Southwest Florida
Water Management District

Hydrogeology, Water Quality, and Well Construction at the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

Southwest Florida Water Management District
Geohydrologic Data Section

September 2021

Cover Photo: Discharge pipe during the drawdown phase of an aquifer performance test conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida. Photograph by Julia Zydek.

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By Julia Zydek

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Southwest Florida Water Management District
Geohydrologic Data Section

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Date: 9/13/2021

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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 constructs monitor wells and performs testing activities for other District programs and projects. The broad objectives at each well site are to determine the geology, hydrology, water quality, and hydraulic properties, and to install wells for long-term monitoring. Site activities include coring, testing, and well construction. 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. 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 and hydrologic conditions reporting.

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	0.004047	square kilometer (km^2)
square foot (ft^2)	0.09290	square meter (m^2)
	Volume	
gallon (gal)	3.785	liter (L)
gallon (gal)	0.003785	cubic meter (m^3)
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 day (gal/d)	0.003785	cubic meter per day (m^3/d)
	Pressure	
atmosphere, standard (atm)	101.3	kilopascal (kPa)
bar	100	kilopascal (kPa)
	Transmissivity*	
foot squared per day (ft^2/d)	0.09290	meter squared per day (m^2/d)

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.

*Transmissivity: The standard unit for transmissivity is cubic foot per day per square foot times foot of aquifer thickness [(ft^3/d)/ft^2]ft. In this report, the mathematically reduced form, foot squared per day (ft^2/d), is used for convenience.

Abbreviations and Acronyms

Applied	Applied Engineering Drilling, Inc.
APT	aquifer performance test
Aq	aquifer
Arca	Arcadia
AVPK	Avon Park
bls	below land surface
btoc	below top of casing
Cannon	Cannon Well Drilling, Inc.
CME	Central Mining Equipment
commun.	communication
day^{-1}	per day (used to report leakance rate)
District	Southwest Florida Water Management District
EDP	Environmental Data Portal
Fldn	Floridan
ft/d	feet per day
ft^2/d	foot squared per day
GAM(NAT)	natural gamma
gpm	gallons per minute
HQ	3.06-inch internal diameter core drilling rod
Huss	Huss Drilling, Inc.
HW or HWT	4-inch internal diameter temporary steel casing
Inc.	Incorporated
K	horizontal hydraulic conductivity
L	lower
Meq/L	milliequivalents per liter
mg/L	milligrams per liter
ml	milliliters
NAVD 88	North American Vertical Datum of 1988
NQ or NRQ	2.38-inch internal diameter core drilling rod
NW	3-inch internal diameter temporary steel casing
OB	observation
PVC	polyvinyl chloride
PW	5-inch internal diameter temporary steel casing
RES	resistance geophysical log
RES (16N)	short normal resistivity
RES (64N)	long normal resistivity
ROMP	Regional Observation and Monitor-well Program
SDR	standard dimension ratio
SOP	Standard Operating Procedures
Southern	Southern Well Services, Inc.
SP	spontaneous potential
SP COND	specific conductance

Abbreviations and Acronyms (continued)

Surf	surficial
SWNN	Suwannee
SWUCA	Southern Water Use Caution Area
TDS	total dissolved solids
Temp	Temporary
TEMP	temperature
U	Upper
UDR	200DLS Universal Drill Rig
WQMP	Water Quality Monitoring Program

Hydrogeology, Water Quality, and Well Construction at the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

By Julia Zydek

Introduction

The Southwest Florida Water Management District (District) conducted a detailed hydrogeologic investigation at the Regional Observation and Monitor-well Program (ROMP) 27 – Scarborough well site in DeSoto County (fig. 1). The ROMP 27 – Scarborough (herein referred to as ROMP 27) well site supports the Southern Water Use Caution Area (SWUCA) and fills a gap in the ROMP 10-mile grid network. The SWUCA was initiated to address declines in aquifer levels due primarily to groundwater withdrawals in all DeSoto, Hardee, Manatee, and Sarasota counties, and parts of Charlotte, Highlands, Hillsborough, and Polk counties. The data collected at this well site will aid the District in making informed management decisions central to its core mission of balancing water needs of current and future users while protecting and maintaining water and related natural resources.

The ROMP 27 well site was developed in three phases: (1) exploratory core drilling to 2,537 feet below land surface (bls), (2) well construction, and (3) aquifer performance testing. District staff conducted exploratory core drilling and testing between April 13, 2011, and February 8, 2012, to a total depth of 2,537 feet bls using the District-owned Central Mining Equipment (CME) 85 and the 200DLS Universal Drill Rig (UDR) core drilling rigs. Well construction began on March 8, 2011, and ended on August 7, 2013. Aquifer performance testing began February 2, 2017, and ended March 30, 2017. The purpose of this report is to present all the activities performed and the data collected at the well site during the three phases.

Site Location

The ROMP 27 well site is located on a parcel of land in northeastern DeSoto County and consists of a 20-foot by 80-foot permanent well site granted by easement agreement from Brighton Dairies on December 10, 2010 (fig. 1). The well site also consisted of a 240-foot by 300-foot temporary construction area granted by license agreement from Brighton Dairies that expired on September 19, 2017. The well site abuts the right-of-way; therefore, an easement for ingress/egress was not necessary. It is in the northwest quarter of the northwest quarter of Section 21, Township 36 south, Range 27 east at latitude 27° 20’ 24.00” north and longitude 81° 37’ 38.40” west. The elevation at the ROMP 27 well site is surveyed to 87.81 feet above the North American Vertical Datum of 1988 (NAVD 88). District staff installed two vertical control stations near the site and performed vertical control surveys. Figure 2 presents the layout for the ROMP 27 well site.

The well site can be located by traveling east on State Road 66 in Zolfo Springs and proceeding 14.2 miles to Crewsville Road. Turn south (right) onto Crewsville Road and proceed 4.5 miles to Scarborough Road. Turn south (left) onto Scarborough Road and proceed approximately 3.8 miles to Ten Mile Grade. Turn east (left) onto Ten Mile Grade and proceed 2.1 miles to the ROMP 27 well site on the south side of the road next to Brighton Dairy Road.

The well site is on the northwestern edge of the DeSoto Plain which is between the Southern Gulf Coastal Lowlands to the west, the Polk Upland to the north, the Lake Wales Ridge to the east, and the Caloosahatchee Incline to the south (White, 1970). The ROMP 27 well site is in the Oak Creek drainage basin. The primary land uses around the well site are cropland and pastureland.

Methods

The ROMP 27 well site investigation was accomplished using a variety of methods to collect hydrogeologic data including lithologic, hydraulic, geophysical, and water quality data. After exploratory core drilling and testing, monitor wells were constructed by contract drilling companies (listed in Well Construction Section). The following sections provide the data collection method details specific to the ROMP 27 well site. Detailed descriptions of the data collection methods used by the Geohydrologic Data section are presented in appendix A. Data collected at this well site are available for download from the District’s website: *www.swfwmd.state.fl.us* (accessed September 1, 2021) using the Environmental Data Portal (EDP). As of November 2020, available data include water quality and long-term water level data. This report, stratigraphy, geophysical logs, and aquifer test characteristics are available for download from the District’s website via the Geohydrologic Data Map Viewer: *https://swfwmd.maps.arcgis.com/apps/*

EXPLANATION

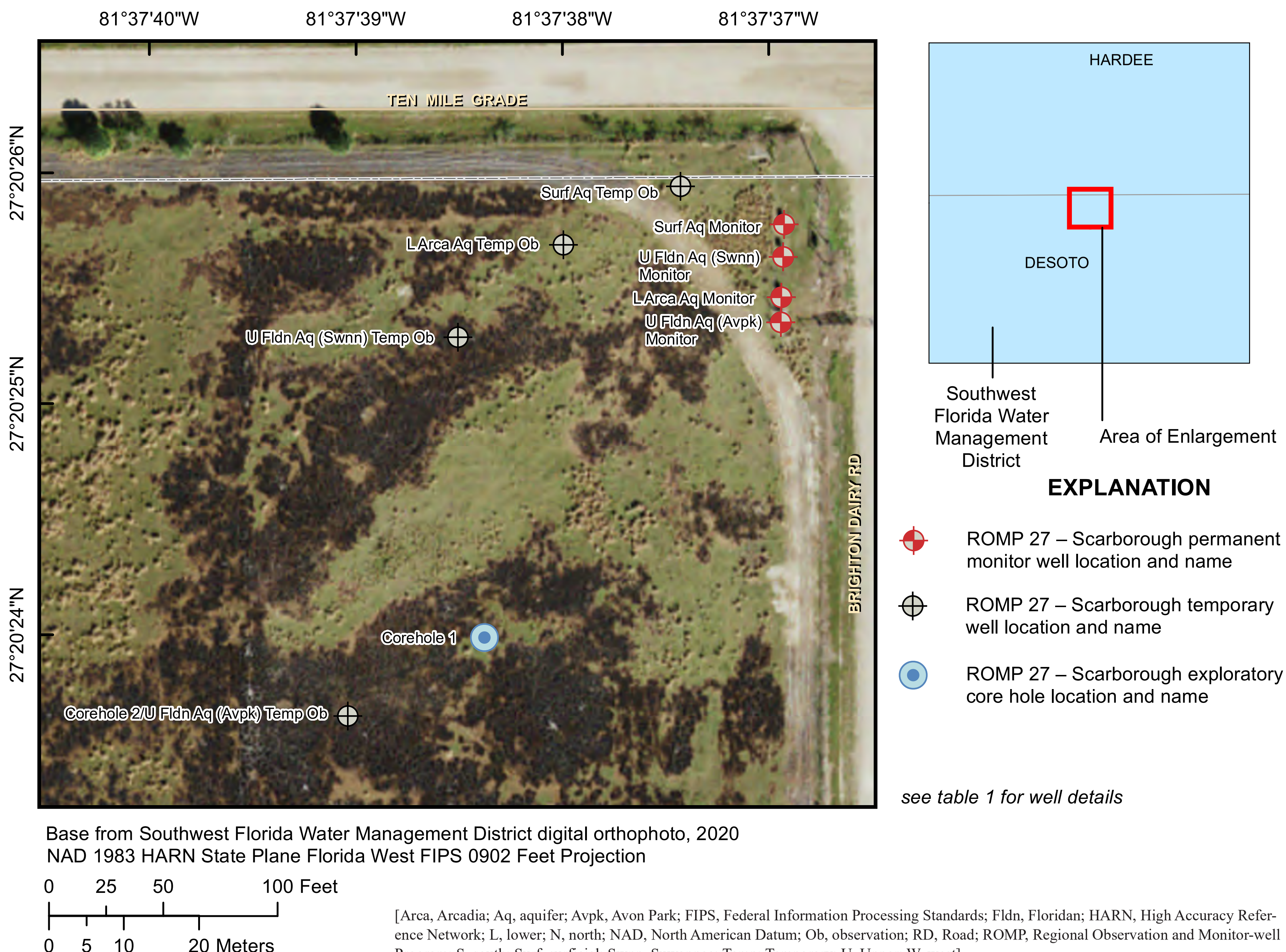
ROMP 27 – Scarborough Monitor Well Site
Section/Township/Range: S21/T36S/R27E
Latitude: 27° 20' 24.00" N
Longitude: 81° 37' 38.40" W

Directions

From US Highway 17 in Zolfo Springs, head east onto State Road 66. Proceed 14.2 miles to Crewsville Road. Turn south (right) onto Crewsville Road and proceed 4.5 miles to Scarborough Road. Turn south (left) onto Scarborough Road and proceed approximately 3.8 miles to Ten Mile Grade. Turn east (left) onto Ten Mile Grade and proceed 2.1 miles to the ROMP 27 site on the south side of the road (in DeSoto County) next to Brighton Dairy Road.

[E, east; FIPS, Federal Information Processing Standards; HARN, High Accuracy Reference Network; N, north; NAD, North American Datum; ROMP, Regional Observation and Monitor-well Program; S, south; E, east; US, United States; W, west]

Figure 1. Location of the ROMP 27 – Scarborough well site in DeSoto County, Florida.



[Arca, Arcadia; Aq, aquifer; Avpk, Avon Park; FIPS, Federal Information Processing Standards; Fldn, Floridan; HARN, High Accuracy Reference Network; L, lower; N, north; NAD, North American Datum; Ob, observation; RD, Road; ROMP, Regional Observation and Monitor-well Program; S, south; Surf, surficial; Swnn, Suwannee; Temp; Temporary; U, Upper; W, west]

Figure 2. Well site layout of the ROMP 27 – Scarborough well site in DeSoto County, Florida.

webappviewer/index.html?id=5cfe38abbae84d1fadfdf0953c3126bc (accessed June 28, 2021). Well construction details and survey data are also available for download from the EDP using the Advanced Metadata Retrieval application. Aquifer performance test (APT) and slug test raw data will be available in the future.

Lithologic Sampling

Lithologic samples were collected from land surface to the total exploration depth of 2,537 feet bls. From April 13 to April 14, 2011, District staff conducted punch shoe sampling of the upper unconsolidated sediments from land surface to 131 feet bls. Competent limestone was encountered at 130.8 feet bls. From April 14 to April 20, 2011, District staff conducted hydraulic rotary core drilling from 131 to 442 feet bls using the District-owned 200DLS UDR core drilling rig in Corehole 1. A contractor was hired to install 12-inch steel surface casing to 135 feet bls for Corehole 2. After the surface casing was installed, District staff advanced the 4-inch HWT (4-inch inside diameter temporary steel casing) working casing to 61 feet bls. From June 8, 2011, to February 1, 2012, District staff resumed hydraulic rotary core drilling from 441.5 to 2,537 feet bls using the District-owned 200DLS UDR core drilling rig in Corehole 2. Core samples were continuously collected and retrieved in 10-foot intervals using a wireline recovery system. The lithologic samples were boxed, labeled, described, and transported to the Florida Geological Survey for further analysis and storage.

Hydraulic Testing

Hydraulic properties were estimated from 12 slug test suites performed during exploratory core drilling. Testing began after core drilling through the unconsolidated sediments of the undifferentiated sand and clay unit and the Hawthorn Group.

An off-bottom packer or the HWT (4-inch inside diameter temporary steel casing) working casing was used to isolate the discrete intervals of the core hole during slug testing. The packer was installed 30 to 90 feet off-bottom. The pneumatic method was used for nine slug tests. A slug of air was introduced into the discrete interval lowering the hydraulic head (water level). The physical slug method was used for three slug tests. A solid volume was introduced into the test interval raising the water level. The water level in the test intervals was measured with a pressure transducer and recorded on a datalogger as it returned to static conditions. Slug test data were analyzed to estimate horizontal hydraulic conductivity (herein referred to as hydraulic conductivity) of the isolated test intervals. Four APTs were conducted at the ROMP 27 well site to estimate large-scale hydraulic properties of the surficial aquifer, the lower Arcadia aquifer, the Suwannee Limestone of the Upper Floridan aquifer, and the Avon Park high-permeability zone of the Upper Floridan aquifer. The composite water level in the core hole (the entire open interval) was measured daily with an electronic water level meter before core drilling continued. Rainfall data were collected daily with a manual rain gauge. During airlift development, the drilling discharge flow rates were recorded every 20 to 40 feet of core hole advancement during airlift development by discharging into a settling tank equipped with a V-notch weir.

Water Quality Sampling

Twelve groundwater samples were collected during exploratory core drilling. The samples were collected from the discrete intervals that were isolated by the off-bottom packer before or after conducting slug test suites. All samples were collected with a nested bailer inserted in the packer assembly. Additionally, eight groundwater samples were collected during the APT phase from surface discharge. Temperature, specific conductance, and pH were analyzed in the field, and the remainder of each sample was prepared and delivered to the District's Chemistry Laboratory for further water quality analyses (Southwest Florida Water Management District, 2020). Additionally, temperature, specific conductance, and pH were monitored from the drilling discharge during core hole advancement. Groundwater sampling is consistent with the Water Quality Monitoring Program's (WQMP) Standard Operating Procedures (SOP) (Water Quality Monitoring Program, 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. Geophysical logging was performed 16 times at varying intervals ranging from land surface to 2,544 feet bls at the ROMP 27 well site using District-owned Century® geophysical logging equipment (table 1 and appendix B). On April 13, 2011, the 9165C caliper/gamma-ray, 8144C multifunction, and 9511C induction tools were run in the L Arca Aq Ob Temp (the drilling water supply well). The second suite of logs was performed on April 25, 2011, on Corehole 2 after the 12-inch steel casing was set to 135 feet bls. The 9165C caliper/gamma-ray and the 8144C tools were run from land surface to 403.2 and 402.5 feet bls, respectively. The third suite of logs was performed on June 13, 2011, on Corehole 2, after the first slug test was attempted but the packer assembly would not seal against the formation when inflated. The 9165C caliper/gamma-ray and the 8144C multifunction tools were run from land surface to 557.2 and 557.7 feet bls, respectively. The fourth suite of logs was performed February 8, 2012, on Corehole 2 after core drilling and testing was complete. The 9511C induction and 9165C caliper/gamma-ray tools were run from land surface to 2538.6 and 2543.9 feet bls, respectively. The remaining geophysical logs

Table 1. Summary of geophysical logs collected at the ROMP 27 – Scarborough well site in DeSoto County, Florida

[MM/DD/YYYY, month/day/year; ft, feet; bls, below land surface; ROMP, Regional Observation and Monitor-well Program; L, olwer; Arca, Arcadia; Aq; aquifer; Temp, temporary; Ob, observation; U, Upper; Fldn, Floridan; Aq, aquifer; Avpk, Avon Park; Swnn, Suwannee; PVC, polyvinyl chloride; SDR. standard dimension ratio; C, Century; The multifunction tool includes natural gamma-ray, single-point resistance, short normal 16-inch resistivity, long normal 64-inch resistivity, fluid resistivity, spontenous potential, specific conductance, and temperature parameters well locations are shown in figure 2; well as-built diagrams are in appendix B]

Date (MM/DD/YYYY)	Station Name	Log Depth (ft bls)	Casing Type	Casing Depth (ft bls)	Borehole Diameter (inches)	Tool Type	Tool Number
04/13/2011	ROMP 27 L Arca Aq Temp OB	297.8/297.4	Steel	130	4	caliper/gamma-ray; multifunction	9165C/8144C
04/13/2011	ROMP 27 L Arca Aq Temp OB	294.8	Steel	130	4	induction	9511C
04/25/2011	ROMP 27 Corehole 2	403.2/402.5	Steel	281	3	caliper/gamma-ray; multifunction	9165C/8144C
06/13/2011	ROMP 27 Corehole 2	557.2/557.7	Steel	440	3	caliper/gamma-ray; multifunction	9165C/8144C
02/08/2012	ROMP 27 Corehole 2	2,538.6	Steel	1,195	3	induction	9511C
02/08/2012	ROMP 27 Corehole 2	2,543.9	Steel	1,195	3	caliper/gamma-ray	9165C
06/04/2012	ROMP 27 L Arca Aq Temp OB	298	Steel	130	4	caliper/gamma-ray	9165C
10/01/2012	ROMP 27 U Fldn Aq (Avpk) Monitor	1,223.2/1,224.4	Steel	409	16	caliper/gamma-ray; multifunction	9165C/8144C
11/06/2012	ROMP 27 U Fldn Aq (Avpk) Monitor	1,361.2	Steel	409/1,220	16/10	caliper/gamma-ray	9165C
06/13/2013	ROMP 27 U Fldn Aq (Swnn) Monitor	532.4	Steel	409	12	caliper/gamma-ray	9165C
06/13/2013	ROMP 27 L Arca Aq Monitor	300	PVC	260	6	caliper/gamma-ray	9165C
11/02/2016	ROMP 27 Corehole 2	1,255.4	Steel		4	induction	9511C
02/09/2017	ROMP 27 Corehole 2	1,408.2	Steel	1,210	3	caliper/gamma-ray	9165C
04/27/2017	ROMP 27 U Fldn Aq (Avpk) Monitor	1,358.6	SDR17	1,207	4.5	caliper/gamma-ray	9165C
04/27/2017	ROMP 27 U Fldn Aq (Swnn) Monitor	533.2	SDR17	407	4.5	caliper/gamma-ray	9165C
05/04/2017	ROMP 27 Corehole 2	1,104/1,098.8	Steel	409	8	caliper/gamma-ray; multifunction	9165C/8144C

suites either were run during well construction before setting casing strings or after the well construction was complete for the U Fldn Aq (Avpk) Monitor, U Fldn Aq (Swnn) Monitor, and the L Arca Aq Monitor wells.

Well Construction

The ROMP 27 well site consists of four permanent monitor wells located on the permanent easement (fig. 2). The permanent monitor wells were constructed in the surficial aquifer, the lower Arcadia aquifer, the Upper Floridan aquifer in the Suwannee Limestone, and the Upper Floridan aquifer in the Avon Park high-permeability zone. Four temporary wells were constructed on the temporary easement for the APTs and were plugged by District staff and Huss Drilling, Inc. (Huss) in April 2017 after testing was completed. The District contracted David Cannon Well Drilling, Inc. (Cannon), Applied Drilling Engineering, Inc. (Applied), Huss, and Southern Well Services, Inc. (Southern) to construct the wells at the site.

Table 2. Summary of well construction details at the ROMP 27 – Scarborough well site in DeSoto County, Florida

[SID, station identification; ft, feet; bls, below land surface; MM/DD/YYYY, month/day/year; WCP No., well construction permit number; ROMP, Regional Observation and Monitor-well Program; L, lower; Arca, Arcadia; Aq, aquifer; Temp, temporary; Ob, observation; PVC, poluyvinyl chloride; U, Upper; Fldn, Floridan; Avpk, Avon Park; SDR, standard dimension ratio; Swnn, Suwannee; Surf, surficial; well locations are shown in figure 2; well as-built diagrams are in appendix C]

SID	Station Name	Open Interval (ft bls)	Casing Type	Casing Diameter (inches)	Constructed By	Start Date (MM/DD/YYYY)	Complete Date (MM/DD/YYYY)	Status	WCP No.(s)
784367	ROMP 27 L Arca Aq Temp OB	130-298	Steel	4	David Cannon Well Drilling Inc., Huss Drilling Inc.	03/08/2011	04/12/2011	Plugged	811014, 859011
775314	ROMP 27 Corehole 1	281-442	Steel	3	Southwest Florida Water Management District	04/13/2011	04/20/2011	Plugged	812048
778997	ROMP 27 Corehole 2	1,195.3-2,537	Steel	3	David Cannon Well Drilling Inc., Southwest Florida Water Management District	04/20/2011	06/07/2017	Plugged	812094, 813096, 816736, 859370
884734	ROMP 27 U Fldn Aq (Avpk) Temp OB	1,195.3-1,485	Steel	3	Southwest Florida Water Management District	02/13/2012	06/07/2017	Plugged	818856, 859370
884739	ROMP 27 U Fldn Aq (Avpk) Monitor	1,220-1,360	SDR 17	4.5	Southern Well Services Inc., Huss Drilling Inc.	07/26/2012	04/26/2017	Active	822983, 859001
884737	ROMP 27 L Arca Aq Monitor	260-300	PVC	6	Applied Drilling Engineering Inc.	04/15/2013	06/03/2013	Active	828460
884738	ROMP 27 U Fldn Aq (Swnn) Monitor	409-534	SDR 17	4.5	Applied Drilling Engineering Inc., Huss Drilling Inc.	04/15/2013	04/26/2017	Active	828461, 859006
884741	ROMP 27 U Fldn Aq (Swnn) Temp OB	409-532	Steel	3	Applied Drilling Engineering Inc., Huss Drilling Inc.	06/08/2013	08/07/2013	Plugged	828462, 830631, 859008
884740	ROMP 27 Surf Aq Temp OB	5-50	PVC	2	Huss Drilling Inc.	08/05/2013	08/07/2013	Plugged	830628, 859009
884736	ROMP 27 Surf Aq Monitor	5-50	PVC	6	Huss Drilling Inc.	08/05/2013	08/06/2013	Active	830630

The well as-built diagrams are presented in appendix C and a summary of the well construction details are presented in table 2. Daily logs for core drilling and well construction operations are available from the District's online document storage database. Additional well construction details can be found in the District's Advanced Metadata Retrieval application.

From March 8, 2011, to April 12, 2011, Cannon constructed the L Arca Aq Temporary (Temp) Observation (Ob) on the temporary construction easement. This well served as the drilling water supply as well as the lower Arcadia aquifer observation well during the lower Arcadia APT.

In April 2011, district staff began core drilling Corehole 1. Issues with seating the HQ temporary steel casing caused sediments and drill mud to fall from behind the HQ casing to the bottom of the core hole, clogging the NRQ core drilling bit. Multiple attempts were made to reseat the HQ casing, but to finish the well site before the temporary construction easement license agreement expired, it was decided to plug Corehole 1 and relocate the UDR core drilling rig to commence exploration in Corehole 2.

In April 2011, Cannon installed 12-inch steel surface casing to 135 feet bls to stabilize the unconsolidated sediments during exploratory core drilling and testing. After core drilling and testing, Corehole 2 was backplugged to 1,485 feet bls by District staff. In April 2012, District staff modified Corehole 2 to the U Fldn Aq (Avpk) Temp Ob well by lining it with 3-inch polyvinyl chloride (PVC) casing.

From July 2012 to November 2012, Southern constructed the U Fldn Aq (Avpk) Monitor well on the permanent easement. This well was used as the production well during the Upper Floridan APT. In March 2017, Huss lined the well with 4.5-inch Standard Dimension Ratio (SDR) 17 casing for long-term monitoring.

From April 2013 to June 2013, Applied constructed the L Arca Aq Monitor and the U Fldn Aq (Swnn) Monitor wells on the permanent easement. These wells were used as the production wells during the lower Arcadia APT and the Suwannee Limestone portion of the Upper Floridan aquifer APT, respectively. In March 2017, Huss lined the U Fldn Aq (Suwannee) Monitor well with 4.5-inch SDR 17 casing for long-term monitoring.

From June 2013 to August 2013, Applied constructed the 3-inch U Fldn Aq (Swnn) Temp Ob well on the temporary construction easement. This well was used as the observation well during the APTs. It was plugged by Huss on April 12, 2017, after all APTs were completed.

In August 2013, Huss constructed the 6-inch Surf Aq Monitor and the 2-inch Surf Aq Temp Ob wells on the permanent and temporary construction easements, respectively. The monitor well was used as the production well during the surficial APT, and the temporary well was used as the observation well during the APTs. In April 2017, the temporary well was plugged by Huss after completion of the surficial APT.

Geology

The geology at the ROMP 27 well site is based on the lithologic samples that were collected from exploratory core drilling that was conducted from land surface to 2,537 feet bls. The geologic units encountered at the well site include, in ascending order: the Oldsmar Formation, the Avon Park Formation, the Ocala Limestone, the Suwannee Limestone, the Hawthorn Group including the Arcadia Formation and its Nocatee Member and the Peace River Formation, and the undifferentiated sand and clay deposits. A stratigraphic column detailing the hydrogeology encountered at the well site is presented in figure 3. The lithologic logs are presented in appendix D. Digital photographs of the core samples are presented in appendix E.

Oldsmar Formation (Early Eocene)

The early Eocene age Oldsmar Formation was encountered from 2,104.7 to beyond the total depth of exploration at 2,537 feet bls (fig. 3). The base of the formation was not penetrated at the ROMP 27 well site. Fossils observed in the Oldsmar Formation include the foraminifera *Archais sp*., *Turritella sp*., gastropods, bryozoa, corals, miliolids, and mollusks. *Helicostegina gyralis*, characteristic of, but not exclusive to, the Oldsmar Formation (Miller, 1986), are often observed in abundance near the contact with the Avon Park Formation. However, *Helicostegina gyralis* foraminifera were not observed in the ROMP 27 lithologic samples.

The lithology of the Oldsmar Formation consists primarily of thinly to thickly interbedded fossiliferous limestone and dolostone with limestone representing most of the formation. The core recovery in the Oldsmar Formation was 100 percent. The limestones range from very light orange to grayish brown wackestone to packstone with packstone being dominant and intermittent mudstone. These limestones have good induration. Accessory constituents include dolomite crystals, quartz, gypsum, organic laminations, glauconite, and pyrite. Observed porosity within the Oldsmar limestones ranges from 1 to 15 percent intercrystalline, intergranular, moldic, pinpoint vugular, and vugular. Most of the Oldsmar limestone exhibits low to occasionally moderate permeability. The Oldsmar dolostones are very light orange to grayish brown, with microcrystalline to very coarse crystal size, anhedral to subhedral crystal texture, good induration, and accessory limestone, gypsum, pyrite, chert, and organics. Estimation of porosity within the Oldsmar dolostones ranges from 1 to 20 percent intercrystalline, moldic, and pinpoint vugular (appendix D).

The gamma-ray response shows an increase at approximately 2,200 to 2,220 feet bls within recrystallized limestone and packstone where glauconite and organics are present (appendix B, figs. B1 and B2 and appendix D). A similar increase is apparent at 2,300 feet bls where organics are present. At 2,440 feet bls, there is a large right kick in the gamma-ray response likely due to organic laminae (appendix B, fig. B1 and appendix D).

Avon Park Formation (Middle Eocene)

The middle Eocene age Avon Park Formation extends from 836.4 to 2,104.7 feet bls (fig. 3). The top of the Avon Park Formation is based on a gamma-ray peak at 836.4 feet bls that is typical for the contact with the Ocala Limestone. A gamma-ray peak, attributable to the organics, and higher background counts (as compared to the Ocala Limestone) is characteristic of the top of the Avon Park Formation (Arthur and others, 2008; Tihansky and Knochenmus, 2001) (appendix B, figs. B1, B3, and B4). Fossils identified within the Avon Park Formation include the index fossils *Neolaganum dalli* and *Cushmania americana* (informally called cones), identified near the top between 836.4 and 839 feet bls and at 896 feet bls, respectively (appendix D). Other fossils observed include the foraminifera *Lituonella floridana* and *Spirolina coryensis*, *Fabiana cubensis*, echinoids, mollusks, and ostracods.

The Avon Park Formation is primarily composed of limestone and dolostone. Limestone makes up approximately 450 feet of the upper portion of the Avon Park Formation, whereas the underlying dolostone makes up the majority of the Avon Park Formation and is approximately 825 feet thick (appendix D).

The dolostones are grayish brown to dark yellowish brown and have good induration. Accessory minerals include organics, and euhedral calcite, gypsum, and anhydrite were observed lining fractures and interstitial voids. Observable porosity within the dolostones range from less than two to 25 percent and the sources include intercrystalline, fracture, pinpoint vugular, intergranular, and moldic.

The limestones vary from very light orange to moderate gray packstone to wackestone and mudstone. The limestones have good to moderate induration. Accessory constituents include organics and gypsum. Observed porosity within the limestones ranges from one to 16 percent and the sources include intergranular, moldic, pinpoint vugular, intragranular, and fracture.

Ocala Limestone (Late Eocene)

At the ROMP 27 well site, the Late Eocene age Ocala Limestone extends from 537 to 836.4 feet bls and is composed entirely of weathered limestone. The top of the Ocala Limestone is demarcated by a characteristic drop in gamma-ray activity on the geophysical log, which remains constant throughout the unit (appendix B, fig. B1). The index fossil *Lepidocyclina ocalana* was also first observed at 551.5 feet bls. The Ocala Limestone varies from wackestone, packstone, and mudstone and is generally very light orange to yellowish gray. Observed porosity ranges from four to 16 percent and is primarily intergranular, with fracture, moldic, and vugular porosity (appendix D). The fossil fragments in the Ocala Limestone include benthic foraminifera such as *Lepidocyclina ocalana*, *Nummulites ocalanus*, miliolids, and *Amphistegina pinarensis*; corals, gastropods, echinoids, pelecypods, crab fragments, and mollusks. The average core recovery achieved within the Ocala Limestone was 81 percent.

Suwannee Limestone (Oligocene)

At the ROMP 27 well site, the Oligocene age Suwannee Limestone extends from 417 to 537 feet bls. A decrease in phosphatic siliciclastics and lower gamma-ray activity demarcates the top of the Suwannee Limestone (appendix B, figs. B3 and B4). From 417 to 466 feet bls, the unit is mostly yellowish gray to very light orange, moderately indurated, fossiliferous packstone with interbedded wackestone. Fossil fragments and molds such as mollusks, coral, benthic foraminifera, and ostracods are identified in this interval. Observable porosity ranges from 12 to 25 percent and is intergranular, moldic, vugular, pinpoint vugular, and intercrystalline. From 466 to 520.3 feet bls, the unit is mostly yellowish gray to very light orange, moderately indurated, fossiliferous wackestone with accessory organics and clay. Observable porosity ranges from eight to 17 percent and is intergranular, moldic, and intercrystalline (appendix D). The interval from 520.3 to 537 feet bls contains yellowish gray, moderate to good indurated, fossiliferous packstones. Mollusks, ostracods, benthic foraminifera, and coral were identified in this interval. Observable porosity ranges from 10 to 16 percent and is intergranular, moldic, and pinpoint vugular. The average core recovery achieved within the Suwannee Limestone was 90 percent.

Hawthorn Group (Early Pliocene to Late Oligocene)

At the ROMP 27 well site, the early Pliocene to late Oligocene age Hawthorn Group sediments extend from 64.8 to 417 feet bls. In west-central Florida, the Hawthorn Group consists of several formations and formational members. At the well site, the formations and members encountered are, in ascending order, the Arcadia Formation and its Nocatee Member and the Peace River Formation. The Arcadia Formation extends from 130.9 to 417 feet bls. The term undifferentiated Arcadia is used to describe the Arcadia Formation where the Members are not present (Scott, 1988). The undifferentiated Arcadia Formation extends from 130.9 to 311.2 feet bls and the Nocatee Member extends from 311.2 to 417 feet bls. The Peace River Formation extends from 64.8 to 130.9 feet bls.

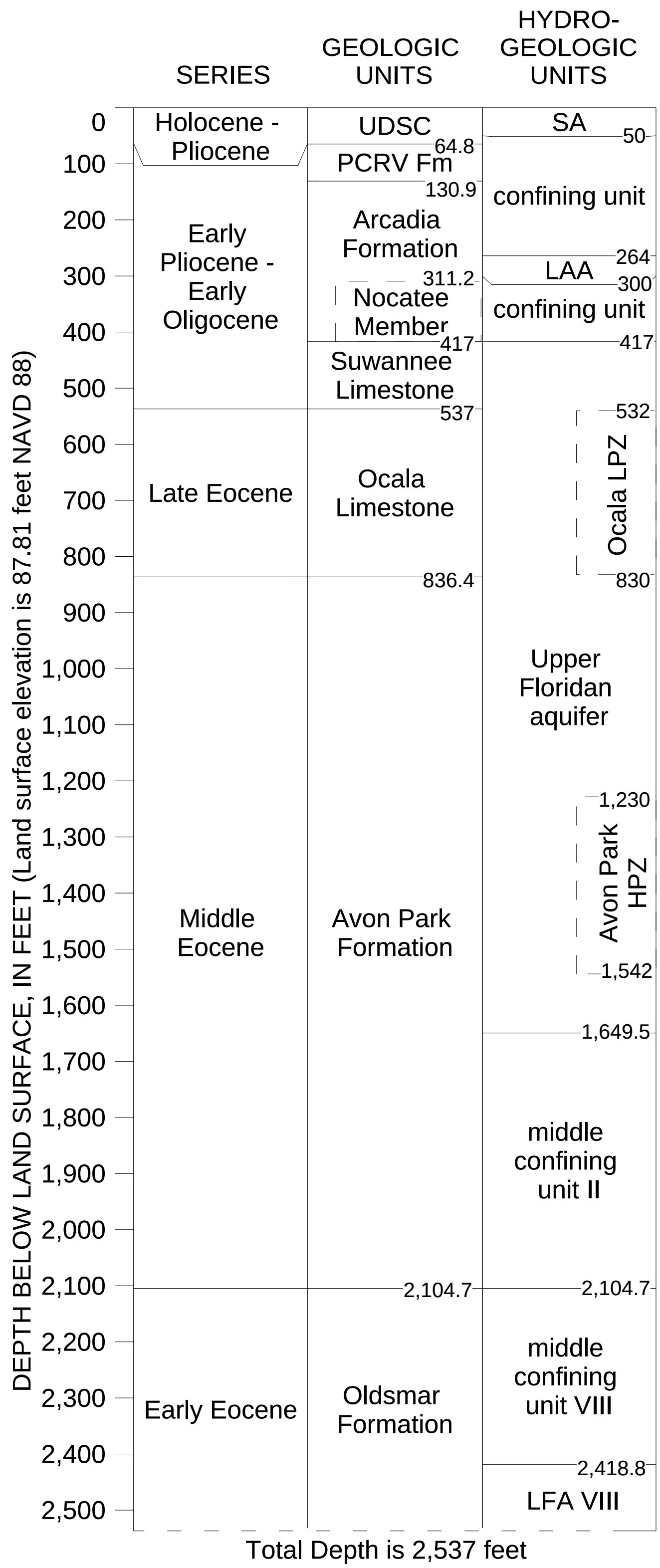
The top of the Nocatee Member is delineated at 311.2 feet bls at the top of predominantly clay and sandy deposits. The top is also demarcated by a right deflection in the gamma-ray log (appendix B, figs. B1 through B3) at 311 feet bls, which corresponds to the clays with accessory phosphate encountered at this depth. Additionally, there is less gamma-ray activity in the Nocatee Member than there is in the overlying undifferentiated Arcadia Formation (Arthur and others, 2008). The lithology from 311.2 to 330.6 feet bls is light olive gray to olive gray clay with quartz and phosphatic sand. The lithology from 330.6 to 377 feet bls is predominantly light olive gray to moderate gray quartz and phosphatic sand with some clay, dolomite, and pyrite. From 377 to 417 feet bls, the lithology is light gray to moderate light gray to light olive gray to yellowish gray packstone and wackestone. The top 10 feet of this interval is mudstone. There is accessory quartz and phosphatic sand as well as clay and calcilutite. Fossil fragments and molds such as ostracods, mollusks, and benthic foraminifera are present in this interval. Average sediment recovery was 71 percent within the Nocatee Member.

The top of the undifferentiated Arcadia Formation is delineated at 130.9 feet bls where carbonates begin to predominate siliciclastics. The top is also marked by a strong right kick in the gamma-ray log which is characteristic of the top of the undifferentiated Arcadia Formation (appendix B, figs. B1 through B7) (Arthur and others, 2008). The lithology of the undifferentiated Arcadia Formation is interbedded light olive gray to yellowish gray dolostones, yellowish gray to light olive gray wackestone, packstone, and mudstone, and thinly interbedded olive gray clay. Accessory minerals include varying amounts of phosphatic sand, quartz sand, silt-sized dolomite, phosphatic gravel, calcilutite, and spar. Fossil molds and fragments such as benthic foraminifera, mollusks, and coral were observed. Foraminifera resembling *sorites sp*. are present in the interval between 269.1 and 274.1 feet bls. The gamma-ray log is active throughout the undifferentiated Arcadia Formation with peaks that correspond to clay inclusions and phosphate content (appendix B, figs. B1 through B7). Average core recovery was 82 percent within the undifferentiated Arcadia Formation.

The top of the Peace River Formation is delineated at 64.8 feet bls where the lithology changes to predominantly olive gray sand with increased phosphate content (up to 20 percent). No fossil fragments or molds were identified in the Peace River Formation. The gamma-ray signature shows less activity in the Peace River Formation where high phosphate content is absent than it does in the underlying undifferentiated Arcadia Formation (appendix B, figs. B6 and B7) (Arthur and others, 2008). Average sediment recovery was 72 percent within the Peace River Formation.

Undifferentiated Sand and Clay (Pliocene to Holocene)

The undifferentiated sand and clay deposits extend from land surface to 64.8 feet bls. These deposits are olive gray to very light orange sands that are sub-angular to rounded with low to medium sphericity. Accessory minerals include organics, clay, pyrite, phosphatic sand, gypsum, mica, and plant remains. Intergranular porosity within this sand is approximately 14 percent. Average sediment recovery from the punch shoe sampling was 57 percent.



[UDSC, undifferentiated sand and clay; PCRV Fm, Peace River Formation; SA, surficial aquifer; LAA lower Arcadia aquifer; LPZ, low-permeability zone; HPZ, high-permeability zone; LFA VIII, Lower Floridan aquifer below middle confining unit VIII]

Figure 3. Stratigraphic column detailing the hydrogeologic setting at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

Hydrogeology

The ROMP 27 – Scarborough well site hydrogeology was delineated based on the results of 12 slug tests collected during exploratory coring and testing, APTs, lithologic descriptions, water levels, water quality data, and geophysical log data. The hydrogeologic units include, in descending order: a surficial aquifer, a confining unit, the lower Arcadia aquifer, a confining unit, the Upper Floridan aquifer including both the Ocala low-permeability zone and the Avon Park high-permeability zone, middle confining unit II, middle confining unit VIII, and the Lower Floridan aquifer below middle confining unit VIII (fig. 3). The naming convention used for the hydrogeologic units in this report are consistent with aquifer nomenclature guidelines proposed by Laney and Davidson (1986) and the North American Stratigraphic Code (2005). A comparison of nomenclature used in this report (District nomenclature that is not site-specific) and previously published reports is presented in appendix F.

As discussed in appendix A, the hydraulic conductivities derived from the slug tests may be underestimated because of unavoidable testing errors and limitations of the analyses (Butler, 1998). Consequently, the values should be used as an approximation of the relative differences between permeable and confining intervals. The slug test results are presented in table 3. Graphs of the hydraulic conductivity estimates, core hole depth, and isolated water level elevations are presented in figure 4. The slug test data acquisition sheets are presented in appendix G and the slug test curve-match analyses are given in appendix H.

The near daily water level data collected during the exploratory core drilling phase from the composite (non-isolated) core hole and the Drilling Water Supply are presented in appendix I. Additionally, the core hole water level data measured within isolated test intervals provide a relative profile of water level change with depth within the Upper and Lower Floridan aquifers. The composite and test interval core hole water level data recorded during exploratory core drilling are presented in figure 4. The permanent monitor wells were outfitted with water level monitoring equipment and a hydrograph of water levels after exploratory core drilling is presented in figure 5.

Constant-rate APTs were conducted in the surficial aquifer, the lower Arcadia aquifer, the Suwannee Limestone of the Upper Floridan aquifer, and the Avon Park high-permeability zone of the Upper Floridan aquifer to estimate hydraulic parameters. Diagnostic radial flow plots and derivative analyses of the drawdown and recovery data were used to help characterize the aquifers encountered at the ROMP 27 well site. The APT data collection sheets are presented in appendix J. The curve-match analyses are presented in appendix K.

Surficial aquifer

The surficial aquifer extends from the water table to 50 feet bls at the ROMP 27 well site. It is contained in the undifferentiated sand and clay deposits. The clayey fine sand from 50 to 64 feet bls and the clay from 64 to 64.8 feet bls in the undifferentiated sand and clay unit, the clayey sands from 64.8 to 130.9 feet bls of the Peace River Formation, the limestone, dolostone, and clay from 130.9 to 264 feet bls of the Arcadia Formation form the confining unit at the base of the surficial aquifer. No slug testing was performed in the surficial aquifer because the unconsolidated sediments made it difficult to test during exploratory core drilling and testing. However, a constant-rate APT was conducted within the surficial aquifer from March 20 to 23, 2017. Background water level data were collected before the drawdown phase (from March 14 to 20, 2017) and after the recovery phase (from March 23 to 27, 2017) to determine the regional water level trend. The declining regional water level trend delineated from the background data collected from the Surf Aq Temp Ob well was negligible (0.00002 feet per minute [ft/min]). The Surf Aq Monitor (production) well was pumped with a 3-inch submersible pump at an average rate of 21 gallons per minute (gpm) for approximately 73 hours. The water was discharged offsite approximately 1,700 feet east to an intermittent tributary of Oak Creek. The flow rate was not recorded on a datalogger. Therefore, the flow rate was calculated using the flowmeter totalizer. The Surf Aq Temp Ob was used as an observation well and was located 51 feet northwest of the production well (fig. 2). Prior to starting the drawdown phase of the test on March 20, 2017, the static water level in the production well (Surf Aq Monitor) was 8 feet below top of casing (btoc), or 84 feet NAVD 88 and the static water level in the observation well (Surf Aq Temp Ob) was 7.4 feet btoc, or 86.3 feet NAVD 88. The maximum drawdown was 18.8 feet in the production well and 4.1 feet in the observation well. A hydrograph of water levels before, during, and after the APT is presented in figure 6. No rainfall was recorded during the test.

Radial flow plots and the derivative signature of the drawdown and recovery data from the Surf Aq Temp Ob well have typical unconfined aquifer signatures (appendix K, fig. K1). Curve-match analysis using the Neuman (1974) solution of the drawdown and recovery data observed in the Surf Aq Temp Ob well yielded an estimated transmissivity value of 290 feet squared per day (ft^2/d), a storativity of 0.0007, and a specific yield of 0.04 (appendix K, fig. K1 and table 4).

Confining Unit

At the ROMP 27 well site, a confining unit extends from 50 to 264 feet bls. The clayey phosphatic sands, dolostone, mudstone, and clay from 50 to 264 feet bls is sufficient to form a low permeability unit that impedes vertical movement of water. The sediments are contained within the undifferentiated sand and clay unit, the Peace River Formation, and the Arcadia Formation. Delineation of the unit was based on the lithologic character and the apparent permeability of the core samples. No slug testing was performed in this unit because testing in unconsolidated sediments is difficult.

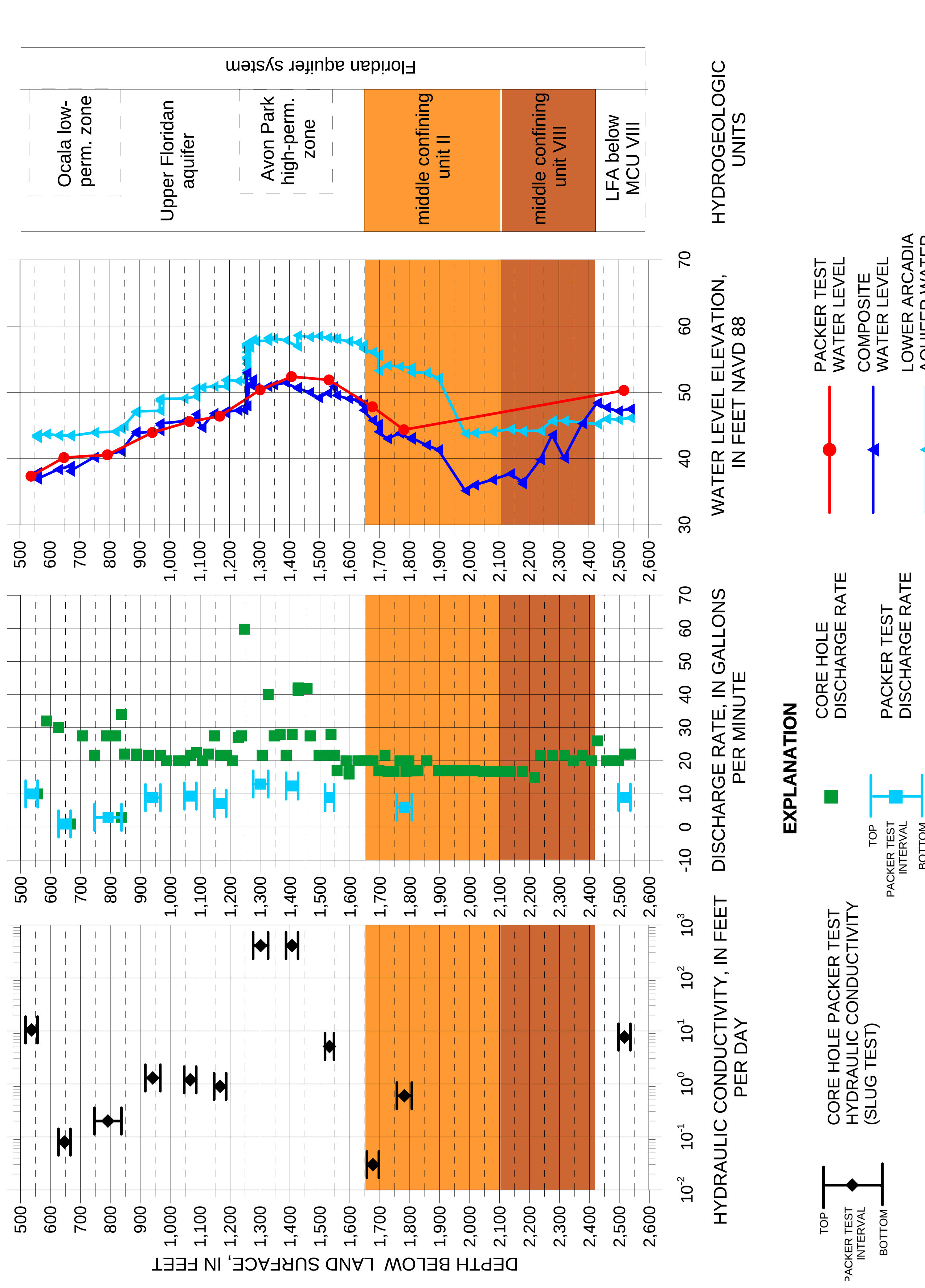
Lower Arcadia Aquifer

The lower Arcadia aquifer extends from 264 to 300 feet bls at the ROMP 27 well site. No slug testing was performed in this unit because testing in unconsolidated sediments is difficult. A constant-rate APT was conducted within the lower

Table 3. Results from the core hole slug tests performed during exploratory core drilling at the ROMP 27 – Scarborough well site in DeSoto County, Florida

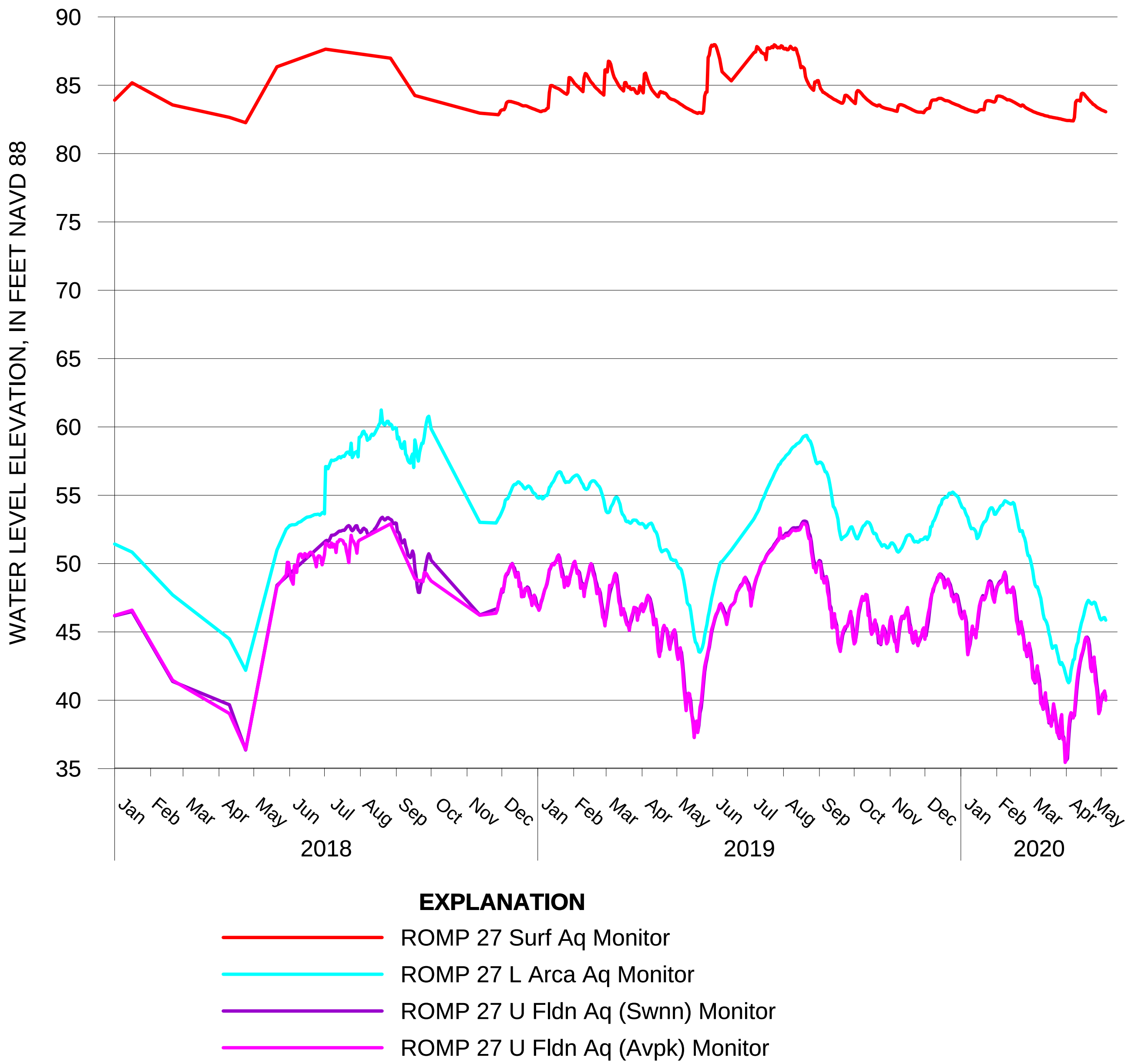
[No., number; MM/DD/YYYY, month/day/year; ft, feet; bls, below land surface; NAVD 88, North American Vertical Datum of 1988; gpm, gallons per minute; K, hydraulic conductivity; ft/d, feet per day; Ls, Limestone; UFA, Upper Floridan aquifer; LPZ, low-permeability zone; Fm, Formation; KGS, Kansas Geological Survey; MCU II, middle confining unit II; LFA VIII, Lower Floridan aquifer below middle confining unit VIII; shaded records indicate slug tests of confining units; graphs of hydraulic conductivity and static groundwater level with depth are shown in figure 4; slug test curve-match analyses are in Appendix H]

Slug Test No.	Date (MM/DD/YYYY)	Test Interval (ft bls)	Packer Test Water Level Elevation (ft NAVD 88)	Packer Test Discharge Rate [Q] (gpm)	Lithologic Description	Lithostratigraphic/ Hydrostratigraphic Unit	Slug Test Analytical solution	Slug Test Hydraulic Conductivity [K] (ft/d)	Comments
1	06/15/2011	517-557	49.99	10	packstone to wackestone, moderate to good induration, very fine to coarse grained, low to moderate permeability	Suwannee Ls/UFA	Butler (1998)	11	pneumatic, rising head
2	06/22/2011	627-667	47.18	0.951	wackestone, moderate induration, very fine grained, low permeability	Ocala Ls/Ocala LPZ	Butler (1998)	0.08	drop in, falling head
3	06/29/2011	747-837	46.77	2.94	wackestone to mudstone, poor induration, very fine to very coarse grained, low permeability,	Ocala Ls/Ocala LPZ	Butler (1998)	0.2	drop in, falling head
4	07/07/2011	917-967	43.4	8.876	packstone to wackestone, moderate induration, very fine to medium grained, low permeability	Ocala Ls/UFA	Butler (1998)	1	pneumatic, rising head
5	07/14/2011	1,047-1,087	41.76	9.375	packestone, moderate induration, very fine to very coarse grained, low permeability	Avon Park Fm/UFA	KGS (1994)	1	pneumatic, rising head
6	07/21/2011	1,147-1,187	40.93	7.14	packstone, moderate to good induration, micro-crystalline to coarse grained, low permeability	Avon Park Fm/UFA	KGS (1994)	1	pneumatic, rising head
7	10/27/2011	1,277-1,327	36.96	13	dolostone, good induration, microcrystalline, high permeability	Avon Park Fm/Avon ParK HPZ	Butler (1998)	410	pneumatic, rising head
8	11/03/2011	1,387-1,427	34.96	12.4	dolostone, good induration, microcrystalline, high permeability	Avon Park Fm/Avon ParK HPZ	Butler (1998)	410	pneumatic, rising head
9	11/13/2011	1,517-1,547	35.45	8.89	dolostone, good induration, very fine to fine grained	Avon Park Fm/Avon ParK HPZ	Butler (1998)	5	pneumatic, rising head
10	12/06/2011	1,657-1,697	39.51	--	dolostone and gypsum, good induration, micro-crystalline to fine grained, low permeability	Avon Park Fm/ MCU II	KGS (1994)	0.03	drop in, falling head
11	12/15/2011	1,757-1,807	42.98	6	dolostone and gypsum, good induration, micro-crystalline to medium grained, low perme-ability	Avon Park Fm/ MCU II	KGS (1994)	0.6	pneumatic, rising head
12	02/02/2012	2,497-2,537	37.04	9	packstone to wackestone to dolostone, good in-duration, microcrystalline to medium grained, moderate to low permeability	Oldsmar Fm/LFA VIII	Butler (1998)	8	pneumatic, rising head



[NAVD 88, North American Vertical Datum of 1988; LFA, Lower Floridan aquifer; MCU VIII, middle confining unit VIII]

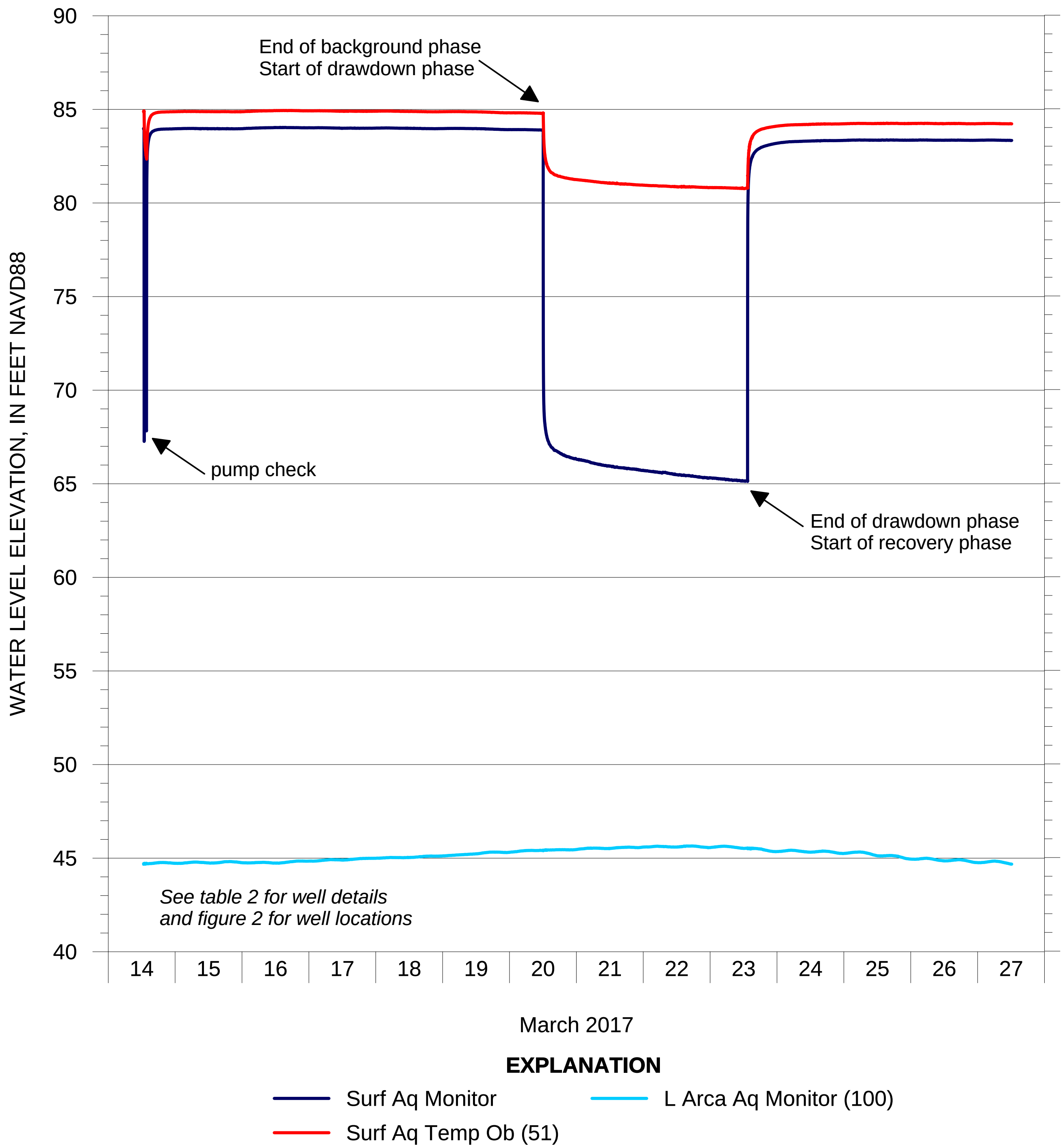
Figure 4. Horizontal hydraulic conductivity estimates and static water levels collected during core drilling at the ROMP 27 – Scarborough well site in Desoto County, Florida.



[NAVD 88, North American Vertical Datum of 1988; Surf, surficial; L, lower; Arca, Arcadia; Aq, aquifer; U, Upper; Fldn, Floridan; Swnn, Suwannee; Avpk, Avon Park]

Figure 5. Hydrograph of the permanent monitor wells at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

Arcadia aquifer from March 7 to 9, 2017. Background water level data were collected before the drawdown phase (from March 3 to 7, 2017) and after the recovery phase (on March 9, 2017) to determine the regional water level trend. The declining regional water level trend delineated from the background data collected from the L Arca Aq Monitor well was negligible (0.00003 ft/min). The L Arca Aq Monitor (production) well was pumped with a 3-inch submersible pump at an average rate of 13 gallons per minute (gpm) for approximately 45 hours. The water was discharged offsite approximately 1,700 feet east to an intermittent tributary of Oak Creek. The flow rate was not recorded on a datalogger. Therefore, the flow rate was calculated using the flowmeter totalizer. The L Arca Aq Temp Ob was used as an observation well and was located 103 feet northwest of the production well (fig. 2). Prior to starting the drawdown phase of the test on March 7, 2017, the static water level in the production well was 45.2 feet btoc, or 46.9 feet NAVD 88 and the static water level in the observation well was 43 feet btoc, or 47.1 feet NAVD 88. The maximum drawdown was 18.5 feet in the production well and 11 feet



[Number in parentheses in above explanation represents nominal radial distance from production well in feet; NAVD88, North American Vertical Datum of 1988; Surf, surficial, Aq, aquifer; Temp, temporary; Ob, Observation; L, lower; Arca, Arcadia]

Figure 6. Hydrograph of the wells monitored before, during, and after the surficial APT conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

in the observation well. A hydrograph of water levels before, during, and after the APT is presented in figure 7. Rainfall was monitored and no rainfall was recorded during the test.

The derivative signature of drawdown and recovery data from the L Arca Aq Temp Ob well suggests the lower Arcadia aquifer is confined (appendix K, fig. K2). Obvious deviation from the type curve observed in late time could represent

Table 4. Results from the aquifer performance tests conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida

[ft, feet; gpm, gallons per minute; ft^2/d, square feet per day; --, not reported/not applicable; construction details of analyzed wells are found in table 2; well locations are shown in figure 2; APT curve-match analyses are in Appendix K]

Hydrostratigraphic Unit Tested	Unit Thickness (b) (ft)	Average Pump Rate (gpm)	Test Duration (hours)	Distance to production well (feet)	Test Phase	Analytical Solution	Transmissivity (ft^2/d)	Storativity (dimensionless	Specific Yield (dimensionless)
Surficial aquifer	42	21	18	50	Drawdown/Recovery	Neuman (1974)	290	0.0007	0.04
Lower Arcadia aquifer	36	13	48	101	Drawdown	Cooper-Jacob (1946)	110	--	--
Upper Floridan aquifer (Suwannee Limestone)	118	167	164	150	Drawdown/Recovery	Theis (1935)/Hantush (1961)	1,400	0.0001	--
					Drawdown	Cooper-Jacob (1946)	1,400	0.0001	--
					Recovery	Theis (1935) residual drawdown/recovery	1,500	--	--
Upper Floridan aquifer (Avon Park Formation)	140	986	19	254	Drawdown/Recovery	Theis (1935)/Hantush (1961)	17,000	0.002	--
					Drawdown	Cooper-Jacob (1946)	17,000	0.002	--
					Recovery	Theis (1935) residual drawdown/recovery	17,000	--	--

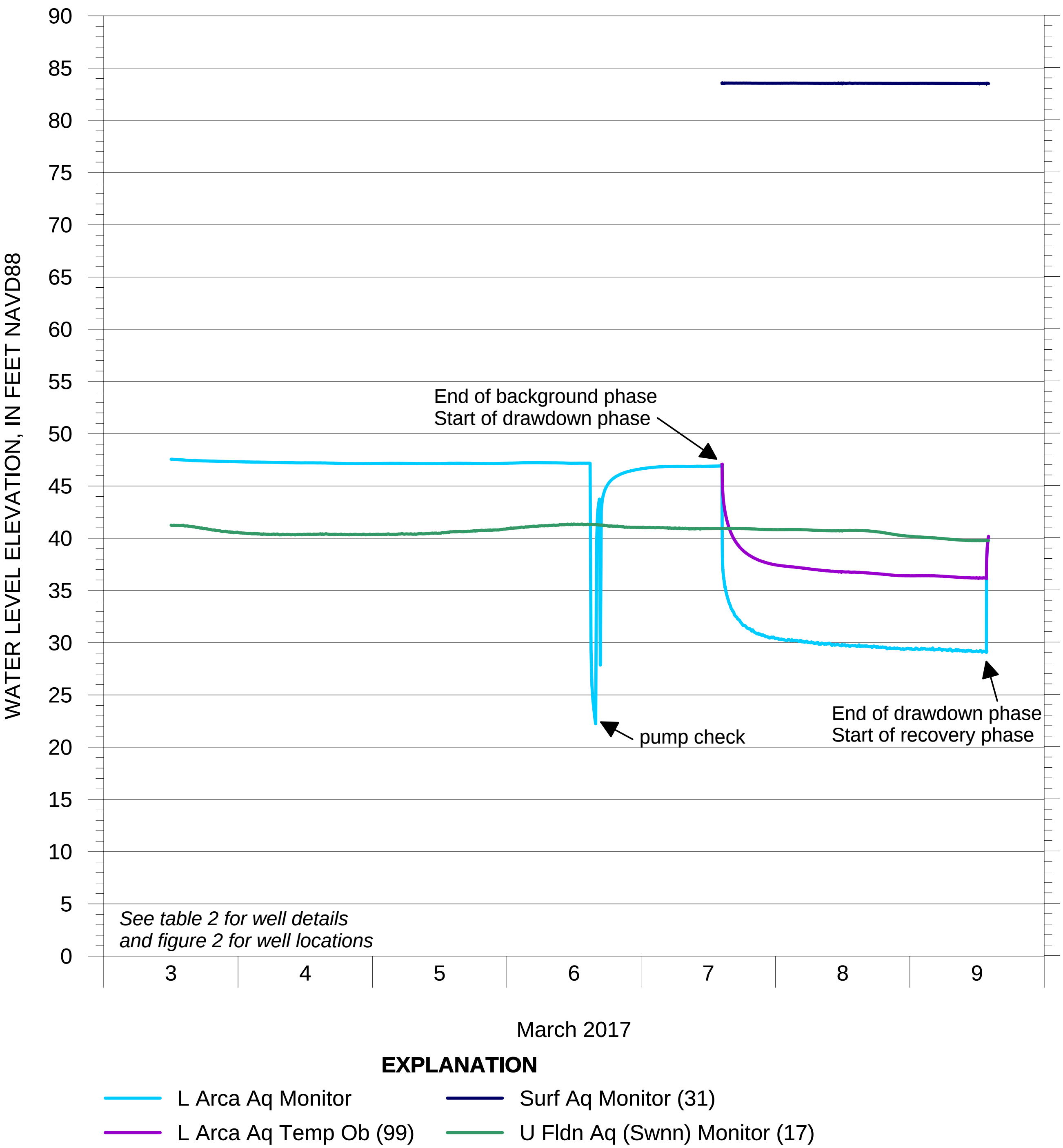
some leakage from the overlying aquitard. However, the derivative pattern appears to show a unit slope decline which is characteristic of interaction with a constant head boundary (Butler et al, 2008). Therefore, groundwater influence from a local recharge feature such as the nearby Oak Creek tributary is presumed. The area is agriculture intensive and drainage canals and ditches are common. Also, observation data shows delayed onset of drawdown in the observation well due to slight well-bore storage effects in early time that are evident in the arching s-shaped derivative pattern. Curve-match analysis using the Cooper-Jacob (1946) solution of the drawdown data observed in the L Arca Aq Temp Ob well yielded an estimated transmissivity value of 110 ft^2/d. A storativity estimate is not reported due to an unusually small estimate. The cause is unexplained but could be related to recharge interference described above. The recovery phase of this APT only lasted for 20 minutes and was not utilized (appendix K, fig. K2 and table 4).

Confining Unit

A confining unit that separates the lower Arcadia aquifer from the Upper Floridan aquifer is present from 300 to 414 feet bls at the ROMP 27 well site. Overall, the unit consists of dolostones, sand, clay, and limestone of the undifferentiated Arcadia Formation and its Nocatee Member. Delineation of this unit was based on the lithologic character and apparent permeability of core samples.

Upper Floridan Aquifer

At the ROMP 27 well site, the Upper Floridan aquifer extends from 414 to 1649.5 feet bls. The top of the Upper Floridan aquifer is coincident with the top of the Suwannee Limestone and includes all the Suwannee and Ocala Limestones and the upper two thirds of the Avon Park Formation and the bottom corresponds to the depth where the low perme-



[Number in parentheses in above explanation represents nominal radial distance from production well in feet; NAVD88, North American Vertical Datum of 1988; Surf, surficial; Aq, aquifer; L, lower; Arca, Arcadia; Ob, Observation; Temp, temporary; U, Upper; Fldn, Floridan; Swnn, Suwannee]

Figure 7. Hydrograph of the wells monitored before, during, and after the lower Arcadia APT conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

ability middle confining unit II begins. The clay and sandy clay sediments of the undifferentiated Arcadia Formation and its Nocatee Member of the Hawthorn Group confine the Upper Floridan aquifer above. Although the Upper Floridan aquifer is a single aquifer, it can be subdivided based on local variations of hydraulic properties. Intervals where permeability is not characteristic of the entire aquifer, whether substantially higher or lower, are referred to as zones. At the ROMP 27 well site, the Upper Floridan aquifer contains a zone of lower permeability called the Ocala low-permeability zone and a zone of higher permeability called the Avon Park high-permeability zone. The Ocala low-permeability zone extends from 532 to 830 feet bls. The Avon Park high-permeability zone extends from 1,230 to 1,542 feet bls. This interval corresponds to higher resistivity on the induction log, which, according to Hutchinson (1992), is typical of the Avon Park high-permeability zone (appendix B, fig. B2).

The nine slug tests conducted in the Upper Floridan aquifer at the ROMP 27 well site can be seen in table 3 and figure 4. The hydraulic conductivity estimates range from 0.08 to 410 feet per day (ft/d). Slug test 1 was conducted from 517 to 557 feet bls within the Suwannee Limestone and the top of the Ocala Limestone and yielded a hydraulic conductivity estimate of 11 (ft/d) (table 3 and fig. 4).

A constant-rate APT was conducted within the Suwannee Limestone portion of the Upper Floridan aquifer from February 27 to March 7, 2017. Background water level data were collected before the drawdown phase (from February 27 to February 28, 2017) and after the recovery phase (from March 2 to March 7, 2017) to determine the regional water level trend. The U Fldn Aq (Swnn) Monitor was pumped with a 30-horsepower submersible pump at an average rate of 167 gpm for approximately 43 hours. The water was discharged offsite approximately 1,700 feet east to an intermittent tributary of Oak Creek. The flow rate was recorded on a datalogger. The U Fldn Aq (Swnn) Temp Ob was used as an observation well and was located 150 feet southwest of the production well (fig. 2). Prior to starting the drawdown phase of the test on February 28, 2017, the static water level in the production well was 48.5 feet btoc, or 43.6 feet NAVD 88 and the static water level in the observation well was 47 feet btoc, or 42.7 feet NAVD 88. The maximum drawdown was 37 feet in the production well and 11.3 feet in the observation well. A hydrograph of water levels before, during, and after the APT is presented in figure 8. Approximately 20 minutes of light rainfall was monitored during the drawdown phase of the test on March 2, 2017.

Prior to the analysis, all observation well data were corrected for a declining regional water level trend (0.29 ft/d) determined from linear extrapolation of background water level data collected before and after pumping. Curve-match analysis of drawdown and recovery data in the observation well yielded an estimated transmissivity value of 1,400 ft^2/d, and a storativity estimate of 0.0001 using the Theis (1935)/Hantush (1961) solution (appendix K, figs. K3 through K5 and table 4). The observation well was also analyzed using the Cooper-Jacob (1946) solution for confined aquifers and match the results of the Theis (1935)/Hantush (1961) solution for transmissivity and storativity (appendix K, fig. K4). Recovery data from the observation well were analyzed using the Theis (1935) residual drawdown/recovery method and generally match the results of the other analyses for transmissivity with a value of 1,500 ft^2/d (appendix K, fig. K5).

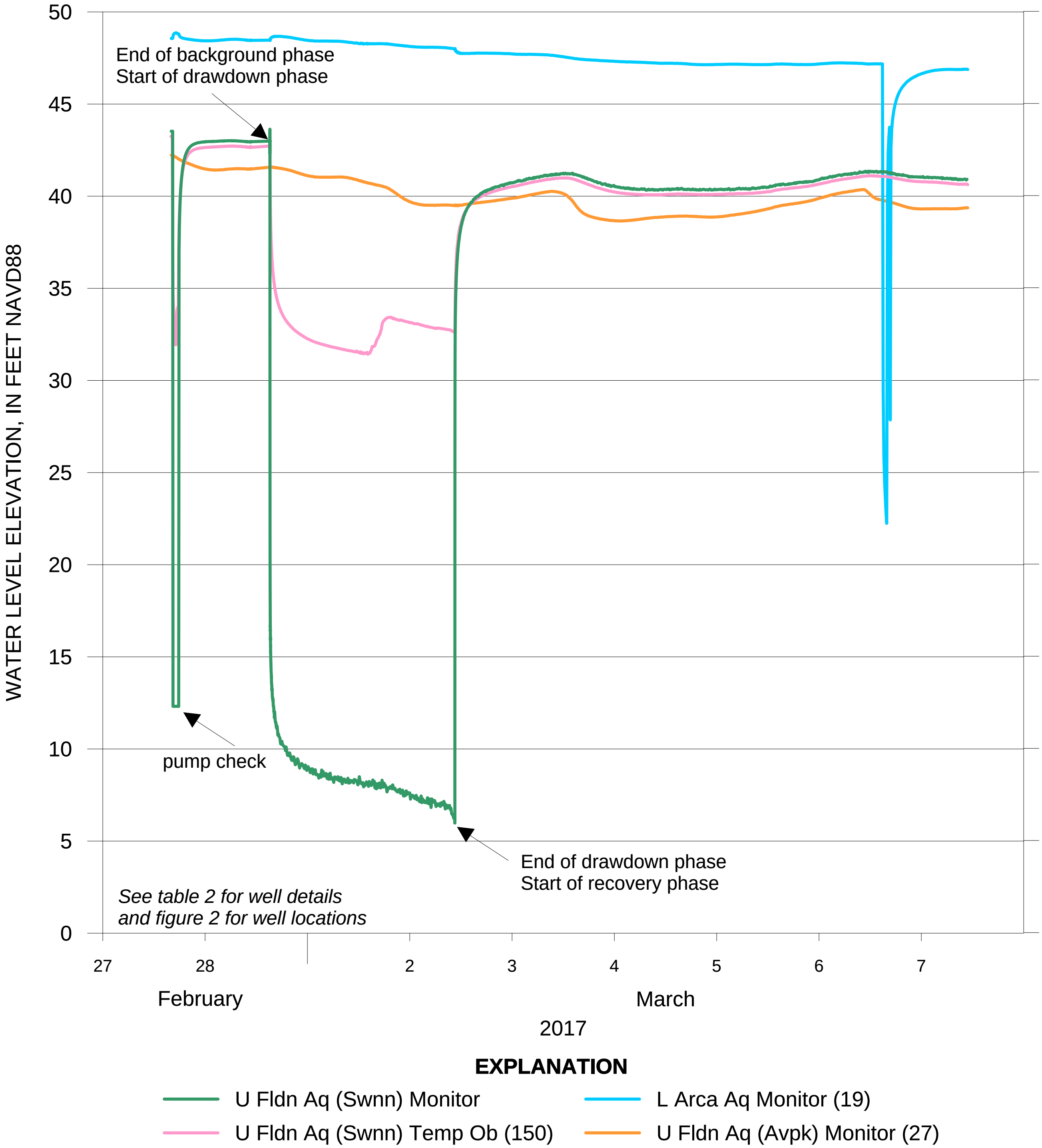
The derivative signature of the drawdown data from the U Fldn Aq (Swnn) Temp Ob well suggests the Upper Floridan aquifer is confined (appendix K, fig. K3 through K5). Type curve deviation observed in late time could be associated with leakage from the overlying aquitard. However, the derivative signature appears to show a more pronounced unit slope that suggests influence by a local recharge boundary. Also, observation data show slight well-bore storage effects in early time. Starting at about 14:30 on March 1, 2017, the water levels in the U Fldn Aq (Swnn) Temp Ob well started to recover partially, while the water levels in the U Fldn Aq (Swnn) Monitor well showed a slight increase in drawdown at approximately the same time (fig. 8). The recovering water levels observed were verified with a water level tape. The effects are attributed to unavoidable local agricultural pumping that occurred periodically throughout the APT (fig. 8). The recovering water levels were not used in the analysis and did not affect the overall analysis. The water level in the Suwannee Limestone portion of the Upper Floridan aquifer appeared to fluctuate similarly to the water level in the Avon Park Formation portion, likely because nearby wells have open intervals across both lithologic formations.

