6 to 194.4 feet bls, the Ocala Limestone index fossils such as *Lepidocyclina ocalana*, *Nummulites ocalanus,* and *Nummulites wilcoxi* are abundant. The *Lepidocyclina ocalana* fossils range in size from 0.5 cm to 1.5 cm. The average core recovery achieved within the Ocala Limestone was 98 percent.

Suwannee Limestone (Oligocene)

At the ROMP TR 19-3A well site, the Oligocene age Suwannee Limestone extends from 36 to 66 feet bls. The Suwannee Limestone disconformably overlies the Ocala Limestone (Applin and Applin, 1944). A drop in gamma-ray counts per second (CPS) at the top of this formation is in response to the disappearance of phosphatic siliciclastics that appeared in the Hawthorn Group above (appendix A, fig. A1). The lithology throughout the entire unit is very light orange to light yellowish orange fossiliferous packstone and wackestone with a muddy calcilutite matrix. From 36 to 49 feet bls, the formation is described as poorly indurated packstone with less than one percent silt material. At 51 feet bls, phosphatic sands produce a spike in gamma-ray counts. The FGS lithologic description suggests the phosphatic sand is fall-in from the above Hawthorn Group. The induration improves from poor to moderate with depth. The fossils in the Suwannee Limestone are identified as benthic forams and miliolid fragments and molds. From 57 to 62 feet, the core samples contained 2 percent chert. The average core recovery achieved within the Suwannee Limestone was 75 percent.

Undifferentiated Hawthorn Group (Miocene)

The Miocene age undifferentiated Hawthorn Group extends from 24 to 36 feet bls at the ROMP TR 19-3A well site. The top of the Hawthorn Group was gradual and difficult to identify at this site. From 24 to 31 feet bls, this unit consists of clayey phosphatic sands, with no identified fossils. Clay content ranges from four to six percent throughout the unit. Phosphatic sands range from less than one to two percent. The last split-spoon sample collected at 34 to 36 feet consists of white to yellowish gray calcilutite. This is likely residuum from the dissolved limestone below. Less than one percent of this sample contains phosphate. Approximately two percent

of quartz sand was identified within this unit, but the likely source is from the sands above. The average sediment recovery from the split-spoon samples was 81 percent.

Undifferentiated Sand and Clay (Pliocene-Holocene)

The Pliocene to Holocene age undifferentiated sand and clay unit is the uppermost geologic unit at the ROMP TR 19-3A well site. The unit extends from land surface to 24 feet bls and consists of very light orange to light yellowish orange sand. No fossils were identified within this unit. Organic remains within this unit are two percent. The average sediment recovery from the split-spoon samples was 43 percent.

Hydrogeology

The ROMP TR 19-3A well site hydrogeology was delineated based on the results of all data collected during exploratory coring and testing, including lithologic, water level, water quality, discharge flow rates, and geophysical log data. The hydrogeologic units delineated at the ROMP TR 19-3A well site include the unconfined Upper Floridan aquifer and the middle confining unit II (fig. 4). The naming conventions used for the hydrogeologic units in this report are consistent with aquifer nomenclature guidelines proposed by Laney and Davidson (1986) and the North American Commission on Stratigraphic Nomenclature (2005). A comparison of the nomenclature used in this report (District nomenclature that is not site-specific) and previously published reports is presented in appendix E.

Upper Floridan aquifer (unconfined)

At the ROMP TR 19-3A well site, the Upper Floridan aquifer extends from the water table to 711.5 feet bls. The Upper Floridan aquifer includes the undifferentiated sands and clays, the undifferentiated Hawthorn Group, the Suwannee and Ocala Limestones, and the upper portion of the Avon Park Formation. The bottom of the Upper Floridan aquifer corresponds to the top of the middle confining unit II.

The top of the aquifer occurs within undifferentiated sands and clays because there is no effective basal confinement between the undifferentiated sands and clays and the underlying limestone. Clay was absent from land surface to 23 feet and ranges from four to six percent between 24 and 31 feet. Basal confinement of the surficial aquifer in this region is thin, discontinuous, and often breached by karst features as evidenced by loss of drilling fluid circulation at 34 feet bls, presumably in a karst solution channel. These factors render the confining unit hydraulically ineffective, and the underlying Upper Floridan aquifer regionally unconfined and represented by the water table (Basso, 2019). Long-term water levels collected from the surficial aquifer monitor well are near coincident in comparison to the Upper Floridan aquifer monitor well (fig. 5).

Although the Upper Floridan aquifer is a single aquifer, it can be subdivided based on variations of hydraulic properties. Regionally mappable units within an aquifer that contain different permeability, whether higher or lower, do not characterize the entire aquifer. The mappable permeable sections are referred to as zones (Laney and Davidson, 1986). The District identifies two zones that occur regionally within the Upper Floridan aquifer: the Ocala low-permeability zone and the Avon Park high-permeability zone. At the ROMP TR 19-3A well site, the Ocala low-permeability zone was identified within the Upper Floridan aquifer and extends from 115 to 160 feet bls. A high permeability fractured dolostone interval was encountered from 430 to 510 feet bls, which corresponds to the approximate northern extent of the regionally mapped Avon Park high-permeability zone. The fractures are not as developed, and the permeability is less than typically observed for the Avon Park high-permeability zone likely because the unit is pinching out at this location.

The first two packer tests were conducted within the Ocala Limestone portion of the Upper Floridan aquifer in core hole 1. Packer test 1 was conducted from 80 to 100 feet bls and packer test 2 was conducted from 140 to 160 feet bls. The discharge rate of packer test 1 was estimated at 28 gallons per minute (gpm). One of the highest discharge rates at the TR 19-3A site was observed during packer test 1. Fractures with well-defined slickenlines were observed from 83 to 85 feet bls, which likely contributes to the high discharge rate. The observed porosity is estimated at 30 percent.

Packer test 2 was conducted from 140 to 160 feet bls within the lower portion of the Ocala low-permeability zone within the Upper Floridan aquifer. The discharge rate of this packer test was estimated at 5 gpm (fig. 6). Intergranular and pinpoint porosities were observed and were estimated between 10 and 20 percent. The electrical resistivity is lower between 115 to 160 feet bls (appendix A, fig. A1) compared to the formation above and below. Based on the low discharge rates, the estimated porosity of the rock, and the geophysical log data, the Ocala low-permeability zone is identified between 115 to 160 feet bls.

Packer tests 3 through 6 were performed in core hole 1 within the Avon Park Formation. The packer discharge rates generally decrease with depth from 200 to 400 feet (fig. 6). This general decrease in discharge corresponds to an increase in rock density, which is supported by an increase in electrical resistivity (appendix A, fig. A1).

Packer tests 7 through 13 were performed in core hole 2 within the Avon Park Formation. Packer test 7 was performed from 380 to 400 feet, repeating packer test 6 test interval in core hole 1. The packer discharge rate was very similar in core hole 2 compared to core hole 1, 5.5 gpm and 5.0 gpm, respectively.

Packer test 8 was performed from 440 to 460 feet bls. Vuggy and high-angled fractured dolostone, as discussed

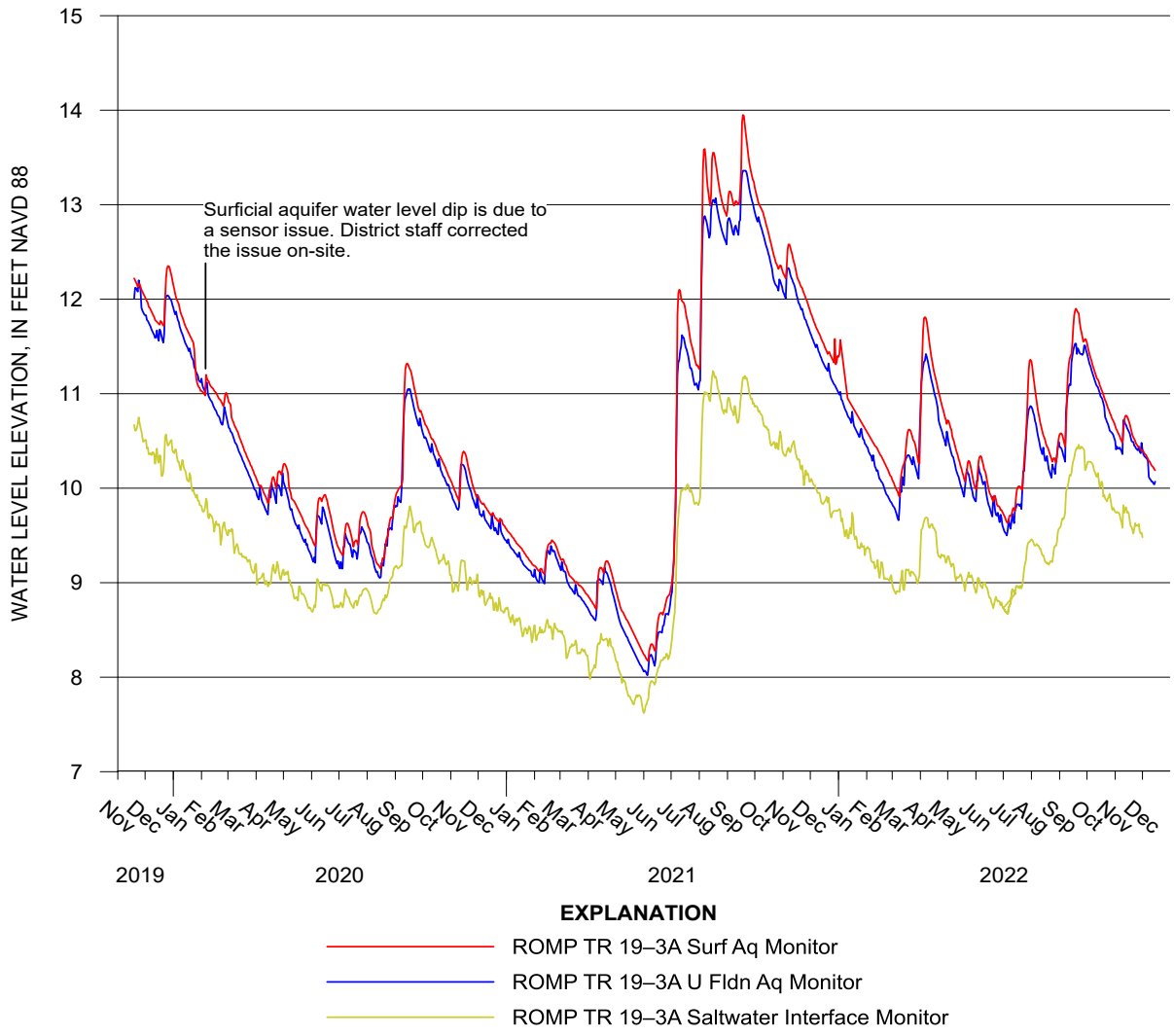


Figure 5. Hydrograph of the permanent monitor wells at the ROMP TR 19-3A – Heather well site in Hernando County, Florida.

previously for the Avon Park high-permeability zone, likely contributes to the discharge rate of 24 gpm.

Packer test 9 was performed from 500 to 520 feet bls and had a packer discharge rate of 15 gpm. Packer test 10 (interval from 560 to 580 feet bls), had a packer discharge rate of 6 gpm. This interval primarily contains very fine to fine-grained mudstone with poor to moderate induration. The core was described as friable with poor recovery. The electrical resistivity decreases between 560 and 570 feet, and again at 580 feet bls (appendix A, fig. A4).

Packer tests 11 through 13 had some of the highest packer discharge rates at the ROMP TR 19-3A well site. Packer test 11 was conducted from 620 to 640 feet bls, within poorly indurated, and very fine grained wackestone. The packer discharge rate was estimated at 27 gpm. Huss staff commented the core barrel kept getting clogged and had to collect ten-foot cores in multiple runs. Huss staff also noted there was a bit drop from 624 to 627 feet bls. This void likely contributes to the high discharge rate.

Packer tests 12 and 13 were conducted near the base of the Upper Floridan aquifer from 680 to 700 feet bls and the discharge was 28 gpm. The formation was described as well indurated wackestone. The driller commented a bit drop from 693 to 695 feet bls, suggesting a void within the formation.

This void is likely a large contributor to the high discharge rate. The electrical resistivity steadily decreases from 620 to 711 feet bls (appendix A, fig. A4).

Core hole 2 was converted to the Saltwater Interface monitor well and two discharge rates were measured in the well. One discharge rate was estimated at 15 gpm and had an open interval from 670 to 740 feet bls. This open interval consists of the lower portion of the Upper Floridan aquifer and the upper portion of the middle confining unit II. The second estimated discharge rate was measured after the saltwater interface monitor well was back-plugged from 740 to 711 feet bls. The discharge rate was estimated at 30 gpm and had an open interval from 670 to 711 feet bls. This interval was exclusively open to the lower portion of the Upper Floridan aquifer. This is the highest discharge rate observed at the ROMP TR 19-3A well site. The lower estimated discharge rate with the open interval from 670 to 740 feet is likely due to inadequate well development prior to the discharge rate collection, and the lower flow rate of the submersible pump used during the development.

Composite and isolated water levels were collected during exploratory coring from 100 to 400 feet bls at core hole 1 and from 400 to 700 feet bls at core hole 2 (fig. 6). It appears an increase in water levels occurred from core hole 1 to core hole 2 at the depth of 400 feet bls. This shift is from the delay in coring and testing at core hole 2 after core hole 1 was complete. Core hole 1 construction was completed on June 4, 2019, and coring and testing resumed at 380 feet bls in core hole 2 on July 9, 2019.

Groundwater level data have been collected from the Upper Floridan aquifer monitor well and the saltwater interface monitor well since November 2019 (fig. 5). The water levels displayed in figure 5 are the maximum daily water levels. A comparison between the Upper Floridan aquifer monitor water levels and the saltwater interface monitor well indicates a downward head gradient. The average head difference from November 18, 2019, to October 27, 2021, is 0.95 feet, which suggests the ROMP TR 19-3A well site is in a recharge area for the Upper Floridan aquifer.

Middle Confining Unit II

At the ROMP TR 19-3A well site, the middle confining unit II extends from 711.5 feet bls to beyond the total depth of exploration of 740 feet bls. The top of the middle confining unit II is consistent with Miller (1986), which estimates the top of the middle confining unit II at approximately 680 feet NAVD 88 (702.7 feet bls). The top of middle confining unit II was picked at the first appearance of evaporites that significantly decreased the permeability. No packer tests were performed within the middle confining unit II.

Groundwater Quality

Groundwater analyses provide data for the groundwater quality characterization of the ROMP TR 19-3A well site. The major ion concentrations at the ROMP TR 19-3A well site are based on laboratory results from 15 discrete interval groundwater samples that were collected during exploratory coring and testing. Samples one through six were collected from core hole 1 and the remaining nine samples were collected from core hole 2. Water quality data are presented in figure 7. The groundwater quality sample acquisition sheets are presented in appendix G. The field and laboratory results for the groundwater quality samples are presented in appendix H, tables 1 and 2, respectively. Water quality samples were not collected in the undifferentiated sands and clays or the Suwannee Limestone because drilling mud was used during split-spoon sampling and coring. Water quality sampling and testing were performed during exploratory coring and testing to target the 1,000 mg/L chloride surface to delineate the vertical and geographic extent of the saltwater interface within the Upper Floridan aquifer. The U.S. Environmental Protection Agency's National Secondary Drinking Water Regulations (secondary standards) for total dissolved solids (TDS), sulfate, chloride, and iron are 500 mg/L, 250 mg/L, 250 mg/L, and 0.3 mg/L (300 micrograms per liter [µg/L]), respectively (Hem, 1985; U.S. Environmental Protection Agency, 2018). Groundwater is considered fresh water based on the concentration of TDS. Freshwater has a TDS of less than 1,000 mg/L (Fetter, 2001).

Water quality sample 1 was collected in the Ocala Limestone within the Upper Floridan aquifer, from 80 to 100 feet bls. The water quality sample results indicate the groundwater is fresh within this interval but does not meet secondary drinking water standards. Iron concentration was 0.8 mg/L in this interval, exceeding the secondary drinking water standard concentration. Laminations containing four percent organics were identified in the core from 92 to 94 feet bls, possibly contributing to the higher levels of iron.

The results of water quality samples 2 through 11, collected from 140 to 640 feet bls, are fresh and meets the secondary drinking water standards. The maximum concentration of chloride and sulfate within this interval were 22 mg/L and 170 mg/L, respectively. The TDS concentration remains under 500 mg/L. The specific conductance data collected by the 8144C multifunction tool shows a decrease from 480 to 396 µS/cm between 380 and 590 feet bls (appendix A, fig. A2). This decrease coincides with the increase in discharge within this interval (fig. 6). Magnesium concentration begins to increase throughout this interval (fig. 7), ranging from 1 mg/L in the Ocala low-permeability zone to 16 mg/L in the Avon Park Formation within the Upper Floridan aquifer. The increase in concentration is likely the response to the partial or complete dolomitization of limestone within the Avon Park Formation. The first dolostone was identified at 257 feet bls.

The water quality results for water quality samples 12 and 13 are fresh but do not meet the secondary drinking water standards. Both samples were collected from 680 to 700

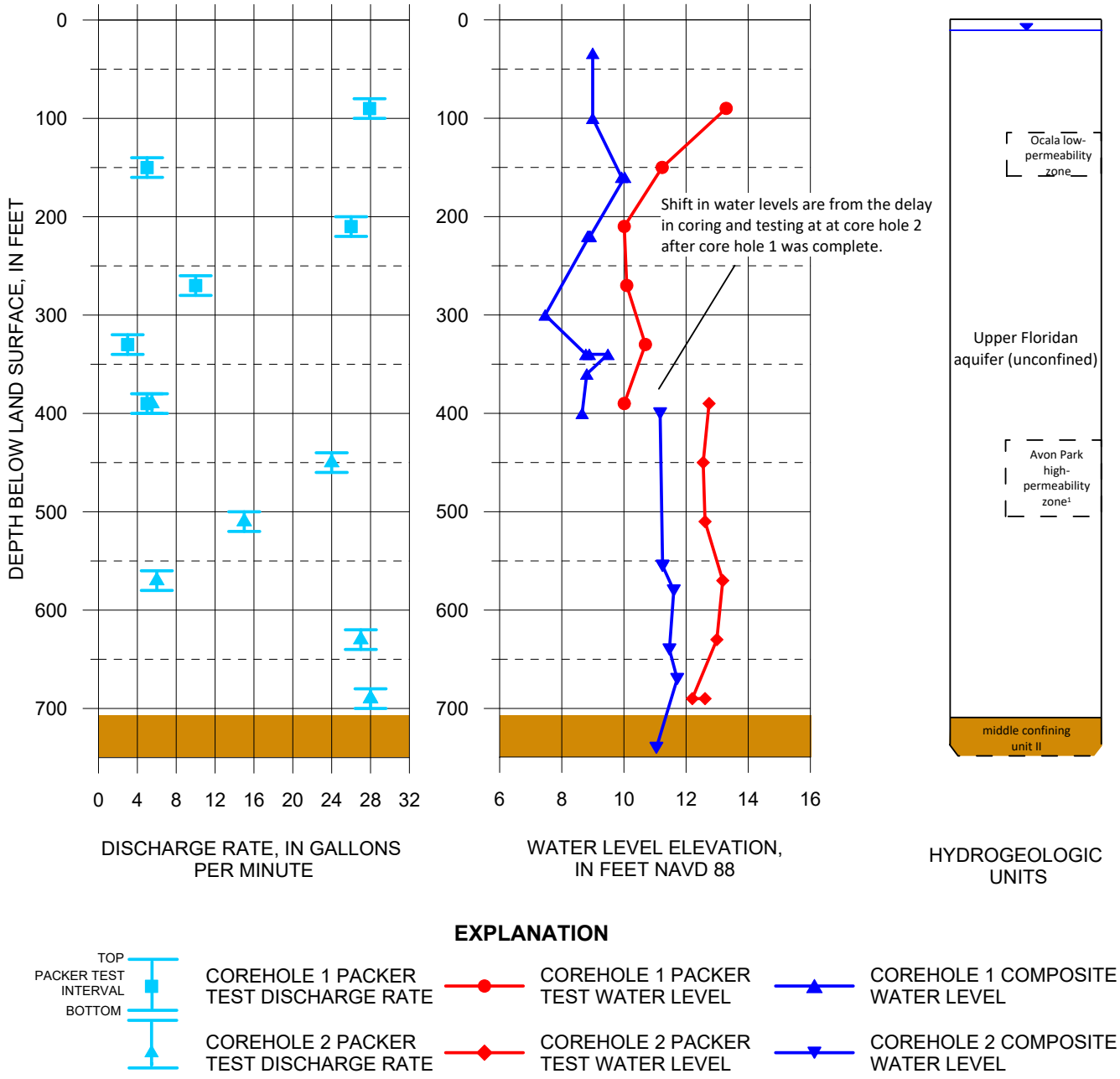


Figure 6. Discharge rates and water levels collected during exploratory coring and testing at the ROMP TR 19-3A - Heather well site in Hernando County, Florida. The packer test discharge rate represents the middle of the discrete open interval at the time of sampling. The packer test water levels represent the middle of the descrete open interval at the time the packer is set. The composite water level represents the core hole water level preceding daily site activity.

feet bls. Water quality sample 13 repeated the test interval of water quality sample 12 because it was uncertain whether the packer was sealed properly during the collection of water quality sample 12. In sample 12 and sample 13, the sulfate concentrations are 413 and 479 mg/L, the iron concentrations are 0.3 and 0.4 mg/L, and the TDS concentrations are 868 and 929 mg/L, respectively. Both water quality results exceed the secondary drinking water standards but remain fresh.

The results from water quality samples 14 and 15 indicate the water quality is brackish and does not meet secondary

[1] A high permeability fractured dolostone interval was encountered from 430 to 510 feet bls, which corresponds to the approximate northern extent of the regionally mapped Avon Park high-permeability zone. The fractures are not as developed and the permeability is less than typically observed for the Avon Park high-permeability zone likely because the unit is pinching out at this location.

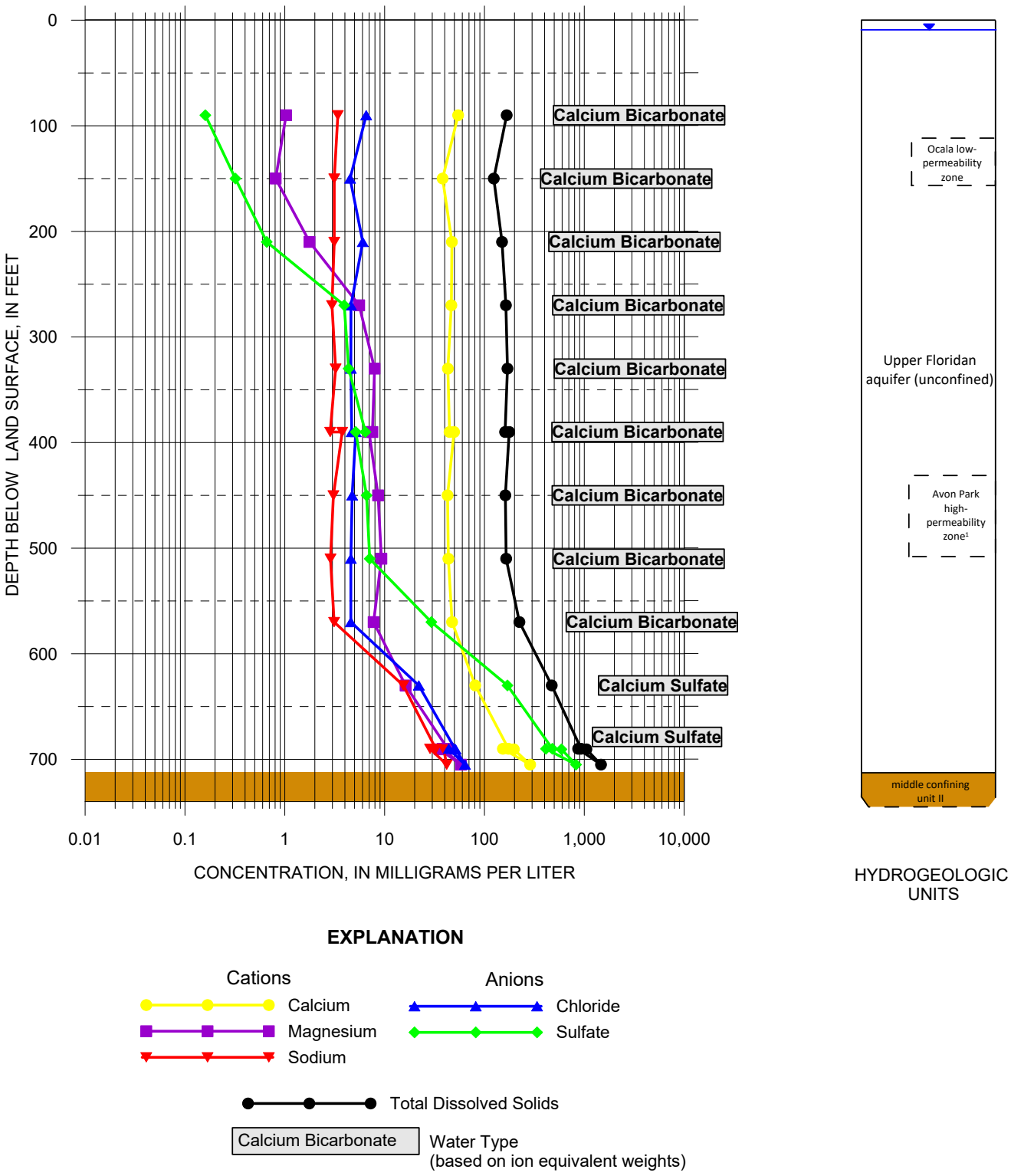


Figure 7. Select cations and anions, and total dissolved solid concentrations for groundwater quality samples collected at the ROMP TR 19-3A – Heather well site in Hernando County, Florida. Depths represent the middle of the discrete open interval at the time of sampling.

[1] A high permeability fractured dolostone interval was encountered from 430 to 510 feet bls, which corresponds to the approximate northern extent of the regionally mapped Avon Park high-permeability zone. The fractures are not as developed and the permeability is less than typically observed for the Avon Park high-permeability zone likely because the unit is pinching out at this location.

drinking water standards. Water quality sample 14 had an open interval from 670 to 740 feet bls. This interval contains the lower portion of the Upper Floridan aquifer and the upper portion of the middle confining unit II. Water Quality sample 14 had a sulfate concentration of 826 mg/L, an iron concentration of 0.3 mg/L, and a TDS concentration of 1,470 mg/L, all exceeding the secondary drinking water standard. Water quality sample 15 was collected after the core hole was backplugged from 740 to 711 feet bls, having an open interval of 670 to 711 feet bls. This interval is isolated to the lower portion of the Upper Floridan aquifer. The analysis results show the sulfate concentration is 591 mg/L and the TDS concentration is 1,050 mg/L, both exceeding the secondary drinking water standard. Water quality samples 14 and 15 are considered brackish water because the TDS concentrations exceed 1,000 mg/L but are under 10,000 mg/L.

Generally, the water quality samples with the lowest ion and TDS concentrations are from groundwater within the Ocala Limestone. The water quality samples collected at the bottom of the Upper Floridan aquifer and in the middle confining unit II have the highest ion and TDS concentrations. This is likely due to the influence of evaporites observed in the middle confining unit II. The chloride concentration did not exceed 1,000 mg/L within the field or laboratory water quality samples collected at the ROMP TR 19-3A well site (appendix H, tables H1 and H2). Furthermore, long-term water quality samples collected at the saltwater interface monitor well from November 20, 2019, through June 15, 2021, show no appreciable variation in chloride concentration and an average of 60 mg/L. As a result, the chloride isochlor was not identified at the ROMP TR 19-3A well site.

A substantial increase in strontium concentration was observed from 560 feet to the bottom of the core hole (appendix H, table H2). The sulfate concentration in the groundwater also begins to increase from 580 to 700 feet bls, and peaks in concentration at 740 feet bls. This increase is likely the result of the dissolution process of evaporite sediments from the middle confining unit II. If conditions are right, the mixing of strontium and sulfate with the oxygen ion in the carbonate-rich groundwater may produce the mineral deposit celestite ($SrSO_4$) (Skougstad and Horr, 1963). At the ROMP TR 19-3A well site, small (<0.5 cm) celestite crystal deposits were identified starting at the depth of 706 feet bls. Large bluish-gray celestite crystals (1 cm) were identified within a dissolved evaporite nodule in the core at 713 feet bls.

Equivalent weights and water types were determined for each groundwater quality sample. Equivalent weights are presented in appendix H, table H3, and the water types are presented in appendix H, table H3, and figure 7. The results from water quality samples 1 through 10 indicate the water type is calcium bicarbonate in the Ocala Limestone and the upper portion of the Avon Park Formation within the Upper Floridan aquifer. Water quality samples 11 through 15 indicate the water type is calcium sulfate in the lower portion of the Avon Park Formation within the Upper Floridan aquifer and middle confining unit II. Influence from the dissolution of evaporites from the middle confining unit II likely changes the water type from calcium bicarbonate to calcium sulfate.

Select molar ratios were calculated and plotted to further investigate water quality changes with depth (fig. 8 and appendix H, table H4). The gypsum track illustrates the interaction between fresh water and evaporites (gypsum and anhydrite). The dolomite track primarily identifies fresh water affected by dolomite. The sodium chloride track depicts effects from connate or seawater.

The chloride to sulfate ratio on the gypsum track shows a decrease with depth while the sulfate to bicarbonate shows an increase with depth. This implies the sulfate concentration has a greater influence in the groundwater than the chloride or bicarbonate concentrations with depth. This increase in sulfate is likely derived from the influence of evaporite dissolution from the middle confining unit II. The calcium to bicarbonate ratio remains near the one-to-one ratio throughout the entire core hole, indicating changes in both ion concentrations are equivalent.

The calcium to magnesium ratio on the dolomite track shows a substantial decrease from 80 to 280 feet bls, then remains steady from 280 to 740 feet bls. The decrease in the calcium to magnesium ratio in the upper portion of the Upper Floridan aquifer signifies the increase in magnesium concentration as the formation transitions from limestone to dolostone. Highly altered dolostone was first identified at 285 feet bls. From 280 to 740 feet bls, the track remains relatively the same, signifying the ion concentrations change at a similar rate with depth.

The sodium to chloride ratio on the sodium chloride track remains similar throughout the entire core hole, indicating changes in both ion concentrations are at similar rates. The sodium to bicarbonate and chloride to bicarbonate ratios remain less than one-to-one from 80 to 560 feet bls. From 560 to 740 feet, the two ratios begin to shift towards a one-to-one ratio, indicating a decrease in bicarbonate concentration, but chloride and sodium concentrations increase.