The Ocala low-permeability zone extends from 532 to 830 feet bls within fossiliferous limestone. Two slug tests were conducted within the Ocala low-permeability zone. The hydraulic conductivity estimates range from 0.08 to 0.2 ft/d. The water level ranged from 48.6 to 49 feet bls in the discrete test intervals within the Ocala low-permeability zone.

Below the Ocala low-permeability zone, from 830 to 1,230 feet bls, the permeability is consistent and slightly higher than the Ocala low-permeability zone. The section is within the Ocala Limestone and the Avon Park Formation. Three slug tests were conducted in this section that yielded hydraulic conductivity estimates of 1 ft/d. The water level ranged from 42.8 to 45.3 feet bls in the discrete test intervals.

The Avon Park high-permeability zone at the ROMP 27 well site extends from 1,230 to 1,542 feet bls within highly fractured dolostone. The first two slug tests performed within the Avon Park high-permeability zone resulted in substantially higher hydraulic conductivity estimates that are both 410 ft/d. The third slug test, with an interval between 1,517 and 1,547 feet bls, resulted in a hydraulic conductivity estimate of 5 ft/d.

A constant-rate APT was performed within the Avon Park high-permeability zone portion of the Upper Floridan aquifer from February 16 to 27, 2017. Because of issues with the pressure transducers during this attempt of the APT, the data could not be analyzed, and it was decided to conduct the APT again after all other APTs were completed. The second APT was performed from March 27 to 28, 2017. Background



[Number in parentheses in above explanation represents nominal radial distance from production well in feet; NAVD88, North American Vertical Datum of 1988; U, Upper; Fldn, Floridan; Aq, aquifer; Swnn, Suwannee; Ob, Observation; Temp; Temporary Avpk, Avon Park; L, lower; Arca, Arcadia]

Figure 8. Hydrograph of the wells monitored before, during, and after the Upper Floridan (Suwannee Limestone) APT conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

water level data were collected before the drawdown phase (on March 27, 2017) and after the recovery phase (from March 28 to 30, 2017) to determine the regional water level trend. Only the recovery water level data collected after the drawdown phase could be used to determine the regional water level trend because the duration of the background water level data collection phase was too short. The U Fldn Aq (Avpk) Monitor was pumped with a six-inch line shaft turbine pump at an average rate of 986 gpm for approximately 17 hours. The water was discharged offsite approximately 1,700 feet east to an intermittent tributary of Oak Creek. The flow rate was recorded on a datalogger. The U Fldn Aq (Avpk) Temp Ob was used as an observation well and was located 257 feet southwest of the production well (fig. 2). Prior to starting the drawdown phase of the test on March 27, 2017, the static water level in the production well was 50 feet btoc, or 40.4 feet NAVD 88 and the static water level in the observation well was 49.6 feet btoc, or 38.9 feet NAVD 88. The maximum drawdown was 16.3 feet in the production well and 4.3 feet in the observation well. A hydrograph of water levels before, during, and after the APT is presented in figure 9. No rainfall was recorded during the test.

Diagnostic radial flow plots and derivative analyses of the drawdown and recovery data were used to help identify the type of aquifer present at the ROMP 27 well site. The derivative signature of the U Fldn Aq (Avpk) Monitor well indicates the Upper Floridan aquifer is a confined aquifer (appendix K, fig. K7 through K9). Type curve deviation observed in late time show a clear unit slope signature pattern suggesting interaction with a local recharge boundary. Also, observation data show slight well-bore storage effects in early time. Curve match analysis using the Theis (1935)/Hantush (1961) solution of the drawdown and recovery data in the Upper Floridan Aq (Avpk) Temp Ob well yielded an estimated transmissivity value of 17,000 ft^2/d, and a storativity estimate of 0.002 (appendix K, fig. K6 and table 4). The observation well was also analyzed using the Cooper-Jacob (1946) solution for confined aquifers and match the results of the Theis (1935)/Hantush (1961) solution for transmissivity and storativity (appendix K, fig. K7). Recovery data from the observation well were analyzed using the Theis (1935) residual drawdown/recovery method and match the results of the other analyses for transmissivity (appendix K, fig. K8).

Middle Confining Unit II

At the ROMP 27 well site, the middle confining unit II extends from 1,649.5 to 2,104.7 feet bls. The unit is contained entirely within the Avon Park Formation. The top was picked at the first appearance of persistent gypsum observed in the core samples (appendix D), which is consistent with Miller's (1986) description of the middle confining unit II. Two slug tests were conducted in middle confining unit II. Slug test 10 was conducted from 1,657 to 1,697 feet bls and yielded a hydraulic conductivity estimate of 0.03 ft/d (table 3 and fig. 4). Slug test 11 was conducted from 1,757 to 1,807 feet bls and yielded a hydraulic conductivity estimate of 0.6 ft/d (table 3 and fig. 4).

Middle Confining Unit VIII

At the ROMP 27 well site, the middle confining unit VIII extends from 2,104.7 to 2418.8 feet bls. The top of middle confining unit VIII is concurrent with the top of the Oldsmar Formation and was picked at the first appearance of interbedded microcrystalline to medium grained dolomite and skeletal limestone with gypsum-filled pore spaces (appendix D) (Miller, 1986). Delineation of the unit was based on the lithologic character and the apparent permeability of the core samples. Also, the water level appeared to increase about 9 feet total across the confining unit (fig. 4 and appendix I). No hydraulic testing was performed in this unit.

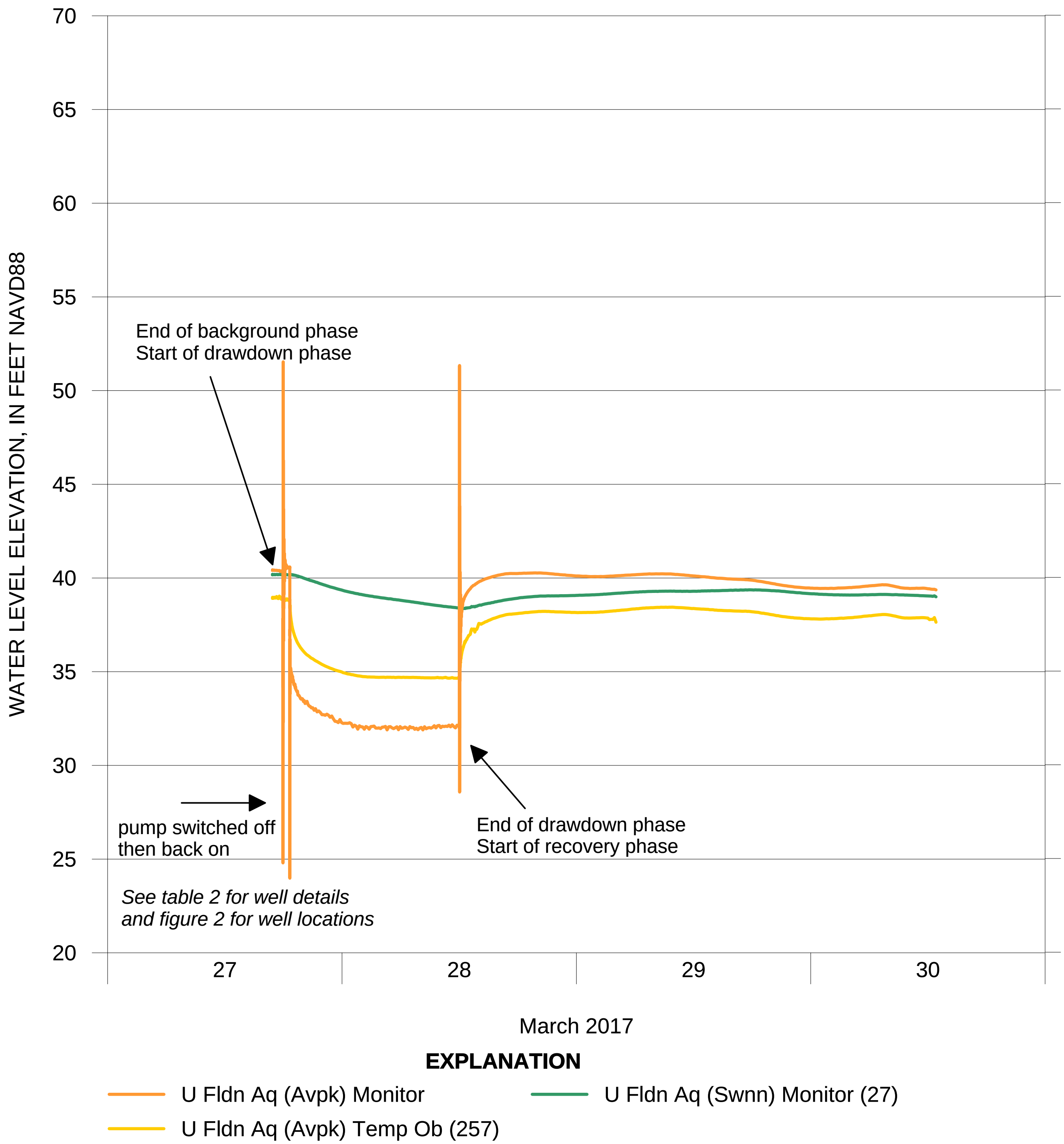
Lower Floridan Aquifer Below Middle Confining Unit VIII

At the ROMP 27 well site, the Lower Floridan aquifer below middle confining unit VIII (herein referred to as Lower Floridan aquifer VIII) extends from 2,418.8 to beyond the total depth of exploration at 2,537 feet bls. The top of the Lower Floridan aquifer VIII was picked at the first appearance of consistent limestone (appendix D), which is consistent with Miller's (1986) description of the Lower Floridan aquifer VIII. Delineation of the unit was based on the lithologic character and the apparent permeability of the core samples. Also, the water level increased about three feet in the core hole when the Lower Floridan aquifer VIII was encountered (fig. 4 and appendix I). One slug test was conducted in the Lower Floridan aquifer VIII. Slug test 12 was conducted from 2,497 to 2,537 feet bls and yielded a hydraulic conductivity estimate of 8 ft/d (table 3 and fig. 4).

Groundwater Quality

The ROMP 27 – Scarborough well site groundwater quality characterization is based on results from 12 groundwater samples. The 12 samples were collected from the core hole with a nested bailer during packer tests from 517.1 to 2,537 feet bls. No sampling was conducted above 517.1 feet. Additionally, eight groundwater quality samples were collected during the APTs at different times during the drawdown phases. Eight discharge field readings were collected during the APTs to monitor the discharge. The water quality data collection field sheets are presented in appendix L. Field measurements, laboratory analyses, equivalent weights and water types, molar ratios, and APT field measurements for these samples are presented in appendix M, tables M1, M2, M3, M4, and M5, respectively. Groundwater sample collection is consistent with the WQMP's SOP (Water Quality Monitoring Program, 2020). The U.S. Environmental Protection Agency's National Secondary Drinking Water Regulations (secondary standards) for total dissolved solids (TDS), sulfates, chlorides, and iron are 500 milligrams per liter (mg/L), 250 mg/L, 250 mg/L, and 0.3 mg/L, respectively (Hem, 1985; U.S. Environmental Protection Agency, 2012).

The results of water quality samples 1 through 3 collected within the Ocala low-permeability zone from 517.1 to 836.6



[Number in parentheses in above explanation represents nominal radial distance from production well in feet; NAVD88, North American Vertical Datum of 1988; U, Upper; Fldn, Floridan; Aq, aquifer; Avpk, Avon Park; Temp, Temporary; Ob, Observation; Swnn, Suwannee]

Figure 9. Hydrograph of the wells monitored before, during, and after the second Upper Floridan (Avon Park high-permeability zone) APT conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

feet bls indicate the groundwater is fresh because the TDS concentration is under 1,000 mg/L. The TDS concentration ranges between 734 and 886 mg/L, exceeding secondary standards. The sulfate concentration ranges from 398 to 473 mg/L, also exceeding secondary standards (fig. 10 and appendix M, table M2).

The results of water quality samples 4 through 6 collected within the Upper Floridan aquifer indicate the groundwater is not fresh in the Upper Floridan aquifer until about 1,148 feet bls (fig. 7 and appendix M, table M2). The sulfate concentration ranges from 446 to 466 mg/L and the TDS concentration ranges from 812 to 825 mg/L. The iron concentration exceeds secondary standards in sample 6 (0.304 mg/L) from 1,148 to 1,188 feet bls. The increase in iron concentration is likely the result of the dissolution of iron-sulfide minerals and organic material present in the Avon Park Formation.

The results of water quality sample 7 collected within the Avon Park high-permeability zone from 1,276.3 to 1,325.5 feet bls indicate that groundwater quality is fresh but the concentration for TDS exceeds secondary standards at 829 mg/L. The results of water quality samples 8 amd 9 collected within the Avon Park high-permeability zone from 1,388 to 1,547 feet bls indicate the groundwater is not fresh. The sulfate concentration ranges from 686 to 1,110 mg/L and the TDS concentration ranges from 1,130 to 1,800 mg/L, exceeding secondary standards (fig. 10 and appendix M, table M2).

The results of water quality samples 10 and 11 collected within middle confining unit II from 1,657 to 1,804 feet bls indicate the groundwater is not fresh. The sulfate concentration ranges from 2,080 to 2,490 mg/L and the TDS concentration ranges from 3,300 to 3,910 mg/L, exceeding secondary standards (fig. 10 and appendix M, table M2). The increase in sulfate concentration is likely the result of dissolution of gypsum present in the Avon Park Formation.

The results of water quality sample 12 collected within the Lower Floridan aquifer VIII from 2,497.1 to 2,537 feet bls indicate the groundwater is not fresh and exceeds secondary drinking water standards. The chloride concentration is 3,680 mg/L, the sulfate concentration is 3,570 mg/L, and the TDS concentration is 11,300 mg/L, exceeding secondary standards. The TDS also exceeds the underground source of drinking water standard of 10,000 mg/L (Florida Administrative Code 62-528.200, 2008).

Generally, the water quality sample with the lowest ion concentration and specific conductance is from groundwater within the Ocala Limestone. The water quality sample collected from the Oldsmar Formation has the highest ion concentrations and specific conductance.

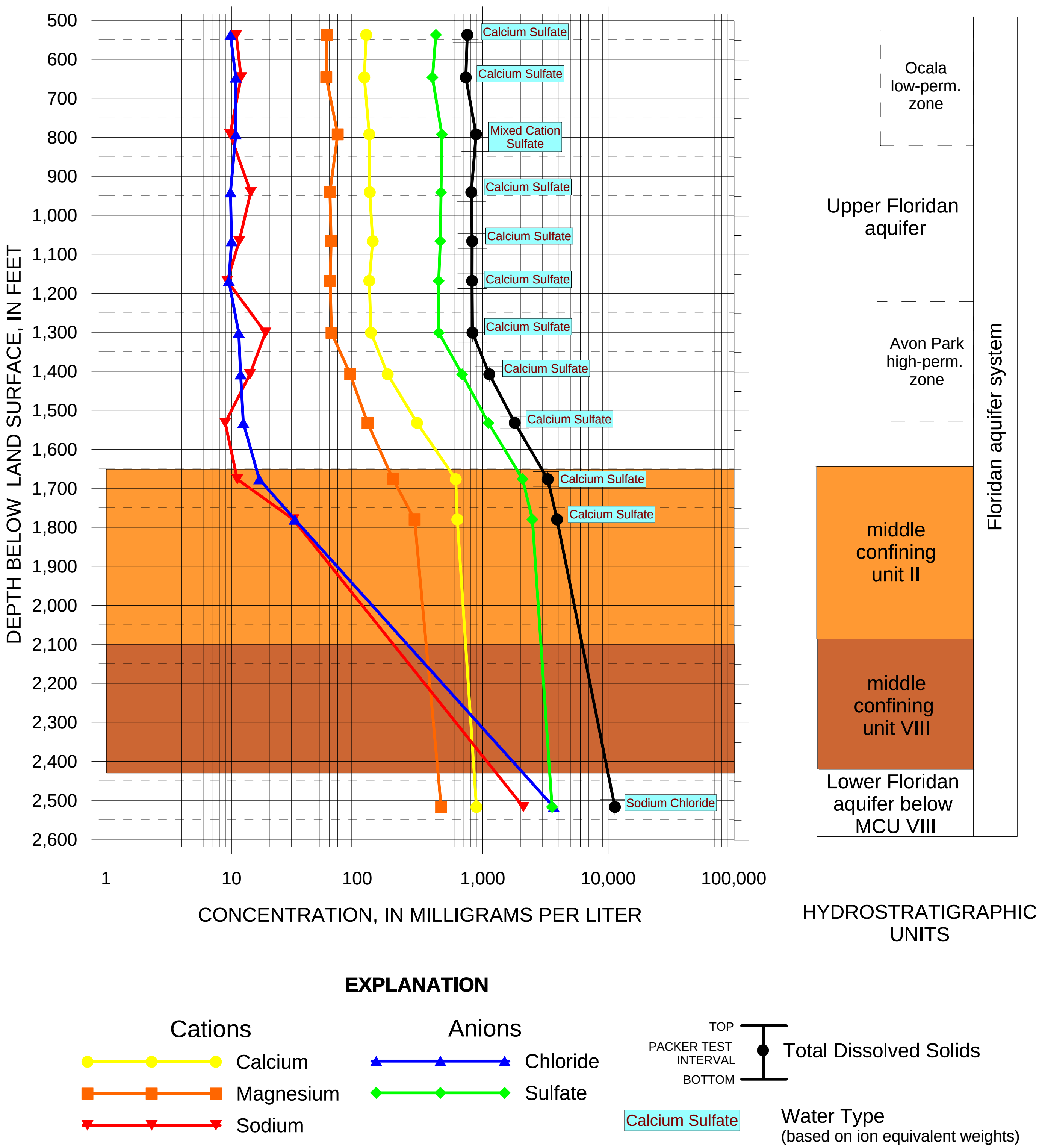
Equivalent weights and water types were determined for each groundwater quality sample and are presented in figure 10 appendix M, table M3. The results of water quality samples 1 and 2 indicate the water type is calcium sulfate in the Upper Floridan aquifer and the Ocala low-permeability zone (appendix M3). An increase in magnesium concentration in water quality sample 3 result in the mixed-cation sulfate water type in the Ocala low-permeability zone. Water quality samples 4 through 11 indicate the water type is calcium sulfate for the Upper Floridan aquifer, the Avon Park high-permeability zone, and middle confining unit II. An increase in sodium and chloride in water quality sample 12 result in the sodium chloride water type in the Lower Floridan aquifer VIII. This is likely influenced by connate or seawater.

The trends of the relative abundances of each major cation and anion species analyzed for in the groundwater quality samples collected at the ROMP 27 well site are presented on a Piper (1944) diagram in figure 11 as percent milliequivalents. The groundwater samples collected from the Upper Floridan aquifer and middle confining unit II (samples 1 through 11) with increasing calcium-sulfate enrichment plot at the end of the freshwater/deepwater mixing trend described by Tihansky (2005), which indicates that enrichment is complete for these samples. The Lower Floridan aquifer VIII sample (sample 12) has higher sodium-chloride enrichment and plots midway along the deepwater/seawater mixing line (Tihansky, 2005).

Select molar ratios were calculated to investigate groundwater quality changes with depth (fig. 12 and appendix M, table M4). The gypsum track illustrates the interaction between fresh water 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 calcium to bicarbonate and the sulfate to bicarbonate molar ratios increase in the interval from 1,388 to 2,537 feet bls within the lower portion of the Avon Park high-permeability zone, the Upper Floridan aquifer, and throughout middle confining unit II, middle confining unit VIII, and the Lower Floridan aquifer VIII because the calcium and sulfate concentrations increase, and the bicarbonate concentration decreases (fig. 12 and appendix M, tables M2 and M4). This indicates evaporites are affecting the groundwater from the dissolution of gypsum and anhydrite. The calcium to magnesium molar ratio increases in the interval from 1,388 to 1,696 feet bls within the Avon Park Formation because both ion concentrations are increasing but the calcium concentration increases at a higher rate. This indicates influence from gypsum and anhydrite as these minerals were identified in the core samples at these depths. From 1,755 to 2,537 feet bls, the calcium to magnesium molar ratio decreases to levels like those of the Upper Floridan aquifer, likely due to the presence of packstone and wackestone in the core in middle confining unit II. It is apparent there is influence from connate or seawater on the groundwater at the well site because the sodium chloride track increase at similar rates. The chloride to bicarbonate and sodium to bicarbonate molar ratios both substantially increase between 1,657 and 2,537 feet bls because as bicarbonate concentrations decrease, both chloride and sodium concentrations increase.

During the APTs, field measurements of specific conductance, pH, and temperature of the discharge was monitored (appendix M, table M5). The purpose was to ensure the water quality of the intermittent tributary of Oak Creek was not appreciably altered by the discharge and was one of the best management practices utilized for the Florida Department of Environmental Protection Agency's Generic Permit For Discharge of Ground Water From Dewater Operations permit (62-621.300(2)(a) Florida Administrative Code).

Water quality samples were collected during the APTs. The purpose of these samples was to evaluate potential effects of changes to water quality from pumping. During the surficial APT, a water quality sample was taken from the well head of the production well at the beginning, middle, and end of



[perm., permeability; MCU, middle confining unit]

Figure 10. Select cations, anions, and total dissolved solids concentrations for groundwater quality samples collected at the ROMP 27 – Scarborough well site in DeSoto County, Florida. Depth represents the middle of the discrete open interval at the time of sampling.

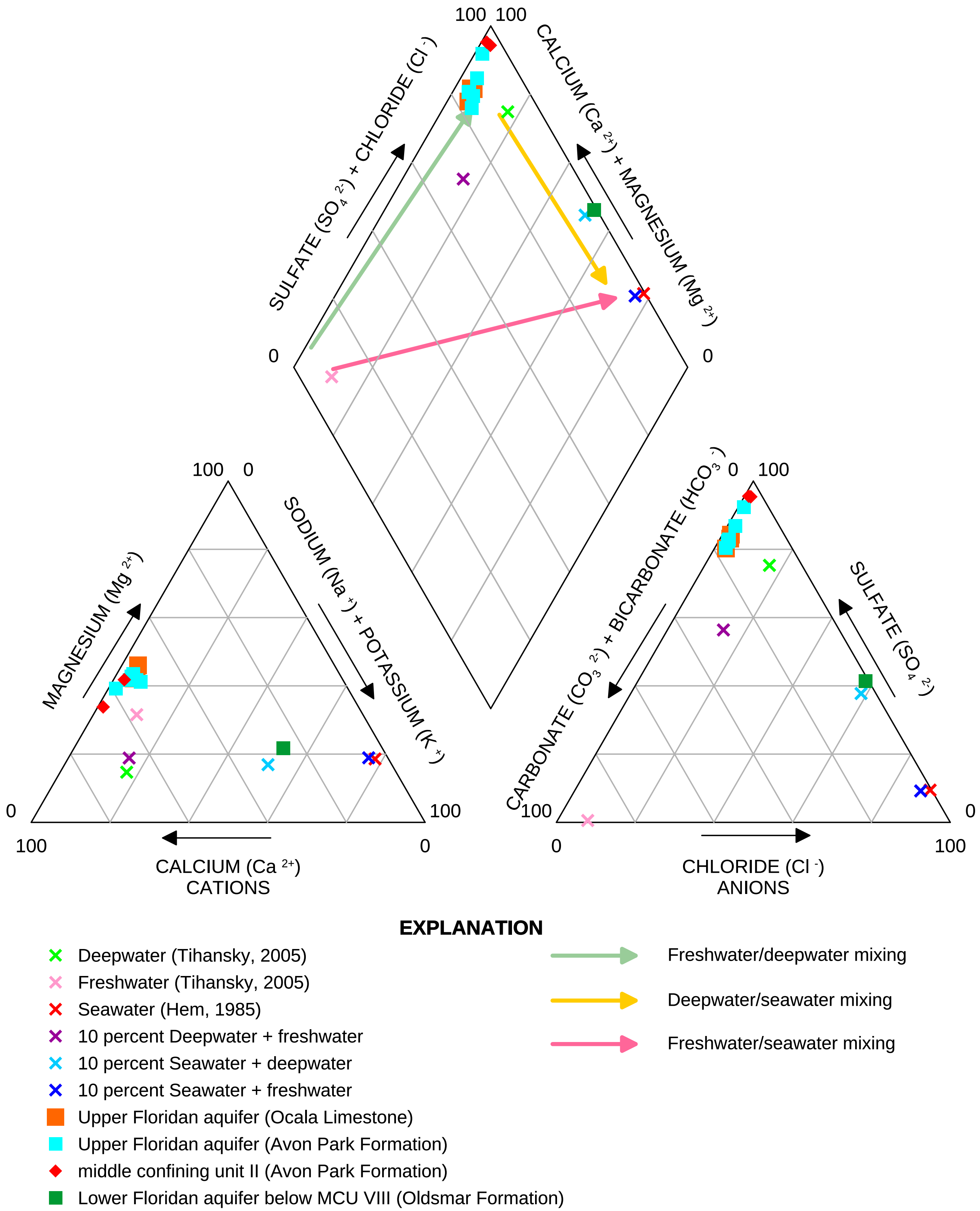
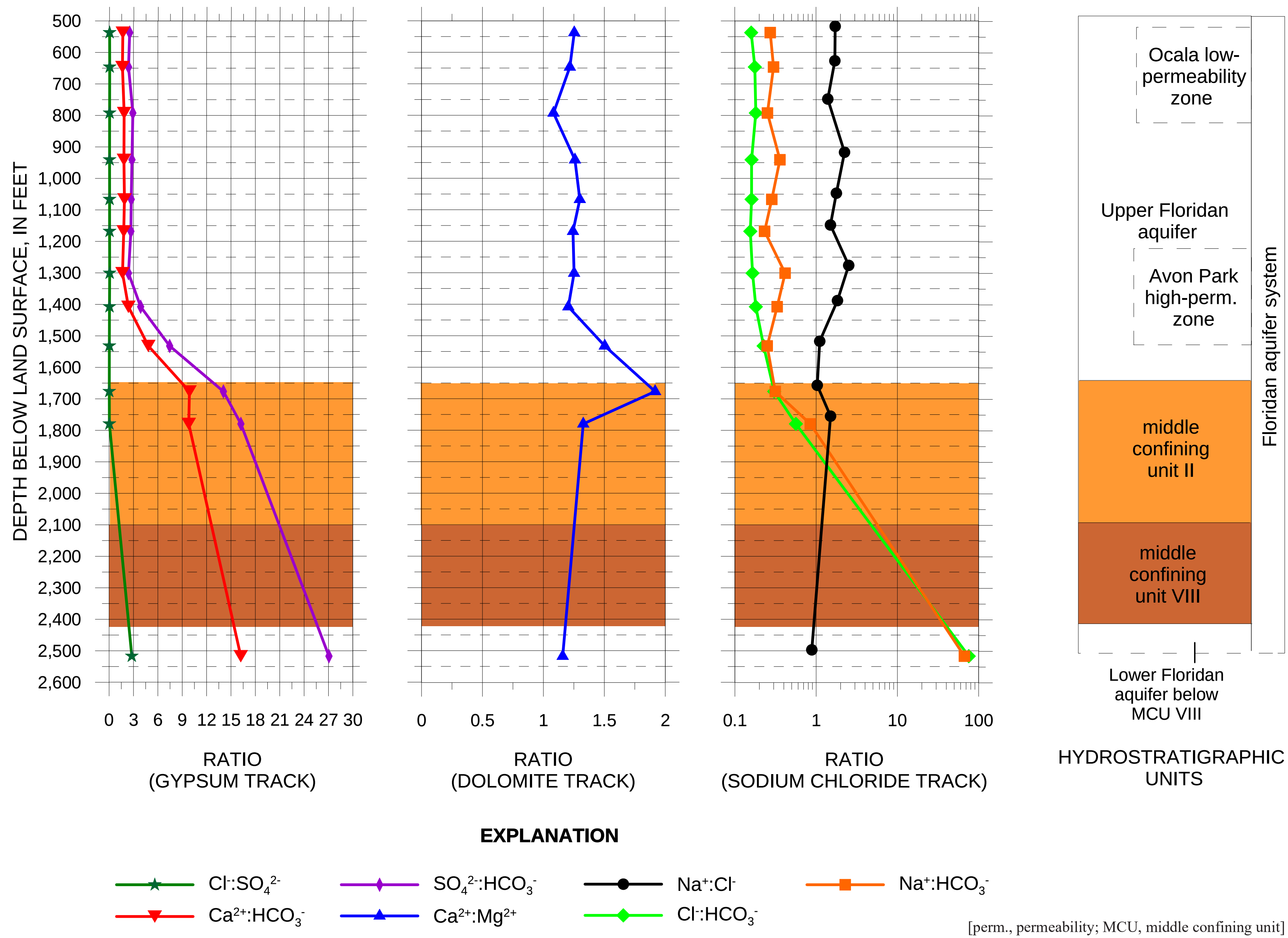


Figure 11. Piper Diagram of groundwater quality samples collected at the ROMP 27 – Scarborough well site in DeSoto County, Florida.



[perm., permeability; MCU, middle confining unit]

Figure 12. Select molar ratios with depth for groundwater quality samples collected at the ROMP 27 – Scarborough well site in DeSoto County, Florida. Depth represents the middle of the discrete open interval at the time of sampling.

the test (appendix M, table M2). The constituents tested did not vary. The water quality samples had iron concentrations that exceeded the secondary drinking water standards (appendix M, table M2). During the lower Arcadia APT, two water quality samples were collected after approximately four and 46 hours from the start of the test, respectively. The constituents tested did not vary (appendix M, table M2). During the Upper Floridan APT conducted in the Suwannee Limestone, one water quality sample was collected from the well head of the production well approximately 3.5 hours after the start of the test. All constituents tested were like groundwater quality results from samples collected in the Upper Floridan aquifer during core drilling and testing and indicate the water is fresh but the sulfate and TDS concentrations exceeded secondary drinking water standards (appendix M, table M2). During the Upper Floridan APT conducted in the Avon Park high-permeability zone, two water quality samples were collected from the well head of the production well after approximately 7.5 and 47 hours after the start of the test, respectively. Most constituents tested did not vary and were like the groundwater quality results from samples collected during core drilling and testing (appendix M, table M2). The water quality samples had sulfate and TDS concentrations that exceeded the secondary drinking water standards (appendix M, table M2).

Summary

The ROMP 27 – Scarborough well site, located in north-eastern DeSoto County, was developed in three phases from April 2011 to March 2017. The phases were exploratory core drilling and testing, well construction, and aquifer performance testing. The well site was selected to support the Southern Water Use Caution Area and to fill in a gap in the ROMP 10-mile grid network. Geohydrologic data including core samples, geophysical logging, slug testing, aquifer performance testing, and groundwater quality sampling were collected at the site during the three phases. The four permanent wells constructed are the Surf Aq Monitor, the L Arca Aq Monitor, the U Fldn Aq (Swnn) Monitor, and the U Fldn Aq (Avpk) Monitor.

The geologic units encountered at the well site include, in ascending order: the Oldsmar Formation, the Avon Park Formation, the Ocala Limestone, the Suwannee Limestone, the Arcadia Formation and its Nocatee Member, the Peace River Formation, and the undifferentiated sand and clay deposits. The Oldsmar Formation extends from 2,104.7 to beyond the total depth of exploration of 2,537 feet bls and is predominantly very light orange to grayish brown wackestone, packstone, and dolostone. The Avon Park Formation extends from 863.4 to 2,104.7 feet bls and is predominantly interbedded very light orange to grayish brown wackestone to packstone and grayish brown to dark yellowish brown dolostones with accessory calcite, organics, and gypsum interbedded with gypsum and anhydrite. The Ocala Limestone extends from 537 to 836.4 feet bls and is predominantly very light orange to yellowish gray wackestone, packstone, and mudstone. The Suwannee Limestone extends from 417 to 537 feet bls and is predominantly yellowish gray to very light orange wackestone and packstone with accessory organics and clay. The Hawthorn Group sediments extend from 64.8 to 417 feet bls. The Hawthorn Group formation includes the Arcadia Formation and its Nocatee Member and the Peace River Formation. The Arcadia Formation extends from 130.9 to 417 feet bls. The undifferentiated Arcadia Formation extends from 130.9 to 311.2 feet bls and is predominantly interbedded light olive gray to yellowish gray dolostones, yellowish gray to light olive gray wackestone, packstone, and mudstone, and thinly interbedded olive gray clay with accessory phosphatic sand, quartz sand, silt-sized dolomite, phosphatic gravel, calcilutite, and spar. The Nocatee Member extends from 311.2 to 417 feet bls and is predominantly light olive gray quartz and phosphatic sand, packstone, and wackestone with accessory clay, dolomite, and pyrite. The Peace River Formation extends from 64.8 to 130.9 feet bls and is predominantly olive gray sand with accessory phosphate. The undifferentiated sand and clay deposits extend from land surface to 64.8 feet bls and are predominantly olive gray to very light orange sands with accessory organics, clay, pyrite, phosphatic sand, gypsum, mica, and plant remains.

The hydrogeologic units encountered at the well site include, in descending order: the surficial aquifer, a confining unit, the lower Arcadia aquifer, a confining unit, the Upper Floridan aquifer, middle confining unit II, middle confining unit VIII, and the Lower Floridan aquifer below middle confining unit VIII. The surficial aquifer extends from the water table to 50 feet bls. An APT was conducted and curve match analysis yielded a transmissivity estimate of 290 ft^2/d, a storativity of 0.0007, and a specific yield of 0.04. A confining unit extends from 50 to 264 feet bls that separates the surficial aquifer from the lower Arcadia aquifer.

The lower Arcadia aquifer extends from 264 to 300 feet bls. An APT was conducted and curve match analysis using the Hantush/Jacob (1955)/Hantush (1964) without aquitard storage solution of the drawdown and recovery data observed in the L Arca Aq Temp Ob well yielded transmissivity estimate of 110 ft^2/d. The derivative signature of drawdown and recovery data indicates the lower Arcadia aquifer is confined and leaky.

The Upper Floridan aquifer extends from 417 to 1,649.5 feet bls and consists of the Suwannee Limestone, the Ocala Limestone, and the Avon Park Formation. The Ocala low-permeability zone extends from 532 to 830 feet bls and the Avon Park high-permeability zone extends from 1,230 to 1,542 feet bls. Nine slug test suites were conducted in the Upper Floridan aquifer. The hydraulic conductivity estimates range from 0.2 to 410 ft/d. An APT was conducted within the Suwannee Limestone portion of the Upper Floridan aquifer and response curves indicate a confined, leaky aquifer. Curve-match analysis yielded transmissivity estimates of 1,400 ft^2/d and 1,500 ft^2/d, and a storativity estimate of 0.0001. An APT was conducted within the Avon Park high-permeability zone of the Upper Floridan aquifer, but due to difficulties with the pressure transducers, the APT had to be conducted again after all other APTs were completed. The response curves from the second APT indicate a confined, leaky aquifer. Curve-match analyses yielded transmissivity estimates of 17,000 ft^2/d and storativity estimates of 0.002.

Middle confining unit II extends from 1,649.5 to 2,104.7 feet bls. Two slug test suites were conducted in middle confining unit II. Slug test suite 10 was conducted from 1,657 to 1,697 feet bls and slug test suite 11 was conducted from 1,757 to 1,807 feet bls, which yielded a hydraulic conductivity of 0.03 and 0.6 ft/d, respectively. Middle confining unit VIII extends from 2104.7 to 2418.8 feet bls.

The Lower Floridan aquifer VIII extends from 2418.8 to beyond the total depth of exploration at 2,537 feet bls. One slug test was conducted in the Lower Floridan aquifer VIII. Slug test 12 was conducted from 2,497 to 2,537 feet bls and yielded a hydraulic conductivity estimate of 8 ft/d.

Twelve groundwater quality samples were collected and analyzed for at the ROMP 27 well site. The groundwater quality samples indicate that the Upper Floridan aquifer is fresh to a depth of 1,388 feet bls because the TDS concentrations range between 734 and 829 mg/L. The 12 groundwater quality samples also exceed the U.S. Environmental Protection Agency's secondary standards. From 517.1 to 2,537 feet bls (samples 1 through 12), TDS concentrations range from 734 to 11,300 mg/L and sulfate concentrations range from 398 to 3,570 mg/L, exceeding secondary standards. The groundwater quality sample indicates the Lower Floridan aquifer VIII also exceeds the underground source of drinking water standard of 10,000 mg/L because the TDS concentration is 11,300 mg/L (Florida Administrative Code 62-528.200, 2008). The water type is calcium sulfate throughout the Upper Floridan aquifer and middle confining unit II, except for the portion of the Upper Floridan aquifer between 748 and 836.6 feet bls, which is mixed-cation sulfate. On a Piper diagram, the results of samples 1 through 11 plot at the top left of the quadrilateral, top left of the anion ternary diagram, and the middle left of the cation ternary diagram, which is indicative of the middle confining unit II where groundwater contains dissolved evaporite minerals. The water type is sodium chloride in the Lower Floridan aquifer VIII. On a Piper diagram, the results of sample 12 plot in the upper right of the quadrilateral, midway along the deepwater/seawater mixing line, which is typical for sodium chloride water types influenced by seawater. The calcium to bicarbonate and sulfate to bicarbonate molar ratios on the gypsum track increases in the middle confining unit II and the Lower Floridan aquifer VIII because of the increased calcium concentration likely from the dissolution of gypsum and anhydrite. It is apparent there is influence from connate or seawater on the groundwater at the well site because the sodium chloride track increase at similar rates. Water quality samples were collected during the APTs to evaluate potential effects of changes to water quality from pumping. There were no changes to water quality as a result of pumping.

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Appendix A. Methods of the Geohydrologic Data Section

The Southwest Florida Water Management District (District) collects the majority of the hydrogeologic data during the exploratory core drilling phase of the project. Lithologic samples will be collected during the core drilling process. Hydraulic and water quality data are collected primarily during packer tests as the core hole is advanced. Geophysical logging will be conducted on the core hole providing additional hydrogeologic data. After well construction, an aquifer performance test (APT) will be conducted on each of the major freshwater aquifers or producing zones encountered at the project site. These data will be uploaded to the District's Environmental Data Portal (EDP) or the Geohydrologic Data Map Viewer.

Collection of Lithologic Samples

The District conducts hydraulic rotary core drilling, referred to as diamond drilling, with a Central Mining Equipment (CME) 85 core drilling rig and an Universal Drilling Rigs (UDR) 200D LS. The basic techniques involved in hydraulic rotary core drilling are the same as in hydraulic rotary drilling (Shuter and Teasdale, 1989). The District applies a combination of HQ, HW, NW, and PW gauge working casings along with NQ or NRQ core drilling rods, associated bits, and reaming shells from Boart Longyear®. The HQ, HW, NW, and PW working casings are set and advanced as necessary to maintain a competent core hole. The NQ and NRQ size core bits produce a nominal 3-inch hole. The HQ, HW, NW, and PW working casings and NQ and NRQ coring rods are removed at the end of the project. Details on the core drilling activities are recorded on daily drilling logs completed by the District's drilling crew and hydrogeologists.

Recovery of the core samples is accomplished using a wireline recovery system (fig. A1). The District's drilling crew uses the Boart Longyear® NQ wireline inner barrel assembly. This system allows a 1.87-inch by 5 or 10-foot section and a 1.99-inch by 10-foot section of core to be retrieved with the CME 85 rig and UDR 200D LS rig, respectively. The core is retrieved without having to remove the core rods from the core hole. Grab samples of core hole cuttings are collected and bagged where poor core recovery occurs because of drilling conditions or where the formation is unconsolidated or poorly indurated. The core samples are placed in core boxes, depths marked, and recovery estimates calculated. Core descriptions are made in the field using standard description procedures. Rock color names are taken from the "Rock-Color Chart" of the National Research Council (Goddard and others, 1948). The textural terms used to characterize carbonate rocks are based on the classification system of Dunham (1962). The core samples are shipped to the Florida Geological Survey for detailed lithologic descriptions of core, cuttings, and unconsolidated sediments. All lithologic samples will be archived at the Florida Geological Survey in Tallahassee, Florida.

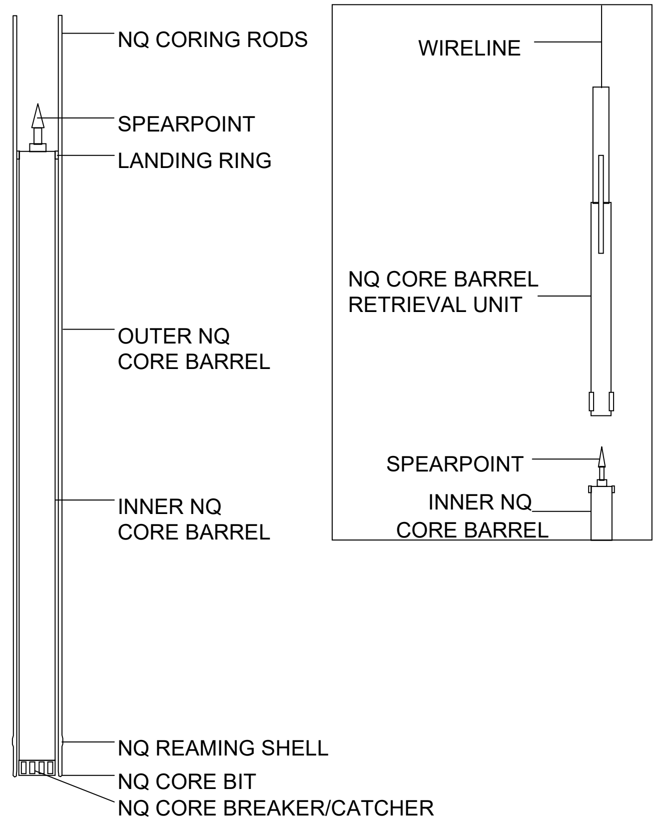


Figure A1. Boart Longyear® NQ Wireline Coring Apparatus.

Unconsolidated Coring

Various methods exist for obtaining unconsolidated material core samples, which is extremely difficult as compared to rock coring (Shuter and Teasdale, 1989). To ensure maximum sample recovery, the District drilling crew utilizes a punch shoe adapter on the bottom of the inner barrel along with an unconsolidated core catcher. The punch shoe extends the inner barrel beyond the bit allowing collection of the sample prior to disturbance by the bit or drilling fluid. A variety of bottom-discharge bits are used during unconsolidated coring. A thin bentonite mud may be used to help stabilize the unconsolidated material.

Rock Coring

During rock coring, the District drilling crew utilizes HQ, HW, NW, and PW working casings as well as permanent casings to stabilize the core hole. NQ and NRQ core drilling rods and associated products are employed during the core drilling process. Core drilling is conducted by direct-circulation rotary methods using fresh water for drilling fluid. Direct water is not effective in removing the cuttings from the core hole, therefore, a reverse-air (air-lift) pumping discharge method (fig. A2) is used to develop the core hole every 20 feet or as necessary. The District typically uses face-discharge bits for well indurated rock core drilling.

Formation Packer Testing

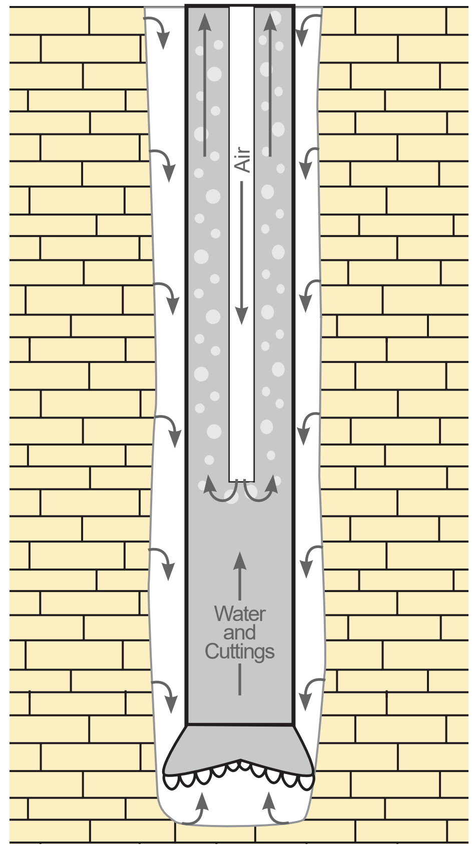
Formation (off-bottom) packer testing allows discrete testing of water levels, water quality, and hydraulic parameters. A competent core hole is necessary for packer testing, meaning unconsolidated sediments and some of the shallow weathered limestone cannot be tested using this technique. The packer assembly (fig. A3) is employed by raising the NQ or NRQ coring rods to a predetermined point, lowering the packer to the bottom of the rods by using a combination cable/air inflation line, and inflating the packer with nitrogen gas. This process isolates the test interval, which extends from the packer to the total depth of the core hole. Sometimes, the working casing may be used in place of the packer assembly. Test intervals are selected based on a regular routine of testing or at any distinct hydrogeologic change that warrants testing.

Collection of Water Level Data

Water level data is collected daily before core drilling. Additionally, water levels are recorded during each formation packer test after the necessary equilibration time. Equilibration is determined when the change in water level per unit time is negligible. Water levels are measured using a Solinst® water level meter. The water level is measured relative to an arbitrary datum near land surface, which is maintained throughout the project. These data provide a depiction of water level with core hole depth. However, these data are normally collected over several months and will include temporal variation.

Collection of Water Quality Data

Water quality samples are collected during each formation packer test. Sampling methods are consistent with the "Standard Operating Procedures for the Collection of Water Quality Samples" (Water Quality Monitoring Program, 2020). The procedure involves isolating the test interval with the off-bottom packer (fig. A3) as explained above, and air-lifting the water in the NQ or NRQ coring rods. To ensure a representative sample is collected, three core hole volumes of water are removed and temperature, pH, and specific conductance are monitored for stabilization using a YSI® multi-parameter meter. Samples are collected either directly from the air-lift



Reverse-air pumping
Reverse-air pumping allows cuttings to be removed without the introduction of man-made drilling fluids. As air bubbles leave the airline and move up inside the rods, they expand and draw water with them, creating suction at the bit. Groundwater comes from up-hole permeable zones and is natural formation water. Suction at the bit draws water and drill cuttings up the rods to be discharged at the surface.

Figure A2. Reverse-air drilling and water sampling procedure.

discharge point, with a wireline retrievable stainless steel bailer (fig. A4), or with a nested bailer. When sampling a poorly producing interval, the purge time may be substantial. The nested bailer is an alternative that is attached directly to the packer orifice thereby reducing the volume of water to be evacuated from the core hole because it collects water directly from the isolated interval through the orifice. Bailers are better for obtaining non-aerated samples, which are more representative because aerated samples may have elevated pH and consequently iron precipitation.

Once the water samples are at the surface, they are transferred into a clean polypropylene beaker. A portion of the sample is bottled according to standard District procedure for laboratory analysis (SWFWMD, 2020). A 500 ml bottle is filled with unfiltered water. Two bottles, one 250 ml and one 500 ml, are filled with water filtered through a 0.45-micron filter. A Masterflex® console pump is used to dispense the water into the bottles. The sample in the 250 ml bottle is acidified with nitric acid to a pH of 2 in order to preserve metals for analysis. The remainder is used to collect field parameters including specific conductance, temperature, pH, and chloride and sulfate concentrations. Temperature, specific conductance, and pH are measured using a YSI® multi-parameter handheld meter. Chloride and sulfate concentrations are analyzed with a YSI® 9300 photometer. The samples are delivered to the District's chemistry laboratory for additional analysis. A "Standard Complete" analysis that includes pH, calcium, chloride, ion balance, iron, magnesium, potassium, silica, sodium, strontium, specific conductance, sulfate, total dissolved solids (TDS), and total alkalinity is performed on each set of samples (SWFWMD, 2020). Chain of Custody forms are used to track the samples.

The analysis of the water quality data includes the evaluation of relative ion abundance and ion or molar ratios, and the determination of water type(s). The laboratory data are used to calculate milliequivalents per liter (meq/L) and percent meq/L. Using the criteria of 50 percent or greater of relative abundance of cations and anions, the water type for each sample is determined (Hem, 1985). The data are plotted on a Piper (1944) diagram to give a graphical depiction of the relative abundance of ions in an individual sample (Domenico and Schwartz, 1998) as well as how the individual samples compare to each other. Select ion ratios are calculated for each sample to further evaluate chemical similarities or differences among waters and to help explain why certain ions change with depth. Field pH is used in analyses because it is more likely to represent the actual conditions in the water since pH is sensitive to environmental changes (Driscolll, 1986; Fetter, 2001). Additionally, total alkalinity is used as bicarbonate concentration because hydroxyl ions generally are insignificant in natural groundwater and carbonate ions typically are not present in groundwater with a pH less than 8.3 (Fetter, 2001).

Collection of Slug Test Data

Some hydraulic properties can be estimated by conducting a series of slug tests. During slug tests, the static water level in the test interval is suddenly displaced, either up or down, and the water level response is recorded as it returns to a static state. Typically, the slug tests are conducted using the off-bottom packer assembly to isolate test intervals as the core hole is advanced. KPSI® pressure transducers are used to measure the water level changes in the test interval and the annulus between the HQ or HW casing and the NQ or NRQ coring rods. The annulus pressure transducer is used as a quality control device to detect water level changes indicative of a poorly seated packer or physical connection (i.e. fractures or very permeable rocks) within the formation. A third pressure transducer is used to measure air pressure during pneumatic slug testing. All pressure transducer output is recorded on a Campbell Scientific, Inc. CR800 datalogger. Prior to all slug

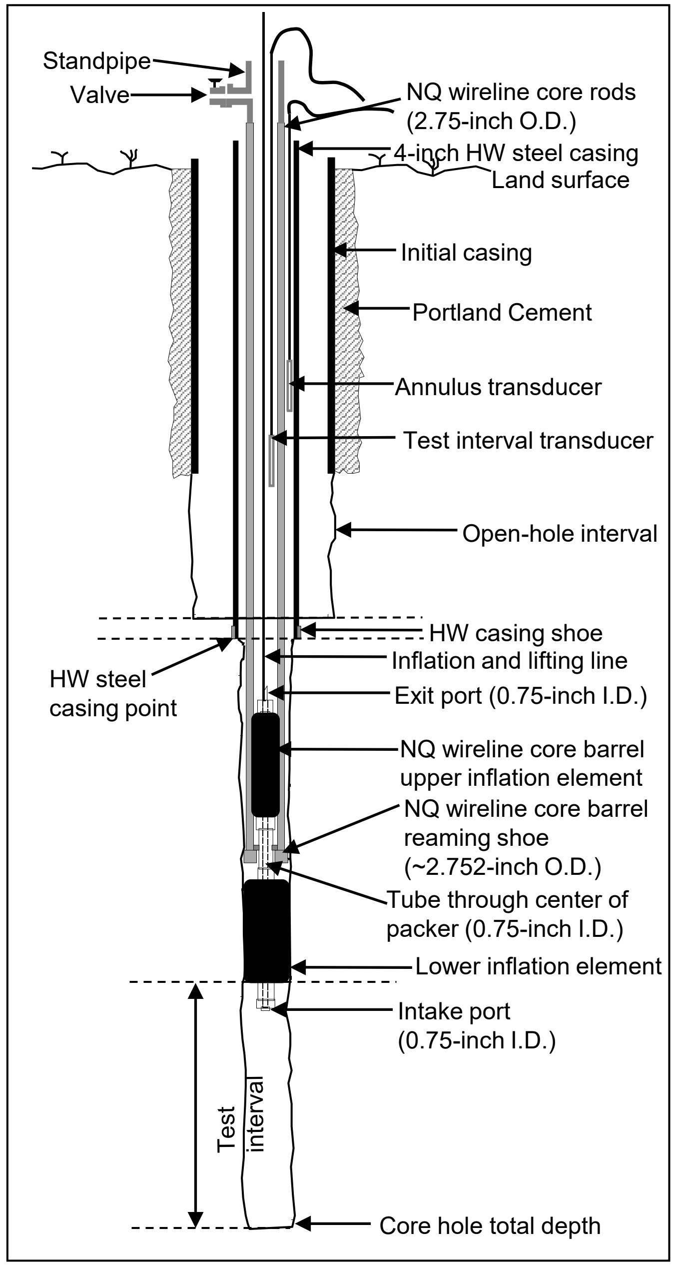


Figure A3. Formation (off-bottom) packer assembly deployed in the core hole.

tests, the test interval is thoroughly developed.

Slug tests can be initiated several ways. The primary methods used by the District are the pneumatic slug method and the drop slug method. Core hole conditions and apparent formation properties dictate which method is used. The pneumatic slug method is used for moderate to high hydraulic conductivity formations because of the near instantaneous slug initiation. The pneumatic slug method uses a NQ rod modified to include a pressure gauge and regulator, and an electronic or manual valve. The opening is sealed with compression fittings. Air pressure is used to depress the static water level. The water level is monitored for equilibration and once it returns to the

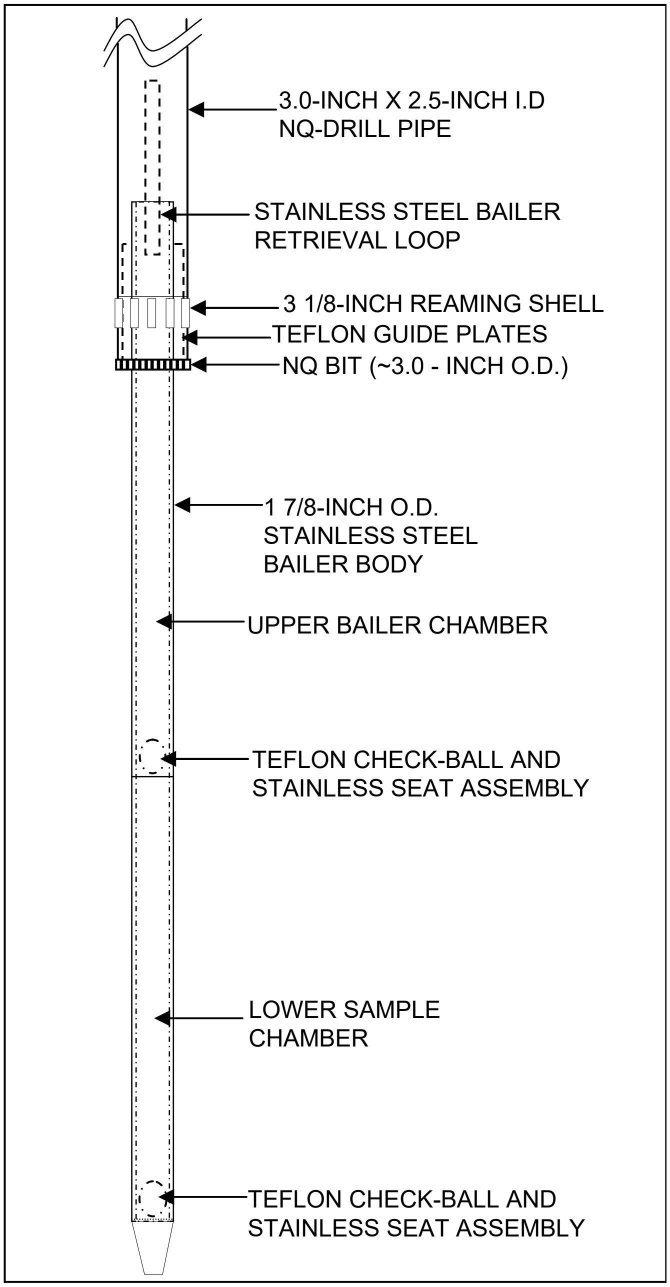


Figure A4. Diagram of the wireline retrievable bailer.

initial static water level the test is initiated. The electronic or manual valve is opened to release the air pressure causing the water level to rise (rising head test). The water level is recorded until it reaches the initial static water level. The drop slug method is used for low hydraulic conductivity formations because of the slow slug initiation. This test initiation method is slower than the pneumatic method because the water has to travel down the core hole before reaching the test interval. The drop slug method involves adding a predetermined volume of water into the NQ or NRQ rods raising the static water level. A specially designed PVC funnel fitted with a ball valve placed over the NQ or NRQ rods is used to deliver the water. The valve is opened releasing the water causing the water level to rise. The water level is recorded until the raised level falls (falling head test) back to static level.

Several quality assurance tests are conducted in the field in order to identify any potential sources of error in the slug test data. The quality assurance tests include evaluation of the discrepancy between the expected and observed initial displacements (Butler, 1998), evaluation of the normalized plots for head dependence and evolving skin effects, and the evaluation of the annulus water level for movement. Lastly, estimates of the hydraulic conductivity values are made based on the slug test data using AQTESOLV® (Duffield, 2007) software by applying the appropriate analytical solution.

Slug tests in which the formation packer assembly is used all have one common source of error resulting from the orifice restriction (fig. A3). The water during the slug tests moves through NQ or NRQ coring rods with an inner diameter of 2.38 inches, the orifice on the packer assembly that has an inner diameter of 0.75 inch, and the core hole that has a diameter of approximately 3 inches. The error associated with this restriction is evident as head dependence in the response data of multiple tests conducted on the same test interval with varying initial displacements. The error associated with the orifice restriction will result in an underestimation of the hydraulic conductivity values. In order to reduce the error associated with the orifice restriction, the District inserts a spacer within the zone of water level fluctuation thereby reducing the effective casing radius from 1.19 inches to 0.81 inch. A second technique used to minimize the effects caused by the orifice restriction is the use of initial displacements (slugs) of less than 1.5-feet in height. Also, if the working casing is used instead of the packer, the error is eliminated.

Geophysical Logging

Geophysical logs are useful in determining subsurface geologic and groundwater characteristics (Fetter, 2001). Geophysical logs provide three major types of information from water wells: hydrologic (water quality, aquifer characteristics, porosity, and flow zone detection), geologic (lithology, formation delineation), and physical characteristics (depth, diameter, casing depth, texture of well bore, packer points, and integrity of well construction).

Geophysical logging entails lowering the geophysical tool into the monitor well on a wireline and measuring the tool's response to the formations and water quality in and near the core hole during retrieval. Core hole geophysical logs are run during various stages of core drilling. When feasible, geophysical logs are run prior to casing advancements, while the core hole is still open to the formation.

The District uses Century® and Mount Sopris geophysical logging equipment. The three types of geophysical probes used are the caliper/gamma, induction, and multifunction. The multifunction tool measures natural gamma-ray [GAM

(NAT)], spontaneous potential (SP), single-point resistivity (RES), short [RES(16N)], long [RES(64N)] normal resistivity, fluid temperature (TEMP) and fluid specific conductance (SP COND). Each log type is explained below.

Caliper (CAL)

Caliper logs are used to measure the diameter of the borehole. This log can identify deviations from the nominal borehole diameter and, in turn, locate cavities, washouts, and build-up. This log is useful for determining packer and casing placement because competent, well-indurated layers can be located. The caliper log also aids in calculating volumes of material such as cement, gravel, sand, and bentonite needed when installing casing during well construction and filling open hole intervals for abandonment.

Gamma [GAM(NAT)]

Natural gamma-ray logs measure the amount of natural radiation emitted by materials surrounding the borehole. Natural gamma radiation is emitted from decaying radioactive elements present in certain types of geologic materials, thus specific rock materials can be identified from the log. Some of these materials include clays that trap radioactive isotopes as they migrate with groundwater, organic deposits, and phosphates. Clays contain high amounts of radioactive isotopes in contrast to more stable rock materials like carbonates and sands, therefore, can be identified easily. One advantage using natural gamma-ray radiation is that it can be measured through PVC and steel casing, although it is subdued by steel casing. Gamma-ray logs are used chiefly to identify rock lithology and correlate stratigraphic units because gamma-ray radiation can be measured through casing and is relatively consistent.

Spontaneous Potential (SP)

Spontaneous potential logs measure the electrical potential (voltages) that result from chemical and physical changes at the contacts between different types of geological materials (Driscoll, 1986). They must be run in fluid-filled, uncased boreholes, and function best when the fluid in the borehole is different from that in the formation. They are useful in identifying contacts between different lithologies and stratigraphic correlation.

Single-Point Resistance (RES)

Single-point resistance logs measure the electrical resistance, in ohms, from rocks and fluids in the borehole to a point at land surface. Electrical resistance of the borehole materials is a measure of the current drop between a current electrode placed in the borehole and the electrode placed on land surface. The log must be run in a fluid-filled, uncased borehole. They are used for geologic correlation, such as bed boundaries, changes in lithology, and identification of fractures in resistive rocks (Keys and MacCary, 1971).

Short-Normal [RES (16N)] and Long-Normal [RES (64N)]

Short-normal and long-normal resistivity logs measure the electrical resistivity of the borehole materials and the surrounding rocks and water by using two electrodes. The 16 and 64 refers to the space, in inches, between the potential electrodes on the logging probe. The short-normal curve indicates the resistivity of the zone close to the borehole and the long-normal has more spacing between the electrodes, therefore measures the resistivity of materials further away from the borehole (Fetter, 2001). Short-normal and long-normal logs are useful in locating highly resistive geologic materials such as limestone, dolostone, and pure, homogenous sand and low resistivity materials like clay or clayey, silty sand. Also, the logs indicate water quality changes because fresh water has high resistivity whereas poor quality water has low resistivity. Resistivity logs must be run in fluid-filled, open boreholes.

Temperature (TEMP)

Temperature logs record the water temperature in the borehole. Temperature variations may indicate water entering or exiting the borehole from different aquifers. Thus, the log is useful in locating permeable zones. The log must be run in fluid-filled boreholes.

Specific Conductance (SP COND)

Specific Conductance logs measure the capacity of borehole fluid to conduct an electrical current with depth. The log indicates the total dissolved solids concentration of the borehole fluid. The specific conductance log may be useful in determining permeable zones because zones of increased inflow or outflow may show a change in water quality.

Aquifer Performance Tests

An APT is a controlled field experiment conducted to determine the hydraulic properties of water-bearing (aquifers) units (Stallman, 1976). APTs can be either single-well or multi-well and may partially or fully penetrate the aquifer. An APT involves pumping the aquifer at a known rate and monitoring the water level response. The general procedure, applied by the District, for conducting an APT involves design, field observation, and data analysis. Test design is based on the geologic and hydraulic setting of the site, such as knowledge of the aquifer thickness, probable range in transmissivity and storage, the presence of uncontrolled boundaries (sources/

sinks), and any practical limitations imposed by equipment. Field observations of the discharge and water levels are recorded to ensure a successful test. The District measures the discharge rate using an impeller meter and circular orifice weir. The District measures water levels using pressure transducers and an electric tape. All the recording devices are calibrated and traceable to the National Institute of Standards and Technology.

Data analysis includes first making estimates of drawdown observed during the test and then using analytical and numerical methods to estimate hydraulic properties of the aquifer and adjacent confining units. Diagnostic radial flow plots and derivative analyses of APT data are valuable tools in characterizing the type of aquifer present and specific boundary conditions that may be acting on the system during an APT.

Single-Well Aquifer Performance Test

Single-well APTs includes one test (pumped) well within the production zone used for both pumping and monitoring the water level response. A single-well APT may include monitoring the background water level in the test well for a duration of at least twice the pumping period (Stallman, 1976). Background data collection may not be necessary if the duration of the single-well test is short and the on-site hydrogeologist does not consider background data necessary. After background data collection is complete and it is determined that a successful test can be accomplished, pumping is started. During the test, the discharge rate is monitored and controlled to less than 10 percent fluctuation to ensure a constant rate test. The water level is recorded in the test well during the drawdown (pumping) and recovery phases. Other wells outside of the production zone may be monitored in order to provide additional information on the flow system. The response data are used to estimate drawdown and then analyzed using analytical methods to estimate the hydraulic properties of the aquifer and adjacent confining units. Typically, response data is analyzed using AQTESOLV® (Duffield, 2007) software by applying the appropriate analytical solution.

Multi-Well Aquifer Performance Test

Multi-well APTs involve a test (pumped) well and at least one observation well for monitoring the water level response in the production zone. Background water level data is collected for a period of at least twice the planned pumping period (Stallman, 1976). The background data allows for the determination of whether a successful test can be conducted and permits the estimation of drawdown. After the background data collection period is complete and it is determined that a successful test can be completed, pumping is started. During the test, the discharge rate is monitored and controlled to less than 10 percent fluctuation. The water level response is recorded in both the test well and the observation well(s) during the drawdown (pumping) and recovery phases. Other wells outside of the production zone may be monitored in order to provide additional information on the flow system. The response data are used to estimate drawdown and then analyzed using analytical or numerical methods to estimate the hydraulic properties of the aquifer and adjacent confining units. Typically, response data is analyzed using AQTESOLV® (Duffield, 2007) software by applying the appropriate analytical solution.

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Appendix B. Geophysical Log Suites for the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

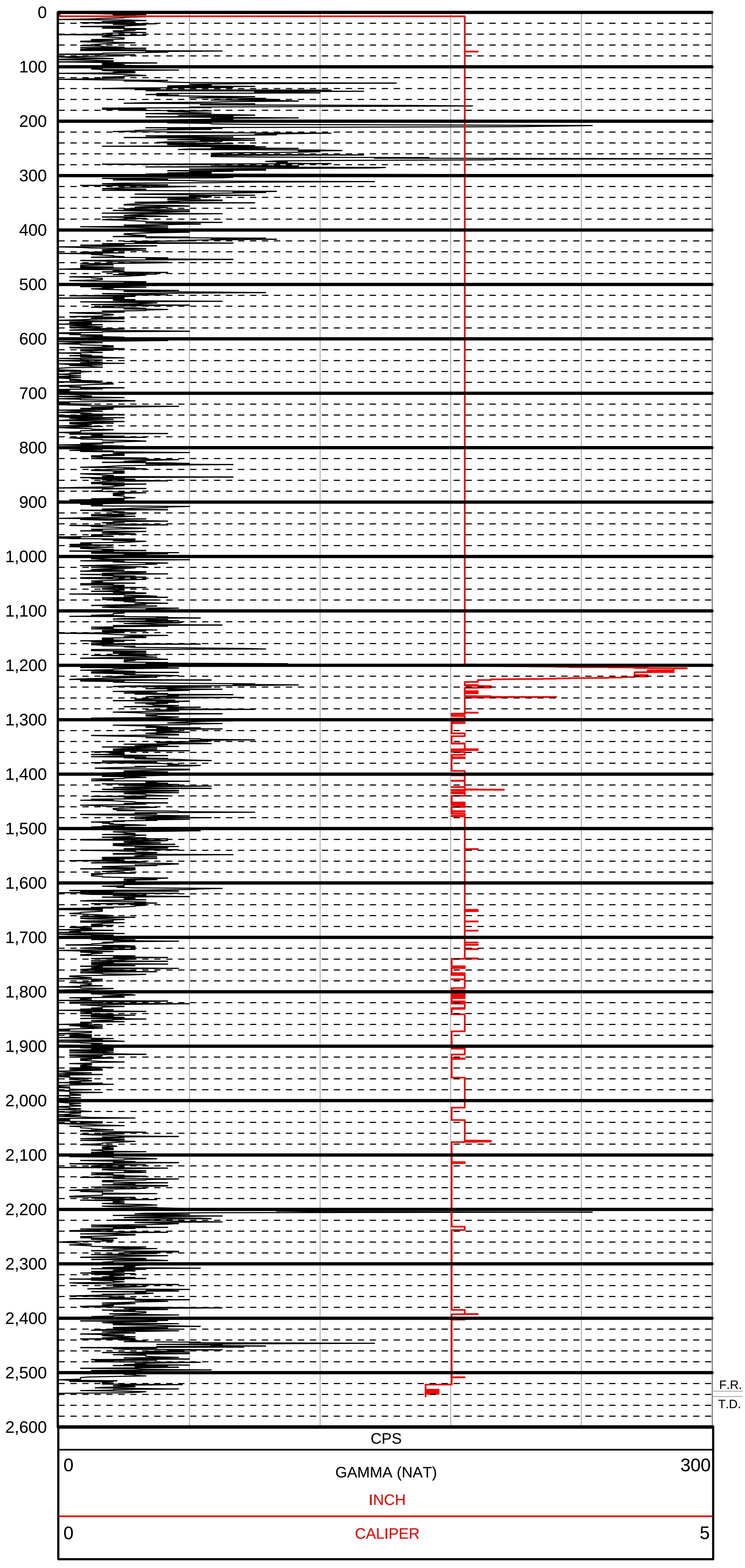


Figure B1. Gamma-ray and caliper log for Corehole 2 from land surface to 2,543.9 feet below land surface conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida. The log was performed on February 8, 2012, using the 9165C (caliper/gamma-ray) tool. Steel 3-inch casing was approximately 1,195 feet below land surface at time of logging. The log scale is 1-inch per 200 feet and is linearly scaled. The FR is 2,537.2 feet below land surface.

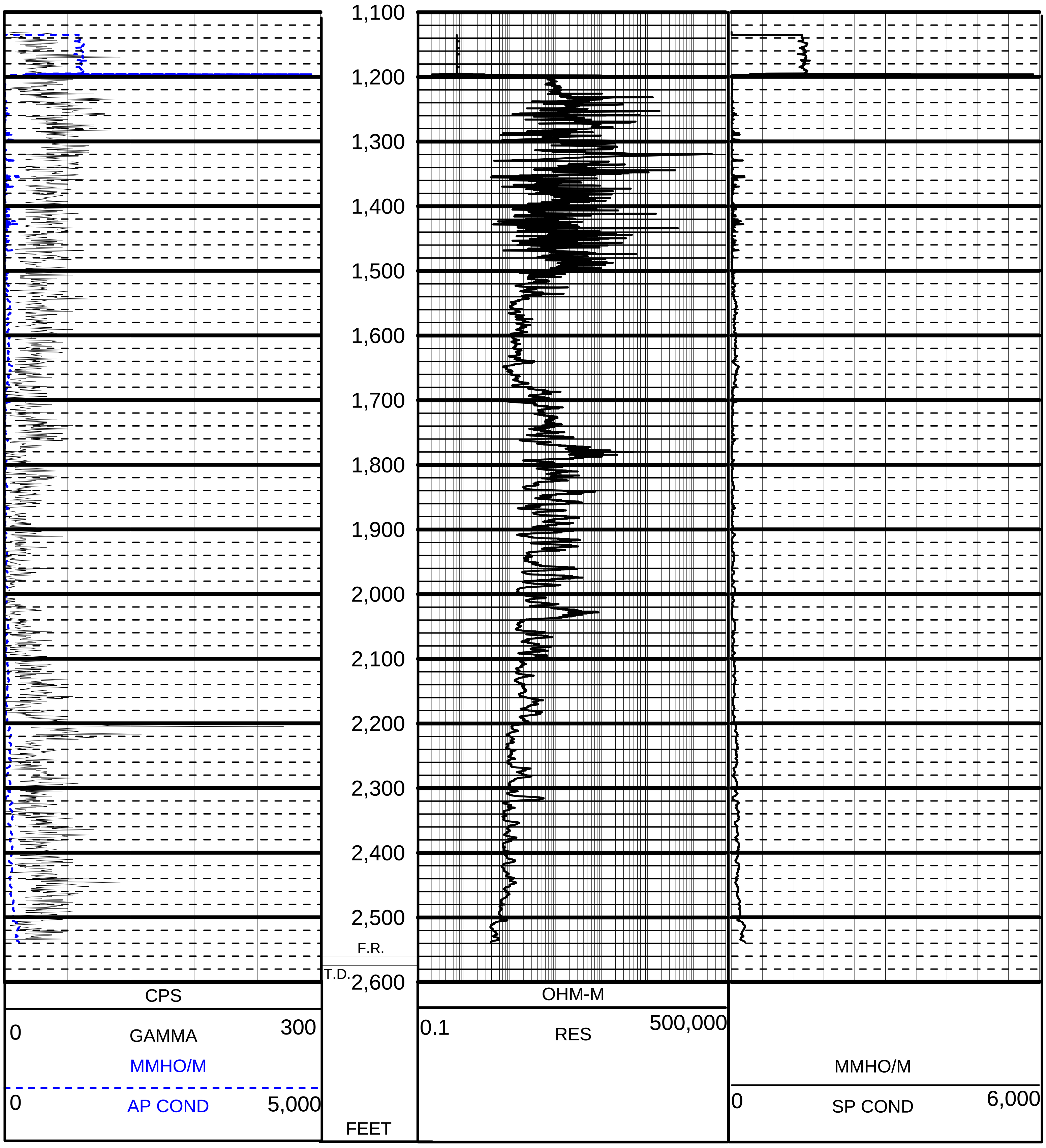


Figure B2. Induction log for Corehole 2 from 1,130.6 to 2,538.6 feet below land surface conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida. The log was performed on February 8, 2012, using the 9511C (induction) and the 9165C (caliper/gamma-ray) tools. Steel 3-inch casing was approximately 1,195 feet below land surface at time of logging. The log scale is 1-inch per 200 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 2,529.8 feet below land surface.

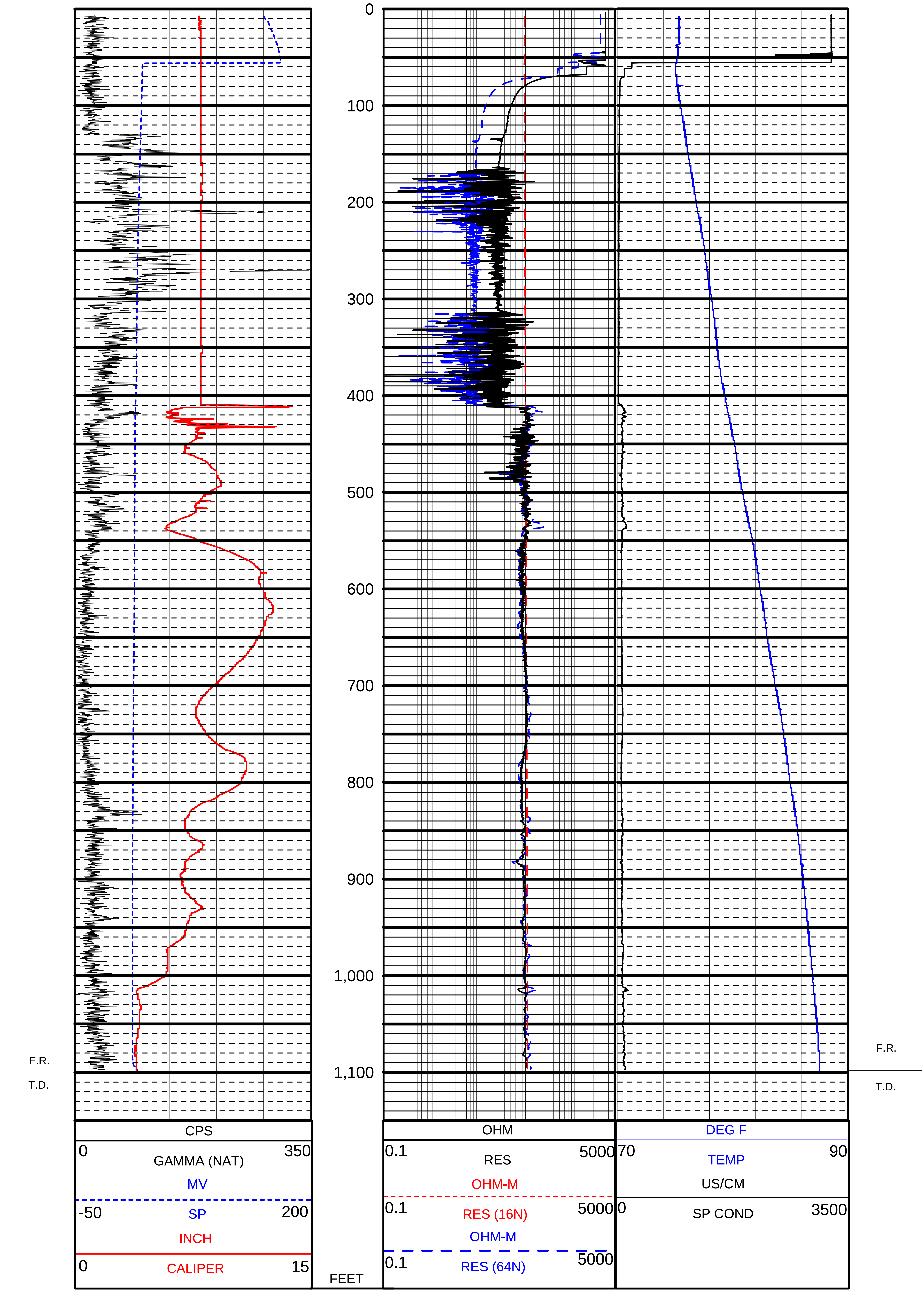


Figure B3. Geophysical log suite for Corehole 2 from land surface to 1,104 feet below land surface conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida. The log was performed on May 4, 2017, using the 9165C (caliper/gamma-ray) and the 8044C (multifunction) tools. Steel 8-inch casing was approximately 409 feet below land surface at time of logging. The log scale is 1-inch per 100 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 1,090.8 feet below land surface.