The relative abundance trends of each major cation and anion for all water quality samples collected at the ROMP TR 19-3A well site are presented in percent milliequivalents using a Piper (1944) diagram (fig. 9). Groundwater samples collected within the Ocala Limestone and the upper portion of the Avon Park Formation within the Upper Floridan aquifer (water quality samples 1 through 10) plot on the left edge of the quadrilateral. The samples positioned here are typical for calcium-bicarbonate water types with low ionic concentrations considered unaffected by seawater or deepwater mixing (Tihansky, 2005). The groundwater samples collected in the lower portion of the Avon Park Formation within the Upper Floridan aquifer (water quality samples 11 through 13) plot on the top left edge of the quadrilateral at the end of the freshwater/deepwater mixing trend line. The samples placed here are typical for calcium-sulfate water types with elevated sulfate concentrations from deepwater mixing with freshwater. Water quality samples 14 and 15, collected within the lower portion of the Upper Floridan aquifer and upper portion of the middle

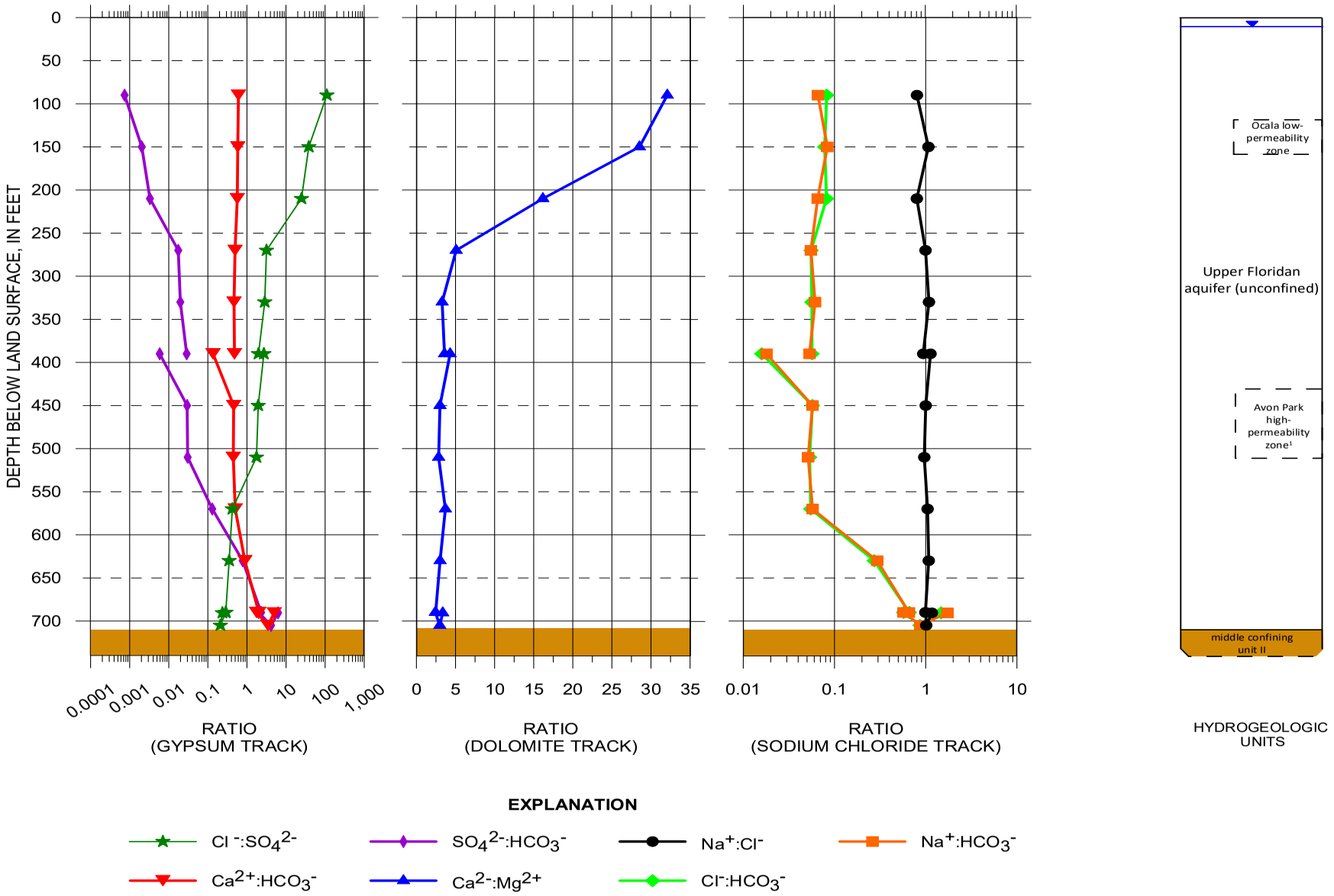


Figure 8. Select molar ratios with depth for groundwater quality samples collected at the ROMP TR 19-3A – Heather well site in Hernando County, Florida. Depth represents the middle of the discrete open interval at the time of sampling.

[1] A high permeability fractured dolostone interval was encountered from 430 to 510 feet bls, which corresponds to the approximate northern extent of the regionally mapped Avon Park high-permeability zone. The fractures are not as developed and the permeability is less than typically observed for the Avon Park high-permeability zone likely because the unit is pinching out at this location.

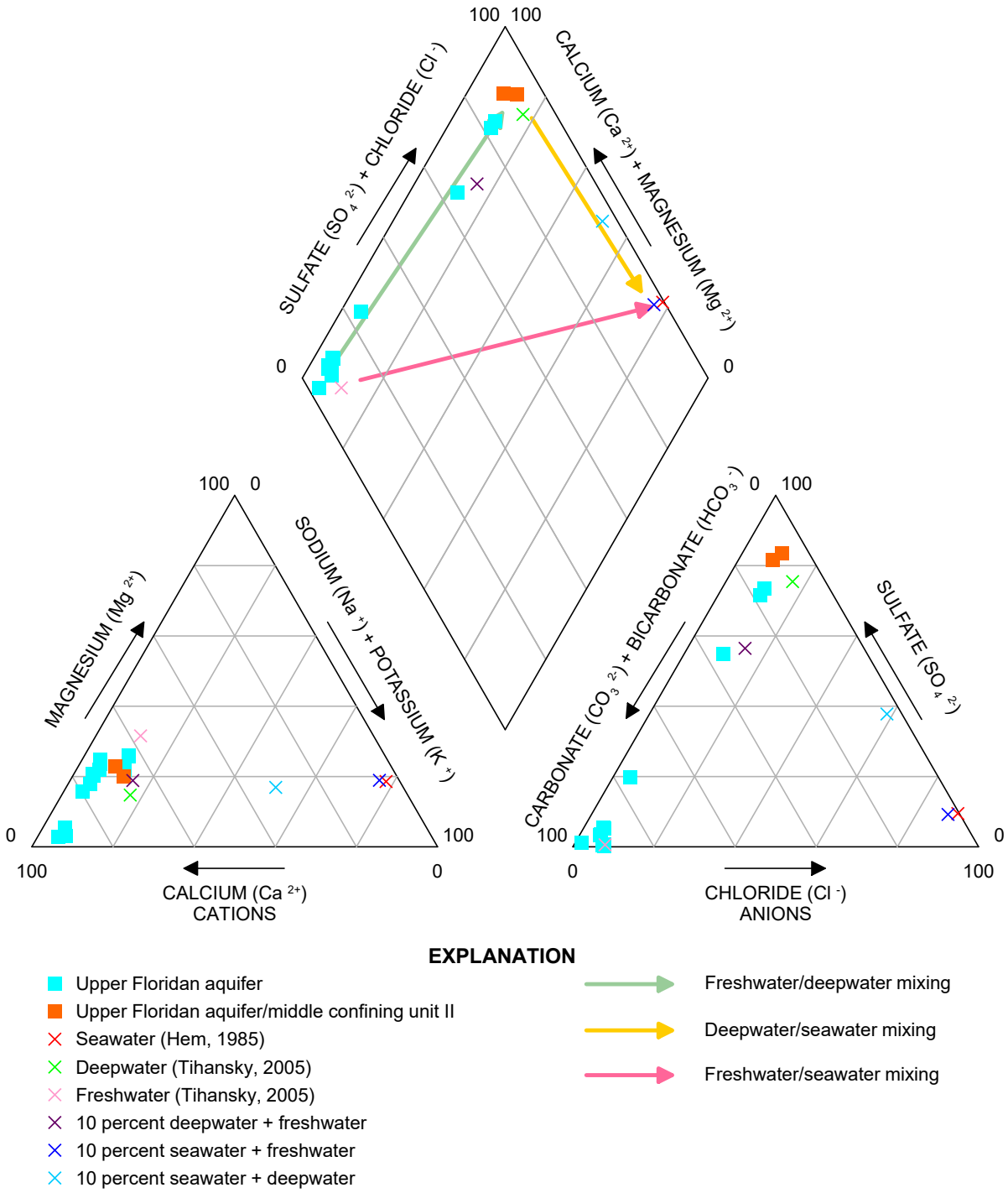


Figure 9. Piper Diagram of groundwater quality samples collected at the ROMP TR 19-3A – Heather well site in Hernando County, Florida.

confining unit II plot at the top vertex of the quadrilateral at the end of the freshwater/deepwater mixing line (Tihansky, 2005), which is indicative of mineralized water (deepwater).

Summary

Three permanent monitor wells and two temporary wells were constructed at the ROMP TR 19-3A well site in Hernando County, Florida. The *ROMP TR 19-3A Surf Aq Monitor well* and the *ROMP TR 19-3A U Fldn Aq Monitor well* were completed in June 2019, and the *ROMP TR 19-3A Saltwater Interface Monitor well* was completed in September 2019. The wells were constructed as part of the ROMP Coastal Transect Network, and to support the NDWRAP, the UFANMN, and the CGWQMN to monitor groundwater levels and groundwater quality in the Upper Floridan aquifer. The surficial aquifer monitor well has a casing depth of 11 feet bls and a total depth of 26 feet bls, the Upper Floridan aquifer monitor has a casing depth of 65 feet bls and a total depth of 122 feet bls, and the Saltwater Interface Monitor has a casing depth of 670 feet bls and a total depth of 711 feet bls. The wells are secure with locking well covers, surveyed, and groundwater levels and quality are currently being monitored by the District's Hydrologic Data Section and the WQMP.

Before well construction, exploratory split-spoon sampling and hydraulic rotary core samples were collected from land surface to 740 feet bls to delineate the hydrogeology of the well site. The general geology at the well site is, in ascending order, the Avon Park Formation, the Ocala Limestone, the Suwannee Limestone, the undifferentiated Hawthorn Group, and the undifferentiated sands and clays. The Avon Park Formation extends from 211.5 feet to beyond the total depth of exploration of 740 feet. The Ocala Limestone extends from 66 to 211.5 feet bls, the Suwannee Limestone extends from 36 to 66 feet bls, the undifferentiated Hawthorn Group extends from 24 to 36 feet bls, and the undifferentiated sands and clays extend from land surface to 24 feet bls. The hydrogeologic units delineated at the ROMP TR 19-3A well site include, in descending order, the Upper Floridan aquifer from the water table to 711.5 feet bls and the middle confining unit II, from 711.5 feet bls to beyond the depth of exploration of 740 feet bls.

Fifteen groundwater quality samples were collected and analyzed at the ROMP TR 19-3A well site. The groundwater quality samples 1 through 13 indicate that the Upper Floridan aquifer is fresh to the depth of 670 feet bls because the TDS concentrations are less than 1,000 mg/L. Groundwater quality samples 2 through 11 meet the secondary drinking standards and water quality samples 1, 12, and 13 exceed the secondary drinking standards. Groundwater samples 14 and 15 are considered brackish water because the TDS concentrations exceed 1,000 mg/L and do not meet the secondary drinking standards. The water type is calcium carbonate from 80 to 580 feet bls and transitions to calcium sulfate from 640 to 740 feet bls.

The molar ratios on the gypsum track show an increasing sulfate influence with depth. The source of the sulfate is likely from the evaporites within the middle confining unit II. The molar ratios on the dolomite track indicate an increasing magnesium concentration with depth. The transition from limestone to dolostone with depth is likely the source of the magnesium. The sodium to chloride molar ratio remains similar with depth on the sodium chloride track. It is apparent there is no influence from connate or seawater on the groundwater at the well site.

On a Piper diagram, the results of water quality samples 1 through 10 plot along the upper left edge of the quadrilateral, which is typical for calcium-carbonate water types with low ionic concentrations not influenced by seawater or deepwater (Tihansky, 2005). Water quality samples 11 through 13 plot in the top left edge of the quadrilateral at the end of the freshwater/deepwater mixing trend line. Water quality samples 14 and 15 plot next to the deepwater symbol, indicating the groundwater is affected by mineralized water (deepwater) (Tihansky, 2005).

The primary purpose of this well site was to locate the saltwater/freshwater interface as defined by the 1,000 mg/L isochlor. The saltwater/freshwater interface was not located at the ROMP TR 19-3A well site because the chloride concentration remained less than 1,000 mg/L.

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Appendix A. Geophysical Log Suites for the ROMP TR 19-3A Well Site in Hernando County, Florida

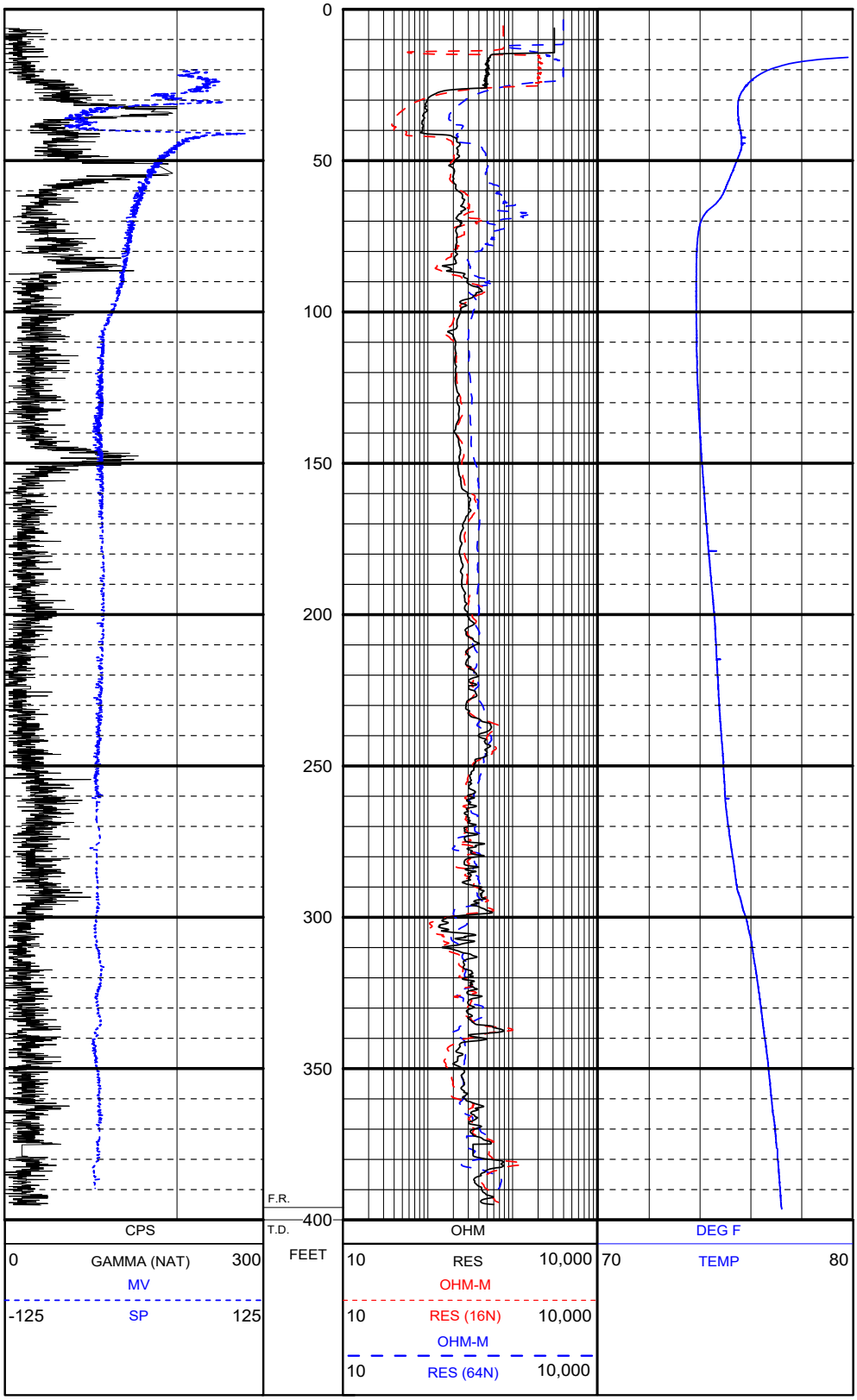


Figure A1. Geophysical log suite for Corehole 1 from 0.9 to 396.4 feet below land surface conducted at the ROMP TR1 19-3A – Heather well site in Hernando County, Florida. The log was performed on June 10, 2019, using the 8144C (multifunction) tool. Five-inch steel working casing was installed to 40 feet below land surface at the time of logging. The log scale is 2-inch per 100 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 389.6 feet below land surface.

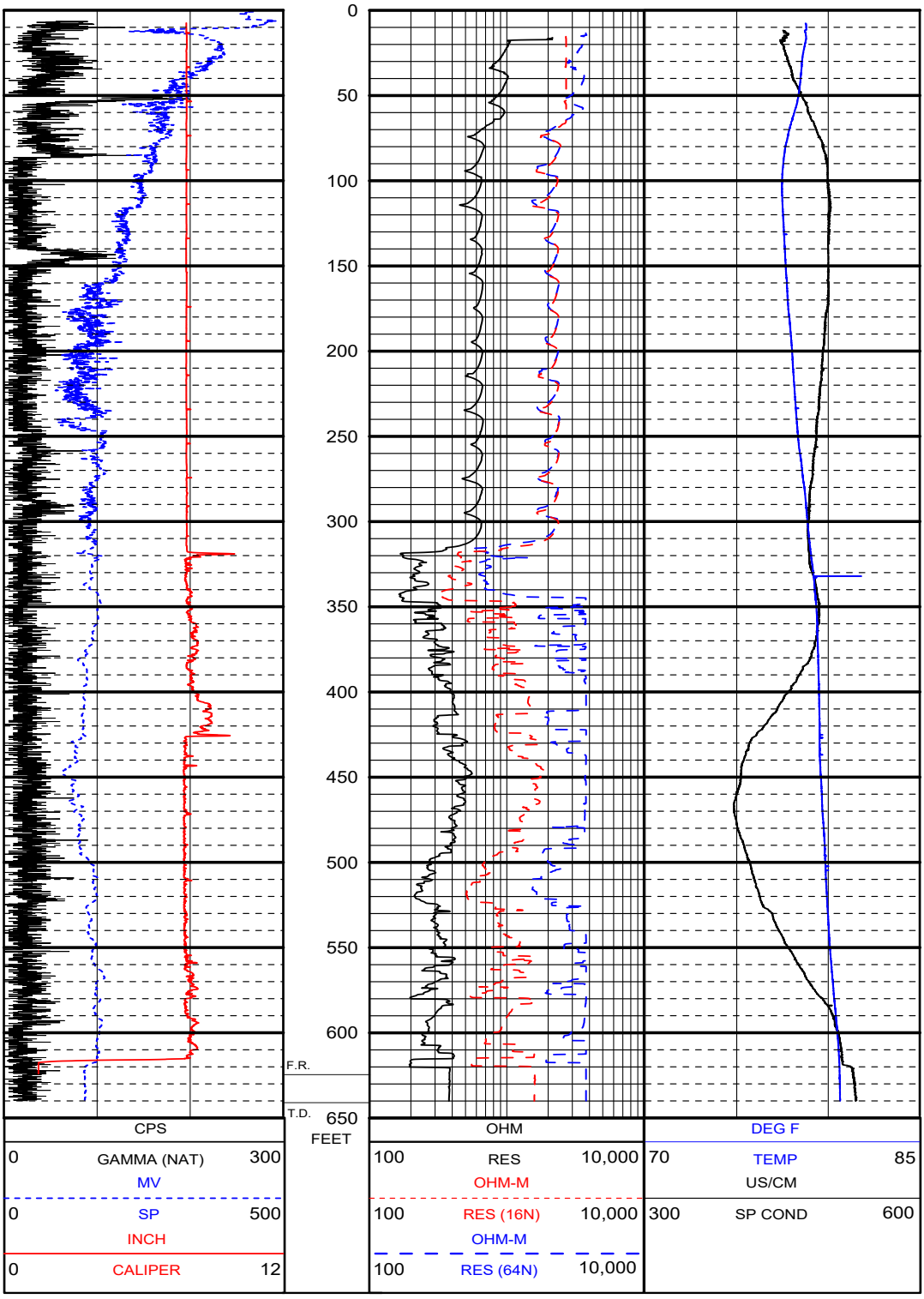


Figure A2. Geophysical log suite for Corehole 2 from land surface to 640 feet below land surface conducted at the ROMP TR 19-3A – Heather well site in Hernando County, Florida. The log was performed on August 22, 2019, using the 8144C (multifunction) and the 9165C (caliper/gamma-ray) tools. Eight-inch PVC intermediate casing was installed to 317 feet below land surface at the time of logging. The log scale is 1-inch to 100 feet bls. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR for tool 9165C was 624 feet below land surface and 640 feet below land surface for tool 8144C. Tool 9165C could not advance past 624 feet below land surface because of an obstruction in the core hole. The gamma-ray data shown in this figure was collected from tool 8144C.

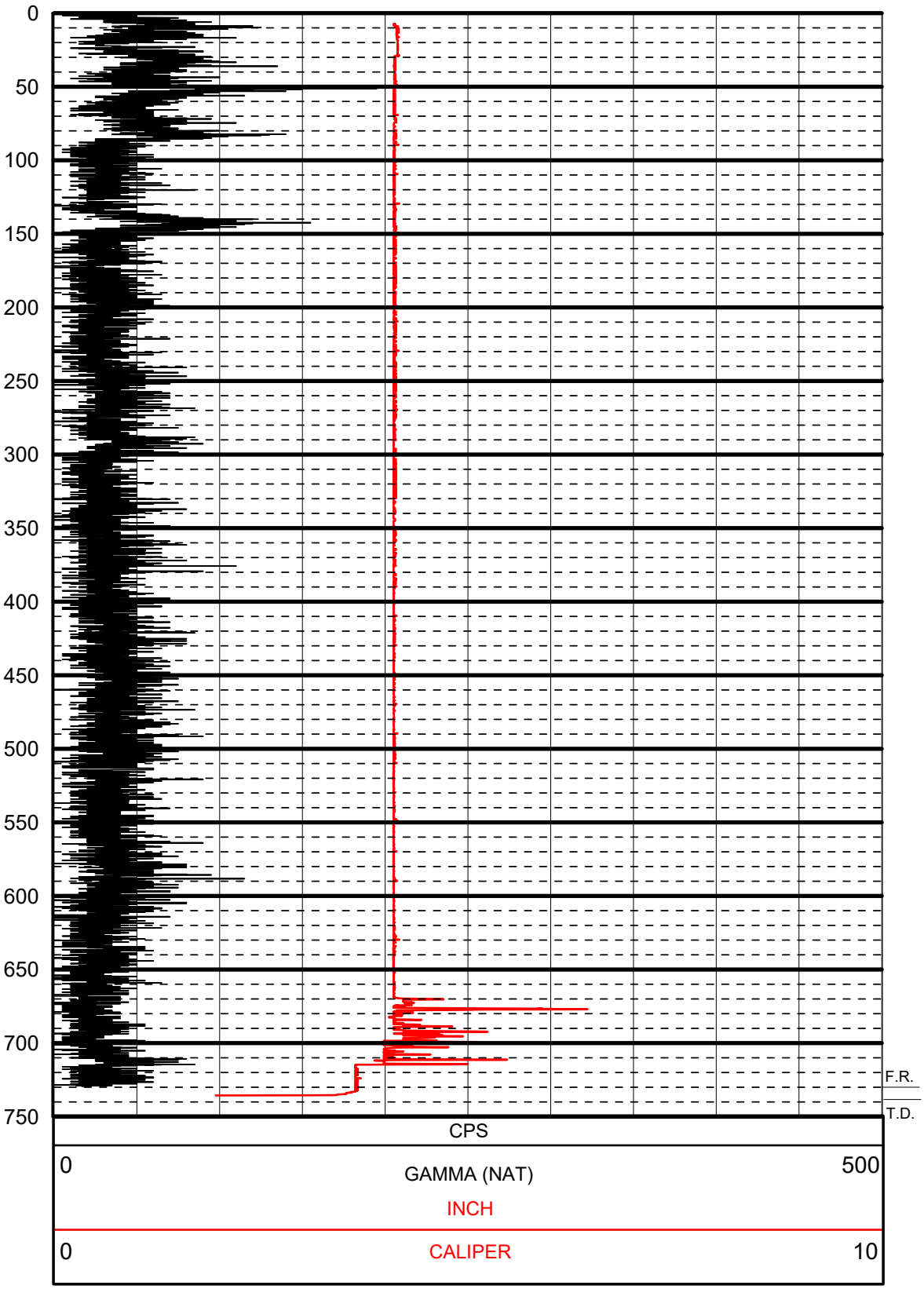


Figure A3. Geophysical log suite for Corehole 2 from land surface to 735.6 feet below land surface conducted at the ROMP TR 19-3A – Heather well site in Hernando County, Florida. The log was performed on September 10, 2019, using the 9165C (caliper/gamma-ray) tool. Four-inch permanent PVC final casing was installed to 670 feet below land surface. The log scale is 1-inch to 100 feet. The FR is 735.6 feet below land surface.

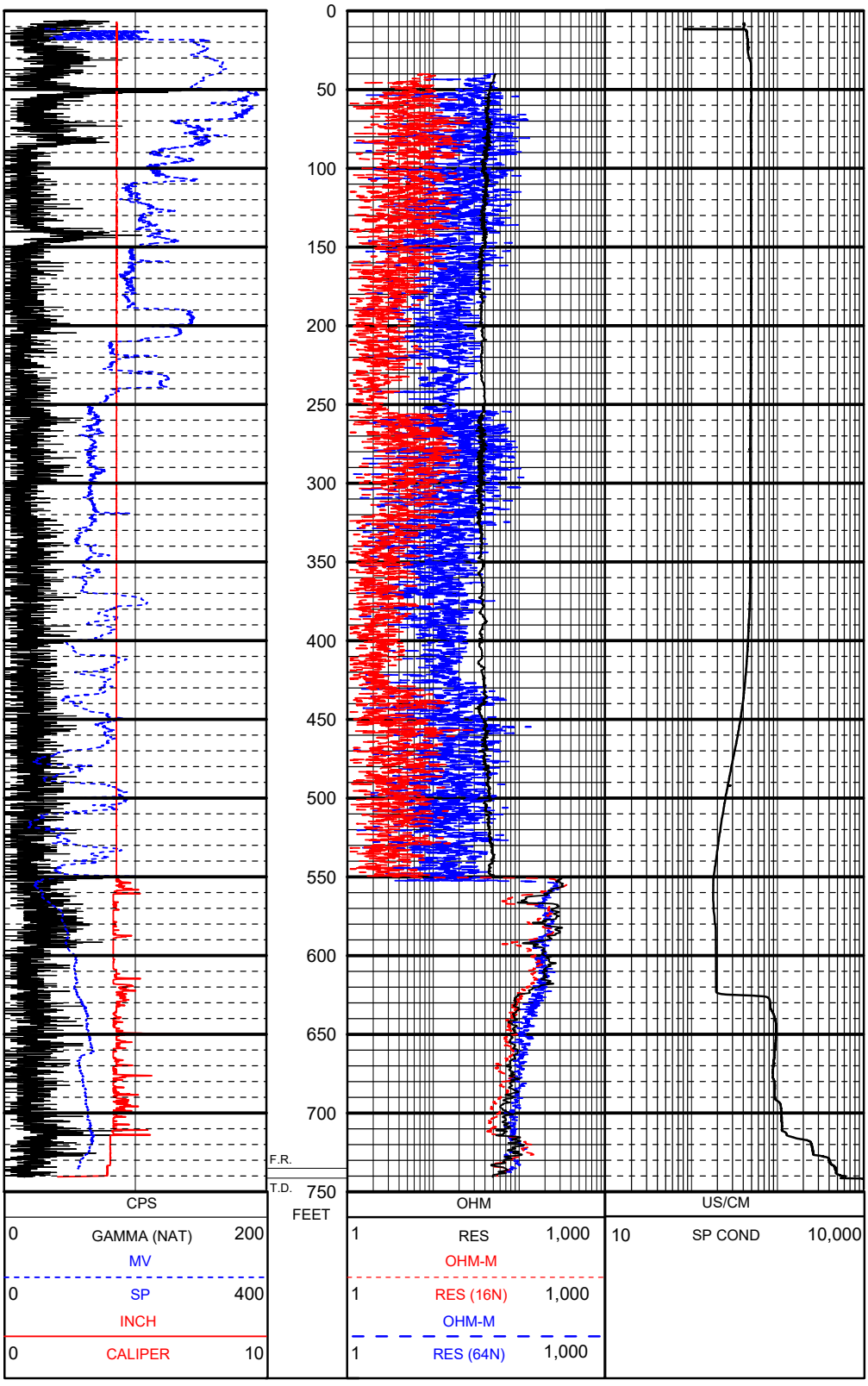


Figure A4. Geophysical log suite for Corehole 2 from 0.8 to 742.2 feet below land surface conducted at the ROMP TR 19-3A – Heather well site in Hernando County, Florida. The log was performed on August 12, 2019, using the 8144C (multifunction) and 9165C (caliper/gamma-ray) tools. Four-inch steel working casing was installed to 550 feet below land surface at the time of logging. The log scale is 1-inch to 100 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 735.3 feet below land surface.