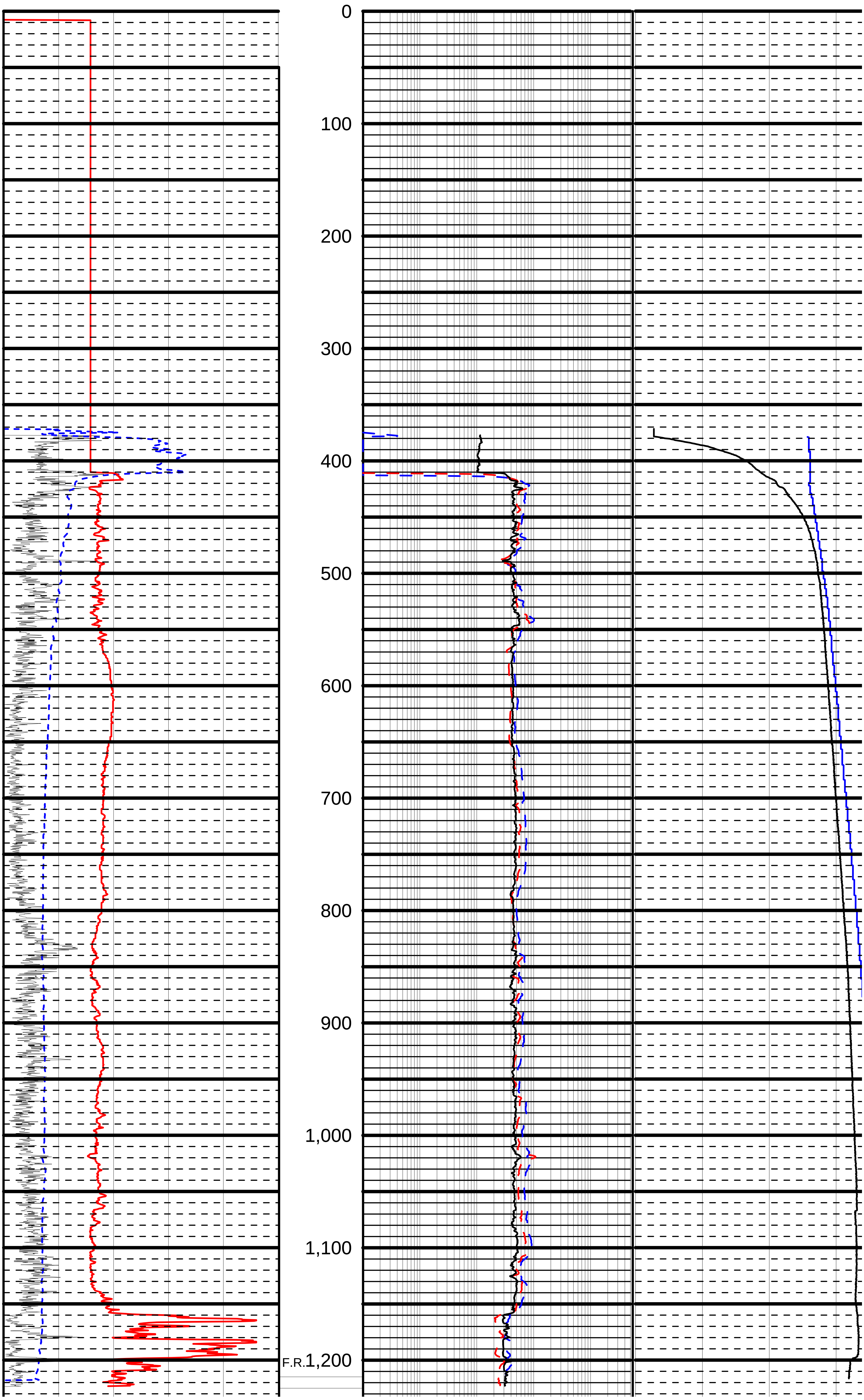


Figure B4. Geophysical log suite for the completed U Fldn Aq (Avpk) Monitor from 0.4 to 1,224.4 feet below land surface conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida. The log was performed on October 1, 2012, using the 9165C (caliper/gamma-ray) and the 8044C (multifunction) tools. Steel 16-inch casing was installed to 409 feet below land surface at time of logging. The log scale is 1-inch per 100 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 1,215.7 feet below land surface.

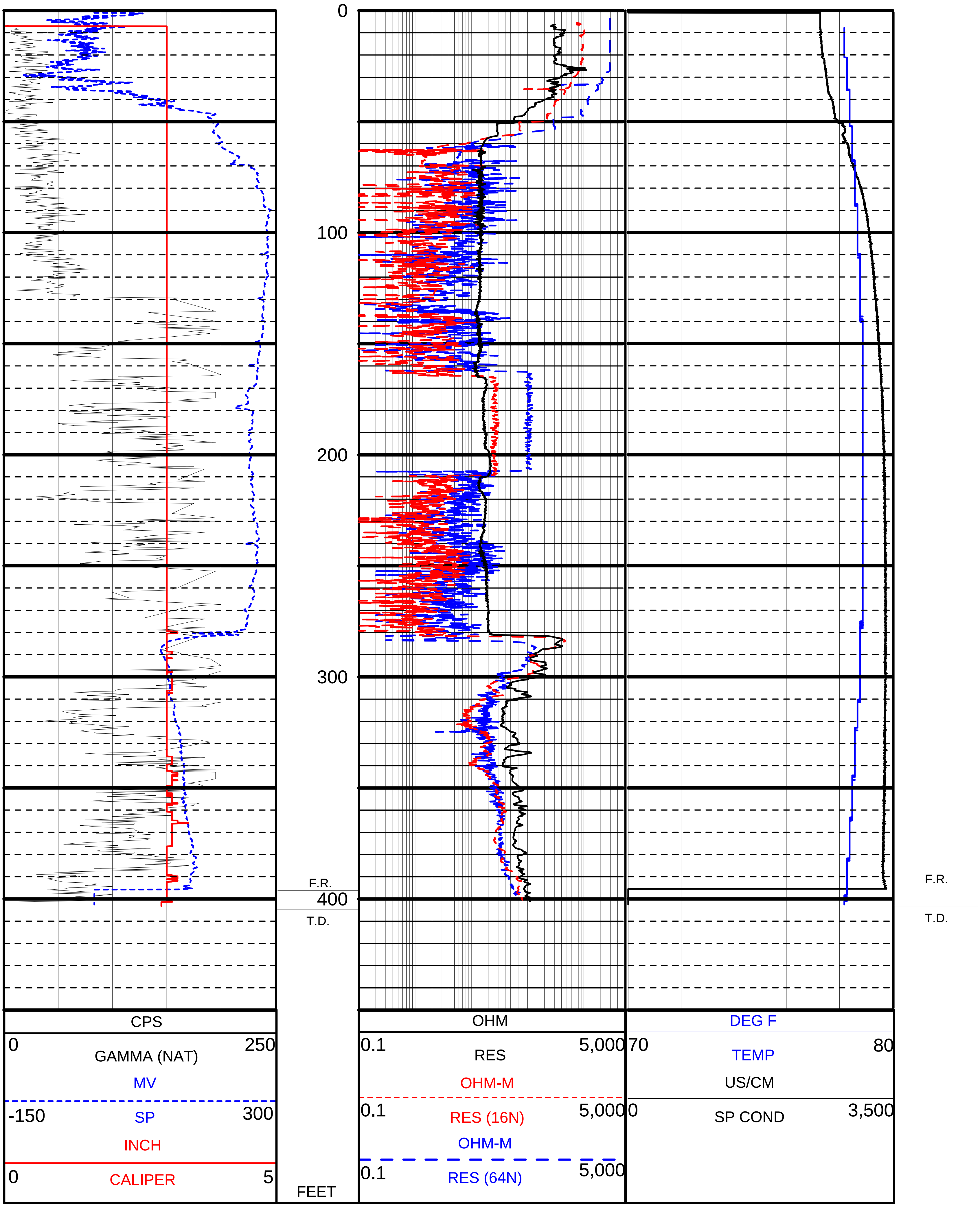


Figure B5. Geophysical log suite for Corehole 2 from land surface to 403.2 feet below land surface conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida. The log was performed on April 25, 2011, using the 9165C (caliper/gamma-ray) and the 8044C (multifunction) tools. Steel 3-inch casing was approximately 281 feet below land surface at time of logging. The log scale is 2 inches per 100 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 394.5 feet below land surface.

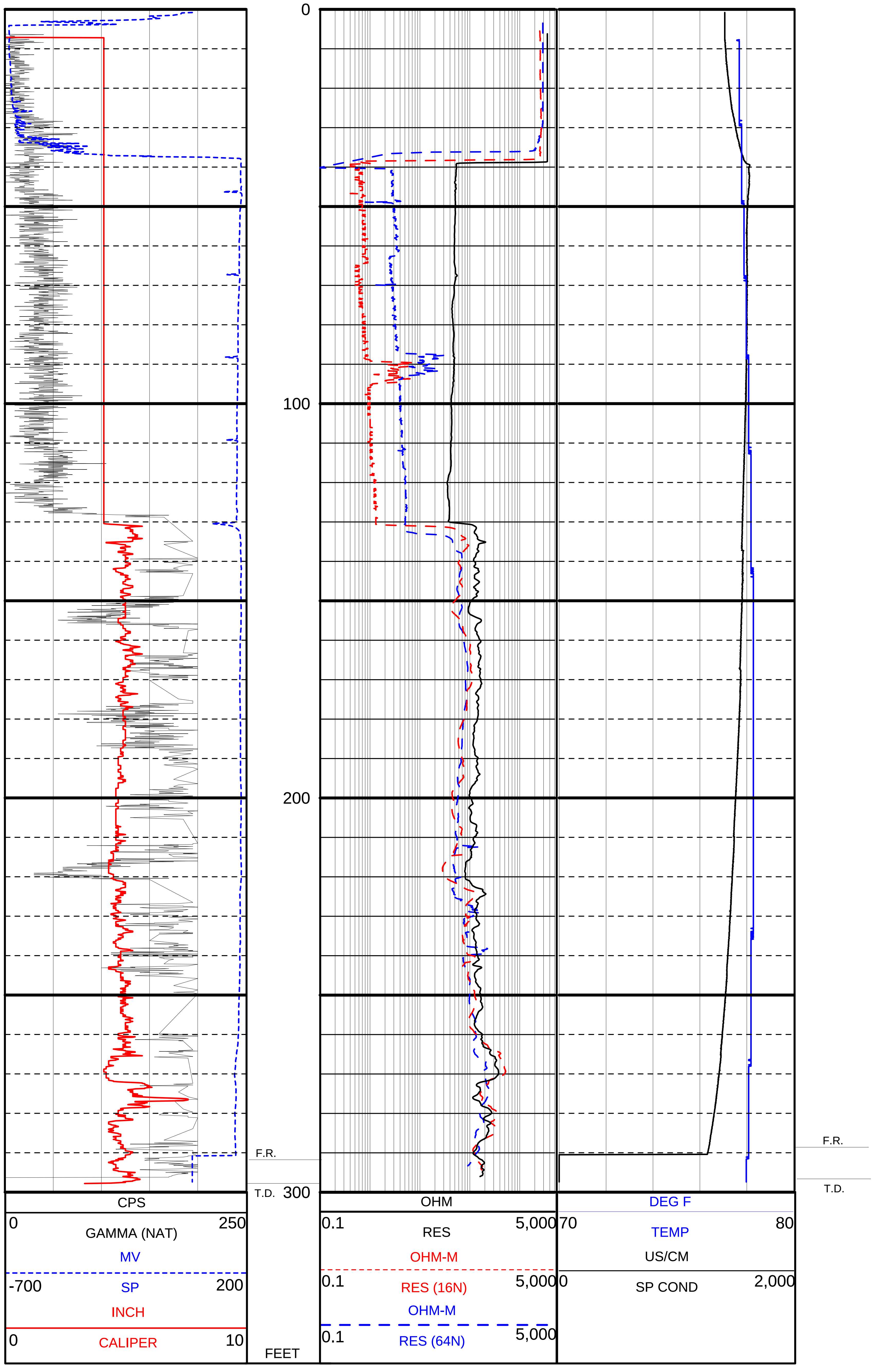


Figure B6. Geophysical log suite for the completed L Arca Aq Temp Ob from land surface to 297.9 feet below land surface conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida. The log was performed on April 13, 2011, using the 9165C (caliper/gamma-ray) and the 8044C (multifunction) tools. Steel 4-inch casing was installed to 130 feet below land surface at time of logging. The log scale is 2 inches per 100 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 294.5 feet below land surface.

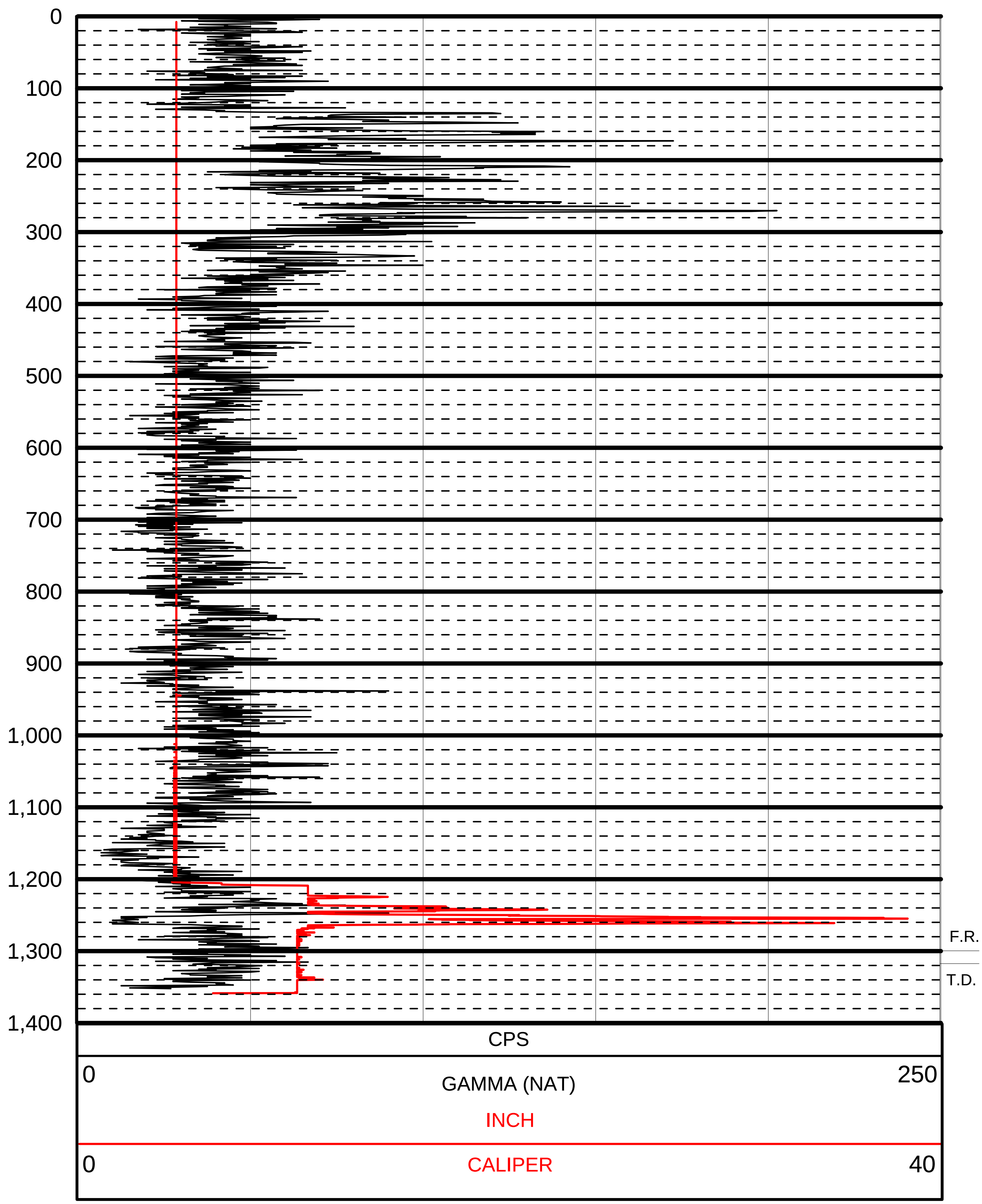
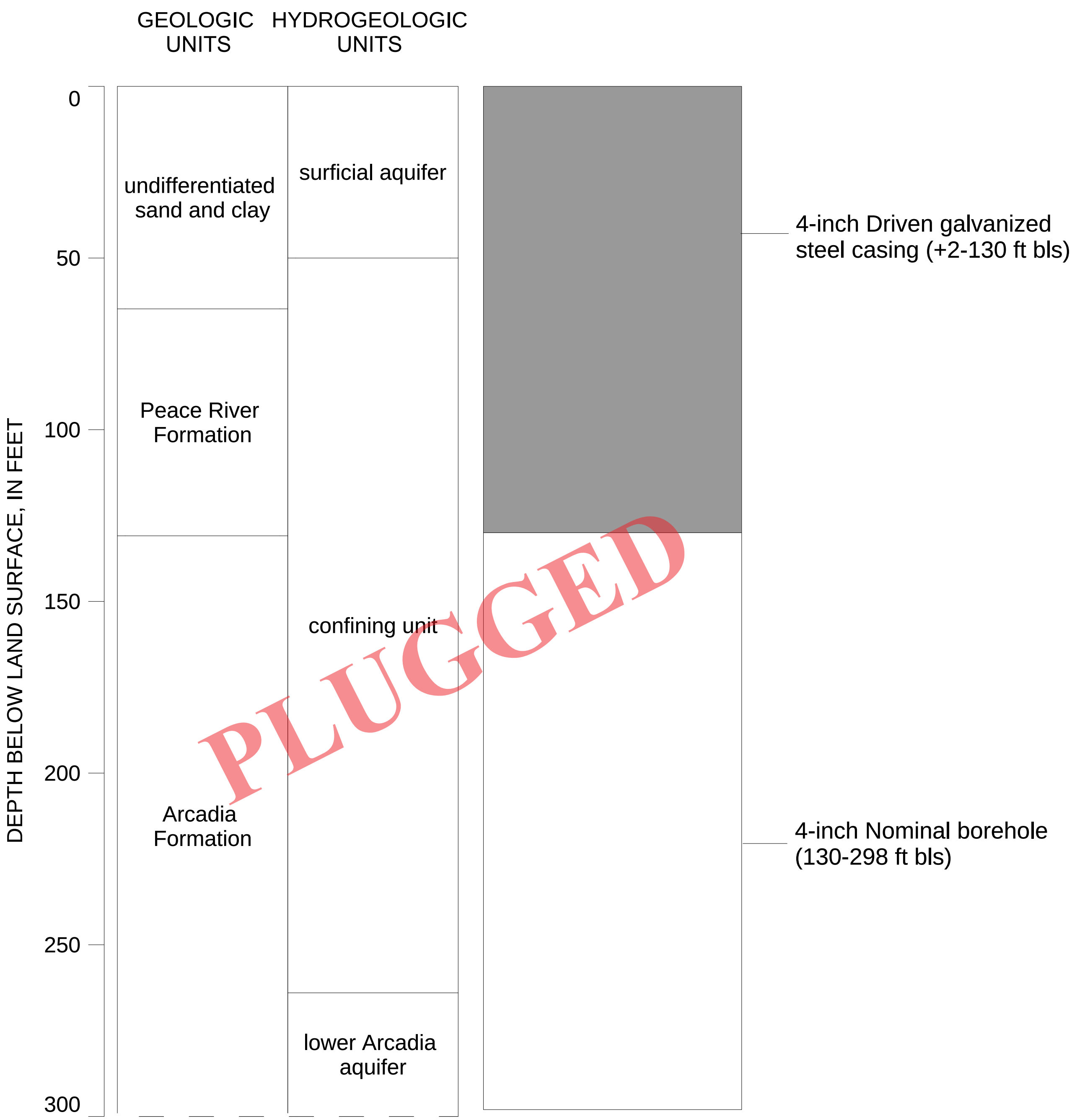


Figure B7. Gamma-ray and caliper log for the completed U Fldn Aq (Avpk) Monitor from land surface to 1,358.6 feet below land surface conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida. The log was performed on April 27, 2017, using the 9165C (caliper/gamma-ray) tool. Standard dimension ratio 17 4.5-inch casing was installed to 1,207 feet below land surface at time of logging. The log scale is 1-inch per 100 feet. Tracks 1 and 3 are linearly scaled and track 2 is in logarithmic scale. The FR is 1,351.8 feet below land surface.

Appendix C. Well As-Built Diagrams for the ROMP 27 – Scarborough Well Site in DeSoto County, Florida



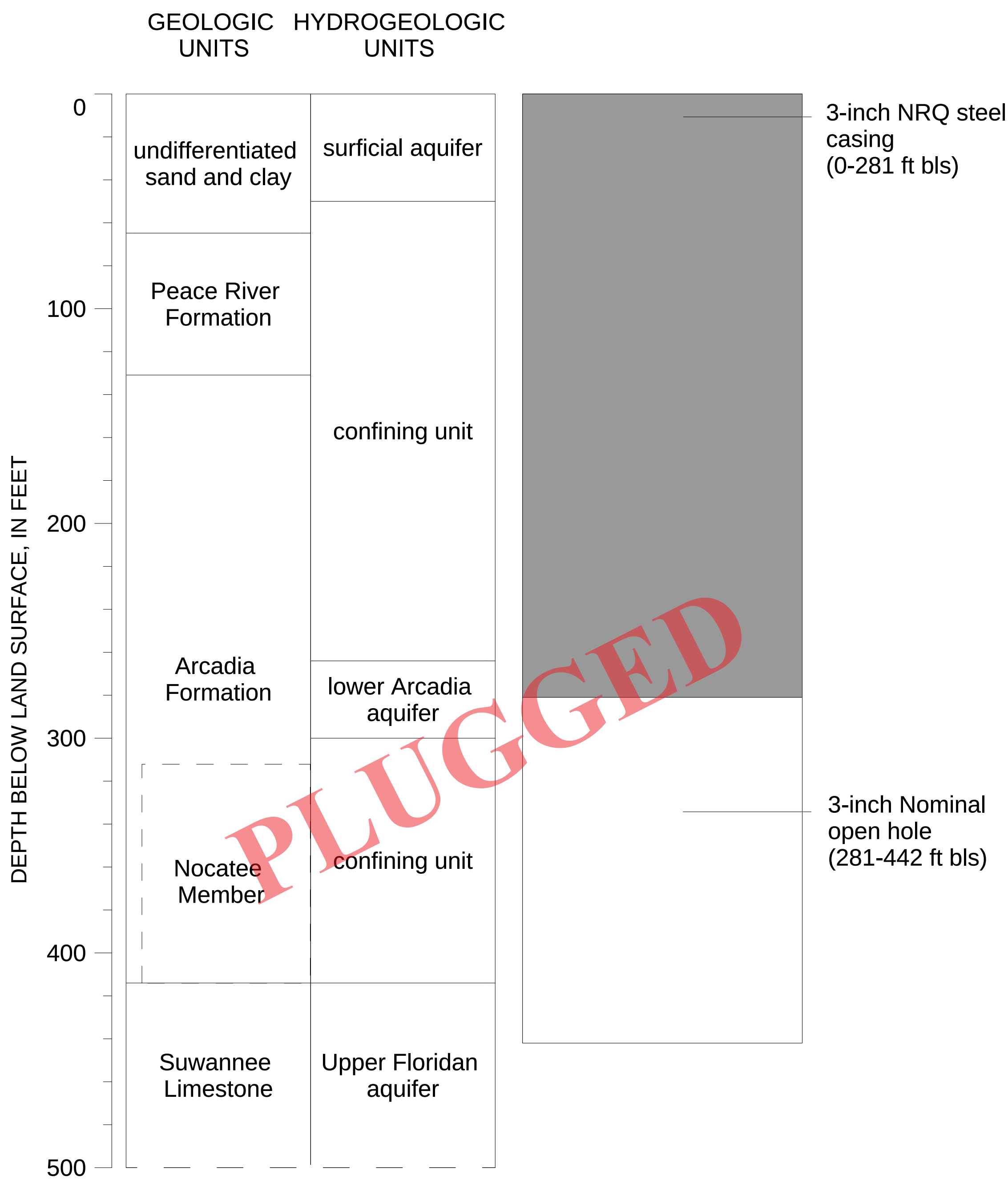
Well Name:	ROMP 27 L Arca Aq Temp Ob
SID:	784367
WCP:	811014, 859011
S/T/R:	21/36S/27E
Latitude:	27° 20' 25.70"
Longitude:	81° 37' 38.01"
Reporting Category:	LWNE
Const. Began:	3/8/2011
Const. Complete:	4/12/2011

EXPLANATION

Galvanized steel   Open hole

[ft, feet; bls, below land surface; ROMP, Regional and Observation Monitor-well Program; L, lower; Arca, Arcadia;; Aq, aquifer; Temp, temporary; Ob, observation; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C1. As-built diagram for the L Arca Aq Temp Ob at the ROMP 27 – Scarborough well site in DeSoto County, Florida.



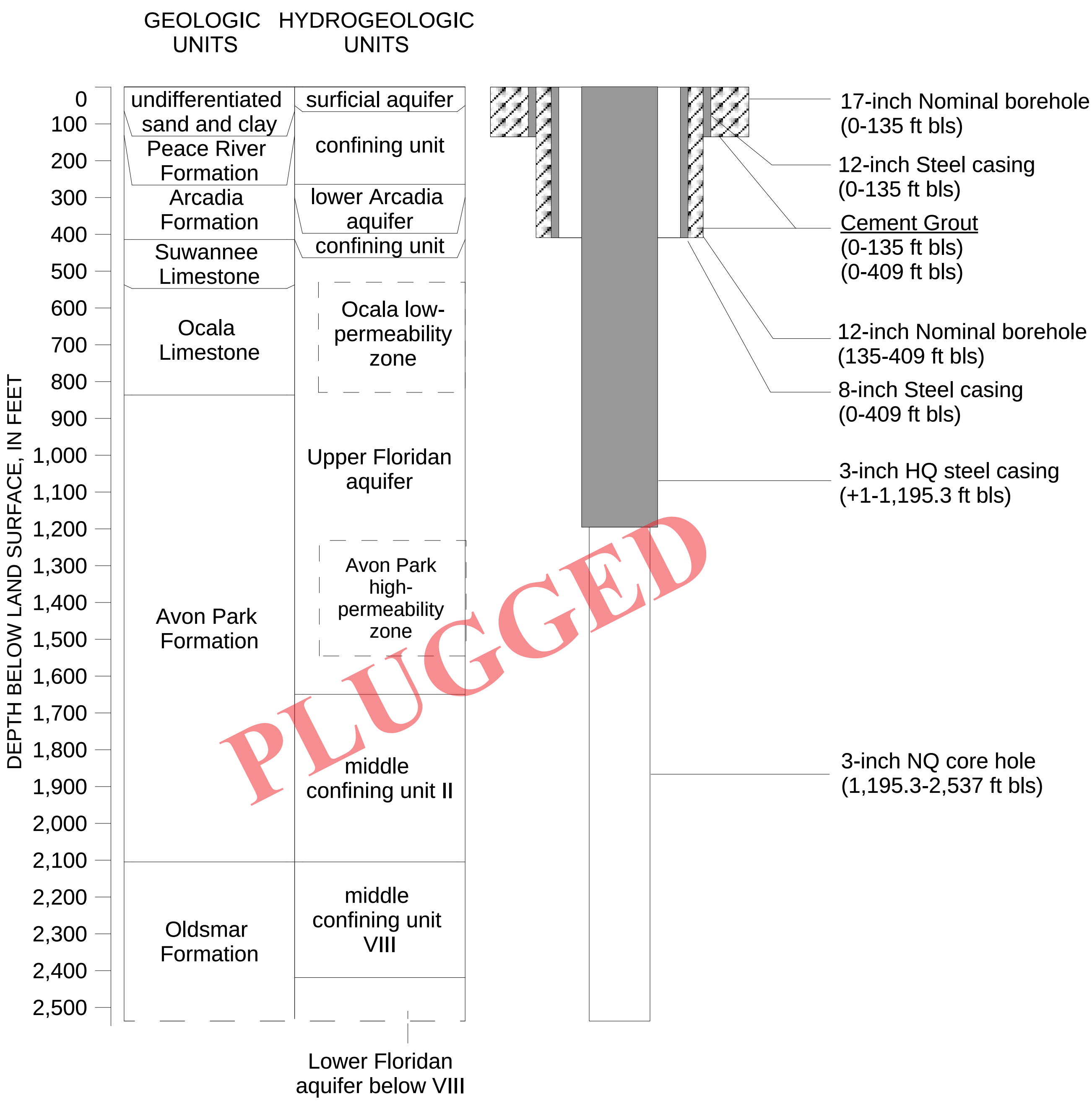
Well Name:	ROMP 27 Corehole 1
SID:	775314
WCP:	812048
S/T/R:	21/36S/27E
Latitude:	27° 20' 24.00"
Longitude:	81° 37' 38.40"
Reporting Category:	LWNE
Const. Began:	4/13/2011
Const. Complete:	4/20/2011

EXPLANATION

Galvanized steel   Open hole

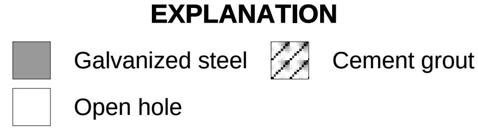
[NRQ, 2.38-inch internal diameter core drilling rod; ft, feet; bls, below land surface; ROMP, Regional and Observation Monitor-well Program; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C2. As-built diagram for Corehole 1 at the ROMP 27 – Scarborough well site in DeSoto County, Florida.



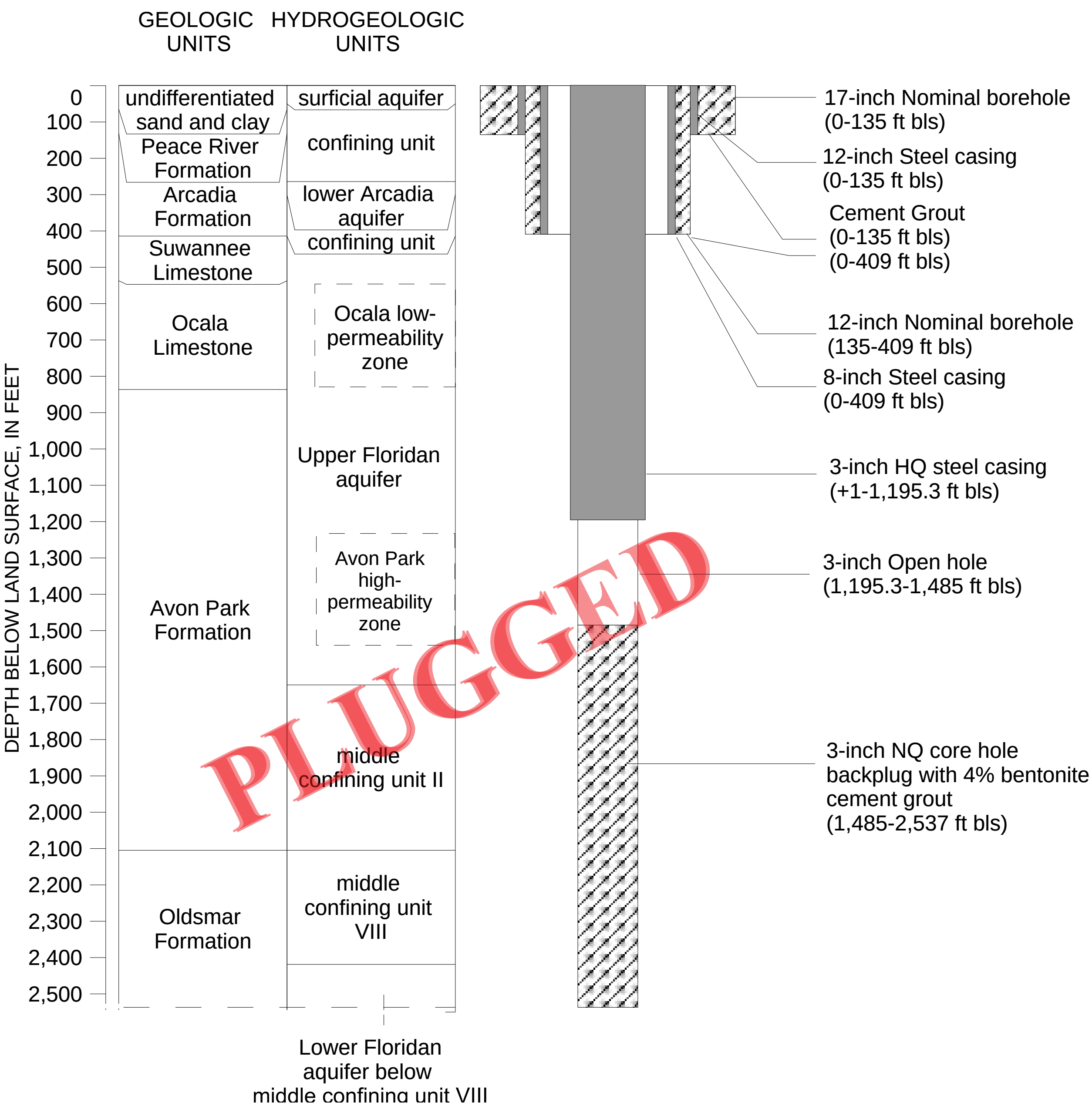
Well Name:	ROMP 27 Corehole 2
SID:	778997
WCP:	812094, 813096, 816736, 859370
S/T/R:	21/36S/27E
Latitude:	27° 20' 23.66"
Longitude:	81° 37' 39.06"
Reporting Category:	LWNE
Const. Began:	4/20/2011
Const. Complete:	6/7/2017

EXPLANATION



[ft, feet; bls, below land surface; HQ, 3.06-inch internal diameter core drilling rod; ROMP, Regional and Observation Monitor-well Program; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C3. As-built diagram for Corehole 2 at the ROMP 27 – Scarborough well site in DeSoto County, Florida.



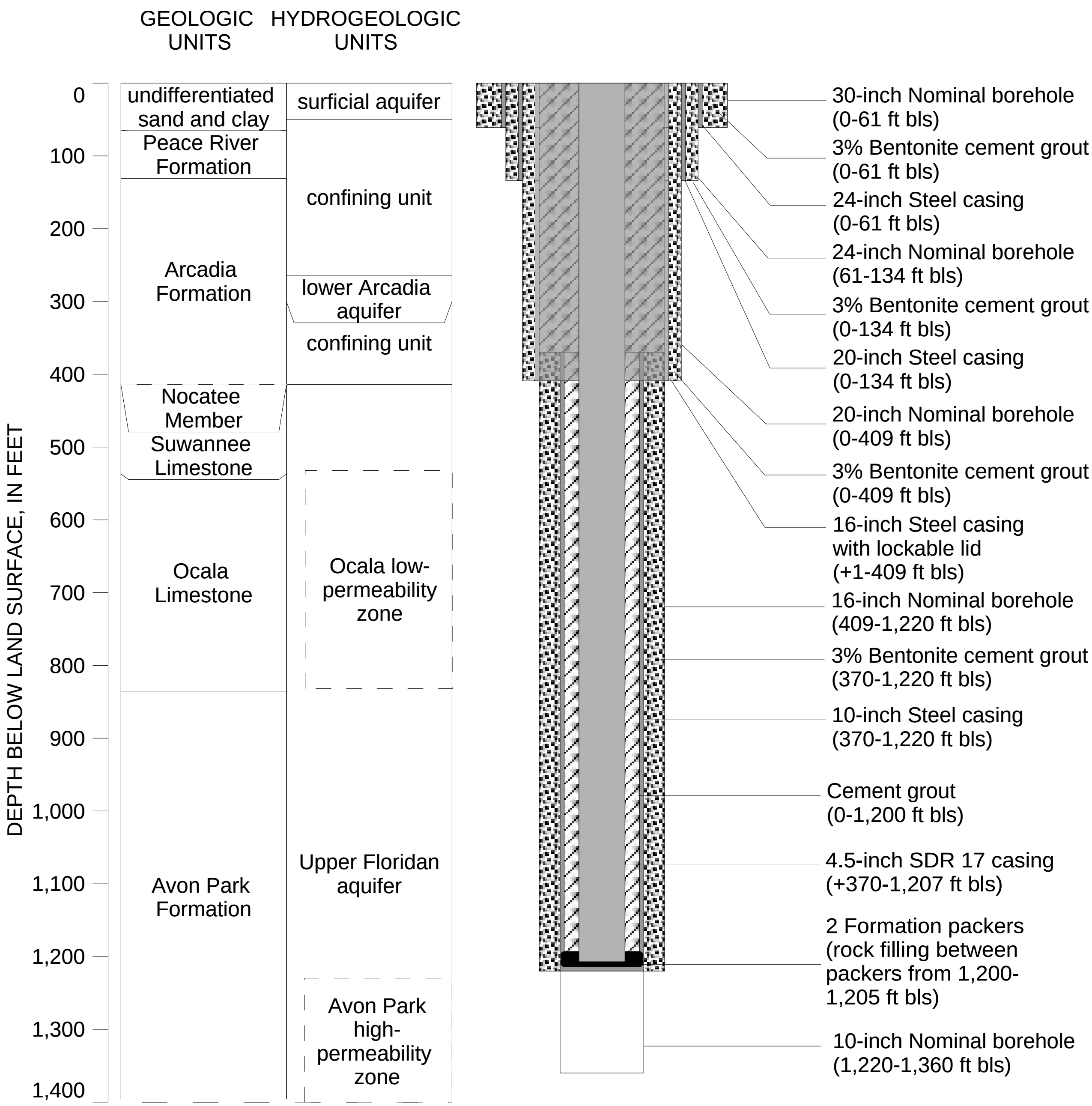
Well Name:	ROMP 27 U Fldn AQ (Avpk) Temp Ob
SID:	884734
WCP:	818856, 859370
S/T/R:	21/36S/27E
Latitude:	27° 20' 23.66"
Longitude:	81° 37' 39.06"
Reporting Category:	LWNE
Const. Began:	2/13/2012
Const. Complete:	6/7/2017

EXPLANATION

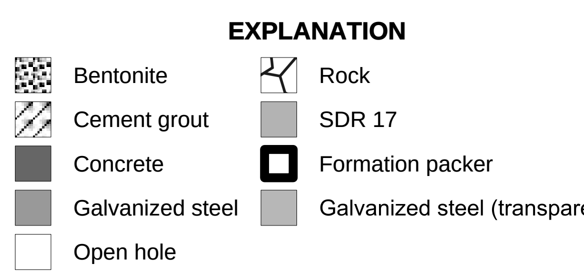
Galvanized steel
Cement grout
Open hole

[ft, feet; bls, below land surface; HQ, 3.06-inch internal diameter core drilling rod; NQ, 2.38-inch internal diameter core drilling rod; ROMP, Regional and Observation Monitor-well Program; U, Upper; Fldn, Floridan; Aq, aquifer; Avpk, Avon Park; Temp, temporary; Ob, observation; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C4. As-built diagram for the U Fldn Aq (Avpk) Temp Ob at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

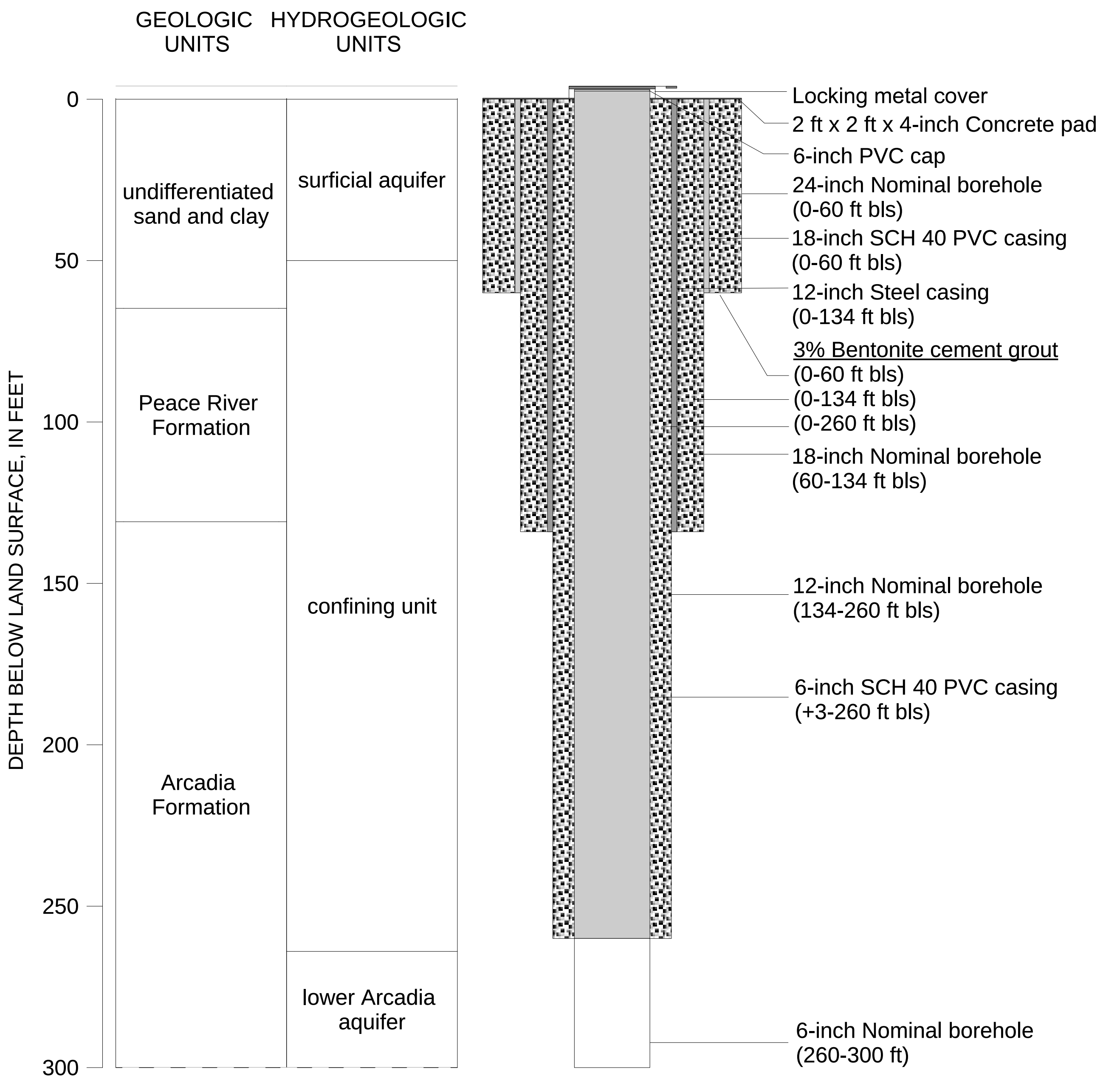


Well Name:	ROMP 27 U Fldn Aq (Avpk) Monitor
SID:	884739
WCP:	822983, 859001
S/T/R:	21/36S/27E
Latitude:	27° 20' 25.35"
Longitude:	81° 37' 36.93"
Reporting Category:	LWNE
Const. Began:	7/26/2012
Const. Complete:	4/26/2017

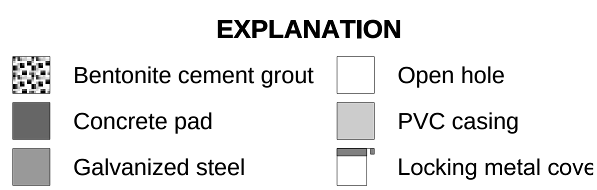


[ft, feet; bls, below land surface; SDR, standard dimension ratio; ROMP, Regional and Observation Monitor-well Program; U, Upper; Fldn, Floridan; Aq, aquifer; Avpk, Avon Park; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C5. As-built diagram for the U Fldn Aq (Avpk) Monitor at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

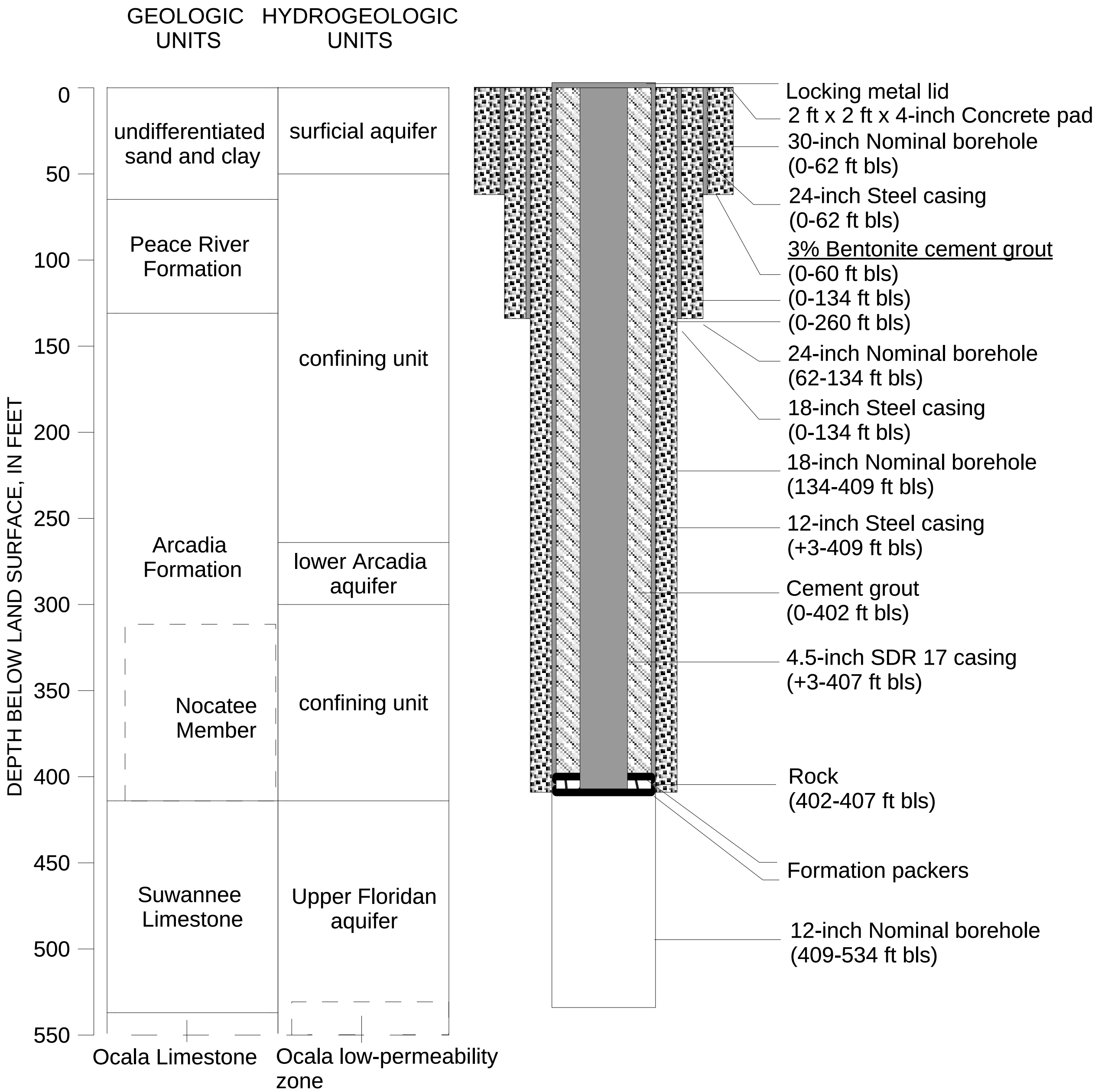


Well Name:	ROMP 27 L Arca Aq Monitor
SID:	884737
WCP:	828460
S/T/R:	21/36S/27E
Latitude:	27° 20' 25.46"
Longitude:	81° 37' 36.92"
Reporting Category:	LWNE
Const. Began:	4/15/2013
Const. Complete:	6/3/2013

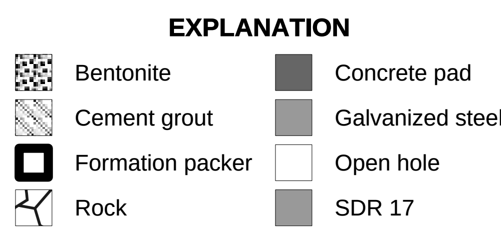


[ft, feet; bls, below land surface; SCH, schedule; PVC, polyvinyl chloride; ROMP, Regional and Observation Monitor-well Program; L, lower; Arca, Arcadia; Aq, aquifer; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C6. As-built diagram for the L Arca Aq Monitor at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

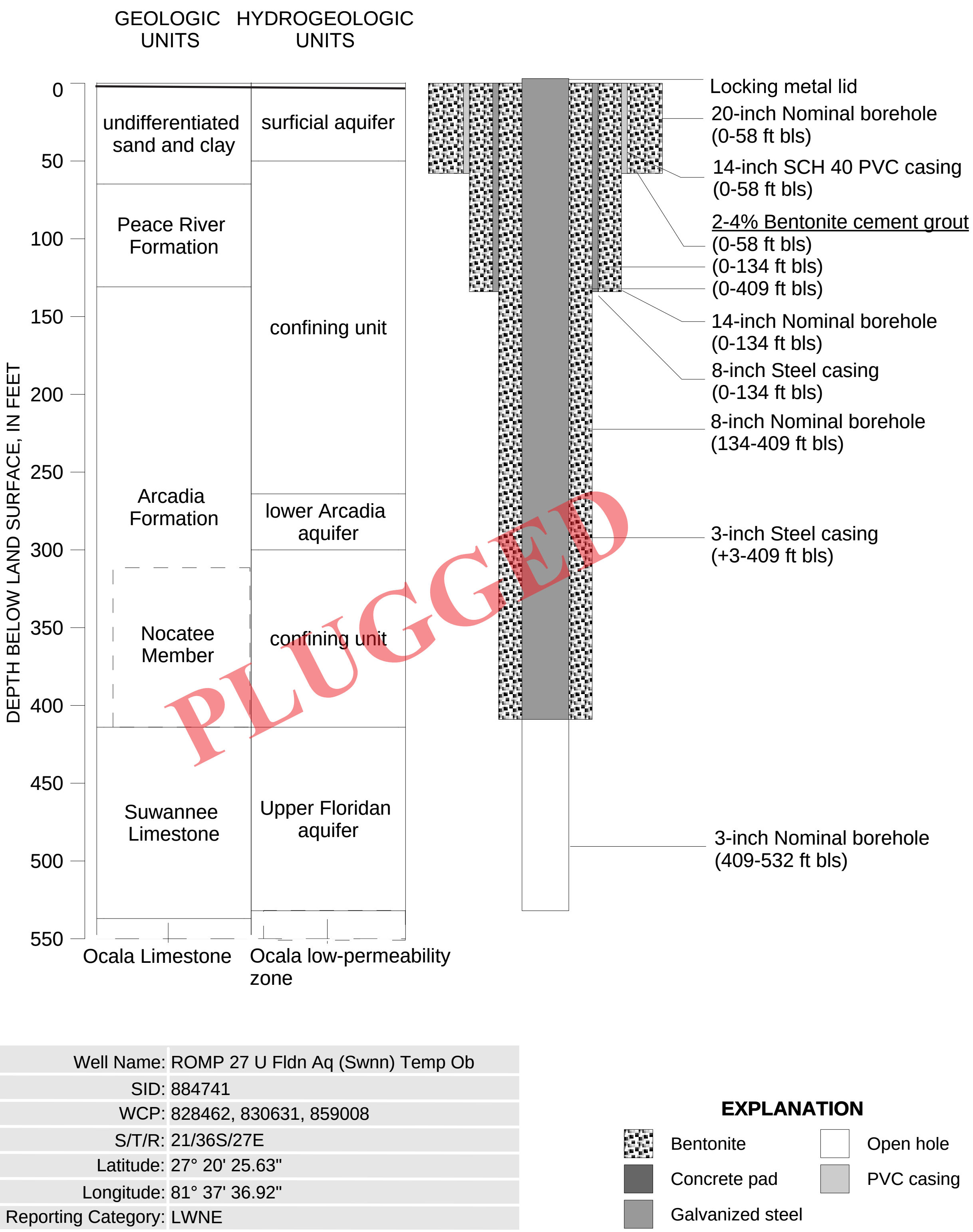


Well Name:	ROMP 27 U Fldn Aq (Swnn) Monitor
SID:	884738
WCP:	828461, 859006
S/T/R:	21/36S/27E
Latitude:	27° 20' 25.63"
Longitude:	81° 37' 36.92"
Reporting Category:	LWNE
Const. Began:	4/15/2013
Const. Complete:	4/26/2017



[ft, feet; bls, below land surface; SDR, standard dimension ratio; ROMP, Regional and Observation Monitor-well Program; U, Upper; Fldn, Floridan; Aq, aquifer; Swnn, Suwannee; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

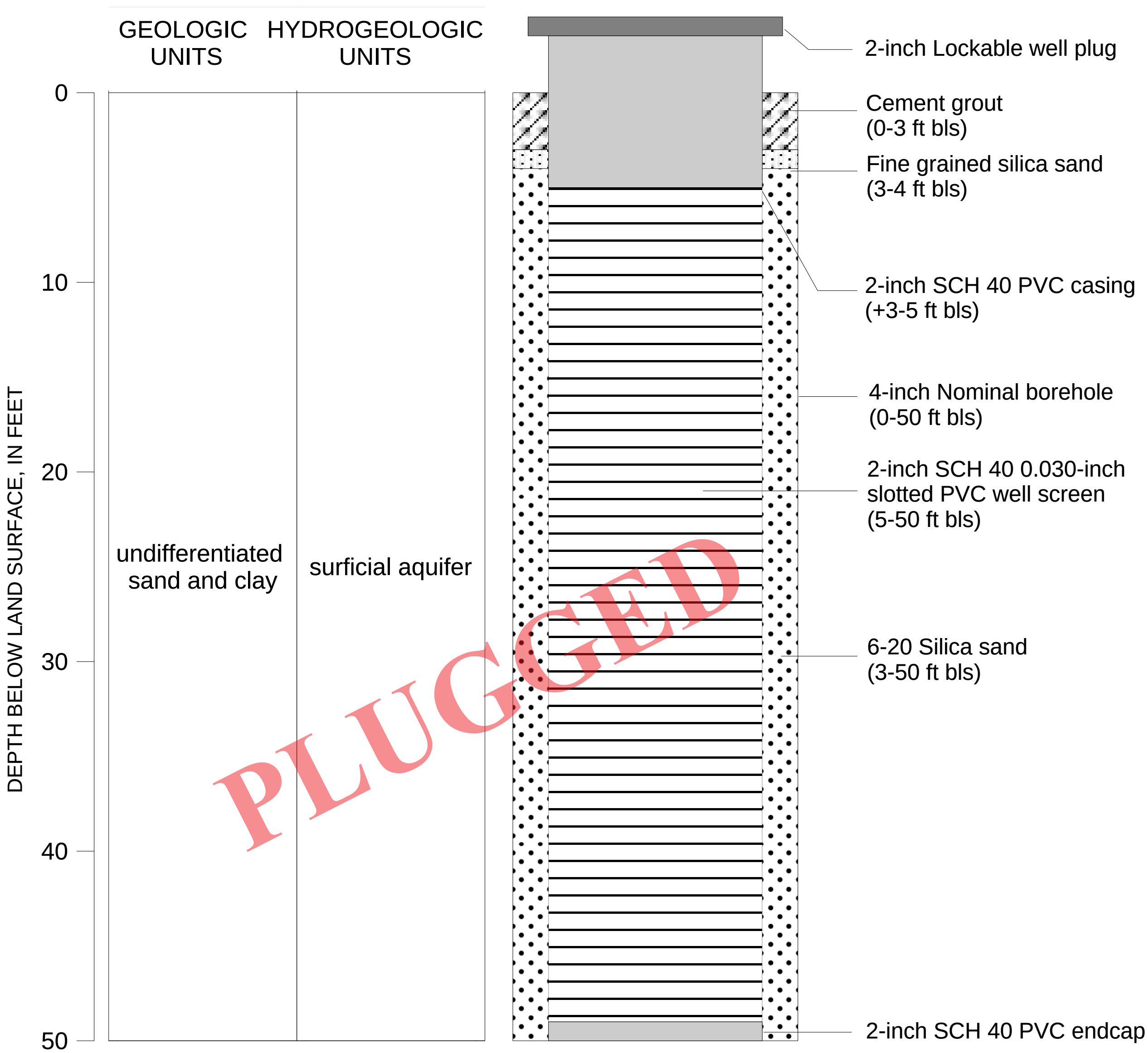
Figure C7. As-built diagram for the U Fldn Aq (Swnn) Monitor at the ROMP 27 – Scarborough well site in DeSoto County, Florida.



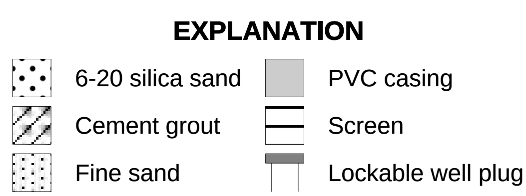
Well Name:	ROMP 27 U Fldn Aq (Swnn) Temp Ob
SID:	884741
WCP:	828462, 830631, 859008
S/T/R:	21/36S/27E
Latitude:	27° 20' 25.63"
Longitude:	81° 37' 36.92"
Reporting Category:	LWNE
Const. Began:	6/8/2013
Const. Complete:	8/7/2013

[ft, feet; bls, below land surface; SCH, schedule; PVC, polyvinyl chloride; ROMP, Regional and Observation Monitor-well Program; U, Upper; Fldn, Floridan; Aq, aquifer; Swnn, Suwannee; Temp, temporary; Ob, observation; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C8. As-built diagram for the U Fldn Aq (Swnn) Temp OB at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

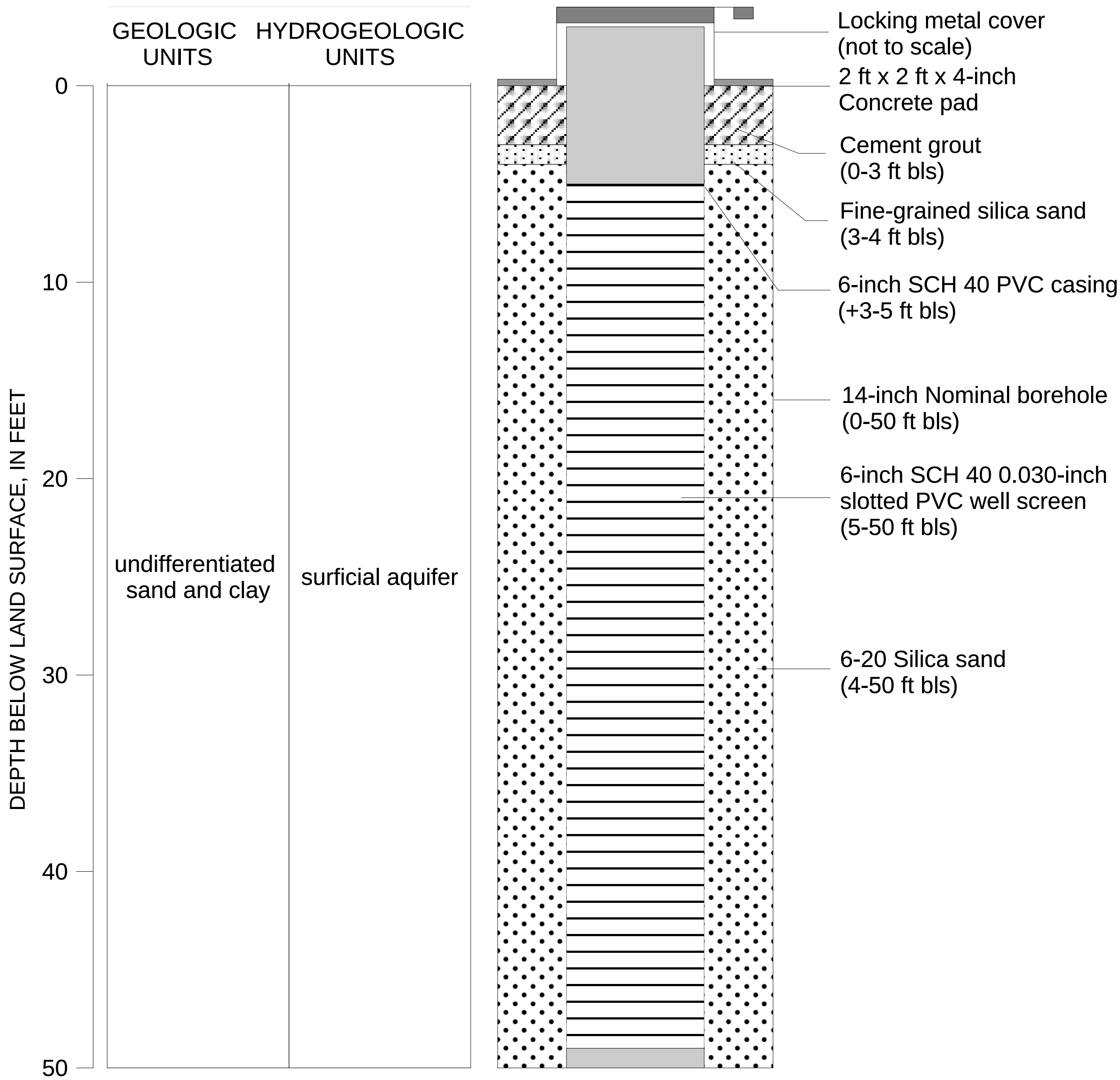


Well Name:	ROMP 27 Surf Aq Temp Ob
SID:	884740
WCP:	830628, 859009
S/T/R:	21/36S/27E
Latitude:	27° 20' 25.95"
Longitude:	81° 37' 37.44"
Reporting Category:	LWNE
Const. Began:	8/5/2017
Const. Complete:	8/7/2017



[ft, feet; bls, below land surface; SCH, schedule; PVC, polyvinyl chloride; ROMP, Regional and Observation Monitor-well Program; Surf, surficial; Aq, aquifer; Temp, temporary; Ob, observation; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C9. As-built diagram for the Surf Aq Temp Ob at the ROMP 27 – Scarborough well site in DeSoto County, Florida.



Well Name:	ROMP 27 Surf Aq Monitor
SID:	884736
WCP:	830630
S/T/R:	21/36S/27E
Latitude:	27° 20' 25.77"
Longitude:	81° 37' 36.91"
Reporting Category:	LWNE
Const. Began:	8/5/2013
Const. Complete:	8/6/2013

EXPLANATION

- 6-20 silica sand
- Cement grout
- Fine sand
- PVC casing
- Screen
- Locking metal cover
- Concrete pad

[ft, feet; bls, below land surface; SCH, schedule; PVC, polyvinyl chloride; ROMP, Regional and Observation Monitor-well Program; Surf, surficial; Aq, aquifer; SID, station identification; WCP, well construction permit; S/T/R, Section/Township/Range; S, south; E, east; Const. construction]

Figure C10. As-built diagram for the Surf Aq Monitor at the ROMP 27 – Scarborough well site in DeSoto County, Florida.

Appendix D. Lithologic Logs for the Samples Collected at the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

LITHOLOGIC WELL LOG PRINTOUT SOURCE: FGS

WELL NUMBER: W-19332 COUNTY: DESOTO
TOTAL DEPTH: 442 FT. LOCATION: T.36S R.27E S.21
35 SAMPLES FROM 0 TO 442 FT. LAT = 27D 20M 24S
LON = 81D 37M 39S

COMPLETION DATE: N/A ELEVATION: 88 FT
OTHER TYPES OF LOGS AVAILABLE: NONE

OWNER/DRILLER:SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

WORKED BY:Michelle Ladle (0-905.9') & Scott Barrett Dyer (905.9'-1600')
Described 07/13/2012 - 08/09/2012
Formation picks made with the assistance of Clint Kromhout
Ocala Limestone, not Ocala Group
WORKED BY:SCOTT BARRETT DYER 6/27/2012
ROMP-27 SCARBOROUGH CH-1
SEE DESCRIPTION FOR W-19333 (ROMP-27 SCARBOROUGH CH-2)
FOR CONTINUATION, INTERVAL 441-2537
LATITUDE SECONDS ROUNDED DOWN FROM 24.12 TO 24
LONGITUDE SECONDS ROUNDED UP FROM 38.55 TO 39
BOTH LATITUDE AND ELEVATION ARE SURVEYED DATA
CORE RECOVERY OVERALL WAS FAIR TO GOOD
RECOVERY POOR FOR INTERVAL 229-262
LONGITUDE SECONDS ROUNDED UP FROM 38.55 TO 39

0	-	64.8	090UDSC	UNDIFFERENTIATED SAND AND CLAY
64.8	-	417.0	122HTRN	HAWTHORN GROUP
64.8	-	130.9	122PCRV	PEACE RIVER FM.
130.9	-	417.0	122ARCA	ARCADIA FM.
311.2	-	417.0	122NOCA	NOCATEE MEMBER OF ARCADIA FM.
417	-	442.0	123SWNN	SUWANNEE LIMESTONE

0 - 1 SAND; VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; LOW SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: ORGANICS-05%, PYRITE-05%

1 - 3 SAND; YELLOWISH GRAY
20% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: ANGULAR TO SUB-ANGULAR; LOW SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: ORGANICS-03%, CLAY-01%

3	-	4	SAND; BROWNISH GRAY 16% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE ROUNDNESS: ANGULAR TO SUB-ANGULAR; LOW SPHERICITY POOR INDURATION CEMENT TYPE(S): CLAY MATRIX ACCESSORY MINERALS: CLAY-15%, ORGANICS-02%
4	-	8	SAND; VERY LIGHT ORANGE 18% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY POOR INDURATION CEMENT TYPE(S): CLAY MATRIX, SILICIC CEMENT ACCESSORY MINERALS: CLAY-05%, ORGANICS-03% PLANT REMAINS-03%
8	-	10	SAND; LIGHT GRAYISH BROWN 18% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY POOR INDURATION CEMENT TYPE(S): CLAY MATRIX, SILICIC CEMENT ACCESSORY MINERALS: CLAY-05%, ORGANICS-03% PLANT REMAINS-01%
10	-	12	SAND; BROWNISH GRAY 18% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY POOR INDURATION CEMENT TYPE(S): CLAY MATRIX, ORGANIC MATRIX ACCESSORY MINERALS: CLAY-02%, ORGANICS-05% PLANT REMAINS-01%
12	-	20	SAND; LIGHT BROWNISH GRAY 18% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY POOR INDURATION CEMENT TYPE(S): CLAY MATRIX ACCESSORY MINERALS: CLAY-04%, ORGANICS-02%
20	-	30	SAND; YELLOWISH GRAY TO GRAYISH BROWN 15% POROSITY: INTERGRANULAR GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY

POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, ORGANIC MATRIX
ACCESSORY MINERALS: CLAY-06%, ORGANICS-05%

30 - 38 SAND; DARK YELLOWISH BROWN
15% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, ORGANIC MATRIX
ACCESSORY MINERALS: CLAY-06%, ORGANICS-03%

38 - 40 SAND; GRAYISH BROWN
15% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, ORGANIC MATRIX
ACCESSORY MINERALS: CLAY-06%, ORGANICS-01%

40 - 41 SAND; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: FINE TO COARSE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-02%, ORGANICS-01%

41 - 44 SAND; GRAYISH BROWN
15% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-05%

44 - 50 SAND; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-04%, ORGANICS-01%

50 - 53 SAND; OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM

ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-10%, ORGANICS-01%
PHOSPHATIC SAND-01%, GYPSUM-01%

53 - 58 SAND; OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: CLAY-15%, GYPSUM-02%
PHOSPHATIC SAND-02%, MICA-01%

58 - 59.3 SAND; OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-08%
GYPSUM-02%, MICA-01%

59.3 - 64 SAND; OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: CLAY-15%, GYPSUM-04%
PHOSPHATIC SAND-04%, MICA-01%

64 - 64.8 CLAY; GREENISH BLACK
01% POROSITY: INTERGRANULAR; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, GYPSUM-02%, MICA-02%

64.8 - 97 SAND; OLIVE GRAY
07% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: ANGULAR TO SUB-ANGULAR; LOW SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: CLAY-18%, PHOSPHATIC SAND-10%
GYPSUM-02%, MICA-01%
FREQUENT GLOSSY BROWN REMAINS OF APPARENT BUGS OR INSECTS

TOP OF PEACE RIVER FORMATION; TOP OF HAWTHORN GROUP

97 - 104 SAND; OLIVE GRAY
09% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ANGULAR TO SUB-ANGULAR; LOW SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: CLAY-14%, PHOSPHATIC SAND-10%
GYPSUM-01%, MICA-01%
OTHER FEATURES: POOR SAMPLE
POOR RECEOVERY ONLY 3 FEET OF CORE FOR 7 FOOT INTERVAL

104 - 107 SAND; OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ANGULAR TO SUB-ANGULAR; LOW SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: CLAY-16%, PHOSPHATIC SAND-10%
GYPSUM-01%, MICA-01%
OTHER FEATURES: POOR SAMPLE
LESS THAN 2 FEET OF CORE FOR 3 FOOT INTERVAL

107 - 116.9 SAND; OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-12%
MICA-01%
OTHER FEATURES: POOR SAMPLE
ONLY 4 FEET OF CORE FOR 10 FOOT INTERVAL; FIRST APPEARANCE
OF COARSE GRAINED PHOSPHATIC SAND

116.9 - 121.5 SAND; OLIVE GRAY
08% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ANGULAR TO SUB-ROUNDED; LOW SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-25%, PHOSPHATIC SAND-16%
SLIGHT HCL FIZZ LAST COULE INCHES OF THIS INTERVAL

121.5 - 123 SILT-SIZE DOLOMITE; OLIVE GRAY
04% POROSITY: INTERGRANULAR; POOR INDURATION

			CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: QUARTZ SAND-02%, PHOSPHATIC SAND-02%
123	-	127	SAND; OLIVE GRAY 08% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY POOR INDURATION CEMENT TYPE(S): CLAY MATRIX ACCESSORY MINERALS: CLAY-10%, SILT-SIZE DOLOMITE-10% PHOSPHATIC SAND-10%, CALCILUTITE-02% OTHER FEATURES: CALCAREOUS MICRITE LENSES CAUSING HCL FIZZ THROUGHOUT INTERVAL
127	-	129	SAND; OLIVE GRAY 10% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE ROUNDNESS: ANGULAR TO SUB-ROUNDED; LOW SPHERICITY POOR INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX ACCESSORY MINERALS: CALCILUTITE-10%, PHOSPHATIC SAND-15% CLAY-05%, MICA-01% OTHER FEATURES: CALCAREOUS
129	-	130.9	SAND; OLIVE GRAY 10% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE ROUNDNESS: ANGULAR TO SUB-ROUNDED; LOW SPHERICITY POOR INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX ACCESSORY MINERALS: PHOSPHATIC SAND-20%, CALCILUTITE-05% CLAY-05%, MICA-01% OTHER FEATURES: CALCAREOUS
130.9	-	131	DOLOSTONE; OLIVE GRAY 05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS 50-90% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: PHOSPHATIC SAND-15%, QUARTZ-08% SILT-SIZE DOLOMITE-02% OTHER FEATURES: POOR SAMPLE SAMPLE IS RUBBLE OF DOLOSTONE, PHOSPHATIC SANDS AND QUARTZ TOP OF ARCADIA FORMATION
131	-	132	DOLOSTONE; LIGHT OLIVE GRAY

06% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-08%, PHOSPHATIC SAND-03%
PHOSPHATIC GRAVEL-01%, CALCILUTITE-03%

132 - 137 DOLOSTONE; MODERATE DARK GRAY
10% POROSITY: VUGULAR, FRACTURE, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-08%
PHOSPHATIC GRAVEL-02%, QUARTZ SAND-05%, CLAY-03%

137 - 144.7 DOLOSTONE; LIGHT OLIVE GRAY
09% POROSITY: INTERGRANULAR; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-08%, CLAY-10%
QUARTZ SAND-05%, CALCILUTITE-04%
OTHER FEATURES: CALCAREOUS
ALSO CONTAINS ABOUT 2% PHOSPHATIC GRAVEL

144.7 - 147.5 WACKESTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
08% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, CRYSTALS
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-08%, QUARTZ SAND-06%
PHOSPHATIC GRAVEL-04%, CLAY-03%
OTHER FEATURES: DOLOMITIC, WEATHERED
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, MOLLUSKS
DOLOMITIC NATURE ATTRIBUTED TO 3% DOLOMITIC SILT

147.5 - 151.2 DOLOSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
06% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
CALCILUTITE MATRIX

ACCESSORY MINERALS: PHOSPHATIC SAND-08%, CLAY-08%
QUARTZ SAND-03%, CALCILUTITE-03%
CONTAINS 1% PHOSPHATIC GRAVEL

151.2 - 154.5 CLAY; LIGHT OLIVE GRAY
03% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, QUARTZ SAND-01%

154.5 - 158 DOLOSTONE; LIGHT OLIVE GRAY
06% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-09%, CLAY-08%
QUARTZ SAND-05%, CALCILUTITE-03%
OTHER FEATURES: CALCAREOUS
CONTAINS 1% PHOSPHATIC GRAVEL

158 - 167.2 WACKESTONE; VERY LIGHT GRAY TO LIGHT GRAY
06% POROSITY: MOLDIC, INTERGRANULAR, VUGULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-10%
QUARTZ SAND-06%, PHOSPHATIC GRAVEL-01%
OTHER FEATURES: WEATHERED

167.2 - 175.5 WACKESTONE; VERY LIGHT GRAY
06% POROSITY: MOLDIC, INTERGRANULAR, VUGULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-08%
QUARTZ SAND-06%
OTHER FEATURES: WEATHERED

175.5 - 185 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
05% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX

ACCESSORY MINERALS: PHOSPHATIC SAND-25%, CLAY-08%
QUARTZ SAND-04%
PHOSPHATIC SANDS NOTICEBLY FINER THAN PREVIOUS INTERVAL

185 - 204 MUDSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
07% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-22%, CLAY-10%
QUARTZ SAND-08%
FOSSILS: FOSSIL FRAGMENTS

204 - 207 MUDSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
07% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, CLAY-08%
QUARTZ SAND-06%, PHOSPHATIC GRAVEL-02%
FOSSILS: FOSSIL FRAGMENTS

207 - 217 WACKESTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, CLAY-10%
QUARTZ SAND-06%
OTHER FEATURES: WEATHERED
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS

217 - 221.9 CLAY; OLIVE GRAY
05% POROSITY: INTERGRANULAR; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PYRITE-02%, QUARTZ SAND-01%
PHOSPHATIC SAND-01%

221.9 - 224 CLAY; OLIVE GRAY
15% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX

ACCESSORY MINERALS: PHOSPHATIC SAND-40%, QUARTZ SAND-03%

224 - 227.2 DOLOSTONE; YELLOWISH GRAY
15% POROSITY: MOLDIC, VUGULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-10%
OTHER FEATURES: CALCAREOUS