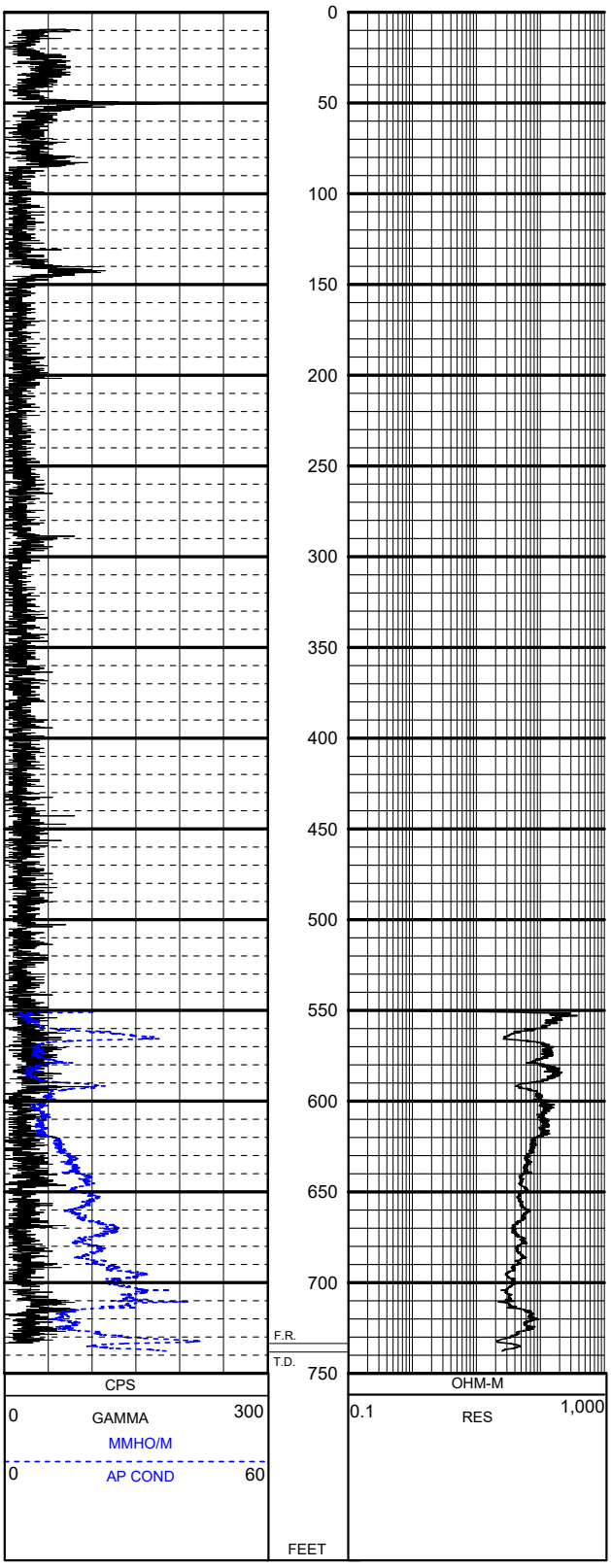
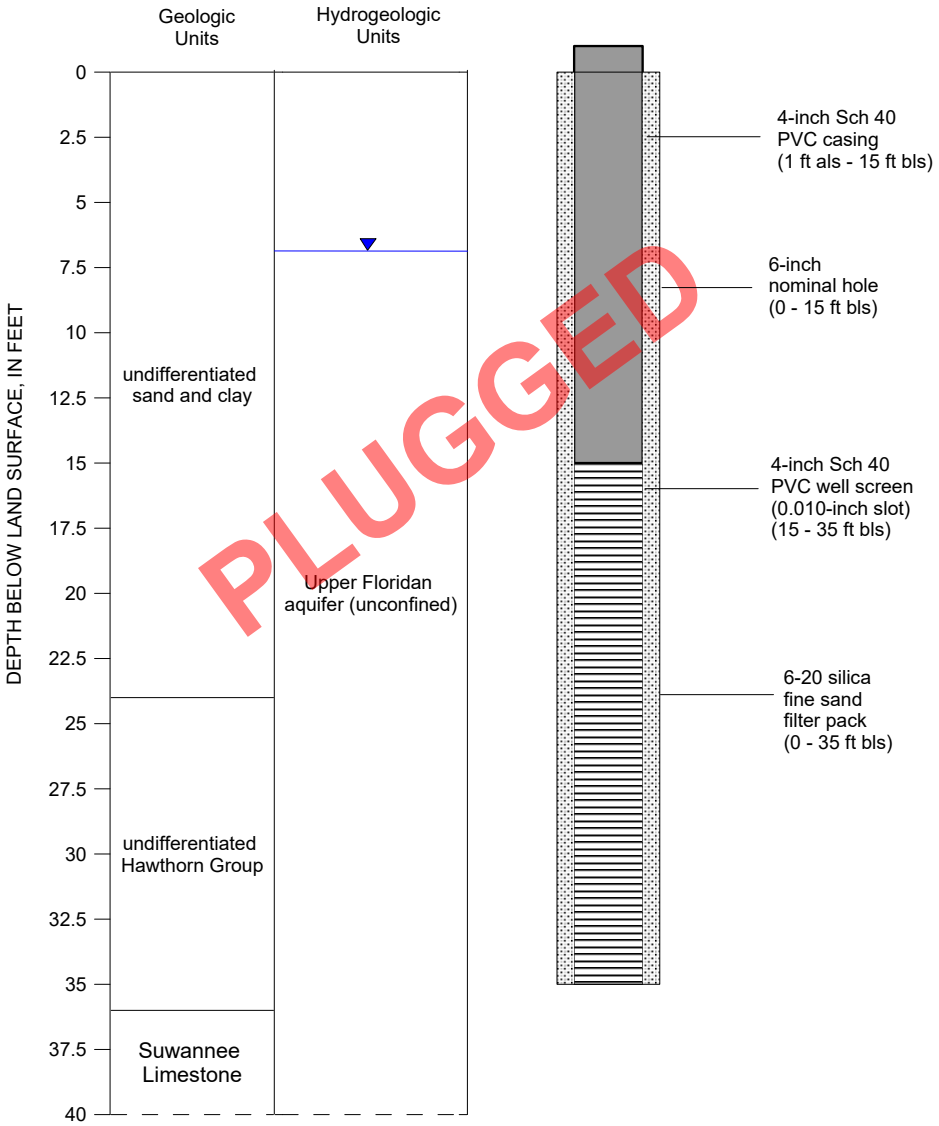


Figure A5. Geophysical log suite for Corehole 2 from 0.6 to 737.7 feet below land surface conducted at the ROMP TR 19-3A – Heather well site in Hernando County, Florida. The log was performed on August 12, 2019, using the 9511C (induction) tool. Four-inch steel working casing was installed to 550 feet below land surface at the time of logging. The log scale is 1-inch to 100 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 733.3 feet below land surface.

Appendix B. Well As-built Diagrams for the ROMP TR 19-3A Well Site in Hernando County, Florida



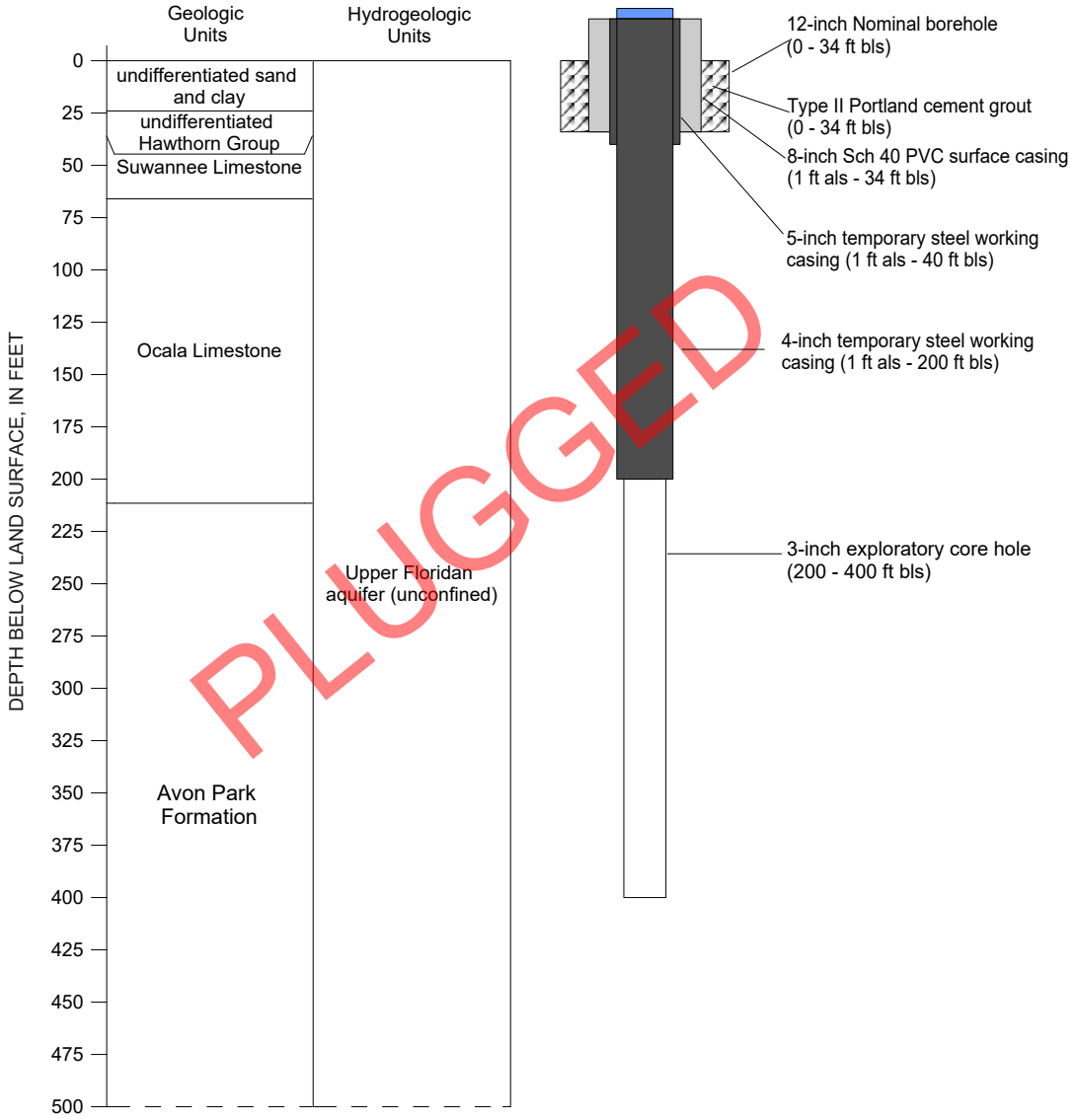
Well Name:	ROMP TR 19-3A Drilling Water Supply
SID:	------
WCP:	877839
S/T/R:	S27/T22S/R17E
Latitude:	28° 32' 26.48" N
Longitude:	82° 35' 9.246" W
Reporting Category:	TRWH
Const. Began:	5/15/2019
Const. Complete:	5/15/2019

EXPLANATION

PVC casing
Silica sand
Screen

[ft, foot or feet; als, above land surface; bls, below land surface; PVC, polyvinyl chloride; Sch, schedule; ROMP, Regional Observation and Monitor-well Program; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const, construction]

Figure B1. Well as-built diagram for the Drilling Water Supply well at the ROMP TR 19-3A – Heather well site in Hernando County, Florida.



Well Name:	ROMP TR 19-3A Corehole 1
SID:	918411
WCP:	877961, 877840
S/T/R:	S27/T22S/R17E
Latitude:	28° 32' 26.16" N
Longitude:	82° 35' 09.6" W
Reporting Category:	TRWH
Const. Began:	5/21/2019
Const. Complete:	6/4/2019

EXPLANATION

PVC casing
Steel casing
Cement grout
Open hole
PVC gasket

[ft, foot or feet; als, above land surface; bls, below land surface; PVC, polyvinyl chloride; Sch, schedule; ROMP, Regional Observation and Monitor-well Program; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; N, north; S, south; E, east; W, west; Const, construction]

Figure B2. Well as-built diagram for the Corehole 1 at the ROMP TR 19-3A – Heather well site in Hernando County, Florida.

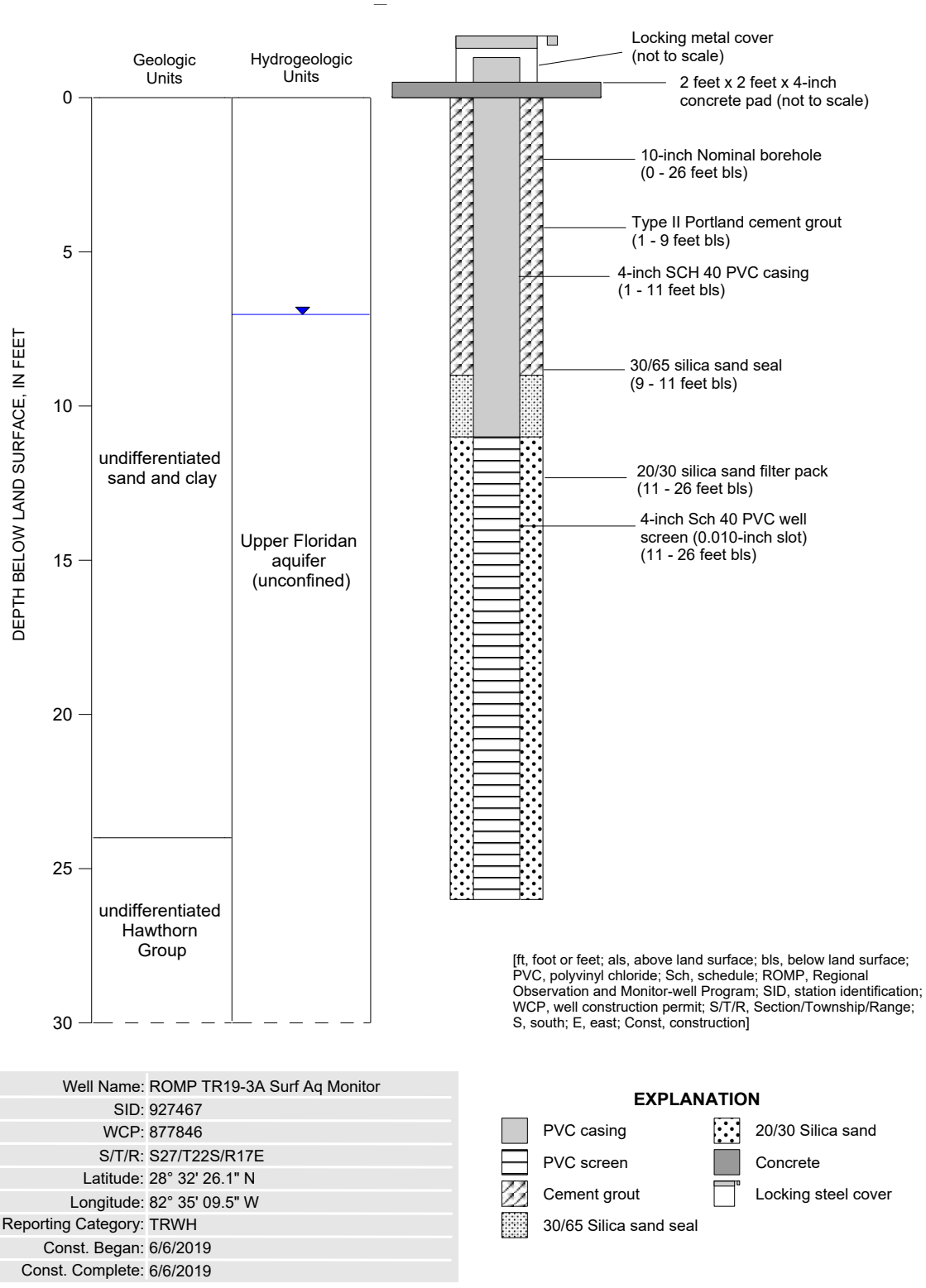
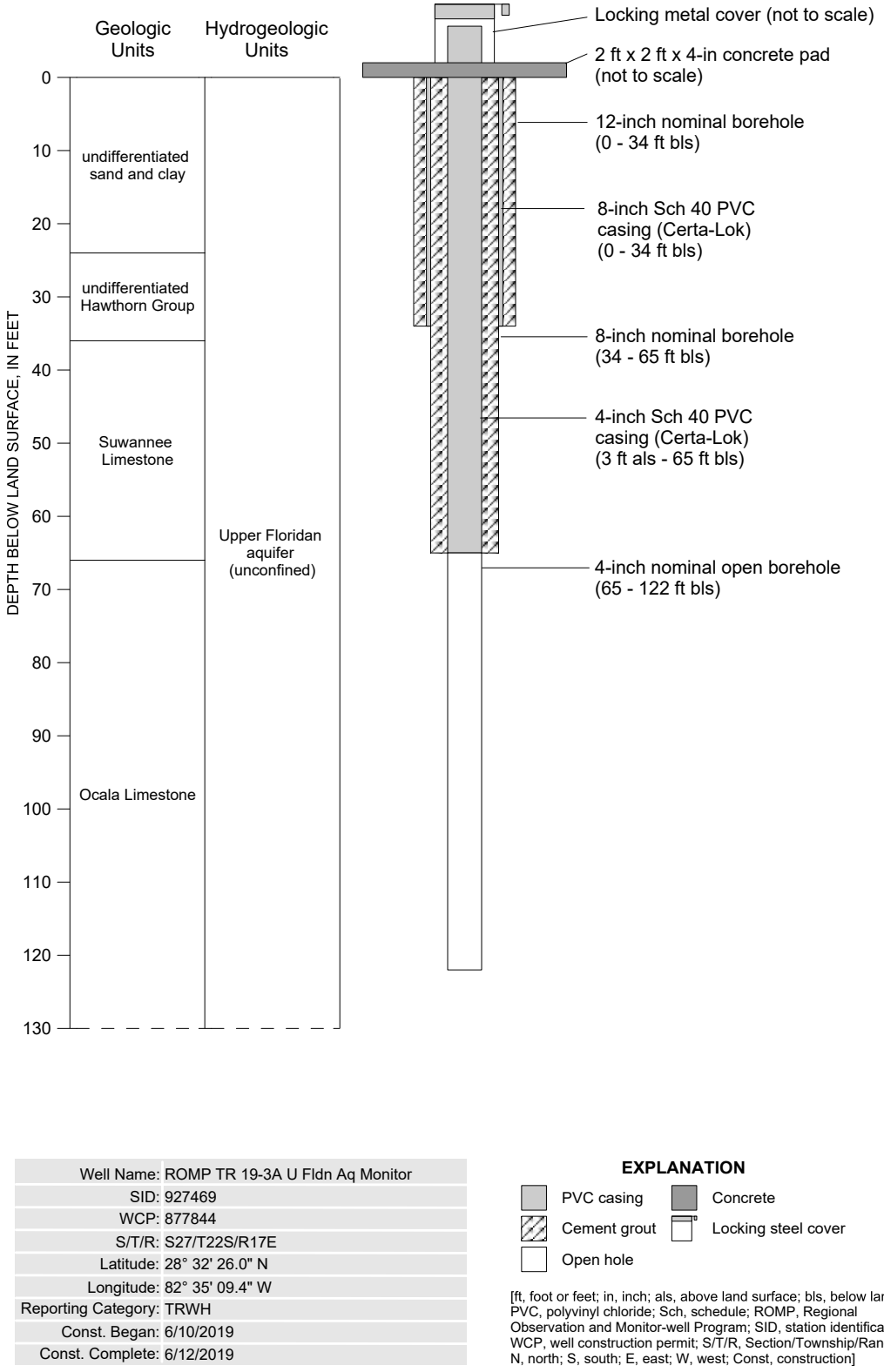


Figure B3. Well as-built diagram for the surficial aquifer monitor well at the ROMP TR 19-3A – Heather well site in Hernando County, Florida.



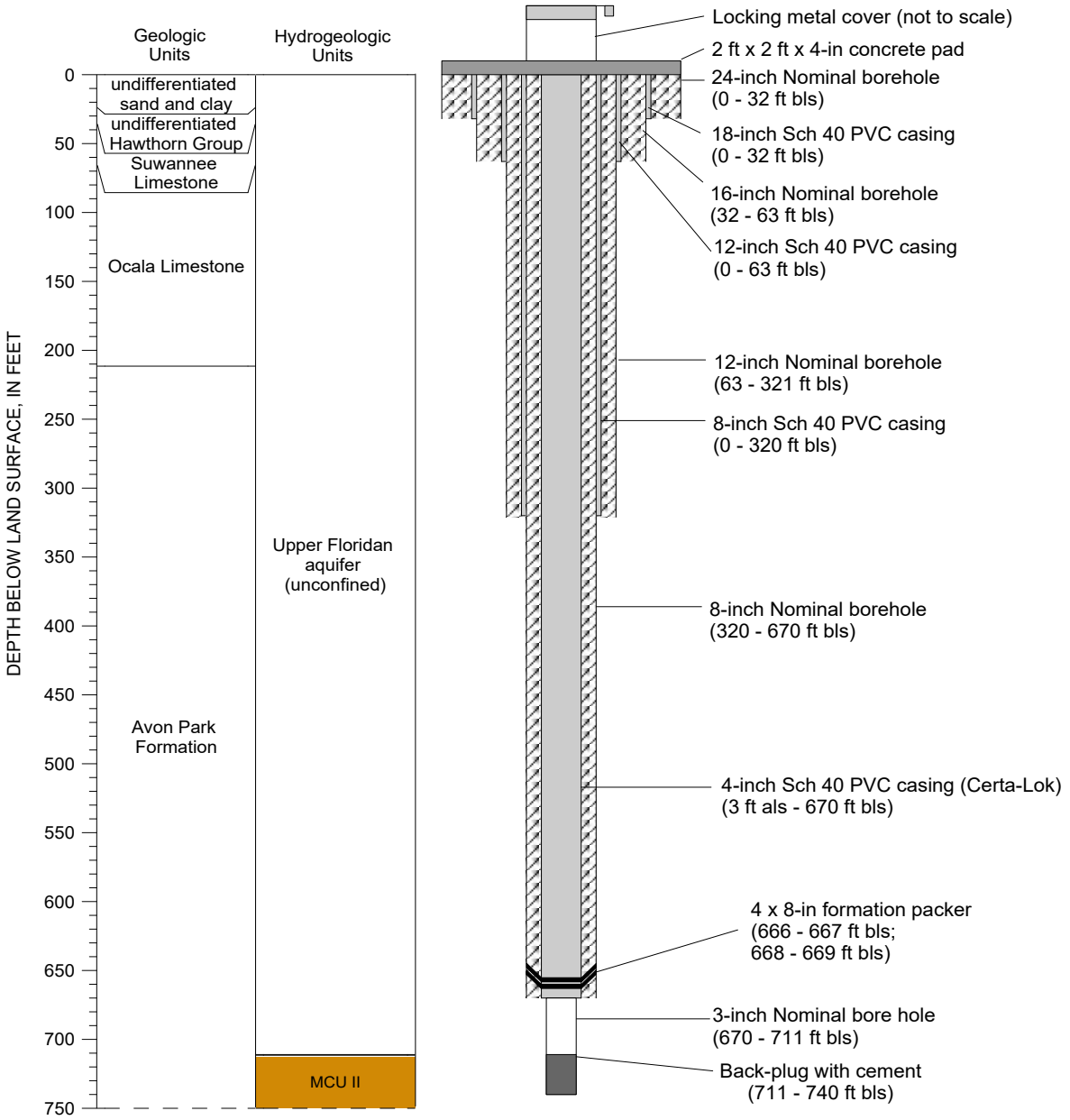
Well Name:	ROMP TR 19-3A U Fldn Aq Monitor
SID:	927469
WCP:	877844
S/T/R:	S27/T22S/R17E
Latitude:	28° 32' 26.0" N
Longitude:	82° 35' 09.4" W
Reporting Category:	TRWH
Const. Began:	6/10/2019
Const. Complete:	6/12/2019

EXPLANATION

PVC casing
Concrete
Cement grout
Locking steel cover
Open hole

[ft, foot or feet; in, inch; als, above land surface; bls, below land surface
PVC, polyvinyl chloride; Sch, schedule; ROMP, Regional Observation and Monitor-well Program; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; N, north; S, south; E, east; W, west; Const, construction]

Figure B4. Well as-built diagram for the Upper Floridan aquifer monitor well at the ROMP TR 19-3A – Heather well site in Hernando County, Florida.



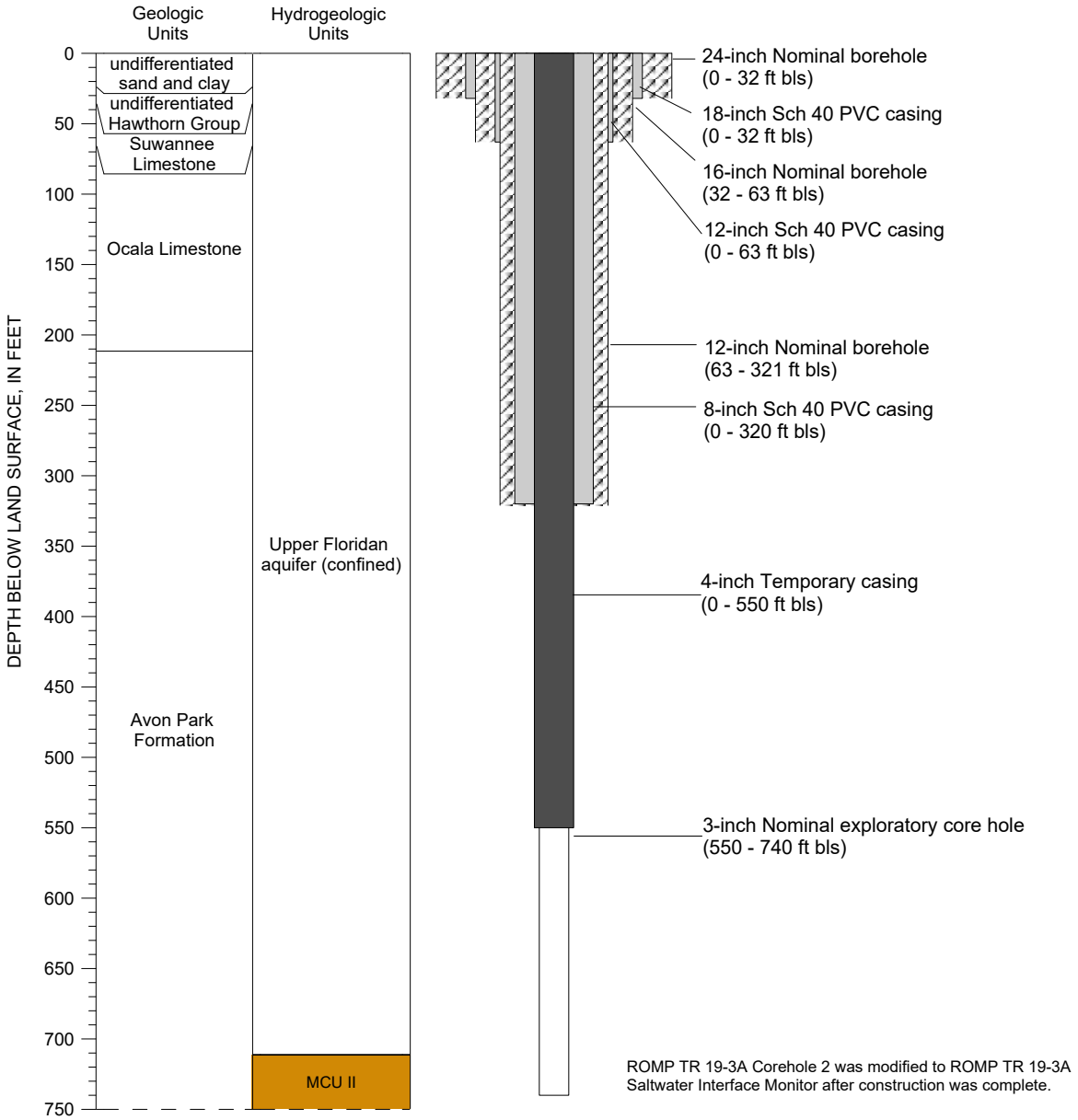
Well Name:	ROMP TR19-3A Saltwater Interface Monitor
SID:	927471
WCP:	877845, 882303
S/T/R:	S27/T22S/R17E
Latitude:	28° 32' 26.0" N
Longitude:	82° 35' 09.5" W
Reporting Category:	TRWH
Const. Began:	6/13/2019
Const. Complete:	9/30/2019

EXPLANATION

PVC casing
Concrete
Cement grout
Locking steel cover
Open hole
Cement

[ft, foot or feet; in, inch; als, above land surface; bls, below land surface; PVC, polyvinyl chloride; Sch, schedule; ROMP, Regional Observation and Monitor-well Program; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; N, north; S, south; E, east; W, west; Const, construction; MCU II, middle confining unit II]

Figure B5. Well as-built diagram for the Saltwater Interface Monitor well at the ROMP TR 19-3A – Heather well site in Hernando County, Florida.



Well Name:	ROMP TR19-3A Corehole 2
SID:	918412
WCP:	877845
S/T/R:	S27/T22S/R17E
Latitude:	28° 32' 26.0" N
Longitude:	82° 35' 09.5" W
Reporting Category:	TRWH
Const. Began:	6/13/2019
Const. Complete:	9/5/5019

EXPLANATION

PVC casing
Open hole
Cement grout
Temporary casing

[ft, foot or feet; in, inch; als, above land surface; bls, below land surface; PVC, polyvinyl chloride; Sch, schedule; ROMP, Regional Observation and Monitor-well Program; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; N, north; S, south; E, east; W, west; Const, construction; MCU II, middle confining unit II]

Figure B6. Well as-built diagram for the Corehole 2 well at the ROMP TR 19-3A – Heather well site in Hernando County, Florida

Appendix C. Lithologic Logs for the Samples Collected at the ROMP TR 19-3A Well Site in Hernando County, Florida

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W-19772
TOTAL DEPTH: 400 FT.
31 SAMPLES FROM 0 TO 76.5 FT.

COUNTY: HERNANDO
LOCATION: LAT = 28° 32' 25.9"
LONG = 82° 35' 9.55"

ELEVATION: 22.7 FT

COMPLETION DATE:
OWNER/DRILLER: SWFWMD
WORKED BY: BEN L. DAVIS 2020
WELL NAME: ROMP TR 19-3A COREHOLE 1

0.0	-	4.0	ft	No Sample
4.0	-	6.0	ft	Sand; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Size: Coarse; Range: Coarse to Medium; Roundness: Sub-rounded to Sub-angular; Sphericity: Medium; Unconsolidated; Accessory Minerals: Organics - 0.02 Plant Remains - 2%; General Fossils: No Fossils
6.0	-	9.0	ft	No Sample
9.0	-	11.0	ft	Sand; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Size: Coarse; Range: Coarse to Medium; Roundness: Sub-rounded to Sub-angular; Sphericity: Medium; Unconsolidated; Accessory Minerals: Organics - 0.02 Plant Remains - 2%; General Fossils: No Fossils
11.0	-	14.0	ft	No Sample
14.0	-	16.0	ft	Sand; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Size: Coarse; Range: Coarse to Medium; Roundness: Sub-rounded to Sub-angular; Sphericity: Medium; Unconsolidated; Accessory Minerals: Organics - 2%; General Fossils: No Fossils
16.0	-	19.0	ft	No Sample
19.0	-	21.0	ft	Sand; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Size: Coarse; Range: Coarse to Medium; Roundness: Sub-rounded to Sub-angular; Sphericity: Medium; Unconsolidated; Accessory Minerals: Organics -<1%; General Fossils: No Fossils
21.0	-	24.0	ft	No Sample
24.0	-	26.0	ft	Sand; Color: Grayish Brown (10YR 6/2) to Light Brown (5YR 5/6); Porosity: Intergranular; Grain Size: Fine; Range: Fine to Medium; Roundness: Sub-rounded to Sub-angular; Sphericity: Medium; Unconsolidated; Accessory Minerals: Clay - 0.04 Organics - <1% Phosphatic Sand - 2%; Other Features: Friable; General Fossils: No Fossils; Comments: Black (N1) phosphatic sands are present throughout this interval.
26.0	-	29.0	ft	No Sample
29.0	-	31.0	ft	Sand; Color: Dark Yellowish Brown (10YR 4/2) to Light Brown (5YR 5/6); Porosity: Intergranular; Grain Size: Fine; Range: Fine to Medium; Roundness: Sub-rounded to Sub-angular; Sphericity: Medium; Unconsolidated; Accessory Minerals: Clay - 0.06 Organics - 0.02 Phosphatic Sand - 2%; Other Features: Friable; General Fossils: No Fossils; Comments: Black (N1) phosphatic sands are present throughout this interval.
31.0	-	34.0	ft	No Sample
34.0	-	36.0	ft	Calcilutite; Color: White (N9) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite; Grain Size: Fine; Range: Fine to Medium; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Phosphatic Sand - <1% Quartz Sand - 2%; Other Features: Calcareous Friable; General Fossils: Fossil Fragments; Comments: This interval consists of carbonate clay and silt that has minor amounts of fossil fragments. Quartz sand grains are likely cavings from above. Small fraction of accessory phosphatic sands present also.
36.0	-	40.0	ft	No Sample
40.0	-	42.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Silt - <1%; Other Features: Calcareous Friable Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Comments: This interval consists of a poorly indurated fossiliferous packstone.

42.0 - 44.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Silt - <1%; Other Features: Calcareous Friable Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Comments: Same as above.

44.0 - 46.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Silt - <1%; Other Features: Calcareous Friable Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Comments: Same as above.

46.0 - 48.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Silt - <1%; Other Features: Calcareous Friable Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Comments: Same as above.

48.0 - 49.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Silt - <1%; Other Features: Calcareous Friable Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Comments: Same as above.

49.0 - 51.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 0.02 Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Increase in fossil content is noted as well as more compitent induration. Black (N1) phosphatic sands are present throughout this interval and are likely cavings from above.

51.0 - 53.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above.

53.0 - 55.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above.

55.0 - 57.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 0.02 Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above.

57.0 - 58.4 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Chert - 0.02 Organics - 0.02 Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above with increase in fossil content and accessory chert.

58.4 - 60.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Chert - 0.02 Organics - 0.02 Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above.

60.0 - 62.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Chert - 0.02 Organics - 0.02 Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above.

62.0	-	64.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Black (N1) phosphatic sands are present throughout this interval and are likely cavings from above.
64.0	-	66.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above.
66.0	-	67.5	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1% Phosphatic Sand - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above.
67.5	-	70.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Poor recovery consistsing of only 1.0’ of core.
70.0	-	72.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 60%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
72.0	-	74.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
74.0	-	76.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
76.0	-	77.5	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
77.5	-	79.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
79.0	-	81.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
81.0	-	83.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
83.0	-	85.0	ft	Wackestone; Color: Yellowish Gray (5Y 8/1) to Light Brownish Gray (5YR 6/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Brecciated; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments; Comments: This interval has well defined slicken-lines most likely attributed to fracturing. Noticeable color change brecciated calcareous lenses and loss of fossil content are noted for this interval.

85.0	-	86.8	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
86.8	-	88.5	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Echinoid
88.5	-	90.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - 0.02 Organics - 3%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Echinoid; Comments: This interval is very fossiliferous and has a noticeable increase in amount of miliolids present.
90.0	-	92.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - 0.02 Organics - 3%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Echinoid; Comments: Same as above.
92.0	-	94.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 4%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Echinoid; Comments: Same as above.
94.0	-	96.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Echinoid; Comments: Same as above.
96.0	-	98.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - 2%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Echinoid
98.0	-	99.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Echinoid
99.0	-	100.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - 0.01 Organics - 2%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Bryozoa
100.0	-	102.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - 0.01 Organics - 2%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Bryozoa
102.0	-	104.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint Vugular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids Echinoid

104.0	-	105.5	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 20%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous; General Fossils: Fossil Fragments; Comments: Lack of fossils present in this interval is very noticeable. Change from fossiliferous packstones to wackestones is present.
105.5	-	107.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous; General Fossils: Fossil Fragments; Comments: Same as above.
107.0	-	109.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous; General Fossils: Fossil Fragments; Comments: Same as above.
109.0	-	111.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 20%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous; General Fossils: Fossil Fragments; Comments: Same as above.
111.0	-	113.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous; General Fossils: Fossil Fragments; Comments: Same as above.
113.0	-	115.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 10%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
115.0	-	117.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 10%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
117.0	-	119.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
119.0	-	120.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
120.0	-	121.6	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 10%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
121.6	-	123.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Abundant Ocala Limestone Index fossils present throughout this interval. Major increase in fossil content. Transition from fossil-lacking wackestones to fossiliferous packstones and
123.0	-	125.0	ft	Grainstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Same as above. Excluding matrix interval is almost entirely composed of different nummulites varieties.

125.0 - 127.0 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Same as above.

127.0 - 129.0 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Same as above.

129.0 - 130.9 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 90%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Same as above.

130.9 - 133.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Same as above.

133.0 - 135.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments

135.0 - 137.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments

137.0 - 139.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 35%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments

139.0 - 141.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Ocala Limestone index fossils present throughout interval.

141.0 - 143.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Same as above.

143.0 - 145.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus Nummulites wilcoxi; Comments: Same as above.

145.0	-	147.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
147.0	-	148.3	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 35%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
148.3	-	149.5	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 35%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
149.5	-	151.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 35%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera
151.0	-	153.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 60%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana Nummulites ocalanus; Comments: Ocala Limestone index fossils are present throughout this interval.
153.0	-	155.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 30%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
155.0	-	157.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 35%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments
157.0	-	158.5	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana; Comments: Ocala Limestone index fossils are present throughout this interval.
158.5	-	160.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.
160.0	-	162.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.
162.0	-	164.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.
164.0	-	166.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

166.0 - 167.8 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Echinoid; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

167.8 - 169.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Bryozoa; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

169.0 - 171.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Bryozoa; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

171.0 - 173.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

173.0 - 175.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

175.0 - 177.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Bryozoa; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

177.0 - 179.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Bryozoa; Index Fossils: Lepidocyclina ocalana; Comments: Ocala Limestone index fossils are present throughout this interval. Noticeable increase in Lepidocyclina ocalana.

179.0 - 180.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Bryozoa; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

180.0 - 182.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

182.0 - 184.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

184.0 - 185.5 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Bryozoa; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.

185.5	-	187.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 35%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments Fossil Molds; Index Fossils: Lepidocyclina ocalana; Comments: Noticeable decrease in fossil content. Still present are Ocala Limestone index fossils.
187.0	-	189.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 35%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments Fossil Molds; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.
189.0	-	190.5	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 40%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments Fossil Molds; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.
190.5	-	192.5	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous; General Fossils: Fossil Fragments Fossil Molds; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.
192.5	-	194.4	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 50%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods; Index Fossils: Lepidocyclina ocalana; Comments: Same as above.
194.4	-	196.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Light Yellowish Orange (10YR 8/6); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral
196.0	-	198.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral
198.0	-	200.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral; Index Fossils: Nummulites wilcoxi; Comments: Ocala Limestone index fossils are present in this very fossiliferous interval.
200.0	-	202.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral
202.0	-	202.8	ft	Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral; Index Fossils: Lepidocyclina ocalana; Comments: Ocala Limestone index fossils are present.
202.8	-	204.0	ft	Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral
204.0	-	206.0	ft	Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral

206.0 - 208.0 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral

208.0 - 210.0 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral

210.0 - 211.5 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Coral

211.5 - 213.0 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Miliolids

213.0 - 215.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Miliolids

215.0 - 217.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Miliolids

217.0 - 219.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Miliolids

219.0 - 220.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Gastropods Miliolids

220.0 - 222.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

222.0 - 224.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

224.0 - 226.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

226.0 - 228.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

228.0 - 228.5 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

228.5 - 230.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

230.0	-	232.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
232.0	-	234.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
234.0	-	236.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
236.0	-	237.5	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
237.5	-	239.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
239.0	-	241.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
241.0	-	242.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
242.0	-	244.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
244.0	-	246.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
246.0	-	248.0	ft	Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 90%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
248.0	-	250.0	ft	Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 90%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

250.0 - 252.0 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 90%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids; Index Fossils: Neolaganum dalli; Comments: Avon Park Formation index fossils are present throughout this interval. Although this is the first noted AVP index fossil the Ocala/Avon Park contact is

252.0 - 254.0 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 95%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids; Index Fossils: Neolaganum dalli; Comments: Avon Park Formation index fossils are present throughout this interval.

254.0 - 255.0 ft Grainstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 90%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Calcite - <1% Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

255.0 - 257.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

257.0 - 259.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 4%; Other Features: Dolomitic Weathered; General Fossils: Fossil Fragments Fossil Molds; Comments: First occurance of highly weathered dolostone that has moderate amounts of organics and laminations.

259.0 - 261.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 5%; Other Features: Dolomitic Weathered; General Fossils: Fossil Fragments Fossil Molds; Comments: Same as above.

261.0 - 263.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 5%; Other Features: Dolomitic Weathered; General Fossils: Fossil Fragments Fossil Molds; Comments: Same as above.

263.0 - 263.5 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 4%; Other Features: Dolomitic Weathered; General Fossils: Fossil Fragments Fossil Molds; Comments: Same as above.

263.5 - 265.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 4%; Other Features: Dolomitic Weathered; General Fossils: Fossil Fragments Fossil Molds

265.0 - 267.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 2%; Other Features: Dolomitic Weathered; General Fossils: Fossil Fragments Fossil Molds

267.0 - 269.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 2%; Other Features: Dolomitic Weathered; General Fossils: Fossil Fragments Fossil Molds

269.0 - 271.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic Weathered; General Fossils: Fossil Fragments Fossil Molds

271.0	-	273.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to White (N9); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Chalky; General Fossils: No Fossils
273.0	-	273.6	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to White (N9); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Chalky; General Fossils: No Fossils
273.6	-	275.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 85%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
275.0	-	277.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
277.0	-	279.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Medium (10-50%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 2%; Other Features: Dolomitic
279.0	-	281.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous Low Recrystallization; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
281.0	-	283.2	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 80%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Fossiliferous Low Recrystallization; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
283.2	-	285.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Fossiliferous Low Recrystallization; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids
285.0	-	287.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds
287.0	-	289.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 5%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds
289.0	-	291.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 4%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds
291.0	-	294.2	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 20%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous Fossiliferous Low Recrystallization; General Fossils: Fossil Fragments Fossil Molds; Comments: Poor recovery consisting of only 1.0’ of core.
294.2	-	296.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 5%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

296.0 - 298.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 4%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Bryozoa Miliolids

298.0 - 300.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 20%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

300.0 - 302.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 25%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

302.0 - 304.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 25%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

304.0 - 306.2 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

306.2 - 308.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

308.0 - 310.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 12%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

310.0 - 312.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 12%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 4%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

312.0 - 314.0 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 17%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

314.0 - 315.5 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

315.5 - 317.5 ft Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 20%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments

317.5 - 319.5 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids

319.5 - 321.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 60%; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids

321.0 - 323.0 ft Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids

323.0	-	325.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 25%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
325.0	-	327.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 30%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
327.0	-	328.5	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Index Fossils: Cushmania (Dictyoconus) americana; Comments: Avon Park index fossils are found throughout this interval.
328.5	-	330.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 25%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 2%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
330.0	-	332.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 75%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - 3%; Other Features: Calcareous Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids
332.0	-	333.8	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 4%; Other Features: Dolomitic Low Recrystallization; General Fossils: Fossil Fragments Fossil Molds
333.8	-	335.5	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera
335.5	-	337.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 5%; Other Features: Dolomitic Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Index Fossils: Neolaganum dalli; Comments: Avon Park index fossils present throughout this interval. Although highly weathered Neolaganum dalli fossils range in size from 1 cm - 1.5 cm.
337.0	-	339.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera
339.0	-	341.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - <1%; Other Features: Dolomitic Low Recrystallization; General Fossils: Fossil Fragments
341.0	-	342.4	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - <1%; Other Features: Dolomitic Low Recrystallization; General Fossils: Fossil Fragments
342.4	-	344.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 4%; Other Features: Dolomitic; General Fossils: No Fossils; Comments: Noticeable loss of fossil content in this interval and the ones to follow.
344.0	-	346.0	ft	Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 5%; Other Features: Dolomitic; General Fossils: No Fossils

346.0 - 348.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 5%; Other Features: Dolomitic; General Fossils: Fossil Fragments

348.0 - 350.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 6%; Other Features: Dolomitic; General Fossils: No Fossils

350.0 - 351.8 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 4%; Other Features: Dolomitic; General Fossils: No Fossils

351.8 - 353.5 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 4%; Other Features: Dolomitic; General Fossils: No Fossils

353.5 - 355.0 ft Dolostone; Color: Grayish Brown (10YR 6/2) to Grayish Orange (10YR 7/4); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 5%; Other Features: Dolomitic; General Fossils: No Fossils

355.0 - 357.0 ft Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 4%; Other Features: Dolomitic; General Fossils: No Fossils; Comments: Thin darker colored (10YR 4/2) laminations are found throughout this interval.

357.0 - 359.0 ft Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 2%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Index Fossils: Neolaganum dalli; Comments: Avon Park index fossils are present throughout this interval. Neolaganum dalli's range in size from 0.5 cm - 1.5 cm.

359.0 - 360.0 ft Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 1%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Index Fossils: Neolaganum dalli; Comments: Same as above.

360.0 - 362.0 ft Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 4%; Other Features: Dolomitic; General Fossils: Fossil Fragments; Comments: Thin darker colored (10YR 4/2) laminations are found throughout this interval.

362.0 - 364.0 ft Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 3%; Other Features: Dolomitic; General Fossils: Fossil Fragments; Comments: Same as above but in fewer quantity.

364.0 - 366.0 ft Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Alteration: Highly (50-90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 3%; Other Features: Dolomitic; General Fossils: Fossil Fragments; Comments: Same as above.

366.0 - 368.0 ft Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Fracture; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 2%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Index Fossils: Neolaganum dalli; Comments: Avon Park index fossils are present throughout this inetrval. Laminations have ceased and are not present in this interval of dolostone. Elongated fracture present.

368.0 - 368.9 ft Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Fracture; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera; Index Fossils: Neolaganum dalli; Comments: Same as above. Fracture continues through this interval as well.

368.9	-	370.5	ft	Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic; General Fossils: Fossil Fragments Fossil Molds
370.5	-	372.5	ft	Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 4%; Other Features: Dolomitic; General Fossils: Fossil Fragments; Comments: Dark colored (10YR 4/2) organic laminations occur throughout this interval.
372.5	-	374.0	ft	Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 5%; Other Features: Dolomitic; General Fossils: Fossil Fragments; Comments: Same as above.
374.0	-	376.0	ft	Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics - 5%; Other Features: Dolomitic; General Fossils: Fossil Fragments; Comments: Same as above.
376.0	-	378.2	ft	Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic; General Fossils: Fossil Fragments
378.2	-	380.0	ft	Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic; General Fossils: Fossil Fragments
380.0	-	382.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
382.0	-	384.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 20%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
384.0	-	386.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 20%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
386.0	-	387.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
387.0	-	389.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 15%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
389.0	-	391.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 25%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
391.0	-	393.0	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 25%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
393.0	-	394.0	ft	Dolostone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular Pinpoint; Alteration: Highly (50- 90%); Crystallinity: Anhedral; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics - 3%; Other Features: Dolomitic; General Fossils: Fossil Fragments

394.0	-	395.9	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 35%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
395.9	-	397.5	ft	Wackestone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 45%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization; General Fossils: Fossil Fragments
397.5	-	399.5	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 65%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Abundant Miliolids present throughout this interval.
399.5	-	400.0	ft	Packstone; Color: Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Porosity: Intergranular; Grain Type: Biogenic Calcilutite Pellet; Allochemical Constituents: 70%; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics - <1%; Other Features: Calcareous Low Recrystallization Fossiliferous; General Fossils: Fossil Fragments Fossil Molds Benthic Foraminifera Miliolids; Comments: Same as above.

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W-19773
TOTAL DEPTH: 740 FT.
31 SAMPLES FROM 0 TO 76.5 FT.

COUNTY: HERNANDO
LOCATION: LAT = 28° 32’ 25.81”
LONG = 82° 35’ 9.35”

ELEVATION: 22.7 FT

COMPLETION DATE:
OWNER/DRILLER: SWFWMD
WORKED BY: BEN L. DAVIS 2020
WELL NAME: ROMP TR 19-3A COREHOLE 2

0	–	379	No Sample;
379	–	381	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Fragments, Fossil Molds;
381	–	383	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Fragments, Fossil Molds;
383	–	385	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Fragments, Fossil Molds;
385	–	387	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 35% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Fragments, Fossil Molds;
387	–	387.9	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 65% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
387.9	–	389.2	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 65% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
389.2	–	389.5	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-<1%; Other Features: Dolomitic; General Fossils: No Fossils;
389.5	–	391	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 70% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
391	–	393	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 60% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
393	–	393.4	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Subhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-<1%; Other Features: Dolomitic; General Fossils: No Fossils;

393.4	–	395.9	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 65% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
395.9	–	397.5	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 75% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
397.5	–	398	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 75% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
398	–	398.6	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Chert-2%, Organics-2%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
398.6	–	400	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 70% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera; Poor recovery consisting of only 0.5” of core.
400	–	400.5	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Chert-2%, Organics-<1%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
400.5	–	402.5	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 75% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
402.5	–	404	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 75% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
404	–	405.7	Packstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 80% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Low Recrystallization, Fossiliferous; General Fossils: Fossil Fragments, Fossil Molds, Benthic Foraminifera;
405.7	–	407.5	Dolostone; Dark Yellowish Brown (10YR 4/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline, Fossiliferous; General Fossils: Fossil Molds, Benthic Foraminifera; Avon Park index fossils are found throughout this interval as recrystallized fossil molds. Index Fossils: Neolaganum dalli
407.5	–	409.2	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline, Fossiliferous; General Fossils: Fossil Molds, Benthic Foraminifera;
409.2	–	410.8	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-1%; Other Features: Dolomitic, Crystalline, Fossiliferous; General Fossils: Fossil Molds, Benthic Foraminifera;
410.8	–	412.5	Dolostone; Dark Yellowish Brown (10YR 4/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Fossiliferous; General Fossils: Fossil Molds, Benthic Foraminifera;
412.5	–	414.2	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline, Fossiliferous; General Fossils: Fossil Molds, Benthic Foraminifera;
414.2	–	416	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%; Other Features: Dolomitic, Crystalline, Fossiliferous, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;

416	–	418	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%; Other Features: Dolomitic, Crystalline, Fossiliferous, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
418	–	420	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 2%; Other Features: Dolomitic, Crystalline, Fossiliferous, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
420	–	422	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 2%; Other Features: Dolomitic, Crystalline, Fossiliferous, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
422	–	423.6	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline, Fossiliferous, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
423.6	–	425	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%; Other Features: Dolomitic, Crystalline, Fossiliferous, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
425	–	427	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%; Other Features: Dolomitic, Crystalline, Fossiliferous, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
427	–	429	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 2%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
429	–	431	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
431	–	433	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
433	–	433.7	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
433.7	–	435	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
435	–	437	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
437	–	439	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
439	–	441	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;

441	–	442.2	Dolostone; Grayish Brown (10YR 6/2) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
442.2	–	444	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Microcrystalline; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds, Benthic Foraminifera;
444	–	446	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Microcrystalline; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils;
446	–	448	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Microcrystalline; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils;
448	–	450	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Microcrystalline; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-5%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Thinnly laminated with organics throughout the interval.
450	–	451.9	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Same as above.
451.9	–	453	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils;
453	–	455	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils;
455	–	457	Dolostone; Grayish Brown (10YR 6/2) to Dark Yellowish Orange (10YR 6/6); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-6%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Thin laminations of organics are found throughout this interval.
457	–	459	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated, Brecciated; Accessory Minerals: Organics-6%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Same as above with noticeable brecciation throughout the interval.
459	–	461.5	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated, Brecciated; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Same as above.
461.5	–	463	Dolostone; Grayish Brown (10YR 6/2) to Dark Yellowish Orange (10YR 6/6); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils;
463	–	465	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated, Mottled; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Similar to above intervals as far as organic laminations but also contains a mottled appearance.
465	–	467	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Same as above.
467	–	469	Dolostone; Grayish Brown (10YR 6/2) to Dark Yellowish Orange (10YR 6/6); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated, Mottled; Accessory Minerals: Organics-5%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Same as above.

469	–	470	Dolostone; Grayish Brown (10YR 6/2) to Dark Yellowish Orange (10YR 6/6); Completely (90-100%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils;
470	–	472	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-6%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils; Dark bands on black (N1) organics are found throughout this interval.
472	–	474	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-5%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds; Same as above.
474	–	476	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds;
476	–	478	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: Fossil Molds;
478	–	478.8	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Sucrosic; General Fossils: No Fossils;
478.8	–	480	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline; General Fossils: No Fossils; Less laminations than previous intervals but still present throughout.
480	–	482	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
482	–	484	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds; Same as above.
484	–	486	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds; Same as above.
486	–	488	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: No Fossils;
488	–	490	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
490	–	492	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
492	–	494	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
494	–	496	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
496	–	497	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;

497	–	499	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds; Abundant thin, black (N1) organic laminations present throughout this interval.
499	–	501	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
501	–	503	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
503	–	504.7	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
504.7	–	506.5	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
506.5	–	508.5	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
508.5	–	510	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds; Poor recovery consisting of only 0.8” of fractured core.
510	–	512	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
512	–	514	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Moderate Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Crystalline, Platy; General Fossils: Fossil Molds; Thin black (N1) organic laminations are present throughout this interval.
514	–	515	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
515	–	517	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Crystalline, Platy; General Fossils: Fossil Molds; Similar to above intervals, except with increased organic laminations present.
517	–	519	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
519	–	521.4	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Microcrystalline; Range: Microcrystalline to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
521.4	–	523	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Crystalline; General Fossils: Fossil Molds;
523	–	525	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
525	–	527	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
527	–	529	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;

529	–	531	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-5%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
531	–	533	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Sedimentary Structures: Laminated; Accessory Minerals: Organics-4%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
533	–	535.5	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
535.5	–	537.5	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
537.5	–	540.4	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
540.4	–	542.5	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
542.5	–	544	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds;
544	–	545.3	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Dolomite; Sedimentary Structures: Brecciated; Accessory Minerals: Organics-2%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds; Interval consists of brecciated dolostone with accessory organics present throughout the interval.
545.3	–	550	Dolostone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Dolomite; Accessory Minerals: Organics-<1%; Other Features: Dolomitic, Friable; General Fossils: No Fossils; Poor recovery consisting of only 1.5’ of core fragments.
550	–	555	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Noticeable change from dolostones to poorly indurated wackestone and mudstones. Poor recovery consisting of only 1.8’ of core fragments.
555	–	557	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
557	–	560	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Poor recovery consisting of only 0.4” of core fragments.
560	–	562	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
562	–	562.7	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 3% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
562.7	–	564.5	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 3% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
564.5	–	566.5	Mudstone; Grayish Brown (10YR 6/2) to Very Light Orange (10YR 8/2); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Laminated; Accessory Minerals: Organics-4%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Abundant thin, black (N1) organic laminations present throughout this interval.

566.5	–	570	Mudstone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-2%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Poor recovery consisting of only~1.2' of core fragments and crumbles.
570	–	572	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 3% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
572	–	574.1	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
574.1	–	576	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Molds;
576	–	578	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
578	–	580	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
580	–	582	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
582	–	584.5	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
584.5	–	586	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
586	–	588	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-3%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
588	–	590	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-2%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
590	–	592	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
592	–	593.5	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Mottled; Accessory Minerals: Organics-3%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
593.5	–	595.5	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Mottled; Accessory Minerals: Organics-3%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
595.5	–	597	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
597	–	599	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
599	–	601	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;

601	–	602.4	Mudstone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 5% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
602.4	–	604	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Laminated; Accessory Minerals: Organics-2%; Other Features: Calcareous, Friable; General Fossils: No Fossils; This interval conatins asmall amount of thin black (N1) organic laminations.
604	–	606	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 25% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
606	–	608	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 25% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Laminated; Accessory Minerals: Organics-2%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Similar thin black (N1) organic laminations present in this interval.
608	–	610	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
610	–	612.2	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
612.2	–	614	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
614	–	616	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 25% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Laminated; Accessory Minerals: Organics-2%; Other Features: Calcareous, Friable; General Fossils: No Fossils; There are 1.0-3.0 mm thick bands of black (N1) organic laminations present throughout this interval.
616	–	618	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 25% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
618	–	620.4	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 25% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
620.4	–	622	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Laminated; Accessory Minerals: Organics-3%; Other Features: Calcareous, Friable; General Fossils: No Fossils; This interval contains undulating, thin, black (N1) organic laminations throughout.
622	–	630.4	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Poor recovery consisting of only ~1.5’ of core.
630.4	–	632	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
632	–	634	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
634	–	635.9	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;

635.9	–	637.5	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Laminated; Accessory Minerals: Organics-3%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Although the induration is poor-moderate there are well-defined thin, black (N1) organic laminations present throughout this interval.
637.5	–	640	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Sedimentary Structures: Laminated; Accessory Minerals: Organics-4%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Same as above.
640	–	642	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
642	–	644	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 12% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
644	–	646.3	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
646.3	–	648	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils; Intervals above and below have extremely poor induration.
648	–	650	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
650	–	652	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 12% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
652	–	654	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 12% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
654	–	656.6	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 15% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Poor Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Friable; General Fossils: No Fossils;
656.6	–	658	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 25% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Molds; Better induration than in previous intervals and a noticeable return of fossil molds is present.
658	–	660	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-2%; Other Features: Calcareous; General Fossils: Fossil Molds; Same as above.
660	–	662	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 20% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-2%; Other Features: Calcareous; General Fossils: Fossil Molds; Same as above.
662	–	664	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 25% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Molds; Same as above.
664	–	666.4	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 30% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Molds; Same as above.

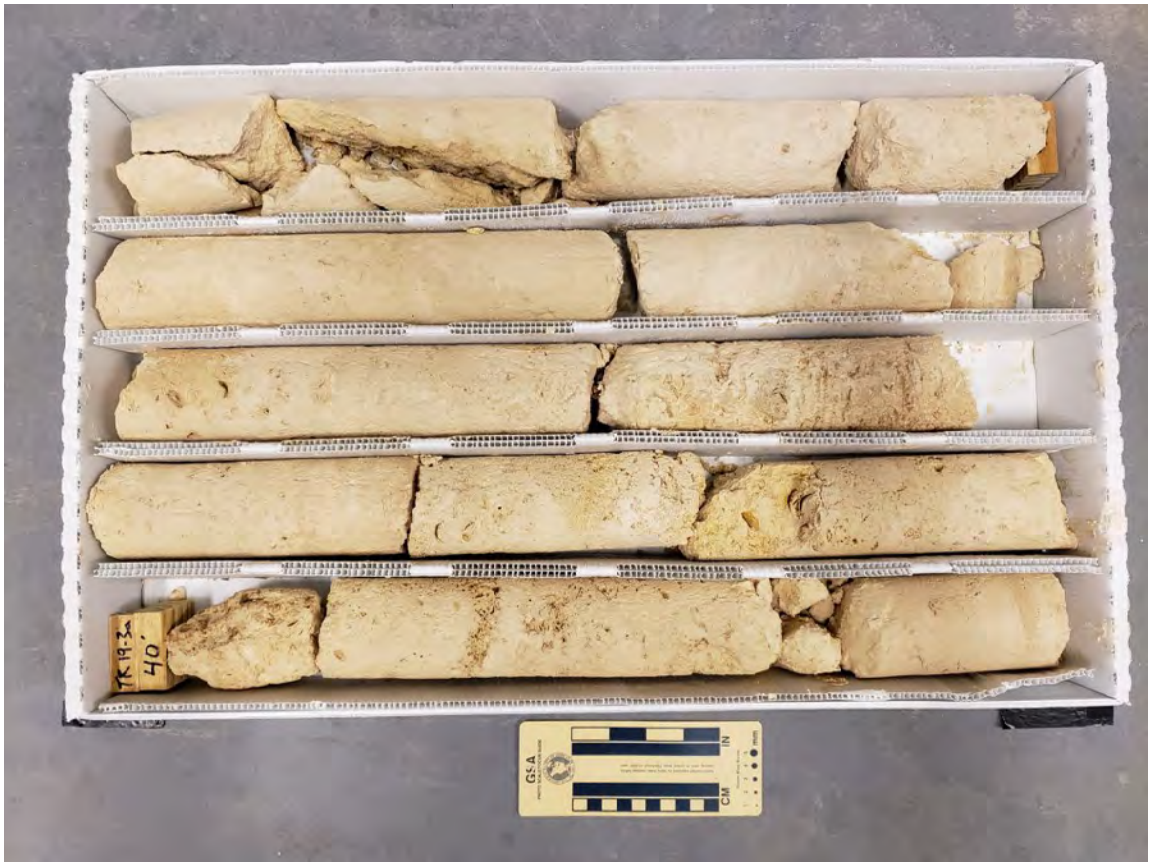
666.4	–	668	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 40% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Molds, Fossil Fragments;
668	–	670	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 40% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Molds, Fossil Fragments;
670	–	672	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 35% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Molds, Fossil Fragments;
672	–	674.5	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 35% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous; General Fossils: Fossil Molds;
674.5	–	676.5	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera;
676.5	–	680	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-2%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera; Poor recovery consisting of only ~1.2’ of core.
680	–	682	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Moderate Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-3%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera;
682	–	684	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-2%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera;
684	–	686.2	Wackestone; Very Light Orange (10YR 8/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera;
686.2	–	690	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera; Poor recovery consisting of only ~1.8’ of core.
690	–	692	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-2%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera;
692	–	694	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera;
694	–	700	Wackestone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Grain Type: Biogenic, Calcilutite, Pellet; 45% Allochemical Constituents; Grain Size: Very Fine; Range: Very Fine to Fine; Good Induration; Cement Type: Calcilutite Matrix; Accessory Minerals: Organics-<1%; Other Features: Calcareous, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments, Miliolids, Benthic Foraminifera; Poor recovery consisting of only ~1.0’ of core.
700	–	702.3	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Poor Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%; Other Features: Dolomitic, Friable; General Fossils: Fossil Molds, Fossil Fragments; Poorly indurated dolostone interlayered with lesser dolomitic sands.