227.2 - 229 DOLOSTONE; LIGHT OLIVE GRAY TO MODERATE DARK GRAY
12% POROSITY: INTERGRANULAR, VUGULAR; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-08%
PHOSPHATIC GRAVEL-02%, QUARTZ SAND-01%, CLAY-01%
OTHER FEATURES: CALCAREOUS, POOR SAMPLE

229 - 235.5 WACKESTONE; LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELETAL
15% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CLAY-18%, PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-03%, QUARTZ SAND-02%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
WEATHERED, POOR SAMPLE, VARVED
FOSSILS: BENTHIC FORAMINIFERA

235.5 - 238.4 DOLOSTONE; LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-06%, CLAY-05%
PHOSPHATIC GRAVEL-01%, QUARTZ SAND-01%
OTHER FEATURES: CALCAREOUS, WEATHERED, POOR SAMPLE, VARVED

238.4 - 245.4 MUDSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION

			CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX ACCESSORY MINERALS: CLAY-18%, PHOSPHATIC SAND-08% QUARTZ SAND-02% OTHER FEATURES: DOLOMITIC, WEATHERED, POOR SAMPLE
245.4	-	246	DOLOSTONE; LIGHT OLIVE GRAY 10% POROSITY: INTERGRANULAR, VUGULAR; 50-90% ALTERED SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE MODERATE INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX ACCESSORY MINERALS: PHOSPHATIC SAND-02%, CALCILUTITE-06% CLAY-05% OTHER FEATURES: MEDIUM RECRYSTALLIZATION, POOR SAMPLE
246	-	247	MUDSTONE; LIGHT OLIVE GRAY 10% POROSITY: INTERGRANULAR, VUGULAR GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL 07% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX ACCESSORY MINERALS: PHOSPHATIC SAND-08%, CLAY-08% DOLOMITE-05% OTHER FEATURES: DOLOMITIC, POOR SAMPLE
247	-	254	PACKSTONE; YELLOWISH GRAY 15% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRAVEL; RANGE: VERY FINE TO GRAVEL MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: PHOSPHATIC SAND-04%, QUARTZ SAND-02% OTHER FEATURES: LOW RECRYSTALLIZATION, FOSSILIFEROUS POOR SAMPLE FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS FOSSIL MOLDS
254	-	259	WACKESTONE; LIGHT OLIVE GRAY 09% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: CALCILUTITE, SKELETAL, CRYSTALS 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRAVEL MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-08%

PHOSPHATIC GRAVEL-02%, QUARTZ SAND-02%
OTHER FEATURES: WEATHERED, FOSSILIFEROUS, POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS

259 - 262.3 WACKESTONE; YELLOWISH GRAY
16% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
OTHER FEATURES: FOSSILIFEROUS, POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA
THE CORE RECOVERY FROM 229.0 - 262.3 WAS POOR

262.3 - 263.3 WACKESTONE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

263.3 - 269.1 DOLOSTONE; GRAYISH BROWN TO YELLOWISH GRAY
22% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-10%, CALCITE-03%
CALCILUTITE-03%, PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS, FROSTED
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL
FOSSIL FRAGMENTS, FOSSIL MOLDS

269.1 - 274.1 PACKSTONE; YELLOWISH GRAY
06% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CRYSTALS, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX

			DOLOMITE CEMENT ACCESSORY MINERALS: CALCITE-08%, CALCILUTITE-04% DOLOMITE-03%, PHOSPHATIC SAND-01% OTHER FEATURES: DOLOMITIC, HIGH RECRYSTALLIZATION FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MOLLUSKS FORAMS THAT ARE BELIEVED TO BE SORITES ARE PRESENT
274.1	-	279.8	PACKSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY 20% POROSITY: MOLDIC, VUGULAR, INTERGRANULAR GRAIN TYPE: SKELETAL, SKELTAL CAST, CRYSTALS 75% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: MICROCRYSTALLINE TO GRANULE POOR INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT ACCESSORY MINERALS: PHOSPHATIC SAND-07%, QUARTZ SAND-06% SPAR-04%, CALCITE-03% OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION FOSSILIFEROUS FOSSILS: CORAL, BENTHIC FORAMINIFERA, MOLLUSKS FOSSIL FRAGMENTS, FOSSIL MOLDS
279.8	-	283	DOLOSTONE; LIGHT OLIVE GRAY 20% POROSITY: MOLDIC, VUGULAR, INTERGRANULAR 50-90% ALTERED; ANHEDRAL GRAIN SIZE: VERY COARSE; RANGE: MICROCRYSTALLINE TO GRAVEL MODERATE INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT CALCILUTITE MATRIX ACCESSORY MINERALS: QUARTZ SAND-08%, CALCILUTITE-04% SPAR-03%, PHOSPHATIC SAND-03% OTHER FEATURES: CALCAREOUS, FROSTED FOSSILS: FOSSIL MOLDS
283	-	287.2	PACKSTONE; LIGHT OLIVE GRAY 15% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR GRAIN TYPE: SKELETAL, SKELTAL CAST, CRYSTALS 75% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: MICROCRYSTALLINE TO GRANULE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT ACCESSORY MINERALS: SPAR-10%, QUARTZ SAND-08% PHOSPHATIC SAND-06%, CALCITE-03% OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION FOSSILIFEROUS FOSSILS: CORAL, BENTHIC FORAMINIFERA, MOLLUSKS FOSSIL FRAGMENTS, FOSSIL MOLDS

287.2	-	289.5	PACKSTONE; YELLOWISH GRAY 22% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE 75% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT ACCESSORY MINERALS: PHOSPHATIC SAND-07%, QUARTZ SAND-06% SPAR-02%, CALCITE-02% OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION FOSSILIFEROUS FOSSILS: CORAL, BENTHIC FORAMINIFERA, MOLLUSKS FOSSIL FRAGMENTS, FOSSIL MOLDS
289.5	-	297.3	DOLOSTONE; GRAYISH BROWN TO YELLOWISH GRAY 22% POROSITY: MOLDIC, VUGULAR, INTERGRANULAR 50-90% ALTERED; ANHEDRAL GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRAVEL GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-08% OTHER FEATURES: CALCAREOUS FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS MOLDS/VUGS FILLED WITH PHOSPHATIC SAND AND FINE DOLOMITE
297.3	-	300	DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN 22% POROSITY: MOLDIC, VUGULAR, INTERGRANULAR 50-90% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: PHOSPHATIC SAND-05%, QUARTZ SAND-03% OTHER FEATURES: CALCAREOUS, POOR SAMPLE CRUMBLY POOR CORE RECOVERY FROM 297.5 - 307.3 ONLY 5 FOOT OF CORE
300	-	306	DOLOSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY 20% POROSITY: VUGULAR, INTERGRANULAR POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: PHOSPHATIC SAND-08%, QUARTZ SAND-05% OTHER FEATURES: POOR SAMPLE VUGS INFILLED WITH PHOSPHATIC SAND AND FINE DOLOMITE POOR RECOVERY; DEPTH APROXIMATED, LESS THAN 50% RECOVERY

306 - 307.6 DOLOSTONE; YELLOWISH GRAY
05% POROSITY: INTERGRANULAR; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-02%
QUARTZ SAND-01%

307.6 - 310.1 DOLOSTONE; YELLOWISH GRAY
05% POROSITY: INTERGRANULAR; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: CLAY-28%, PHOSPHATIC SAND-04%
PYRITE-02%, PHOSPHATIC GRAVEL-02%
FOSSILS: ORGANICS
QUARTZ SAND 2%, POSSIBLE PLANT AND ORGANICS UP TO 2%

310.1 - 310.2 CLAY; GREENISH GRAY
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, QUARTZ SAND-02%
ORGANICS-01%

310.2 - 310.8 DOLOSTONE; YELLOWISH GRAY
05% POROSITY: INTERGRANULAR; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-02%
QUARTZ SAND-01%
OTHER FEATURES: CALCAREOUS

310.8 - 311.2 DOLOSTONE; LIGHT OLIVE GRAY
05% POROSITY: INTERGRANULAR; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-02%
QUARTZ SAND-01%

311.2 - 322.3 CLAY; OLIVE GRAY
03% POROSITY: INTERGRANULAR; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%, ORGANICS-01%
CALCILUTITE-01%
TOP OF NOCATEE MEMBER OF ARCADIA FORMATION

322.3	-	326.7	CLAY; LIGHT OLIVE GRAY 06% POROSITY: INTERGRANULAR; MODERATE INDURATION CEMENT TYPE(S): CLAY MATRIX ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-05%
326.7	-	327	CLAY; OLIVE GRAY 03% POROSITY: INTERGRANULAR; MODERATE INDURATION CEMENT TYPE(S): CLAY MATRIX ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-01% POSSIBLE PYRITE OF 1-2% FROM 310-327; BUT TO SMALL TO DISCERN
327	-	330.6	CLAY; LIGHT OLIVE GRAY 08% POROSITY: INTERGRANULAR; MODERATE INDURATION CEMENT TYPE(S): CLAY MATRIX ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-15% SAND AND PHOSPHATIC SANDS INCREASED IN SIZE AND %
330.6	-	333.5	SAND; OLIVE GRAY 10% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY POOR INDURATION CEMENT TYPE(S): CLAY MATRIX ACCESSORY MINERALS: CLAY-30%, PHOSPHATIC SAND-15% OTHER FEATURES: SPECKLED
333.5	-	335.3	DOLOSTONE; LIGHT OLIVE GRAY 10% POROSITY: INTERGRANULAR, VUGULAR; 10-50% ALTERED ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-10% CLAY-08%, PYRITE-01%
335.3	-	347	SAND; MODERATE GRAY TO LIGHT OLIVE GRAY 12% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY POOR INDURATION CEMENT TYPE(S): CLAY MATRIX ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-07% PYRITE-01%
347	-	354	SAND; MODERATE GRAY 12% POROSITY: INTERGRANULAR

GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-09%, PHOSPHATIC SAND-07%

354 - 355.1 SANDSTONE; MODERATE GRAY
12% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
MODERATE INDURATION
CEMENT TYPE(S): SILICIC CEMENT, CLAY MATRIX
ACCESSORY MINERALS: CLAY-08%, PHOSPHATIC SAND-08%
DOLOMITE-03%

355.1 - 367 SAND; LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, CLAY-04%
OTHER FEATURES: CALCAREOUS, POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS
ONLY 2.5 FEET OF CORE FOR 11 FOOT INTERVAL

367 - 377 SAND; LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, CLAY-03%
OTHER FEATURES: CALCAREOUS, POOR SAMPLE
ONLY 2.0 FEET OF CORE FOR 10 FOOT INTERVAL

377 - 386.9 MUDSTONE; LIGHT OLIVE GRAY
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
03% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-09%
CLAY-04%
FOSSILS: FOSSIL FRAGMENTS

386.9 - 393 WACKESTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, SKELTAL CAST
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-18%, PHOSPHATIC SAND-05%
CLAY-04%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

393 - 393.3 PACKSTONE; LIGHT GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, QUARTZ SAND-03%
CLAY-02%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

393.3 - 399 WACKESTONE; LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-05%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

399 - 407.8 PACKSTONE; YELLOWISH GRAY
14% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, OSTRACODS
MOLLUSKS, BENTHIC FORAMINIFERA

407.8 - 409.6 WACKESTONE; YELLOWISH GRAY
06% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CRYSTALS
50% ALLOCHEMICAL CONSTITUENTS

			GRAIN SIZE: MEDIUM; RANGE: COARSE TO MICROCRYSTALLINE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX ACCESSORY MINERALS: CALCILUTITE-05%, QUARTZ SAND-03% PHOSPHATIC SAND-02% FOSSILS: FOSSIL FRAGMENTS
409.6	-	410.5	WACKESTONE; YELLOWISH GRAY 09% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: PHOSPHATIC SAND-04%, QUARTZ SAND-02% FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
410.5	-	411.6	WACKESTONE; YELLOWISH GRAY 10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT ACCESSORY MINERALS: PHOSPHATIC SAND-03%, SPAR-03% QUARTZ SAND-02% FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS OSTRACODS, BENTHIC FORAMINIFERA
411.6	-	414	PACKSTONE; YELLOWISH GRAY 20% POROSITY: MOLDIC, VUGULAR, INTERGRANULAR GRAIN TYPE: SKELETAL, SKELTAL CAST, CRYSTALS 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: MICROCRYSTALLINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX ACCESSORY MINERALS: CALCILUTITE-08%, PHOSPHATIC SAND-02% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, OSTRACODS MOLLUSKS, BENTHIC FORAMINIFERA
414	-	417	PACKSTONE; YELLOWISH GRAY 15% POROSITY: INTERGRANULAR, MOLDIC GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: MICROCRYSTALLINE TO GRANULE MODERATE INDURATION

CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: SPAR-03%, PHOSPHATIC SAND-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, OSTRACODS
MOLLUSKS, BENTHIC FORAMINIFERA

417 - 425.3 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-03%
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS
PHOSPHATIC SANDS IN LENSES OVER INTERVAL; ONLY 5 FEET OF
CORE FOR 7 FOOT INTERVAL; FIRST FEW FEET OF SAMPLE IS
RUBBLE OF CLEAN WACKESTONE TOP OF SUWANNEE LIMESTONE

425.3 - 428.1 PACKSTONE; VERY LIGHT ORANGE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%, ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS

428.1 - 432.5 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%
FOSSILS: FOSSIL FRAGMENTS

432.5 - 437 PACKSTONE; PINKISH GRAY
18% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

ACCESSORY MINERALS: CALCITE-01%, ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS, POOR SAMPLE
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
OSTRACODS
ONLY 2 FEET OF CORE FOR 4.5 FOOT INTERVAL

437 - 442 PACKSTONE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS

442 TOTAL DEPTH

LITHOLOGIC WELL LOG PRINTOUT SOURCE: FGS

WELL NUMBER: W-19333 COUNTY: DESOTO
TOTAL DEPTH: 2537 FT. LOCATION: T.36S R.27E S.21
175 SAMPLES FROM 441 TO 2537 FT. LAT = 27D 20M 24S
LON = 81D 37M 39S
COMPLETION DATE: N/A ELEVATION: 88 FT
OTHER TYPES OF LOGS AVAILABLE: NONE

OWNER/DRILLER:SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

WORKED BY:SCOTT BARRETT DYER (441.0-1899.5) AND MICHELLE LADLE
(1899.5-2537.0); COMPLETED 6/28/2012
ROMP-27 SCARBOROUGH CH-2
LATITUDE SECONDS ROUNDED UP FROM 23.66 TO 24
LONGITUDE SECONDS ROUNDED DOWN FROM 39.06 TO 39
ELEVATION ROUNDED UP FROM 87.9 TO 88
BOTH LATITUDE/LONGITUDE AND ELEVATION ARE SURVEYED DATA
CORE RECOVERY GOOD
SEE DESCRIPTION FOR W-19332 (ROMP-27 SCARBOROUGH CH-1)
FOR DESCRIPTION OF 0-442.0
NOTE: OCALA LIMESTONE, NOT OCALA GROUP
NOTE: OLDSMAR FORMATION, NOT OLDSMAR LIMESTONE LONGITUDE SECONDS ROUNDED UP FROM 38.55 TO 39

441 - 537.0
537 - 836.4
836.4 - 2104.7
2104.7 - 2537.0

0 - 441 NO SAMPLES

441 - 444 PACKSTONE; VERY LIGHT ORANGE
20% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%, ORGANICS-03%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

444 - 448 PACKSTONE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION

			CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-04%, CALCITE-01% FOSSILS: FOSSIL FRAGMENTS
448	-	452.1	PACKSTONE; VERY LIGHT ORANGE 25% POROSITY: MOLDIC, INTERGRANULAR GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-03%, CALCITE-02% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS OSTRACODS
452.1	-	457.7	PACKSTONE; VERY LIGHT ORANGE 18% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC GRAIN TYPE: SKELETAL, CALCILUTITE 85% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-05%, CALCITE-02% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
457.7	-	458.6	PACKSTONE; VERY LIGHT ORANGE 20% POROSITY: MOLDIC, PIN POINT VUGS, INTERCRYSTALLINE GRAIN TYPE: CALCILUTITE, SKELTAL CAST, CRYSTALS 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-05%, CALCILUTITE-03% CALCITE-02% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS
458.6	-	463.6	PACKSTONE; VERY LIGHT ORANGE 18% POROSITY: INTERGRANULAR, MOLDIC GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-03%, ORGANICS-03%

QUARTZ SAND-01%
OTHER FEATURES: FOSSILIFEROUS, CHALKY
FOSSILS: FOSSIL FRAGMENTS

463.6 - 466 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
25% POROSITY: MOLDIC, VUGULAR, INTERGRANULAR
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
ACCESSORY MINERALS: CALCITE-03%, CALCILUTITE-03%
ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, CORAL, MOLLUSKS
BENTHIC FORAMINIFERA

466 - 471.3 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
16% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, CALCITE-01%
OTHER FEATURES: CHALKY
FOSSILS: FOSSIL FRAGMENTS

471.3 - 474.5 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-03%, ORGANICS-02%
CALCITE-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

474.5 - 481.3 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: CHALKY

			FOSSILS: FOSSIL FRAGMENTS
481.3	-	482.5	WACKESTONE; YELLOWISH GRAY 10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 35% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX ACCESSORY MINERALS: CLAY-12%, ORGANICS-07% FOSSILS: FOSSIL FRAGMENTS CLAY LENSE AND ORGANIC SWIRL AT 481.7 AND 482.5
482.5	-	493.5	WACKESTONE; YELLOWISH GRAY 12% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 40% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-04%, CALCITE-01% FOSSILS: FOSSIL FRAGMENTS GRAIN SIZE MODE BORDERS ON MEDIUM
493.5	-	494.8	WACKESTONE; YELLOWISH GRAY 16% POROSITY: MOLDIC, INTERGRANULAR GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT ACCESSORY MINERALS: ORGANICS-04%, SPAR-02%, CALCITE-01% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS OSTRACODS
494.8	-	499.6	WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 40% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-03%, CALCITE-01% FOSSILS: FOSSIL FRAGMENTS
499.6	-	500.5	WACKESTONE; YELLOWISH GRAY

09% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

500.5 - 502.5 WACKESTONE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
LAST 6 INCHES CONTAINS LARGER LAYERED CALCIFIED SHELLS AND BENTHIC FORAMS

502.5 - 507 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

507 - 507.7 MUDSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

507.7 - 509.2 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION

CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

509.2 - 509.8 WACKESTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-10%, ORGANICS-02%
CALCITE-02%
FOSSILS: FOSSIL FRAGMENTS

509.8 - 512.1 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

512.1 - 513.6 PACKSTONE; YELLOWISH GRAY
16% POROSITY: MOLDIC, INTERGRANULAR, INTERCRYSTALLINE
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-10%, CALCITE-02%
ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

513.6 - 520.3 WACKESTONE; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

520.3 - 523 PACKSTONE; YELLOWISH GRAY

17% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%, ORGANICS-01%

523 - 525.1 PACKSTONE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS

525.1 - 527.2 PACKSTONE; YELLOWISH GRAY
16% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
GRAIN TYPE: SKELETAL, PELLET, SKELTAL CAST
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-08%, CALCITE-03%
ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, MOLLUSKS, OSTRACODS
BENTHIC FORAMINIFERA, CORAL

527.2 - 529.4 PACKSTONE; YELLOWISH GRAY
14% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, PELLET, SKELTAL CAST
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-04%, ORGANICS-01%
QUARTZ SAND-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: MOLLUSKS, OSTRACODS, BENTHIC FORAMINIFERA
MILIOLIDS, FOSSIL FRAGMENTS

529.4 - 537 PACKSTONE; YELLOWISH GRAY
10% POROSITY: MOLDIC, INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: SKELETAL, CALCILUTITE

			65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRANULE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT ACCESSORY MINERALS: SPAR-10%, ORGANICS-02% PHOSPHATIC SAND-01% OTHER FEATURES: CHALKY FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS FINE-MEDIUM PHOSPHATIC SAND IS PECULIAR AND OUT OF PLACE AT 531.5 THERE IS A SEAM OR VEIN OF INFILLED GRAINS
537	-	538	WACKESTONE; VERY LIGHT ORANGE 15% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE, INTRACLASTS 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-02%, PHOSPHATIC SAND-01% OTHER FEATURES: CHALKY, SPECKLED PHOSPHATIC GRAINS, LIMESTONE INTRACLASTS, ORGANICS AND CALCIFIED SHELL FRAGMENTS SUSPENDED IN MATRIX TOP OF OCALA LIMESTONE
538	-	546	WACKESTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: CALCILUTITE, SKELETAL 35% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01%, CALCITE-01% OTHER FEATURES: CHALKY SOME CALCIFIED SHELL FRAGMENTS OVER THE INTERVAL
546	-	547	WACKESTONE; VERY LIGHT ORANGE 14% POROSITY: FRACTURE, INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 25% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01%, CALCITE-01% OTHER FEATURES: CHALKY
547	-	548.2	WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY 12% POROSITY: INTERGRANULAR, MOLDIC

GRAIN TYPE: CALCILUTITE, SKELETAL
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

548.2 - 551.5 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%, ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, OSTRACODS, MOLLUSKS
FOSSIL FRAGMENTS, FOSSIL MOLDS
APPARENT OXIDIZED GRAINS OVER THE INTERVAL. PYRITE AND
ORGANICS POSSIBLE OXIDIZING AGENT

551.5 - 552.8 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
16% POROSITY: MOLDIC, INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, MOLLUSKS
OSTRACODS, FOSSIL FRAGMENTS
LEPIDOCYCLINA PRESENT AND NUMEROUS

552.8 - 557 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

557 - 567 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE

			50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% OTHER FEATURES: POOR SAMPLE FOSSILS: FOSSIL FRAGMENTS ONLY 1 FOOT OF CORE FOR 10 FOOT INTERVAL
567	-	580	WACKESTONE; VERY LIGHT ORANGE 14% POROSITY: INTERGRANULAR, MOLDIC GRAIN TYPE: CALCILUTITE, SKELETAL 45% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% OTHER FEATURES: POOR SAMPLE FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS FOSSIL MOLDS ONLY 10 FEET OF CORE FOR 13 FOOT INTERVAL
580	-	587	AS ABOVE
587	-	594	WACKESTONE; VERY LIGHT ORANGE 14% POROSITY: INTERGRANULAR, MOLDIC GRAIN TYPE: SKELETAL, CALCILUTITE 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01%, CALCITE-01% OTHER FEATURES: FOSSILIFEROUS, POOR SAMPLE FOSSILS: BENTHIC FORAMINIFERA ONLY 6 FEET OF CORE FOR 7 FOOT INTERVAL. LEPIDOCYCLINA NUMEROUS IN MIDDLE OF INTERVAL
594	-	597	WACKESTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 15% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE POOR INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: POOR SAMPLE FOSSILS: FOSSIL FRAGMENTS ONLY 2 FEET OF CORE FOR 3 FOOT INTERVAL

597 - 602 WACKESTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE, INTRACLASTS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MILIOLIDS

602 - 607 WACKESTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MOLLUSKS
AMPHISTAGINA NUMEROUS

607 - 613 WACKESTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE, INTRACLASTS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS, POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MOLLUSKS
DEPTH APROXIMATED FROM POOR RECOVERY. AMPHISTAGINA
NUMEROUS. OXIDIZED GRAY GRAINS PRESENT.

613 - 617 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

617 - 627 WACKESTONE; VERY LIGHT ORANGE

			10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 35% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: FOSSILIFEROUS, POOR SAMPLE FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CORAL MOLLUSKS ONLY 6 FEET OF CORE FOR 10 FOOT INTERVAL
627	-	633.5	WACKESTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 25% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MOLLUSKS
633.5	-	637	MUDSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 09% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01%
637	-	646	WACKESTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 20% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
646	-	657	WACKESTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 45% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX

ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MOLLUSKS
LEPIDOCYCLINA AND AMPHISTAGINA NUMEROUS. INTRACLASTS AND APPARENT RIP UP CLAST PREVALENT.

657 - 667 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, CALCITE-01%
OTHER FEATURES: POOR SAMPLE, FOSSILIFEROUS, CHALKY
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS
ORGANICS OXIDIZED AND INSIDE ALLOCHEMS. ONLY 7.8 FEET OF CORE FOR 10 FOOT INTERVAL.

667 - 677 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%, CALCITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, CORAL
LEPIDOCYCLINA, AMPHISTAGINA AND MAYBE NUMMULITIES PRESENT

677 - 686.5 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: POOR SAMPLE, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
ONLY 5 FEET OF CORE FOR 9.5 FOOT OF CORE. CORE SMALL IN DIAMETER, BROKEN INTO WAFFERS AND CRUMBLED.

686.5 - 697 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS

GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: POOR SAMPLE, FOSSILIFEROUS
ONLY 6.3 FEET OF CORE FOR 10.5 FOOT INTERVAL. ORGANICS ARE OXIDIZED AND INSIDE ALLOCHEMS.

697 - 700 WACKESTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: POOR SAMPLE, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
ONLY 1.3 FEET OF CORE FOR 3 FOOT INTERVAL

700 - 707 WACKESTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-15%
OTHER FEATURES: POOR SAMPLE, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
ONLY 3 FEET OF CORE FOR 7 FOOT INTERVAL. DESCRIBED INTERVAL BLOCK TO BLOCK DUE TO CORE RECOVERY. 7 INCH SECTION OF MUDSTONE AROUND 701.0. ALLOCHEMS AND FINE EUHEDRAL CALCITE CRYSTALS IN MATRIX INCREASE IN QUANTITY WITH DEPTH

707 - 715 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-10%
OTHER FEATURES: POOR SAMPLE, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, MOLLUSKS
7 FEET OF CORE FOR 8 FOOT INTERVAL. LEPIDOCYCLINA AND NUMMULITIES PLENTIFUL

715	-	725	PACKSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE 85% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-15%, ORGANICS-03% OTHER FEATURES: POOR SAMPLE, FOSSILIFEROUS FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS ONLY7.5 FEET OF CORE FOR 10 FOOT INTERVAL. OXIDIZED ORGANICS PLENTIFUL IN LAST 1 FOOT. LEPIDOCYCLINA NUMMULITIES, SHELL FRAGMENTS AND INTRACLASTS
725	-	727	WACKESTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
727	-	731.5	PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY 10% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, INTRACLASTS, CRYSTALS 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-10% OTHER FEATURES: FOSSILIFEROUS FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
731.5	-	736.5	PACKSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-06% OTHER FEATURES: FOSSILIFEROUS FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
736.5	-	737	WACKESTONE; VERY LIGHT ORANGE

10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

737 - 745.1 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-03%, ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
OXIDIZED ORGANICS MORE PLENTIFUL AT BASE OF INTERVAL.
LEPIDOCYCLINA, NUMMULITIES AND INTRACLASTS SUSPENDED IN
FINE GRAINED MATIRX WITH MICRITE.

745.1 - 756.4 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, INTRACLASTS, CRYSTALS
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-12%, ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
LESS LEPIDOCYCLINA, MORE FINE SKELETAL MESH AND CALCITE
CRYSTALS OVER THIS INTERVAL COMPARED TO PREVIOUS

756.4 - 760.2 PACKSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-12%, ORGANICS-01%
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
LEPIDOCYLINA AND NUMMULITIES DECREASING IN QUANTITY. SHELL
MESH AND CALCITE CRYSTALS ARE THE MAIN GRAINS

760.2 - 760.7 WACKESTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

760.7 - 767 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

767 - 774.8 WACKESTONE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: POOR SAMPLE
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, MILIOLIDS
LEPIDOCYCLINA FEW IN NUMBER; MAINLY FRAGMENTS

774.8 - 777 WACKESTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: POOR SAMPLE
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
ONLY 2 FEET OF CORE FOR 3 FOOT INTERVAL. NUMMULITIES
REPRESENT MAJORITY OF ALLOCHEMS

777 - 784.8 MUDSTONE; VERY LIGHT ORANGE

			08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 03% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE POOR INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% OTHER FEATURES: POOR SAMPLE FOSSILS: FOSSIL FRAGMENTS ONLY 6 FEET OF CORE FOR 7.8 FOOT INTERVAL
784.8	-	787	MUDSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 06% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS
787	-	805.9	MUDSTONE; VERY LIGHT ORANGE 07% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 02% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE POOR INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% OTHER FEATURES: POOR SAMPLE FOSSILS: FOSSIL FRAGMENTS ONLY 13 FEET OF CORE FOR 18.9 FOOT INTERVAL
805.9	-	806.9	MUDSTONE; VERY LIGHT ORANGE 07% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 05% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE POOR INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS
806.9	-	812	MUDSTONE; VERY LIGHT ORANGE 07% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS 04% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE

POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS
ONLY 3 FEET OF CORE FOR 5 FOOT INTERVAL

812 - 817 WACKESTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
ONLY 3 FEET OF CORE FOR 5 FOOT INTERVAL

817 - 818.3 MUDSTONE; VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

818.3 - 827 MUDSTONE; VERY LIGHT ORANGE
04% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
02% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS

827 - 836.4 MUDSTONE; YELLOWISH GRAY TO LIGHT GRAYISH GREEN
04% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, SKELETAL
03% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%

			FOSSILS: FOSSIL FRAGMENTS
836.4	-	839	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 12% POROSITY: INTERGRANULAR, INTRAGRANULAR LOW PERMEABILITY GRAIN TYPE: SKELETAL, CRYSTALS 85% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-20% OTHER FEATURES: LOW RECRYSTALLIZATION FOSSILS: ECHINOID, FOSSIL FRAGMENTS, MOLLUSKS ECHINOIDS, THOUGHT TO BE NEOLAGANUM, APPEAR FOR FIRST TIME TOP OF AVON PARK FORMATION
839	-	839.6	MUDSTONE; VERY LIGHT ORANGE 03% POROSITY: INTERGRANULAR, LOW PERMEABILITY GRAIN TYPE: CALCILUTITE, SKELETAL 03% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-04% FOSSILS: FOSSIL FRAGMENTS, ECHINOID
839.6	-	840	PACKSTONE; VERY LIGHT ORANGE 06% POROSITY: INTERGRANULAR, INTERCRYSTALLINE LOW PERMEABILITY GRAIN TYPE: SKELETAL, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY COARSE RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-15% FOSSILS: ECHINOID, FOSSIL FRAGMENTS
840	-	843.3	MUDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY 06% POROSITY: INTERGRANULAR, INTRAGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 10% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX SEDIMENTARY STRUCTURES: INTERBEDDED ACCESSORY MINERALS: CALCITE-05% FOSSILS: ECHINOID, FOSSIL FRAGMENTS

WITHIN INTERVAL A COUPLE SMALL BEDS OF ECHINOIDS.

843.3 - 845 WACKESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
08% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY
GRAIN TYPE: SKELETAL, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-08%
FOSSILS: ECHINOID, FOSSIL FRAGMENTS

845 - 845.3 MUDSTONE; YELLOWISH GRAY
03% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
02% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

845.3 - 846.4 WACKESTONE; VERY LIGHT ORANGE
06% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, INTRACLASTS
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-05%
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, MOLLUSKS

846.4 - 848 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELETAL
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-20%
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, MOLLUSKS

848 - 848.6 MUDSTONE; VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
09% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION

			CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-02% FOSSILS: ECHINOID, FOSSIL FRAGMENTS
848.6	-	849.6	PACKSTONE; VERY LIGHT ORANGE 09% POROSITY: INTERGRANULAR, MOLDIC GRAIN TYPE: SKELETAL, CALCILUTITE 45% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-20% FOSSILS: ECHINOID, FOSSIL FRAGMENTS, MOLLUSKS BENTHIC FORAMINIFERA
849.6	-	849.8	MUDSTONE; VERY LIGHT ORANGE 05% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 05% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX
849.8	-	850.2	WACKESTONE; VERY LIGHT ORANGE 06% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 45% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-20% FOSSILS: ECHINOID, FOSSIL FRAGMENTS, MOLLUSKS BENTHIC FORAMINIFERA
850.2	-	850.8	WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY 06% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 25% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX
850.8	-	853.3	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 08% POROSITY: INTERGRANULAR, MOLDIC GRAIN TYPE: SKELETAL, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: GRANULE; RANGE: VERY FINE TO GRANULE

GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-20%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA

853.3 - 855.3 WACKESTONE; VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCITE-02%
FOSSILS: ECHINOID, FOSSIL FRAGMENTS
INTERBEDS OF MUDSTONE LESS THAN 1 INCH THICK

855.3 - 857.9 PACKSTONE; VERY LIGHT ORANGE
09% POROSITY: INTERGRANULAR, INTRAGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-08%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

857.9 - 859.7 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

859.7 - 861.2 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION

CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, ECHINOID

861.2 - 867.5 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-06%
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, MOLLUSKS, OSTRACODS
BENTHIC FORAMINIFERA

867.5 - 868.9 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, MOLDIC, INTRAGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-08%
FOSSILS: ECHINOID, OSTRACODS, FOSSIL FRAGMENTS

868.9 - 871.7 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS, ECHINOID, OSTRACODS
BENTHIC FORAMINIFERA
ONLY 1 FOOT OF CORE FOR 2.8 FOOT INTERVAL

871.7 - 877 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS, ECHINOID, OSTRACODS

ONLY 2.5 FEET OF CORE FOR 5 FOOT INTERVAL. DESCRIBED DEPTH MARKER TO DEPTH MARKER DUE TO RECOVERY. FIRST PORTION OF THE INTERVAL HAS MORE GRAINS AND LESS MICRITE

877 - 877.9 MUDSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: ECHINOID, FOSSIL FRAGMENTS
MUDSTONE IWTH SUSPENDED NEOLAGANUM AND FOSSIL FRAGMENTS

877.9 - 878.4 MUDSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
09% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

878.4 - 880 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%
FOSSILS: FOSSIL FRAGMENTS, ECHINOID

880 - 880.9 MUDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
02% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

880.9 - 886.4 PACKSTONE; VERY LIGHT ORANGE
1O% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION

CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

886.4 - 888 WACKESTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS, ECHINOID

888 - 890.2 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

890.2 - 891.8 WACKESTONE; VERY LIGHT ORANGE
06% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
FOSSILS: FOSSIL FRAGMENTS
INTERBEDS OF THIN PACKSTONE LESS THAN 0.5 INCH THICK.

891.8 - 893.5 PACKSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

893.5 - 895.2 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE

GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

895.2 - 895.7 WACKESTONE; VERY LIGHT ORANGE
06% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

895.7 - 896 MUDSTONE; VERY LIGHT ORANGE
04% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, SKELETAL
03% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

896 - 896.9 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA

896.9 - 900.7 PACKSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, ECHINOID

900.7 - 902.2 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE

			GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-07% OTHER FEATURES: VARVED, FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, ECHINOID, MOLLUSKS BENTHIC FORAMINIFERA
902.2	-	903.7	MUDSTONE; VERY LIGHT ORANGE 06% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: CALCILUTITE, SKELETAL 10% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% FOSSILS: ECHINOID, FOSSIL FRAGMENTS THERE ARE A COUPLE .5 INCH BEDS OF MEDIUM GRAIN WACKSTONE.
903.7	-	906.3	PACKSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX SEDIMENTARY STRUCTURES: INTERBEDDED ACCESSORY MINERALS: SPAR-05%, CALCITE-02% OTHER FEATURES: FOSSILIFEROUS FOSSILS: ECHINOID, FOSSIL FRAGMENTS, MOLLUSKS, CONES
906.3	-	907.3	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 12% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-03% OTHER FEATURES: VARVED, FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, CONES
907.3	-	912.3	PACKSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE 75% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE GOOD INDURATION

			CEMENT TYPE(S): CALCILUTITE MATRIX
			ACCESSORY MINERALS: SPAR-03%, CALCITE-03%, ORGANICS-01%
			OTHER FEATURES: FOSSILIFEROUS
			FOSSILS: FOSSIL FRAGMENTS, CONES, OSTRACODS
			BENTHIC FORAMINIFERA
912.3	-	913.3	PACKSTONE; VERY LIGHT ORANGE
			12% POROSITY: INTERGRANULAR, PIN POINT VUGS
			GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
			70% ALLOCHEMICAL CONSTITUENTS
			GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
			GOOD INDURATION
			CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
			ACCESSORY MINERALS: CALCITE-05%, SPAR-02%, ORGANICS-02%
			OTHER FEATURES: VARVED, WEATHERED, LOW RECRYSTALLIZATION
913.3	-	915.5	PACKSTONE; VERY LIGHT ORANGE
			16% POROSITY: INTERGRANULAR, PIN POINT VUGS
			GRAIN TYPE: SKELETAL, CALCILUTITE
			90% ALLOCHEMICAL CONSTITUENTS
			GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
			GOOD INDURATION
			CEMENT TYPE(S): CALCILUTITE MATRIX
			OTHER FEATURES: FOSSILIFEROUS
			FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
			MOLLUSKS
			VERY CLEAN UNIFORM MEDIUM GRAINED PACKSTONE.
915.5	-	917	PACKSTONE; VERY LIGHT ORANGE
			13% POROSITY: INTERGRANULAR
			GRAIN TYPE: SKELETAL, CALCILUTITE
			75% ALLOCHEMICAL CONSTITUENTS
			GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
			GOOD INDURATION
			CEMENT TYPE(S): CALCILUTITE MATRIX
			ACCESSORY MINERALS: ORGANICS-05%
			OTHER FEATURES: FOSSILIFEROUS, MUDDY, VARVED
			FOSSILS: FOSSIL FRAGMENTS, CONES
917	-	919.1	PACKSTONE; VERY LIGHT ORANGE
			16% POROSITY: INTERGRANULAR, PIN POINT VUGS
			GRAIN TYPE: SKELETAL, CALCILUTITE
			90% ALLOCHEMICAL CONSTITUENTS
			GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
			GOOD INDURATION
			CEMENT TYPE(S): CALCILUTITE MATRIX
			ACCESSORY MINERALS: ORGANICS-01%

OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
ECHINOID

919.1 - 922 PACKSTONE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-06%
OTHER FEATURES: VARVED, FOSSILIFEROUS, MUDDY
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
ECHINOID

922 - 923.1 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED, MUDDY
FOSSILS: FOSSIL FRAGMENTS

923.1 - 927 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-06%
OTHER FEATURES: VARVED, MUDDY, POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
ONLY 2.5 FEET OF CORE FOR 4 FOOT INTERVAL.

927 - 928.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA

			LITUONELLA AND SPIROLINA MAY BE PRESENT.
928.5	-	933	PACKSTONE; VERY LIGHT ORANGE 16% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 75% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA MODERATE % PACKSTONE WITH HIGH % SWIRLS OF PACKSTONE.
933	-	935	WACKESTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-02% FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
935	-	937	PACKSTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-02% OTHER FEATURES: FOSSILIFEROUS, VARVED FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
937	-	940.3	PACKSTONE; VERY LIGHT ORANGE 14% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX SEDIMENTARY STRUCTURES: INTERBEDDED ACCESSORY MINERALS: ORGANICS-08% OTHER FEATURES: FOSSILIFEROUS, VARVED FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA HIGH % PACKSTONE IWHT INTERBEDS OF WACKE/MUDSTONE

940.3 - 941.4 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
HIGH % MUDSTONE INTERBEDDED WITH LOW% PACKSTONE.

941.4 - 942.4 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
08% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS

942.4 - 944.8 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
14% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: SKELETAL, PELLET, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
HIGH % PACKSTONE WITH INTERBEDS OF MUD/WACKESTONE. CONES
ARE PLENTIFUL. LITUNELL AND SPIROLINA MAY BE PRESENT.

944.8 - 948.3 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
11% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: VARVED, MUDDY
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES

HIGH % WACKSTONE WITH INTERBEDS OF PACKSTONE/MUDSTONE.

948.3 - 949 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES

949 - 950.1 PACKSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL FRAGMENTS
THIN BEDS OF FINE GRAINED WACKESTONE AT TOP AND BOTTOM.

950.1 - 951.3 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
22% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

951.3 - 952.9 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-10%
OTHER FEATURES: VARVED, MUDDY
FOSSILS: FOSSIL FRAGMENTS

952.9 - 953.3 MUDSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, SKELETAL

			03% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01%
953.3	-	954.5	WACKESTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 45% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
954.5	-	957	PACKSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR, MOLDIC GRAIN TYPE: SKELETAL, CALCILUTITE 55% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS, ECHINOID, BENTHIC FORAMINIFERA
957	-	958	PACKSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY 10% POROSITY: INTERGRANULAR, INTRAGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-07% OTHER FEATURES: VARVED, MUDDY FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA THIN BEDS OF MUDSTONE AND WACKESTONE AT TOP AND BOTTOM.
958	-	962	PACKSTONE; LIGHT GREENISH GRAY 12% POROSITY: INTERGRANULAR, INTRAGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

962	-	963.5	WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY 10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 45% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-03% OTHER FEATURES: VARVED FOSSILS: FOSSIL FRAGMENTS
963.5	-	964.3	MUDSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 05% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX
964.3	-	967	PACKSTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, INTRAGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES SPIROLINA AND LITUONELLA BELIEVED TO BE PRESENT. % OF ALLOCHEMS TRENDS HIGHER WITH DEPTH OVER INTERVAL.
967	-	971.5	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 14% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 90% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES ALGAE
971.5	-	978.5	PACKSTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE

MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
ALGAE

978.5 - 983.5 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
ALGAE, ECHINOID

983.5 - 984.5 WACKESTONE; VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: VARVED

984.5 - 987 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, INTRAGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS, CONES, ALGAE

987 - 989 PACKSTONE; VERY LIGHT ORANGE
16% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
58% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: VARVED, MUDDY
FOSSILS: FOSSIL FRAGMENTS

989 - 990.1 PACKSTONE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

990.1 - 993.5 WACKESTONE; VERY LIGHT ORANGE
09% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

993.5 - 993.8 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

993.8 - 997.4 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: VARVED, MUDDY
FOSSILS: FOSSIL FRAGMENTS

997.4 - 1000.2 WACKESTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-03%, CALCITE-01%
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA

1000.2	-	1000.9	WACKESTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 25% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-12% OTHER FEATURES: VARVED, MUDDY FOSSILS: FOSSIL FRAGMENTS
1000.9	-	1004	PACKSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 55% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
1004	-	1004.2	PACKSTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-04% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS BENTHIC FORAMINIFERA, ECHINOID
1004.2	-	1005.7	WACKESTONE; VERY LIGHT ORANGE 07% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 20% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-12% OTHER FEATURES: VARVED, MUDDY FOSSILS: FOSSIL FRAGMENTS
1005.7	-	1006.6	WACKESTONE; VERY LIGHT ORANGE

			08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 28% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-02% FOSSILS: FOSSIL FRAGMENTS
1006.6	-	1007.1	PACKSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR, MOLDIC GRAIN TYPE: SKELETAL, CALCILUTITE 55% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: CALCITE-03% FOSSILS: FOSSIL FRAGMENTS, ECHINOID
1007.1	-	1008.2	MUDSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 06% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 10% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-10% OTHER FEATURES: VARVED, MUDDY
1008.2	-	1009.2	PACKSTONE; VERY LIGHT ORANGE 09% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 55% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS
1009.2	-	1009.3	MUDSTONE; YELLOWISH GRAY TO YELLOWISH GRAY 05% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 05% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX
1009.3	-	1009.5	PACKSTONE; VERY LIGHT ORANGE

08% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-02%
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS

1009.5 - 1011.1 DOLOSTONE; GRAYISH BROWN
06% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: CALCAREOUS

1011.1 - 1011.4 WACKESTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-15%
OTHER FEATURES: DOLOMITIC

1011.4 - 1013.3 DOLOSTONE; GRAYISH BROWN
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-25%
OTHER FEATURES: CALCAREOUS

1013.3 - 1015 MUDSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED

1015 - 1017 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

1017 - 1018.3 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: VARVED

1018.3 - 1019.5 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

1019.5 - 1020.6 MUDSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-06%
OTHER FEATURES: VARVED, MUDDY

1020.6 - 1021.5 PACKSTONE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA

OSTRACODS

1021.5 - 1027.1 PACKSTONE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
ECHINOID

1027.1 - 1029.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: VARVED, MUDDY
FOSSILS: FOSSIL FRAGMENTS

1029.5 - 1029.9 MUDSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

1029.9 - 1034 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED, MUDDY, FOSSILIFEROUS
VARVES AND MUDDY ASPECTS AT 1032.5 AND 1033.5.

1034 - 1040.3 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN

			13% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 75% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA ECHINOID
1040.3	-	1044.5	PACKSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX SEDIMENTARY STRUCTURES: INTERBEDDED ACCESSORY MINERALS: CALCITE-02% LESS THAN 2MM THIN INTERBEDS OF MUDSTONE.
1044.5	-	1045	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 10% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-08% OTHER FEATURES: VARVED, MUDDY FOSSILS: FOSSIL FRAGMENTS
1045	-	1047	WACKESTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX
1047	-	1049.4	WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY 10% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX

SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL FRAGMENTS
INTERBEDS OF WACKESTONE, PACKSTONE AND MUDSTONE.

1049.4 - 1051 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: VARVED
SOME THIN INTERBEDS OF MUDSTONE.

1051 - 1053.1 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
SOME THIN INTERBEDS OF MUDSTONE.

1053.1 - 1053.4 MUDSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

1053.4 - 1053.7 PACKSTONE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

			FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
1053.7	-	1055.2	MUDSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: CALCILUTITE, SKELETAL 10% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX SEDIMENTARY STRUCTURES: INTERBEDDED FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA THIN BEDS LESS THAN .5 INCH OF PACKSTONES.
1055.2	-	1056	PACKSTONE; VERY LIGHT ORANGE 14% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC GRAIN TYPE: SKELETAL, CALCILUTITE 85% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA OSTRACODS, ALGAE
1056	-	1057	MUDSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 05% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS
1057	-	1060	PACKSTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC GRAIN TYPE: SKELETAL, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA OSTRACODS
1060	-	1067	PACKSTONE; VERY LIGHT ORANGE 14% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE, INTRACLASTS 85% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE

MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
ONLY 3 FEET OF CORE FOR 7 FOOT INTERVAL.

1067 - 1073.7 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE, INTRACLASTS
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, MOTTLED
ACCESSORY MINERALS: ORGANICS-06%
OTHER FEATURES: VARVED, MUDDY
INTERVAL HAS INTERBEDS OF FINES AND COARSE GRAINS.
LAMINATION OF ORGANICS AT 1071 AND 1073.

1073.7 - 1074.9 PACKSTONE; VERY LIGHT ORANGE
16% POROSITY: MOLDIC, VUGULAR, INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

1074.9 - 1076.9 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, INTERBEDDED
FOSSILS: FOSSIL FRAGMENTS
LAMINATIONS OF VERY FINES AND INTERBEDDS OF MEDIUM GRAINS.

1076.9 - 1079.5 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, CONES
BENTHIC FORAMINIFERA

1079.5 - 1081.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
16% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA

1081.5 - 1084.8 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-06%

1084.8 - 1086 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: CALCILUTITE, SKELETAL
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: VARVED, MUDDY
FOSSILS: FOSSIL FRAGMENTS

1086 - 1088.9 PACKSTONE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, PELLET, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES

1088.9 - 1091.5 PACKSTONE; VERY LIGHT ORANGE
09% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE

			65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: SPECKLED FOSSILS: FOSSIL FRAGMENTS
1091.5	-	1094	PACKSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 55% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: SPECKLED FOSSILS: FOSSIL FRAGMENTS
1094	-	1095	WACKESTONE; VERY LIGHT ORANGE 07% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 35% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX OTHER FEATURES: SPECKLED
1095	-	1096.5	PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE 55% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-02% FOSSILS: FOSSIL FRAGMENTS
1096.5	-	1097	WACKESTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 45% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX
1097	-	1101.3	PACKSTONE; GRAYISH ORANGE TO GRAYISH BROWN 10% POROSITY: INTERGRANULAR, PIN POINT VUGS

GRAIN TYPE: SKELETAL, PELLET, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-04%
OTHER FEATURES: SPECKLED
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

1101.3 - 1102 MUDSTONE; VERY LIGHT ORANGE
06% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
03% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

1102 - 1102.8 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, PELLET, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

1102.8 - 1103.3 PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL FRAGMENTS

1103.3 - 1105 PACKSTONE; VERY LIGHT ORANGE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

1105 - 1106.3 WACKESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR

			GRAIN TYPE: CALCILUTITE, SKELETAL 45% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS
1106.3	-	1107.4	PACKSTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS
1107.4	-	1108.1	PACKSTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS
1108.1	-	1109.4	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX FOSSILS: FOSSIL FRAGMENTS
1109.4	-	1110	MUDSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE, SKELETAL 10% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: ORGANICS-05%
1110	-	1111.2	WACKESTONE; VERY LIGHT ORANGE TO MODERATE DARK GRAY 10% POROSITY: INTERGRANULAR, FRACTURE GRAIN TYPE: CALCILUTITE, SKELETAL

25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CLAY-10%, GYPSUM-02%
FOSSILS: FOSSIL FRAGMENTS
CLAY INTERBEDS AT 1109.1 AND 1110.9.

1111.2 - 1111.6 WACKESTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

1111.6 - 1111.8 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-03%
FOSSILS: FOSSIL FRAGMENTS

1111.8 - 1112.2 WACKESTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS

1112.2 - 1113.7 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
14% POROSITY: VUGULAR, INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE, INTRACLASTS
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, MOTTLED

ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: WEATHERED

1113.7 - 1115 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
78% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: SPECKLED, WEATHERED
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

1115 - 1119.3 PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, INTERBEDDED, MOTTLED
ACCESSORY MINERALS: ORGANICS-06%, CLAY-02%
OTHER FEATURES: MUDDY, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS

1119.3 - 1121.4 WACKESTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, INTERBEDDED, LAMINATED
ACCESSORY MINERALS: ORGANICS-06%, CLAY-01%, GYPSUM-01%
OTHER FEATURES: SPECKLED, MUDDY, WEATHERED, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

1121.4 - 1124 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, INTRACLASTS, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, CLAY-01%

OTHER FEATURES: SPECKLED, MUDDY, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS

1124 - 1125.5 WACKESTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, INTERBEDDED, MOTTLED
ACCESSORY MINERALS: ORGANICS-10%
OTHER FEATURES: MUDDY, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS

1125.5 - 1126.2 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, INTERBEDDED
ACCESSORY MINERALS: ORGANICS-06%, GYPSUM-02%, CLAY-01%
OTHER FEATURES: MUDDY
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS

1126.2 - 1127.3 PACKSTONE; GRAYISH BROWN
14% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, PELLET, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS

1127.3 - 1129.3 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
12% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
GRAIN TYPE: SKELETAL, PELLET, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-02%
OTHER FEATURES: FOSSILIFEROUS, SPECKLED
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS

1129.3	-	1133	PACKSTONE; VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: GYPSUM-02% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS
1133	-	1135	PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-12%, GYPSUM-02% OTHER FEATURES: FOSSILIFEROUS, VARVED FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS
1135	-	1137	PACKSTONE; VERY LIGHT ORANGE 14% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-01% OTHER FEATURES: FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS
1137	-	1137.8	PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 12% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-06%, CALCITE-02% OTHER FEATURES: VARVED, FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS
1137.8	-	1139.4	PACKSTONE; VERY LIGHT ORANGE 14% POROSITY: INTERGRANULAR, PIN POINT VUGS

GRAIN TYPE: SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MILIOLIDS
CONES

1139.4 - 1142.5 PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
09% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, CLAY-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
MILIOLIDS

1142.5 - 1147.9 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS

1147.9 - 1149.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS

1149.5 - 1150.9 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: FRACTURE, INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE

MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS

1150.9 - 1151.9 PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, INTERBEDDED
ACCESSORY MINERALS: ORGANICS-06%, CALCITE-04%, GYPSUM-02%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL FRAGMENTS

1151.9 - 1152.7 PACKSTONE; GRAYISH BROWN
14% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-04%, CALCITE-04%, GYPSUM-02%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL FRAGMENTS

1152.7 - 1154.5 PACKSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS, CONES, MILIOLIDS
BENTHIC FORAMINIFERA

1154.5 - 1156.2 PACKSTONE; GRAYISH BROWN
14% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: SPECKLED
FOSSILS: FOSSIL FRAGMENTS, CONES, MILIOLIDS

BENTHIC FORAMINIFERA

1156.2 - 1158.7 PACKSTONE; YELLOWISH GRAY
07% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, FRACTURE
GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS

1158.7 - 1159.5 WACKESTONE; DARK YELLOWISH BROWN TO VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, BANDED
ACCESSORY MINERALS: ORGANICS-40%

1159.5 - 1161.4 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS

1161.4 - 1166.4 PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, MOTTLED
ACCESSORY MINERALS: ORGANICS-30%, GYPSUM-10%, CALCITE-03%
OTHER FEATURES: MUDDY, VARVED
FOSSILS: FOSSIL FRAGMENTS

1166.4 - 1168.5 SANDSTONE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, FRACTURE
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

ACCESSORY MINERALS: HEAVY MINERALS-15%, ORGANICS-04%
OTHER FEATURES: GRANULAR

1168.5 - 1169.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-04%, QUARTZ-03%
HEAVY MINERALS-02%
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
INTERBEDS OF SAND AND HEAVY MINERALS FROM ABOVE INTERVAL.
INTERBEDS OF MOTLED AND BRECCIATED PACKSTONE.

1169.5 - 1170.9 PACKSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, MOTTLED, INTERBEDDED
ACCESSORY MINERALS: ORGANICS-15%, GYPSUM-10%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
MILIOLIDS

1170.9 - 1172.1 PACKSTONE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-20%, ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
MILIOLIDS

1172.1 - 1175.9 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CRYSTALS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION

CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, MOTTLED, INTERBEDDED
ACCESSORY MINERALS: GYPSUM-16%, ORGANICS-05%
OTHER FEATURES: VARVED, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, BENTHIC FORAMINIFERA
VARVES IN LAST 4 INCHES OF INTERVAL.

1175.9 - 1178.2 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
GRAIN TYPE: SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

1178.2 - 1184.9 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
09% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: ORGANICS-12%, GYPSUM-10%, DOLOMITE-02%
OTHER FEATURES: VARVED, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS
VARVES LAST 3 INCHES OF INTERVAL. DOLOMITE CRYSTALS AT 1182

1184.9 - 1188.5 MUDSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: PIN POINT VUGS, FRACTURE, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-12%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL FRAGMENTS
NEAR BOTTOM OF INTERVAL THERE IS AN INCREASE IN FINE GRAINS

1188.5 - 1193.8 PACKSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: SKELETAL, CALCILUTITE

			65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-03% FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES MILIOLIDS GRAIN SIZE TRENDS TO BE FINER WITH DEPTH.
1193.8	-	1197.9	DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN 05% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT OTHER FEATURES: CRYSTALLINE FOSSILS: NO FOSSILS
1197.9	-	1198.4	MUDSTONE; VERY LIGHT ORANGE 07% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-05% FOSSILS: NO FOSSILS
1198.4	-	1199.4	DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN 05% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT OTHER FEATURES: CRYSTALLINE FOSSILS: NO FOSSILS
1199.4	-	1210.9	WACKESTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 50% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-03% FOSSILS: FOSSIL FRAGMENTS
1210.9	-	1224.1	PACKSTONE; VERY LIGHT ORANGE

			10% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: SKELETAL, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE MODERATE INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-03% FOSSILS: FOSSIL FRAGMENTS
1224.1	-	1225	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 07% POROSITY: FRACTURE, INTERGRANULAR; 90-100% ALTERED ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT FOSSILS: NO FOSSILS
1225	-	1230	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 09% POROSITY: INTERGRANULAR GRAIN TYPE: SKELETAL, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX ACCESSORY MINERALS: ORGANICS-04% OTHER FEATURES: VARVED FOSSILS: FOSSIL FRAGMENTS
1230	-	1236.5	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 07% POROSITY: FRACTURE, INTERGRANULAR, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: CALCITE-05% EUHEDRAL CALCITE CRYSTALS ALONG FRACTURES.
1236.5	-	1237.8	MUDSTONE; VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR GRAIN TYPE: CALCILUTITE; 03% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-10% OTHER FEATURES: DOLOMITIC
1237.8	-	1240.4	DOLOSTONE; MODERATE YELLOWISH BROWN

16% POROSITY: INTERGRANULAR, VUGULAR; 90-100% ALTERED
SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: SUCROSIC

1240.4 - 1255 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
12% POROSITY: FRACTURE, INTERCRYSTALLINE; 90-100% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
POROSITY VIA FRACTURES LINED WITH EUHEDRAL FINE CRYSTALS.

1255 - 1262.1 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
16% POROSITY: FRACTURE, INTERCRYSTALLINE
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
POROSITY DUE TO FACT CORE IS HIGHLY FRACTURED.

1262.1 - 1266.5 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
08% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1266.5 - 1269 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
10% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: SUCROSIC
SUCROSIC NATURE IN REGIONS SCATTERED OVER THE INTERVAL.

1269 - 1274 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
14% POROSITY: FRACTURE, INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1274 - 1279 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
09% POROSITY: FRACTURE, INTERCRYSTALLINE; 90-100% ALTERED

			ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1279	-	1282.5	DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN 11% POROSITY: FRACTURE, INTERCRYSTALLINE; 90-100% ALTERED ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1282.5	-	1287	DOLOSTONE; GRAYISH BROWN 20% POROSITY: VUGULAR, FRACTURE, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO GRANULE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: CALCITE-05% IMPRESSIVE 3-4MM EUHEDRAL CALCITE CRYSTALS LINE THE VUGS.
1287	-	1290	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 07% POROSITY: VUGULAR, FRACTURE, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1290	-	1297.5	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 08% POROSITY: VUGULAR, FRACTURE, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ONE LARGE VUGGY AREA AT 1295.0.
1297.5	-	1307	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 14% POROSITY: VUGULAR, FRACTURE, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: BRECCIATED, MOTTLED ACCESSORY MINERALS: CALCITE-05%, ORGANICS-08% OTHER FEATURES: VARVED MIDDLE OF INTERVAL IS HIGHLY BRECCIATED AND VUGGY. VARVED AND MOTTLED THE LAST 1.5 FOOT OF INTERVAL. VUGGS AND

			FRACTURES LINED WITH EUHEDRAL COARSE CALCITE.
1307	-	1310.5	DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN 10% POROSITY: INTERGRANULAR, INTERCRYSTALLINE PIN POINT VUGS; 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT OTHER FEATURES: FROSTED
1310.5	-	1312.5	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 05% POROSITY: INTERCRYSTALLINE, FRACTURE; 90-100% ALTERED ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1312.5	-	1316	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 08% POROSITY: FRACTURE, PIN POINT VUGS, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1316	-	1316.3	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 08% POROSITY: INTERGRANULAR, INTERCRYSTALLINE PIN POINT VUGS; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: MOTTLED ACCESSORY MINERALS: ORGANICS-15% POWDERY FINE ORGANICS AT BASE OF INTERVAL.
1316.3	-	1317	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 04% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1317	-	1317.5	DOLOSTONE; GRAYISH BROWN 04% POROSITY: INTERCRYSTALLINE, FRACTURE; 90-100% ALTERED ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT

SEDIMENTARY STRUCTURES: BRECCIATED
FRACTURES ARE SEALED WITH CRYSTALLINE DOLOMITE.

1317.5 - 1321.6 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
06% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: VARVED

1321.6 - 1324.2 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: INTERCRYSTALLINE, FRACTURE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-10%, CALCITE-05%
OTHER FEATURES: VARVED
COARSE EUHEDRAL CALCITE IN FRACTURES.

1324.2 - 1328.1 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
09% POROSITY: VUGULAR, FRACTURE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1328.1 - 1332.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
06% POROSITY: FRACTURE, PIN POINT VUGS, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-06%, CALCITE-05%
OTHER FEATURES: VARVED
FRACTURES HEALED WITH FINE TO COARSE CALCITE CRYSTALS.

1332.5 - 1338.8 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
04% POROSITY: FRACTURE, INTERCRYSTALLINE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1338.8	-	1341.5	DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN 04% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1341.5	-	1346.8	DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN 10% POROSITY: FRACTURE, PIN POINT VUGS; 90-100% ALTERED ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: CALCITE-05%, ORGANICS-03% FRACTURES LINED WITH EUHEDRAL VERY COARSE CALCITE.
1346.8	-	1348.1	DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN 10% POROSITY: INTERGRANULAR, INTERCRYSTALLINE PIN POINT VUGS; 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: ORGANICS-05% OTHER FEATURES: VARVED
1348.1	-	1350	DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN 12% POROSITY: VUGULAR, FRACTURE, INTERGRANULAR 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: BRECCIATED, LAMINATED ACCESSORY MINERALS: ORGANICS-10% OTHER FEATURES: VARVED
1350	-	1353.3	DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN 10% POROSITY: PIN POINT VUGS, FRACTURE, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1353.3	-	1355	DOLOSTONE; GRAYISH BROWN 16% POROSITY: VUGULAR, FRACTURE, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL

GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%
FRACTURES AND VUGS LINED WITH VERY COARSE EUHEDRAL CALCITE.

1355 - 1361.9 DOLOSTONE; GRAYISH BROWN
08% POROSITY: FRACTURE, PIN POINT VUGS, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1361.9 - 1363.7 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
90-100% ALTERED; EUHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-25%
OTHER FEATURES: VARVED, SUCROSIC
ORGANICS PRESENT IN LAMINATIONS AND VARVES.

1363.7 - 1373.6 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
10% POROSITY: FRACTURE, PIN POINT VUGS, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1373.6 - 1376.1 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
15% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
PIN POINT VUGS; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: SUCROSIC

1376.1 - 1384.3 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
05% POROSITY: FRACTURE, INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%

1384.3 - 1384.5 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-15%

1384.5 - 1388.6 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
08% POROSITY: FRACTURE, VUGULAR, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%
FRACTURES AND VUGS LINED WITH EUHEDRAL COARSE CALCITE.

1388.6 - 1391.6 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
12% POROSITY: FRACTURE, VUGULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1391.6 - 1394.4 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
18% POROSITY: FRACTURE, VUGULAR
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1394.4 - 1395.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
15% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BANDED
ACCESSORY MINERALS: ORGANICS-30%
OTHER FEATURES: VARVED, SUCROSIC
ORGANIC LAMINATIONS AND VARVES ABUNDANT AT TOP OF INTERVAL.
BRECCIATION IS LIMITED TO MIDDLE OF INTERVAL. CRYSTALLINE
INTERBEDDING NEAR BOTTOM OF INTERVAL.

1395.3 - 1398.2 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
15% POROSITY: FRACTURE, VUGULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED, LAMINATED
ACCESSORY MINERALS: ORGANICS-20%
CRYSTALLINE DOLOMITE WITH BRECCIATION AND LAMINATIONS.
ORGANICS, BRECCIATION AND LAMINATION LAST HALF OF INTERVAL.

1398.2 - 1403.8 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
15% POROSITY: FRACTURE, VUGULAR, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%, ORGANICS-05%
FRACTURES AND VUGS LINED WITH FINE TO VERY COARSE EUHEDRAL
CALCITE

1403.8 - 1406.4 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
14% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-25%
OTHER FEATURES: VARVED, SUCROSIC
VARVES AND LAMINATIONS OF ORGANICS.

1406.4 - 1407 DOLOSTONE; DARK YELLOWISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1407 - 1409 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
15% POROSITY: FRACTURE, VUGULAR, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1409 - 1417.9 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
16% POROSITY: FRACTURE, VUGULAR, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

			ACCESSORY MINERALS: CALCITE-05% FRACTURES AND VUGS LINED WITH EUHEDRAL CALCITE.
1417.9	-	1420.2	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 16% POROSITY: FRACTURE, VUGULAR, INTERGRANULAR 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-20% OTHER FEATURES: SUCROSIC CRYSTALLINE DOLOMITE SCATTERED WITHIN FINE-COARSE GRAINES.
1420.2	-	1422.5	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 10% POROSITY: FRACTURE, PIN POINT VUGS, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1422.5	-	1423.3	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 14% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-20% OTHER FEATURES: SUCROSIC
1423.3	-	1426.1	DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN 14% POROSITY: FRACTURE, PIN POINT VUGS, INTERGRANULAR 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-10% GRAINS PROXIMAL TO VUGS AND FRACTURES ARE FINE TO MEDIUM.
1426.1	-	1429	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 16% POROSITY: FRACTURE, PIN POINT VUGS; 90-100% ALTERED ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-07%
1429	-	1430.9	DOLOSTONE; GRAYISH BROWN

18% POROSITY: FRACTURE, VUGULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%
VUGS AND FRACTURES LINED WITH FINE TO MEDIUM EUHEDRAL
CALCITE

1430.9 - 1431.4 DOLOSTONE; DARK YELLOWISH BROWN
25% POROSITY: INTERGRANULAR, VUGULAR; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-25%
OTHER FEATURES: POOR SAMPLE
SIGNIFICANT PORTIONS OF SAMPLE MISSING.

1431.4 - 1433.3 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
18% POROSITY: FRACTURE, PIN POINT VUGS; 90-100% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1433.3 - 1439.3 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
18% POROSITY: FRACTURE, VUGULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%, CALCITE-05%
FRACTURES AND VUGS LINED WITH EUHEDRAL FINE TO VERY COARSE
CALCITE. ORGANICS IN 3MM BED AT BASE OF INTERVAL

1439.3 - 1449.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
07% POROSITY: FRACTURE, PIN POINT VUGS, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1449.3 - 1449.8 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
12% POROSITY: INTERGRANULAR, INTERCRYSTALLINE, VUGULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED

			ACCESSORY MINERALS: ORGANICS-10% ORGANICS ARE INTERBEDDED.
1449.8	-	1452.4	DOLOSTONE; VERY LIGHT ORANGE 12% POROSITY: FRACTURE, PIN POINT VUGS; 90-100% ALTERED ANHEDRAL GRAIN SIZE: CRYPTOCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-04%, CALCILUTITE-03% AT 1551.3 BRECCIATED AND VUGGY.
1452.4	-	1454.4	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 10% POROSITY: FRACTURE, PIN POINT VUGS, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: CRYPTOCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1454.4	-	1455	DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 15% POROSITY: VUGULAR, FRACTURE, INTERGRANULAR 50-90% ALTERED; ANHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO VERY COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: CALCILUTITE-05%, GYPSUM-03%
1455	-	1458.2	DOLOSTONE; MODERATE YELLOWISH BROWN 12% POROSITY: FRACTURE, PIN POINT VUGS; 90-100% ALTERED ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-05% GYPSUM FILLS SOME FRACTURES.
1458.2	-	1459.6	DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 08% POROSITY: FRACTURE, INTERCRYSTALLINE; 90-100% ALTERED ANHEDRAL GRAIN SIZE: CRYPTOCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-05%
1459.6	-	1460.1	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 10% POROSITY: VUGULAR, FRACTURE, INTERGRANULAR 90-100% ALTERED; ANHEDRAL

			GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: MOTTLED, BRECCIATED ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-08%
1460.1	-	1461.5	DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN 09% POROSITY: FRACTURE, INTERCRYSTALLINE; 90-100% ALTERED ANHEDRAL GRAIN SIZE: CRYPTOCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-03%
1461.5	-	1465	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 12% POROSITY: FRACTURE, PIN POINT VUGS; 90-100% ALTERED ANHEDRAL GRAIN SIZE: CRYPTOCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-04%
1465	-	1473.7	DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN 12% POROSITY: FRACTURE, PIN POINT VUGS, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-05%
1473.7	-	1477	DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN 14% POROSITY: VUGULAR, FRACTURE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-04%
1477	-	1481.2	DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 12% POROSITY: FRACTURE, PIN POINT VUGS; 90-100% ALTERED ANHEDRAL GRAIN SIZE: CRYPTOCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-02%
1481.2	-	1481.8	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 14% POROSITY: VUGULAR, INTERGRANULAR; 50-90% ALTERED

			ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-02%
1481.8	-	1484.3	DOLOSTONE; GRAYISH BROWN 08% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1484.3	-	1485.6	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 07% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1485.6	-	1487.2	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 05% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: ORGANICS-04%
1487.2	-	1488.8	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 06% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: ORGANICS-06% OTHER FEATURES: VARVED
1488.8	-	1491.3	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN 04% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS INTERGRANULAR; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: MOTTLED, LAMINATED ACCESSORY MINERALS: ORGANICS-08%, GYPSUM-01%

OTHER FEATURES: VARVED

1491.3 - 1499.3 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-10%
OTHER FEATURES: VARVED

1499.3 - 1501.3 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: ORGANICS-10%, CALCILUTITE-03%
GYPSUM-01%

1501.3 - 1504.3 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
16% POROSITY: VUGULAR, FRACTURE, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: ORGANICS-10%, GYPSUM-04%

1504.3 - 1505.2 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
12% POROSITY: FRACTURE, INTERCRYSTALLINE; 90-100% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%

1505.2 - 1506.3 DOLOSTONE; GRAYISH BROWN
12% POROSITY: INTERGRANULAR, FRACTURE; 90-100% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED

1506.3	-	1507.4	DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE 10% POROSITY: VUGULAR, FRACTURE, INTERGRANULAR 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1507.4	-	1509.8	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-03%
1509.8	-	1514.8	DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: ORGANICS-08% OTHER FEATURES: VARVED
1514.8	-	1521.9	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 10% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: ORGANICS-10% OTHER FEATURES: VARVED
1521.9	-	1524.1	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-02%
1524.1	-	1525.2	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 12% POROSITY: VUGULAR, INTERGRANULAR; 90-100% ALTERED SUBHEDRAL

GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED, MUDDY
ORGANIC VARVES AT BASE OF INTERVAL.

1525.2 - 1528 DOLOSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%

1528 - 1532.2 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: VARVED
LAMINATIONS AND VARVES 1529-1530 AND AT BASE.

1532.2 - 1537.4 DOLOSTONE; GRAYISH BROWN
10% POROSITY: FRACTURE, INTERGRANULAR; 90-100% ALTERED
SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: POOR SAMPLE
SAMPLE IS MORE LIKE CUTTINGS THAN CORE.

1537.4 - 1541.9 DOLOSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-12%
CLEAR UNKNOWN MINERAL INCLUDED IN ANHYDRITE %.

1541.9 - 1542.9 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL

GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-20%, ANHYDRITE-05%
OTHER FEATURES: VARVED
CLEAR UNKNOWN MINERAL INCLUDED IN ANHYDRITE %.

1542.9 - 1544.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-03%
OTHER FEATURES: CALCAREOUS

1544.8 - 1547.5 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1547.5 - 1547.9 DOLOSTONE; VERY LIGHT ORANGE
06% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1547.9 - 1548.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
07% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-15%
OTHER FEATURES: VARVED

1548.8 - 1549.5 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
09% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: VARVED

1549.5 - 1549.6 DOLOSTONE; GRAYISH BROWN

05% POROSITY: INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1549.6 - 1550.6 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
11% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED

1550.6 - 1550.8 DOLOSTONE; GRAYISH ORANGE
05% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: VARVED
VARVES AND ORGANICS AT BASE OF INTERVAL.

1550.8 - 1551.6 DOLOSTONE; GRAYISH BROWN
04% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1551.6 - 1553.4 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1553.4 - 1556.5 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1556.5 - 1557.8 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
10% POROSITY: PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL

			GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1557.8	-	1558.2	DOLOSTONE; VERY LIGHT ORANGE 06% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS INTERGRANULAR; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: ORGANICS-03% OTHER FEATURES: VARVED ORGANIC LAMINATIONS AND VARVES AT BASE OF INTERVAL.
1558.2	-	1560	DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-05%, ANHYDRITE-02% OTHER FEATURES: VARVED ORGANICS AND ANHYDRITE IN LAMINATION AT 1559. AND IN 2MM LAMINATION AT BASE OF INTERVAL.
1560	-	1560.7	DOLOSTONE; VERY LIGHT ORANGE 06% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1560.7	-	1561.5	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT SEDIMENTARY STRUCTURES: LAMINATED ACCESSORY MINERALS: ORGANICS-08%, ANHYDRITE-03% OTHER FEATURES: VARVED
1561.5	-	1562.4	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 06% POROSITY: INTERCRYSTALLINE, INTERGRANULAR 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE

RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1562.4 - 1565.2 DOLOSTONE; GRAYISH ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED

1565.2 - 1565.2 DOLOSTONE; GRAYISH BROWN
08% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1565.2 - 1565.8 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1565.8 - 1566.8 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1566.8 - 1567.4 DOLOSTONE; VERY LIGHT ORANGE
06% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1567.4 - 1571 DOLOSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1571	-	1573.9	DOLOSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, INTERCRYSTALLINE PIN POINT VUGS; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1573.9	-	1574.8	DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR, PIN POINT VUGS INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-10% OTHER FEATURES: VARVED
1574.8	-	1576.9	DOLOSTONE; GRAYISH BROWN 08% POROSITY: INTERCRYSTALLINE, INTERGRANULAR PIN POINT VUGS; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1576.9	-	1577.5	DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, INTERCRYSTALLINE PIN POINT VUGS; 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1577.5	-	1580.2	DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-05%, GYPSUM-01% OTHER FEATURES: VARVED UNKNOWN CLEAR SOFT PRISMATIC CRYSTAL AT 1579.4 BELIEVED TO BE GYPSUM.
1580.2	-	1583.9	DOLOSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT

ACCESSORY MINERALS: ORGANICS-03%

1583.9	-	1586.9	DOLOSTONE; VERY LIGHT ORANGE 10% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-02%
1586.9	-	1589	DOLOSTONE; VERY LIGHT ORANGE 09% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-12%, ANHYDRITE-03% OTHER FEATURES: VARVED VARVES PLENTIFUL OVER INTERVAL.
1589	-	1590.2	DOLOSTONE; VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-01%
1590.2	-	1593.3	DOLOSTONE; VERY LIGHT ORANGE 05% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1593.3	-	1593.4	DOLOSTONE; VERY LIGHT ORANGE 04% POROSITY: INTERCRYSTALLINE, INTERGRANULAR 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1593.4	-	1594.5	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM MODERATE INDURATION CEMENT TYPE(S): DOLOMITE CEMENT

SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: ORGANICS-12%, ANHYDRITE-03%
OTHER FEATURES: VARVED

1594.5 - 1597 DOLOSTONE; VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED, POOR SAMPLE
2.4 FOOT INTERVAL HAS 4.0 FEET OF CRUMBLED CORE. A FEW
INCHES OF THE INTERVAL HAS A MORE CRYSTALLINE NATURE.

1597 - 1597.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
06% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%, ANHYDRITE-02%
OTHER FEATURES: VARVED, MUDDY

1597.8 - 1599 DOLOSTONE; VERY LIGHT ORANGE
08% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%

1599 - 1601 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%, ANHYDRITE-02%
OTHER FEATURES: VARVED, MUDDY

1601 - 1604 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
06% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1604 - 1607.4 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
ACCESSORY MINERALS: ORGANICS-30%
OTHER FEATURES: VARVED, MUDDY, CALCAREOUS

1607.4 - 1609.5 DOLOSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CALCAREOUS

1609.5 - 1611.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1611.4 - 1612.9 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
14% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-10%, ORGANICS-01%
OTHER FEATURES: CALCAREOUS

1612.9 - 1617 DOLOSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-10%, ORGANICS-02%
OTHER FEATURES: CALCAREOUS

1617 - 1618 DOLOSTONE; VERY LIGHT ORANGE
1O% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL

			GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: CALCITE-07%
1618	-	1621.6	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 50-90% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT ACCESSORY MINERALS: CALCITE-20%, CALCILUTITE-O5% GYPSUM-03% OTHER FEATURES: CALCAREOUS
1621.6	-	1622.2	DOLOSTONE; VERY LIGHT ORANGE 06% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: CALCITE-04%
1622.2	-	1625	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 10% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-05%, CALCITE-03%
1625	-	1626.1	DOLOSTONE; VERY LIGHT ORANGE 07% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT
1626.1	-	1627.8	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 12% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: FELDSPAR-02%
1627.8	-	1628.3	DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE 08% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE

GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1628.3 - 1631.9 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
12% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: FELDSPAR-03%, ORGANICS-02%
OTHER FEATURES: WEATHERED

1631.9 - 1632.3 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: VARVED

1632.3 - 1635 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
12% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-02%

1635 - 1636.3 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
14% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%

1636.3 - 1637 DOLOSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%

1637 - 1638 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS

90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: VARVED

1638 - 1640.1 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
12% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-08%, CALCILUTITE-03%
ORGANICS-02%
OTHER FEATURES: CALCAREOUS

1640.1 - 1643.1 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
12% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%, ANHYDRITE-01%
EUHEDRAL ANHYDRITE CRYSTALS AT 1642.1.

1643.1 - 1643.1 DOLOSTONE; GRAYISH ORANGE
08% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: VARVED

1643.1 - 1645.5 DOLOSTONE; GRAYISH ORANGE
14% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
UNKNOWN PRISMATIC WHITE CRYSTALS AT BEGINING OF INTERVAL.