702.3	–	704	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Medium; Moderate Induration; Cement Type: Dolomite; Accessory Minerals: Organics-3%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments;
704	–	706	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments;
706	–	710	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 4%, Anhydrite-<1%; Other Features: Dolomitic, Fossiliferous, Brown Anhydrite Crystals; General Fossils: Fossil Molds, Fossil Fragments; First occurance of evaporites in well. Trace anhydrite crystals were present in this interval. Also poor recovery consisting of only ~1.2' of core.
710	–	712	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 4%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments;
712	–	713	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Organics- 3%, Gypsum-2%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments; White (N9) gypsum clusters were present in this interval.
713	–	713.7	No Sample; No sample is indicated because SWFWMD removed ~6.5-7" of dolomitic core for education/demo purposes. Missing core section was described by SWFWMD as dolostone with ~1.5" round vug filled with euhedral quartz crystals.
713.7	–	715.5	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum- 3%, Organics-<1%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments; White (N9) gypsum clusters were present in this interval.
715.5	–	717.5	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Mottled; Accessory Minerals: Organics-4%, Gypsum-2%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments; Same as above.
717.5	–	720	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Mottled; Accessory Minerals: Gypsum-3%, Organics-2%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments; Same as above and also has poor recovery consisting of only ~1.2' of core.
720	–	722	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Mottled; Accessory Minerals: Organics-3%, Gypsum-2%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments; Same as above.
722	–	724.3	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Sedimentary Structures: Mottled; Accessory Minerals: Organics-2%, Gypsum-<1%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds, Fossil Fragments; Same as above.
724.3	–	726	Dolostone; Grayish Brown (10YR 6/2) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum-4%, Organics-<1%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds;
726	–	726.6	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum- 3%, Organics-<1%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds;
726.6	–	727.2	Gypsum; White (N9); Good Induration; Cement Type: Gypsum; Accessory Minerals: Anhydrite-<1%; Other Features: Crystalline, Frosted;
727.2	–	729	Dolostone; Moderate Yellowish Brown (10YR 5/4) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum- 3%, Organics-<1%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds;
729	–	731	Dolostone; Grayish Brown (10YR 6/2) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum-4%, Organics-<1%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds;

731	–	733	Dolostone; Grayish Brown (10YR 6/2) to Dark Yellowish Orange (10YR 6/6); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum-3%, Organics-<1%; Other Features: Dolomitic, Fossiliferous; General Fossils: Fossil Molds;
733	–	735	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum-5%, Organics-<1%; Other Features: Dolomitic; General Fossils: Fossil Molds;
735	–	736.5	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum-5%, Organics-<1%; Other Features: Dolomitic; General Fossils: Fossil Molds;
736.5	–	737.5	Gypsum; White (N9); Good Induration; Cement Type: Gypsum; Accessory Minerals: Anhydrite-<1%; Other Features: Crystalline;
737.5	–	739	Dolostone; Grayish Brown (10YR 6/2) to Yellowish Gray (5Y 8/1); Highly (50-90%) Altered; Anhedral Crystals; Grain Size: Fine; Range: Fine to Very Fine; Good Induration; Cement Type: Dolomite; Accessory Minerals: Gypsum-6%, Organics-<1%; Other Features: Dolomitic; General Fossils: Fossil Molds;
739	–	740	Gypsum; White (N9); Accessory Minerals: Anhydrite-<1%; Other Features: Crystalline;

Appendix D. Digital Photographs of Core Samples Retrieved from the ROMP TR 19-3A Well Site in Hernando County, Florida

Digitial Photographs of Core Samples Retrieved from Core hole 1 at the ROMP TR 19-3A Well Site in Hernando County, Florida