1645.5 - 1649.5 DOLOSTONE; GRAYISH ORANGE
16% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION

			CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-03%, GYPSUM-01% SINGLE 1 INCH PIECE OF CHERT AT 1647. GYPSUM/SELENITE AT 1648
1649.5	-	1659.4	DOLOSTONE; GRAYISH ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-03% OTHER FEATURES: VARVED GYPSUM NODULES AT 1565, 1659 AND SMALL INFILLS AT 1653.
1659.4	-	1660.1	GYPSUM; VERY LIGHT GRAY TO GRAYISH ORANGE ACCESSORY MINERALS: DOLOMITE-25%, ORGANICS-05%
1660.1	-	1677	DOLOSTONE; GRAYISH ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-03% 1CM TO 8CM GYPSUM NODULES SCATTERED OVER INTERVAL.
1677	-	1677.5	GYPSUM; VERY LIGHT GRAY TO GRAYISH ORANGE 05% POROSITY: INTERGRANULAR; GOOD INDURATION ACCESSORY MINERALS: DOLOMITE-10%, ORGANICS-05% OTHER FEATURES: VARVED
1677.5	-	1684	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 05% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-04% GYPSUM IN LARGE 8CM NODULE, MOLDS AND INTERSTITIAL.
1684	-	1684.4	GYPSUM; VERY LIGHT GRAY ACCESSORY MINERALS: DOLOMITE-08%, ORGANICS-03%
1684.4	-	1686.6	DOLOSTONE; GRAYISH BROWN 10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL

			GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-12%, ORGANICS-02% GYPSUM MOSTLY INTERSTITIAL AND INFILLED MOLDS AND NODULES.
1686.6	-	1688.5	GYPSUM; VERY LIGHT GRAY TO GRAYISH BROWN ACCESSORY MINERALS: DOLOMITE-25%, ORGANICS-04% GYPSUM NODULES SURROUNDED BY VERY FINE TO FINE DOLOMITE.
1688.5	-	1695.4	DOLOSTONE; GRAYISH ORANGE 07% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-04% GYPSUM MOSTLY INTERSTITIAL AND SOME NODULES.
1695.4	-	1696	GYPSUM; VERY LIGHT GRAY ACCESSORY MINERALS: DOLOMITE-04%, ORGANICS-03%
1696	-	1697	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-02%
1697	-	1705.7	DOLOSTONE; GRAYISH ORANGE 08% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-02% GYPSUM MOSTLY INTERSTITIAL AND SOME NODULES.
1705.7	-	1711.6	WACKESTONE; GRAYISH ORANGE 06% POROSITY: INTERGRANULAR, PIN POINT VUGS GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-12%, ORGANICS-04% GYPSUM IS INTERSTITIAL, NODULAR AND SEALS FRACTURES.
1711.6	-	1718.3	DOLOSTONE; GRAYISH ORANGE

08% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-02%

1718.3 - 1722.3 DOLOSTONE; GRAYISH ORANGE
06% POROSITY: INTERGRANULAR; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-12%, ORGANICS-02%
GYPSUM INFILLS PINPOINT VUGS AND INTERSTITIAL.

1722.3 - 1734.5 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-16%, ORGANICS-05%
GYPSUM INFILLS PINPOINT VUGS AND INTERSTITIAL.

1734.5 - 1735.3 ANHYDRITE; VERY LIGHT GRAY TO GRAYISH BLUE GREEN

1735.3 - 1742.5 DOLOSTONE; MODERATE YELLOWISH BROWN
05% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
PIN POINT VUGS; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-10%

1742.5 - 1742.5 DOLOSTONE; MODERATE YELLOWISH BROWN
07% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
PIN POINT VUGS; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-05%
OTHER FEATURES: SUCROSIC

1742.5 - 1744 DOLOSTONE; MODERATE YELLOWISH BROWN
03% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
PIN POINT VUGS; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT

1744 - 1744.5 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
06% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%

1744.5 - 1748 DOLOSTONE; MODERATE YELLOWISH BROWN
03% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
PIN POINT VUGS; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1748 - 1748.3 DOLOSTONE; MODERATE YELLOWISH BROWN
09% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: VARVED

1748.3 - 1749.8 DOLOSTONE; MODERATE YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE
INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-12%
GYPSUM FILLED FRACTURES, PINPOINT VUGS AND INTERSTITIAL.

1749.8 - 1751.1 DOLOSTONE; MODERATE YELLOWISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: SUCROSIC

1751.1 - 1755.5 DOLOSTONE; MODERATE YELLOWISH BROWN
05% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
PIN POINT VUGS; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-18%

1755.5 - 1755.7 DOLOSTONE; MODERATE YELLOWISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%

1755.7 - 1756.6 DOLOSTONE; MODERATE YELLOWISH BROWN
03% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-02%

1756.6 - 1760 DOLOSTONE; MODERATE YELLOWISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-02%
OTHER FEATURES: SUCROSIC

1760 - 1762.4 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
06% POROSITY: PIN POINT VUGS, INTERGRANULAR
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-02%

1762.4 - 1764.8 DOLOSTONE; MODERATE YELLOWISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%

1764.8 - 1766.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS, INTERGRANULAR
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL

			GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: ORGANICS-02%
1766.3	-	1771.4	DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE 03% POROSITY: PIN POINT VUGS, INTERGRANULAR INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-04%, ORGANICS-02% GYPSUM IN FORM OF NODULES AND INFILLS SOME PINPOINT VUGS.
1771.4	-	1771.8	GYPSUM; VERY LIGHT GRAY
1771.8	-	1775.7	DOLOSTONE; MODERATE YELLOWISH BROWN 03% POROSITY: INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-03% GYPSUM IN NODULES, INFILLS FRACTURES AND INTERSTITIAL.
1775.7	-	1785.9	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 03% POROSITY: INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-05%
1785.9	-	1786.4	GYPSUM; VERY LIGHT GRAY ACCESSORY MINERALS: DOLOMITE-10%
1786.4	-	1788.8	DOLOSTONE; MODERATE YELLOWISH BROWN 03% POROSITY: INTERCRYSTALLINE, INTERGRANULAR 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-10% GYPSUM IS INTERSTITIAL.
1788.8	-	1789.8	DOLOSTONE; MODERATE YELLOWISH BROWN 10% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE GOOD INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%
OTHER FEATURES: VARVED

1789.8 - 1790 DOLOSTONE; DARK YELLOWISH BROWN
05% POROSITY: PIN POINT VUGS, INTERGRANULAR
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1790 - 1795.1 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS, INTERGRANULAR
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-02%
GYPSUM PRIMARILY INTERSTITIAL.

1795.1 - 1797.8 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-03%

1797.8 - 1801.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-12%, ORGANICS-02%
GYPSUM IS INTERSTITIAL AND IN 3 NODULES GREATER THAN 5CM.

1801.3 - 1803.7 DOLOSTONE; MODERATE YELLOWISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-12%

1803.7 - 1806.6 DOLOSTONE; DARK YELLOWISH BROWN
07% POROSITY: VUGULAR, INTERGRANULAR, INTERCRYSTALLINE

			90-100% ALTERED; SUBHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-07%, ORGANICS-02%
1806.6	-	1807.5	GYPSUM; VERY LIGHT GRAY TO MODERATE YELLOWISH BROWN ACCESSORY MINERALS: DOLOMITE-18%, ORGANICS-03%
1807.5	-	1812	ANHYDRITE; VERY LIGHT GRAY TO MODERATE YELLOWISH BROWN ACCESSORY MINERALS: DOLOMITE-40%, ORGANICS-05% NODULAR ANHYDRITE HAS INFILLED VUGGULAR DOLOMITE. ANHYDRITE LAYERSARE ALSO PRESENT.
1812	-	1814.3	DOLOSTONE; MODERATE YELLOWISH BROWN TO VERY LIGHT GRAY 08% POROSITY: PIN POINT VUGS, INTERGRANULAR INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-12%
1814.3	-	1816.3	DOLOSTONE; MODERATE YELLOWISH BROWN TO VERY LIGHT GRAY 06% POROSITY: PIN POINT VUGS, INTERGRANULAR INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-15%
1816.3	-	1817.6	DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN 08% POROSITY: INTERGRANULAR, PIN POINT VUGS INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: CALCILUTITE-06%, GYPSUM-04% ORGANICS-02% OTHER FEATURES: CALCAREOUS
1817.6	-	1822	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 06% POROSITY: INTERGRANULAR, PIN POINT VUGS INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-03%

CALCILUTITE-02%
SIGNIFICANT SUBHEDRAL MEDIUM GRAIN DOLOMITE OVER INTERVAL.
INTERVAL NOTED AS CRYSTALLINE BUT BORDERS ON MEDIUM GRAIN.

1822 - 1822.1 MUDSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-15%
OTHER FEATURES: DOLOMITIC

1822.1 - 1833.3 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
06% POROSITY: INTERGRANULAR, MOLDIC; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: CALCAREOUS
FOSSILS: BENTHIC FORAMINIFERA, OSTRACODS, ECHINOID
FOSSIL MOLDS, FOSSIL FRAGMENTS
HIGHLY CALCAREOUS. DOLOMITE CRYSTALS/CRYSTALLINE SURROUNDED
BY MICRITE MATRIX.

1833.3 - 1835.1 MUDSTONE; VERY LIGHT ORANGE
04% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-25%
OTHER FEATURES: DOLOMITIC

1835.1 - 1839 DOLOSTONE; DARK YELLOWISH BROWN
04% POROSITY: MOLDIC, INTERCRYSTALLINE; 90-100% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-10%, CALCILUTITE-02%
ORGANICS-02%
FOSSILS: FOSSIL MOLDS

			GYPSUM IN NODULES AND INTERSTITIAL.
1839	-	1839.9	GYPSUM; VERY LIGHT GRAY ACCESSORY MINERALS: DOLOMITE-03%
1839.9	-	1842.4	DOLOSTONE; MODERATE YELLOWISH BROWN 04% POROSITY: MOLDIC, PIN POINT VUGS, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-10% GYPSUM NODULES AND INTERSTITIAL.
1842.4	-	1843.4	DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE 10% POROSITY: INTERGRANULAR, PIN POINT VUGS 50-90% ALTERED; SUBHEDRAL GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX ACCESSORY MINERALS: CALCILUTITE-35%, GYPSUM-15% OTHER FEATURES: CALCAREOUS, FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
1843.4	-	1844.1	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 10% POROSITY: INTERGRANULAR, PIN POINT VUGS GRAIN TYPE: CALCILUTITE, OOLITE CLAST, CRYSTALS 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-40% OTHER FEATURES: DOLOMITIC, FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS BENTHIC FORAMINIFERA
1844.1	-	1844.9	DOLOSTONE; GRAYISH BROWN 10% POROSITY: INTERGRANULAR, PIN POINT VUGS 50-90% ALTERED; SUBHEDRAL GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX ACCESSORY MINERALS: CALCILUTITE-20% OTHER FEATURES: CALCAREOUS, FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
1844.9	-	1846.5	DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN

05% POROSITY: PIN POINT VUGS, INTERGRANULAR
INTERCRYSTALLINE; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-04%
MICRITE IN UPPER PORTION OF INTERVAL. INTERVAL TRANSITIONS
FROM CRYSTALLINE TO MEDIUM. GRAINED DOLOMITE AT BOTTOM OF
INTERVAL.

1846.5 - 1849.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
14% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-20%
OTHER FEATURES: SUCROSIC

1849.3 - 1850.3 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
06% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-14%

1850.3 - 1850.9 GYPSUM; VERY LIGHT GRAY

1850.9 - 1851.4 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-04%

1851.4 - 1851.7 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
06% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1851.7 - 1856.7 DOLOSTONE; MODERATE YELLOWISH BROWN
03% POROSITY: INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE

			RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-04% GYPSUM IN A FEW SMALL NODULES AND ONE 15CM NODULE.
1856.7	-	1857.3	DOLOSTONE; MODERATE YELLOWISH BROWN 10% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-08%
1857.3	-	1858.1	DOLOSTONE; MODERATE YELLOWISH BROWN 03% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-09%
1858.1	-	1859.9	DOLOSTONE; MODERATE YELLOWISH BROWN 16% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-02% OTHER FEATURES: SUCROSIC
1859.9	-	1861.7	DOLOSTONE; MODERATE YELLOWISH BROWN 03% POROSITY: INTERCRYSTALLINE, INTERGRANULAR 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-03%
1861.7	-	1864.5	DOLOSTONE; MODERATE YELLOWISH BROWN 16% POROSITY: INTERGRANULAR, PIN POINT VUGS INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-04%
1864.5	-	1867.8	DOLOSTONE; MODERATE YELLOWISH BROWN

04% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-30%

1867.8 - 1868.1 GYPSUM; VERY LIGHT GRAY
02% POROSITY: FRACTURE, PIN POINT VUGS

1868.1 - 1873.9 PACKSTONE; GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-30%
OTHER FEATURES: FOSSILIFEROUS, MEDIUM RECRYSTALLIZATION
DOLOMITIC
FOSSILS: BENTHIC FORAMINIFERA, CONES, FOSSIL FRAGMENTS
FOSSIL MOLDS, OSTRACODS

1873.9 - 1879.3 DOLOSTONE; MODERATE YELLOWISH BROWN
02% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-20%
GYPSUM IN NODULES AND INTERSTITIAL.

1879.3 - 1880.5 DOLOSTONE; MODERATE YELLOWISH BROWN
04% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-20%
GYPSUM MOSTLY INTERSTITIAL.

1880.5 - 1881.5 DOLOSTONE; MODERATE YELLOWISH BROWN
10% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT

		ACCESSORY MINERALS: GYPSUM-15%
1881.5 -	1882.6	DOLOSTONE; MODERATE YELLOWISH BROWN 05% POROSITY: INTERGRANULAR, PIN POINT VUGS INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-07%
1882.6 -	1883.2	DOLOSTONE; MODERATE YELLOWISH BROWN 08% POROSITY: INTERGRANULAR, PIN POINT VUGS INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-05%
1883.2 -	1884.5	DOLOSTONE; MODERATE YELLOWISH BROWN 16% POROSITY: INTERGRANULAR, PIN POINT VUGS 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT ACCESSORY MINERALS: GYPSUM-03%
1884.5 -	1886.2	DOLOSTONE; MODERATE YELLOWISH BROWN 05% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-10%
1886.2 -	1891.1	DOLOSTONE; MODERATE YELLOWISH BROWN 12% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-15% GYPSUM IN NODULES AND INTERSTITIAL.
1891.1 -	1894.5	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 12% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM

			GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-19% FOSSILS: FOSSIL MOLDS
1894.5	-	1898.7	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 06% POROSITY: VUGULAR, MOLDIC, INTERGRANULAR 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-24% FOSSILS: FOSSIL MOLDS
1898.7	-	1899.1	GYPSUM; VERY LIGHT GRAY ACCESSORY MINERALS: DOLOMITE-10%
1899.1	-	1899.5	DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN 03% POROSITY: INTERCRYSTALLINE, INTERGRANULAR 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-25%
1899.5	-	1900.8	DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN 02% POROSITY: INTERCRYSTALLINE, VUGULAR, LOW PERMEABILITY 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT SPARRY CALCITE CEMENT ACCESSORY MINERALS: ANHYDRITE-20% OTHER FEATURES: CALCAREOUS, HIGH RECRYSTALLIZATION Large Anhydrite Nodules at 1900.2-1900.5, 1900.7
1900.8	-	1901.2	DOLOSTONE; DARK YELLOWISH ORANGE TO MODERATE YELLOWISH BROWN 05% POROSITY: INTERCRYSTALLINE, VUGULAR; 90-100% ALTERED SUBHEDRAL GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT IRON CEMENT ACCESSORY MINERALS: GYPSUM-25% OTHER FEATURES: CALCAREOUS, HIGH RECRYSTALLIZATION FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS GYPSUM/ANHYDRITE NODULES PRESENT

1901.2 - 1901.8 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
05% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: CALCAREOUS, HIGH RECRYSTALLIZATION
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS
Interbedded with iron-stained calcareous DS above; Gypsum
filled vugs

1901.8 - 1902.6 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH BROWN
05% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-20%
OTHER FEATURES: CALCAREOUS, HIGH RECRYSTALLIZATION
SUCROSIC
DECREASE IN DOLOMITIZATION WITH DEPTH; GYPSUM NODULES (UP
TO 1.5" DIAM) AND INFILLED VUGS/MOLDS

1902.6 - 1905.4 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, VUGULAR
GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-35%, PYRITE-02%
OTHER FEATURES: DOLOMITIC, HIGH RECRYSTALLIZATION
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, ECHINOID
BENTHIC FORAMINIFERA, CONES
GOOD PERMEABILITY; POSSIBLY FABIANA CUBENSIS PRESENT

1905.4 - 1906.8 DOLOSTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
05% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: LIMESTONE-15%

OTHER FEATURES: CALCAREOUS, HIGH RECRYSTALLIZATION
SUCROSIC, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, ECHINOID, CONES
FOSSIL MOLDS

1906.8 - 1907.1 GYPSUM; WHITE TO LIGHT GRAY
POROSITY: NOT OBSERVED, LOW PERMEABILITY

1907.1 - 1907.3 DOLOSTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
03% POROSITY: INTERCRYSTALLINE, VUGULAR; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-35%, PYRITE-01%, GYPSUM-02%
OTHER FEATURES: CALCAREOUS, SUCROSIC, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, ECHINOID, CONES
FOSSIL MOLDS
GOOD PERMEABILITY; GYPSUM FILLED MOLDS, VUGS, AND FRACTURES

1907.3 - 1908.7 DOLOSTONE; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN
01% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-15%, GYPSUM-15%
OTHER FEATURES: CALCAREOUS, SUCROSIC, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, ECHINOID, CONES
FOSSIL MOLDS
LARGE ANHYDRITE NODULE AT 1909.4-1908.7

1908.7 - 1909 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE
ACCESSORY MINERALS: DOLOMITE-35%, GYPSUM-05%, PYRITE-02%
OTHER FEATURES: DOLOMITIC, HIGH RECRYSTALLIZATION
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, ECHINOID, CONES

1909 - 1910.9 DOLOSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY

50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-20%
FOSSILS: FOSSIL MOLDS
LARGE ANHYDRITE/GYPSUM NODULES

1910.9 - 1911.7 ANHYDRITE; WHITE TO LIGHT GRAY
POROSITY: NOT OBSERVED, LOW PERMEABILITY

1911.7 - 1914.8 DOLOSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: ANHYDRITE-10%
FOSSILS: FOSSIL MOLDS

1914.8 - 1917 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-10%, PYRITE-01%
OTHER FEATURES: CALCAREOUS, SUCROSIC, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, ECHINOID
CONES, FOSSIL MOLDS
INCREASE IN FOSSILS AND MICRITE AT BOTTOM OF INTERVAL

1917 - 1919 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-40%, GYPSUM-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
ECHINOID, MOLLUSKS

1919 - 1924.4 DOLOSTONE; GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: ANHYDRITE-15%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS
GOOD PERMEABILITY; GYPSUM FILED VUGS/MOLDS

1924.4 - 1926.8 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH ORANGE
07% POROSITY: INTERCRYSTALLINE, MOLDIC
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILS: FOSSIL MOLDS
INCREASED CRYSTAL SIZE WITH DEPTH AND BECOMING MORE
SUCROSIC; LARGE ANHYDRITE NODULES AT 1919.7-1920
1922.5-1922.8

1926.8 - 1929 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: PYRITE-<1%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS
GYPSUM FILLED MOLDS; LARGE ANHYDRITE NODULE AT 1926.5

1929 - 1930.2 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-40%, GYPSUM-10%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, SUCROSIC
FOSSILIFEROUS

FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, ECHINOID, CONES
BENTHIC FORAMINIFERA
TRACE OF SULPHUR AROUND PYRITE AT 1927'

1930.2 - 1930.5 DOLOSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: LIMESTONE-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, CONES, FOSSIL MOLDS

1930.5 - 1931.2 DOLOSTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
02% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
GYPSUM FILLED MOLDS

1931.2 - 1933 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-35%, PYRITE-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, SUCROSIC
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, ECHINOID, FOSSIL MOLDS

1933 - 1937.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
03% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT

DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-10%, PYRITE-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, CONES
NODULE OF RECRYSTALLIZED WACKESTONE AT 1930.6; MODERATE PERM

1937.5 - 1938 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: LIMESTONE-35%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

1938 - 1943.8 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-15%, GYPSUM-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, ECHINOID, CONES
BENTHIC FORAMINIFERA, FOSSIL MOLDS
INTERBEDDED WITH SUCROSIC DS (SOME POSSIBLY SILICIFIED)

1943.8 - 1946.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-30%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, DOLOMITIC
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, FOSSIL MOLDS
VARIABLE DS THROUGHOUT, DOLOMITE INCREASING WITH DEPTH

1946.5 - 1947.3 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
07% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: LIMESTONE-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

1947.3 - 1950.2 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-25%, GYPSUM-15%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, DOLOMITIC
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, CONES, ECHINOID, FOSSIL MOLDS

1950.2 - 1950.7 DOLOSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS
GOOD PERMEABILITY

1950.7 - 1952.7 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, MOLDIC
GRAIN TYPE: SKELTAL CAST, CRYSTALS, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-25%, GYPSUM-05%, PYRITE-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, DOLOMITIC
FOSSILIFEROUS

FOSSILS: FOSSIL FRAGMENTS, CONES, ECHINOID
VARIABLE DOLOMITE AND MICRITE AMOUNTS; INTERBEDDED WITH
FINER WACKESTONE WITH LITTLE FOSSILS AND GOOD PERM.

1952.7 - 1957 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-20%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

1957 - 1959.8 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
NODULE OF DOLOMITIC PACKSTONE AT 1959.5

1959.8 - 1965.3 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
02% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SPARRY CALCITE CEMENT
ACCESSORY MINERALS: LIMESTONE-40%, IRON STAIN-02%
OTHER FEATURES: CALCAREOUS, SUCROSIC, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS
GOOD PERMEABILITY

1965.3 - 1971.5 DOLOSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
01% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: ANHYDRITE-15%

			OTHER FEATURES: HIGH RECRYSTALLIZATION FOSSILS: FOSSIL MOLDS ANHYDRITE/GYPSUM NODULES
1971.5	-	1974	DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH ORANGE 05% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-30% OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC FOSSILS: FOSSIL MOLDS GOOD PERMEABILITY; GYPSUM NODULES AND FILLED MOLDS
1974	-	1976	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 02% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS 50-90% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT GYPSUM CEMENT ACCESSORY MINERALS: LIMESTONE-15%, GYPSUM-15% OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
1976	-	1978.3	WACKESTONE; VERY LIGHT ORANGE 02% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELTAL CAST 40% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-10% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS GRAIN BOUNDARIES DISSOLVED
1978.3	-	1979.7	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 02% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR 50-90% ALTERED; SUBHEDRAL GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT

			CALCILUTITE MATRIX ACCESSORY MINERALS: LIMESTONE-25%, PYRITE-02% OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC CALCAREOUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
1979.7	-	1983.8	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 01% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY 90-100% ALTERED; SUBHEDRAL GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT SEDIMENTARY STRUCTURES: MASSIVE ACCESSORY MINERALS: ANHYDRITE-10% OTHER FEATURES: HIGH RECRYSTALLIZATION FOSSILS: FOSSIL MOLDS ANHYDRITE NODULES; LARGE NODULE AT BOTTOM OF INTERVAL
1983.8	-	1998	PACKSTONE; VERY LIGHT ORANGE 02% POROSITY: INTERCRYSTALLINE, VUGULAR, PIN POINT VUGS GRAIN TYPE: SKELTAL CAST, CRYSTALS, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-05%, PYRITE-02%, DOLOMITE-03% OTHER FEATURES: HIGH RECRYSTALLIZATION, FOSSILIFEROUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS BENTHIC FORAMINIFERA MODERATE PERMEABILITY; INCREASE IN DOLOMITE AT END OF INTERVAL; UPPER 1.0' LESS PERMEABLE DUE TO INCREASE OF INTERSTITIAL GYPSUM. CONSTITUENTS PRIMARILY UNIDENTIFIABLE (RECRYSTALLIZED) FORAMS AND FOSSIL FRAGMENTS; INCREASE IN DOLOMITE CRYSTALS AND MICRITE IN BOTTOM 1.0'
1998	-	2000.4	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 02% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELTAL CAST 35% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-35%, PYRITE-03%, GYPSUM-02% OTHER FEATURES: HIGH RECRYSTALLIZATION FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

FOSSIL MOLDS
VARIABLE DOLOMITE THROUGHOUT BUT GENERALLY INCREASING WITH DEPTH

2000.4 - 2002.2 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: INTERCRYSTALLINE, VUGULAR, LOW PERMEABILITY
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: LIMESTONE-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
FOSSIL MOLDS
TOP OF INTERVAL: LAYER OF GYPSUM AND FILLED FILLED VERTICAL FRACTURES; RECRYSTALLIZED LAMINATIONS AT BOTTOM OF INTERVAL

2002.2 - 2003.6 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH ORANGE
03% POROSITY: INTERCRYSTALLINE, VUGULAR; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-30%, PYRITE-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
FOSSIL MOLDS

2003.6 - 2004.8 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
GRAIN TYPE: INTRACLASTS, CRYSTALS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-20%, PYRITE-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
FOSSIL MOLDS
GOOD PERMEABILITY; VARIABLE DOLOMITE

2004.8 - 2007.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
02% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC

50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-30%, GYPSUM-05%, PYRITE-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
FOSSIL MOLDS
MODERATE PERMEABILITY; INTERBEDDED W/ DOLOMITIC PACKSTONE

2007.8 - 2013.5 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-15%, LIMESTONE-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
GYPSUM NODULES, FILLED VUGS/MOLDS

2013.5 - 2015 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH ORANGE
05% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%
OTHER FEATURES: SUCROSIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
MODERATE-GOOD PERMEABILITY; SOME GYPSUM NODULES

2015 - 2016.5 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-05%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

POSSIBLE RECRYSTALLIZED BRYOZOAN FRAGMENT AT 2015.7; GYPSUM
NODULES, FILLED FRACTURES AND VUGS

2016.5 - 2017.8 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
03% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: PYRITE-01%
OTHER FEATURES: SUCROSIC
FOSSILS: FOSSIL MOLDS
GOOD PERMEABILITY

2017.8 - 2028.3 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-05%, LIMESTONE-02%
ORGANICS-01%, PYRITE-01%
FOSSILS: FOSSIL MOLDS
ANHYDRITE/GYPSUM NODULES

2028.3 - 2032 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-03%, PYRITE-<1%
OTHER FEATURES: HIGH RECRYSTALLIZATION
ANHYDRITE/GYPSUM NODULES AND FILLED VUGS

2032 - 2034 DOLOSTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
03% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED, NODULAR

ACCESSORY MINERALS: GYPSUM-10%
FRACTURED GYPSUM NODULES; TOP 3": DOLOSILT; VARIABLE
CRYSTAL SIZE: MORE PERMEABLE DOLERENITE VS DENSE MOLDIC
DOLOSTONE WITH MOTTLED/NODULAR STRUCTURE

2034 - 2053 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
08% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: GYPSUM-10%, LIMESTONE-35%, PYRITE-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
SUCROSIC, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS
GOOD PERMEABILITY; GYPSUM FILLED VUGS/MOLDS; MOTTLED AND
INTERBEDDED W/ RECRYSTALLIZED WACKESTONE

2053 - 2055 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
03% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-15%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS
GYPSUM NODULES AND FILLED VUGS; LARGE NODULE @ 2053.4

2055 - 2057.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
08% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
90-100% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: GYPSUM-15%
OTHER FEATURES: SUCROSIC
FOSSILS: FOSSIL MOLDS
MODERATE PERMEABILITY; GYPSUM FILLED VUGS; BOTTOM OF
INTERVAL: MOTTLED W/ LOW PERM. (HIGHER INDURATION) MOLDIC
DOLOSTONE

2057.8 - 2063.5 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN

02% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-15%
FOSSILS: FOSSIL MOLDS
QUARTZ CRYSTALS (1-4MM IN LENGTH) IN VUG @ 2058.3

2063.5 - 2071.2 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: LIMESTONE-30%, GYPSUM-05%, PYRITE-01%
ORGANICS-<1%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
GOOD PERMEABILITY; PRESENCE OF LAMINAE; 2070.3-2071.2:
FRIABLE AND FRACTURED; MOTTLED W/ LOW PERM., HIGHER
INDURATION MOLDIC DOLOSTONE

2071.2 - 2079.2 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-10%
FOSSILS: FOSSIL MOLDS

2079.2 - 2081.3 MUDSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELTAL CAST, INTRACLASTS
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-40%, GYPSUM-10%
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
MUDSTONE WITH GOOD PERMEABILITY; MOTTLED W/ INPERMEABLE

MOLDIC DOLOSTONE AND NODULES OF GYPSUM

2081.3 - 2084.9 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-15%, LIMESTONE-04%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

2084.9 - 2089 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, MOLDIC; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR, INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-40%, GYPSUM-05%, PYRITE-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
CONE MOLDS; GYPSUM FILLED FRACTURES; INTERBEDDED /MOTTLED
WITH PERMEABLE WACKESTONE (W/ DOLOMITE CRYSTAL INCLUSIONS)

2089 - 2097.3 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: GYPSUM-15%, LIMESTONE-15%, PYRITE-<1%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
AREAS OF RECRYSTALLIZED WACKESTONE; MULTIPLE NODULES OF
GYPSUM/ANHYDRITE PRESENT

2097.3 - 2104.7 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
<1% POROSITY: INTERCRYSTALLINE, MOLDIC; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT

			GYPSUM CEMENT SEDIMENTARY STRUCTURES: MOTTLED ACCESSORY MINERALS: LIMESTONE-40%, GYPSUM-03%, PYRITE-01% OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS MOTTLED W/ RECRYSTALLIZED MUDSTONE; DISSOLVED GYPSUM NODULES (VUGS); GYPSUM PRESENT AS INTERSTITIAL
2104.7	-	2106.8	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 01% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS 25% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-10%, GYPSUM-03% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC MODERATE PERMEABILITY; PRESENCE OF LAMINAE; TOP OF OLDSMAR FORMATION
2106.8	-	2107	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE 65% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-30%, PYRITE-03% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS HIGHLY DOLOMITIC LIMESTONE WITH DISSOLVED GRAIN BOUNDARIES LAMINAE PRESENT
2107	-	2120.7	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, VUGULAR GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE 25% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT GYPSUM CEMENT SEDIMENTARY STRUCTURES: MOTTLED, NODULAR ACCESSORY MINERALS: DOLOMITE-15%, GYPSUM-03%, PYRITE-02% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

VARIABLE DOLOMITE; RELICT LAMINAE STRUCTURES PRESENT
GYPSUM NODULES BOTH PRESENT AND DISSOLVED; SOME AREAS ARE
MORE OF A MUDSTONE

2120.7 - 2121.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS
ANHYDRITE NODULES, SOME DISSOLVED

2121.4 - 2146.5 WACKESTONE; VERY LIGHT ORANGE
01% POROSITY: INTERCRYSTALLINE, MOLDIC
GRAIN TYPE: CRYSTALS, INTRACLASTS, SKELTAL CAST
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-05%, DOLOMITE-15%, PYRITE-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA
MULTIPLE LENS-SHAPED MOLDS AND SPICLUES MOLDS
SPIRAL-SHAPED RECRYSTALLIZED FORAMS AT 2127.1 AND 2142.7
DISSOLVED GRAIN BOUNDARIES AND GYPSUM FILLED MOLDS
ANHYDRITE FILLED VUGS; RELICT MOTTLING AND LAMINAE WHICH
APPEAR TO BE DOLOMITIZED

2146.5 - 2157.9 WACKESTONE; VERY LIGHT ORANGE
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
GRAIN TYPE: CRYSTALS, INTRACLASTS, SKELTAL CAST
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: DOLOMITE-20%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA

SIMILAR TO ABOVE INTERVAL WITH INCREASED RECRYSTALLIZATION
AND DOLOMITE AND LESS PERMEABLE; ARCHAIS SP. @ 2146.5

2157.9 - 2159.1 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ANHYDRITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: ANHYDRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
FLECKS OF ORGANICS AND IRON MINERALS; ANHYDRITE NODULES

2159.1 - 2164.8 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
GRAIN TYPE: CRYSTALS, SKELTAL CAST
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-10%, PYRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS
HIGHLY RECRYSTALLIZED WACKESTONE-PACKSTONE WITH DISSOLVED
GRAIN BOUNDARIES; RELICT MOTTLED AND NODULAR STRUCTURES

2164.8 - 2165.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED, NODULAR
ACCESSORY MINERALS: LIMESTONE-40%, PYRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
LIMESTONE IS RECRYSTALLIZED

2165.5 - 2175.2 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
LOW PERMEABILITY
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT

ANHYDRITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-10%, ANHYDRITE-05%
PYRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS
SIMILAR TO 2159.1-2164.8 W/ ANHYDRITE NODULES

2175.2 - 2180.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ANHYDRITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-25%, PYRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA
UPPER 4": RELICT LAMINAE STRUCTURES AND LESS ALTERATION
ANHYDRITE NODULES AND LARGE VEIN THROUGH INTERVAL

2180.8 - 2186.8 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, MOLDIC, INTERGRANULAR
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-25%, GYPSUM-05%, PYRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA
PACKSTONE-WACKESTONE WITH VARIABLE RECRYSTALLIZATION AND
DOLOMITIZATION; ARCHAIS SP. PRESENT POSSIBLE GLAUCONITE
RELICT LAMINAE AND NODULAR STRUCTURES VISIBLE

2186.8 - 2188.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: LIMESTONE-15%, GYPSUM-03%, PYRITE-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
ARCHAIS SP.

2188.8 - 2189.5 LIMESTONE; VERY LIGHT ORANGE
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%, PYRITE-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS
DISSOLVED GRAIN BOUNDARIES

2189.5 - 2196.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-20%, GYPSUM-10%, PYRITE-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
RECRYSTALLIZED DOLOMITIC LIMESTONE THROUGHOUT WITH LAYER AT
2190.3-2190.7; ARCHAIS SP.; ANHYDRITE/GYPSUM NODULES
ORGANIC LAYERS AT BOTTOM OF INTERVAL

2196.4 - 2214.7 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR, LAMINATED
ACCESSORY MINERALS: DOLOMITE-10%, GYPSUM-10%, PYRITE-02%
ORGANICS-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS
RECRYSTALLIZED WACKESTONE-PACKSTONE WITH DISSOLVED GRAIN
BOUNDARIES; 2198.3-2199.0: LAYER OF ORGANIC LAMINAE AND
NODULAR STRUCTURES; LESS DOLOMITE AND GYPSUM WITH DEPTH
LESS RECRYSTALLIZATION WITH DEPTH; TRACES OF GLAUCONITE

2214.7 - 2224.6 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC

GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-03%, PYRITE-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
GOOD PERMEABILITY; BARNACLE AND MOLLUSK MOLDS; SOME LAMINAE PRESENT

2224.6 - 2243.6 PACKSTONE; VERY LIGHT ORANGE
03% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
SOME AREAS MORE OF A GRAINSTONE; LESS VUGS; MODERATE PERMEABILITY; VARIABLE RECRYSTALLIZATION, INCREASED RECRYSTALLIZATION AT 2235.0-2236.5 AND BOTTOM OF INTERVAL

2243.6 - 2244.9 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
10% POROSITY: FRACTURE, VUGULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SILICIC CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: LIMESTONE-03%, GYPSUM-05%, CHERT-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS
SILICIFIED AND FRACTURED

2244.9 - 2248.7 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-03%, GYPSUM-03%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
GYPSUM NODULES AT 1248.3

2248.7	-	2253.3	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 08% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC GRAIN TYPE: INTRACLASTS, SKELTAL CAST, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX GYPSUM CEMENT OTHER FEATURES: MEDIUM RECRYSTALLIZATION FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS SOME AREAS MORE OF A PACKSTONE; MODERATE-GOOD PERM.
2253.3	-	2253.8	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 02% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS GRAIN TYPE: CRYSTALS, INTRACLASTS, SKELTAL CAST 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-03%, PYRITE-02% OTHER FEATURES: HIGH RECRYSTALLIZATION FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
2253.8	-	2262	PACKSTONE; VERY LIGHT ORANGE 15% POROSITY: VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY GRAIN TYPE: SKELTAL CAST, CRYSTALS, INTRACLASTS 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX GYPSUM CEMENT ACCESSORY MINERALS: GYPSUM-05%, PYRITE-02% OTHER FEATURES: HIGH RECRYSTALLIZATION FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA FOSSIL MOLDS INCREASED VUGS 2256.2-2257.0; INCREASED RECRYSTALLIZATION AND GYPSUM FILLED VUGS AT 2258.3-2259.2, 2261.5-2262.0 CAUSING A LOWER POROSITY AND HIGHER INDURATION
2262	-	2263	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE 40% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION

CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-05%, GYPSUM-03%, PYRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
RELICT STRUCTURES PRESENT

2263 - 2265.3 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
<1% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS

2265.3 - 2266.4 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, INTRACLASTS, SKELTAL CAST
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-05%, GYPSUM-03%, ORGANICS-03%
PYRITE-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS
ORGANIC LAMINAE AND RELICT STRUCTURES; GYPSUM FILLED VUGS
AND MOLDS

2266.4 - 2268.5 MUDSTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
<1% POROSITY: INTERCRYSTALLINE, MOLDIC
GRAIN TYPE: CRYSTALS, CALCILUTITE
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, GREASY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
VEINS OF GYPSUM

2268.5 - 2275.5 WACKESTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
03% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS

			40% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT SEDIMENTARY STRUCTURES: INTERBEDDED, NODULAR ACCESSORY MINERALS: DOLOMITE-40%, PYRITE-02%, ORGANICS-02% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC CRYSTALLINE FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS BENTHIC FORAMINIFERA INTERBEDDED WITH CALCAREOUS DOLOMITE (W/ WACKESTONE NODULES); MULTIPLE CROSS-SECTIONS OF FORAM FRAGMENTS (POSSIBLY ARCHAIS SP.); PRESENCE OF PYRITE AND GLAUCONITE- SOME INFILLING FORAMS
2275.5	-	2277.5	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN <1% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY 50-90% ALTERED; ANHEDRAL GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO FINE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT SEDIMENTARY STRUCTURES: INTERBEDDED ACCESSORY MINERALS: LIMESTONE-15%, PYRITE-02% ORGANICS-01%, GYPSUM-03% OTHER FEATURES: CALCAREOUS FOSSILS: FOSSIL MOLDS GYPSUM NODULES; AREAS OF RECRYSTALLIZED WACKESTONE
2277.5	-	2291	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 03% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT SEDIMENTARY STRUCTURES: MOTTLED, NODULAR ACCESSORY MINERALS: DOLOMITE-15%, GYPSUM-03%, PYRITE-03% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS SOME AREAS OF CALCAREOUS DOLOMITE THROUGH 2281.0; VARIABLE RECRYSTALLIZATION; DISSOLVED GRAIN BOUNDARIES
2291	-	2292	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 08% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE 25% ALLOCHEMICAL CONSTITUENTS

GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: GYPSUM-10%, PYRITE-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
MUDSTONE WITH WACKESTONE NODULES; GYPSUM NODULES (SOME INSIDE WACKESTONE) AND FILLED MOLDS

2292 - 2297.7 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-05%, GYPSUM-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
RECRYSTALLIZED WACKESTONE WITH DISSOLVED GRAIN BOUNDARIES
MOTTLED/NODULES OF MUDSTONE AND DOLOMITE; GYPSUM NODULES

2297.7 - 2300.3 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-15%, DOLOMITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
GYPSUM NODULES AND INTERSTITIAL; NODULES OF DOLOMITE CRYSTALS

2300.3 - 2307.3 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX

			DOLOMITE CEMENT SEDIMENTARY STRUCTURES: MOTTLED, NODULAR ACCESSORY MINERALS: GYPSUM-05%, DOLOMITE-03% OTHER FEATURES: HIGH RECRYSTALLIZATION FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS RELICT STRUCTURES GYPSUM FILLED MOLDS; DISSOLVED GRAIN BOUNDARIES; BOTTOM 3" OF INTERVAL: ORGANIC LAMINAE
2307.3	-	2303.7	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN <1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY 90-100% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT CALCILUTITE MATRIX ACCESSORY MINERALS: GYPSUM-05% RELICT LAMINAE STRUCTURES AND INTERBEDDING; GYPSUM NODULES (LARGE ONE AT 2310.6)
2303.7	-	2306.2	MUDSTONE; WHITE TO VERY LIGHT ORANGE <1% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS GRAIN TYPE: CRYSTALS, CALCILUTITE GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX ACCESSORY MINERALS: DOLOMITE-03% OTHER FEATURES: HIGH RECRYSTALLIZATION BOTTOM 4": INTERBEDDED WITH CALCAREOUS DOLOMITE
2306.2	-	2316.9	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 10% POROSITY: INTERCRYSTALLINE, MOLDIC POSSIBLY HIGH PERMEABILITY GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX OTHER FEATURES: MEDIUM RECRYSTALLIZATION FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
2316.9	-	2319.3	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 10% POROSITY: INTERCRYSTALLINE, MOLDIC POSSIBLY HIGH PERMEABILITY GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE

GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
GOOD PERMEABILITY

2319.3 - 2329 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
VARIABLE RECRYSTALLIZATION AND POROSITY; GYPSUM PRESENT AS NODULES AND INTERSTITIAL; ORGANIC LAMINAE AT 2320.7-2320.9

2329 - 2335.9 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-05%, GYPSUM-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
RELICT LAMINAE

2335.9 - 2337.1 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, VUGULAR
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
MARKERS @ 2334.3 AND 2337 MAY BE OFF

2337.1 - 2340.3 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, GYPSUM CEMENT
IRON CEMENT
ACCESSORY MINERALS: GYPSUM-05%, PYRITE-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BARNACLES
BENTHIC FORAMINIFERA, FOSSIL MOLDS
GOOD PERMEABILITY

2340.3 - 2343.9 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
GOOD PERMEABILITY; DISSOLVED GRAIN BOUNDARIES LAMINAE @
2340.3-2341.0

2343.9 - 2346.3 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: NODULAR, INTERBEDDED
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BEDS AND NODULES OF HIGHLY RECRYSTALLIZED DOLOMITIC
LITHOGRAPHIC MUDSTONE

2346.3 - 2347.8 DOLOSTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
<1% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, NODULAR, MOTTLED

ACCESSORY MINERALS: PYRITE-03%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL MOLDS

2347.8 - 2349.7 PACKSTONE; VERY LIGHT ORANGE TO MODERATE LIGHT GRAY
03% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: NODULAR, MOTTLED
ACCESSORY MINERALS: DOLOMITE-25%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS
LARGE MOLDS AND GYPSUM NODULES; INCREASED DOLOMITIZATION
WITH DEPTH

2349.7 - 2352.9 DOLOSTONE; VERY LIGHT ORANGE TO MODERATE LIGHT GRAY
01% POROSITY: INTERCRYSTALLINE, MOLDIC; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: LIMESTONE-40%, GYPSUM-15%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL MOLDS

2352.9 - 2355 MUDSTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
GRAIN TYPE: CRYSTALS, CALCILUTITE
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
IRON CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: DOLOMITIC, HIGH RECRYSTALLIZATION, GREASY
FOSSILS: FOSSIL MOLDS
RELICT LAMINAE THROUGHOUT

2355 - 2355.4 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION

CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS, FOSSIL MOLDS

2355.4 - 2359.9 DOLOSTONE; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN
<1% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: LIMESTONE-30%, GYPSUM-05%
ORGANICS-05%
OTHER FEATURES: CALCAREOUS
ORGANIC LAMINAE AT BOTTOM OF INTERVAL

2359.9 - 2362.1 DOLOSTONE; VERY LIGHT ORANGE
10% POROSITY: MOLDIC, VUGULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: LIMESTONE-40%, GYPSUM-05%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL MOLDS

2362.1 - 2370.3 LIMESTONE; VERY LIGHT ORANGE
05% POROSITY: MOLDIC, VUGULAR, INTERCRYSTALLINE
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS, MILIOLIDS, FOSSIL FRAGMENTS
GOOD PERMEABILITY; RECRYSTALLIZED WACKESTONE-PACKSTONE WITH
DISSOLVED GRAIN BOUNDARIES; VARIABLE RECRYSTALLIZATION

2370.3 - 2372 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL

GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: CALCAREOUS
RELICT LAMINAE

2372 - 2373.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
08% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
GRAIN TYPE: SKELTAL CAST, INTRACLASTS, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
FOSSIL MOLDS
TOP OF INTERVAL MORE OF GRAINSTONE; INCREASE IN MICRITE
WITH DEPTH; GOOD PERMEABILITY

2373.5 - 2374.3 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
RECRYSTALLIZED WACKESTONE-PACKSTONE WITH NODULES OF
MUDSTONE; DISSOLVED GRAIN BOUNDARIES

2374.3 - 2375.5 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS
WACKESTONE WITH NODULES OF PACKSTONE AND MUDSTONE; ORGANIC
LAMINAE AND DOLOMITE AT BOTTOM 2" OF INTERVAL

2375.5 - 2376.4 MUDSTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
<1% POROSITY: INTERCRYSTALLINE
GRAIN TYPE: CRYSTALS, CALCILUTITE

			GRAIN SIZE: LITHOGRAPHIC RANGE: LITHOGRAPHIC TO MICROCRYSTALLINE; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC RELICT LAMINAE
2376.4	-	2377.7	WACKESTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN 05% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELTAL CAST 40% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX ACCESSORY MINERALS: PYRITE-03% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL MOLDS DISSOLVED GRAIN BOUNDARIES
2377.7	-	2378.3	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 05% POROSITY: MOLDIC, VUGULAR, LOW PERMEABILITY 50-90% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT GYPSUM CEMENT SEDIMENTARY STRUCTURES: MOTTLED, NODULAR ACCESSORY MINERALS: LIMESTONE-30%, GYPSUM-25%, PYRITE-02% OTHER FEATURES: CALCAREOUS
2378.3	-	2387	WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 03% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELTAL CAST 25% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS DISSOLVED GRAIN BOUNDARIES; INCREASE IN DOLOMITE @ 2387.0
2387	-	2391.3	WACKESTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN 03% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS 35% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION

CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR, LAMINATED
ACCESSORY MINERALS: DOLOMITE-25%, GYPSUM-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS, MILIOLIDS
INCREASE IN GRAIN SIZE WITH DEPTH

2391.3 - 2393.3 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-25%, GYPSUM-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
MILIOLIDS

2393.3 - 2395.4 PACKSTONE; LIGHT GRAY TO GRAYISH BROWN
10% POROSITY: VUGULAR, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-40%, GYPSUM-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
MILIOLIDS

2395.4 - 2397 PACKSTONE; GRAYISH ORANGE TO GRAYISH BROWN
05% POROSITY: MOLDIC, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-20%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
MILIOLIDS

2397	-	2398.8	LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT SEDIMENTARY STRUCTURES: NODULAR, LAMINATED OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC RECRYSTALLIZED WACKESTONE-PACKSTONE WITH DISSOLVED GRAIN BOUNDARIES; LAMINAE AND NODULAR STRUCTURES @ 2397.1-2397.7
2398.8	-	2399.7	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 05% POROSITY: MOLDIC, VUGULAR GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-35% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
2399.7	-	2405.5	MUDSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS 05% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-20%, GYPSUM-03% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL MOLDS INCREASE IN DOLOMITE WITH DEPTH
2405.5	-	2410.4	WACKESTONE; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN 02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC GRAIN TYPE: CRYSTALS, CALCILUTITE, SKELTAL CAST 20% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT SEDIMENTARY STRUCTURES: MOTTLED, NODULAR, LAMINATED ACCESSORY MINERALS: DOLOMITE-40%

OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
NODULAR WITH DOLOMITIZED LAMINAE BETWEEN; VARIABLE DOLOMITIZATION; SOME REWORKED RECRYSTALLIZED LIMESTONE
AREA OF REWORKED AND DOLOMITIZED LIMESTONE @ 2406.5-2406.7 (NICE TURRITELLA SP. MOLDS)

2410.4 - 2415.2 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
03% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-05%, PYRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
GOOD PERMEABILITY; DISSOLVED GRAIN BOUNDARIES; INCREASED RECRYSTALLIZATION WITH DEPTH' APPEARS TO GRADE (PRIOR TO RECRYSTALLIZATION) FROM A PACKSTONE TO A MUDSTONE

2415.2 - 2421.4 MUDSTONE; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, CALCILUTITE
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR, LAMINATED
ACCESSORY MINERALS: DOLOMITE-20%, GYPSUM-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
DOLOMITE AS CRYSTALS IN MICRITIC MATRIX

2421.4 - 2422.6 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
15% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-20%, GYPSUM-05%
OTHER FEATURES: CALCAREOUS, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
POSSIBLY REWORKED; DOLOMITIZED FOSSILS PRESENT

2422.6 - 2427 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR

			50-90% ALTERED; ANHEDRAL GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT CALCILUTITE MATRIX ACCESSORY MINERALS: LIMESTONE-40% OTHER FEATURES: CALCAREOUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
2427	-	2428.6	PACKSTONE; GRAYISH ORANGE TO GRAYISH BROWN 05% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR GRAIN TYPE: CRYSTALS, CALCILUTITE 70% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT CALCILUTITE MATRIX SEDIMENTARY STRUCTURES: NODULAR ACCESSORY MINERALS: DOLOMITE-25%, GYPSUM-03%, PYRITE-02% IRON STAIN-02% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC CRYSTALLINE
2428.6	-	2430.9	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 02% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS 60% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS DISSOLVED GRAIN BOUNDARIES
2430.9	-	2433.5	DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN 02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT SEDIMENTARY STRUCTURES: NODULAR ACCESSORY MINERALS: LIMESTONE-20%, ORGANICS-05% OTHER FEATURES: CALCAREOUS
2433.5	-	2434.3	WACKESTONE; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN 03% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC

GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
NODULES IN ORGANIC RICH MATRIX

2434.3 - 2436.8 PACKSTONE; GRAYISH ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS; 85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-25%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
CRYSTALLINE
MULTIPLE LAMINAE OF ORGANICS AND MICRITE AT 2435.9-2468

2436.8 - 2437.5 PACKSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: NODULAR, INTERBEDDED
ACCESSORY MINERALS: PYRITE-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS
DISSOLVED GRAIN BOUNDARIES; INTERBEDDED W/ GRAY DOLOSTONE

2437.5 - 2439.9 DOLOSTONE; VERY LIGHT GRAY TO MODERATE GRAY
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: LITHOGRAPHIC TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ORGANIC MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: LIMESTONE-25%
OTHER FEATURES: CALCAREOUS

Nodule of limestone at 2438.9-2439.2

2439.9 - 2441.3 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, CALCILUTITE, INTRACLASTS
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-15%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
DISSOLVED GRAIN BOUNDARIES

2441.3 - 2442.5 DOLOSTONE; VERY LIGHT ORANGE TO MODERATE LIGHT GRAY
01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: LITHOGRAPHIC TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: LIMESTONE-30%
OTHER FEATURES: CALCAREOUS

2442.5 - 2443 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, INTRACLASTS
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
ORGANIC LAMINAE AT BOTTOM OF INTERVAL

2443 - 2444.8 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
OTHER FEATURES: CALCAREOUS

FOSSILS: FOSSIL MOLDS

2444.8 - 2446.5 DOLOSTONE; VERY LIGHT GRAY TO MODERATE GRAY
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: LITHOGRAPHIC TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: LIMESTONE-15%
OTHER FEATURES: CALCAREOUS

2446.5 - 2450.8 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-35%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
DOLOMITE AS BOTH CRYSTALS AND DOLERENITE

2450.8 - 2463.7 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: INTERCRYSTALLINE, VUGULAR
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR, INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-35%, GYPSUM-05%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
NODULES AND INTERBEDDED WITH LESS POROUS DOLOMITIC
WACKESTONE; DECREASE IN DOLOMITIZATION WITH DEPTH

2463.7 - 2464.1 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT

ACCESSORY MINERALS: DOLOMITE-05%, GYPSUM-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
GOOD PERMEABILITY

2464.1 - 2470.4 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: DOLOMITE-15%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
DISSOLVED GRAIN BOUNDARIES; GOOD PERMEABILITY; DARK ORGANIC
DOLOMITIC LAMINAE THROUGHOUT

2470.4 - 2472.1 PACKSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
10% POROSITY: INTERCRYSTALLINE, VUGULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
CLAY MATRIX
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

2472.1 - 2473.4 WACKESTONE; GRAYISH ORANGE TO MODERATE GRAY
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, CALCILUTITE
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-15%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
DISSOLVED GRAIN BOUNDARIES; GOOD PERMEABILITY; ORGANIC
DOLOMITIC LAMINAE AND CEMENT

2473.4 - 2475.3 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, VUGULAR, MOLDIC

50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-30%
OTHER FEATURES: CALCAREOUS
DECREASE IN DOLOMITE WITH DEPTH

2475.3 - 2476.9 PACKSTONE; GRAYISH ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: DOLOMITE-30%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
INCREASE IN RECRYSTALLIZATION WITH DEPTH

2476.9 - 2482.4 PACKSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
05% POROSITY: INTERCRYSTALLINE, VUGULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-25%, GYPSUM-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC

2482.4 - 2483.9 PACKSTONE; GRAYISH ORANGE TO MODERATE LIGHT GRAY
03% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, NODULAR
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

			DISSOLVED GRAIN BOUNDARIES; ORGANIC CLAY LAMINAE AND BEDS AT A 30 DEGREE ANGLE
2483.9	-	2486.8	WACKESTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY 01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE 25% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX CLAY MATRIX SEDIMENTARY STRUCTURES: BRECCIATED OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS Possibly recrystallized muds/ooze; Brecciated lighter LIMESTONE IN UPPER 1.0' OF INTERVAL; INCREASE IN ALLOCHEMS WITH DEPTH; DISSOLVED GRAIN BOUNDARIES
2486.8	-	2487.8	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN 05% POROSITY: INTERCRYSTALLINE, VUGULAR POSSIBLY HIGH PERMEABILITY GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
2487.8	-	2489.2	PACKSTONE; VERY LIGHT ORANGE TO MODERATE GRAY 02% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS POSSIBLY HIGH PERMEABILITY GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX CLAY MATRIX SEDIMENTARY STRUCTURES: LAMINATED, BEDDED OTHER FEATURES: HIGH RECRYSTALLIZATION BEDS OF RECRYSTALLIZED ORGANIC MUDS
2489.2	-	2490.6	PACKSTONE; VERY LIGHT ORANGE TO LIGHT GRAY 10% POROSITY: INTERCRYSTALLINE, MOLDIC POSSIBLY HIGH PERMEABILITY GRAIN TYPE: CRYSTALS, SKELTAL CAST, CALCILUTITE

80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
CLAY MATRIX
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

2490.6 - 2495 WACKESTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, BEDDED
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS
DISSOLVED GRAIN BOUNDARIES; SIMILAR TO 2483.9-2486.8; BEDS
OF LIGHTER RECRYSTALLIZED PACKSTONE

2495 - 2497.7 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-25%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS
INCREASE IN DOLOMITE WITH DEPTH; RELICT LAMINAE AND NODULE
STRUCTURES

2497.7 - 2498.9 DOLOSTONE; GRAYISH BROWN TO MODERATE LIGHT GRAY
<1% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
SILICIC CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: LIMESTONE-05%, CHERT-%
POSSIBLY SILICIFIED (CRYSTALS TOO SMALL TO DETERMINE AMT)

2498.9 - 2500.5 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE

			10% POROSITY: INTERCRYSTALLINE, VUGULAR POSSIBLY HIGH PERMEABILITY GRAIN TYPE: CRYSTALS, PELLET CAST, CALCILUTITE 80% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT GYPSUM CEMENT ACCESSORY MINERALS: DOLOMITE-40%, GYPSUM-10% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS HIGHLY RECRYSTALLIZED AND DOLOMITIZED; DRAMATIC VISUAL CHANGE FROM INTERVAL ABOVE (DISCONFORMITY?)
2500.5	-	2501.9	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 20% POROSITY: VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY 50-90% ALTERED; SUBHEDRAL GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT GYPSUM CEMENT ACCESSORY MINERALS: DOLOMITE-30%, GYPSUM-05% OTHER FEATURES: CALCAREOUS FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MILIOLIDS MOLLUSKS
2501.9	-	2506.6	PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 12% POROSITY: VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY GRAIN TYPE: CRYSTALS, PELLET CAST, SKELTAL CAST 85% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT GYPSUM CEMENT ACCESSORY MINERALS: DOLOMITE-40%, GYPSUM-03% OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS VARIABLE MICRITE
2506.6	-	2514.8	DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE 05% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR 50-90% ALTERED; SUBHEDRAL GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT GYPSUM CEMENT ACCESSORY MINERALS: LIMESTONE-40%, GYPSUM-03%

OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL MOLDS

2514.8 - 2516.5 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
02% POROSITY: MOLDIC, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-25%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS
DISSOLVED GRAIN BOUNDARIES

2516.5 - 2516.9 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERCRYSTALLINE, MOLDIC
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: LIMESTONE-30%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL MOLDS

2516.9 - 2518.2 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, MOLDIC, VUGULAR
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: DOLOMITE-30%, ORGANICS-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS

2518.2 - 2518.9 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, MOLDIC
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE
GOOD INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: LIMESTONE-35%, ORGANICS-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL MOLDS

2518.9 - 2526.6 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
02% POROSITY: INTERCRYSTALLINE, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-30%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS
DECREASED GRAIN SIZE AND RECRYSTALLIZATION WITH DEPTH

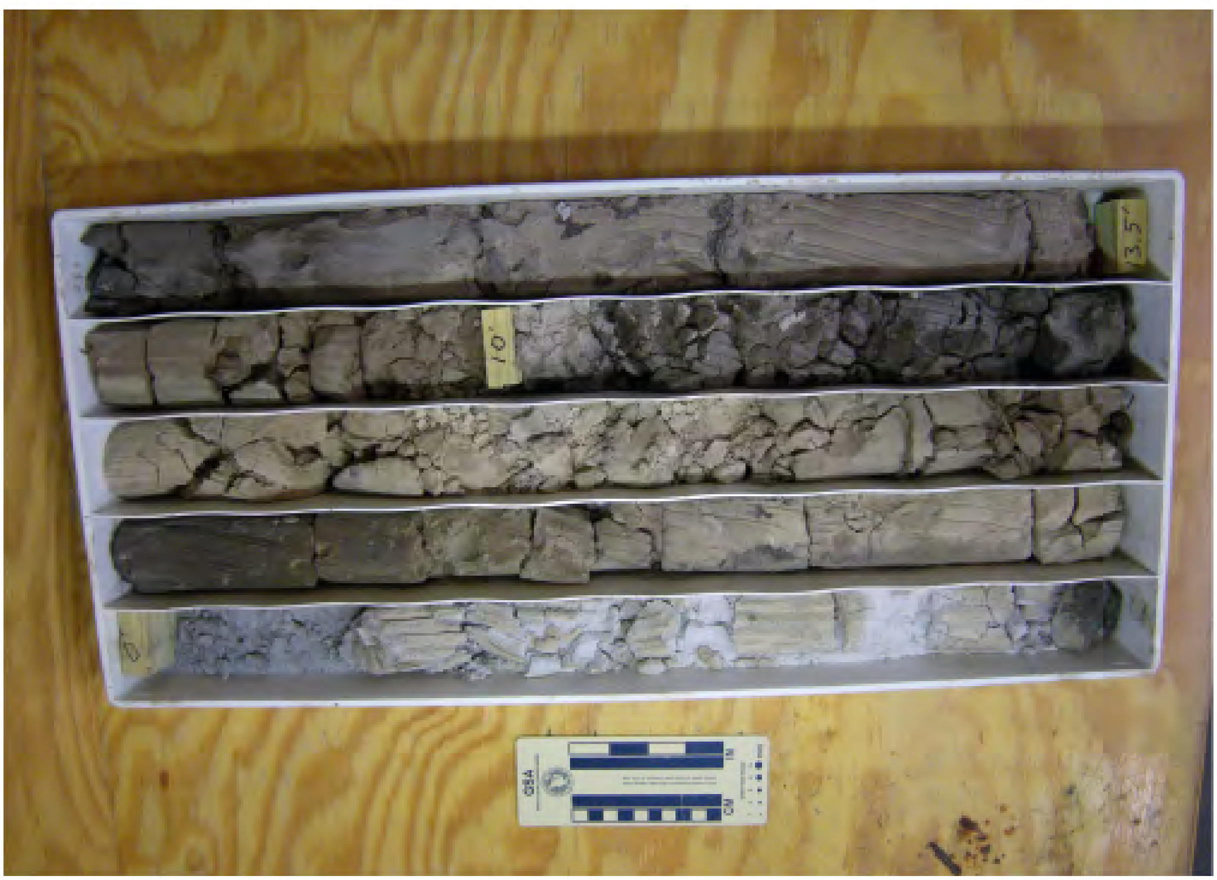
2526.6 - 2527.4 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-10%, GYPSUM-10%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS

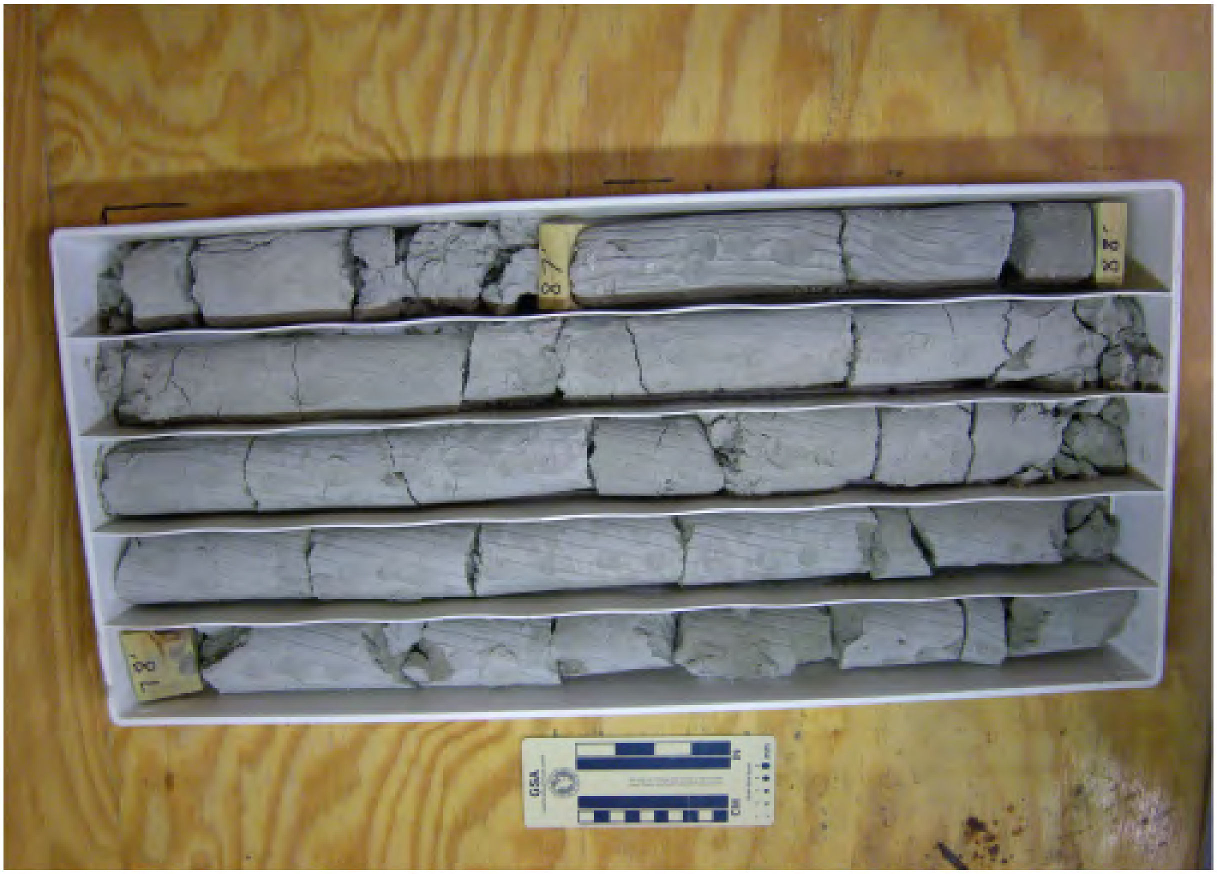
2527.4 - 2528.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERCRYSTALLINE, VUGULAR
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-40%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL MOLDS

2528.8 - 2529.8 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY
GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS

			GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX DOLOMITE CEMENT ACCESSORY MINERALS: DOLOMITE-10% OTHER FEATURES: MEDIUM RECRYSTALLIZATION, DOLOMITIC DECREASE IN GRAIN SIZE WITH DEPTH; GOOD PERMEABILITY
2529.8	-	2537	WACKESTONE; VERY LIGHT ORANGE 01% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS GRAIN TYPE: CRYSTALS, INTRACLASTS, CALCILUTITE 20% ALLOCHEMICAL CONSTITUENTS GRAIN SIZE: MICROCRYSTALLINE RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX OTHER FEATURES: HIGH RECRYSTALLIZATION
2537			TOTAL DEPTH

Appendix E. Digital Photographs of Core Samples Retrieved at the ROMP 27 – Scarborough Well Site in DeSoto County, Florida






121.5
117'
107'
104'
CM


104'
97'
88


261'
257'
247.7'


247'
247.7'
234'
237'


277'
272.5

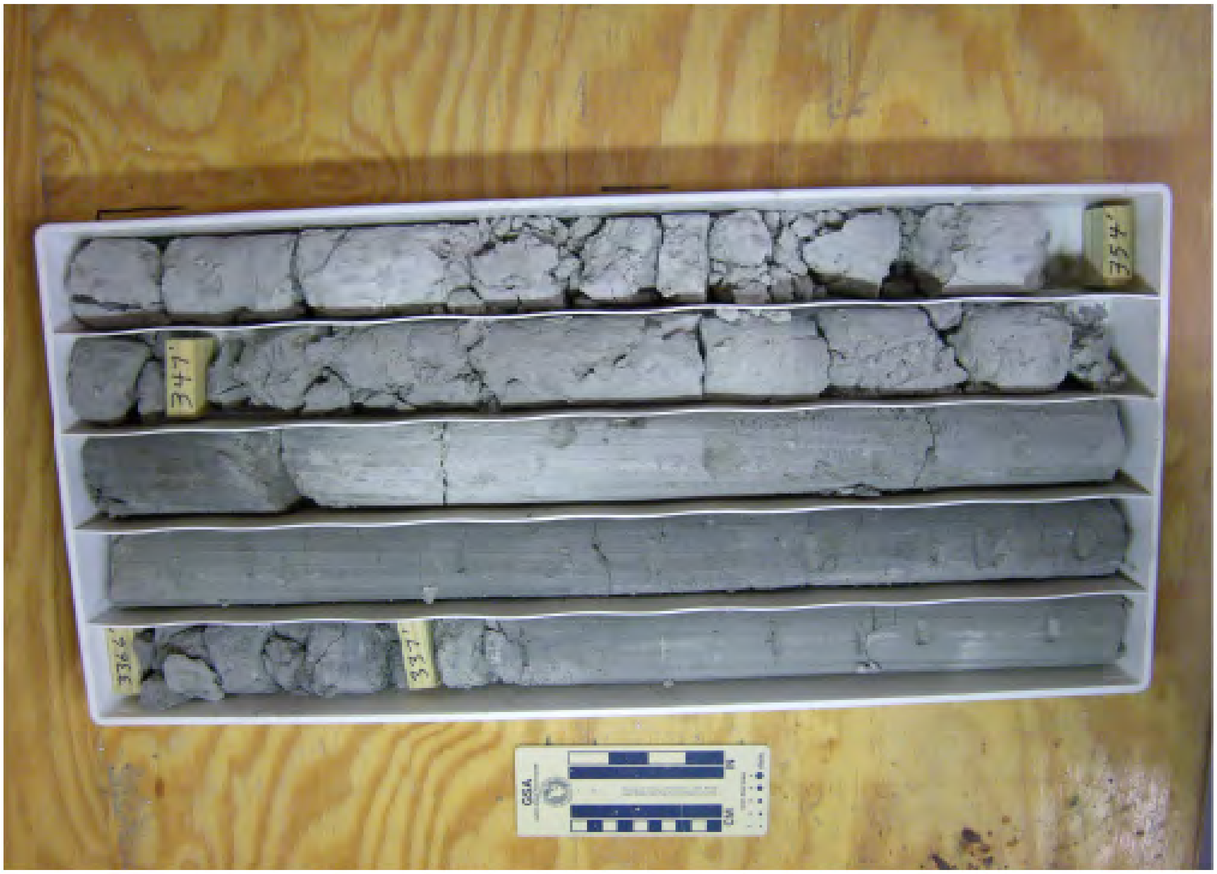

272.5
267'
261'


307'
307.9'
297'


293'
287'


326.8'
317'


317'
307.3


354'
347'
336.6'
337'
GSA
CM
IN

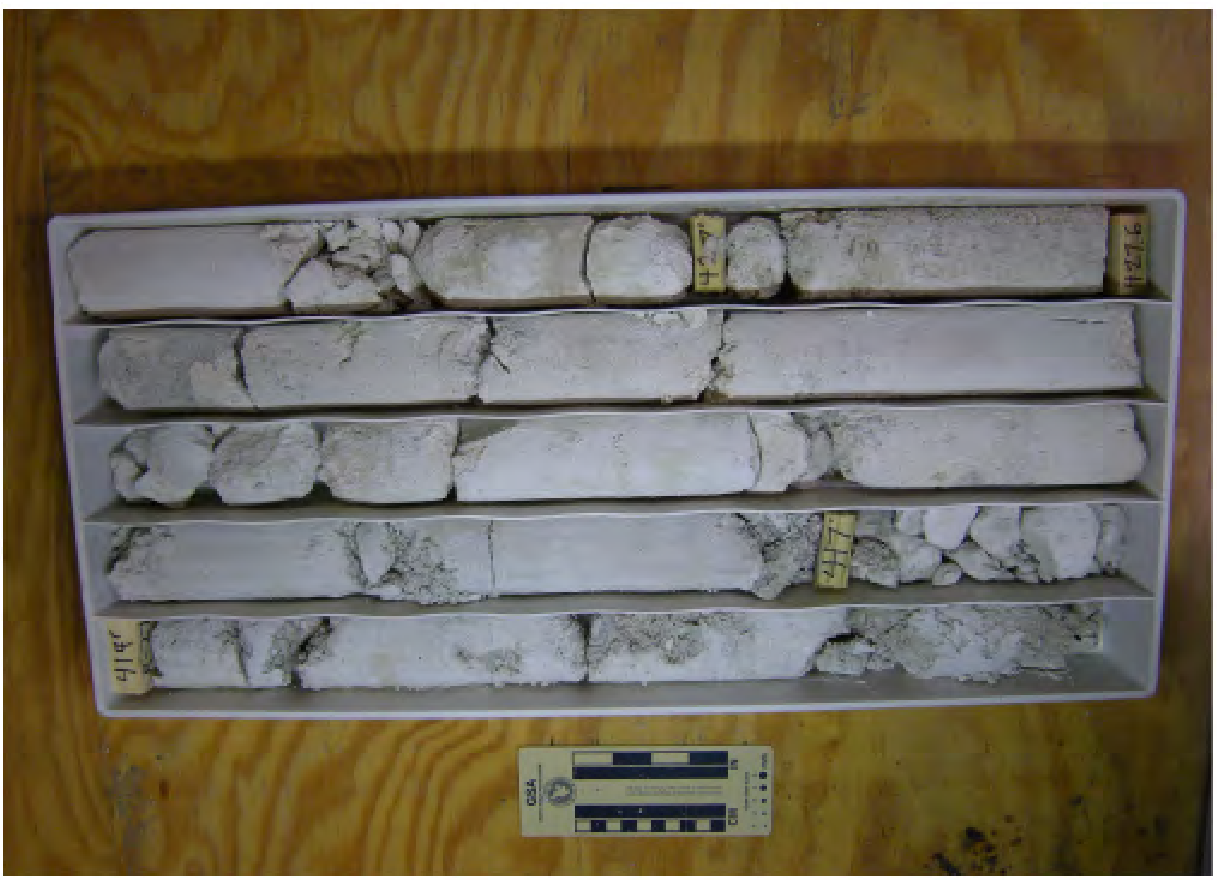

336.6'
326.8'
327'
GSA
CM
IN


393'
387'
381.5


381.5
377'
367'
357'
354'


414'
407'
404'