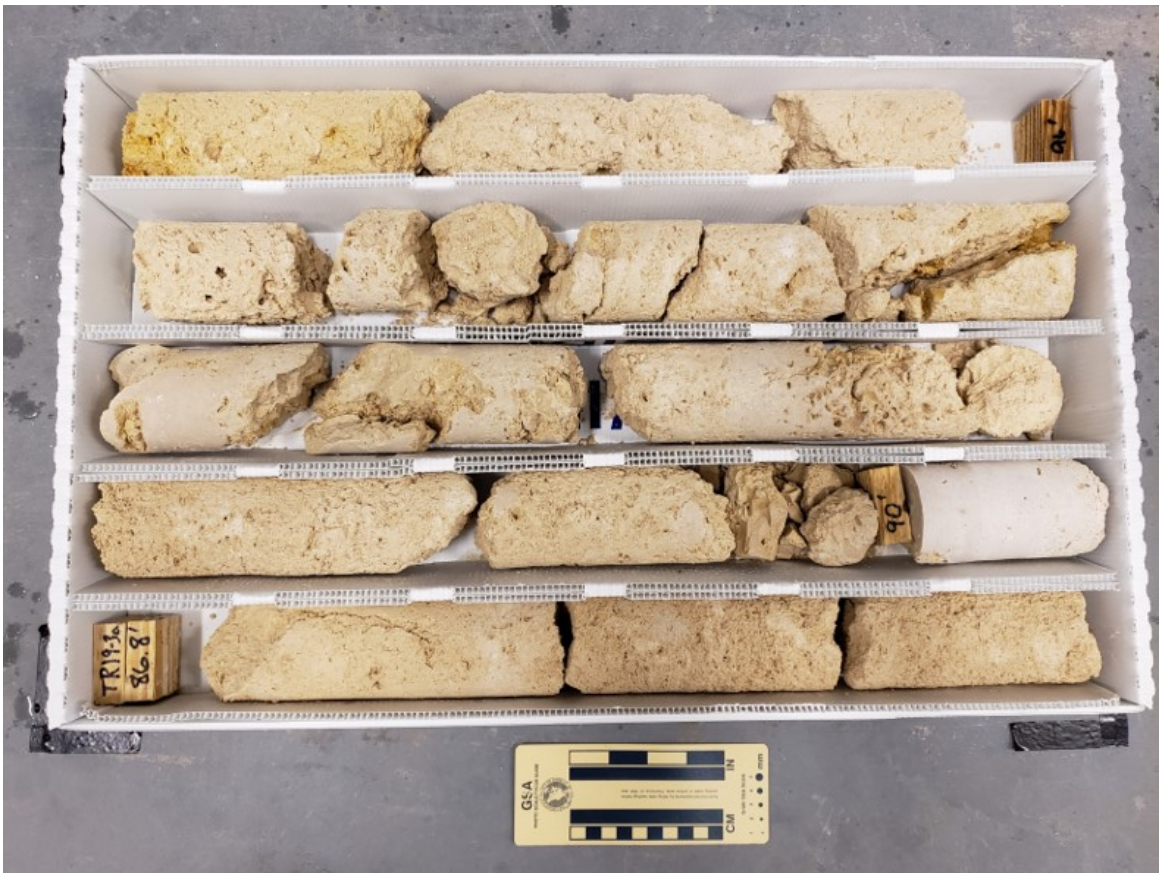



TR19-2
49'
50'
GEA
IN
CM

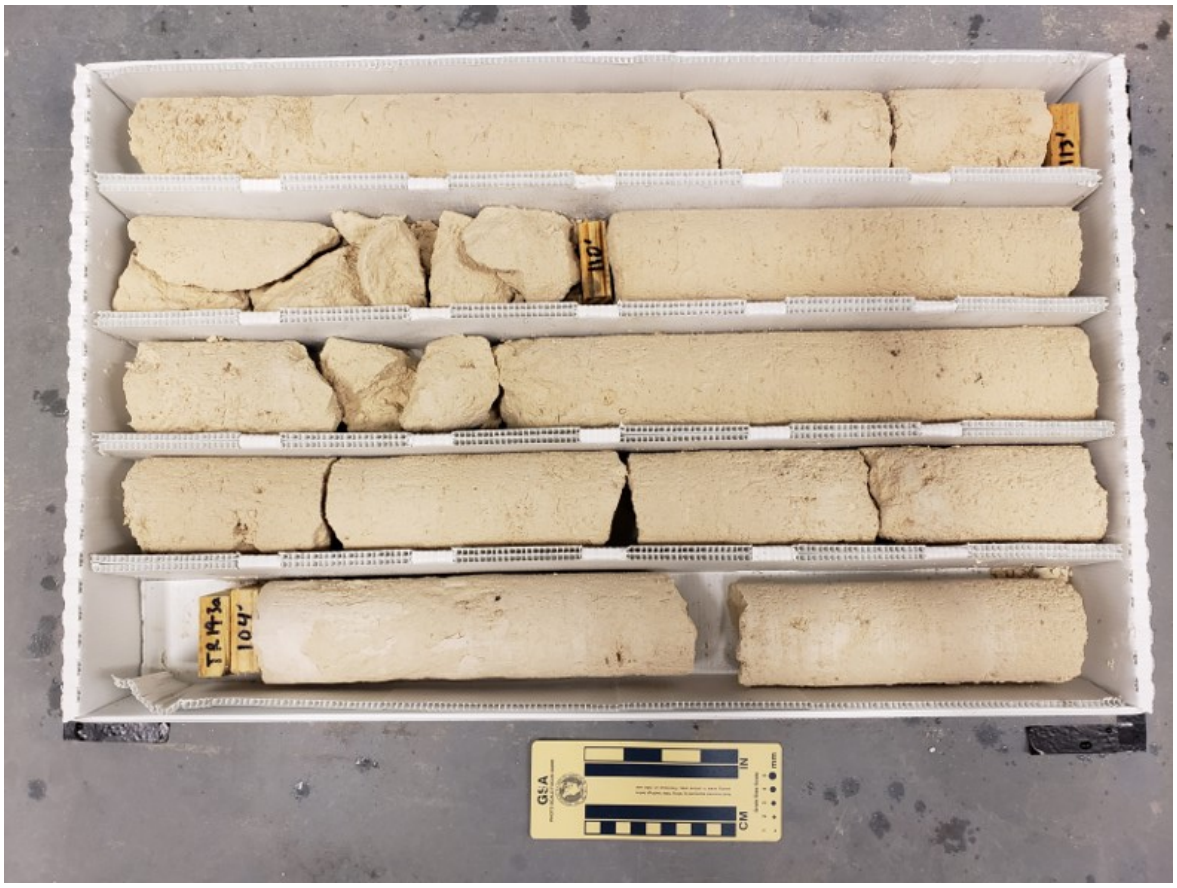

TR19-2
53.4'
67.5'
60'
GEA
IN
CM

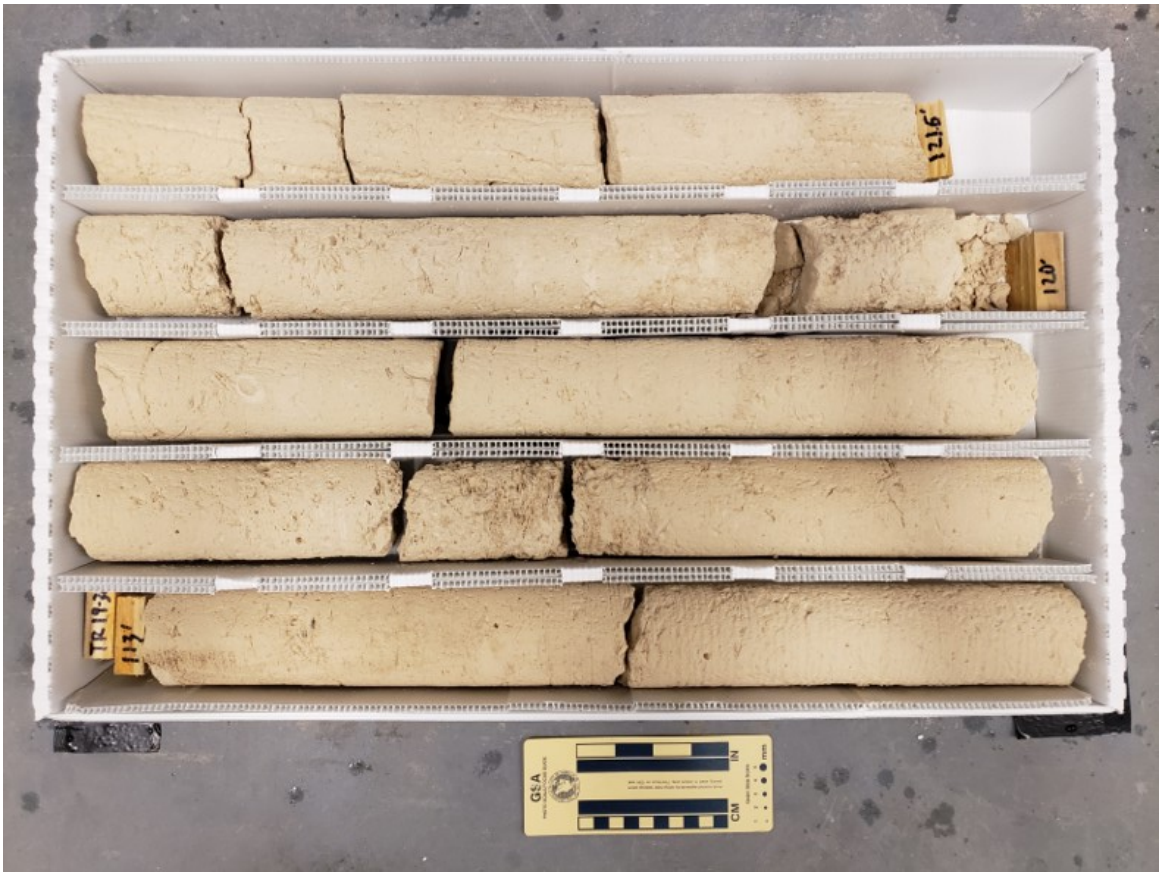

TR19-3a
67.5'
79'
GSA
IN
CM

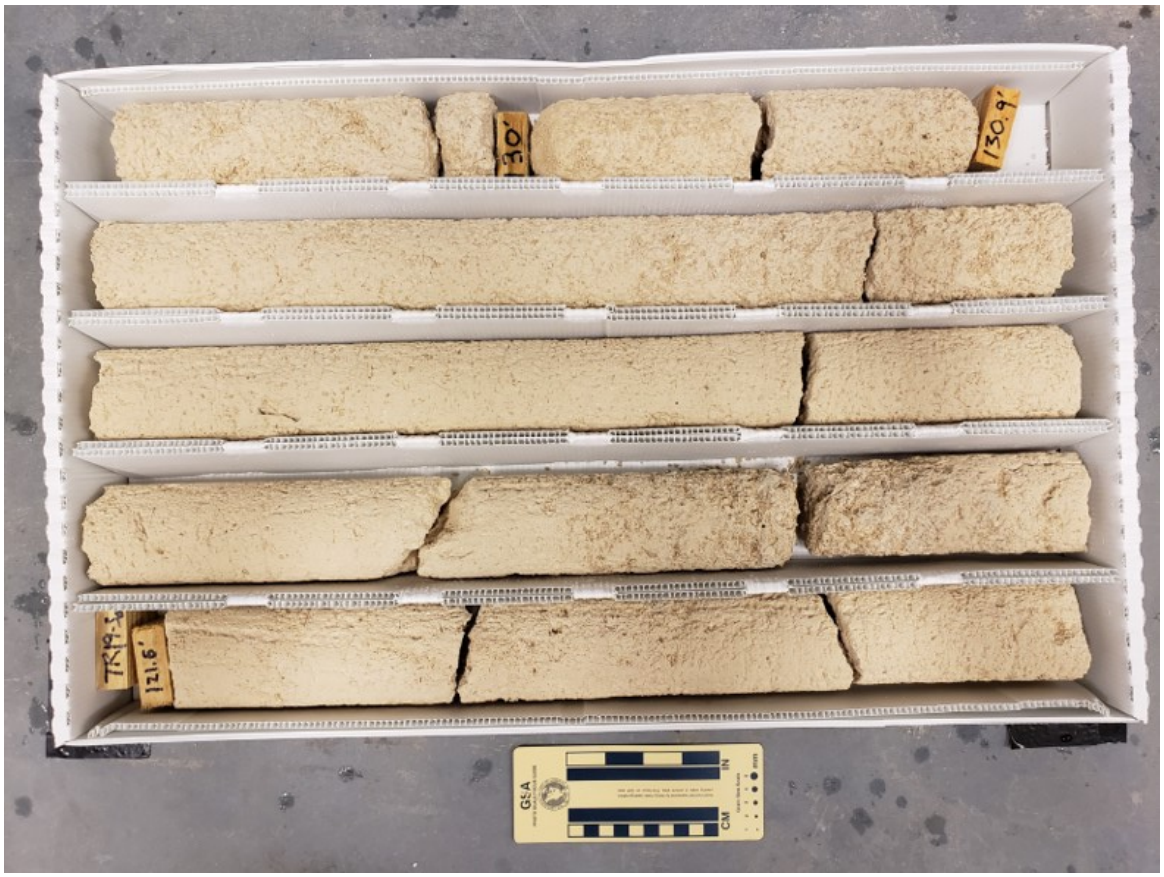

86.8'
80'
TR19-3a
77.5'
GSA
IN
CM

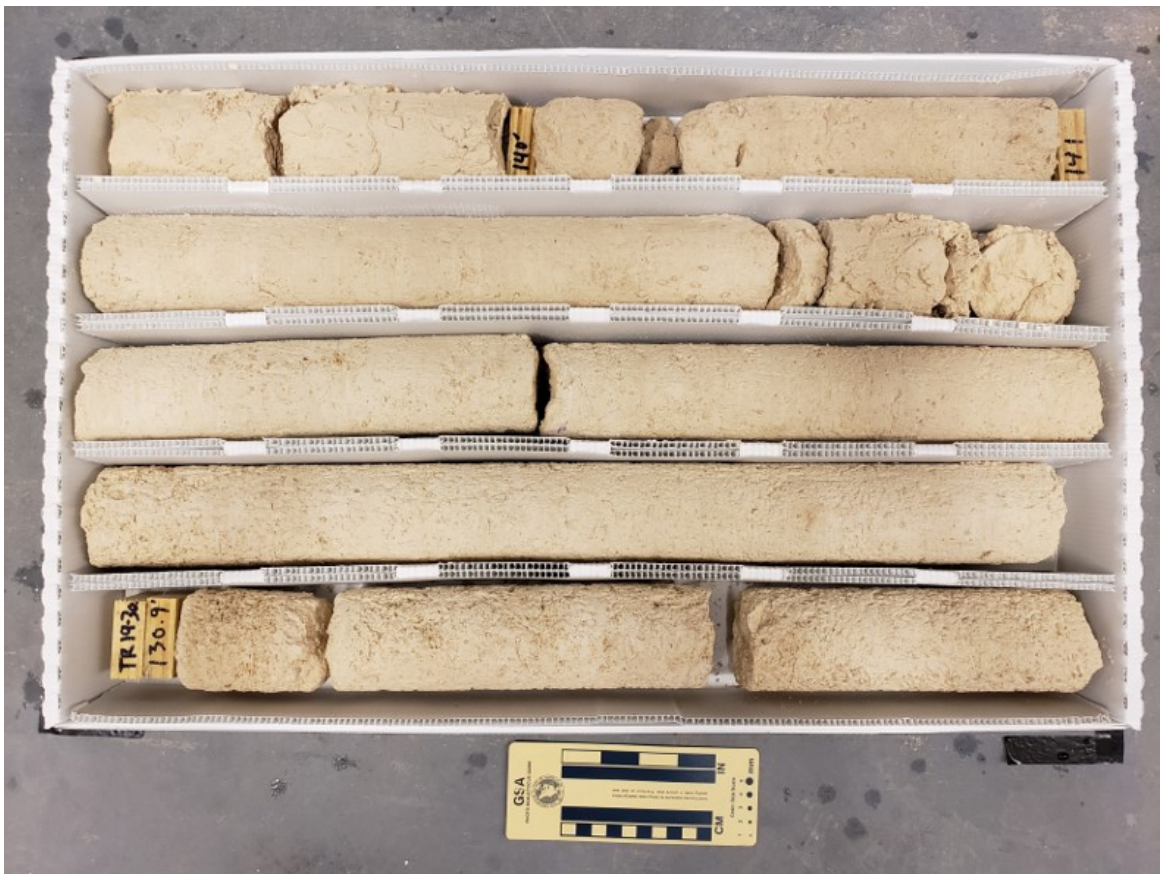

TR19-3a
86.8'
90'
GSA
IN
CM


TR 19-3a
94'
100'
GSA
IN
CM


TR 19-3A
104'
110'
115'
GSA
IN
CM

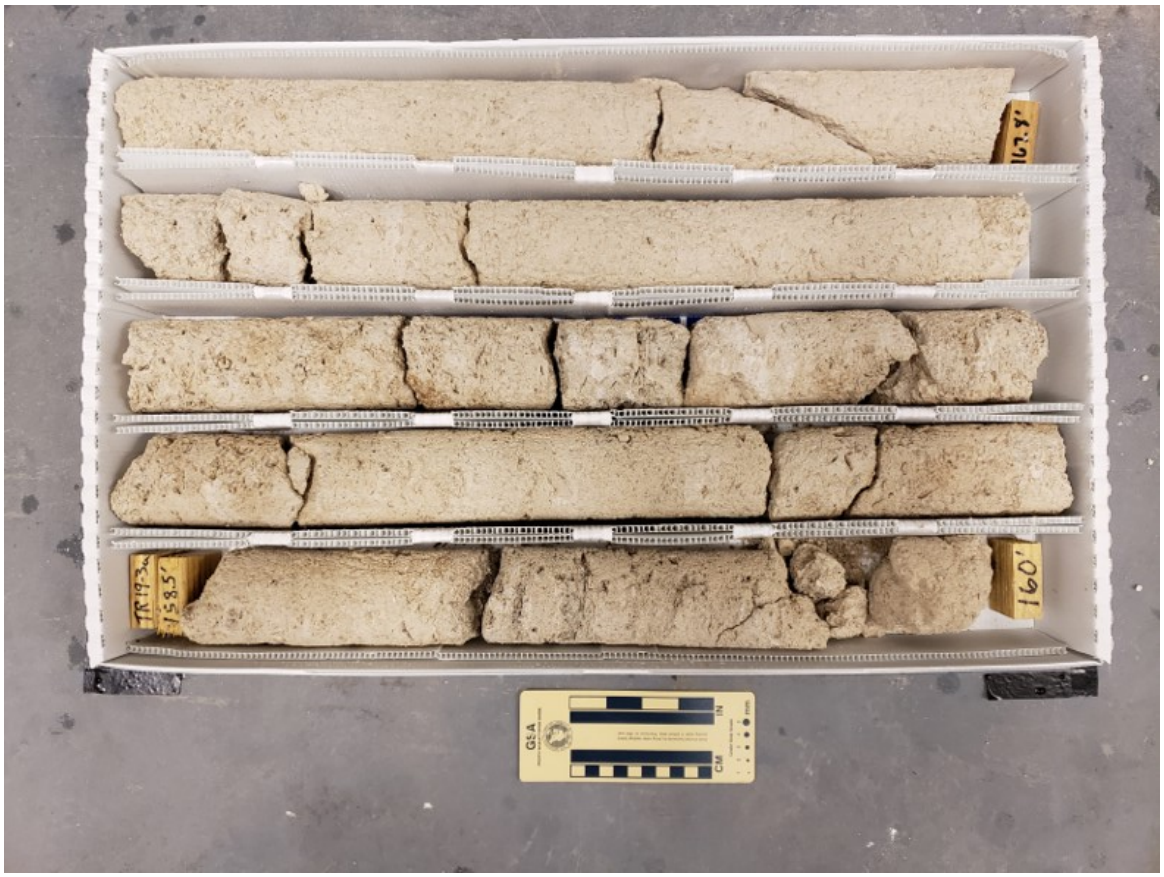

TR 19-3
113'
120'
121.6'
GSA
IN
CM


130'
130.9'
TR19-3
121.6'
GSA
IN
CM


140'
141
TR19-3B
130.9'
GSA
IN
CM

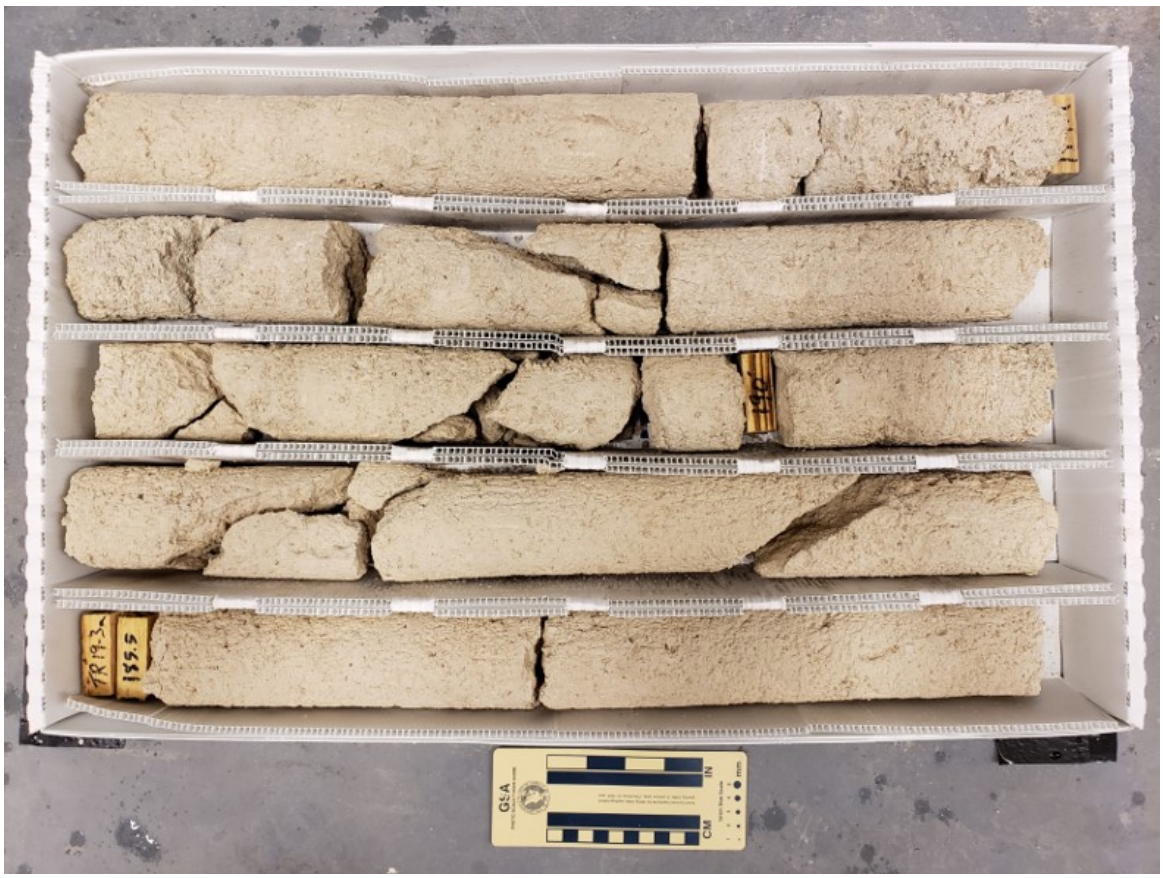

149.5'
TR19-3A
121'
GSA
IN
CM

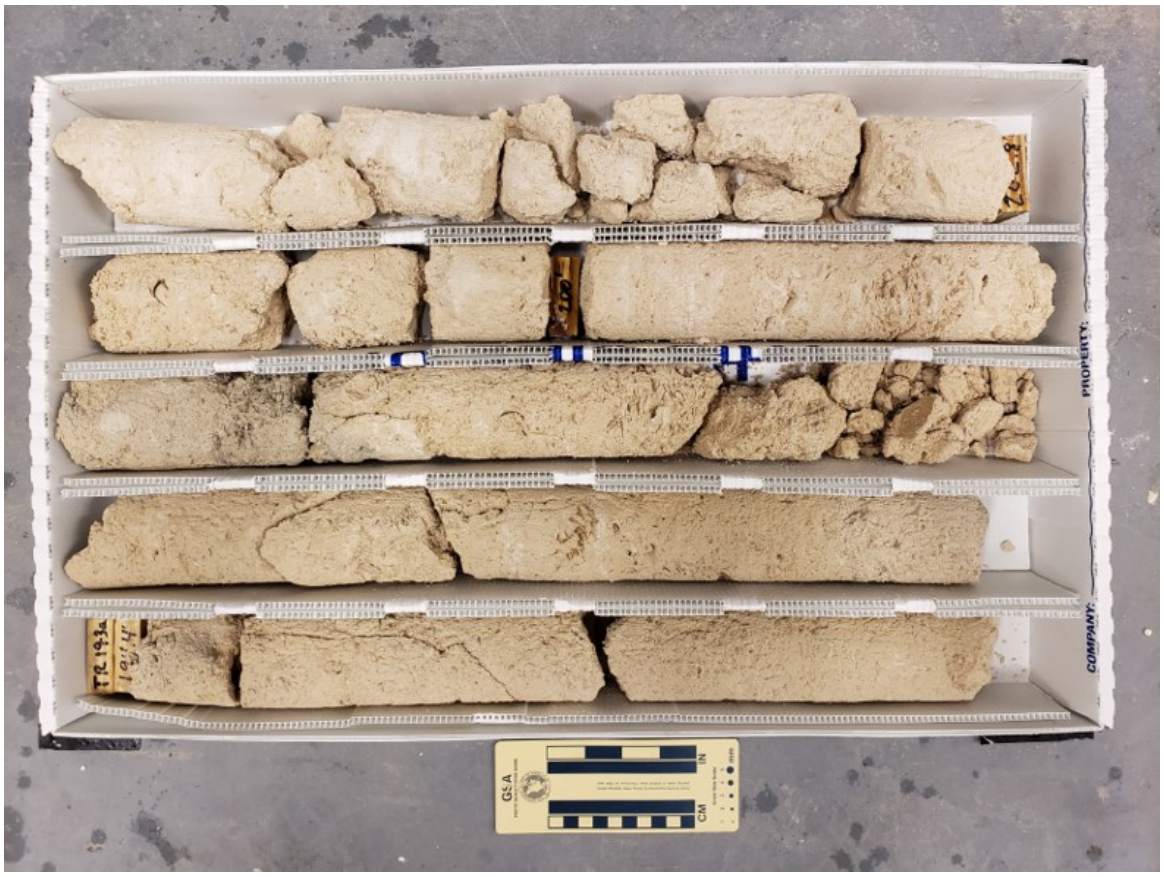

51.5
TR19-3A
149.5'
150'
GSA
IN
CM


TR-19-3a
158.5'
160'
163.5'
GSA
IN
CM

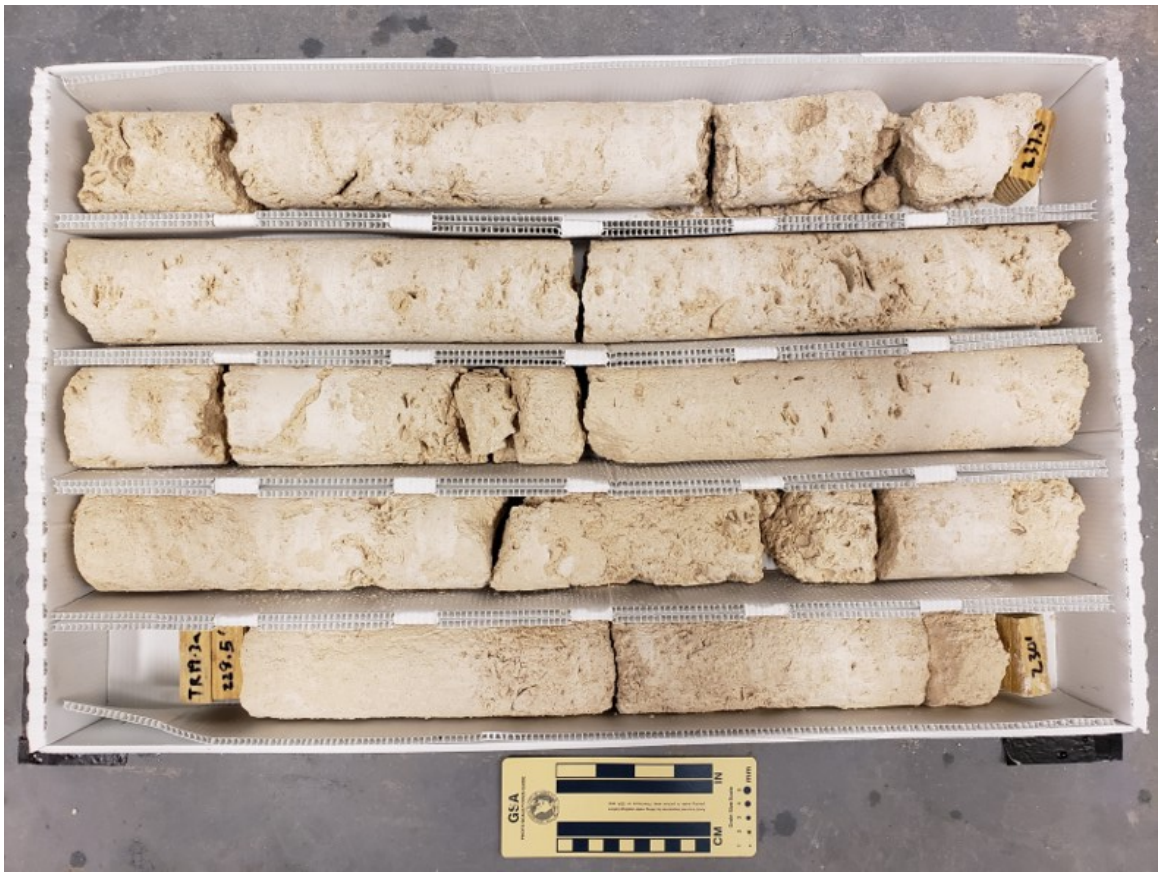

TR-19-3a
147.5'
177'
GSA
IN
CM

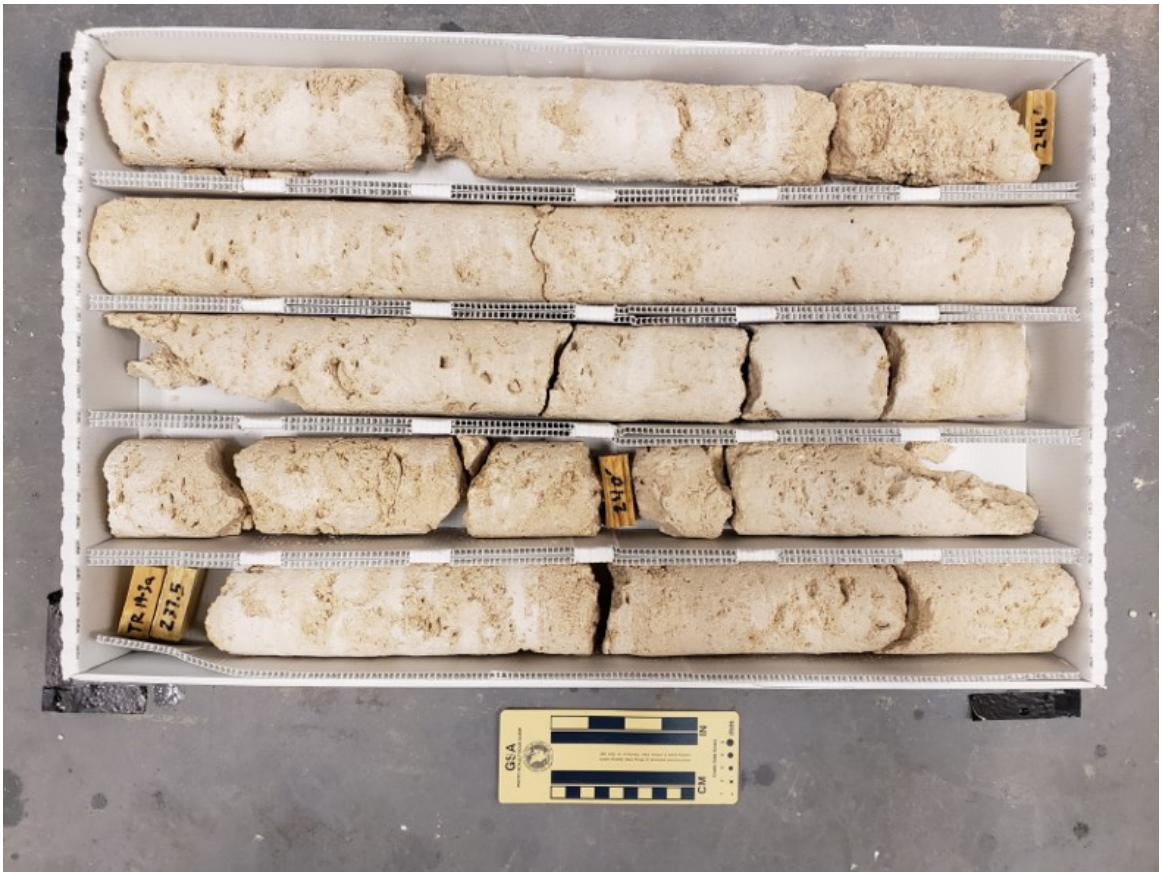

185.5
180'
TR 19-3A
177'
GSA
IN
CM


TR 19-3A
185.5
GSA
IN
CM

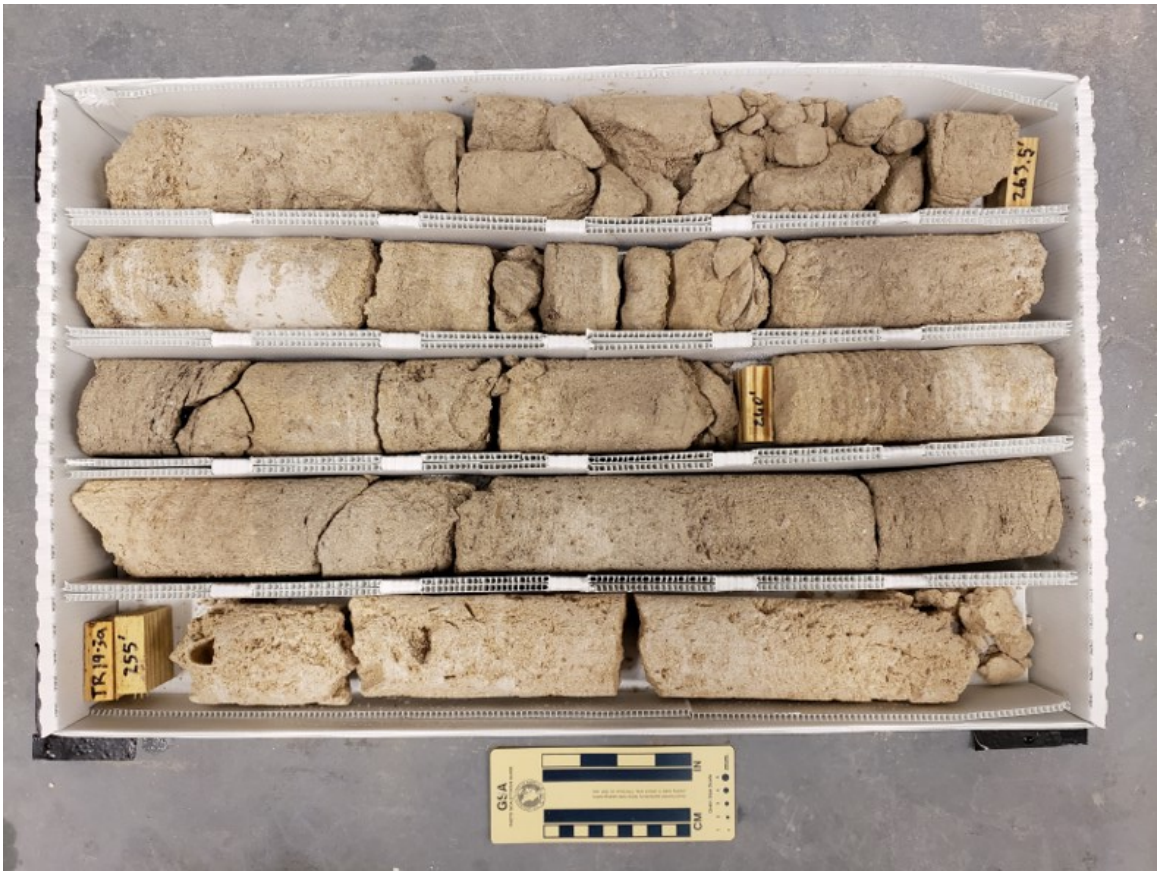

TR 193a
GSA
IN
CM
PROPERTY:
COMPANY:


TR 193a
202.8
GSA
IN
CM


TR M-3A
219.5'
230'
GSA
IN
CM


TR M-3A
237.5'
240'
248'
GSA
IN
CM


TR-19-3A
246'
250'
255'
GSA
IN
CM


TR 19-3A
255'
240'
243.5'
GSA
IN
CM


TR 19-3a
273.6'
270'
GSA
IN
CM


TR 19-3a
273.6'
280'
293.2'
GSA
IN
CM


294.2'
290'
TR 19-3
293.2
GSA
IN
CM

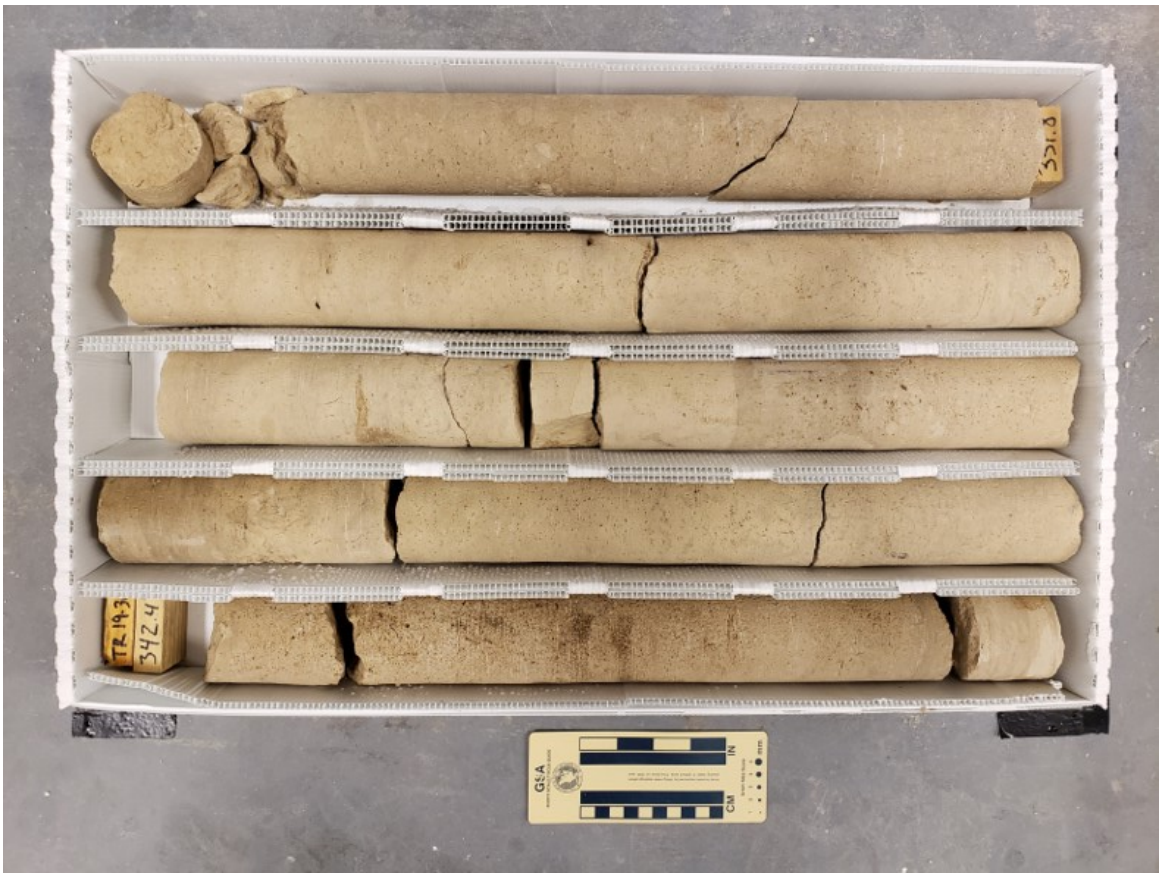

306.2'
TR 19-3
294.2'
GSA
IN
CM

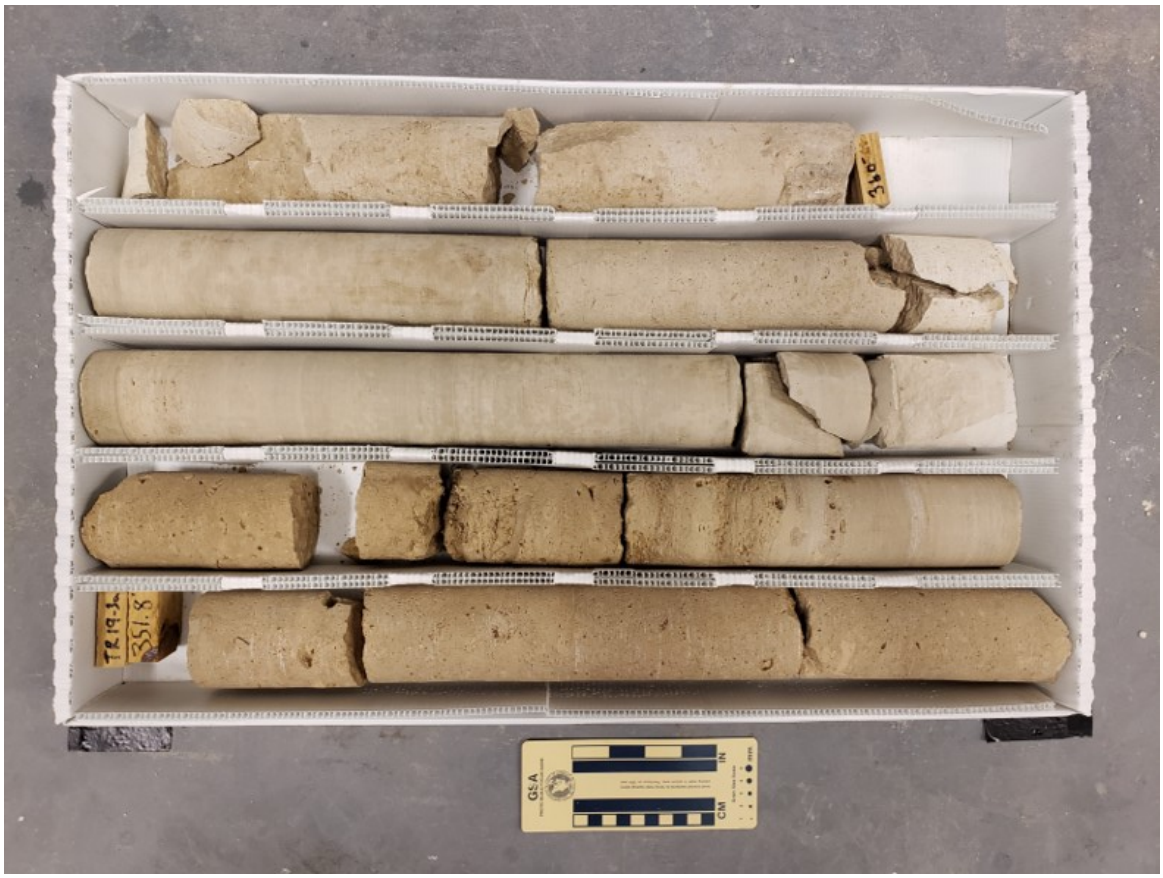

315.5'
310'
TR 19-3a 366.2
GSA
IN
CM


325'
320'
TR 19-3a 315.5'
GSA
IN
CM

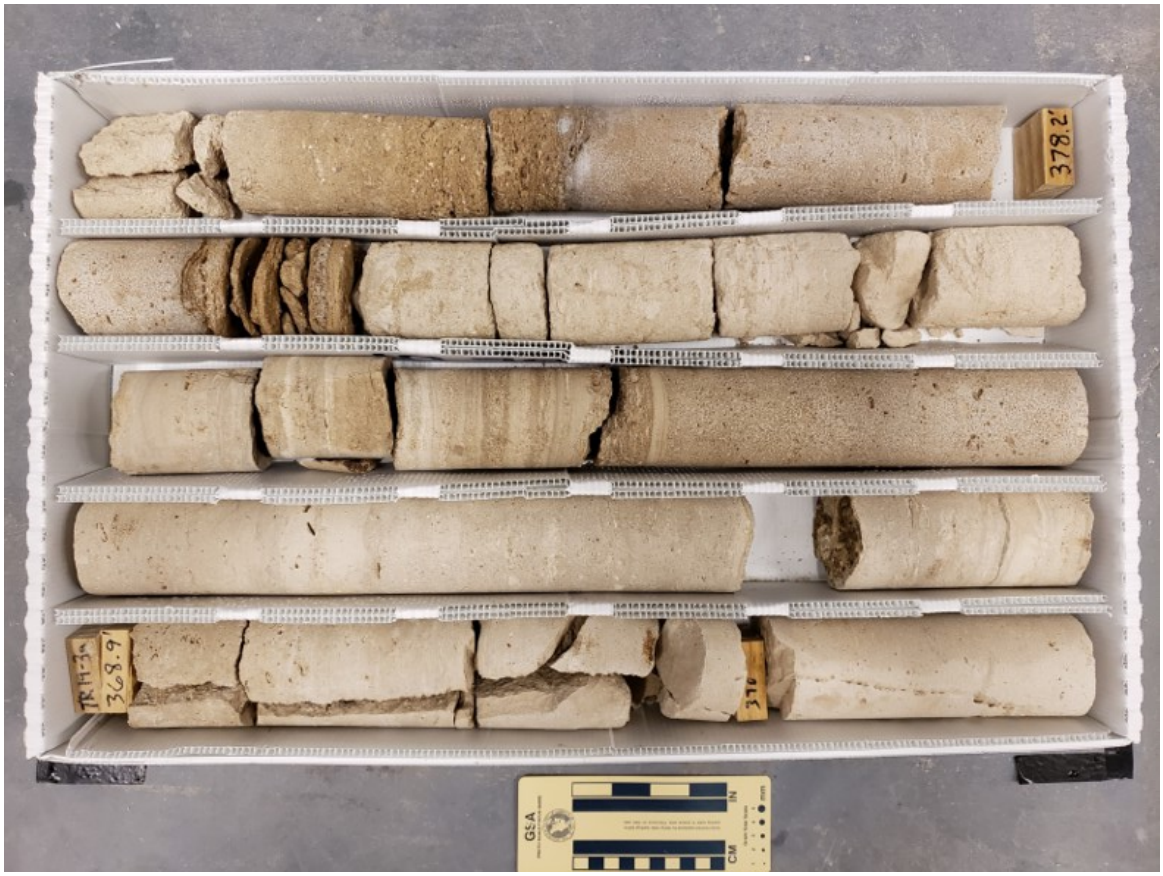

333.8
TR 19-3a
330'
GSA
IN
CM


342.4
TR 19-3a
333.8
GSA
IN
CM


TR19-3
342.4
GSA
IN
CM


TR19-3
351.8
GSA
IN
CM


368.9'
TR19-3
360'
GSA
IN
CM


378.2'
TR19-3A
368.9'
GSA
IN
CM


395.9'
TR-19-3A
377'
GSA
IN
CM


TR-19-3A
377.2'
GSA
IN
CM


H DIVIDER
GSA
IN
CM

Digitial Photographs of Core Samples Retrieved from Core hole 2 at the ROMP TR 19-3A Well Site in Hernando County, Florida


405.7'
400'
TR19-3a
395.9'
GSA
IN
CM


414.7'
410'
TR19-3a
405.7'
GSA
IN
CM


TR19-3a
414.2'
420'
423.6


TR19-3a
423.6
430'
433.7'


TR19-3a
433.7'
440'
442.2'
GSA
IN
CM


TR 19-3a
442.2'
450'
454.9'
GSA
IN
CM


460'
461.5
TR-13a
451.9'
GSA
IN
CM


470'
TR-13a
461.5
GSA
IN
CM


TR 19-3A
470'
GSA
IN
CM


TR 19-3A
478.5'
GSA
IN
CM


TT-19-3a
418'
490'
497'
GSA
IN
CM


TT-19-3a
497'
500
504.7'
GSA
IN
CM


515'
510'
TR19-3
504.7'
GSA
IN
CM


520'
515'
TR19-3a
515'
GSA
IN
CM


TR 19-3a
521.4'
530'
535.5'
GSA
IN
CM


TR 19-3a
535.5'
540
545.3
GSA
IN
CM


562.7'
560'
555'
550'
TR 19-3A
545.3'
GSA
IN
CM

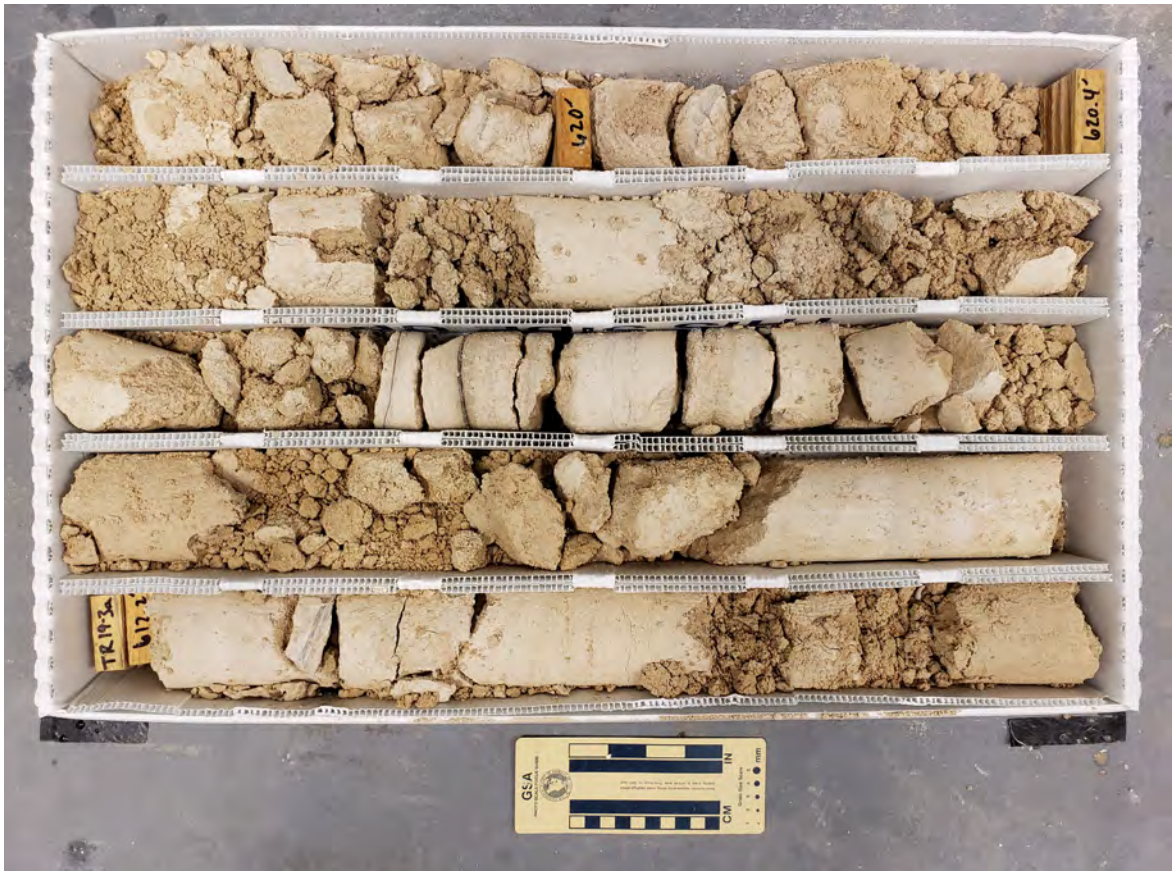

574.1'
565'
TR 19-3A
562.7'
GSA
IN
CM


584.5
580
574.1'
TR 19-3a
GSA
IN
CM
mm


590'
TR 19-3a
584.5
GSA
IN
CM
mm


607.4'
608'
TR 19-3a
593.5'
GSA
IN
CM


612.2'
610'
GSA
IN
CM


620.4'
620'
TR 19-3a
GSA
IN
CM
mm


635.9'
630'
TR 19-3a
620.4'
GSA
IN
CM
mm


TR 19-3
635.9'
640'
641.3'
GSA
IN
CM
mm

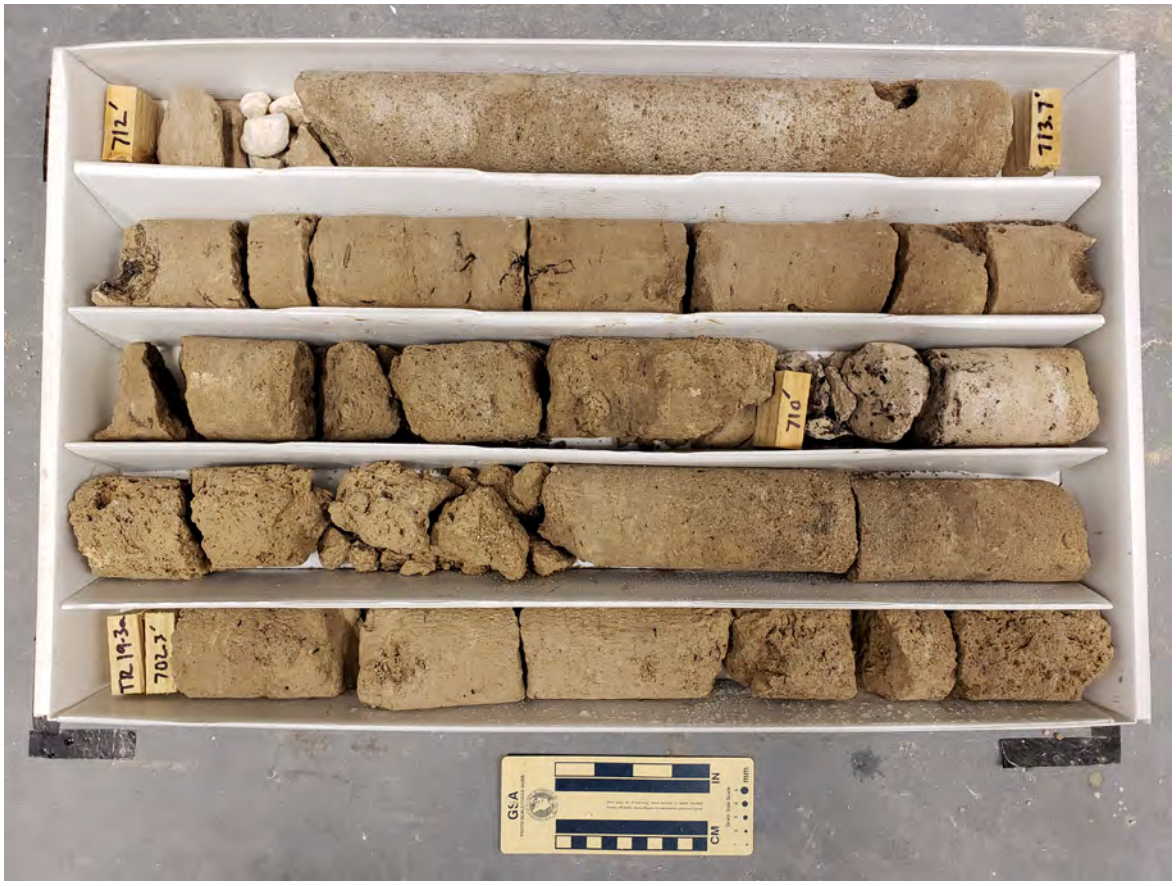

TR 19-3
644.3'
650'
636.6'
GSA
IN
CM
mm


TR19-3A
656.6'
660'
666.4'
GSA
IN
CM
mm

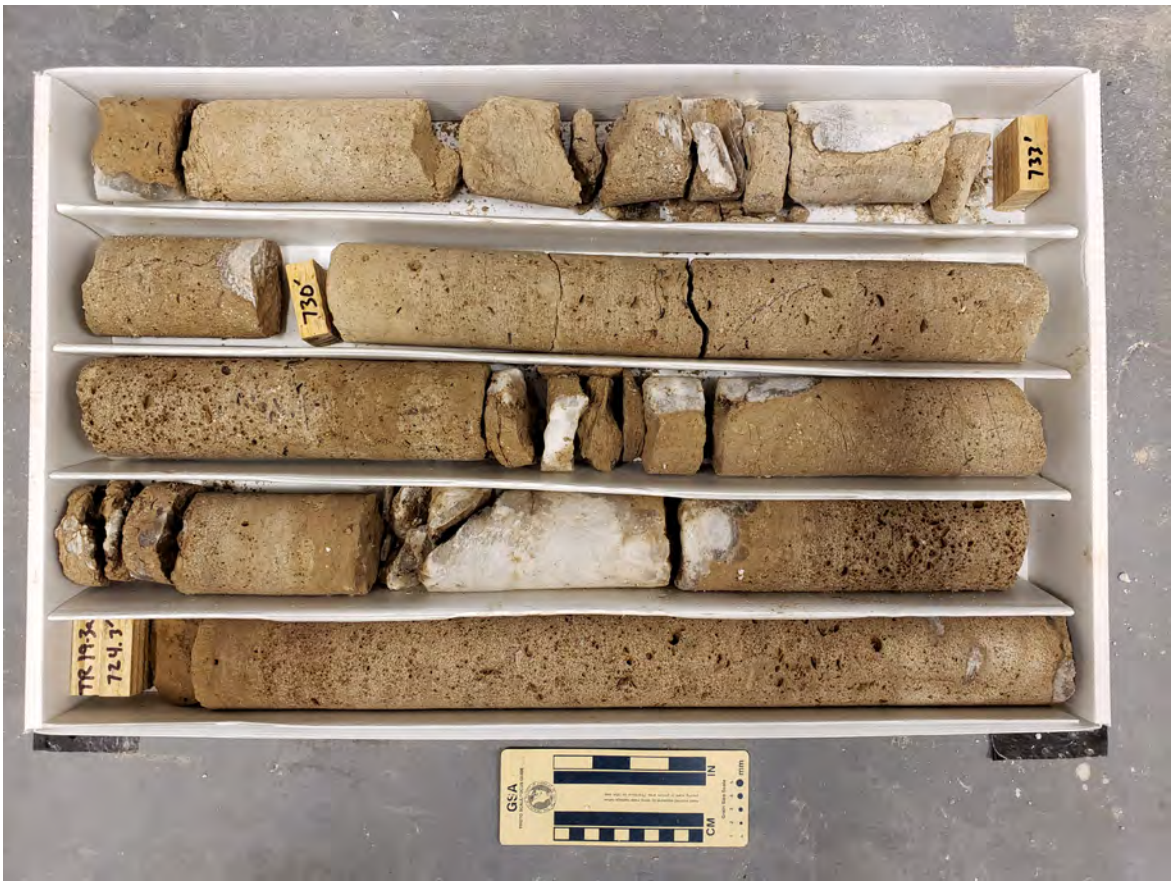

TR19-3A
666.4'
674.5'
670'
GSA
IN
CM
mm


TR-19-3a
674.5'
690'
GSA
IN
CM


702.3'
700'
690'
TR-19-3a
GSA
IN
CM


712'
713.7'
710'
TR 19-3a
702.3'
GSA
IN
CM


724.3'
720'
TR 19-3a
713.7'
GSA
IN
CM


733'
730'
TR 19-3A
724.3'
GSA
IN
CM


TD-746'
TR 19-3A
733'
GSA
IN
CM

Appendix E. Correlation Charts

A

WYRICK 1960	LICHTLER 1960	CLARKE 1964	LEVE 1966	WOLANSKY 1978	MILLER 1980	BOGGESS 1986; ARTHUR AND OTHERS 2008	SWFWMD PRESENT
nonartesian aquifer	Shallow aquifer	water-table aquifer	shallow aquifer system	unconfined aquifer	surficial aquifer	surficial aquifer system	surficial aquifer
confining unit	*confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*

[SWFWMD, Southwest Florida Water Management District]