404'
397

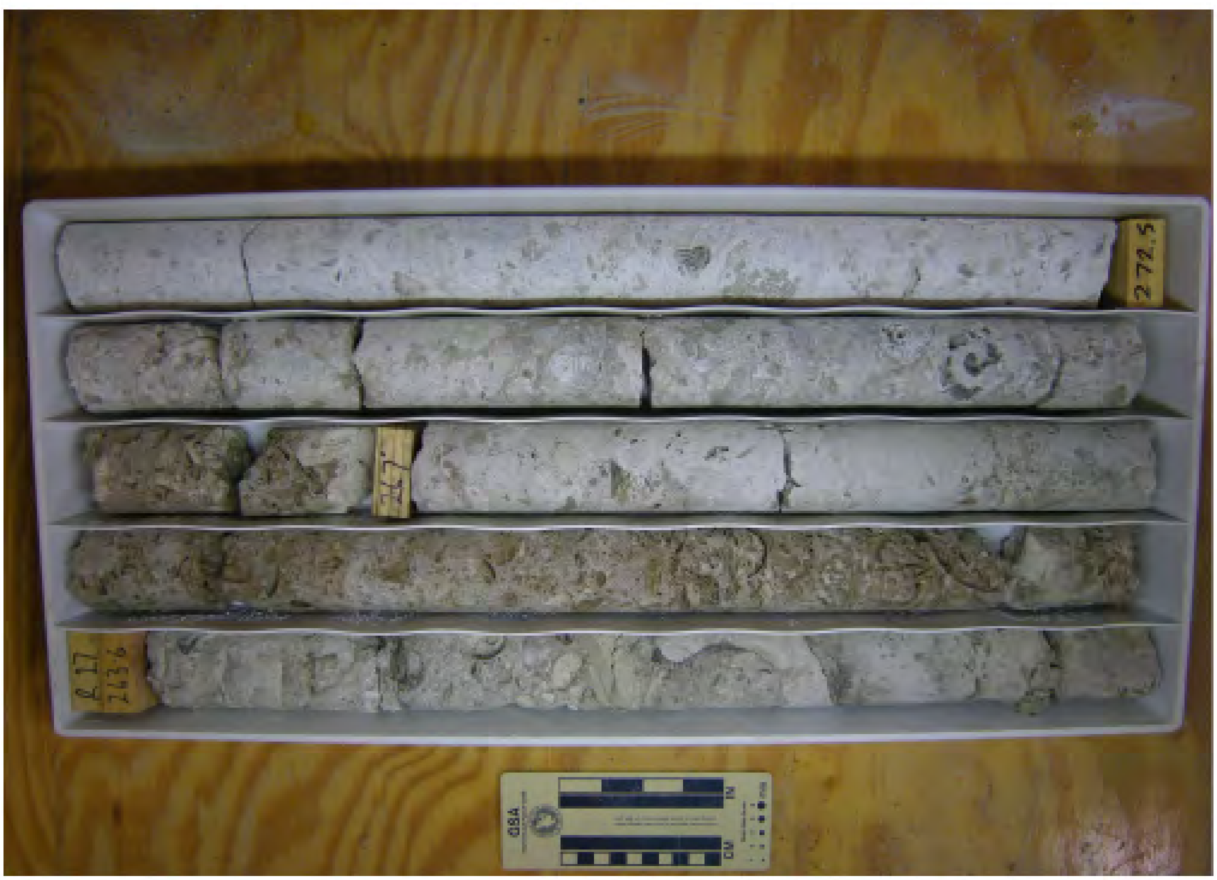



221.5
217
212
GSA
IN
CM


212
207
GSA
IN
CM


237'
R 27
GSA


232'
R 27
GSA

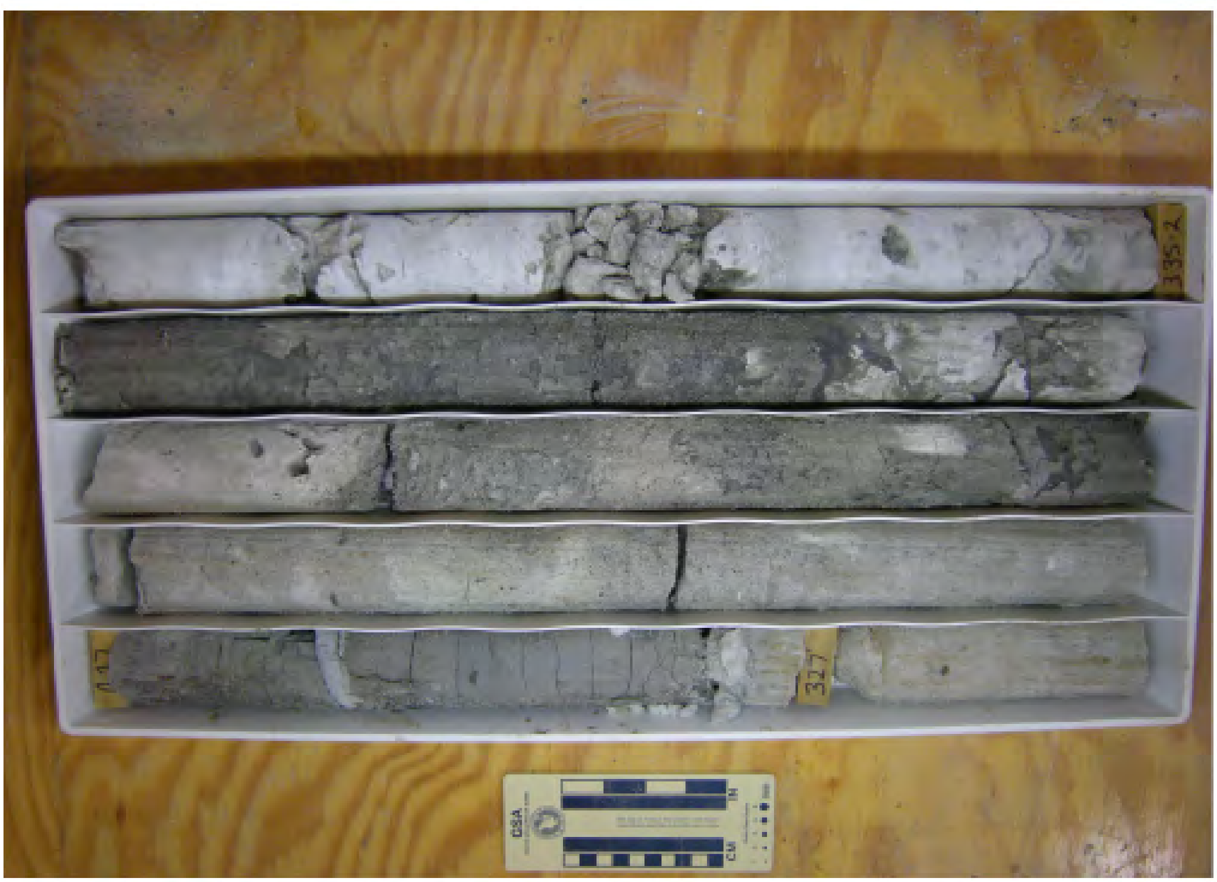

272.5


3.02'
297'
R 27


R 27

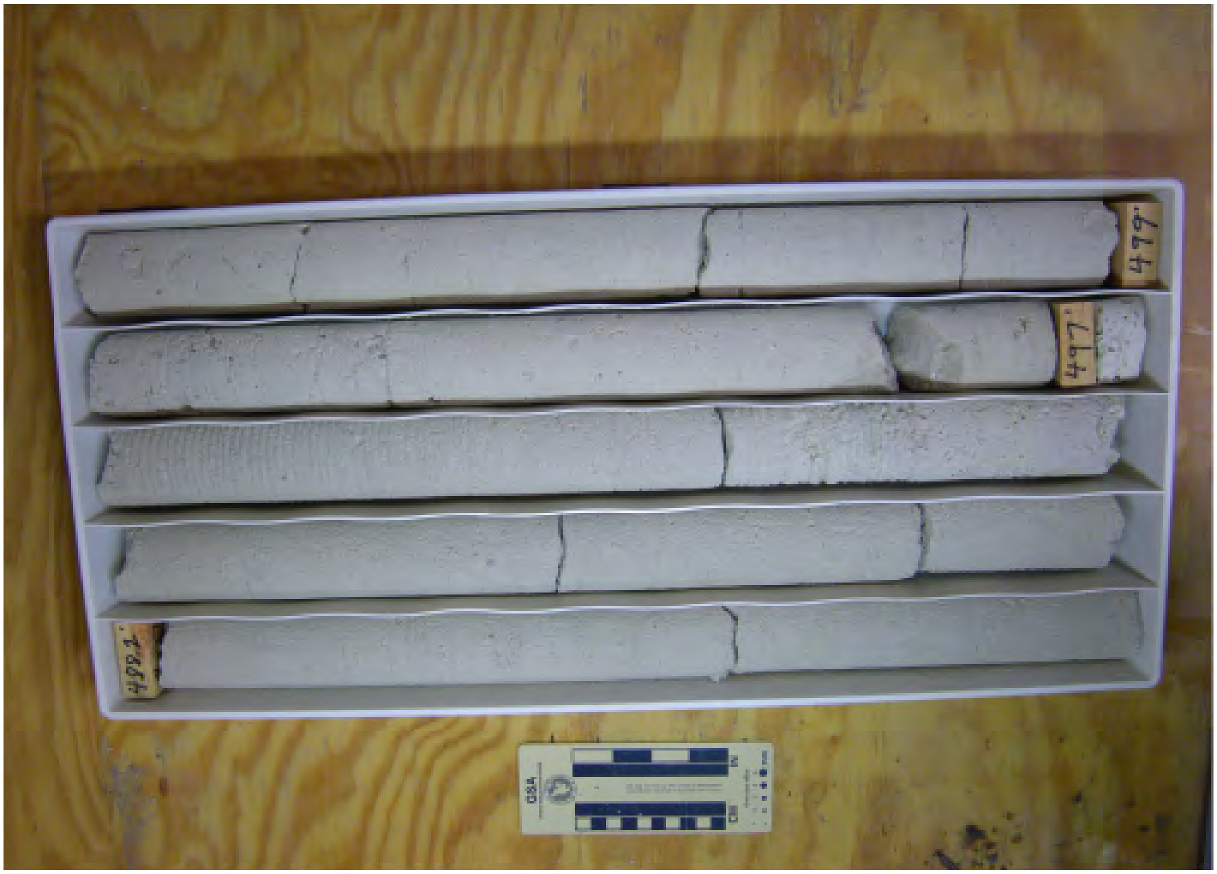

325
317'
A 17
312.5


A 17




477
478.8
469

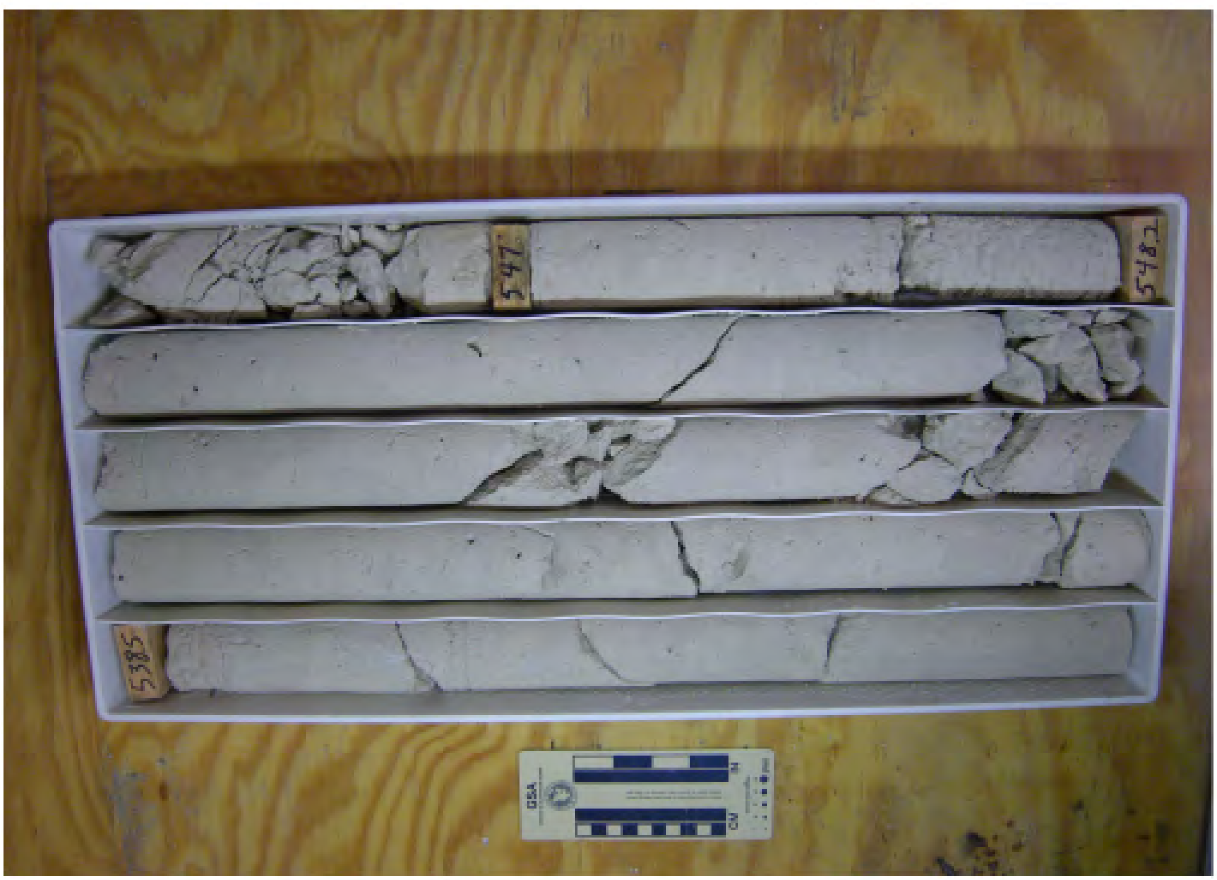

469'
467'
459'


479'
497'
4921'


487
4882
4788


537'
538.5
528.3
GSA


527'
528.3
519'
GSA




587'
580'


580'


623'
615'
607'


607'
594'


646'
637'
634.5

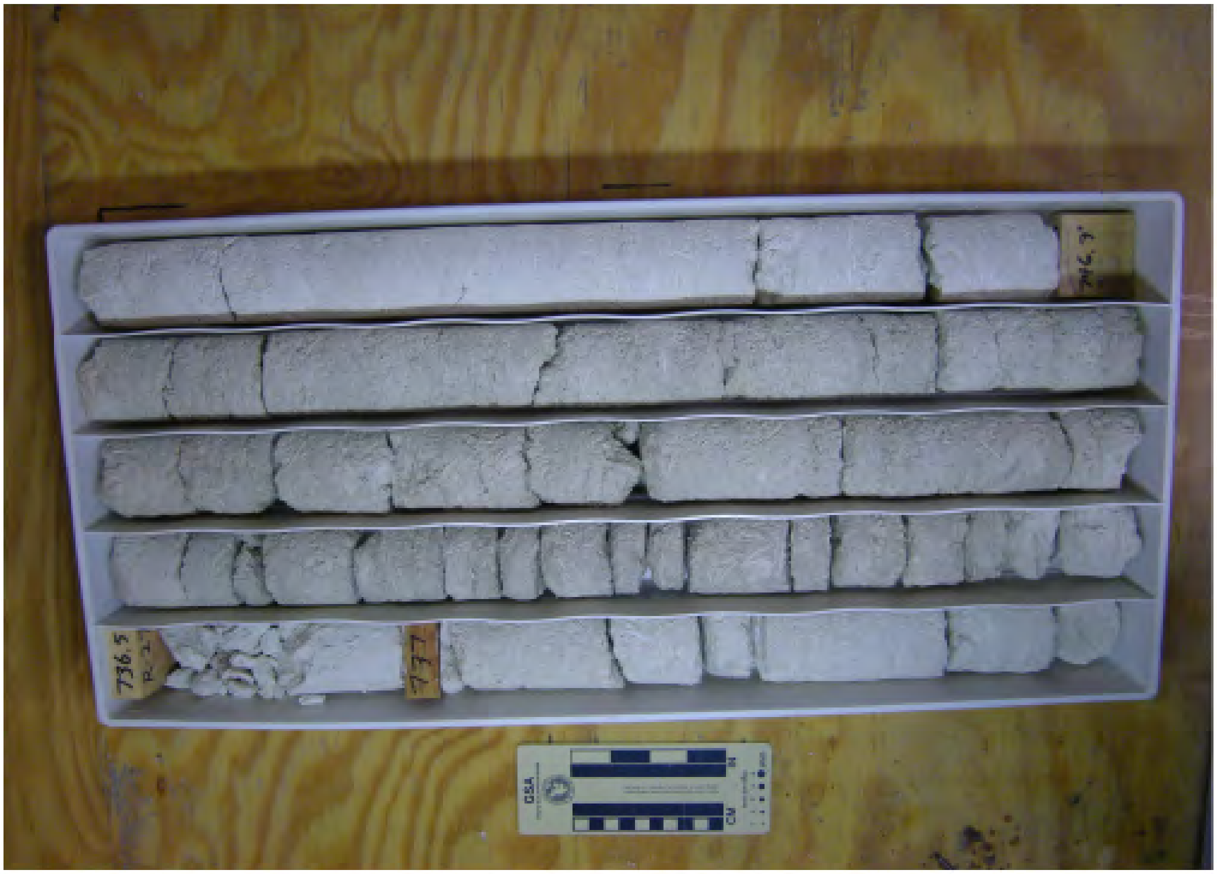

634.5'
627'
623'


697'
700'
687'
682'


682'
677'
669.5


727'
717'
715'

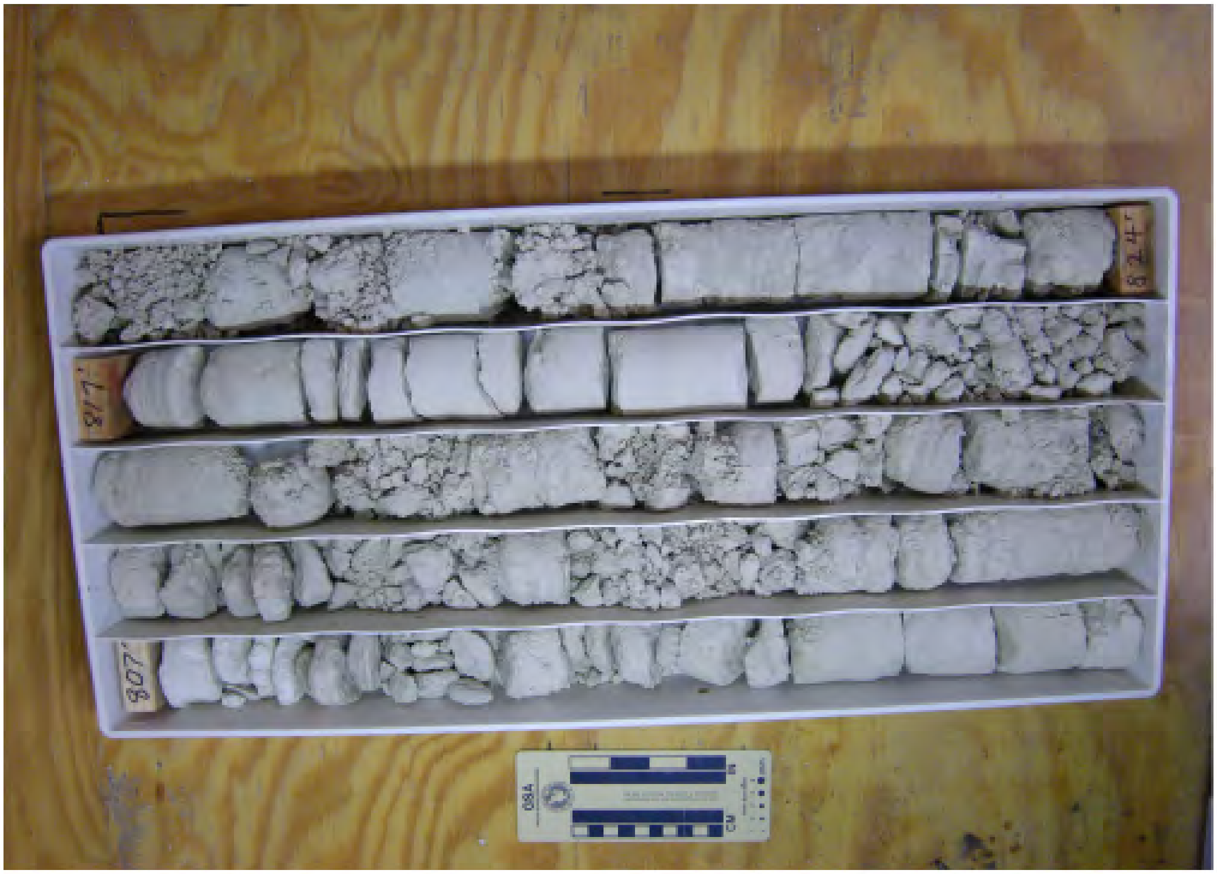

715'
707'
700'


736.5
737
GSA


736.5
717.5
GSA


792'
787'
780'


765.5


824'
817'
807'


807
797
792


850'
847'
840'


840'
837'
827'
824'


871'
867'
860.2


860.2
857'
850'


913.5
907
903.7


903.7'
897'
894


935'
927'
923'


923
917'
913.5


954.5
947'
944.7


944.7'
937
935'


973.5'
967'
964


964'


993'
988'
983'


983'
977'
973.5


1011.5'
1007
1002


1002'
997'
993'


1031'
1027'
1021.5

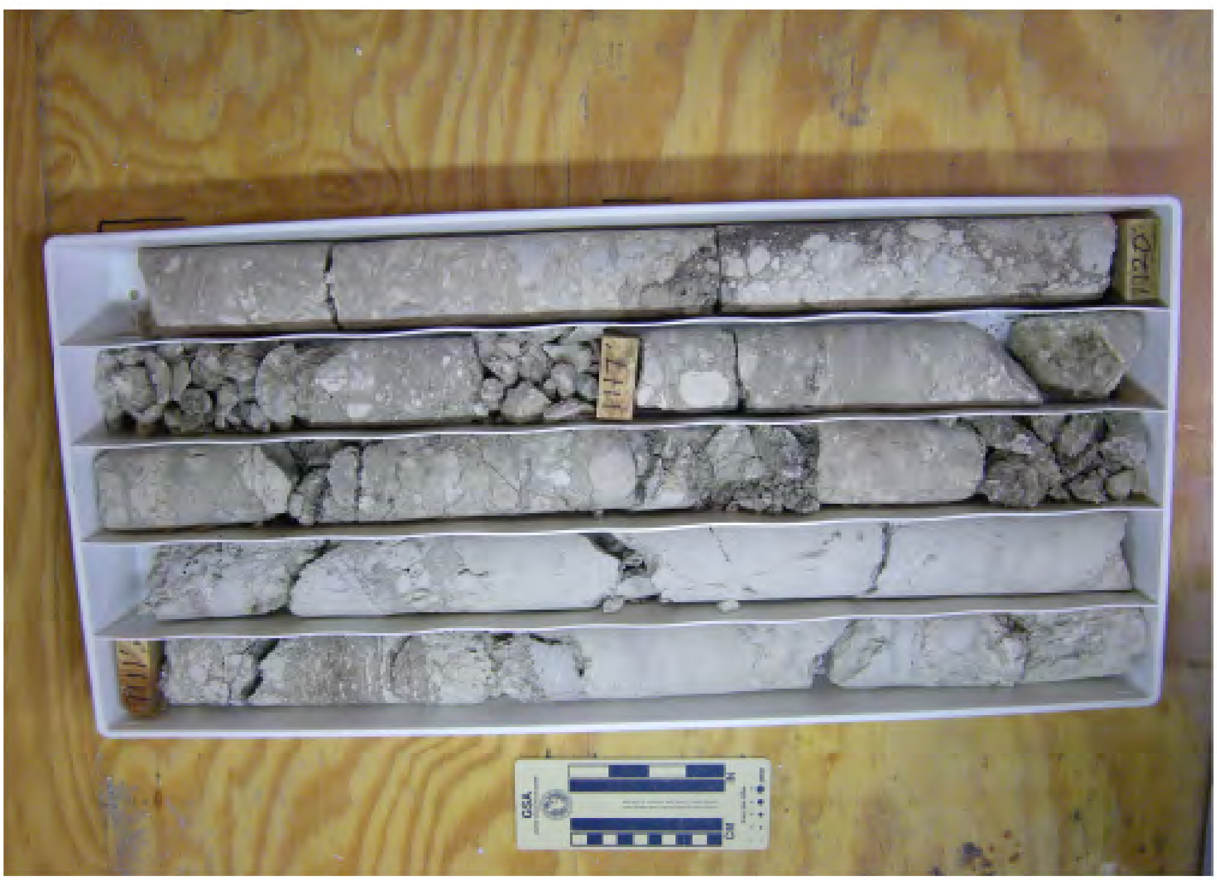

1021.5
1017
1011.5


1073.5
1067
1060
GSA

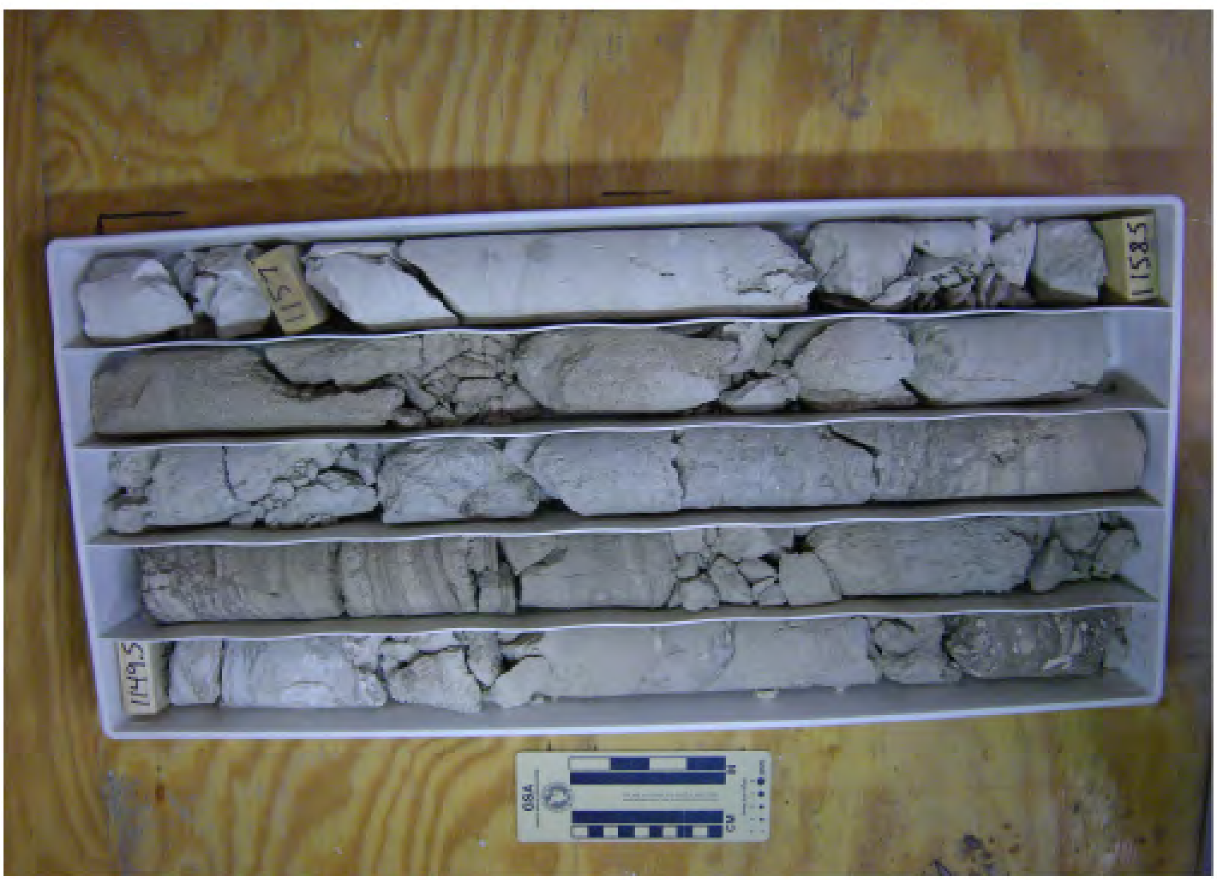

1060
1057
1049.7
GSA


1107'
1102
GSA


1102'
1097'
1093
GSA




1167'
1167.5'
1158.5

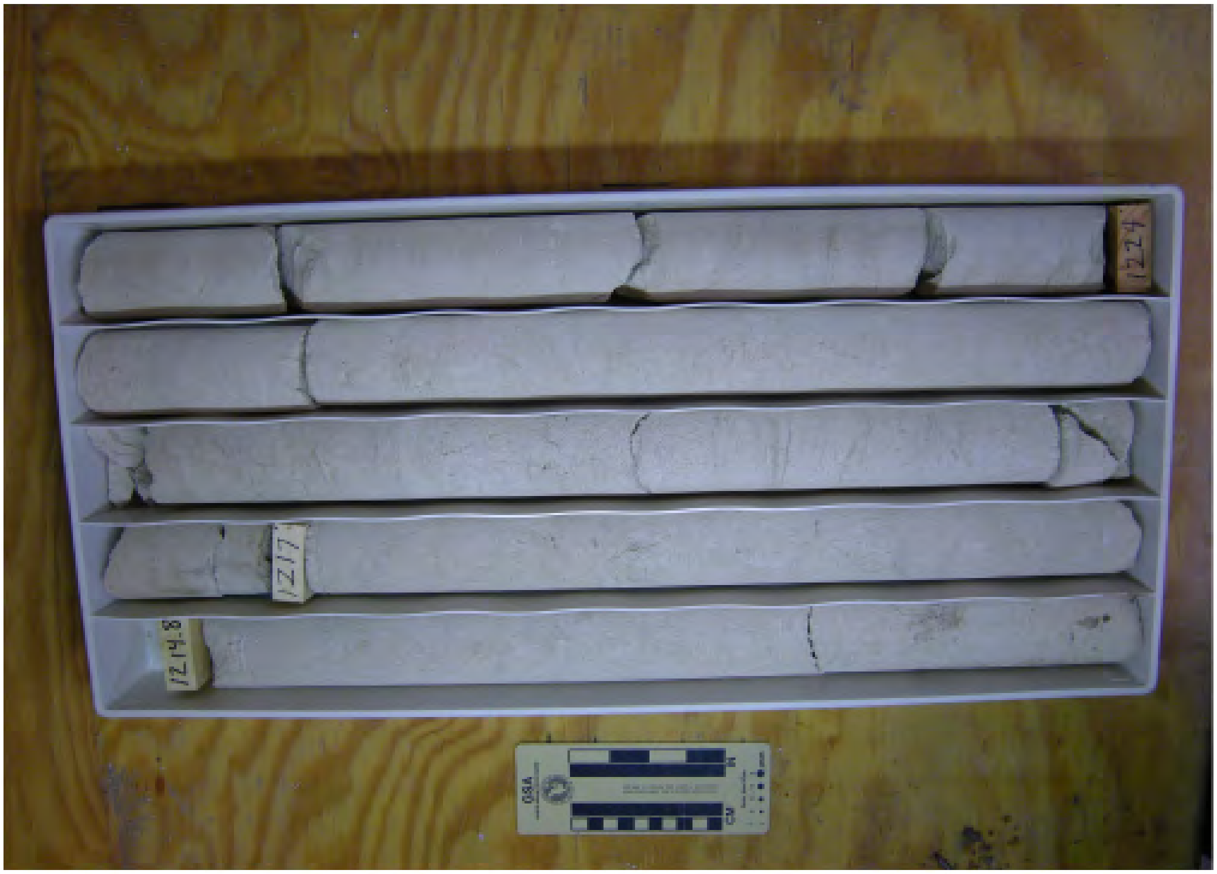

1157
1158.5
1149.5


1187'
1177'
GSA
IN
CM


1177'
1167.5
GSA
IN
CM


1205.5
1196.5
1197'


1196.5
1187




1281'
1277'
1271
GSA


1271'
1267'
1263
GSA


1297


1290


1317'
1317.8'
1308.5


1307'
1308.5
1299.2


1336.5
1327'
GSA


1327'
1317.8
GSA


1355.5'
1346'
1347'


1346'
1336.5
1337'


1374.5
1367'
1365


1365'
1357'
1355.5


1412.5
1407
1402.6
GSA


1402.6
1397
1393.3
GSA


1430.7
1427
1421.5


1421.5
1417
1412.5


1467'
1467.7
1458.4


1457'
1458.4


R-27
1497


1476.1
1486.9
1487


1523.4
1514.8

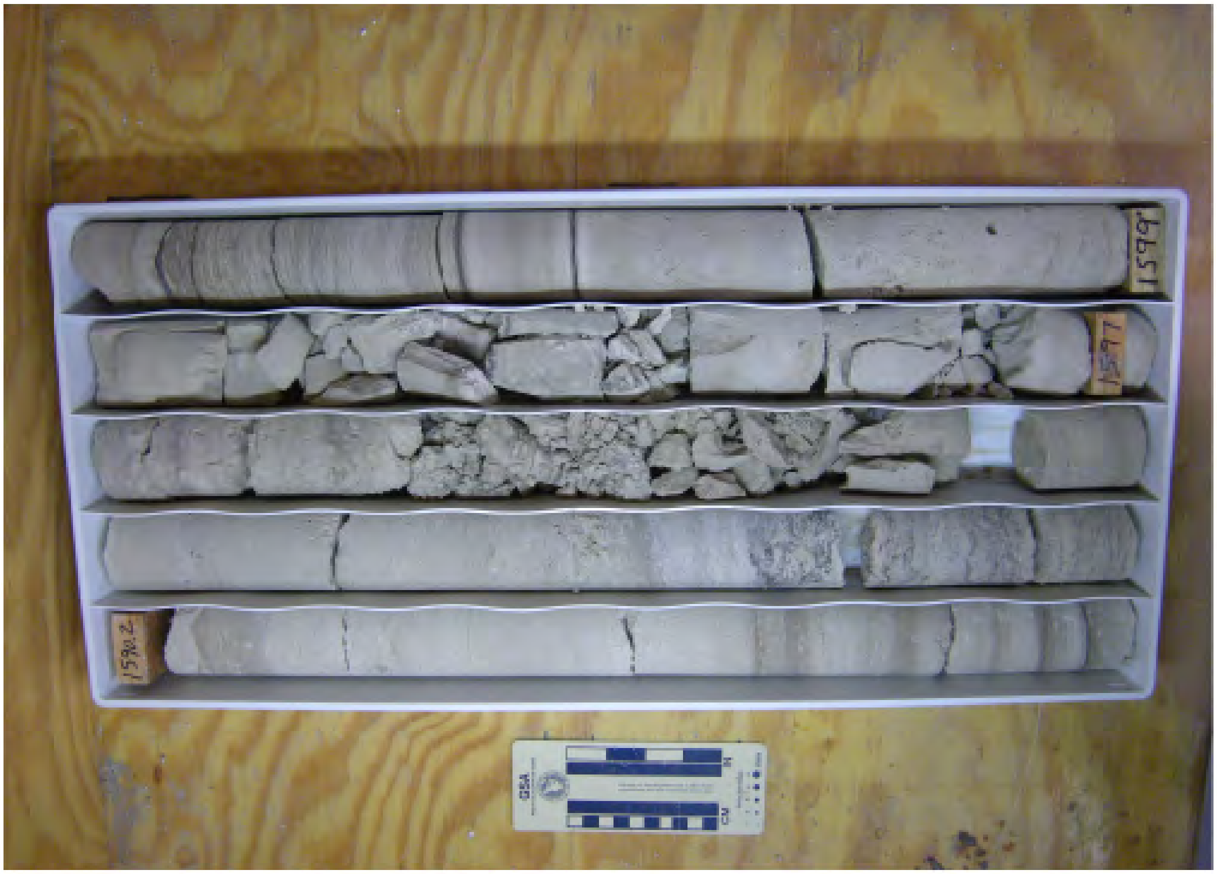

1514.8
1507


1543'
1537'
1532.5


1532.5
1523.4'


1561.5
1557
1552.5


1552.5
1547
1543


1599'
1597
1590.2


1590.2
1587
1580.2


1617
1618.2
1608.5


1607
1608.5
1599


1637
1627.5


1627
1627.5
1618.2

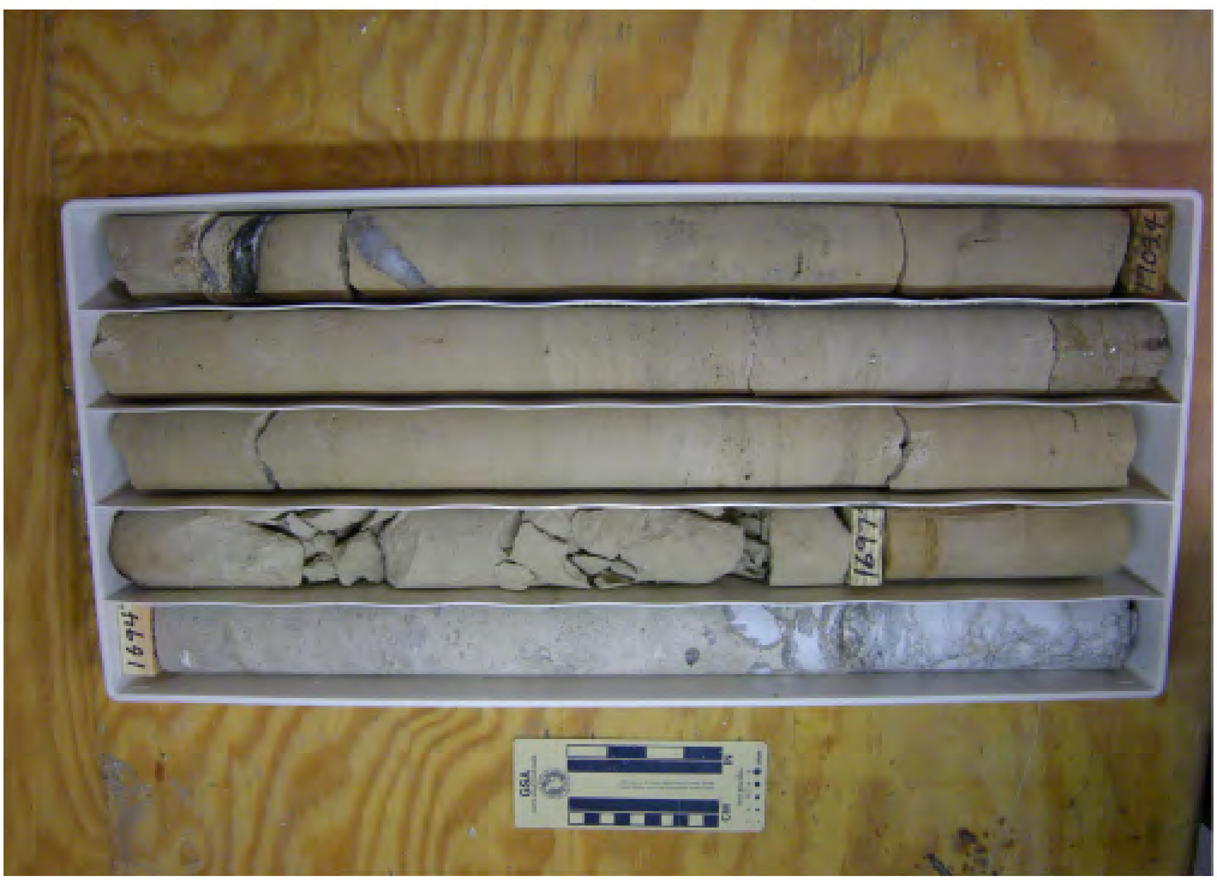

1674.5
1665
1667


1665'
1656'
1657


1694'
1687'
GSA


1684.4
1677'
GSA


1713'
1707'
17034
GSA
CM


17034
1697'
1694'
GSA
CM


1731.5
1727'
1722.3


1722.3
1717'
1713'


1747'
1741


1741'
1737
1731.5


1769.8'
1767
1760.4
GSA
M
CM


1760.4
1757
GSA
M
CM


1789'
1787'
1779.3


1779.3
1777'
1769.8'


1807
1798.5


1797'
1798.5
1789'


1827
1827.4
1817.7


1817
1817.7
1808.2


1846.5
1837


1827.4


1864.7'
1875.4
1877


1875.4
1865.8'
1867


1903.5
1897
1894.5


1894.5
1887
1884.7


1922.5
1917'
1913


1913'
1907'
1903.5'


1960.8
1957
1951.9
GSA

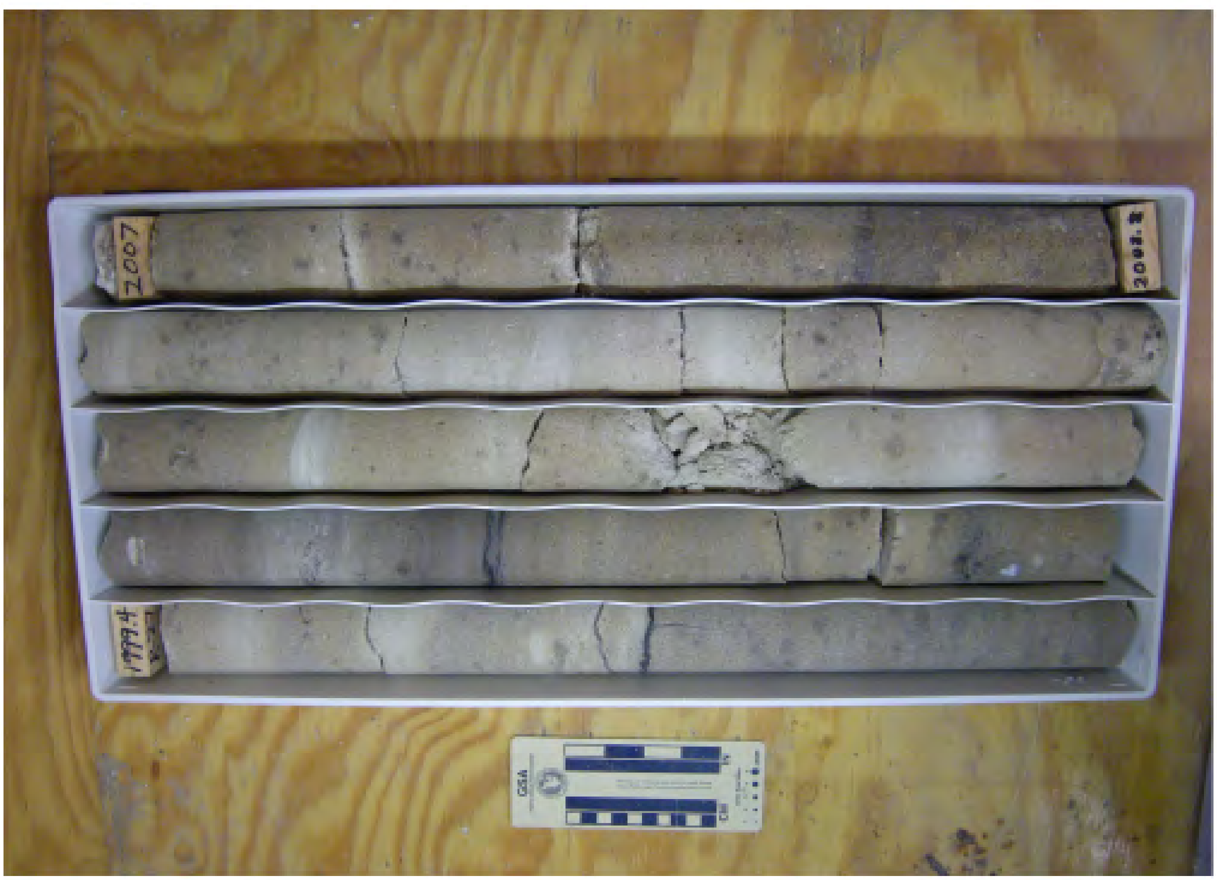

1951.4
1947.7
1941.8
GSA


1980.2
1977'
1970.4
GSA


1970.4
1967'
1960.8
GSA


1999.7
1997
1989.6
GSA
CM


1989.6
1987
1980.2
GSA
CM




2037
2037.2
2017.7

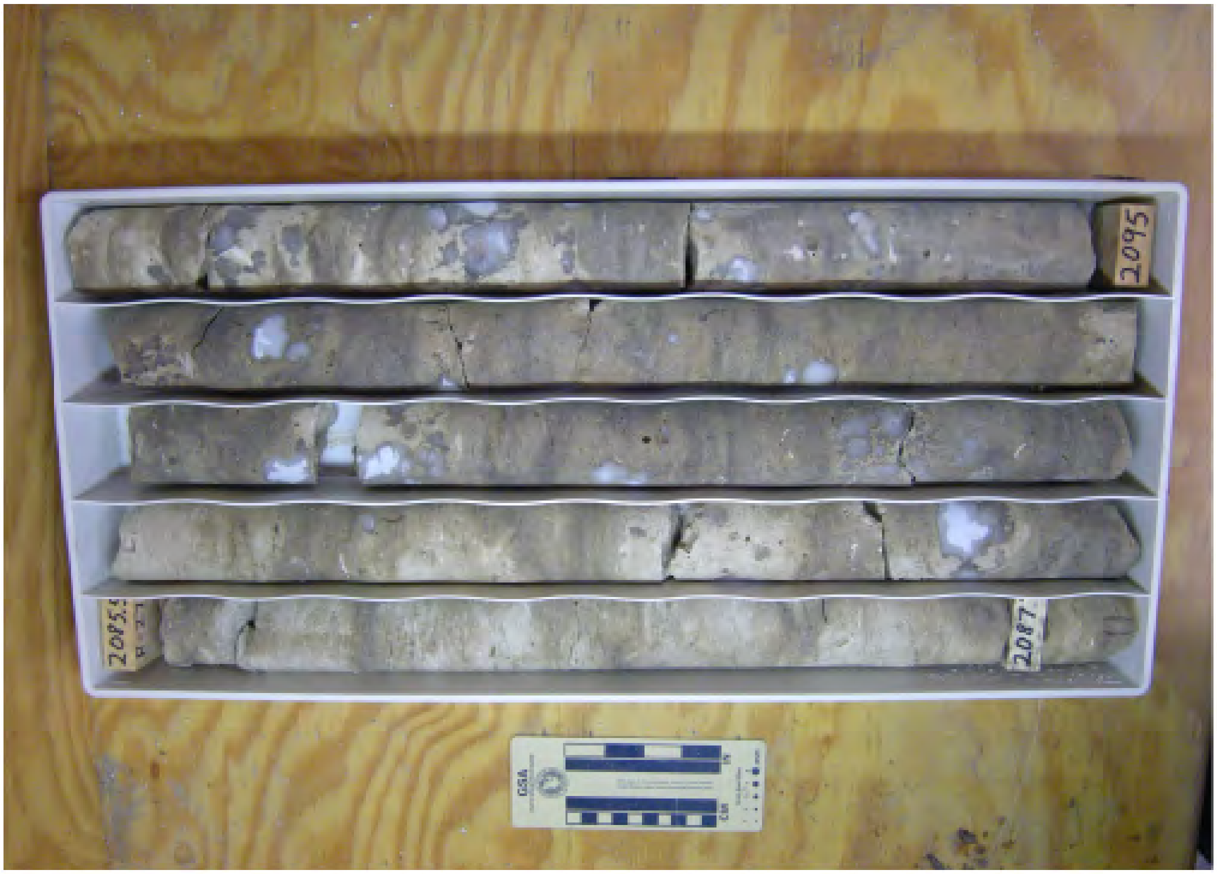

2027
2027.7
2018.5


2056.4
2046.8
2047


2046.8
2037.2

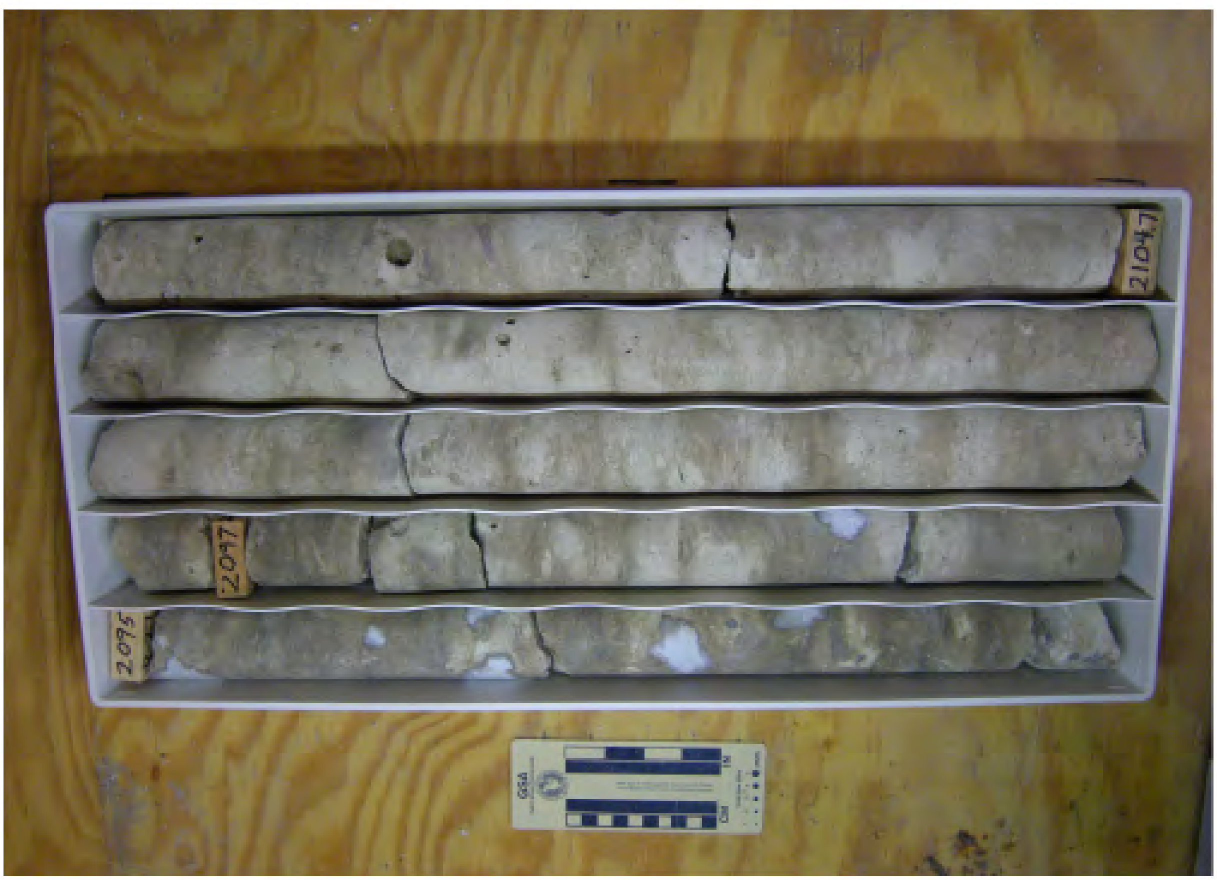

2076
2066.1
2067
GSA
CM
IN


2066.1
2057
GSA
CM
IN


2095
2087


2085.5


2114'
2107'
2104.7


2104.7
2097
2095


2152.5
2147
2142.7


2142.7
2137
2133.2


2171.5
2167
2162.2
GSA


2162.2
2157
2152.5
GSA


2190.5
2187
2180.9


2180.9
2177


2237'
2237.6
2228.4


2247'
2247.2
2237.6


2266.5
2257


2257


2285.7
2276
2277


2276
2266.5
2267


2305
2295.3
2297
GSA


2287
GSA


2329.5
2317
2314.7


2314.7
2307
2305


2343.8
2337
2334.3


2334.3
2327'
2324.5


2363'
2357
2353.4
GSA


2353.4
2347
2343.8
GSA


2382
2377
GSA
CM


2367
2363
GSA
CM


2401.3
2397
CM
IN


2391.7
2387'
2382'
CM
IN


24203
2417
2410.7


2410.9
2407
2401.3


2437


2427


2458.8
2457'
2449.2


2449.2
2447
2439.6


2477


2467'
2468.4
2458.8


2497
2497.2
2487.5
GSA
IN
CM


2487
2487.5
2478
GSA
IN
CM


2517
2507
GSA


2507
2497.2
GSA


2536.6
2527
GSA
IN
CM


2526.7
2517
GSA
IN
CM


2538.6
2537
GSA

Appendix F. Correlation Charts

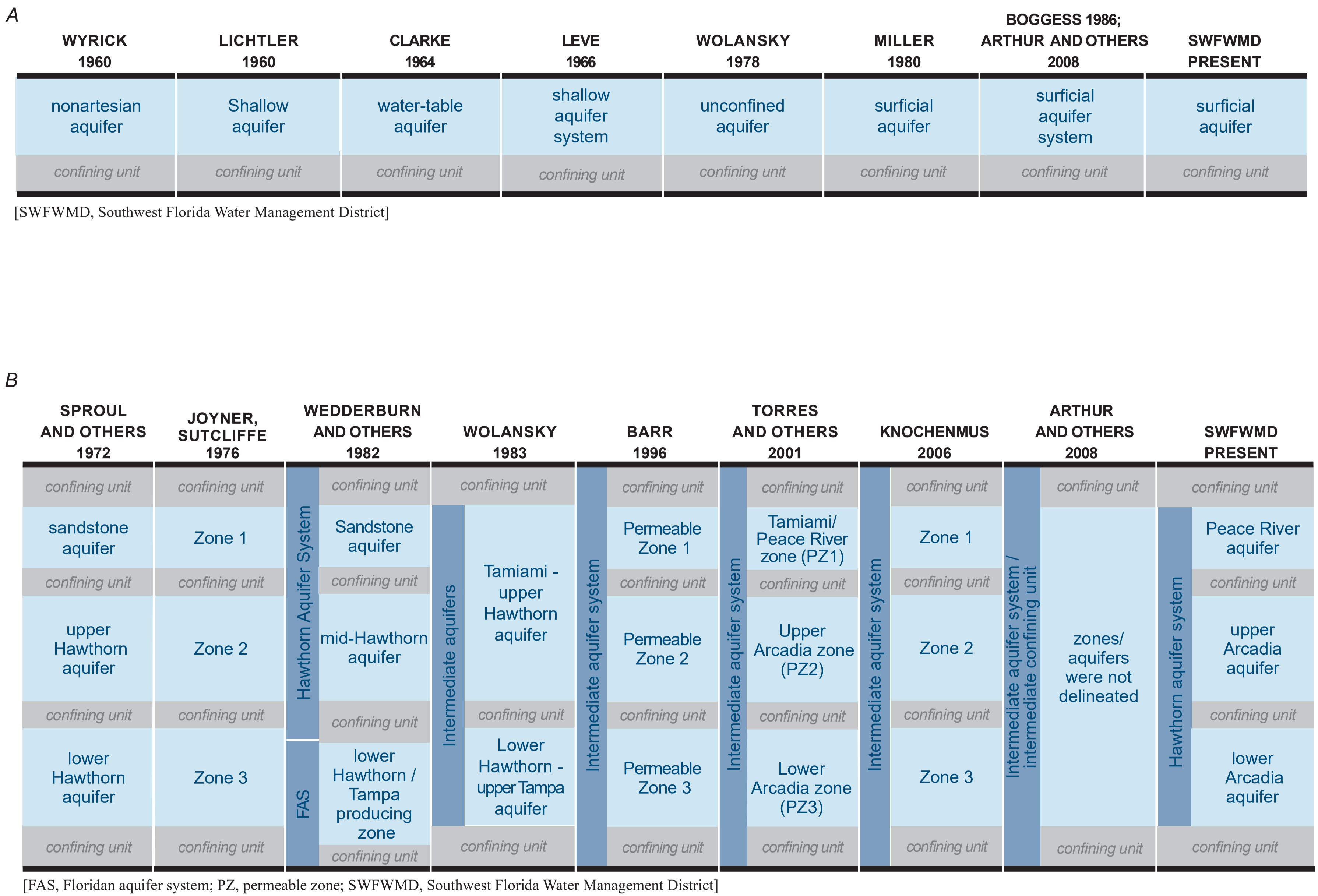
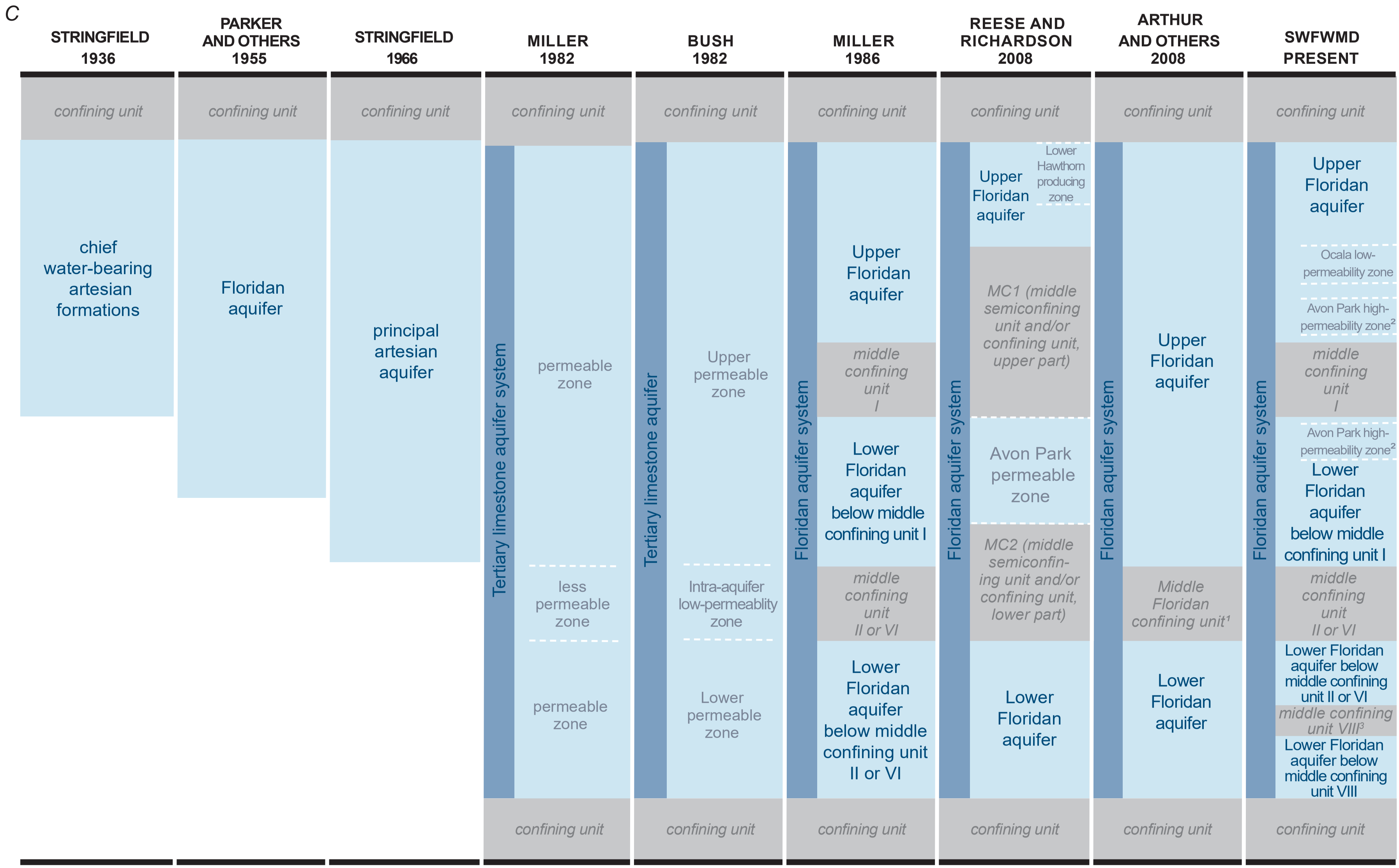


Figure F1. Nomenclature of (A), the surficial aquifer, (B), the Hawthorn aquifer system, and (C), the Floridan aquifer system used for the ROMP 27 – Scarborough well site compared to names in previous reports.



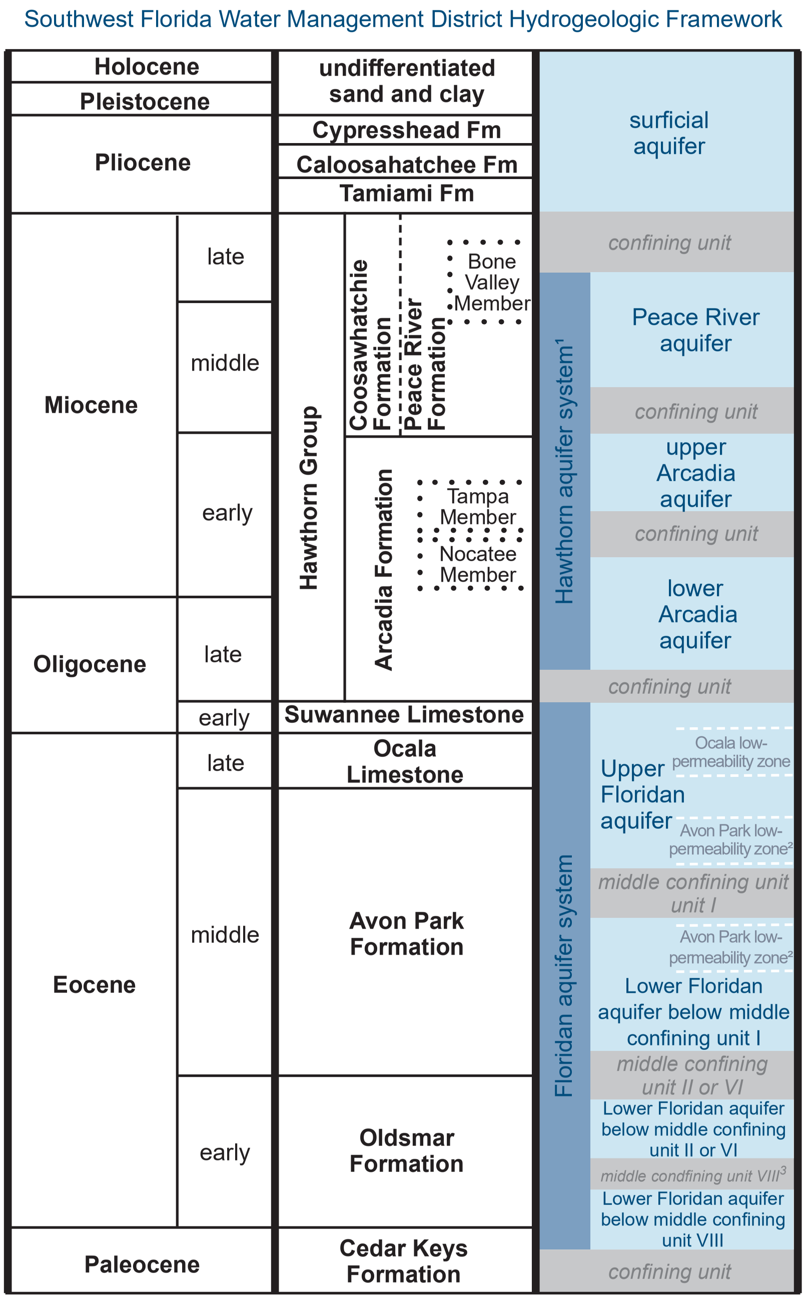
[Terms shown are for hydrogeologic units present within the Southwest Florida Water Management District (SWFWMD)]

[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.

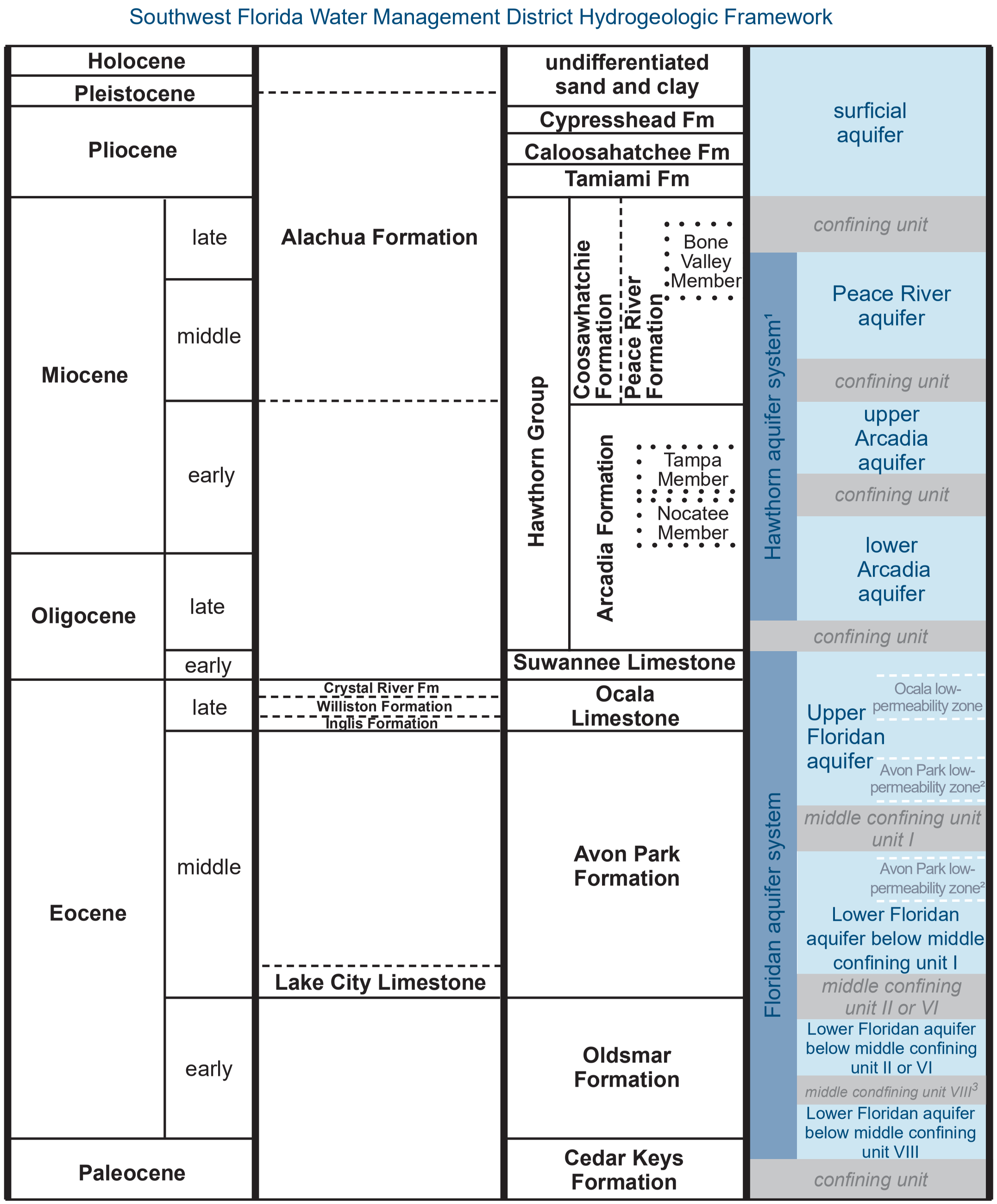
[3]The middle confining unit VIII of Miller (1986) was extended across the entire Florida peninsula based on new data. The Glauconite marker unit in Williams and Kuniansky (2016) is equivalent to the middle confining unit VIII.

Figure F1. **(Continued)** Nomenclature of (A), the surficial aquifer, (B), the Hawthorn aquifer system, and (C), the Floridan aquifer system used for the ROMP 27 – Scarborough well site compared to names in previous reports.



This chart may be used to correlate the lithostratigraphic and hydrostratigraphic units of 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 across the entire Florida peninsula based on new data. The Glauconite marker unit in Williams and Kuniansky (2016) is equivalent to middle confining unit VIII.

Figure F2. Chart correlating lithostratigraphic and hydrostratigraphic 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 across the entire Florida peninsula based on new data. The Glauconite marker unit in Williams and Kuniansky (2016) is equivalent to middle confining unit VIII.

Figure F3. 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 G. Slug Test Data Acquisition Sheets for the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 1

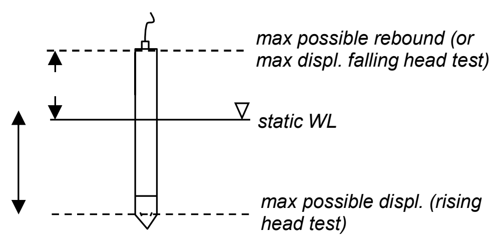
General Information

Wellsite:	ROMP 27 - Scarborough	Date:	6/14/2011
Well:	CH 2	Performed by:	JC
Well Depth (ft bls)	557	Test Interval (ft - ft bls)	517 - 557
Test Casing Height (ft als)	4.92	Date of Last Development	immediately prior
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	56.76
Test Casing Type	NRQ	Final Static WL (ft btoc)	56.82
Test Interval Length (ft)	517 - 557	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	1.15	Initial Annulus WL (ft btoc)	51.83

Set-up Information

		T	Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15			test casing	517	-0.07	2.88
Transducer #2	15		1000672	pressure		-0.06	-0.03
Transducer #3	15		704728	annulus		0.06	2.83

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	
Comments:	



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	0.5'	1'	2'	1'
Initiation method	pneumatic	pneumatic	pneumatic	pneumatic
Rising/Falling head	rising	rising	rising	rising
Pre-test XD #1	2.88	0.288	2.87	2.86
Pre-test XD #2	0.53	1.04	2.06	1.09
Expected Displacement (ft)	-0.572	1.136	2.133 2nd peak	1.158 2nd peak
Observed Displacement (ft)	-0.865	1.708	2.455	1.437
Slug Discrepancy (%)	51%	50%	15% 2nd peak	24% 2nd peak
Max Rebound above Static	0.015%	0.015%	0.008%	0
Post-test XD #1	2.88	2.87	2.86	2.86
Residual Dev. from H_o (%)	0	0.3	0.3	0
Data Logger File Name	R27_ST1A_517-557_0.5ft.cs	R27_ST1A_517-557_1ft.csv	R27_ST1A_517-557_2ft.csv	see below note
Specific Conductance (uS)				
Temperature (C)				
Lithology	Lower Suwannee			
K_h				
Other				

Comments: Control D would not work even after reload so added Test D to Test A data

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

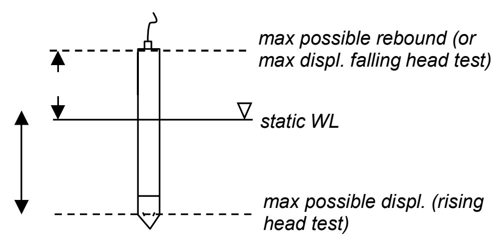
ST NO. 2

General Information			6/22/2011
Wellsite:	ROMP 27 - Scarborough	Date:	6/21/2011
Well:	CH 2	Performed by:	JC
Well Depth (ft bls)	667'	Test Interval (ft - ft bls)	627' - 667'
Test Casing Height (ft als)	7.05	Date of Last Development	immediately prior
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	56.08
Test Casing Type	NRQ	Final Static WL (ft btoc)	56.2
Test Interval Length (ft)	40	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	1.05	Initial Annulus WL (ft btoc)	49.11

Set-up Information

		T	Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1 15			704728	test casing		0.05	10.08
Transducer #2 15			1000627	pressure		not used	
Transducer #3				annulus	not used, XD in test interval	for solid slug test	

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.664" / 0.1383'
Comments:	spacer = solid slug



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data same as ST2A

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1' (2' spacer)	1' (2' spacer)	1' (2' spacer)	0.5' (1' spacer)
Initiation method	solid slug	solid slug	solid slug	solid slug
Rising/Falling head	falling	rising	falling	rising
Pre-test XD #1	10.08	10.09	10.08	10.04
Pre-test XD #2				
Expected Displacement (ft)	1.0226	1.0226	1.0226	0.5113
Observed Displacement (ft)	2.038	1.217	2.09	1.144
Slug Discrepancy (%)	99.3%	19%	104%	123%
Max Rebound above Static	2.273	1.386	2.346	1.173
Post-test XD #1	10.09	10.06	10.07	9.96
Residual Dev. from H_o (%)	0.099%	0.29%	0.099%	0.80%
Data Logger File Name	ST2A_027_667_1ft_solid_f	ST2B_027_667_1ft_solid_r	ST2C_027_667_1ft_solid_f	ST2D_027_667_0.5ft_solid_
Specific Conductance (uS)				
Temperature (C)				
Lithology	Ocala Limestone; low permeability			
K_h				
Other				
Comments	Had to let water level equilibrate overnight prior to test			

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 3

General Information

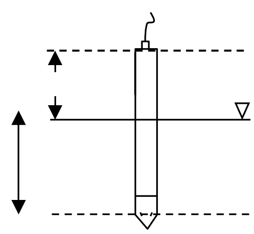
6/29/2011

Wellsite:	ROMP 27 - Scarborough	Date:	6/28/2011
Well:	CH 2	Performed by:	JMC
Well Depth (ft bls)	837	Test Interval (ft - ft bls)	747' - 837'
Test Casing Height (ft als)	5.03	Date of Last Development	immediately prior
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	53.65
Test Casing Type	NRQ	Final Static WL (ft btoc)	53.66
Test Interval Length (ft)	90	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)		Initial Annulus WL (ft btoc)	46.65
		bls	

Set-up Information

			T	Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15			704728	test casing		0.05	
Transducer #2	15			1000627	pressure		not used	
Transducer #3					annulus	not used, XD in test interval		

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66" / 0.1383'
Comments:	spacer = solid slug



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1' (2' spacer)	1' (2' spacer)		
Initiation method	solid slug	solid slug		
Rising/Falling head	falling head	rising head		
Pre-test XD #1	10.09	10.09		
Pre-test XD #2				
Expected Displacement (ft)	1.0226	1.0226		
Observed Displacement (ft)	2.045	1.217		
Slug Discrepancy (%)	100%	19%		
Max Rebound above Static	2.14	1.217		
Post-test XD #1	10.1	10.07		
Residual Dev. from H_o (%)	0.099%	0.20%		
Data Logger File Name	ST3A_747-837_1ft_solid_f	ST3B_747-837_1ft_solid_rh.csv		
Specific Conductance (uS)				
Temperature (C)				
Lithology	Ocala Limestone; low permeability			
K_h				
Other				
Comments	Had to wait for water level to equilibrate over night prior to test			

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 4

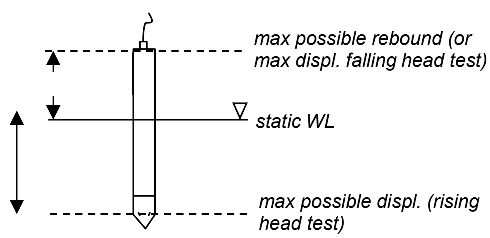
General Information

Wellsite:	ROMP 27 - Scarborough	Date:	7/7/2011
Well:	Ch 2	Performed by:	JC
Well Depth (ft bls)	967	Test Interval (ft - ft bls)	917 - 967
Test Casing Height (ft als)	5.06	Date of Last Development	immediately prior
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	50.31
Test Casing Type	NRQ	Final Static WL (ft btoc)	50.28
Test Interval Length (ft)	50	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	0.95	Initial Annulus WL (ft btoc)	43.66 bls

Set-up Information

			T	Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15				test casing		-0.08	3.02
Transducer #2	15			1000672	pressure		-0.05	-0.03
Transducer #3	15			704728	annulus		0.07	12.06

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66" / 0.1383'
Comments:	



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1'	2'	2'	
Initiation method	pneumatic	pneumatic	pneumatic	
Rising/Falling head	rising	rising	rising	
Pre-test XD #1	3.03	3.04	3.07	
Pre-test XD #2	12.06	12.07	12.08	
Expected Displacement (ft)	1.026	2.09	2.112	
Observed Displacement (ft)	-1.503	2.618	2.705	
Slug Discrepancy (%)	46%	25%	28%	
Max Rebound above Static	1.503	2.618	2.705	
Post-test XD #1	3.04	3.05	3.07	
Residual Dev. from H_o (%)	0%	0.33%	0%	
Data Logger File Name	7_ST4A_917-967_1ft_pneau	7_ST4B_917-967_2ft_pneu	7_ST4C_917-967_2ft_pneu.	
Specific Conductance (uS)	1087			
Temperature (C)	25.39			
Lithology	Limestone; granular; low to occasionally moderate permeability			
K_h				
Other				
Comments				

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 5

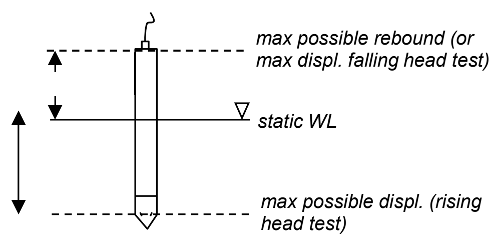
General Information

Wellsite:	ROMP 27 - Scarborough	Date:	7/14/2011
Well:	CH 2	Performed by:	JMC
Well Depth (ft bls)	1087	Test Interval (ft - ft bls)	1047 - 1087
Test Casing Height (ft als)	5.07	Date of Last Development	immediately prior
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	48.68
Test Casing Type	NRQ	Final Static WL (ft btoc)	48.66
Test Interval Length (ft)	40	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	0.92	Initial Annulus WL (ft btoc)	43.41

Set-up Information

			T Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1				test casing		-0.08	3.01
Transducer #2	15		1000622	pressure		-0.03	-0.04
Transducer #3	15		704728	annulus		0.06	10.71

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66" / 0.1383'
Comments:	



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1	2	2	
Initiation method	pneumatic	pneumatic	pneumatic	
Rising/Falling head	rising	rising	rising	
Pre-test XD #1	3.07	3.16	3.17	
Pre-test XD #2	10.79	10.73	10.75	
Expected Displacement (ft)	1.063	2.023	2.031	
Observed Displacement (ft)	1.334	1.928	2.097	
Slug Discrepancy (%)	20%	46%	3.25%	
Max Rebound above Static	1.334	2.647%	3%	
Post-test XD #1	3.07	3.17	3.25*	
Residual Dev. from H_o (%)	0%	0.32%	2.50%	
Data Logger File Name	ST5A_1047-1087_1ft_pnea	ST5B_1047-1087_2ft_pne	ST5C_1047-1087_2ft_pneu	
Specific Conductance (uS)	1098			
Temperature (C)	26.54			
Lithology	Limestone: productive intervals are packstone-grainstone, not productive are wacksone-mudstone			
K_h				
Other				
Comments	*Test C - Test interval pxd slid down about 1" during test			

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 6

General Information

Wellsite:	ROMP 17 - Scarborough	Date:	7/21/2011
Well:	CH 2	Performed by:	JMC
Well Depth (ft bls)	1187	Test Interval (ft - ft bls)	1147 - 1187
Test Casing Height (ft als)	5.02	Date of Last Development	immediately prior
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	47.8
Test Casing Type	NRQ	Final Static WL (ft btoc)	47.85
Test Interval Length (ft)	40	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	0.87	Initial Annulus WL (ft btoc)	41.82

Set-up Information

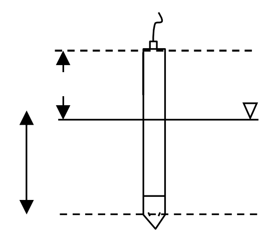
			T Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15			test casing		-0.09	3.02
Transducer #2	15		1000672	pressure		0.06	0.03
Transducer #3	15		704728	annulus		-0.06	10.09

Data Logger: Rafael

Spacer Length: 5'

Spacer OD.: 1.66" / 0.1383'

Comments:



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1	2	2	
Initiation method	pneumatic	pneumatic	pneumatic	
Rising/Falling head	rising	rising	rising	
Pre-test XD #1	3.02	3.02	3.03	
Pre-test XD #2	10.09	10.09	10.09	
Expected Displacement (ft)	1.019	2.06	2.038	
Observed Displacement (ft)	0.931	2.002	1.906	
Slug Discrepancy (%)	8.6%	2.8%	6.5%	
Max Rebound above Static	1.503	2.779	2.713	
Post-test XD #1	3.02	3.01	3.01	
Residual Dev. from H_o (%)	0	0.33%	0.66%	
Data Logger File Name	_ST6A_1147-1187_1ft_pneu	ST6B_1147-1187_2ft_pne	ST6C_1147-1187_2ft_pneu	
Specific Conductance (uS)				
Temperature (C)				
Lithology	Low productive wckestone and packstone with minor grainstone and fractures (mostly healed)			
K_h				
Other				
Comments				