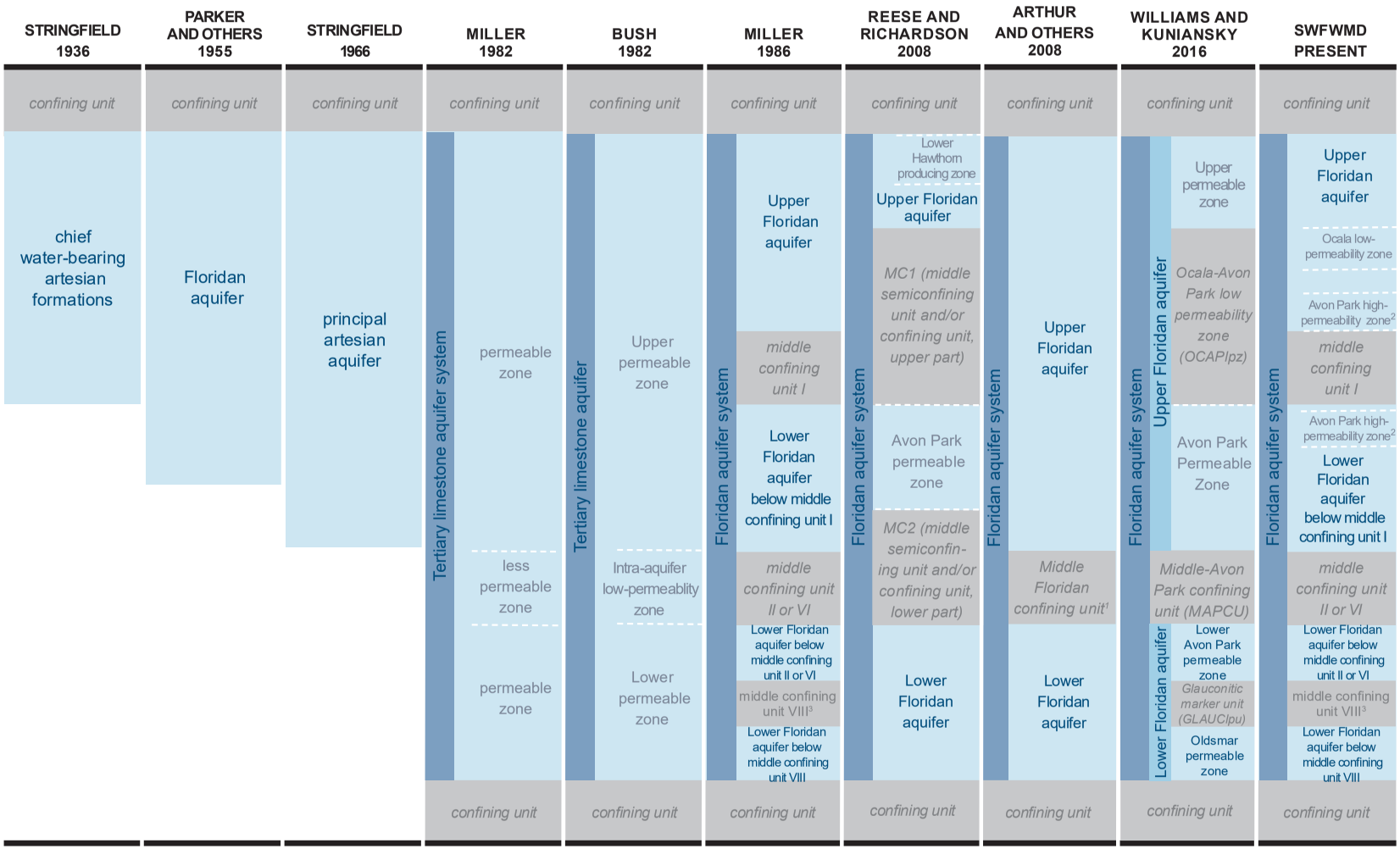
B

SPROUL AND OTHERS 1972	JOYNER, SUTCLIFFE 1976	WEDDERBURN AND OTHERS 1982	WOLANSKY 1983	BARR 1996	TORRES AND OTHERS 2001	KNOCHENMUS 2006	ARTHUR AND OTHERS 2008	SWFWMD PRESENT
confining unit	*confining unit*	Hawthorn Aquifer System: *confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*
sandstone aquifer	Zone 1	Hawthorn Aquifer System: Sandstone aquifer	Intermediate aquifers: Tamiami - upper Hawthorn aquifer	Intermediate aquifer system: Permeable Zone 1	Intermediate aquifer system: Tamiami/ Peace River zone (PZ1)	Intermediate aquifer system: Zone 1	Intermediate aquifer system / intermediate confining unit: zones/ aquifers were not delineated	Hawthorn aquifer system: Peace River aquifer
confining unit	*confining unit*	Hawthorn Aquifer System: *confining unit*	Intermediate aquifers: Tamiami - upper Hawthorn aquifer	Intermediate aquifer system: Permeable Zone 1	Intermediate aquifer system: *confining unit*	Intermediate aquifer system: *confining unit*	Intermediate aquifer system / intermediate confining unit: zones/ aquifers were not delineated	Hawthorn aquifer system: *confining unit*
upper Hawthorn aquifer	Zone 2	Hawthorn Aquifer System: mid-Hawthorn aquifer	Intermediate aquifers: Tamiami - upper Hawthorn aquifer	Intermediate aquifer system: Permeable Zone 2	Intermediate aquifer system: Upper Arcadia zone (PZ2)	Intermediate aquifer system: Zone 2	Intermediate aquifer system / intermediate confining unit: zones/ aquifers were not delineated	Hawthorn aquifer system: upper Arcadia aquifer
confining unit	*confining unit*	Hawthorn Aquifer System: *confining unit*	Intermediate aquifers: *confining unit*	Intermediate aquifer system: *confining unit*	Intermediate aquifer system: *confining unit*	Intermediate aquifer system: *confining unit*	Intermediate aquifer system / intermediate confining unit: zones/ aquifers were not delineated	Hawthorn aquifer system: *confining unit*
lower Hawthorn aquifer	Zone 3	FAS: lower Hawthorn / Tampa producing zone	Intermediate aquifers: Lower Hawthorn - upper Tampa aquifer	Intermediate aquifer system: Permeable Zone 3	Intermediate aquifer system: Lower Arcadia zone (PZ3)	Intermediate aquifer system: Zone 3	Intermediate aquifer system / intermediate confining unit: zones/ aquifers were not delineated	Hawthorn aquifer system: lower Arcadia aquifer
confining unit	*confining unit*	FAS: *confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*	*confining unit*

[FAS, Floridan aquifer system; PZ, permeable zone; SWFWMD, Southwest Florida Water Management District]

Figure E1. Nomenclature of (A), the surficial aquifer, (B), the Hawthorn aquifer system, and (C), the Floridan aquifer system used for the ROMP TR 19-3A – Heather well site compared to names in previously published reports.

C



[Terms shown are for hydrogeologic units present within the Southwest Florida Water Management District (SWFWMD)]

[1]Arthur and others acknowledge existence of the middle confining unit I within the Southwest Florida Water Management but do not map it for Special Publication 68.

[2]The Avon Park high-permeability zone (SWFWMD fracture zone) crosses middle confining unit I in central Polk County; therefore, it occurs above the middle confining unit I in northern Polk and below the middle confining unit I in southern Polk.

[3]The middle confining unit VIII of Miller (1986) in south Florida was extended across the entire peninsula based on new data in Williams and Kuniansky (2015) and reidentified as the Glauconite marker unit.

Figure E1. (Continued) Nomenclature of (A), the surficial aquifer, (B), the Hawthorn aquifer system, and (C), the Floridan aquifer system used for the ROMP TR 19-3A – Heather well site compared to names in previously published reports.

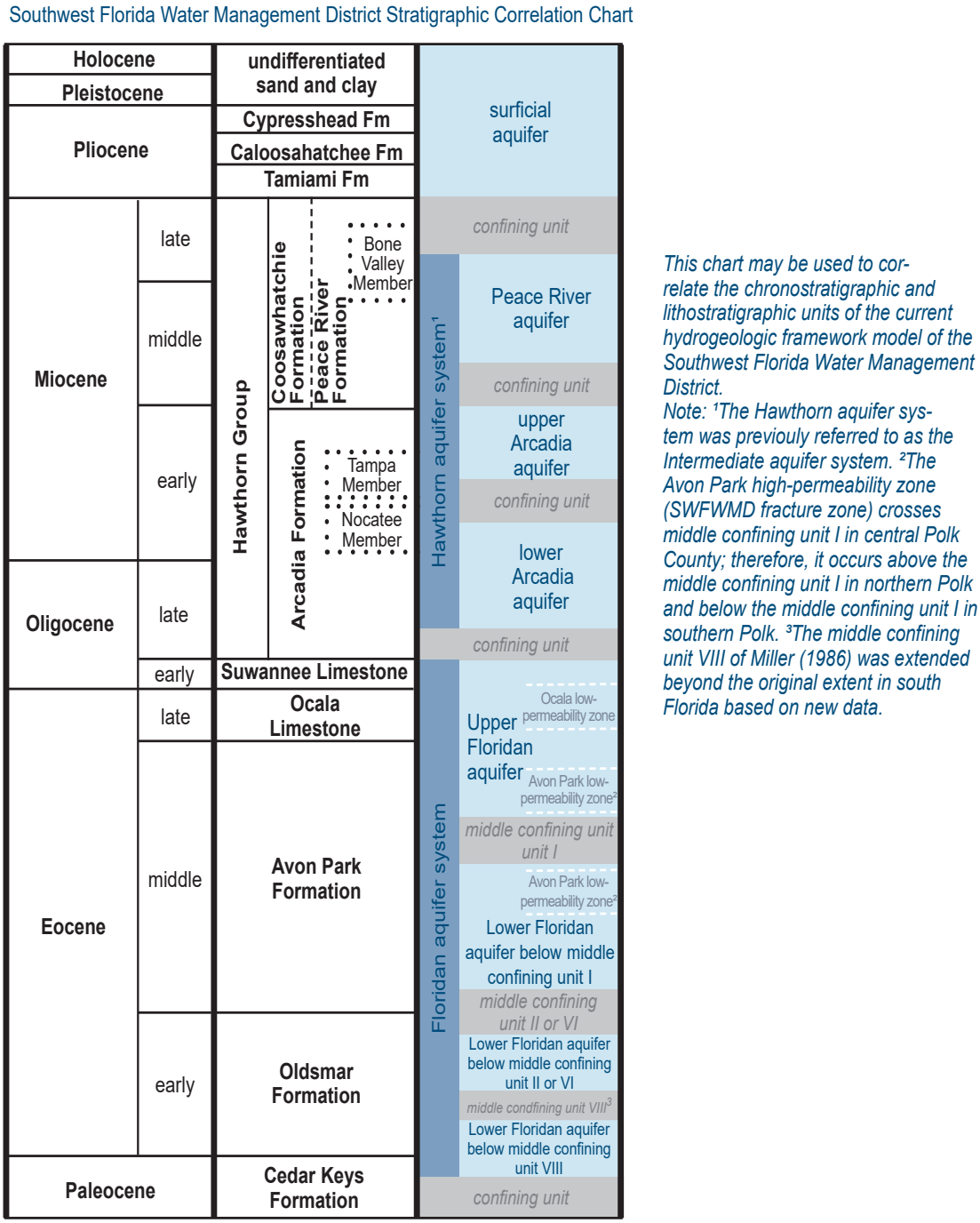
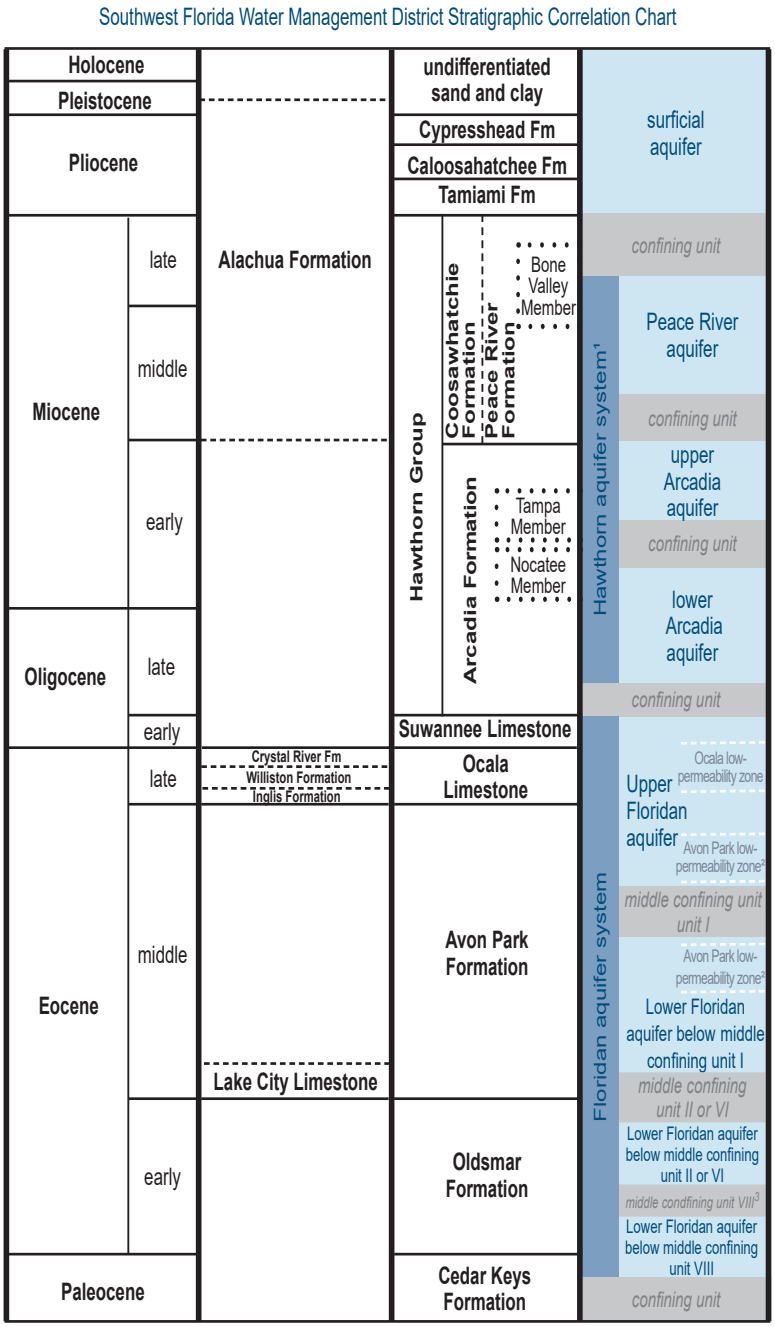


Figure E2. Chart correlating chronostratigraphic and lithostratigraphic units to the current hydrogeologic framework of the Southwest Florida Water Management District.



This chart may be used to correlate the stratigraphic units in past reports to the current hydrogeologic framework model of the Southwest Florida Water Management District.
Note: [1]The Hawthorn aquifer system was previouly referred to as the Intermediate aquifer system. [2]The Avon Park high-permeability zone (SWFWMD fracture zone) crosses middle confining unit I in central Polk County; therefore, it occurs above the middle confining unit I in northern Polk and below the middle confining unit I in southern Polk. [3]The middle confining unit VIII of Miller (1986) was extended beyond the original extent in south Florida based on new data.

Figure E3. Chart correlating lithostratigraphic units used in past reports to current lithostratigraphic units and the current hydrogeologic framework of the Southwest Florida Water Management District.

Appendix F. Daily Water Levels Recorded During Exploratory Core Drilling and Testing at the ROMP TR 19-3A Well Site in Hernando County, Florida

Appendix F. Daily Water Levels Recorded During Exploratory Coring and Testing at the ROMP TR 19-3A – Heather Well Site in Hernando County, Florida

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; MP, measuring point; bmp, below measuring point; NAVD 88, North American Vertical Datum of 1988; btoc, below top of casing; HQ, 3.5-inch outside diameter and 3.06-inch inner diameter core rods; HWT, 4.5-inch outside diameter and 4.00-inch inner diameter temporary casing; gpm, gallons per minute; gpm/ft, gallons per minute per foot; PVC, polyvinyl chloride; CH1, Corehole 1; CH2, Corehole 2; WL, water level; U, Upper; Fldn, Floridan; Aq, aquifer; UFA, Upper Floridan aquifer; --, no measurement]

		Corehole 1				Corehole 2				U Fldn Aq Monitor Well			Surf Aq Monitor Well		
Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	Comments
05/15/2019	11:00	--	--	--	--	--	--	--	--	--	--	--	--	--	Specific Capacity 10 gpm/21.65 ft = 0.46 gpm/ft. Construction of CH1
05/21/2019	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
05/22/2019	16:00	--	34	15.35	8.99	--	--	--	--	--	--	--	--	--	
05/23/2019	8:05	--	100	15.35	8.99	--	--	--	--	--	--	--	--	--	Packer set at 80', Specific capacity = 1.46 gpm/ft
05/28/2019	7:00	100	160	14.42	9.92	--	--	--	--	--	--	--	--	--	
05/28/2019	7:30	100	160	14.32	--	--	--	--	--	--	--	--	--	--	Packer set at 140', no specific capacity collected due to cavitating pump
05/29/2019	7:30	100	220	15.43	8.91	--	--	--	--	--	--	--	--	--	
05/29/2019	13:15	100	220	15.51	8.83	--	--	--	--	--	--	--	--	--	Collected water level before packer test
05/29/2019	14:15	100	220	15.46	8.88	--	--	--	--	--	--	--	--	--	Packer set at 260', no specific capacity because pump cavitates
05/30/2019	6:50	100	280	19.6	4.74	--	--	--	--	--	--	--	--	--	
05/30/2019	9:00	100	300	16.88	7.46	--	--	--	--	--	--	--	--	--	Retook reading later in the day
05/30/2019	17:06	100	340	15.57	8.77	--	--	--	--	--	--	--	--	--	Checked water levels late in the day

Appendix F. Daily Water Levels Recorded During Exploratory Coring and Testing at the ROMP TR 19-3A – Heather Well Site in Hernando County, Florida

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; MP, measuring point; bmp, below measuring point; NAVD 88, North American Vertical Dataum of 1988; btoc, below top of casing; HQ, 3.5-inch outside diameter and 3.06-inch inner diameter core rods; HWT, 4.5-inch outside diameter and 4.00-inch inner diameter temporary casing; gpm, gallons per minute; gpm/ft, gallons per minute per foot; PVC, polyvinyl chloride; CH1, Corehole 1; CH2, Corehole 2; WL, water level; U, Upper; Fldn, Floridan; Aq, aquifer; UFA, Upper Floridan aquifer; --, no measurement]

		Corehole 1				Corehole 2				U Fldn Aq Monitor Well			Surf Aq Monitor Well		
Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	Comments
06/03/2019	7:45	200	340	15.46	8.88	--	--	--	--	--	--	--	--	--	2.9 stick up (HQ) from MP (8" PVC)
06/03/2019	8:00	200	340	14.86	9.48	--	--	--	--	--	--	--	--	--	Formation is low perm dolostone, WL with packer may not have set long enough for equilibrium
06/03/2019	10:10	200	340	--	--	--	--	--	--	--	--	--	--	--	
06/04/2019	7:00	200	360	15.54	8.80	--	--	--	--	--	--	--	--	--	
06/06/2019	9:57	200	400	15.69	8.65	--	--	--	--	--	--	--	--	--	
06/06/2019	11:47	200	400	--	--	--	--	--	--	--	--	--	12.30	9.26	Checked completed water levels in surficial aquifer monitor well
06/10/2019	8:32	200	400	15.42	8.92	--	--	--	--	--	--	--	--	--	rained over the weekend. No rain gauge to keep track of how much.
06/10/2019	8:36	200	400	--	--	--	--	--	--	--	--	--	11.98	9.59	Start construction of CH2
06/11/2019	7:30	200	400	14.61	9.73	--	--	--	--	40	--	--	11.40	10.16	
06/12/2019	7:15	200	400	14.87	9.47	--	--	--	--	65	--	--	11.40	10.16	
06/12/2019	13:12	200	400	--	--	--	--	--	--	122	14.09	10.12	--	--	rained today. Recovery water level after specific capacity test in completed UFA monitor well
06/13/2019	7:00	200	400	14.77	9.57	--	--	--	--	122	14.2	10.01	11.30	10.26	rained last night and today
06/14/2019	--	200	400	--	--	--	32	--	--	122	--	--	--	--	
06/17/2019	9:49	200	400	15.08	9.26	--	63	--	--	122	14.04	10.17	--	--	
06/18/2019	--	200	400	--	--	--	63	--	--	122	--	--	--	--	

Appendix F. Daily Water Levels Recorded During Exploratory Coring and Testing at the ROMP TR 19-3A – Heather Well Site in Hernando County, Florida

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; MP, measuring point; bmp, below measuring point; NAVD 88, North American Vertical Dataum of 1988; btoc, below top of casing; HQ, 3.5-inch outside diameter and 3.06-inch inner diameter core rods; HWT, 4.5-inch outside diameter and 4.00-inch inner diameter temporary casing; gpm, gallons per minute; gpm/ft, gallons per minute per foot; PVC, polyvinyl chloride; CH1, Corehole 1; CH2, Corehole 2; WL, water level; U, Upper; Fldn, Floridan; Aq, aquifer; UFA, Upper Floridan aquifer; --, no measurement]

		Corehole 1				Corehole 2				U Fldn Aq Monitor Well			Surf Aq Monitor Well		
Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	Comments
06/19/2019	8:35	200	400	14.88	9.46	--	103	--	--	122	13.7	10.51	--	--	
06/20/2019	7:00	200	400	14	10.34	--	163	--	--	122	13.25	10.96	11.50	10.06	
06/21/2019	7:00	200	400	14	10.34	--	283	--	--	122	13.2	11.01	11.50	10.06	
06/24/2019	7:00	200	400	14	10.34	--	321	--	--	122	13.2	11.01	11.20	10.36	
06/25/2019	7:00	200	400	14	10.34	--	321	--	--	122	13.25	10.96	11.20	10.36	
06/26/2019	7:00	200	400	14	10.34	--	321	--	--	122	13.25	10.96	11.20	10.36	
06/27/2019	7:00	200	400	--	--	--	321	--	--	122	--	--	--	--	
07/01/2019	7:30	200	400	8.01	16.33	321	321	--	--	122	13.09	11.12	9.23	12.33	
07/02/2019	7:00	200	400	13.9	10.44	321	337	--	--	122	13.12	11.09	10.20	11.36	
07/03/2019	7:00	200	400	13.23	11.11	321	370	--	--	122	13.14	11.07	10.21	11.35	
07/08/2019	7:15	200	400	13.43	10.91	321	400	13.18	11.164	122	12.8	11.41	11.00	10.56	
07/09/2019	7:00	200	400	13.12	11.22	321	440	--	--	122	12.94	11.27	10.93	10.63	
07/10/2019	7:10	200	400	13.16	11.18	321	460	--	--	122	12.6	11.61	10.55	11.01	
07/11/2019	7:10	200	400	13.16	11.18	321	500	--	--	122	12.57	11.64	10.50	11.06	
07/12/2019	7:10	200	400	12.56	11.78	321	530	--	--	122	12.51	11.70	10.56	11.00	
07/15/2019	7:00	200	400	12.63	11.71	321	555	--	--	122	12.55	11.66	10.56	11.00	
07/16/2019	7:00	200	400	13.2	11.14	380	555	--	--	122	12.49	11.72	10.48	11.08	
07/17/2019	7:00	200	400	13.23	11.11	440	555	13.1	11.244	122	12.59	11.62	10.49	11.07	
07/18/2019	7:00	200	400	13.09	11.25	446	555	13.1	11.244	122	12.51	11.70	10.55	11.01	

Appendix F. Daily Water Levels Recorded During Exploratory Coring and Testing at the ROMP TR 19-3A – Heather Well Site in Hernando County, Florida

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; MP, measuring point; bmp, below measuring point; NAVD 88, North American Vertical Dataum of 1988; btoc, below top of casing; HQ, 3.5-inch outside diameter and 3.06-inch inner diameter core rods; HWT, 4.5-inch outside diameter and 4.00-inch inner diameter temporary casing; gpm, gallons per minute; gpm/ft, gallons per minute per foot; PVC, polyvinyl chloride; CH1, Corehole 1; CH2, Corehole 2; WL, water level; U, Upper; Fldn, Floridan; Aq, aquifer; UFA, Upper Floridan aquifer; --, no measurement]

		Corehole 1				Corehole 2				U Fldn Aq Monitor Well			Surf Aq Monitor Well		
Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	4-inch HWT Tem-porary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	Comments
07/22/2019	7:00	200	400	12.51	11.83	452	555	--	--	122	12.38	11.83	10.53	11.03	
07/23/2019	7:00	200	400	12.52	11.82	--	555	--	--	122	12.36	11.85	10.51	11.05	
07/24/2019	7:00	200	400	12.38	11.96	530	555	--	--	122	12.27	11.94	10.47	11.09	
07/25/2019	7:00	200	400	12.15	12.19	--	555	--	--	122	12.1	12.11	9.28	12.28	
07/26/2019	7:00	200	400	12.14	12.20	--	555	--	--	122	12.02	12.19	10.03	11.53	
07/29/2019	7:00	200	400	--	--	--	555	--	--	122	--	--	--	--	
07/30/2019	7:00	200	400	12.39	11.95	550	555	--	--	122	11.97	12.24	9.90	11.66	
07/31/2019	7:00	200	400	12.47	11.87	550	580	12.74	11.604	122	12.03	12.18	10.21	11.35	
08/01/2019	7:00	200	400	11.95	12.39	550	600	--		122	12.06	12.15	9.13	12.43	polymer used in hole
08/05/2019	7:00	200	400	12.04	12.30	550	640	12.88	11.464	122	12.13	12.08	9.23	12.33	
08/06/2019	7:00	200	400	--	--	550	670	12.63	11.714	122	12.4	11.81	8.91	12.65	Crew turned water supply pump on prior to collecting water levels
08/07/2019	7:00	200	400	--	--	550	700	--	--	122	--	--	--	--	
08/08/2019	7:00	200	400	--	--	550	730	--	--	122	--	--	--	--	
08/12/2019	7:00	200	400	12.41	11.93	550	740	13.3	11.044	122	12.3	11.91	9.28	12.28	
08/13/2019	7:00	200	400	12.46	11.88	550	740	--	--	122	12.31	11.90	9.40	12.16	
08/14/2019	7:00	200	400	12.38	11.96	550	740	--	--	122	12.32	11.89	9.41	12.15	
08/15/2019	7:00	200	400	13.43	10.91	550	740	--	--	122	12.22	11.99	9.33	12.23	
08/19/2019	7:00	200	400	10.34	14.00	550	740	--	--	122	12.13	12.08	7.27	14.29	

Appendix F. Daily Water Levels Recorded During Exploratory Coring and Testing at the ROMP TR 19-3A – Heather Well Site in Hernando County, Florida

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; MP, measuring point; bmp, below measuring point; NAVD 88, North American Vertical Dataum of 1988; btoc, below top of casing; HQ, 3.5-inch outside diameter and 3.06-inch inner diameter core rods; HWT, 4.5-inch outside diameter and 4.00-inch inner diameter temporary casing; gpm, gallons per minute; gpm/ft, gallons per minute per foot; PVC, polyvinyl chloride; CH1, Corehole 1; CH2, Corehole 2; WL, water level; U, Upper; Fldn, Floridan; Aq, aquifer; UFA, Upper Floridan aquifer; --, no measurement]

		Corehole 1				Corehole 2				U Fldn Aq Monitor Well			Surf Aq Monitor Well		
Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	4-inch HWT Temporary Casing Depth (ft bls)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Total Depth (ft bls)	Static Water Level (ft btoc)	Static Water Level (ft NAVD 88)	Static Water Level (ft bmp)	Static Water Level (ft NAVD 88)	Comments
08/20/2019	7:00	200	400	10.44	13.90	550	740	--	--	122	12.26	11.95	7.54	14.02	
08/21/2019	7:00	200	400	10.54	13.80	550	740	--	--	122	10.33	13.88	7.23	14.33	
08/23/2019	7:00	200	400	10.63	13.71	550	740	--	--	122	10.53	13.68	7.40	14.16	
08/26/2019	7:00	200	400	10.85	13.49	550	740	--	--	122	10.44	13.77	7.50	14.06	
08/27/2019	7:00	200	400	10.55	13.79	550	740	--	--	122	10.82	13.39	6.92	14.64	
08/28/2019	7:00	200	400	10.7	13.64	550	740	--	--	122	10.83	13.38	7.56	14.00	
08/29/2019	7:00	200	400	10.85	13.49	550	740	--	--	122	10.66	13.55	7.53	14.03	

Appendix G. Water Quality Sample Data Acquisition Forms for the ROMP TR 19-3A Well Site in Hernando County, Florida

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 1

Site Name: ROMP TR 19-3a Date: 5/23/2019

Well Name: Corehole 1 Performed by: K Mallams/J LaRoche

SID: 918411

Well Depth (ft bls)	100	Packed Interval (ft-ft bls)	80-100
Test Casing Depth (ft bls)	80	Packed Interval (m-m bls)	24.38-30.48
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	15.35
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	80	ft (interval)	=	29.6	gallons
2	0.6528	g/ft X	20	ft (interval)	=	13.1	gallons
				TOTAL PURGE VOLUME (one) =		42.7	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 27.9 gpm

Volume (one)/Discharge: 1.51 minutes **X THREE =** 4.6 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Collected sample at weir tank bypass (pre-tank). Upper element of packer inside HQ at 79', lower element outside at 80'. HQ volume = 0.37 gal/ft

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
8:58	285.8	23.7	7.32
9:03	286.2	23.3	7.56
9:09	285.9	23.3	7.5

Purge Start Time: 7:15

Purge End Time: 9:14

Sample Time: 9:12

Shipping Batch ID: 0523191820

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	285.9	Chloride (mg/L)	3.4
Temperature (°C)	23.3	Sulfate (mg/L)	3
pH (SU)	7.5		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 2

Site Name: ROMP TR 19-3a Date: 5/28/2019

Well Name: Corehole 1 Performed by: K Mallams/J LaRoche

SID: 918411

Well Depth (ft bls)	160	Packed Interval (ft-ft bls)	140-160
Test Casing Depth (ft bls)	140	Packed Interval (m-m bls)	42.6-48.7
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	14.42
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	140	ft (interval)	=	59.2	gallons
2	0.6528	g/ft X	20	ft (interval)	=	13.1	gallons
				TOTAL PURGE VOLUME (one) =		72.3	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 5 gpm

Volume (one)/Discharge: 14.5 minutes **X THREE =** 43.4 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Upper packer element set in HQ rods at 139' bls, lower element outside at 140'

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
8:51	244.9	24.8	7.65
9:01	206.7	24.9	7.69
9:11	200.4	24.8	7.66
9:20	199.9	24.7	7.58

Purge Start Time: 8:35

Purge End Time: 9:29

Sample Time: 9:25

Shipping Batch ID: 0528191711

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	199.7	Chloride (mg/L)	2.3
Temperature (°C)	25.8	Sulfate (mg/L)	2
pH (SU)	7.9		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 3

Site Name: ROMP TR 19-3a Date: 5/28/2019

Well Name: Corehole 1 Performed by: K Mallams/J LaRoche

SID: 918411

Well Depth (ft bls)	220	Packed Interval (ft-ft bls)	200-220
Test Casing Depth (ft bls)	200	Packed Interval (m-m bls)	60.9-67.0
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	15.54
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	200	ft (interval) =	74.00	gallons
2	0.6528	g/ft X	20	ft (interval) =	13.06	gallons
				TOTAL PURGE VOLUME (one) =	87.06	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 26 gpm

Volume (one)/Discharge: 3.35 minutes **X THREE =** 10.04 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Upper packer element set in HQ rods at 199' bls, lower element outside at 220'.
TD of corehole is 220 ft bls.

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
15:59	254.8	24.6	7.57
16:04	254.3	24.2	7.59
16:08	253.7	24.2	7.6

Purge Start Time: 15:39

Purge End Time: 16:15

Sample Time: 16:12

Shipping Batch ID: 0528191711

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	254.1	Chloride (mg/L)	3.5
Temperature (°C)	24.1	Sulfate (mg/L)	2
pH (SU)	7.62		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 4

Site Name: ROMP TR 19-3a Date: 5/29/2019

Well Name: Corehole 1 Performed by: K Mallams/J LaRoche

SID: 918411

Well Depth (ft bls)	280	Packed Interval (ft-ft bls)	260-280
Test Casing Depth (ft bls)	260	Packed Interval (m-m bls)	79.1-85.2
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	15.46
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	260	ft (interval)	=	96.20	gallons
2	0.6528	g/ft X	20	ft (interval)	=	13.06	gallons
				TOTAL PURGE VOLUME (one) =		109.26	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 10 gpm

Volume (one)/Discharge: 10.93 minutes **X THREE =** 32.78 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Upper packer element set in HQ rods at 259' bls, lower element outside at 260'.

TD of corehole is 280 ft bls.

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge			
Time	Specific Cond.	Temp.	pH
15:06	280.8	25.4	7.71
15:11	279.4	25.3	7.72
15:15	279.7	25.2	7.71

Purge Start Time: 14:36

Purge End Time: 15:26

Sample Time: 15:22

Shipping Batch ID: 0529191646

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	280.4	Chloride (mg/L)	2.3
Temperature (°C)	25.1	Sulfate (mg/L)	2
pH (SU)	7.72		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

Revised 08/26/2019

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 5

Site Name: ROMP TR 19-3a Date: 6/3/2019

Well Name: Corehole 1 Performed by: K Mallams/J LaRoche

SID: 918411

Well Depth (ft bls)	340	Packed Interval (ft-ft bls)	320-340
Test Casing Depth (ft bls)	320	Packed Interval (m-m bls)	97.4-103.5
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	14.86
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	245	ft (interval) =	90.65	gallons
2	0.6528	g/ft X	20	ft (interval) =	13.06	gallons
				TOTAL PURGE VOLUME (one) =	103.71	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 3 gpm

Volume (one)/Discharge: 35.00 minutes **X THREE =** 105.00 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Upper packer element set in HQ rods at 319' bls, lower element outside at 320'.
TD of corehole is 320 ft bls.

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
9:52	283.3	26.2	7.75
10:05	282.3	26	7.72
10:15	284.6	26.4	7.81

Purge Start Time: 8:30

Purge End Time: 10:25

Sample Time: 10:19

Shipping Batch ID: 060320191740

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	285.3	Chloride (mg/L)	3.6
Temperature (°C)	26.5	Sulfate (mg/L)	0
pH (SU)	7.79		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: PT #6 CH 1

Site Name: ROMP TR 19-3a Date: 6/4/2019

Well Name: Corehole 1 Performed by: K Mallams/J LaRoche

SID: 918411

Well Depth (ft bls)	400	Packed Interval (ft-ft bls)	380-400
Test Casing Depth (ft bls)	380	Packed Interval (m-m bls)	115.8-121.9
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	15.54
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	380	ft (interval) =	140.60	gallons
2	0.6528	g/ft X	20	ft (interval) =	13.06	gallons
			TOTAL PURGE VOLUME (one) =		179.90	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 5 gpm

Volume (one)/Discharge: 35.98 minutes **X THREE =** N/A minutes

* PV = (1*140.60)+(3*13.1) = 179.9 gallons

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Set packer at 380 ft, purge 1 volume HQ rods, check for stablization

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
15:35	291.5	26.3	8.04
15:40	291.3	26.2	8.03
15:45	290.5	26.2	8.01

Purge Start Time: 15:04

Purge End Time: 15:55

Sample Time: 15:50

Shipping Batch ID: 060420191716

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	291.7	Chloride (mg/L)	7.2
Temperature (°C)	26.2	Sulfate (mg/L)	2
pH (SU)	8.08		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

Revised 08/26/2019

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 7

Site Name: ROMP TR 19-3a Date: 7/8/2019

Well Name: Corehole 2 Performed by: K Mallams/J LaRoche

SID: 918412

Well Depth (ft bls)	400	Packed Interval (ft-ft bls)	380-400
Test Casing Depth (ft bls)	380	Packed Interval (m-m bls)	115.8-121.9
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	13.18
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	380	ft (interval)	=	140.60	gallons
2	0.61	g/ft X	20	ft (interval)	=	12.20	gallons
				TOTAL PURGE VOLUME (one) =		152.80	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 5.5 gpm

Volume (one)/Discharge: 27.78 minutes **X THREE =** 83.35 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Inflate packer inside HQ rods at 380', lower packer inflated outside rods on formation. WL measuring point is at top of spill-over near corehole.

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
9:18	308.7	25.4	7.81
9:31	307.1	25.5	7.78
9:44	305.5	25.6	7.87

Purge Start Time: 8:24

Purge End Time: 9:55

Sample Time: 9:50

Shipping Batch ID: 070820191737

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	305.6	Chloride (mg/L)	7.1
Temperature (°C)	25.6	Sulfate (mg/L)	11
pH (SU)	7.85		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 8

Site Name: ROMP TR 19-3a Date: 7/10/2019

Well Name: Corehole 2 Performed by: K Mallams/J LaRoche

SID: 918412

Well Depth (ft bls)	460	Packed Interval (ft-ft bls)	440-460
Test Casing Depth (ft bls)	440	Packed Interval (m-m bls)	134.1-140.2
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	13.37
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	440	ft (interval)	=	162.80	gallons
2	0.61	g/ft X	20	ft (interval)	=	12.20	gallons
			TOTAL PURGE VOLUME (one) =			175.00	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 24 gpm

Volume (one)/Discharge: 7.29 minutes **X THREE =** 21.88 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Inflate packer inside HQ rods at 440', lower packer inflated outside rods on formation.

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
9:15	286	25.3	7.93
9:20	283	25.3	7.82
9:25	283.5	25.3	7.78

Purge Start Time: 9:05

Purge End Time: 9:40

Sample Time: 9:30

Shipping Batch ID: 071020191658

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	284.6	Chloride (mg/L)	9.9
Temperature (°C)	25.2	Sulfate (mg/L)	6
pH (SU)	7.8		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 9

Site Name: ROMP TR 19-3a Date: 7/11/2019

Well Name: Corehole 2 Performed by: K Mallams/J LaRoche

SID: 918412

Well Depth (ft bls)	520	Packed Interval (ft-ft bls)	500-520
Test Casing Depth (ft bls)	500	Packed Interval (m-m bls)	152.4-158.5
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	13.46
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	500	ft (interval)	=	185.00	gallons
2	0.61	g/ft X	20	ft (interval)	=	12.20	gallons
				TOTAL PURGE VOLUME (one) =		197.20	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 15 gpm

Volume (one)/Discharge: 13.15 minutes **X THREE =** 39.44 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Inflate packer inside HQ rods at 500, TD is 520'

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
12:46	305.6	26.1	8
12:57	301.3	26	7.92
13:08	299.8	25.7	7.92

Purge Start Time: 12:27

Purge End Time: 13:28

Sample Time: 13:12

Shipping Batch ID: 071120191650

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	299.5	Chloride (mg/L)	6.8
Temperature (°C)	25.7	Sulfate (mg/L)	4
pH (SU)	7.92		

Density (atm) N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 10

Site Name: ROMP TR 19-3a Date: 7/31/2019

Well Name: Corehole 2 Performed by: K Mallams/J LaRoche

SID: 918412

Well Depth (ft bls)	580	Packed Interval (ft-ft bls)	560-580
Test Casing Depth (ft bls)	560	Packed Interval (m-m bls)	170.7-176.8
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	15.79
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	560	ft (interval)	=	207.20	gallons
2	0.61	g/ft X	20	ft (interval)	=	12.20	gallons
				TOTAL PURGE VOLUME (one) =		219.40	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 6 gpm

Volume (one)/Discharge: 36.57 minutes **X THREE =** 109.70 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Inflate packer inside HQ rods at 560, TD is 580'

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
9:18	341.9	26.3	7.98
9:23	342	26.3	7.96
9:28	342.1	26.3	7.94

Purge Start Time: 6:45

Purge End Time: 9:43

Sample Time: 9:33

Shipping Batch ID: 073120191724

** 7/30 - Start purge time: 15:39

** 7/30 - End purge time: 16:30

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	342.4	Chloride (mg/L)	3.1
Temperature (°C)	26.4	Sulfate (mg/L)	21
pH (SU)	7.96		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

Revised 08/26/2019

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 11

Site Name: ROMP TR 19-3a Date: 8/5/2019

Well Name: Corehole 2 Performed by: K Mallams/J LaRoche

SID: 918412

Well Depth (ft bls)	640	Packed Interval (ft-ft bls)	620-640
Test Casing Depth (ft bls)	620	Packed Interval (m-m bls)	188.9-195.1
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	16.64
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	640	ft (interval)	=	236.80	gallons
2	0.61	g/ft X	20	ft (interval)	=	12.20	gallons
				TOTAL PURGE VOLUME (one) =		249.00	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 27 gpm

Volume (one)/Discharge: 9.22 minutes **X THREE =** 27.67 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Inflate packer inside HQ rods at 560, TD is 580'

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
9:52	651	25.9	7.66
9:57	653	25.9	7.64
10:02	656	26	7.64

Purge Start Time: 9:19

Purge End Time: 10:30

Sample Time: 10:07

Shipping Batch ID: 080520191647

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	657	Chloride (mg/L)	14
Temperature (°C)	25.9	Sulfate (mg/L)	180
pH (SU)	7.66		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 12

Site Name: ROMP TR 19-3a Date: 8/6/2019

Well Name: Corehole 2 Performed by: K Mallams/J LaRoche

SID: 918412

Well Depth (ft bls)	700	Packed Interval (ft-ft bls)	680-700
Test Casing Depth (ft bls)	680	Packed Interval (m-m bls)	207.3-213.4
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	14.21
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	680	ft (interval)	=	251.60	gallons
2	0.61	g/ft X	20	ft (interval)	=	12.20	gallons
				TOTAL PURGE VOLUME (one) =		263.80	gallons

Pump Method Submersible Pump

Airline Length N/A feet

Discharge Rate (gpm) 28 gpm

Volume (one)/Discharge 9.42 minutes **X THREE =** 28.26 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Packer set at 680' bls (20' off bottom)

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
16:00	1227	26.2	7.58
16:05	1225	26.3	7.56
16:10	1231	26.3	7.56

Purge Start Time: 15:35

Purge End Time: 16:41

Sample Time: 16:17

Shipping Batch ID: 080620191800

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	1234	Chloride (mg/L)	28
Temperature (°C)	26.3	Sulfate (mg/L)	260
pH (SU)	7.55		

Density (atm) N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 13

Site Name: ROMP TR 19-3a Date: 8/7/2019

Well Name: Corehole 2 Performed by: K Mallams/ T Fallon

SID: 918412

Well Depth (ft bls)	700	Packed Interval (ft-ft bls)	680-700
Test Casing Depth (ft bls)	680	Packed Interval (m-m bls)	207.3-213.4
Test Casing Type/Diameter (in.)	HQ / 3.06	Initial Test Interval WL (ft bmp)	13.51
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.37	g/ft X	680	ft (interval)	=	251.60	gallons
2	0.61	g/ft X	20	ft (interval)	=	12.20	gallons
				TOTAL PURGE VOLUME (one) =		263.80	gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 28 gpm

Volume (one)/Discharge: 9.42 minutes **X THREE =** 28.26 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Packer set at 680' bls (20' off bottom). Re-do interval for QA/QC purposes

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
9:08	1105	26	7.37
9:13	1109	26	7.42
9:18	1119	26	7.42

Purge Start Time: 8:28

Purge End Time: 9:40

Sample Time: 9:25

Shipping Batch ID: 080720191646

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	1117	Chloride (mg/L)	30
Temperature (°C)	25.8	Sulfate (mg/L)	252
pH (SU)	7.51		

Density (atm): N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 14

Site Name: ROMP TR 19-3a Date: 9/3/2019

Well Name: Corehole 2 Performed by: K Mallams/ J LaRoche

SID: 918412

Well Depth (ft bls)	740	Packed Interval (ft-ft bls)	670-740
Test Casing Depth (ft bls)	670	Packed Interval (m-m bls)	204.2-225.5
Test Casing Type/Diameter (in.)	PVC / 4.00	Initial Test Interval WL (ft bmp)	N/A
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

1	0.5426	g/ft	X	670	ft (interval)	=	363.54 gallons
2	0.61	g/ft	X	70	ft (interval)	=	42.70 gallons

TOTAL PURGE VOLUME (one) = 406.24 gallons

Pump Method: Submersible Pump

Airline Length: N/A feet

Discharge Rate (gpm): 15 gpm

Volume (one)/Discharge: 27.08 minutes **X THREE =** 81.25 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Sample from pump discharge, purging completed well bore from 670-740 bls.

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
11:48	1480	26.4	7.55
12:10	1728	26.2	7.46
12:25	1740	26.6	7.41
12:42	1757	26.5	7.43

Purge Start Time: 11:30

Purge End Time: 13:21

Sample Time: 12:59

Shipping Batch ID: 090320191507

Sample Field Analysis

YSI Multimeter Serial # 15J103118 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	1751	Chloride (mg/L)	23.5
Temperature (°C)	26.4	Sulfate (mg/L)	420
pH (SU)	7.4		

Density (atm) N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 15

Site Name: ROMP TR 19-3a Date: 10/1/2019

Well Name: Corehole 2 Performed by: K Mallams/ J LaRoche

SID: 918412

Well Depth (ft bls)	711	Packed Interval (ft-ft bls)	670-711
Test Casing Depth (ft bls)	670	Packed Interval (m-m bls)	204.2-216.7
Test Casing Type/Diameter (in.)	PVC / 4.00	Initial Test Interval WL (ft bmp)	12.13
Hole Diameter (in.)	3.88	Initial Annulus WL (ft bmp)	N/A

Purge Volume (gallons)

4"	1	0.653	g/ft X	670	ft (interval) =	437.51	gallons
3.88	2	0.614	g/ft X	41	ft (interval) =	25.17	gallons
					TOTAL PURGE VOLUME (one) =	462.68	gallons

Pump Method Submersible Pump 10

Airline Length N/A feet

Discharge Rate (gpm) 30 gpm

Volume (one)/Discharge 15.42 minutes **X THREE =** 46.27 minutes

Collection Method: Submersible Pump or Wireline Bailer or Nested Bailer or Reverse-air

Comments: Final WQ sample - well completion - TD =711 ft bls, CD = 670 ft bls

Note: NQ/NRQ=0.2301 gal/ft; HW/HWT=0.6528 gal/ft; open hole(NQ/NRQ)=0.3623 gal/ft; HQ = 0.37 gal/ft

Test Information

Water Quality During Purge

Time	Specific Cond.	Temp.	pH
14:00	1217	26.25	9.71
14:10	1210	26.26	9.83
14:20	1215	26.31	9.5
14:30	1254	26.35	9.16
14:35	1270	26.4	9.02
14:40	1289	26.57	8.9
14:45	1303	26.4	8.82

Purge Start Time: 13:31

Purge End Time: 14:56

Sample Time: 14:47

Shipping Batch ID: 100120191637

Sample Field Analysis

YSI Multimeter Serial # 08L100684 YSI 9300 Photometer Serial # 71011180004

Spec.Cond. (uS)	1311	Chloride (mg/L)	34
Temperature (°C)	26.49	Sulfate (mg/L)	630
pH (SU)	8.79		

Density (atm) N/A

Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

Appendix H. Water Quality Data for the Groundwater Samples Collected at the ROMP TR 19-3A Well Site in Hernando County, Florida

Table H1. Field analyses results for the water quality samples collected at the ROMP TR 19-3A well site in Hernando County, Florida. All field samples were collected from the airlift discharge using the weir tank.

[No., number; SID, Station Identification; MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; °C, Celsius; SU,, standard unit; Cl^-, chloride; SO_4^{2-}, sulfate; mg/L, milligrams per liter; µmhos/cm, micromhos per centimeter]

Water Quality Sample No.	Monitor Well SID No.	Date (MM/DD/YYYY)	Time (HH:MM)	Deepest Casing Depth (ft bls)	Total Depth (ft bls)	Airline Length (ft)	Temperature (°C)	pH (SU)	Specific Conductance (µmhos/cm)	MAJOR ANIONS		Sample Collection Method/Remarks
										Cl^- (mg/L)	SO_4^{2-} (mg/L)	
1	918411	05/23/2019	13:56	100	120	80	26.3	8.0	247.3	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
2	918411	05/23/2019	15:41	100	140	80	27.7	7.9	277.6	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
3	918411	05/23/2019	17:30	100	160	80	27.3	7.9	264.5	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
4	918411	05/28/2019	11:32	100	180	80	24.7	8.1	245.5	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
5	918411	05/28/2019	13:11	100	200	80	24.8	7.9	240.9	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
6	918411	05/28/2019	15:12	100	220	80	25.1	8.0	254.0	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
7	918411	05/29/2019	09:22	100	240	80	24.7	8.1	257.5	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
8	918411	05/29/2019	11:27	100	260	80	24.9	8.2	266.7	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
9	918411	05/29/2019	14:02	100	280	80	24.7	7.8	269.4	--	--	Airlift with 80 ft airline. Core rods 20 ft off bottom
10	918411	05/30/2019	09:47	100	300	80	25.0	8.0	270.8	--	--	Core rods 20 ft off bottom
11	918411	05/30/2019	13:41	100	320	80	25.5	8.2	266.5	--	--	Core rods 20 ft off bottom
12	918411	05/30/2019	16:51	100	340	80	25.7	8.2	265.4	--	--	Core rods 20 ft off bottom
13	918411	06/03/2019	16:27	200	360	80	25.5	8.0	282.6	--	--	Core rods 20 ft off bottom
14	918411	06/04/2019	11:12	200	380	80	25.5	8.2	286.6	--	--	Core rods 20 ft off bottom
15	918411	06/04/2019	14:39	200	400	80	25.7	8.2	288.2	--	--	Core rods 20 ft off bottom
16	918412	07/02/2019	14:04	320	360	60	32.5	9.8	203.1	--	--	Core rods 10 ft off bottom/Mud and cement may still be in the borehole
17	918412	07/03/2019	10:13	320	380	80	29.9	9.2	185.5	--	--	Core rods 10 ft off bottom

Table H1. Field analyses results for the water quality samples collected at the ROMP TR 19-3A well site in Hernando County, Florida. All field samples were collected from the airlift discharge using the weir tank.

[No., number; SID, Station Identification; MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; °C, celsius; SU, standard unit; Cl^-, chloride; SO_4^{2-}, sulfate; mg/L, milligrams per liter; µmhos/cm, micromhos per centimeter]

Water Quality Sample No.	Monitor Well SID No.	Date (MM/DD/YYYY)	Time (HH:MM)	Deepest Casing Depth (ft bls)	Total Depth (ft bls)	Airline Length (ft)	Temperature (°C)	pH (SU)	Specific Conductance (µmhos/cm)	MAJOR ANIONS		Sample Collection Method/Remarks
										Cl^- (mg/L)	SO_4^{2-} (mg/L)	
19	918412	07/03/2019	15:31	320	400	80	27.7	8.3	298.5	--	--	Core rods 10 ft off bottom/Purged more and rechecked field parameters
20	918412	07/08/2019	13:36	320	420	80	27.6	8.4	283.8	--	--	Core rods 10 ft off bottom
21	918412	07/09/2019	08:35	320	440	80	25.4	8.0	282.9	--	--	Core rods 10 ft off bottom
22	918412	07/10/2019	08:30	320	460	80	25.4	8.0	284.1	--	--	Core rods 10 ft off bottom
23	918412	07/10/2019	13:24	320	480	80	25.5	8.2	287.2	--	--	Core rods 10 ft off bottom
24	918412	07/10/2019	17:07	320	500	80	25.9	8.0	302.8	--	--	Core rods 10 ft off bottom
25	918412	07/11/2019	09:44	320	510	80	25.6	8.3	298.0	--	--	Core rods 10 ft off bottom
26	918412	07/11/2019	12:03	320	520	80	25.8	8.2	305.6	--	--	Core rods 10 ft off bottom
27	918412	07/12/2019	09:08	320	540	80	25.4	8.2	292.9	--	--	Core rods 10 ft off bottom
28	918412	07/30/2019	10:23	550	560	100	26.3	8.5	283.5	4.8	41.0	Core rods 10 ft off bottom
29	918412	07/30/2019	14:41	550	580	100	27.1	7.8	300.2	7.6	80.0	Core rods 10 ft off bottom
30	918412	08/01/2019	08:23	550	600	100	25.5	8.1	335.3	4.6	23.0	Core rods 10 ft off bottom
31	918412	08/01/2019	12:14	550	620	100	26.4	7.8	404.1	12.5	99.0	Core rods 10 ft off bottom
32	918412	08/01/2019	15:59	550	640	100	25.9	8.0	488.1	10.5	108.0	Core rods 10 ft off bottom
33	918412	08/05/2019	14:40	550	660	100	26.7	8.1	802.0	20.0	288.0	Core rods 10 ft off bottom
34	918412	08/06/2019	09:53	550	680	100	25.8	8.0	744.0	13.5	252.0	Core rods 10 ft off bottom
35	918412	08/06/2019	14:14	550	700	100	26.1	8.0	1,202.0	29.0	260.0	Core rods 10 ft off bottom
36	918412	08/07/2019	13:21	550	720	100	26.3	8.0	1,296.0	18.0	252.0	Core rods 10 ft off bottom
37	918412	08/08/2019	12:17	550	740	100	26.6	7.9	1,362.0	20.5	264.0	Core rods 10 ft off bottom

Table H2. Laboratory analyses results for the water quality samples collected at the ROMP TR 19-3A well site in Hernando County, Florida.

[No., number; SID, Station Identification; MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; SU, standard units; µS/cm, microsiemens per centimeter; mg/L, milligrams per liter; ug/L, micrograms per liter; Cl^-, chloride; SO_4^{2-}, sulfate; Ca^{2+}, calcium; Mg^{2+}, magnesium; Na^+, sodium; K^+, potassium; Fe^{2+}, iron; Sr^{2+}, strontium; Si, silicon; SiO_2, silicon dioxide; $CaCo_3$, calcium carbonate; WL, water level; N1, Test is not NELAC certified by this laboratory. Certification was not required; I, Value is between the method detection limit and the laboratory practical quantitation limit, which is four times the detection limit; U, the analyte was not detected in the sample at the estimated detection limit (EDL)]

							MAJOR ANIONS	
Water Quality Sample No.	Monitor Well SID No.	Date (MM/DD/YYYY)	Time (HH:MM)	Sample Interval (ft bls)	pH (SU)[N1]	Specific Conductance (µmhos/cm)	Cl^- (mg/L)	SO_4^{2-} (mg/L)
1	918411	05/23/2019	09:12	80-100	7.5	285.9	6.54	0.16[I]
2	918411	05/28/2019	09:25	140-160	7.9	199.7	4.51	0.32
3	918411	05/28/2019	16:12	200-220	7.62	254.1	6.04	0.66
4	918411	05/29/2019	15:22	260-280	7.72	280.4	4.6	3.94
5	918411	06/03/2019	10:19	320-340	7.79	285.3	4.59	4.36
6	918411	06/04/2019	15:50	380-400	8.04	291.7	4.68	6.42
7	918412	07/08/2019	09:50	380-400	7.85	305.6	5.14	5.14
8	918412	07/10/2019	09:30	440-460	7.8	284.6	4.73	6.59
9	918412	07/11/2019	13:12	500-520	7.92	299.5	4.59	7.09
10	918412	07/31/2019	09:33	560-580	7.96	342.4	4.59	29.4
11	918412	08/05/2019	10:07	620-640	7.66	657	22	170
12	918412	08/06/2019	16:17	680-700	7.55	1,234	50.7	479
13	918412	08/07/2019	09:25	680-700	7.51	1,117	43.9	413
14	918412	09/03/2019	12:59	670-740	7.4	1,751	63.8	826
15	918412	10/01/2019	14:47	670-711	8.79	1,311	51.4	591

Table H2. Laboratory analyses results for the water quality samples collected at the ROMP TR 19-3A well site in Hernando County, Florida.

[No., number; SID, Station Identification; MM/DD/YYYY, month/day/year; HH:MM, hour:minute; ft, foot or feet; bls, below land surface; SU, standard units; µS/cm, microsiemens per centimeter; mg/L, milligrams per liter; ug/L, micrograms per liter; Cl^-, chloride; SO_4^{2-}, sulfate; Ca^{2+}, calcium; Mg^{2+}, magnesium; Na^+, sodium; K^+, potassium; Fe^{2+}, iron; Sr^{2+}, strontium; Si, silicon; SiO_2, silicon dioxide; $CaCo_3$, calcium carbonate; WL, water level; N1, Test is not NELAC certified by this laboratory. Certification was not required; I, Value is between the method detection limit and the laboratory practical quantitation limit, which is four times the detection limit; U, the analyte was not detected in the sample at the estimated detection limit (EDL)]

MAJOR CATIONS									
Ca^{2+} (mg/L)	Mg^{2+} (mg/L)	Na^+ (mg/L)	K^+ (mg/L)	Fe^{2+} (ug/L)	Sr^{2+} (mg/L)[N1]	Si as SiO_2 (mg/L)[N1]	Total Dissolved Solids (mg/L)	Total Alkalinity $CaCo_3$ (mg/L)	Sample Collection Methods/Remarks
54.5	1.03	3.4	0.19[I]	816.	0.091	7.06	167	137	
38.1	0.81	3.13	0.23[I]	34.7	0.079	7.17	124	99.5	
47.2	1.77	3.13	0.2[I]	266	0.078	7.54	150	127	
46.6	5.56	2.97	0.3	18.3	0.197	8.78	164	143	
43.	7.93	3.23	1.13	15.9	0.266	10	170	140	Initial WL test interval most likely not at equalibrium
44.7	7.55	2.85	0.53	9.73[I]	0.227	9.36	161	142	
49.6	6.98	3.76	0.48	8.5[U]	0.24	8.66	177	556	
42.7	8.6	3.07	0.52	8.5[U]	0.164	8.7	162	142	
43.5	9.28	2.87	0.52	9.13[I]	0.208	9.34	165	148	
47.4	7.76	3.12	0.91	8.5[U]	22.1	10.4	224	144	Purged packed interval from 15:39 to 16:30 on 7/30, and from 06:45 to 09:43 on 7/31
80.8	16.2	15.4	2.11	246	42	11.5	472	139	
174	42.9	32.6	3.25	252	21	12.9	929	132	
153	38.3	28.5	2.82	427	19.9	12.5	868	132	
287	58.2	41.9	3.84	338	16.1	12.9	1,470	127	Final 4-inch casing set at 630 feet bls, open interval from 630 ft to 740 ft bls.
197.	35.5	39.	5.94	8.5[U]	16.4	13.3	1,050	60	Finished well. Collected sample after back-plug from 740 ft to 711 ft set.

Table H3. The equivalent weight and percent equivalent weight for select ions and the water type for water quality samples collected at the ROMP TR 19-3A well site in Hernando County, Florida

[SID, Station Identification; No., number; ft, foot or feet; bls, below land surface; meq/L, milliequivalents per Liter; %, percent; Cl^{1-}, chloride; SO_4^{2-}, sulfate; Ca^{2+}, calcium; Mg^{2+}, magnesium; Na^{+}, sodium; K^{+}, potassium; HCO_3^{1-}, bicarbonate]

			CATIONS								ANIONS						
			Ca^{2+}		Mg^{2+}		Na^{+}		K^{+}		HCO_3^{-}		Cl^{-}		SO_4^{2-}		
SID	Water Quality Sample No.	Sample Interval (ft bls)	meq/L	%	meq/L	%	meq/L	%	meq/L	%	meq/L	%	meq/L	%	meq/L	%	Water Type
8411	1	80-100	2.720	91.90	0.085	2.86	0.148	5.00	0.005	0.16	2.245	92.28	0.184	7.58	0.003	0.14	Calcium Bicarbonate
8411	2	140-160	1.901	90.03	0.067	3.16	0.136	6.45	0.006	0.28	1.631	92.41	0.127	7.21	0.007	0.38	Calcium Bicarbonate
8411	3	200-220	2.355	89.08	0.146	5.51	0.136	5.15	0.005	0.19	2.081	91.87	0.170	7.52	0.014	0.61	Calcium Bicarbonate
8411	4	260-280	2.325	79.52	0.458	15.65	0.129	4.42	0.008	0.26	2.344	91.71	0.130	5.08	0.082	3.21	Calcium Bicarbonate
8411	5	320-240	2.146	72.16	0.653	21.94	0.140	4.72	0.029	0.97	2.294	91.24	0.129	5.15	0.091	3.61	Calcium Bicarbonate
8411	6	380-400	2.231	74.49	0.621	20.75	0.124	4.14	0.014	0.45	2.327	89.75	0.132	5.09	0.134	5.16	Calcium Bicarbonate
8412	7	380-400	2.475	76.61	0.574	17.78	0.164	5.06	0.012	0.38	9.112	97.31	0.145	1.55	0.107	1.14	Calcium Bicarbonate
8412	8	440-460	2.131	71.29	0.708	23.68	0.134	4.47	0.013	0.44	2.327	89.58	0.133	5.14	0.137	5.28	Calcium Bicarbonate
8412	9	500-520	2.171	70.54	0.764	24.82	0.125	4.06	0.013	0.43	2.426	89.75	0.129	4.79	0.148	5.46	Calcium Bicarbonate
8412	10	560-580	2.365	64.50	0.639	17.41	0.136	3.70	0.023	0.63	2.360	76.09	0.129	4.17	0.612	19.74	Calcium Bicarbonate
8412	11	620-640	4.032	57.21	1.333	18.91	0.670	9.50	0.054	0.77	2.278	35.38	0.621	9.64	3.540	54.98	Calcium Sulfate
8412	12	680-700	8.683	61.18	3.530	24.87	1.418	9.99	0.083	0.59	2.163	15.95	1.430	10.54	9.973	73.51	Calcium Sulfate
8412	13	680-700	7.635	60.82	3.152	25.11	1.240	9.88	0.072	0.57	2.163	18.03	1.238	10.32	8.599	71.65	Calcium Sulfate
8412	14	670-740	14.322	66.93	4.789	22.38	1.823	8.52	0.098	0.46	2.081	9.87	1.800	8.54	17.198	81.59	Calcium Sulfate
8412	15	670-711	9.831	65.65	2.921	19.51	1.696	11.33	0.152	1.01	0.983	6.67	1.450	9.84	12.305	83.49	Calcium Sulfate

Table H4. Select molar ratios for water quality samples collected at the ROMP TR 19-3A well site in Hernando County, Florida

[SID, Station Identification; No., number; Cl^-, chloride; SO_4^{2-}, sulfate; Ca^{2+}, calcium; Mg^{2+}, magnesium; Na^+, sodium; HCO_3^-, bicarbonate; total alkalinity is used as HCO_3^- because it is assumed CO_3^{2-} and H_2CO_3 are negligible based on groundwater pH at this site because hydroxyl ions are insignificant in groundwaterand carbonate ions are typically not present if pH is less than 8.3 standard units (SU) (Hem, 1985)]

SID	Water Quality Sample No.	Open Interval (ft bls)	Cl^-:SO_4^{2-}	Ca^{2+}:HCO_3^-	Ca^{2+}:Mg^{2+}	Cl^-:HCO_3^-	Na^+:HCO_3^-	Na^+:Cl^-	SO_4^{2-}:HCO_3^-
918411	1	80-100	110.76	0.61	32.09	0.08	0.07	0.80	0.00
918411	2	140-160	38.19	0.58	28.53	0.08	0.08	1.07	0.00
918411	3	200-220	24.80	0.57	16.17	0.08	0.07	0.80	0.00
918411	4	260-280	3.16	0.50	5.08	0.06	0.06	1.00	0.02
918411	5	320-240	2.85	0.47	3.29	0.06	0.06	1.09	0.02
918411	6	380-400	1.98	0.48	3.59	0.06	0.05	0.94	0.03
918412	7	380-400	2.71	0.14	4.31	0.02	0.02	1.13	0.01
918412	8	440-460	1.94	0.46	3.01	0.06	0.06	1.00	0.03
918412	9	500-520	1.75	0.45	2.84	0.05	0.05	0.96	0.03
918412	10	560-580	0.42	0.50	3.70	0.05	0.06	1.05	0.13
918412	11	620-640	0.35	0.88	3.02	0.27	0.29	1.08	0.78
918412	12	680-700	0.29	2.01	2.46	0.66	0.66	0.99	2.31
918412	13	680-700	0.29	1.76	2.42	0.57	0.57	1.00	1.99
918412	14	670-740	0.21	3.44	2.99	0.86	0.88	1.01	4.13
918412	15	670-711	0.24	5.00	3.37	1.47	1.73	1.17	6.26

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