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 7

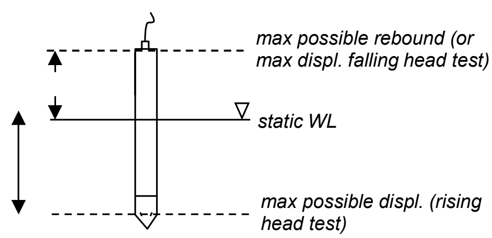
General Information

Wellsite:	ROMP 27 - Scarborough	Date:	10/27/2011
Well:	CH 2	Performed by:	JMC
Well Depth (ft bls)	1327	Test Interval (ft - ft bls)	1277 - 1327
Test Casing Height (ft als)	4.98	Date of Last Development	immediately prior
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	43.79
Test Casing Type	NRQ	Final Static WL (ft btoc)	43.81
Test Interval Length (ft)	50	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	2.6	Initial Annulus WL (ft btoc)	

Set-up Information

			T Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15			test casing		-0.06	2.84
Transducer #2	15		1000672	pressure		-0.04	-0.04
Transducer #3	15		704728	annulus		0.06	7.74

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66"/0.1383'
Comments:	



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1	2 (1.97)	1 (1.00)	
Initiation method	pneumatic	pneumatic	pneumatic	
Rising/Falling head	rising	rising	rising	
Pre-test XD #1	2.84	2.83	2.82	
Pre-test XD #2	7.75	7.75	7.74	
Expected Displacement (ft)	0.99	2.046	0.99	
Observed Displacement (ft)	0.95	2.31	0.887	
Slug Discrepancy (%)	4%	12.9%	10.4%	
Max Rebound above Static	1.474	2.31	1.51	
Post-test XD #1	2.84	2.82	2.82	
Residual Dev. from H_o (%)	0%	0.30%	0	
Data Logger File Name	ST7A_1277-1327_1ft_pneu	ST7B_1277-1327_2ft_pne	ST7C_1277-1327_1ft_pneu	
Specific Conductance (uS)	1125 uS/cm			
Temperature (C)				
Lithology	vuggy and fractured dolostone			
K_h				
Other				
Comments				

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 8

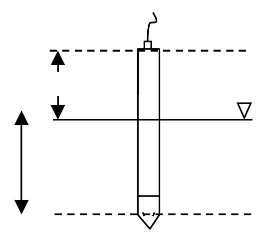
General Information

Wellsite:	ROMP 27 - Scarborough	Date:	11/3/2011
Well:	Ch 2	Performed by:	JC
Well Depth (ft bls)	1427	Test Interval (ft - ft bls)	1387 - 1427
Test Casing Height (ft als)	6.87	Date of Last Development	immediately prior
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	43.68
Test Casing Type	NRQ	Final Static WL (ft btoc)	43.78
Test Interval Length (ft)	40	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	2.42	Initial Annulus WL (ft btoc)	38.71

Set-up Information

			T Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15			test casing		-0.02	2.85
Transducer #2	15		1000672	pressure		-0.04	-0.05
Transducer #3	15		704728	annulus		0.07	9.95

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66"/0.1383'
Comments:	



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1' (0.99)	2' (1.98)	2' (1.97)	
Initiation method	pneumatic	pneumatic	pneumatic	
Rising/Falling head	rising	rising	rising	
Pre-test XD #1	2.85	2.85	2.84	
Pre-test XD #2	10.02	10.04	10.05	
Expected Displacement (ft)	1.071	1.936	1.936	
Observed Displacement (ft)	1.225	2.053	2.127	
Slug Discrepancy (%)	14%	6%	9.8%	
Max Rebound above Static	-1.225	-2.361	-2.42	
Post-test XD #1	2.85	2.84	2.83	
Residual Dev. from H_o (%)	0%	0.35%	0.35%	
Data Logger File Name	_ST8A_1387-1427_1ft_pneu	ST8B_1387-1427_2ft_pne	ST8C_1378-1427_2ft_pneu	
Specific Conductance (uS)	1468 uS/cm			
Temperature (C)	24.4			
Lithology	Vuggy, fractured, and sucrosic dolostone			
K_h				
Other				
Comments	Water quality sample 8 was very muddy prior to filtering			

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 9

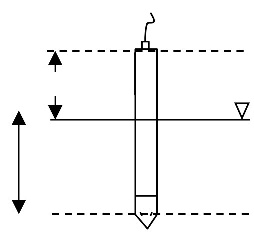
General Information

Wellsite:	ROMP 27 - Scarborough	Date:	11/16/2011
Well:	CH 2	Performed by:	JMC
Well Depth (ft bls)	1547	Test Interval (ft - ft bls)	1517 - 1547
Test Casing Height (ft als)	7.54	Date of Last Development	11/15 & immediately prior WQ sample
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	44.84
Test Casing Type	NRQ	Final Static WL (ft btoc)	44.86
Test Interval Length (ft)	30	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	2.42	Initial Annulus WL (ft btoc)	39.89

Set-up Information

		T	Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15			test casing		-0.05	2.88
Transducer #2	15		1000622	pressure		-0.05	-0.04
Transducer #3	15		704728	annulus		0.06	9.94

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66" / 0.1383'
Comments:	



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1 (0.99)	2 (1.98)	1 (0.98)	
Initiation method	pneumatic	pneumatic	pneumatic	
Rising/Falling head	rising	rising	rising	
Pre-test XD #1	2.88	2.89	2.88	
Pre-test XD #2	9.93	9.93	9.93	
Expected Displacement (ft)	1.027	1.958	1.048	
Observed Displacement (ft)	1.041	1.789	1.298	
Slug Discrepancy (%)	1.4%	8.6%	24%	
Max Rebound above Static	1.203	2.515	1.298	
Post-test XD #1	2.88	2.88	2.88	
Residual Dev. from H_o (%)	0%	0.30%	0%	
Data Logger File Name	ST9A_1517-1547_1ft_pneu	ST9B_1517-1547_2ft_pne	ST9C_1517-1547_1ft_pneu	
Specific Conductance (uS)	2062 uS/cm			
Temperature (C)	23.54			
Lithology	no-low fracture porosity, intercrystalline, vugular, intergranular porosity, low-moderate permeability,			
K_h	dolostone			
Other				
Comments				

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 10

General Information

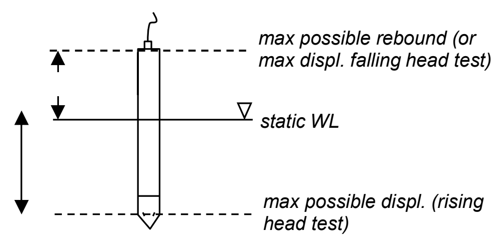
Use spacer as solid slug

Wellsite:	ROMP 27 - Scarborough	Date:	12/6/2011
Well:	CH 2	Performed by:	JC
Well Depth (ft bls)	1697'	Test Interval (ft - ft bls)	1657 - 1697
Test Casing Height (ft als)	7.06	Date of Last Development	12/5/2011
Test Casing Diameter (in)	2.38"	Initial Static WL (ft btoc)	48.42
Test Casing Type	NRQ	Final Static WL (ft btoc)	
Test Interval Length (ft)	40	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)		Initial Annulus WL (ft btoc)	

Set-up Information

			T Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15		use as slug	test casing		-0.06	0.2
Transducer #2	15		1000622	pressure		-0.05	
Transducer #3	15		204728	annulus		0.1	10.03

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66" / 0.1383'
Comments:	



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1 ft (1.16)			
Initiation method	solid slug			
Rising/Falling head	falling			
Pre-test XD #1	10.03 11.19			
Pre-test XD #2	0.2			
Expected Displacement (ft)				
Observed Displacement (ft)				
Slug Discrepancy (%)				
Max Rebound above Static				
Post-test XD #1	9.88			
Residual Dev. from H_o (%)	1.50%			
Data Logger File Name	R27_ST10A_1657-1697_1ft_solidslugin.csv			
Specific Conductance (uS)				
Temperature (C)				
Lithology	dolostone with vug filling gypsum (middle confining unit II)			
K_h				
Other				
Comments	Solid slug 1.2' of spacer, no pxd in annulus			

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 11

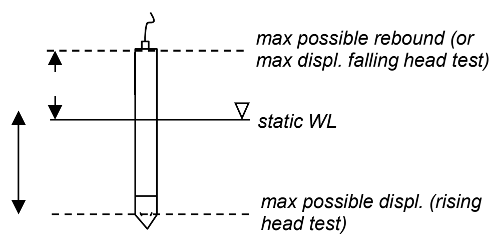
General Information

Wellsite:	ROMP 27 - Scarborough	Date:	12/15/2011
Well:	CH 2	Performed by:	JMC
Well Depth (ft bls)	1807	Test Interval (ft - ft bls)	1757 - 1807
Test Casing Height (ft als)	7.02	Date of Last Development	12/15/2011
Test Casing Diameter (in)	2.38	Initial Static WL (ft btoc)	51.85
Test Casing Type	NRQ	Final Static WL (ft btoc)	51.89
Test Interval Length (ft)	50	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	2.36	Initial Annulus WL (ft btoc)	44.8

Set-up Information

		T	Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15			test casing		-0.07	3.12
Transducer #2	15		1000672	pressure		-0.04	-0.02
Transducer #3	15		704728	annulus		0.1	9

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66" / 0.1383'
Comments:	



Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1 (0.96)	2 (1.98)		
Initiation method	pneumatic	pneumatic		
Rising/Falling head	rising	rising		
Pre-test XD #1	3.11	3.14		
Pre-test XD #2	8.99	8		
Expected Displacement (ft)	0.982	2.001		
Observed Displacement (ft)	1.041	2.097		
Slug Discrepancy (%)	4.1%	4.8%		
Max Rebound above Static	1.437	2.698		
Post-test XD #1	3.11	3.13		
Residual Dev. from H_o (%)	0%	0.30%		
Data Logger File Name				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
K_h				
Other				
Comments				

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

SLUG TEST - DATA ACQUISITION SHEET

ST NO. 12

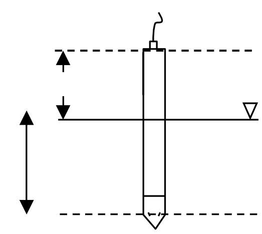
General Information

Wellsite:	ROMP 27 - Scarborough	Date:	2/2/2012
Well:	CH 2	Performed by:	JMC
Well Depth (ft bls)	2537	Test Interval (ft - ft bls)	2497-2537
Test Casing Height (ft als)	5.08 + 1.96 = 7.04	Date of Last Development	immediately prior
Test Casing Diameter (in)	NRQ = 2.38	Initial Static WL (ft btoc)	45.93
Test Casing Type	NRQ	Final Static WL (ft btoc)	45.95
Test Interval Length (ft)	40'	Slot Size & Filter Pack Type	
Annulus Casing Height (ft als)	2.32	Initial Annulus WL (ft btoc)	49.13

Set-up Information

			T	Serial No.	Purpose & Depth (ft btoc)		Reading in air (ft)	Submergence (ft)
Transducer #1	15				test casing		-0.04	3.08
Transducer #2	15			1000672	pressure		-0.04	-0.02
Transducer #3	15			704728	annulus		0.08	10.17

Data Logger	Rafael
Spacer Length	5'
Spacer OD.	1.66" / 0.1383'
Comments:	



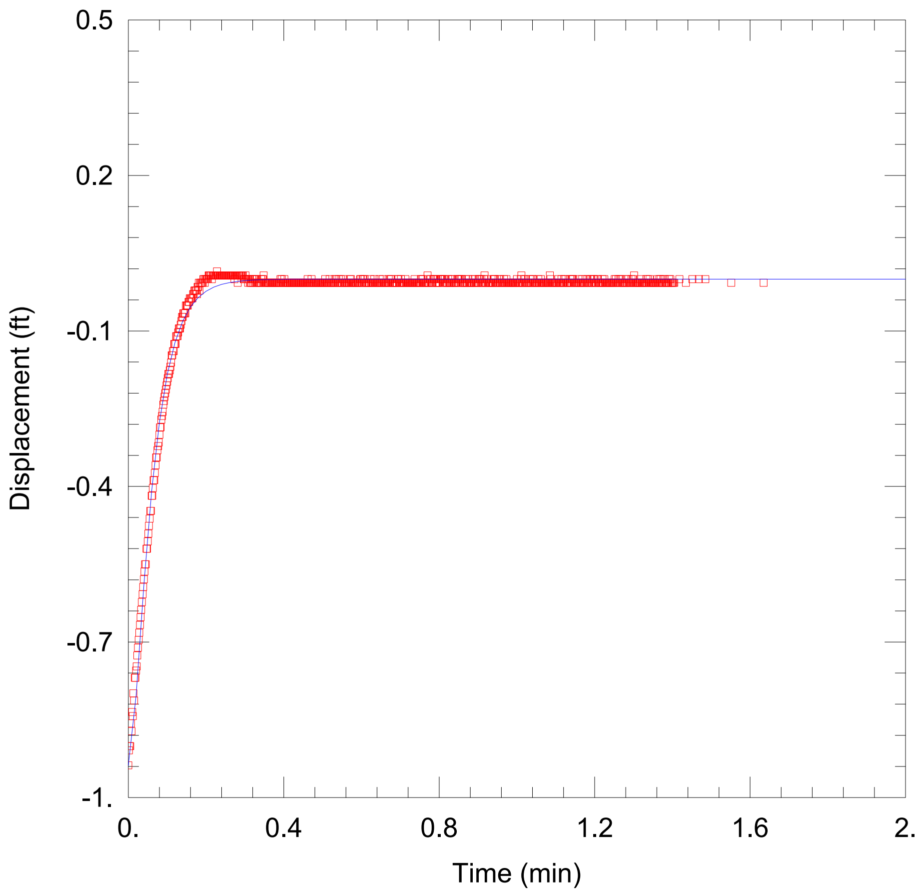
Note: Reading in Air of the Transducer should be < +/-1% of the Full Scale of the Transducer

Test Data

	Test A	Test B	Test C	Test D
Target Displacement (ft)	1' (1.0)	2' (2.0)	1' (1.0)	
Initiation method	pneumatic	pneumatic	pneumatic	
Rising/Falling head	rising	rising	rising	
Pre-test XD #1	3.07	3.07	3.06	
Pre-test XD #2	10.16	10.14	10.14	
Expected Displacement (ft)	0.968	2.024	1.004	
Observed Displacement (ft)	1.063	2.053	0.917	
Slug Discrepancy (%)	9.8%	1.4%	8.6%	
Max Rebound above Static	0.081	0.132	0.073	
Post-test XD #1	3.07	3.06	3.06	
Residual Dev. from H_o (%)	0%	0.30%	0%	
Data Logger File Name	ST12A_2491-2537_1ft_pne	ST12B_2491-2537_2ft_pne	ST12C_2491-2537_1ft_pne	
Specific Conductance (uS)	15,400 uS/cm			
Temperature (C)				
Lithology	Grainstone (Lower Floridan aquifer below VIII)			
K_h				
Other				
Comments	Lower Floridan aquifer below VIII slug tests			

Notes: Slug Discrepancy <10%; Residual Deviation from H_o < 5%; and Maximum Rebound < Spacer Placement above Static

Appendix H. Slug Test Curve-Match Analyses for the ROMP 27 – Scarborough Well Site in DeSoto County, Florida



R27 ST1B 517-557

Data Set: L:\...\R27 ST1B 517-557 2ft.aqt
Date: 04/14/20 Time: 09:51:01

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 7/21/2011

AQUIFER DATA

Saturated Thickness: 143. ft Anisotropy Ratio (Kz/Kr): 0.1

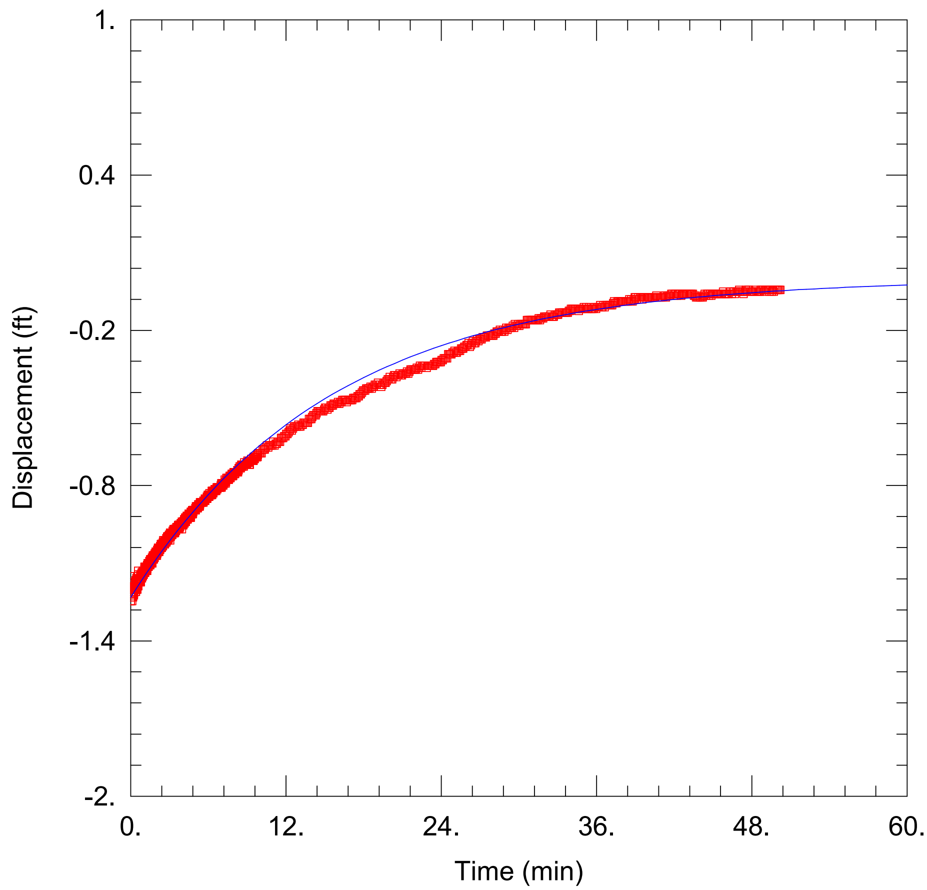
WELL DATA (CH 2)

Initial Displacement: -0.938 ft Static Water Column Height: 495.3 ft
Total Well Penetration Depth: 143. ft Screen Length: 40. ft
Casing Radius: 0.06838 ft Well Radius: 0.1263 ft

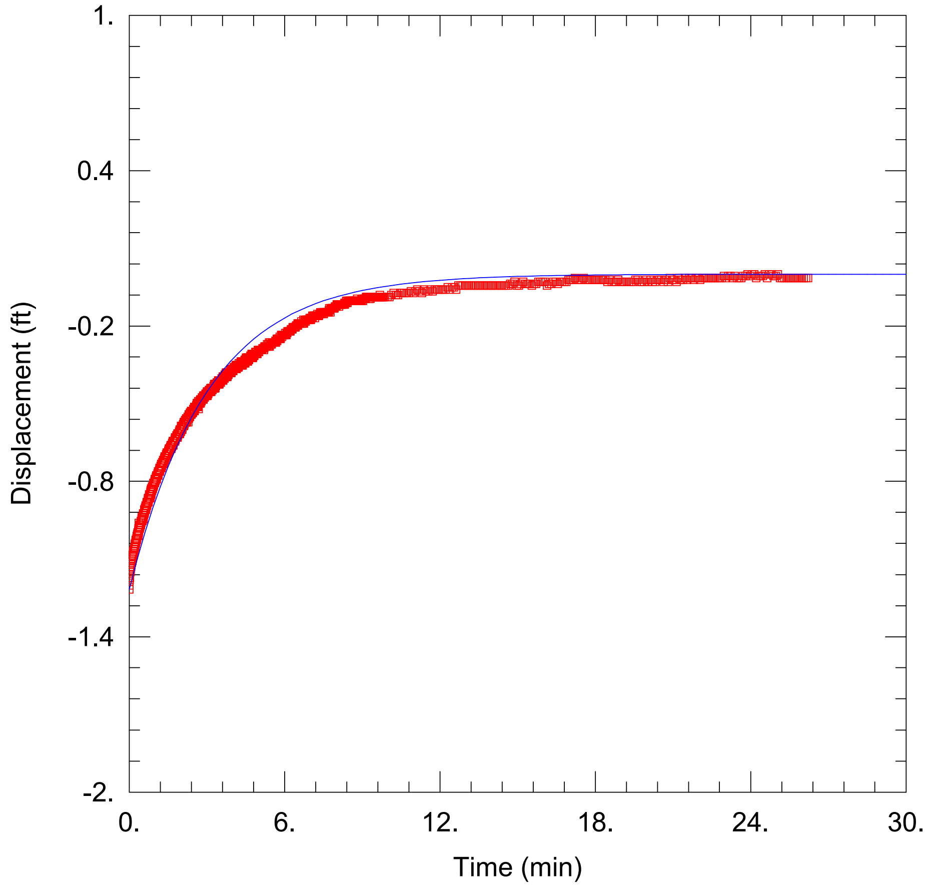
SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 10.54 ft/day Le = 99.03 ft



R27 ST2B 627-667	
Data Set: L:\...\R27 ST2B 627-667 1ft.aqt	
Date: 09/07/21	Time: 12:01:10
PROJECT INFORMATION	
Company: SWFWMD	
Client: Jim Clayton	
Project: ROMP 27	
Location: DeSoto Co.	
Test Well: Corehole 2	
Test Date: 6/22/2011	
AQUIFER DATA	
Saturated Thickness: 253. ft	Anisotropy Ratio (Kz/Kr): 0.1
WELL DATA (CH 2)	
Initial Displacement: -1.232 ft	Static Water Column Height: 603.9 ft
Total Well Penetration Depth: 253. ft	Screen Length: 40. ft
Casing Radius: 0.09652 ft	Well Radius: 0.1263 ft
SOLUTION	
Aquifer Model: Confined	Solution Method: Butler
K = 0.08274 ft/day	Le = 0.1 ft



R27 ST3B (747-837)

Data Set: L:\...\R27 ST3B 747-837 1ft.aqt
Date: 09/07/21 Time: 12:15:01

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 6/29/2011

AQUIFER DATA

Saturated Thickness: 423. ft Anisotropy Ratio (Kz/Kr): 0.1

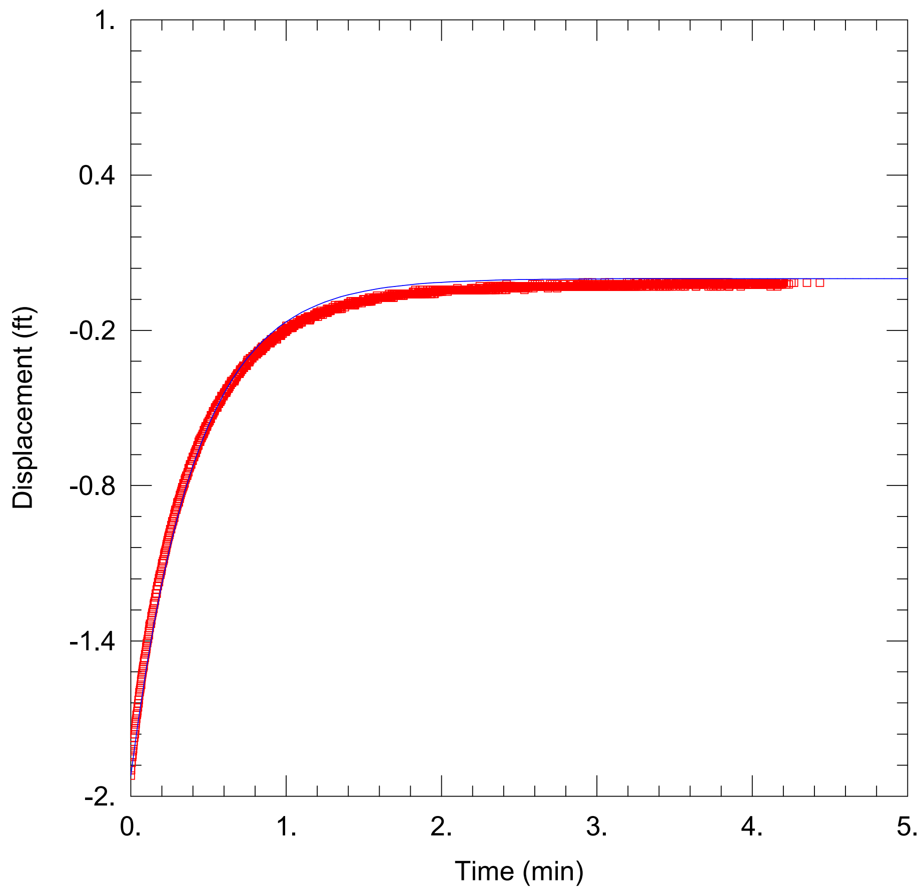
WELL DATA (CH 2)

Initial Displacement: -1.217 ft Static Water Column Height: 778.3 ft
Total Well Penetration Depth: 423. ft Screen Length: 90. ft
Casing Radius: 0.09652 ft Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.2064 ft/day Le = 0.1 ft



R27 ST4C_917-967

Data Set: L:\...\R27 ST4C 917-967.aqt
Date: 09/07/21 Time: 12:17:16

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 7/7/2011

AQUIFER DATA

Saturated Thickness: 553. ft Anisotropy Ratio (Kz/Kr): 0.1

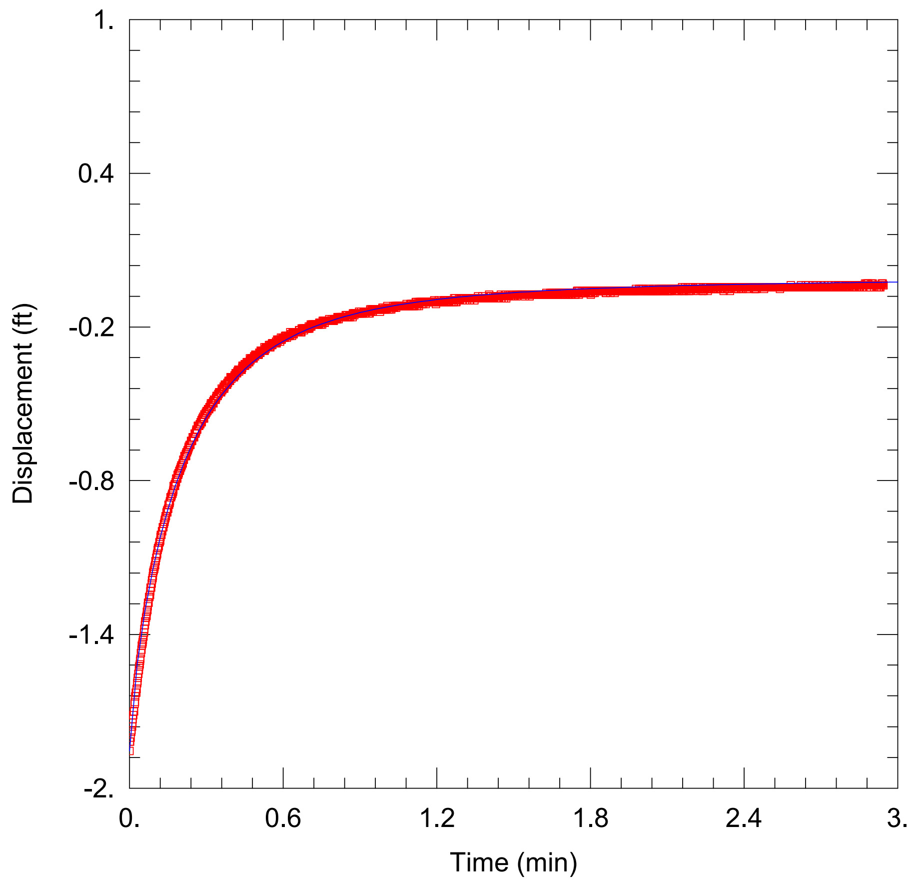
WELL DATA (CH 2)

Initial Displacement: -1.921 ft Static Water Column Height: 911.6 ft
Total Well Penetration Depth: 553. ft Screen Length: 50. ft
Casing Radius: 0.06838 ft Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 1.319 ft/day Le = 0.1 ft



R27 ST5C 1047-1087

Data Set: L:\...\R27 ST5C 1047-1087.aqt
Date: 09/07/21 Time: 12:00:02

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 7/14/2011

AQUIFER DATA

Saturated Thickness: 673. ft

WELL DATA (CH 2)

Initial Displacement: -1.855 ft
Total Well Penetration Depth: 673. ft
Casing Radius: 0.06838 ft

Static Water Column Height: 1033.3 ft
Screen Length: 40. ft
Well Radius: 0.1263 ft

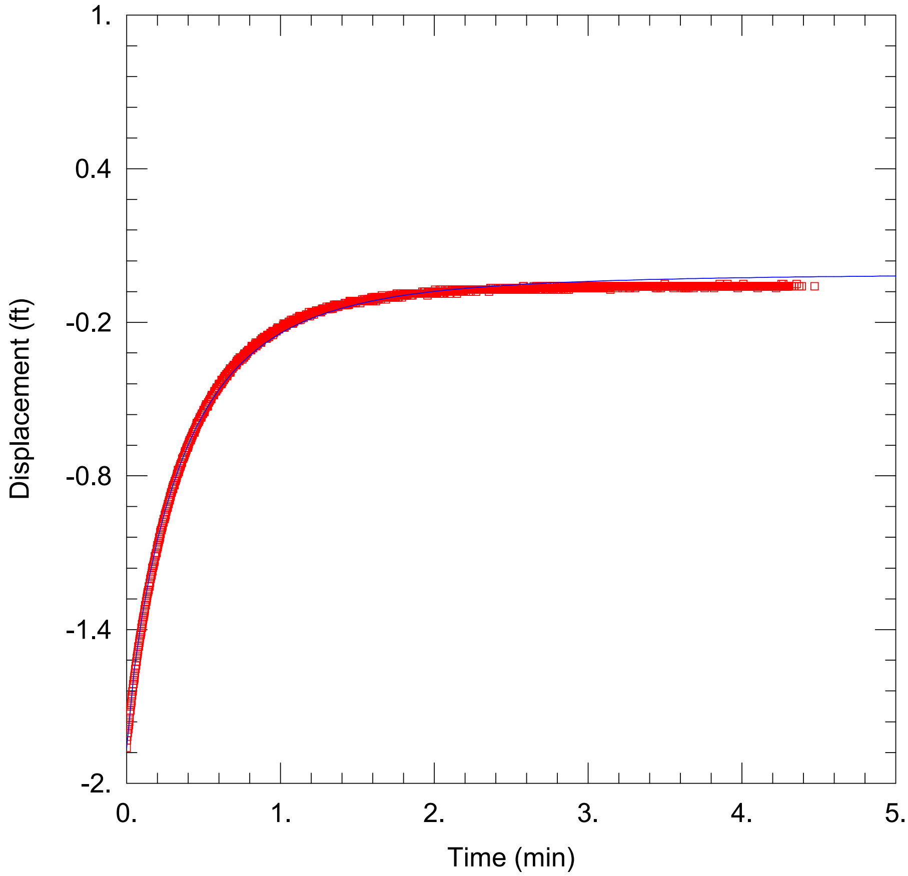
SOLUTION

Aquifer Model: Confined

Solution Method: KGS Model

Kr = 1.236 ft/day
Kz/Kr = 0.1

Ss = 2.4E-5 ft^{-1}



R27 ST6B 1147-1187

Data Set: L:\...\R27 ST6B 1147-1187 2ft.aqt
Date: 09/07/21 Time: 12:17:59

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 7/21/2011

AQUIFER DATA

Saturated Thickness: 773. ft

WELL DATA (CH 2)

Initial Displacement: -1.862 ft
Total Well Penetration Depth: 773. ft
Casing Radius: 0.06838 ft

Static Water Column Height: 1134.2 ft
Screen Length: 40. ft
Well Radius: 0.1263 ft

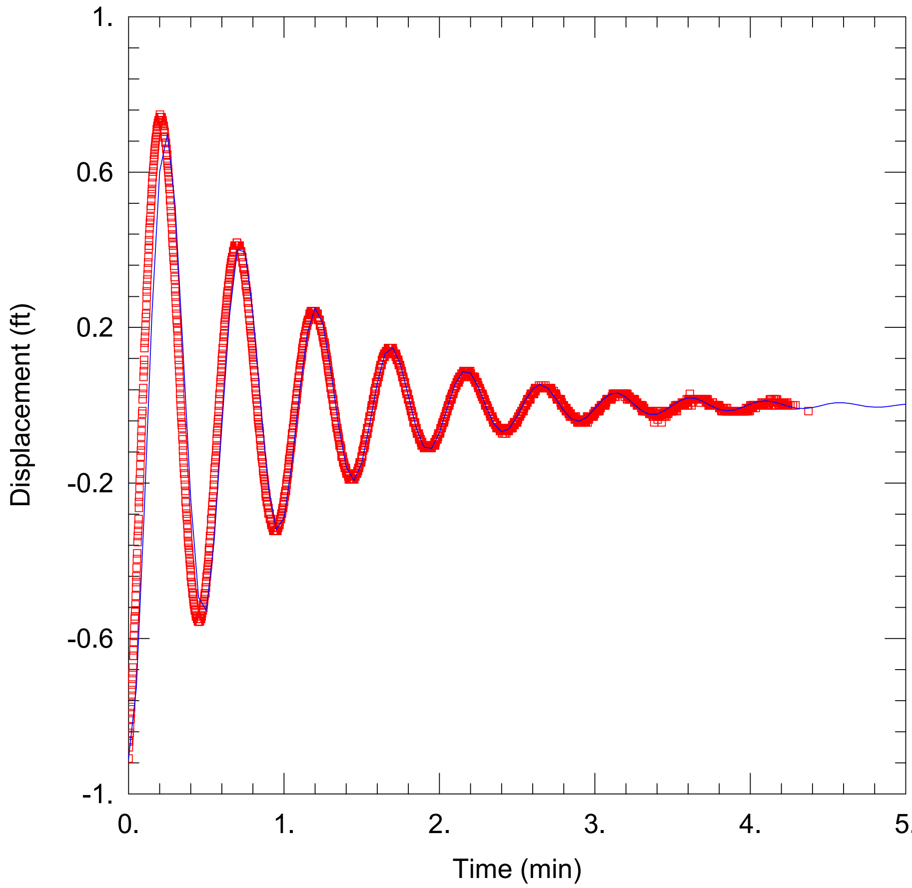
SOLUTION

Aquifer Model: Confined

Solution Method: KGS Model

Kr = 0.9022 ft/day
Kz/Kr = 0.1

Ss = 5.393E-6 ft^{-1}



R27 ST7A 1277-1327

Data Set: L:\...\R27 ST7A 1277-1327 1ft.aqt
Date: 09/07/21 Time: 12:20:45

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27 – Scarborough
Location: DeSoto County, Florida
Test Well: Corehole 2
Test Date: 10/27/2011

AQUIFER DATA

Saturated Thickness: 245. ft
Anisotropy Ratio (Kz/Kr): 1.

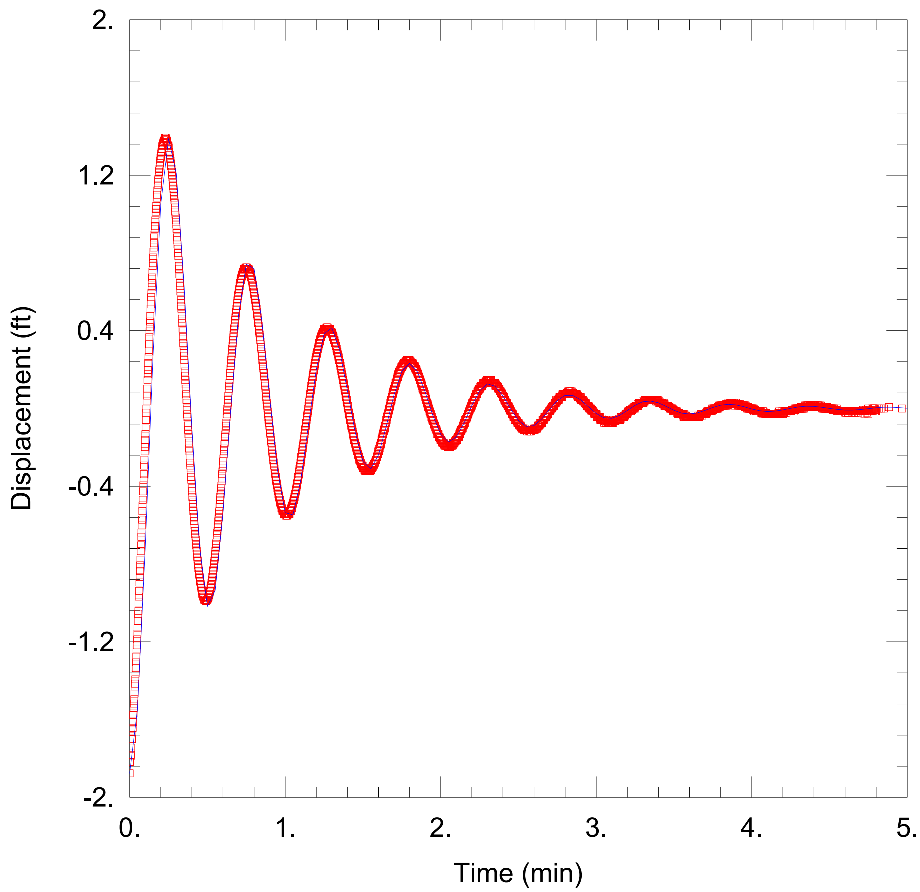
WELL DATA (CH 2)

Initial Displacement: -0.909 ft
Total Well Penetration Depth: 97. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 1431.2 ft
Screen Length: 50. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 408.2 ft/min
Le = 677.2 ft



R27 ST8C 1387-1427

Data Set: L:\...\R27 ST8C 1387-1427 2ft.aqt
Date: 03/08/21 Time: 12:00:43

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27 – Scarborough
Location: DeSoto County, Florida
Test Well: Corehole 2
Test Date: 11/3/2011

AQUIFER DATA

Saturated Thickness: 245. ft
Anisotropy Ratio (Kz/Kr): 1.

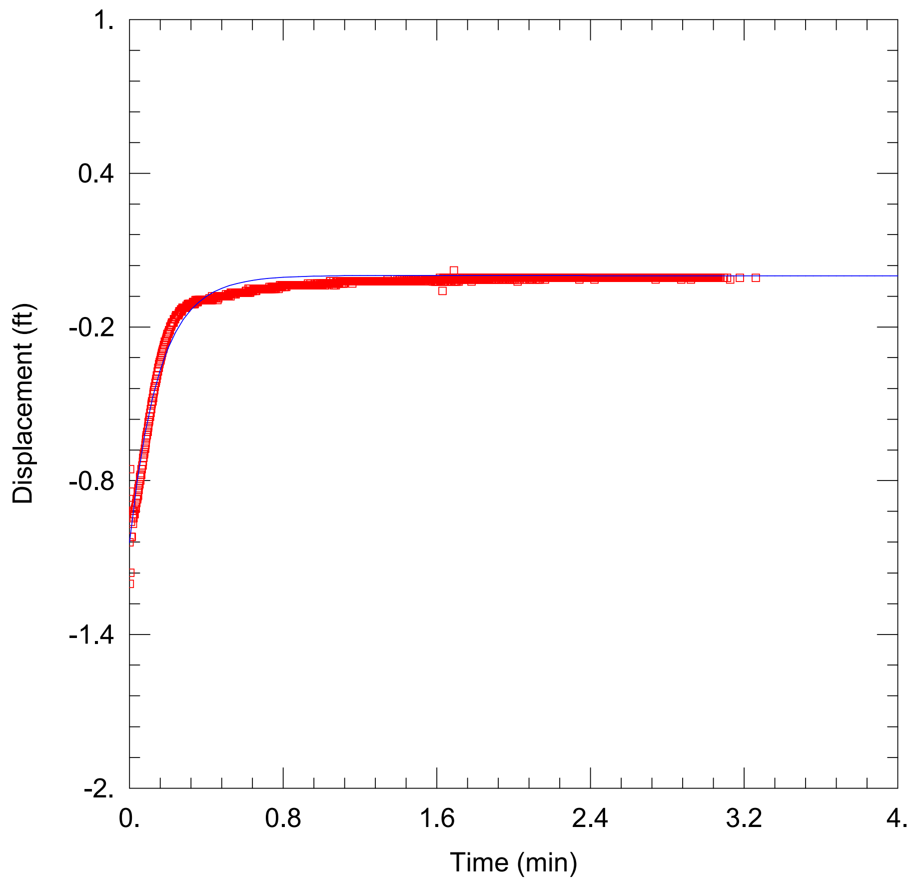
WELL DATA (CH 2)

Initial Displacement: -1.877 ft
Static Water Column Height: 1383.3 ft
Total Well Penetration Depth: 197. ft
Screen Length: 40. ft
Casing Radius: 0.06838 ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 408.2 ft/min
Le = 767.5 ft



R27 ST9A 1517-1547

Data Set: L:\...\R27 ST9A 1517-1547 1ft.aqt
Date: 09/07/21 Time: 12:22:45

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 11/16/2011

AQUIFER DATA

Saturated Thickness: 1133. ft

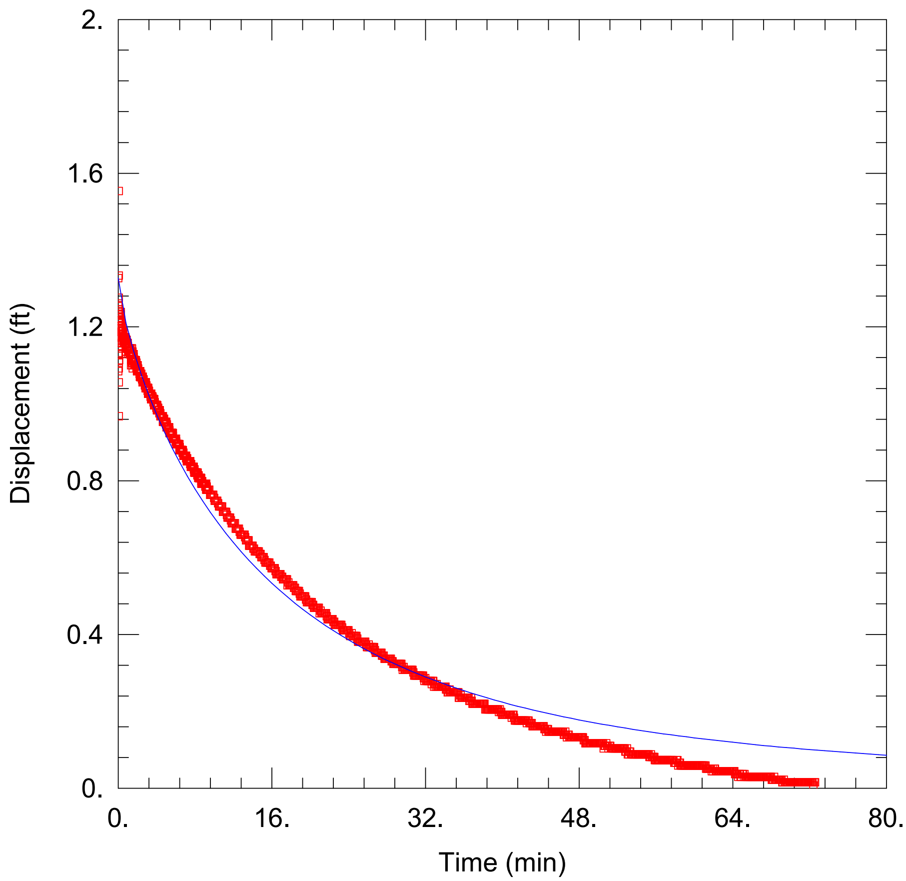
WELL DATA (CH 2)

Initial Displacement: -1.041 ft
Total Well Penetration Depth: 1133. ft
Casing Radius: 0.06838 ft
Static Water Column Height: 1509.7 ft
Screen Length: 30. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 5.117 ft/day
Ss = 6.511E-13 ft^{-1}
Kz/Kr = 0.1



R27 ST10A 1657-1697

Data Set: L:\...\R27 ST10A 1657-1697.aqt
Date: 09/07/21 Time: 12:23:50

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 12/6/2011

AQUIFER DATA

Saturated Thickness: 47.5 ft

WELL DATA (CH 2)

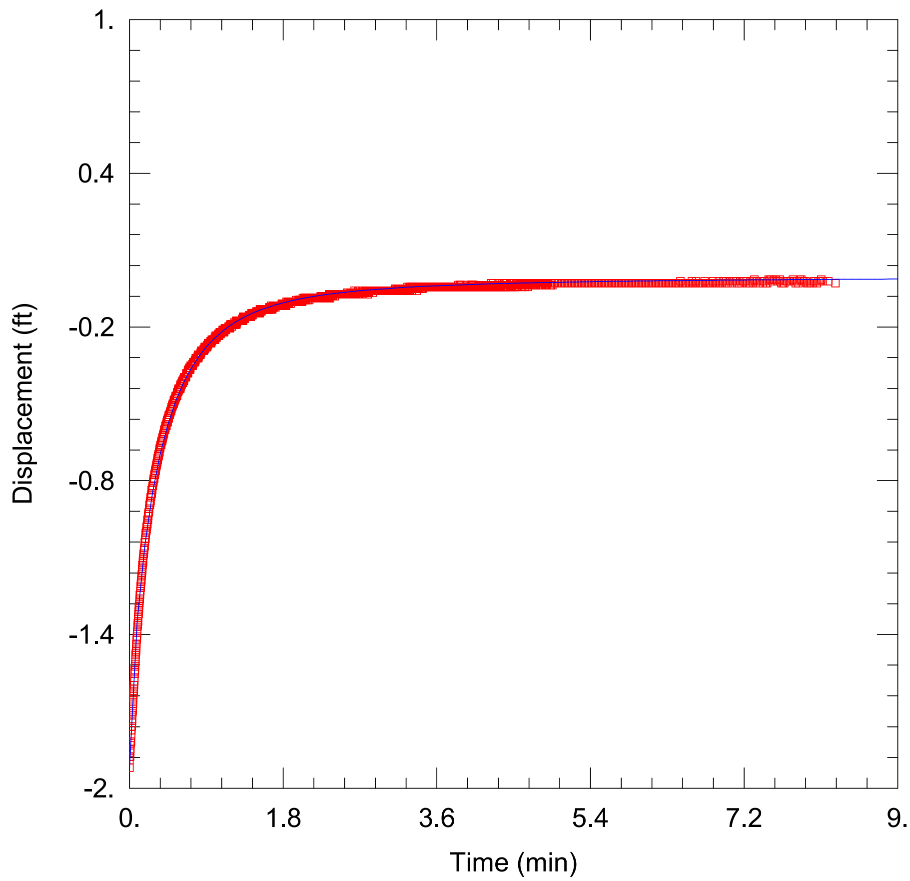
Initial Displacement: 1.327 ft
Total Well Penetration Depth: 47.5 ft
Casing Radius: 0.09652 ft

Static Water Column Height: 1641.5 ft
Screen Length: 40. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.03082 ft/day
Kz/Kr = 0.1
Ss = 5.878E-5 ft^{-1}



R27 ST11B 1757-1807

Data Set: L:\...\R27 ST11B 1757-1807 2ft.aqt
Date: 09/07/21
Time: 12:24:26

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 12/15/2011

AQUIFER DATA

Saturated Thickness: 157.5 ft

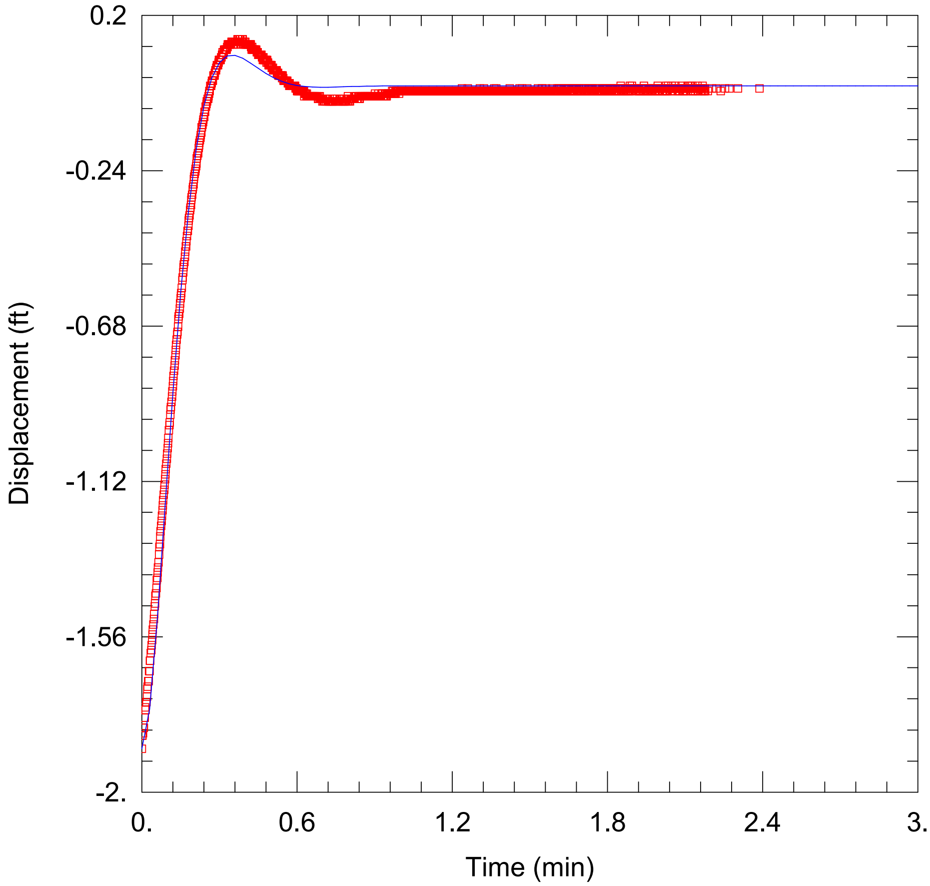
WELL DATA (CH 2)

Initial Displacement: -1.921 ft
Total Well Penetration Depth: 157.5 ft
Casing Radius: 0.06838 ft
Static Water Column Height: 1762.2 ft
Screen Length: 50. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.5936 ft/day
Kz/Kr = 0.1
Ss = 3.491E-5 ft^{-1}



R27 ST12B 2497-2537 2FT

Data Set: L:\...\R27 ST12B 2497-2537 2ft.aqt
Date: 09/07/21 Time: 12:25:39

PROJECT INFORMATION

Company: SWFWMD
Client: Jim Clayton
Project: ROMP 27
Location: DeSoto Co.
Test Well: Corehole 2
Test Date: 2/2/2012

AQUIFER DATA

Saturated Thickness: 118.2 ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (CH 2)

Initial Displacement: -1.877 ft Static Water Column Height: 2498.1 ft
Total Well Penetration Depth: 118.2 ft Screen Length: 40. ft
Casing Radius: 0.06838 ft Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 7.73 ft/day Le = 729.9 ft

Appendix I. Daily Water Levels Recorded During Core Drilling and Testing at the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

Appendix I. Daily water levels recorded during exploratory core drilling and testing at the ROMP 27 – Scarborough well

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; HWT, 4-inch internal diameter temporary casing; ft, feet; bls, below land surface; btoc, below top of well locations are shown in figure 2; well as-built diagrams are in appendix C]

Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Deepest Casing Depth (ft bls)	4-inch HWT Temporary Casing Static Water Level (ft btoc)	4-inch HWT Temporary Casing Static Water Level (ft bls)	3-inch HQ Casing Total Depth (ft bls)	3-inch HQ Temporary casing Static Water Level (ft btoc)	3-inch HQ Temporary casing Static Water Level (ft bls)	NRQ Core Hole Total Depth (ft bls)
04/12/2011	--	133	--	--	--	--	--	298
04/14/2011	07:30	--	--	--	--	--	--	--
04/18/2011	10:00	--	--	--	--	--	--	--
04/19/2011	07:15	--	--	--	--	--	--	--
04/20/2011	07:15	--	--	--	--	--	--	--
04/21/2011	07:30	--	--	--	--	--	--	--
04/26/2011	07:00	--	--	--	--	--	--	--
04/27/2011	07:00	--	--	--	--	--	--	--
04/28/2011	07:20	--	--	--	--	--	--	--
05/02/2011	12:00	--	--	--	--	--	--	--
05/03/2011	07:10	--	--	--	--	--	--	--
05/04/2011	07:10	--	--	--	--	--	--	--
05/05/2011	07:30	--	--	--	--	--	--	--
05/09/2011	12:15	--	--	--	--	--	--	--
05/10/2011	07:00	--	--	--	--	--	--	--
05/11/2011	07:10	--	--	--	--	--	--	--
05/12/2011	07:30	--	--	--	--	--	--	--
05/16/2011	10:00	--	--	--	--	--	--	--
05/17/2011	07:00	--	--	--	--	--	--	--
05/18/2011	07:30	--	--	--	--	--	--	--

site in DeSoto County, Florida

casing; HQ, 3-inch temporary casing; NRQ, 2.38-inch internal diameter core drilling rod; NAVD88, North American Vertical Datum of 1988; --, not applicable;

NRQ Core Hole Static Water Level (ft btoc)	NRQ Core Hole Static Water Level (ft bls)	NRQ Core Hole Static Water Level (ft NAVD 88)	Drilling Water Supply Static Water Level (ft btoc)	Drilling Water Supply Static Water Level (ft bls)	Drilling Water Supply Static Water Level (ft NAVD 88)	Rain Gauge (inches)	Comments
--	--	--	41.51	38.28	49.42	0	water supply well, top of casing is 4-inch galvanized steel
--	--	--	40.35	37.12	50.58	0	4-inch stick up 3.23 feet above land surface; water supply well developed 4/13
--	--	--	41.07	37.84	49.86	0	
--	--	--	41.02	37.79	49.91	0	
--	--	--	41.6	38.37	49.33	0	
--	--	--	41.87	38.64	49.06	--	
--	--	--	43.01	39.78	47.92	--	
--	--	--	43.59	40.36	47.34	--	
--	--	--	43.62	40.39	47.31	--	
--	--	--	43.98	40.75	46.95	--	
--	--	--	44.19	40.96	46.74	--	
--	--	--	44.5	41.27	46.43	--	
--	--	--	44.67	41.44	46.26	--	
--	--	--	45.1	41.87	45.83	--	
--	--	--	45.25	42.02	45.68	--	
--	--	--	45.36	42.13	45.57	--	
--	--	--	45.42	42.19	45.51	--	
--	--	--	46.31	43.08	44.62	--	
--	--	--	46.61	43.38	44.32	--	
--	--	--	46.42	43.19	44.51	--	

Appendix I. Daily water levels recorded during exploratory core drilling and testing at the ROMP 27 – Scarborough well

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; HWT, 4-inch internal diameter temporary casing; ft, feet; bls, below land surface; btoc, below top of well locations are shown in figure 2; well as-built diagrams are in appendix C]

Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Deepest Casing Depth (ft bls)	4-inch HWT Temporary Casing Static Water Level (ft btoc)	4-inch HWT Temporary Casing Static Water Level (ft bls)	3-inch HQ Casing Total Depth (ft bls)	3-inch HQ Temporary casing Static Water Level (ft btoc)	3-inch HQ Temporary casing Static Water Level (ft bls)	NRQ Core Hole Total Depth (ft bls)
05/19/2011	07:00	--	--	--	--	--	--	--
05/23/2011	11:30	--	--	--	--	--	--	--
05/24/2011	07:00	--	--	--	--	--	--	--
05/25/2011	07:00	--	--	--	--	--	--	--
05/26/2011	07:00	--	--	--	--	--	--	--
05/31/2011	14:00	--	--	--	--	--	--	--
06/01/2011	07:00	--	--	--	--	--	--	--
06/02/2011	07:00	--	--	--	--	--	--	--
06/06/2011	11:30	--	--	--	--	--	--	--
06/07/2011	07:00	--	--	--	--	--	--	--
06/08/2011	07:15	--	--	--	--	--	--	--
06/09/2011	07:30	--	53.45	51.6	441.5	--	--	557
06/13/2011	12:45	--	52.35	50.5	441.5	--	--	557
06/14/2011	07:30	--	51.41	49.56	441.5	--	--	557
06/15/2011	07:00	--	51.83	49.98	441.5	--	--	557
06/16/2011	07:15	--	52.84	50.99	441.5	--	--	557
06/20/2011	11:30	--	50.84	48.99	441.5	--	--	587
06/21/2011	07:15	--	51.34	49.49	442.5	--	--	627
06/22/2011	07:15	--	50.96	49.11	442.5	--	--	667
06/23/2011	07:15	--	51.84	49.99	442.5	--	--	667
06/27/2011	11:00	--	49.45	47.6	442.5	--	--	747

site in DeSoto County, Florida

casing; HQ, 3-inch temporary casing; NRQ, 2.38-inch internal diameter core drilling rod; NAVD88, North American Vertical Datum of 1988; --, not applicable;

NRQ Core Hole Static Water Level (ft btoc)	NRQ Core Hole Static Water Level (ft bls)	NRQ Core Hole Static Water Level (ft NAVD 88)	Drilling Water Supply Static Water Level (ft btoc)	Drilling Water Supply Static Water Level (ft bls)	Drilling Water Supply Static Water Level (ft NAVD 88)	Rain Gauge (inches)	Comments
--	--	--	46.35	43.12	44.58	--	
--	--	--	46.45	43.22	44.48	--	
--	--	--	46.06	42.83	44.87	--	
--	--	--	46.24	43.01	44.69	--	
--	--	--	46.32	43.09	44.61	--	
--	--	--	46.35	43.12	44.58	--	
--	--	--	46.16	42.93	44.77	--	
--	--	--	46	42.77	44.93	--	
--	--	--	46.1	42.87	44.83	--	
--	--	--	46.2	42.97	44.73	--	
54.48	--	--	46.7	43.47	44.23	--	start core hole 2
51.66	--	--	47.3	44.07	43.63	--	HWT water level - 1.85 is bls
53.18	50.46	37.44	47.74	44.51	43.19	--	NQ water level is (stick up + 1.85) is bls
52.91	50.2	37.7	47.56	44.33	43.37	--	NQ water level is (stick up + 1.85) is bls
56.76	49.99	37.91	47.4	44.17	43.53	--	NQ stickup is 0.87 feet
53.68	50.97	36.93	47.45	44.22	43.48	>1	NQ stickup is 0.86 feet
51.7	49.07	38.83	47.2	43.97	43.73	--	NQ stickup is 4.92 feet (packer set)
52.43	49.52	38.38	47.4	44.17	43.53	--	NQ stickup is 0.86 feet
56.09	49.04	38.86	47.42	44.19	43.51	--	NQ stickup is 0.78 feet
56.83	49.78	38.12	47.5	44.27	43.43	--	NRQ stick up is 1.06 feet
50.54	47.69	40.21	46.98	43.75	43.95	--	NRQ stick up is 5.2 feet

Appendix I. Daily water levels recorded during exploratory core drilling and testing at the ROMP 27 – Scarborough well

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; HWT, 4-inch internal diameter temporary casing; ft, feet; bls, below land surface; btoc, below top of well locations are shown in figure 2; well as-built diagrams are in appendix C]

Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Deepest Casing Depth (ft bls)	4-inch HWT Temporary Casing Static Water Level (ft btoc)	4-inch HWT Temporary Casing Static Water Level (ft bls)	3-inch HQ Casing Total Depth (ft bls)	3-inch HQ Temporary casing Static Water Level (ft btoc)	3-inch HQ Temporary casing Static Water Level (ft bls)	NRQ Core Hole Total Depth (ft bls)
06/28/2011	07:15	--	48.85	47	442.5	--	--	817
06/29/2011	07:15	--	48.5	46.65	442.5	--	--	837
06/30/2011	07:15	--	48.15	46.3	--	--	--	847
07/05/2011	12:30	--	--	--	--	--	--	--
07/05/2011	12:30	--	--	--	444.5	--	--	887
07/06/2011	07:15	--	45.91	44.06	530.5	--	--	887
07/07/2011	07:30	--	45.46	43.61	530.5	--	--	967
07/11/2011	07:40	--	44.52	42.67	530.5	--	--	967
07/12/2011	07:15	--	44.31	42.46	530.5	--	--	967
07/13/2011	07:15	--	43.9	42.05	530.5	--	--	1,047
07/14/2011	07:30	--	43.65	41.8	530.5	--	--	1,087
07/18/2011	11:00	--	43.17	41.32	530.5	--	--	1,087
07/19/2011	07:15	--	42.79	40.94	530.5	--	--	1,107
07/20/2011	07:45	--	42.98	41.13	530.5	--	--	1,147
07/21/2011	07:30	--	42.85	41	530.5	--	--	1,187
07/25/2011	12:30	--	42.46	40.61	530.5	--	--	1,187
07/26/2011	07:15	--	42.51	40.66	530.5	--	--	1,187
07/27/2011	08:00	--	42.49	40.64	530.5	--	--	1,227
07/28/2011	07:15	--	42.19	40.34	530.5	--	--	1,247

site in DeSoto County, Florida

casing; HQ, 3-inch temporary casing; NRQ, 2.38-inch internal diameter core drilling rod; NAVD88, North American Vertical Datum of 1988; --, not applicable;

NRQ Core Hole Static Water Level (ft btoc)	NRQ Core Hole Static Water Level (ft bls)	NRQ Core Hole Static Water Level (ft NAVD 88)	Drilling Water Supply Static Water Level (ft btoc)	Drilling Water Supply Static Water Level (ft bls)	Drilling Water Supply Static Water Level (ft NAVD 88)	Rain Gauge (inches)	Comments
50.78	48.1	39.8	46.83	43.6	44.1	>2 over week-end	NRQ stick up is 5.2 feet (slug test 2 water level)
53.69	46.81	41.09	46.4	43.17	44.53	~0.75	NRQ stick up is 1.0 feet
49.19	46.4	41.5	45.98	42.75	44.95	--	NRQ stick up is 5.03 feet (slug test 3 water level)
43.97	--	--	--	--	--	--	NRQ stick up is 0.94 feet
46.76	43.83	44.07	43.97	40.74	46.96	--	HWT/HQ fell feet on 6/30
46.89	44.06	43.84	43.79	40.56	47.14	--	NRQ stick up is 1.08 feet
46.52	43.68	44.22	43.7	40.47	47.23	--	NRQ stick up is 0.98 feet
48.52	42.82	45.08	42.21	38.98	48.72	--	water levels before slug test 4; NRQ slug test stick up is 0.99 feet
45.05	42.58	45.32	41.89	38.66	49.04	--	NRQ stick up is 3.89 feet
44.74	42.24	45.66	41.85	38.62	49.08	--	NRQ stick up is 0.62 feet
44.75	41.94	45.96	41.55	38.32	49.38	~2	NRQ stick up is 0.65 feet
43.9	41.2	46.7	40.32	37.09	50.61	--	NRQ stick up is 0.96 feet; airlift before set packers
45.85	43.21	44.69	40.19	36.96	50.74	~2	NRQ stick up is 0.85 feet
43.83	41.07	46.83	40.01	36.78	50.92	--	NRQ stick up is 0.74 feet; probably bad NRQ level
44.05	41.05	46.85	40.02	36.79	50.91	--	NRQ stick up is 0.91 feet
43.42	40.72	47.18	39.11	35.88	51.82	--	NRQ stick up is 1.15 feet
43.52	40.82	47.08	39.03	35.8	51.9	--	NRQ stick up is 0.85 feet
43.31	40.61	47.29	39.18	35.95	51.75	--	NRQ stick up is 0.85 feet
43.71	40.54	47.36	39.19	35.96	51.74	--	NRQ stick up is 0.85 feet

Appendix I. Daily water levels recorded during exploratory core drilling and testing at the ROMP 27 – Scarborough well

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; HWT, 4-inch internal diameter temporary casing; ft, feet; bls, below land surface; btoc, below top of well locations are shown in figure 2; well as-built diagrams are in appendix C]

Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Deepest Casing Depth (ft bls)	4-inch HWT Temporary Casing Static Water Level (ft btoc)	4-inch HWT Temporary Casing Static Water Level (ft bls)	3-inch HQ Casing Total Depth (ft bls)	3-inch HQ Temporary casing Static Water Level (ft btoc)	3-inch HQ Temporary casing Static Water Level (ft bls)	NRQ Core Hole Total Depth (ft bls)
08/01/2011	12:30	--	41.91	40.06	530.5	--	--	1,257
08/02/2011	07:15	--	41.91	40.06	530.5	--	--	1,257
08/03/2011	07:15	--	41.91	40.08	530.5	--	--	1,257
08/04/2011	07:30	--	--	--	--	--	--	1,257
08/08/2011	10:50	--	--	--	--	--	--	1,257
08/09/2011	07:15	--	--	--	--	--	--	1,257
08/10/2011	07:15	--	--	--	--	--	--	1,257
08/11/2011	07:00	--	--	--	--	--	--	1,257
08/15/2011	10:00	--	--	--	--	--	--	1,257
08/16/2011	07:20	--	--	--	--	--	--	1,257
08/17/2011	09:20	--	--	--	--	--	--	1,257
08/18/2011	07:20	--	--	--	--	--	--	1,257
08/22/2011	09:40	--	--	--	--	--	--	1,257
08/23/2011	07:30	--	--	--	--	--	--	1,257
08/24/2011	11:30	--	--	--	--	--	--	1,257
08/25/2011	07:30	--	--	--	--	--	--	1,257
08/29/2011	10:00	--	--	--	--	--	--	1,257
08/30/2011	07:15	--	--	--	--	--	--	1,257
08/31/2011	07:30	--	--	--	--	--	--	1,257
09/06/2011	10:50	--	--	--	--	--	--	1,257
09/07/2011	07:15	--	--	--	--	--	--	1,257

site in DeSoto County, Florida

casing; HQ, 3-inch temporary casing; NRQ, 2.38-inch internal diameter core drilling rod; NAVD88, North American Vertical Datum of 1988; --, not applicable;

NRQ Core Hole Static Water Level (ft btoc)	NRQ Core Hole Static Water Level (ft bls)	NRQ Core Hole Static Water Level (ft NAVD 88)	Drilling Water Supply Static Water Level (ft btoc)	Drilling Water Supply Static Water Level (ft bls)	Drilling Water Supply Static Water Level (ft NAVD 88)	Rain Gauge (inches)	Comments
45.61	39.94	47.96	38.16	34.93	52.77	~1.5	NRQ stick up is 1.32 feet
41.24	34.93	52.97	38.13	34.9	52.8	--	
44.65	39.91	47.99	38.16	34.93	52.77	--	NRQ stick up is 3.82 feet
--	--	--	38.18	34.95	52.75	--	NRQ stick up is 4.46 feet
--	--	--	38.16	34.93	52.77	--	NRQ stick up is 2.98 feet
--	--	--	37.68	34.45	53.25	--	
--	--	--	37.59	34.36	53.34	--	
--	--	--	37.57	34.34	53.36	--	
--	--	--	36.6	33.37	54.33	--	
--	--	--	36.61	33.38	54.32	--	
--	--	--	36.53	33.3	54.4	--	
--	--	--	36.51	33.28	54.42	--	
--	--	--	35.76	32.53	55.17	--	
--	--	--	36.01	32.78	54.92	--	
--	--	--	35.56	32.33	55.37	--	
--	--	--	35.6	32.37	55.33	--	
--	--	--	34.81	31.58	56.12	--	
--	--	--	34.84	31.61	56.09	--	
--	--	--	34.83	31.6	56.1	--	
--	--	--	34.14	30.91	56.79	--	
--	--	--	34.01	30.78	56.92	--	

Appendix I. Daily water levels recorded during exploratory core drilling and testing at the ROMP 27 – Scarborough well

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; HWT, 4-inch internal diameter temporary casing; ft, feet; bls, below land surface; btoc, below top of well locations are shown in figure 2; well as-built diagrams are in appendix C]

Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Deepest Casing Depth (ft bls)	4-inch HWT Temporary Casing Static Water Level (ft btoc)	4-inch HWT Temporary Casing Static Water Level (ft bls)	3-inch HQ Casing Total Depth (ft bls)	3-inch HQ Temporary casing Static Water Level (ft btoc)	3-inch HQ Temporary casing Static Water Level (ft bls)	NRQ Core Hole Total Depth (ft bls)
09/08/2011	07:20	--	--	--	--	--	--	1,257
09/12/2011	11:30	--	--	--	--	--	--	1,257
09/13/2011	07:00	--	--	--	--	--	--	1,257
09/14/2011	07:30	--	--	--	--	--	--	1,257
09/15/2011	07:00	--	--	--	--	--	--	1,257
09/20/2011	07:20	--	--	--	--	--	--	1,257
09/21/2011	07:00	--	--	--	--	--	--	1,257
09/26/2011	11:30	--	--	--	--	--	--	1,257
10/11/2011	12:00	--	--	--	--	--	--	1,257
10/12/2011	07:00	--	--	--	--	--	--	1,257
10/13/2011	07:00	--	--	--	--	--	--	1,257
10/20/2011	07:30	--	--	--	--	--	--	1,257
10/24/2011	10:30	--	--	--	1,195.3	--	--	1,267
10/25/2011	07:00	--	--	--	1,195.3	--	--	1,277
10/26/2011	07:15	--	--	--	1,195.3	39.49	36.95	1,287
10/27/2011	07:30	--	--	--	1,195.3	39.37	36.87	1,327
10/31/2011	10:00	--	--	--	1,195.3	39.44	36.94	1,327
11/01/2011	10:30	--	--	--	1,195.3	38.95	36.45	1,347
11/02/2011	07:30	--	--	--	1,195.3	38.75	36.29	1,387

site in DeSoto County, Florida

casing; HQ, 3-inch temporary casing; NRQ, 2.38-inch internal diameter core drilling rod; NAVD88, North American Vertical Datum of 1988; --, not applicable;

NRQ Core Hole Static Water Level (ft btoc)	NRQ Core Hole Static Water Level (ft bls)	NRQ Core Hole Static Water Level (ft NAVD 88)	Drilling Water Supply Static Water Level (ft btoc)	Drilling Water Supply Static Water Level (ft bls)	Drilling Water Supply Static Water Level (ft NAVD 88)	Rain Gauge (inches)	Comments
--	--	--	34.05	30.82	56.88	--	
--	--	--	34.06	30.83	56.87	--	
--	--	--	33.91	30.68	57.02	--	
--	--	--	33.85	30.62	57.08	--	
--	--	--	34.19	30.96	56.74	--	
--	--	--	33.71	30.48	57.22	--	
--	--	--	34.03	30.8	56.9	--	
--	--	--	34.21	30.98	56.72	--	
--	--	--	34.11	30.88	56.82	--	
--	--	--	34.04	30.81	56.89	--	
--	--	--	34.15	30.92	56.78	--	
--	--	--	33.51	30.28	57.42	--	
39.88	36.71	51.19	34.12	30.89	56.81	--	NRQ measuring point changed to 1.96 feet, started measuring 8-inch water level; HQ tube pinched
38.89	35.94	51.96	32.96	29.73	57.97	--	
40.28	37.21	50.69	33.17	29.94	57.76	--	
40.49	37.01	50.89	33.12	29.89	57.81	--	
39.97	--	--	32.7	29.47	58.23	all day rain	stick up not measured
39.84	36.77	51.13	32.78	29.55	58.15	--	
40.25	36.43	51.47	33.04	29.81	57.89	--	

Appendix I. Daily water levels recorded during exploratory core drilling and testing at the ROMP 27 – Scarborough well

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; HWT, 4-inch internal diameter temporary casing; ft, feet; bls, below land surface; btoc, below top of well locations are shown in figure 2; well as-built diagrams are in appendix C]

Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Deepest Casing Depth (ft bls)	4-inch HWT Temporary Casing Static Water Level (ft btoc)	4-inch HWT Temporary Casing Static Water Level (ft bls)	3-inch HQ Casing Total Depth (ft bls)	3-inch HQ Temporary casing Static Water Level (ft btoc)	3-inch HQ Temporary casing Static Water Level (ft bls)	NRQ Core Hole Total Depth (ft bls)
11/03/2011	07:00	--	--	--	1,195.3	38.69	36.27	1,427
11/07/2011	10:30	--	--	--	1,195.3	39.2	36.79	1,427
11/08/2011	07:30	--	--	--	1,195.3	38.6	36.17	1,427
11/09/2011	07:30	--	--	--	1,195.3	38.82	36.4	1,467
11/14/2011	11:00	--	--	--	1,195.3	39.65	37.26	1,497
11/15/2011	07:30	--	--	--	1,195.3	39.84	37.43	1,527
11/16/2011	07:30	--	--	--	1,195.3	39.64	37.22	1,547
11/17/2011	07:30	--	--	--	1,195.3	39.93	37.52	1,557
11/21/2011	10:30	--	--	--	1,195.3	40.18	37.78	1,597
11/22/2011	07:30	--	--	--	1,195.3	40.3	37.89	1,627
11/28/2011	10:30	--	--	--	1,195.3	40.84	38.53	1,647
11/29/2011	07:30	--	--	--	1,195.3	40.74	38.33	1,647
11/30/2011	07:30	--	--	--	1,195.3	41.91	39.55	1,647
12/1/2011	07:15	--	--	--	1,195.3	42.27	39.86	1,647
12/5/2011	10:40	--	--	--	1,195.3	42.64	40.26	1,677
12/6/2011	07:30	--	--	--	1,195.3	43.4	41.02	1,697
12/7/2011	07:30	--	--	--	1,195.3	--	--	1,697
12/12/2011	10:15	--	--	--	1,195.3	44.97	42.59	1,697
12/13/2011	07:15	--	--	--	1,195.3	45.07	42.71	1,727
12/14/2011	07:30	--	--	--	1,195.3	45.3	42.94	1,767

site in DeSoto County, Florida

casing; HQ, 3-inch temporary casing; NRQ, 2.38-inch internal diameter core drilling rod; NAVD88, North American Vertical Datum of 1988; --, not applicable;

NRQ Core Hole Static Water Level (ft btoc)	NRQ Core Hole Static Water Level (ft bls)	NRQ Core Hole Static Water Level (ft NAVD 88)	Drilling Water Supply Static Water Level (ft btoc)	Drilling Water Supply Static Water Level (ft bls)	Drilling Water Supply Static Water Level (ft NAVD 88)	Rain Gauge (inches)	Comments
40.35	37.31	50.59	33.99	30.76	56.94	--	
39.81	37.1	50.8	32.32	29.09	58.61	--	
40.22	37.26	50.64	32.31	29.08	58.62	--	
40.85	37.87	50.03	32.56	29.33	58.37	--	
41.1	38.71	49.19	32.41	29.18	58.52	--	
41	37.99	49.91	32.65	29.42	58.28	--	
39.88	37.01	50.89	32.8	29.57	58.13	--	
41.17	38.35	49.55	32.83	29.6	58.1	--	
41.74	38.84	49.06	33.2	29.97	57.73	--	
42.05	39.05	48.85	33.41	30.18	57.52	--	
--	--	--	33.75	30.52	57.18	rain	
42.81	39.78	48.12	34.25	31.02	56.68	--	
42.78	39.71	48.19	34.15	30.92	56.78	--	
43.35	40.59	47.31	34.39	31.16	56.54	--	
45.07	42.11	45.79	34.86	31.63	56.07	--	started recycling coring water through chemtron and back down NRQ
45.58	42.69	45.21	35.24	32.01	55.69	--	
--	--	--	35.38	32.15	55.55	--	packer test 10A overnight running
46.91	43.84	44.06	37.65	34.42	53.28	--	
47.66	44.9	43	36.85	33.62	54.08	--	
47.59	44.06	43.84	37.02	33.79	53.91	--	

Appendix I. Daily water levels recorded during exploratory core drilling and testing at the ROMP 27 – Scarborough well

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; HWT, 4-inch internal diameter temporary casing; ft, feet; bls, below land surface; btoc, below top of well locations are shown in figure 2; well as-built diagrams are in appendix C]

Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Deepest Casing Depth (ft bls)	4-inch HWT Temporary Casing Static Water Level (ft btoc)	4-inch HWT Temporary Casing Static Water Level (ft bls)	3-inch HQ Casing Total Depth (ft bls)	3-inch HQ Temporary casing Static Water Level (ft btoc)	3-inch HQ Temporary casing Static Water Level (ft bls)	NRQ Core Hole Total Depth (ft bls)
12/15/2011	07:30	--	--	--	1,195.3	44.8	42.44	1,807
12/19/2011	09:30	--	--	--	1,195.3	44.81	42.45	1,807
12/20/2011	07:30	--	--	--	1,195.3	44.75	42.39	1,807
12/21/2011	07:15	--	--	--	1,195.3	44.98	42.62	1,857
01/03/2012	10:00	--	--	--	1,195.3	46.26	43.9	1,897
01/04/2012	07:00	--	--	--	1,195.3	57.29	54.93	1,927
01/05/2012	07:00	--	--	--	1,195.3	61.18	58.82	1,957
01/09/2012	12:30	--	--	--	1,195.3	53.25	50.89	1,987
01/10/2012	07:00	--	--	--	1,195.3	52.3	49.94	2,017
01/11/2012	07:00	--	--	--	1,195.3	51.61	49.25	2,077
01/12/2012	07:00	--	--	--	--	50.89	48.53	2,137
01/17/2012	10:00	--	--	--	--	52	49.64	2,177
01/18/2012	07:15	--	--	--	--	51.89	49.53	2,177
01/19/2012	07:15	--	--	--	--	50.74	48.38	2,237
01/23/2012	11:15	--	--	--	--	48.37	46.01	2,277
01/24/2012	07:00	--	--	--	--	48.78	46.42	2,317
01/25/2012	07:00	--	--	--	--	49.78	47.42	2,377
01/26/2012	07:00	--	--	--	--	49.6	47.24	2,427
01/30/2012	10:15	--	--	--	--	47.68	45.37	2,457
01/31/2012	07:00	--	--	--	--	48.33	46	2,457

site in DeSoto County, Florida

casing; HQ, 3-inch temporary casing; NRQ, 2.38-inch internal diameter core drilling rod; NAVD88, North American Vertical Datum of 1988; --, not applicable;

NRQ Core Hole Static Water Level (ft btoc)	NRQ Core Hole Static Water Level (ft bls)	NRQ Core Hole Static Water Level (ft NAVD 88)	Drilling Water Supply Static Water Level (ft btoc)	Drilling Water Supply Static Water Level (ft bls)	Drilling Water Supply Static Water Level (ft NAVD 88)	Rain Gauge (inches)	Comments
47.91	44.97	42.93	37.18	33.95	53.75	--	
51.46	45.59	42.31	37.24	34.01	53.69	--	NRQ 50 feet off bottom
47.94	44.7	43.2	37.91	34.68	53.02	--	
48.75	45.84	42.06	37.96	34.73	52.97	--	
49.69	46.55	41.35	38.75	35.52	52.18	--	
56.34	53.57	34.33	40.9	37.67	50.03	--	all water levels down for freeze protection
60.59	57.43	30.47	43.51	40.28	47.42	--	all water levels down for freeze protection
55.45	52.73	35.17	47.16	43.93	43.77	--	
55	51.89	36.01	47.05	43.82	43.88	--	
54.04	51.08	36.82	46.84	43.61	44.09	--	
53.18	50.18	37.72	46.49	43.26	44.44	--	
54.14	51.33	36.57	46.78	43.55	44.15	--	
54.6	51.68	36.22	46.76	43.53	44.17	--	
50.81	48.05	39.85	46.71	43.48	44.22	--	
47.16	44.33	43.57	45.21	41.98	45.72	--	
50.86	47.81	40.09	45.22	41.99	45.71	--	
45.46	42.59	45.31	45.48	42.25	45.45	--	
42.46	39.5	48.4	45.68	42.45	45.25	--	
29.65	26.67	61.23	44.2	40.97	46.73	--	added 1,200 gallons of fresh water to NRQ to get a "freshwater" head on Monday (1/30)
42.88	40.17	47.73	44.92	41.69	46.01	--	

Appendix I. Daily water levels recorded during exploratory core drilling and testing at the ROMP 27 – Scarborough well

[MM/DD/YYYY, month/day/year; HH:MM, hour:minute; HWT, 4-inch internal diameter temporary casing; ft, feet; bls, below land surface; btoc, below top of well locations are shown in figure 2; well as-built diagrams are in appendix C]

Date (MM/DD/YYYY)	Time (HH:MM)	4-inch HWT Deepest Casing Depth (ft bls)	4-inch HWT Temporary Casing Static Water Level (ft btoc)	4-inch HWT Temporary Casing Static Water Level (ft bls)	3-inch HQ Casing Total Depth (ft bls)	3-inch HQ Temporary casing Static Water Level (ft btoc)	3-inch HQ Temporary casing Static Water Level (ft bls)	NRQ Core Hole Total Depth (ft bls)
02/01/2012	07:00	--	--	--	--	48.89	46.56	2,497
02/02/2012	07:00	--	--	--	--	48.62	46.3	2,537

site in DeSoto County, Florida

casing; HQ, 3-inch temporary casing; NRQ, 2.38-inch internal diameter core drilling rod; NAVD88, North American Vertical Datum of 1988; --, not applicable;

NRQ Core Hole Static Water Level (ft btoc)	NRQ Core Hole Static Water Level (ft bls)	NRQ Core Hole Static Water Level (ft NAVD 88)	Drilling Water Supply Static Water Level (ft btoc)	Drilling Water Supply Static Water Level (ft bls)	Drilling Water Supply Static Water Level (ft NAVD 88)	Rain Gauge (inches)	Comments
43.49	40.7	47.2	45.01	41.78	45.92	--	
46.2	40.4	47.5	44.77	41.54	46.16	--	NRQ set for packer test 12 without packer

Appendix J. Aquifer Performance Test Data Acquisition Sheets for the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

SURF APT (BKGD/DD/REC)

General Information:

Site Name: ROMP 27 – Scarborough
Date: 3/14/2017
Reporting Code: LWNE
Performed by: JL, JC, JZ, TF
County: DeSoto
S/T/R:

Pumped Well: Surf Aq Monitor (sanded 3 - 50 feet bls)
Pumped Zone OB(s): Surf Aq Ob Temp (sanded 3 - 50 feet bls)
Pump Type: 3-inch 1.5 horsepower submersible
Test Rate/Duration:
Non-Pumped Zone OB(s): L Arca Aq Monitor
Pump Set Depth: pump intake @ 41 feet btoc

Setup Information:

Datalogger: In-Situ Level Trolls/CS Michelangelo
Time Synchronized: 3/14/2017 12:39
Datalogger SN: Virtual Hermit/5076
Time Datum: SWF 20504 (Jay's laptop)
Program Name: R27_APT_SA_BKGD_DD_REC
Program Start Date: 3/14/2017 12:44:00
Program End Date:

Test Information:

Pump On Time:
Flow Meter Totalizer Start:
Pump Off Time:
Flow Meter Totalizer End:

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		Surf PW-A	Surf PW-B	Surf OB-A	Surf OB-B	LAA PW	BARO	MANO	2" Flow	
Riser ht.	***als ft***									
TOC elev	***elev ft***									<- Elev Ref. ____________
static W/L	***btoc ft***	7.96	7.96	7.44	7.44	47.37				<- Date ______________
static W/L	***elev ft***									TOC elev - static WL(btoc)
XD Rating	***psi***	30	30	15	15	15		15		
Serial No.		740	569	396	546	414		512		
Reading in Air	***ft***									
XD depth	***btoc ft***	40	40	25	25	60				
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***									WL tape value of submergence
XD subm.	***XD read ft***						203/485			XD value of submergence
XD Diff.	***ft***									Subm.$_{WL\ tape}$ - Subm.$_{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer (g x 1000)	Notes
		Surf PW-A	Surf PW-B	Surf OB-A	Surf OB-B	LAA PW	BARO	MANO	2" Flow		
Units	----------->	ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	psi	inches	gpm		
3/14/17	9:15	JL arrives, connect TROLLS, download LAA DD REC									
3/14/17	10:00	Reset TROLLS and setup SA BKGD-DD-REC APT									
3/14/17	12:39	Sync TROLLS to laptop clock									
3/14/17	12:44:00	Start logging BKGD									
3/14/17	12:50	Turn on submersible pump									Discharge check
3/14/17	12:52									34	
3/14/17	12:53									20	
3/14/17	13:03									20	
3/14/17	13:05									20	

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

General Information:

Site Name: ROMP 27 – Scarborough | Date: 3/14/2017

Reporting Code: LWNE | Performed by: JL, JC, JZ, TF

County: DeSoto | S/T/R:

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	Surf PW-A	Surf PW-B	Surf OB-A	Surf OB-B	LAA PW	BARO	MANO	2" Flow	(g x 1000)	
Units		ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	psi	inches	gpm		
3/14/2017	13:15	74%	75%	95%	95%	96%	75%		TROLL battery checks		
3/14/2017	13:40								20.5		
3/14/2017	13:42	24.05	24.05	9.93	9.94	47.36	14.70				XD Read
3/14/2017	13:44:55	Pump off (discharge rate check)									

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

SURF APT (BKGD/DD/REC)

General Information:

Site Name: ROMP 27 – Scarborough
Date: 3/21/2017
Reporting Code: LWNE
Performed by: JL, JC, JZ
County: DeSoto
S/T/R:
Pumped Well: Surf Aq Monitor
Pumped Zone OB(s): Surf Aq Ob Temp, sanded interval 4 - 50 feet bls
Pump Type: 3-inch 1.5 horsepower submersible
Test Rate/Duration:
Non-Pumped Zone OB(s): L Arca Aq Monitor
Pump Set Depth: pump intake @ 41 feet btoc

Setup Information:

Datalogger: In-Situ Level Trolls/CS Michelangelo
Time Synchronized:
Datalogger SN: Virtual Hermit/5076
Time Datum:
Program Name: R27_APT_SA_BKGD_DD_REC
Program Start Date: 3/14/2017 12:44:00
Program End Date:

Test Information:

Pump On Time: 12:06
Flow Meter Totalizer Start: 21,793 gal
Pump Off Time:
Flow Meter Totalizer End: 113,240 gal

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		Surf PW-A	Surf PW-B	Surf OB-A	Surf OB-B	LAA PW	BARO	MANO	2" Flow	
Riser ht.	***als ft***									
TOC elev	***elev ft***									<- Elev Ref. ___________
static W/L	***btoc ft***	7.96	7.96	7.44	7.44	47.37				<- Date ______________
static W/L	***elev ft***									TOC elev - static WL(btoc)
XD Rating	***psi***	30	30	15	15	15		15		
Serial No.		740	569	396	546	414		512		
Reading in Air	***ft***									
XD depth	***btoc ft***	40	40	25	25	60				
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***									WL tape value of submergence
XD subm.	***XD read ft***						203/485			XD value of submergence
XD Diff.	***ft***									$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
		Surf PW-A	Surf PW-B	Surf OB-A	Surf OB-B	LAA PW	BARO	MANO	2" Flow	~~(g x 1000)~~	
Units	----------->	ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	psi	inches	gpm		
3/20/17	12:11								21		
3/20/17	12:12								21		
3/20/17	12:14								20.5		
3/20/17	12:16								20.75		
3/20/17	12:17								21		
3/20/17	12:19								20		
3/20/17	12:20								20.75		
3/20/17	12:21								20.50		
3/20/17	12:25								20.75		
3/20/17	12:27								21		

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

General Information:

Site Name: ROMP 27 – Scarborough
Date: 3/14/2017
Reporting Code: LWNE
Performed by: JL, JC, JZ, TF
County: DeSoto
S/T/R:

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	Surf PW-A	Surf PW-B	Surf OB-A	Surf OB-B	LAA PW	BARO	MANO	2" Flow	(g x 1000)	
3/20/17	12:29								20.5		
3/20/17	12:31								20.75		
3/20/17	12:34								20.5		
3/20/17	12:36								20.5		
3/20/17	12:40								20.5		
3/20/17	12:42								21		
3/20/17	12:43								20		
3/20/17	12:45								20.5		
3/20/17	12:46								21		
3/20/17	12:49								21		
3/20/17	12:51								20.5		
3/20/17	12:52								20		
3/20/17	12:54								20.5		
3/20/17	12:55								20.5		
3/20/17	12:57								20		
3/20/17	12:59								20.5		
3/20/17	13:03								20.5		
3/20/17	13:05								20.5		
3/20/17	13:07								20.5		
3/20/17	13:08								20.5		
3/20/17	13:11								21		
3/20/17	13:24	24.405	24.397	10.280	10.291	46.619	14.791		20		
3/20/17	14:30	24.720	24.705	10.506	10.510	46.626	14.786			24.65	V-weir 19.25
3/20/17	14:33								20.5		
3/20/17	15:54								20.5		
3/20/17	15:57	25.102	25.071	10.752	10.76	46.611	14.763				
3/20/17	16:37	Collect tape down water levels in Surf Aq Monitor (25.28) and Ob Temp (10.82); Win-situ log table glitchy									
3/20/17	16:45	25.161	25.154	10.810	10.813	46.609	14.761				
3/20/17	17:22	25.218	25.202	10.850	10.857	46.608	14.757		20.75		
3/20/17	17:32	Log table tab seems to show invalid data in pumped well and observation well files (i.e., now is showing									
3/20/17		only ~1 foot of drawdown in pumped well 3 hours into pumping but download file and all bad data									
3/20/17		disappears)									
3/20/17	19:05	25.359	25.350	10.919	10.932	46.611	14.761				
3/20/17	20:05	25.414	25.419	10.957	10.967	46.612	14.764			31,600	
3/20/17	20:08								21		
3/20/17	20:57	25.477	25.456	10.984	10.99	46.612	14.772				
3/20/17	20:58								19		

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

General Information:

Site Name: ROMP 27 – Scarborough | Date: 3/14/2017
Reporting Code: LWNE | Performed by: JL, JC, JZ, TF
County: DeSoto | S/T/R:

Datalogger: Date	Time	CH 1 Surf PW-A	CH 2 Surf PW-B	CH 3 Surf OB-A	CH 4 Surf OB-B	CH 5 LAA PW	CH 6 BARO	CH 7 MANO	CH 8 2" Flow	Totalizer (g x 1000)	Notes
3/20/17	22:10								21		
3/20/17	22:12	25.506	25.519	11.008	11.007	96.611	14.781				
3/21/17	2:15	25.658	25.675	11.084	11.096	46.559	14.782				
3/21/17	6:33	25.832	25.843	11.162	11.164	46.523	14.78				
3/21/17	6:36								20.5		
3/21/17	7:25	25.846	25.875	11.169	11.182	46.522	14.784		20.75		
3/21/17	9:20	25.898	25.921	11.208	11.211	46.538	14.794		20.5		
3/21/17		Tim Lohner buys 3-inch PVC parts and we cut, assemble and install bypass of weir tank (no more									
		water leaking on site)									
3/21/17	~12:00-12:15	Tim Lohner and Jim Clayton installed 3-inch PVC bpyass of weir tank to prevent leakage on site									
3/21/17	12:20	25.989	26.002	11.244	11.261	46.535	14.792		21		
3/21/17	13:08	checked log table tab and all readings look good, no invalid numbers!									
3/21/17	14:01	26.008	26.031	11.261	11.262	46.513	14.778		20.75		
3/21/17	16:07	26.053	26.044	11.284	11.285	46.490	14.750		20.5		
3/21/17	18:00	26.091	26.092	11.290	11.296	46.477	14.737		20.75		
3/21/17	19:53	26.141	26.124	11.310	11.318	46.477	14.742				
3/21/17	19:56								20.5		
3/21/17	20:55	26.147	26.136	11.322	11.326	46.489	14.751				
3/21/17	21:53	26.143	26.172	11.330	11.337	46.494	14.76		20		
3/22/17	2:05	26.234	26.219	11.363	11.370	46.459	14.759		21		
3/22/17	6:15	26.316	26.343	11.394	11.397	46.438	14.753				
3/22/17	8:00	26.311	26.310	11.395	11.404	46.443	14.751		21		
3/22/17	9:56	26.370	26.388	11.413	11.418	46.461	14.762		21	78820	
3/22/17	11:55	26.413	26.429	11.430	11.442	46.466	14.762		20.75		
3/22/17	15:30	26.485	26.469	11.416	11.418	46.401	14.725		21		
3/22/17	17:00	26.504	26.493	11.445	11.454	46.416	14.715		21		
3/22/17	18:00	26.511	26.504	11.427	11.435	46.413	14.714				
3/22/17	20:07	26.565	26.566	11.465	11.462	46.447	14.728		20.5	91551	
3/22/17	22:01	26.587	26.583	11.466	11.477	46.475	14.744		21	93914	
3/23/17	1:04	26.608	26.618	11.475	11.485	46.472	14.766		21	97768	
3/23/17	4:02	26.656	26.665	11.477	11.492	46.429	14.758		21.5	101441	
3/23/17	6:51	26.686	26.696	11.501	11.505	46.438	14.769		21.5	105037	
3/23/17	8:38	26.718	26.725	11.507	11.512	46.475	14.782		21	107271	
3/23/17	13:20	26.786	26.804	11.530	11.535	46.531	14.797		21	113,171	
3/23/17	~13:26	Start recovery (step 3)									
3/23/17	13:42	11.002	10.090	9.952	9.932	46.525	14.797		Final	113240	
3/23/17	14:29	9.761	9.769	9.013	9.020	46.541	14.795				

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

LAA APT (DD/REC)

General Information:

Site Name:	ROMP 27 – Scarborough	Date:	3/7/2017
Reporting Code:	LWNE	Performed by:	JL, JC, JZ
County:	DeSoto	S/T/R:	
Pumped Well:	L Arca Aq Monitor	Pumped Zone OB(s):	L Arca Aq Ob Temp (water supply)
Pump Type:	3-inch 1.5 horsepower submersible		Open hole 130 - 298 feet bls
Test Rate/Duration:	~15 gpm/48 hours	Non-Pumped Zone OB(s):	U Fldn Aq (Swnn) Monitor
Pump Set Depth:	pump intake @ 145 feet bls		Surf Aq Monitor

Setup Information:

Datalogger:	In-Situ Level Trolls/CS Michelangelo	Time Synchronized:	3/7/2017 12:25
Datalogger SN:	Virtual Hermit/5076	Time Datum:	SWF 20388 Laptop (Jim's)
Program Name:	R27_APT_LAA_DD-REC		
Program Start Date:	3/7/2017		
Program End Date:			

Test Information:

Pump On Time:	3/7/2017 14:27:17	Flow Meter Totalizer Start:	1,138,300
Pump Off Time:	3/9/2017 13:40:43	Flow Meter Totalizer End:	

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		LAA PW-A	LAA PW-B	LAA OB-A	LAA OB-B	SURF PW	SWNN PW	BARO	2" FLOW	
Riser ht.	***als ft***									
TOC elev	***elev ft***									<- Elev Ref. ____________
static W/L	***btoc ft***	45.16	45.16	43.02	43.02	8.44	51.27	--	--	<- Date ______________
static W/L	***elev ft***									TOC elev - static WL(btoc)
XD Rating	***psi***	100	100	15	15	30	15	15		
Serial No.		485	203	396	546	740	414	512		
Reading in Air	***ft***									
XD depth	***btoc ft***	110	110	70	70	30	60	--	--	
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***	64.84	64.84	26.98	26.98	21.56	8.73	--	--	WL tape value of submergence
XD subm.	***XD read ft***	64.83	64.85	26.98	27.00	21.62	8.74	--	--	XD value of submergence
XD Diff.	***ft***									$\text{Subm.}_{\text{WL tape}}$ - Subm._{XD}

Date	Time	CH 1 LAA PW-A	CH 2 LAA PW-B	CH 3 LAA OB-A	CH 4 LAA OB-B	CH 5 SURF PW	CH 6 SWNN PW	CH 7 BARO	CH 8 2" FLOW	Totalizer (g x 1000)	Notes
Units	----------->	ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	feet	gpm		
3/7/17	9:45	sunny/windy									
3/7/17	12:00	Program TROLLS, set leve references									
3/7/17	12:17	45.17	45.15	43.02	43	8.38	51.26	14.84			XD Read (check)
3/7/17	12:25	sync V HERMIT time w/SWF 20388 Laptop (Jim's)									
3/7/17	12:35	Program Campbell Michelangelo for FLOW 2"-DD-REC						battery = 12.54 V			
3/7/17		Flowmeter dial/totalizer not working during test run									
3/7/17		yesterday afternoon – using V-notch weir & 5 gal bucket (see separate log sheet)									
3/7/17	12:58	start BKGD (Michelangelo)							-12.29		FLOW Read
3/7/17	14:20	Start DD-REC logging Campbell (Flow)									
3/7/17	14:24	45.15	45.14	42.99	42.97	8.37	51.24	14.83			XD read

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

General Information:

Site Name: ROMP 27 – Scarborough   Date: 3/7/2017
Reporting Code: LWNE   Performed by: JL, JC, JZ
County: DeSoto   S/T/R:

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	LAA PW-A	LAA PW-B	LAA OB-A	LAA OB-B	SURF PW	SWNN PW	BARO	2" FLOW	(g x 1000)	
3/7/2017	14:27	Start DD-REC logging VHERMIT								1138300	Q = gpm
3/7/2017	14:27:17	Pump on									
3/7/2017	14:40	55.42	55.41	46.27	46.24	8.38	51.23	14.83			XD Read
3/7/2017	14:40	10.27	10.27	3.28	3.27	0.01	-0.01				DD calc
3/7/2017	14:40	5 gal bucket discharge measurements ~ 15 gpm (see other sheet)									
3/7/2017	14:59	Flowmeter dial/totalizer not registering flow							0.0	1138300	flow manual
3/7/2017	15:00	56.82	56.85	47.57	47.55	8.37	51.23	14.83			XD Read
3/7/2017	15:05	Stop flowmeter logger (Michelangelo)							-12.34		Flow Campbell
3/7/2017	17:01	59.651	59.632	50.527	50.514	8.368	51.237	14.819	--	Flow weir:	12.6-13
3/7/2017	19:48	60.885	60.847	51.856	51.838	8.373	51.282	14.827			12.6-13
3/7/2017	20:22/21:23										12.6
3/7/2017	21:24	61.277	61.271	52.278	52.262	8.374	51.324	14.843			12.6
3/7/2017	21:59/22:40										12.6
3/7/2017	23:12	61.518	61.461	52.535	52.513	8.374	51.347	14.854			12.6
3/8/2017	1:31	61.792	61.741	52.730	52.709	8.370	51.350	14.848			12.6
3/8/2017	3:40	61.902	61.786	52.851	52.827	8.370	51.340	14.832			12.6
3/8/2017	5:50	61.852	61.862	52.873	52.849	8.371	51.343	14.833			12.6
3/8/2017	7:33	62.115	61.955	53.093	53.085	8.382	51.411	14.854			12.6
3/8/2017	8:43	surficial OB WL = 7.91 feet btoc									12.6
3/8/2017	~8:45	CT arrives @ site, fules up generator									
3/8/2017	9:40	62.245	62.194	53.209	53.190	8.392	51.457	14.856			12.6
3/8/2017	11:34	62.31	62.243	53.253	53.247	8.370	51.450	14.842			12.6
3/8/2017	~11:30	CT calls, then goes to Avanti in Avon Park for new, more sensitive to low flow 2" flow meter									
3/8/2017	13:39	62.327	62.269	53.318	53.305	8.389	51.429	14.809	2" new meter:	0	14
3/8/2017	14:21										14
3/8/2017	17:11	62.491	62.423	53.423	53.407	8.383	51.508	14.800			14
3/8/2017	21:14	62.639	62.64	53.611	53.601	8.392	51.831	14.834			--
3/8/2017	23:21	62.572	62.544	53.659	53.648	8.389	51.962	14.835			14
3/9/2017	1:31	62.673	62.625	53.655	53.643	8.384	52.05	14.817			--
3/9/2017	3:40	62.747	62.665	53.660	53.647	8.386	52.115	14.804			14
3/9/2017	5:42	62.651	62.608	53.661	53.648	8.385	52.129	14.803			--
3/9/2017	6:56										14
3/9/2017	7:02	62.705	62.679	53.748	53.741	8.392	52.269	14.821			--
3/9/2017	7:48	62.815	62.610	53.773	53.762	8.400	52.303	14.824			14.2
3/9/2017	9:53	62.886	62.830	53.841	53.817	8.403	52.382	14.828			14
3/9/2017	Battery %	86	96	95	95	74	96	75	Troll Battery %		
3/9/2017	Download DD-REC data set from TROLLS										

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

General Information:

Site Name:	ROMP 27 – Scarborough	Date:	3/7/2017
Reporting Code:	LWNE	Performed by:	JL, JC, JZ
County:	DeSoto	S/T/R:	

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	LAA PW-A	LAA PW-B	LAA OB-A	LAA OB-B	SURF PW	SWNN PW	BARO	2" FLOW	(g x 1000)	
3/9/2017	13:40	Start recovery (step)									
3/9/2017	13:40:43	Pump off							0	20500	
3/9/2017	13:49	53.02	53.00	51.02	51.00	8.41	52.38	14.78			XD Read
3/9/2017	14:04	Download DD-REC (after step) data – backup files to jump drive (Jay's)									
3/9/2017	14:30	Secure site and leave									

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Track V notch weir, it is main Q measurement for analysis

General Information: LAA APT DISCHARGE READINGS

Site Name: ROMP 27 – Scarborough
Date: 3/7/2017
Reporting Code: LWNE
Performed by: JL, JC, JZ
County: DeSoto
S/T/R:

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time									(g x 1000)	
3/7/2017	pretest										
						*Note to Jim for analyses: Gpm readings taken from Jim's cell					
3/7/2017		pump on				phone which is almost exactly 1 min behind laptop 20388					
		sec/5 gal	gpm			(Jim's) which is synced w/ TROLLS --> adjust timestamps					
3/7/2017	14:35	20				ahead 1 min for analyses					
3/7/2017	14:37	22									
		to fill 5 gal bucket									
	Time	Sec	gpm	Time	sec to fill 5 gal bucket	gpm	V Notch gpm				
3/7/2017	14:26	17.74	16.9	3:30			12.6	V' weir reading ~2 gpm lower than bucket			
3/7/2017	14:27	20.60	14.5	3:47	20.65	14.5	12.6-13	readings. Wind may play a part in this.			
3/7/2017	14:28	20.69	14.4	3:48	20.69	14.5	12.6-13				
3/7/2017	14:28	20.29	14.8	4:31	20.72	14.500	12.6-13				
3/7/2017	14:29	20.51	14.6	5:02			13				
3/7/2017	14:29	20.46	14.6	5:20			12.6				
3/7/2017	14:30	20.14	14.8								
3/7/2017	14:30	20.63	14.5								
3/7/2017	14:31	20.06	14.9								
3/7/2017	14:31	20.17	14.88								
3/7/2017	14:32	20.30	14.8								
3/7/2017	14:33	20.40	14.7								
3/7/2017	14:33	20.60	14.6								
3/7/2017	14:34	20.15	14.9								
3/7/2017	14:34	20.02	15.0								
3/7/2017	14:35	20.53	14.6								
3/7/2017	14:36	20.04	15.0								
3/7/2017	14:41	20.79	14.4								
3/7/2017	14:45	20.48	14.6								
3/7/2017	14:50	20.47	14.6								
3/7/2017	14:56	20.70	14.5								
3/7/2017	15:00	20.78	14.4								
3/7/2017	15:05	20.75	14.5								
3/7/2017	15:10	20.64	15.5								
3/7/2017	15:15	20.20	14.85								
3/7/2017	15:20	--	--								

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

UFA SWNN APT (BKGD)

General Information:

Site Name: ROMP 27 – Scarborough
Date:
Reporting Code: LWNE
Performed by: JL & JC
County: DeSoto
S/T/R:

Pumped Well: U Fldn Aq (Swnn) Monitor
Pumped Zone OB(s): U Fldn Aq (Swnn) Ob Temp
Pump Type: 6-inch 30 horsepower submersible
Test Rate/Duration: ~350 gpm/48 hours
Non-Pumped Zone OB(s): U Fldn Aq (Avpk) Monitor & L Arca Aq Monitor
Pump Set Depth: 149 feet below top of casing (intake)

Setup Information:

orifice: 6-inch pipe x 4-inch orifice plate
Flowmeter: 4-inch McCrometer SN 15-13812-04

Datalogger: In-Situ Level Trolls & Michelangelo (flow)
Time Synchronized:
Datalogger SN: Multi/5076
Time Datum:
Program Name: R27_UFA_SWNN_BKGD/R27_UFA_SWNN_DD-REC
Program Start Date: 2/27/2017
Program End Date: 2/28/2017

Test Information:

Pump On Time:
Flow Meter Totalizer Start:
Pump Off Time:
Flow Meter Totalizer End:

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		SWNN Pump-A	SWNN Pump-B	SWNN OB-A	SWNN OB-B	LAA Pump	AVPK Pump	Baro Troll	Flow Campbell	
Riser ht.	***als ft***	3.27	3.27	1.45	1.45	3.36	0.65			
TOC elev	***elev ft***									<- Elev Ref.
static W/L	***btoc ft***	48.66	48.66	46.49	46.49	43.52	46.32	--	--	<- Date 2/27/17 15:40
static W/L	***elev ft***									TOC elev - static WL(btoc)
XD Rating	***psi***	30	30	15	15	30	15	15		
Serial No.		569	737	396	546	740	414	512		
Reading in Air	***ft***									
XD depth	***btoc ft***	80	80	70	70	80	60	--	--	
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***									WL tape value of submergence
XD subm.	***XD read ft***	31.2	25.78	23.45	23.47	13.63	14.78			XD value of submergence
XD Diff.	***ft***									$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1 SWNN Pump-A	CH 2 SWNN Pump-B	CH 3 SWNN OB-A	CH 4 SWNN OB-B	CH 5 LAA Pump	CH 6 AVPK Pump	CH 7 Baro Troll	CH 8 Campbell	Totalizer (g x 1000)	Notes
Units	----------->	ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	psi	gpm		
2/27/17	15:50	48.67	43.15	46.47	46.47	43.51	46.31	14.77	--		XD read
2/27/17	15:55	Start BKGD									
2/28/17	10:57	Stop BKGD									
2/28/17	10:58	49.22	43.72	47.06	47.06	43.62	47.06	14.84	--		XD read
2/28/17	11:00	Sync times between trolls & laptop 20388 (Jim's)									
2/28/17	11:45	Back all files to jump drive (Jason)									

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

UFA-SWNN APT (DD/REC)

General Information:

Site Name: ROMP 27 – Scarborough
Date:
Reporting Code: LWNE
Performed by: JL & JC & JZ
County: DeSoto
S/T/R:

Pumped Well: U Fldn Aq (Swnn) Monitor
Pumped Zone OB(s): U Fldn Aq (Swnn) Ob Temp
Pump Type: 6-inch 30 horsepower submersible
Test Rate/Duration: ~200 gpm/48 hours
Non-Pumped Zone OB(s): U Fldn Aq (Avpk) Monitor & L Arca Aq Monitor
Pump Set Depth: 149 feet below top of casing (intake)

Setup Information:

orifice: 6-inch pipe x 4-inch orifice plate
Flowmeter: 4-inch McCrometer SN 15-13812-04

Datalogger: In-Situ Level Trolls & Michelangelo (flow)
Time Synchronized: 2/28/2017 14:28
Datalogger SN: VHermit/5076
Time Datum: SWF 20388 Laptop (Jim's)
Program Name: R27_UFA_SWNN_BKGD/R27_UFA_SWNN_DD-REC
Program Start Date: 2/28/2017
Program End Date:

Test Information:

Pump On Time: 2/28/2017 15:12:45
Flow Meter Totalizer Start: 76,100 gal 2/28/17
Pump Off Time:
Flow Meter Totalizer End: 619,200 gal 3/2/2017

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		SWNN Pump-A	SWNN Pump-B	SWNN OB-A	SWNN OB-B	LAA Pump	AVPK Pump	MANO	4" FLOW	
Riser ht.	***als ft***									
TOC elev	***elev ft***									<- Elev Ref. ____________
static W/L	***btoc ft***	49.21	49.21	47.05	47.05	43.6	47	--	--	<- Date 2/28/2017
static W/L	***elev ft***									TOC elev - static WL(btoc)
XD Rating	***psi***	100	100	15	15	30	15	15		
Serial No.		485	203	396	546	740	414	512		
Reading in Air	***ft***									
XD depth	***btoc ft***	110	110	70	70	80	60	--	--	
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***									WL tape value of submergence
XD subm.	***XD read ft***	60.46	60.44	22.88	22.93	36.29	12.93	14.78	--	XD value of submergence
XD Diff.	***ft***									$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1 SWNN Pump-A	CH 2 SWNN Pump-B	CH 3 SWNN OB-A	CH 4 SWNN OB-B	CH 5 LAA Pump	CH 6 AVPK Pump	CH 7 MANO	CH 8 4" FLOW	Totalizer (g x 1000)	Notes
Units	----------->	ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	ft btoc	psi	gpm		
2/28/17	12:00	Swap out 30 psi XDs (2) in SWNN Pump well to 100 psi (485/203)									
2/28/17	14:28	Sync TROLL clocks w/SWF 20388 Laptop (Jim's)									
2/28/17	14:30	Set up program Michelangelo for flowmeter – sync Campbell clock									
2/28/17		Campbell battery reads 12.62 volts									
2/28/17	14:35	Program and start TROLL MANOMETER battery 88%									
2/28/17	14:44		Pressure - 0.01 Temp 88.26° Depth -0.03 ft								TROLL MANO read
2/28/17	15:12:45	Pump on									
2/28/17	15:14:00								214	76,600	Flow manual read
2/28/17	15:17:00	75.08	75.14	49.94	49.94	43.54	46.97				TROLL Read
2/28/17	15:44:00								211	82,800	Flow manual read

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

UFA-SWNN APT (DD/REC)

General Information:

Site Name: ROMP 27 – Scarborough | Date:

Reporting Code: LWNE | Performed by: JL, JC, JZ, TF

County: DeSoto | S/T/R:

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	SWNN Pump-A	SWNN Pump-B	SWNN OB-A	SWNN OB-B	LAA Pump	AVPK Pump	MANO	4" FLOW	(g x 1000)	
2/28/2017	17:15							9.0"			Manual Read
2/28/2017	17:40								209	1073	Manual Read
2/28/2017	17:43	81.803	81.691	56.031	56.036	43.4	47.042				TROLL Read
2/28/2017	18:02								167.04		Michelangelo
2/28/2017	18:45							9.0"			
2/28/2017	19:04	82.192	82.12	56.595	56.595	43.432	47.109				TROLL Read
2/28/2017	19:11								209	1261	Manual Read
2/28/2017	19:23								168.38		Michelangelo
2/28/2017	21:28	82.853	82.911	57.136	57.133	43.525	47.275		165.68		Michelangelo
2/28/2017	21:56							9.0"	209	1606	manual
2/28/2017	23:32	83.098	82.097	57.449	57.446	43.605	47.415		167.03/209	1812	mike/manual
3/1/2017	1:32	83.673	83.419	57.657	57.664	43.645	47.503		166.45/208	2064	mike/manual
3/1/2017	3:32	83.526	83.515	57.807	57.803	43.655	47.517		166.95/209	2316	mike/manual
3/1/2017	3:39	generator for trailer shut down, ran out of fuel									
3/1/2017	5:31	83.675	83.699	57.928	57.924	43.658	47.513		163.8/209	2563	mike/manual
3/1/2017	7:45	83.732	83.724	58.046	58.041	43.673	47.51	9.0"	166.02/209	2843	mike/manual
3/1/2017	9:35	83.786	83.793	58.136	58.133	43.725	47.564	9.0"	166.6/209	3061	mike/manual
3/1/2017	11:43	83.918	83.943	58.223	58.222	43.791	47.68	9.0"	166/208	3355	mike/manual
3/1/2017	13:45	VH frozen – can't open from toolbar						9.0"	209	3549	manual
		need to reboot computer – ok now									
3/1/2017	14:11	84.106	84.109	58.313	58.307	43.806	47.84		208	3649	
3/1/2017	14:28								166.27/208	3683	mike/manual
3/1/2017	16:35	83.903	83.893	57.367	57.358	43.793	47.955	9.125"	166.02/208	3953	mike/manual
3/1/2017	19:14	84.397	84.099	56.325	56.321	43.829	48.184	9.00"	166.36/208	4279	mike/manual
3/1/2017	21:22	84.4	84.319	56.483	56.476	43.882	48.515	9.125"	166.36/209	4544	mike/manual
3/1/2017	23:30	84.655	84.616	56.577	56.581	43.932	48.814		166.53/208	4814	mike/manual
3/2/2017	1:31	84.917	84.718	56.661	56.657	43.972	48.965		166.36/208	5063	
3/2/2017	3:34	85.001	85.047	56.809	56.807	43.987	49.003		166.69/208	5318	mike/manual
		started lightly raining									
3/2/2017	3:54	shut off generator, stopped raining									
3/2/2017	6:49	85.124	84.967	56.866	56.859	43.986	49.039		165.72/209	5724	mike/manual
3/2/2017	8:33	85.293	85.092	56.984	56.982	44.012	49.023	9.125"	166.67/209	5940	mike/manual
3/2/2017	9:42	4" hose from 30 HP submersible pump has sprung a leak						9.0"			
3/2/2017	10:29	downloading data from Trolls and Michelangelo prior to stopping test									
3/2/2017	10:35	step DD to REC test									
3/2/2017	10:45	Download TROLLS in REC; stop REC and download Campbell (FLOW) 10:50									
3/2/2017	10:52	Michelangelo – download final									

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

UFA-SWNN APT (DD/REC)

General Information:

Site Name: ROMP 27 – Scarborough
Date: 3/2/2017
Reporting Code: LWNE
Performed by: JL, JC, JZ, TF
County: DeSoto
S/T/R:

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	SWNN Pump-A	SWNN Pump-B	SWNN OB-A	SWNN OB-B	LAA Pump	AVPK Pump	MANO	4" FLOW	(g x 1000)	
3/2/2017	10:55	Time audit Michelangelo									
3/2/2017	10:57:00	SWF 20388 Laptop (Jim)									
3/2/2017	10:57:01	Campbell CR1000 Michelangelo									
		Time audit TROLLs									
3/2/2017	11:22:00	SWF 20388 Laptop (Jim's)									
3/2/2017	11:22:00	TROLLS (VHERMIT)									
3/2/2017	11:28	54.76	54.69	51.76	51.76	44.3	49.06		0		mike/manual
3/2/2017	12:12	stop MANO log and download dataset						-0.02			MANO
3/7/2017	9:40	Onsite, re-connect TROLLS and download									
3/7/2017	10:40	51.28	51.15	49.05	49.05	45.16	49.16				XD Read
3/7/2017	10:54	Stop REC @ 10:54, download final dataset to D drive and jump drive									

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

R27_APT_UFA_AVPK-2 (redo test)

General Information:

Site Name:	ROMP 27 – Scarborough	Date:	3/27/2017
Reporting Code:	LWNE	Performed by:	J. Clayton, J. LaRoche
County:	DeSoto	S/T/R:	
Pumped Well:	U Fldn Aq (AVPK) Monitor	Pumped Zone OB(s):	U Fldn Aq (AVPK) Ob Temp
Pump Type:	6-inch lineshaft turbine (Perkins)		
Test Rate/Duration:	~1,000 gpm/24 hours	Non-Pumped Zone OB(s):	U Fldn Aq (Swnn) Monitor
Pump Set Depth:	113 feet below top of casing	Orifice:	8-inch pipe x 6-inch orifice plate

Setup Information:

		Flowmeter:	6-inch water specialties SN-901610-06
Datalogger:	LEVEL TROLLS/Michelangelo (flow)	Time Synchronized:	(TROLLS) 3/27/2017 16:32:00
Datalogger SN:	Multi/5076	Time Datum:	Jim's laptop SWF 20504
Program Name:	R27_UFA_AVPK2_HERMIT_BKGD-DD-REC	Time sync (Michelangelo)	3/27/2017 14:50:00
Program Start Date:	3/27/2017 16:53:00	Datum –	Jim's laptop SWF 20504
Program End Date:			

Test Information:

17:57:05 – (False Start)

Pump On Time:	3/27/2017 18:39:15	Flow Meter Totalizer Start:	5,546,000 3/27/2017
Pump Off Time:		Flow Meter Totalizer End:	

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		AVPK PW-A	AVPK PW-B	AVPK OB-A	AVPK OB-B	SWNN PW	BARO	MANO	FLOW	
Riser ht.	***als ft***	0.65	0.65	1.16	1.16	3.27				
TOC elev	***elev ft***									<- Elev Ref. ____________
static W/L	***btoc ft***	49.96	49.96	49.72	49.72	52.02				<- Date 3/27/2017 16:15
static W/L	***elev ft***									TOC elev - static WL(btoc)
XD Rating	***psi***	30	30	15	15	15				
Serial No.		569	740	390	546	414				<-- from SA APT
Reading in Air	***ft***	74%	73%	94%	94%	94%	74%		12.59 V	<-- battery voltages
XD depth	***btoc ft***	80	80	70	70	80				
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***									WL tape value of submergence
XD subm.	***XD read ft***	16.93	29.91	20.08	20.13	27.77				XD value of submergence
XD Diff.	***ft***									$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1 AVPK PW-A	CH 2 AVPK PW-B	CH 3 AVPK OB-A	CH 4 AVPK OB-B	CH 5 SWNN PW	CH 6 BARO	CH 7 MANO	CH 8 FLOW	Totalizer (g x 1000)	Notes
Units	----------->								GPM		
3/27/17	16:30	49.96	49.95	49.61	49.59	51.99	14.70		-0.02	5,546	XD read DTW
3/27/17	16:32	synced time between laptop and trolls									
3/27/17	17:55	49.93	49.98	49.70	49.68	52.00	14.69				
3/27/17	17:57:05	Pump ON (step TROLLS @ 17:56:42)									
3/27/17	17:58:45	Pump unexpectedly shut off, repair fuel line issue, STEP TROLLS									
3/27/17	18:39:15	Pump ON (stepped TROLLS @ 18:38:57 PM)									
3/27/17	18:41								1017		Manual Flow
3/27/17	18:43								999	5551	Manual Flow
3/27/17	18:45	55.19	55.31	50.67	50.65	51.99	14.69		979	5560	XD Read
3/27/17	19:26	56.298	56.545	52.029	52.011	52.068	14.695		974	5594	

GEOHYDROLOGIC DATA SECTION

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

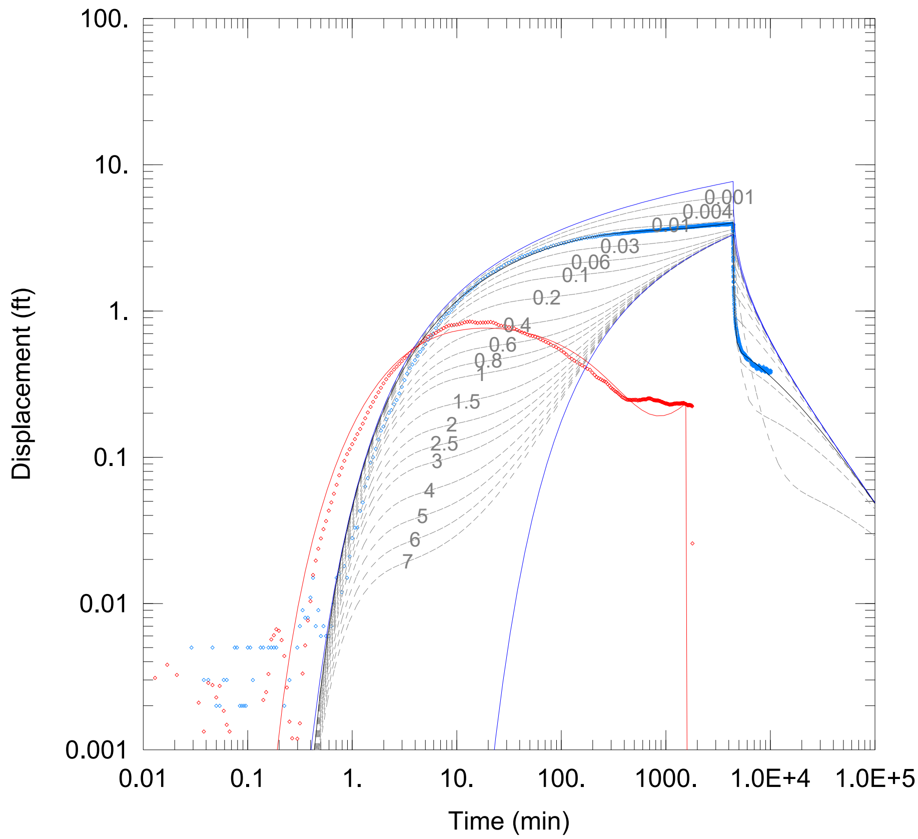
UFA_AVPK_APT2

General Information:

Site Name:	ROMP 27 – Scarborough	Date:	3/27/2017
Reporting Code:	LWNE	Performed by:	JL, JC, JZ, TF
County:	DeSoto	S/T/R:	

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	AVPK PW-A	AVPK PW-B	AVPK OB-A	AVPK OB-B	SWNN PW	BARO	MANO	FLOW	(g x 1000)	
3/27/2017	10:10	57.5	57.686	53.258	53.239	52.571	14.715		976	5756	
3/27/2017	11:49	57.843	58.100	53.566	53.541	52.812	14.723		975	5847	
3/28/2017	12:20	57.874	58.128	53.655	53.632	52.892	14.726		972	--	
3/28/2017	5:10	45.429	58.366	53.847	53.828	53.312	14.704		980	6167	
	Channel 1 Troll went bad ~3:10 AM, DTW dropped ~13 feet, from ~58 to 45 feet in pumped well										
3/28/2017	7:00	45.748	58.368	53.856	53.837	53.441	14.719		982	6275	
3/28/2017	8:55	45.439	58.368	53.875	53.855	53.588	14.737		974	6383	
3/28/2017	10:51	45.365	58.332	53.890	53.865	53.715	14.741		968	6504	968
3/28/2017	11:45	45.345	58.215	53.896	53.878	53.760	14.739		970	6547	
3/28/2017	Start Recovery @ ~12:02									6565	final total read
3/30/2017	~11:30	Arrived onsite, gather Trolls up, connect to Net Hub, all Trolls connect, read real time data and look at									
		log graph (looks ok)									
3/30/2017	12:48	38.124	51.036	50.873	50.887	53.168	14.698				
3/30/2017	12:50	STOP data collection, export data, stop pump test, disconnect									
3/30/2017	13:06	Retrieve Trolls from wells, pack up, leave for B'ville @ 2:30 w/ trailer									

Appendix K. Aquifer Performance Test Curve-Match Analyses for the ROMP 27 – Scarborough Well Site in DeSoto County, Florida



SURFICIAL AQUIFER PERFORMANCE TEST

Data Set: L:\...\R27_APT_SA-DD-JAZ.aqt
Date: 03/10/21 Time: 08:18:48

PROJECT INFORMATION

Company: SWFWMD
Client: JAZ
Project: ROMP 27
Location: DeSoto County
Test Well: SURF AQ MONITOR
Test Date: 3/20/2017

AQUIFER DATA

Saturated Thickness: 42. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
SURF AQ MON	0	0

Observation Wells

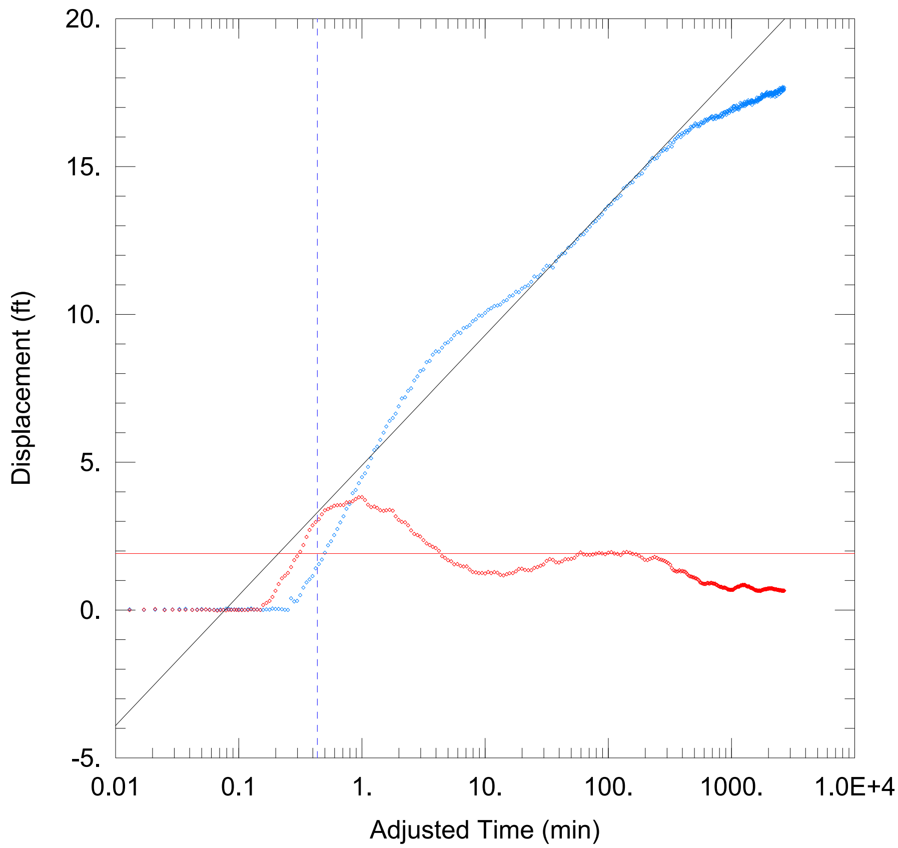
Well Name	X (ft)	Y (ft)
SURF AQ OB TEMP	50	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 289.2 ft^2/day
S = 0.000672
Sy = 0.03805
ß = 0.01324

Figure K1. AQTESOLV© curve-match solution using drawdown and recovery data collected from the surficial aquifer temporary observation well during the surficial aquifer performance test conducted at the ROMP 27 – Scarboroughl well site in Polk County, Florida.



LOWER ARCADIA AQUIFER PERFORMANCE TEST

Data Set: L:\...\R27_APT_LAA_DD-REC_JAZ_print.aqt
Date: 03/10/21 Time: 08:21:42

PROJECT INFORMATION

Company: SWFWMD
Client: JAZ
Project: ROMP 27
Location: DeSoto County
Test Well: L ARC AQ MONITOR
Test Date: 3/7/2017

AQUIFER DATA

Saturated Thickness: 36. ft Anisotropy Ratio (Kz/Kr): 0.0127

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
L ARC AQ MON	0	0

Observation Wells

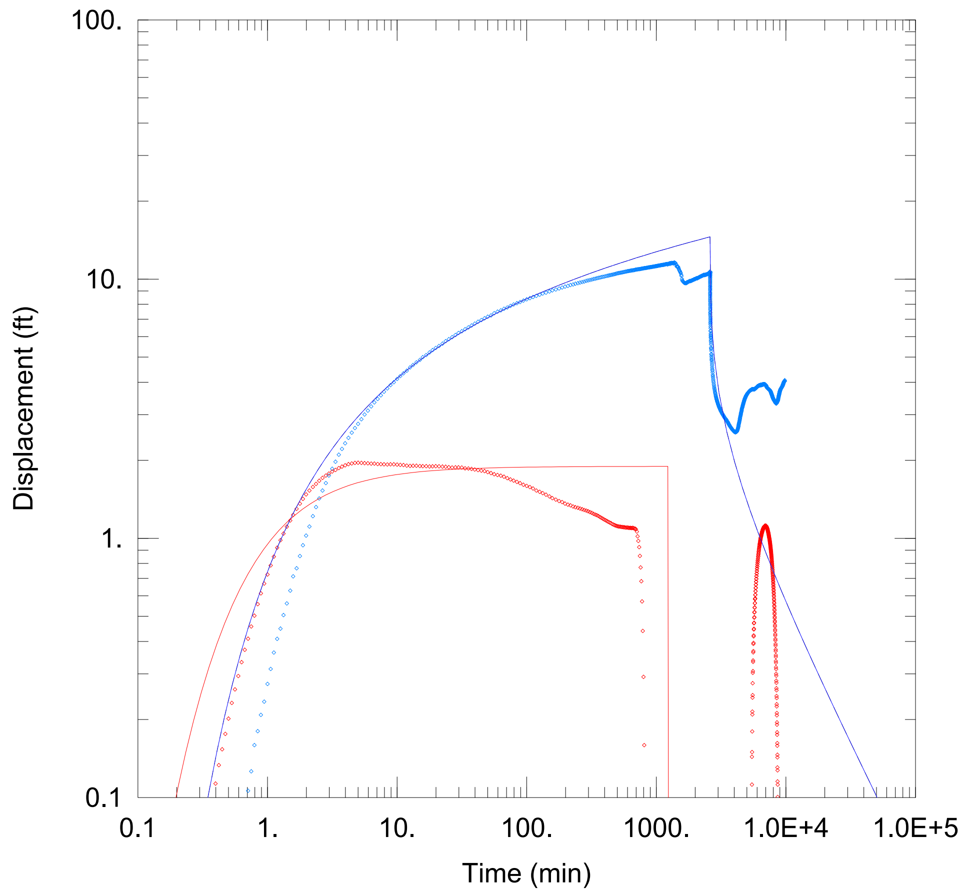
Well Name	X (ft)	Y (ft)
L ARC AQ OB TEMP	0	101

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 112.2 ft^2/day S = 1.327E-6

Figure K2. AQTESOLV© curve-match solution using drawdown data collected from the lower Arcadia aquifer temporary observation well during the lower Arcadia aquifer performance test conducted at the ROMP 27 – Scarboroughl well site in Polk County, Florida.



UPPER FLORIDAN AQUIFER (SWNN) PERFORMANCE TEST

Data Set: L:\...\R27_APT_SWNN_OB-a_DD-REC_HJ_Leaky_jjl_NEWJJL.aqt
Date: 07/20/21 Time: 09:14:21

PROJECT INFORMATION

Company: SWFWMD
Client: JAZ
Project: ROMP 27
Location: DeSoto County
Test Well: U FLDN AQ (SWNN) MONITOR
Test Date: 3/27/2017

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
U FLDN AQ (SWNN) MONITOR	0	0

Observation Wells

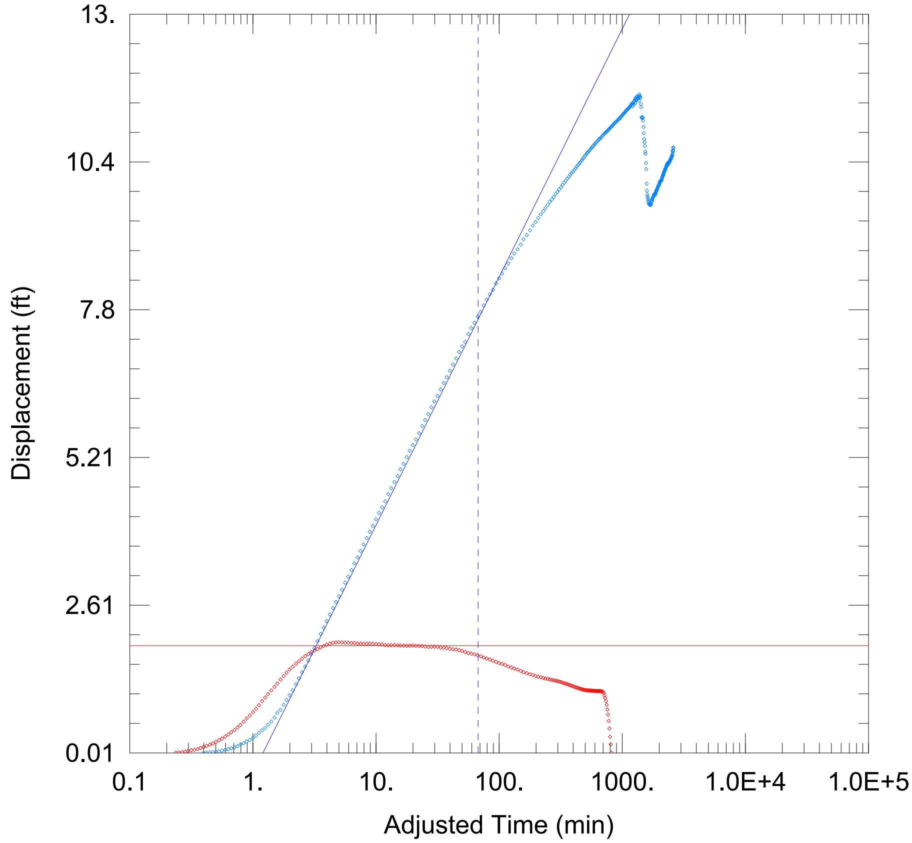
Well Name	X (ft)	Y (ft)
U FLDN AQ (SWNN) OB TEM	0	150

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 1350. ft^2/day
S = 0.0001126
Kz/Kr = 1.
b = 245. ft

Figure K3. AQTESOLV© curve-match solution using drawdown and recovery data collected from the Upper Floridan aquifer (Suwannee) temporary observation well during the Suwannee Limestone portion of the Upper Floridan aquifer performance test conducted at the ROMP 27 – Scarboroughl well site in Polk County, Florida.



UPPER FLORIDAN AQUIFER (SWNN) PERFORMANCE TEST

Data Set: L:\...\R27_APT_SWNN_OB-a_DD-REC_CJ_jjl_jaz_NEWJJL.aqt
Date: 07/20/21 Time: 09:20:11

PROJECT INFORMATION

Company: SWFWMD
Client: JAZ
Project: ROMP 27
Location: DeSoto County
Test Well: U FLDN AQ (SWNN) MONITOR
Test Date: 3/27/2017

AQUIFER DATA

Saturated Thickness: 245. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
U FLDN AQ (SWNN) MONITOR	0	0

Observation Wells

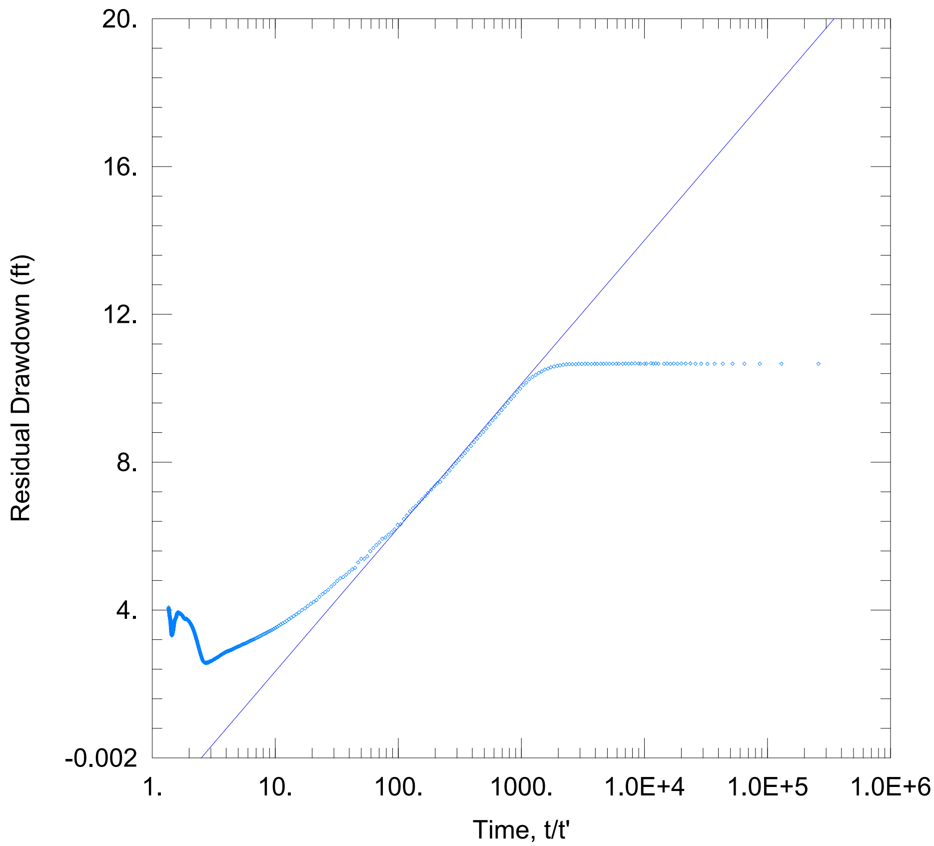
Well Name	X (ft)	Y (ft)
U FLDN AQ (SWNN) OB TEMP	0	150

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 1350. ft^2/day S = 0.0001126

Figure K4. AQTESOLV© curve-match solution using drawdown data collected from the Upper Floridan aquifer (Suwannee) temporary observation well during the Suwannee Limestone portion of the Upper Floridan aquifer performance test conducted at the ROMP 27 – Scarboroughl well site in Polk County, Florida.



UPPER FLORIDAN AQUIFER (SWNN) PERFORMANCE TEST

Data Set: L:\...\R27_APT_SWNN_OB-a_DD-REC_TheisRecovery_jaz_NEWJJL.aqt
Date: 07/20/21 Time: 09:12:09

PROJECT INFORMATION

Company: SWFWMD
Client: JAZ
Project: ROMP 27
Location: DeSoto County
Test Well: U FLDN AQ (SWNN) MONITOR
Test Date: 3/27/2017

AQUIFER DATA

Saturated Thickness: 245. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
U FLDN AQ (SWNN) MONITOR	0	0

Observation Wells

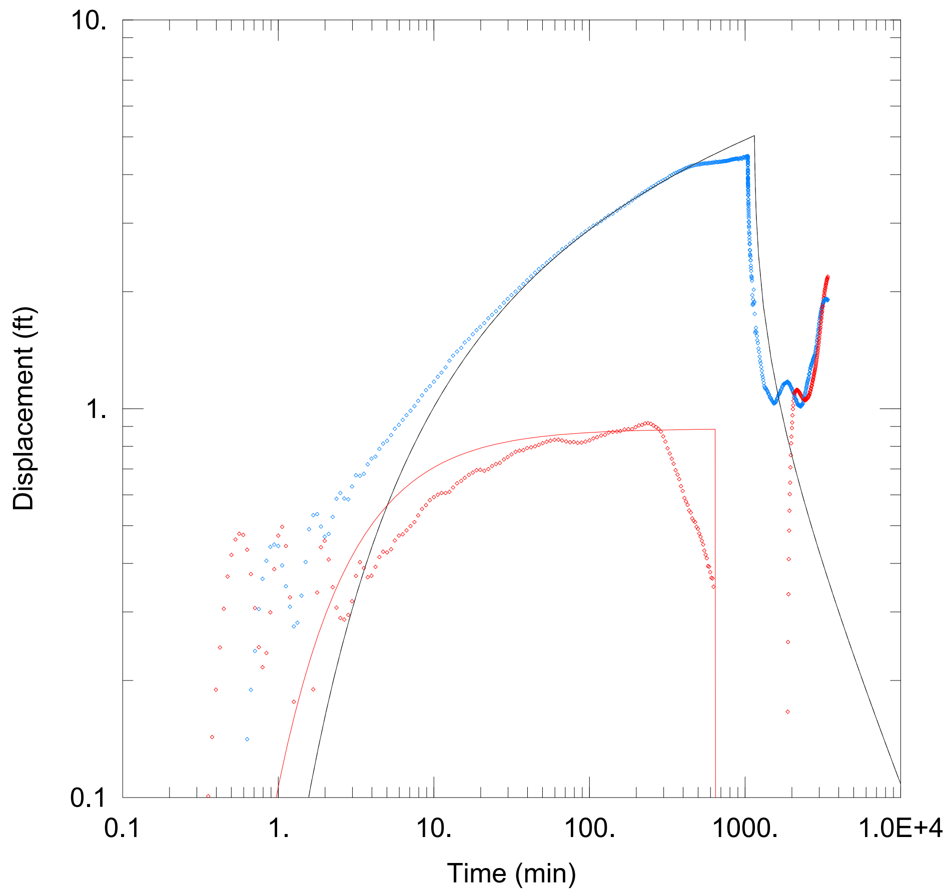
Well Name	X (ft)	Y (ft)
U FLDN AQ (SWNN) OB TEMP	0	150

SOLUTION

Aquifer Model: Confined
Solution Method: Theis (Recovery)

T = 1514.7 ft^2/day
S/S' = 2.512

Figure K5. AQTESOLV© curve-match solution using recovery data collected from the Upper Floridan aquifer (Suwannee) temporary observation well during the Suwannee Limestone portion of the Upper Floridan aquifer performance test conducted at the ROMP 27 – Scarboroughl well site in Polk County, Florida.



UPPER FLORIDAN AQUIFER (AVPK) PERFORMANCE TEST 2

Data Set: L:\...\R27_APT_2_AVPK_OB-a_DD-REC_HJ leaky_jaz_print_NEWJJL.aqt
Date: 07/20/21 Time: 11:19:09

PROJECT INFORMATION

Company: SWFWMD
Client: JAZ
Project: ROMP 27
Location: DeSoto County
Test Well: AVPK PW-b
Test Date: 3/27/2017

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
U FLDN AQ (AVPK) MONITOR	0	0

Observation Wells

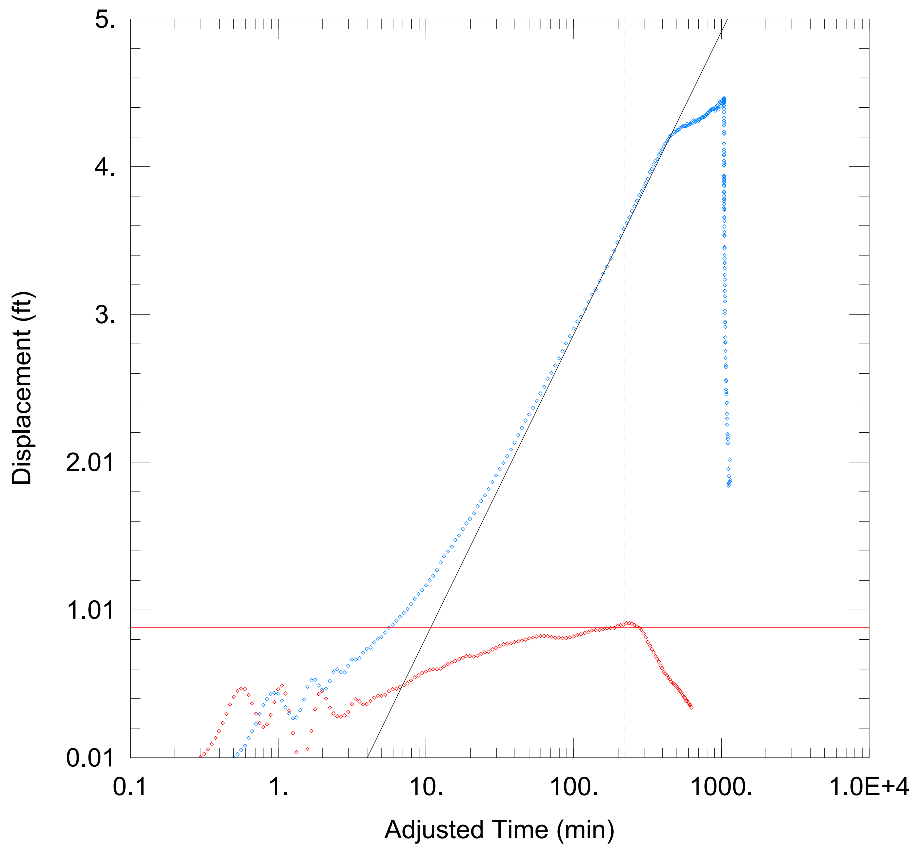
Well Name	X (ft)	Y (ft)
U FLDN AQ (AVPK) OB TEMP	0	254

SOLUTION

Aquifer Model: Confined
Solution Method: Theis

T = 1.7E+4 ft^2/day
Kz/Kr = 1.
S = 0.00163
b = 245. ft

Figure K6. AQTESOLV© curve-match solution using drawdown and recovery data collected from the Upper Floridan aquifer (Avon Park) temporary observation well during the Avon Park Formation portion of the Upper Floridan aquifer performance test conducted at the ROMP 27 – Scarboroughl well site in Polk County, Florida.



UPPER FLORIDAN AQUIFER (AVPK) PERFORMANCE TEST 2

Data Set: L:\...\R27_APT_2_AVPK_OB-a_DD-REC_CJ_print_NEWJJL.aqt
Date: 07/20/21 Time: 11:21:31

PROJECT INFORMATION

Company: SWFWMD
Client: JAZ
Project: ROMP 27
Location: DeSoto County
Test Well: AVPK PW-b
Test Date: 3/27/2017

AQUIFER DATA

Saturated Thickness: 245. ft
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
U FLDN AQ (AVPK) MONITOR	0	0

Observation Wells

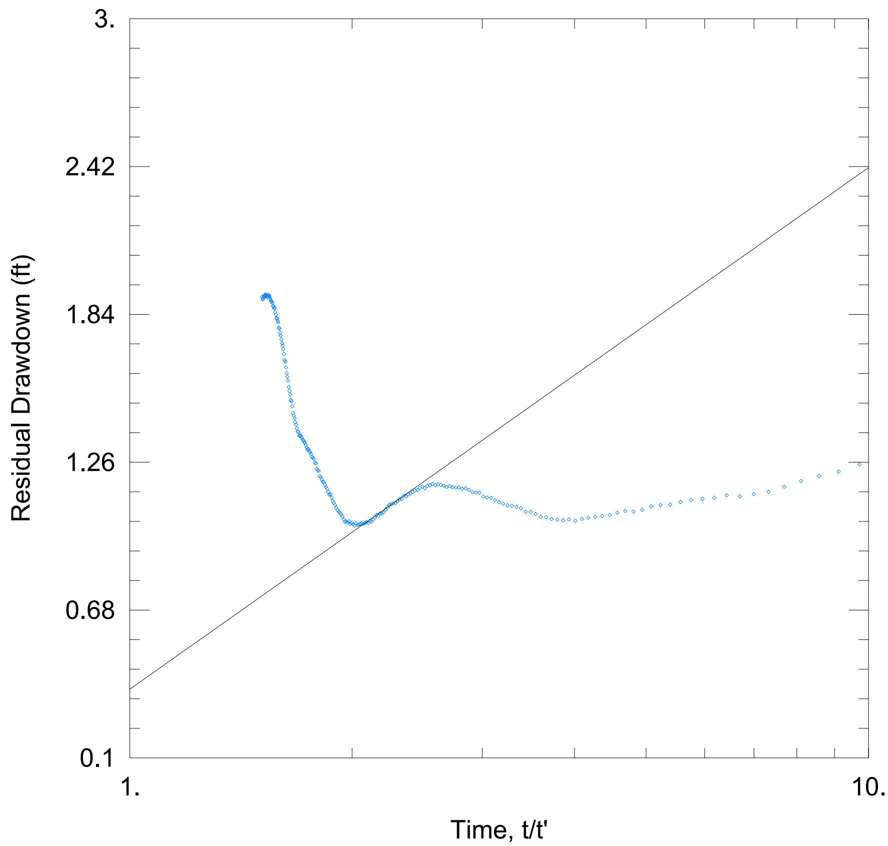
Well Name	X (ft)	Y (ft)
U FLDN AQ (AVPK) OB TEMI	0	254

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Jacob

T = 1.7E+4 ft^2/day
S = 0.00163

Figure K7. AQTESOLV© curve-match solution using drawdown data collected from the Upper Floridan aquifer (Avon Park) temporary observation well during the Avon Park Formation portion of the Upper Floridan aquifer performance test conducted at the ROMP 27 – Scarboroughl well site in Polk County, Florida.



UPPER FLORIDAN AQUIFER (AVPK) PERFORMANCE TEST 2

Data Set: L:\...\R27_APT_2_AVPK_OB-a_DD-REC_theisRec_NEWJJL.aqt
Date: 07/20/21 Time: 11:22:14

PROJECT INFORMATION

Company: SWFWMD
Client: JAZ
Project: ROMP 27
Location: DeSoto County
Test Well: AVPK PW-b
Test Date: 3/27/2017

AQUIFER DATA

Saturated Thickness: 245. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
U FLDN AQ (AVPK) MONITOR	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
U FLDN AQ (AVPK) OB TEMP	0	254

SOLUTION

Aquifer Model: Confined Solution Method: Theis (Recovery)

T = 1.7E+4 ft^2/day S/S' = 0.66

Figure K8. AQTESOLV© curve-match solution using recovery data collected from the Upper Floridan aquifer (Avon Park) temporary observation well during the Avon Park Formation portion of the Upper Floridan aquifer performance test conducted at the ROMP 27 – Scarboroughl well site in Polk County, Florida.

Appendix L. Water Quality Sample Data Acquisition Sheets for the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

GEOHYDROLOGIC DATA SECTION

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 1

Site Name: ROMP 27 – Scarborough Date: 6/15/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls) 557 Packed Interval (ft-ft bls) 517-557
Casing (HQ) Depth (ft bls) 441.5 Packed Interval (m-m bls) 157.6-170
Casing (HQ) Diameter (in.) Initial Test Interval WL (ft bls)
Hole Diameter (in.) Initial Annulus WL (ft bls)

Purge Volume (gallons)

1	0.37	g/ft X	40	ft (interval) =	14.8	gallons
2		g/ft X		ft (interval) =		gallons
				TOTAL PURGE VOLUME (one) =	45	gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) 10 gpm
Volume/Rate 1.5 minutes **X THREE =** 4.5 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments:

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

Test Information

Water Quality During Purge

Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time:

Purge End Time:

Sample Time:

Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	1037	Chloride (mg/L)	9.6
Temperature (°C)	26.11	Sulfate (mg/L)	560
pH (SU)	7.26		

Density (atm)

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 2

Site Name: ROMP 27 – Scarborough Date: 6/23/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls)	667	Packed Interval (ft-ft bls)	627-667
Casing (HQ) Depth (ft bls)	442.5	Packed Interval (m-m bls)	191-203
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1	0.37	g/ft X	40	ft (interval)	=	14.7	gallons
2		g/ft X		ft (interval)	=		gallons
				TOTAL PURGE VOLUME (one) =		45	gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) 0.951 gpm
Volume/Rate 15 minutes **X THREE =** 45 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments: Blew head off to airline depth (160') and let recover overnight

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: ________

Purge End Time: ________

Sample Time: ________

Shipping Batch ID ________

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	1018	Chloride (mg/L)	12.5
Temperature (°C)	23.92	Sulfate (mg/L)	1500
pH (SU)	7.03		

Density (atm)

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 3

Site Name: ROMP 27 – Scarborough Date: 6/29/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls)	837	Packed Interval (ft-ft bls)	747-837
Casing (HQ) Depth (ft bls)	442.5	Packed Interval (m-m bls)	228-255
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	53.66
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1	0.37	g/ft X	90	ft (interval)	=	33.3	gallons
2		g/ft X		ft (interval)	=		gallons

TOTAL PURGE VOLUME (one) = ______ gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) 2.94 gpm
Volume/Rate 15.2 minutes **X THREE =** 45.6 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments:

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: 13:00

Purge End Time: 14:30

Sample Time: 15:00

Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	1150	Chloride (mg/L)	9.2
Temperature (°C)	24.66	Sulfate (mg/L)	710
pH (SU)	7.46		

Density (atm)

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 4

Site Name: ROMP 27 – Scarborough Date: 7/7/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls)	967	Packed Interval (ft-ft bls)	917-967
Casing (HQ) Depth (ft bls)	530.5	Packed Interval (m-m bls)	279.5-294.7
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1	0.37	g/ft X	50	ft (interval)	=	18.5	gallons
2		g/ft X		ft (interval)	=		gallons

TOTAL PURGE VOLUME (one) = ______ gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) 8.876 gpm Q=2.80/5 sec
Volume/Rate 2.08 minutes **X THREE =** 6.25 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments:

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: 10:30
Purge End Time: 11:04
Sample Time: 11:25
Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	1087	Chloride (mg/L)	10.5
Temperature (°C)	25.39	Sulfate (mg/L)	600
pH (SU)	7.51		

Density (atm)
Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 5

Site Name: ROMP 27 – Scarborough Date: 7/14/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls)	1087	Packed Interval (ft-ft bls)	1047-1087
Casing (HQ) Depth (ft bls)	530.5	Packed Interval (m-m bls)	319-331
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1	0.37	g/ft	X	40	ft (interval)	=	14.8	gallons
2		g/ft	X		ft (interval)	=		gallons

TOTAL PURGE VOLUME (one) = ______ gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) 9.375 gpm Q=5 gal/36 sec=9.375 gpm
Volume/Rate 1.6 minutes **X THREE =** 6 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments:

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: 10:47

Purge End Time: 11:20

Sample Time: 11:55

Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	1098	Chloride (mg/L)	7.9
Temperature (°C)	26.54	Sulfate (mg/L)	650
pH (SU)	7.40		

Density (atm)

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 6

Site Name: ROMP 27 – Scarborough Date: 7/21/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls)	1187	Packed Interval (ft-ft bls)	1147-1187
Casing (HQ) Depth (ft bls)	530.5	Packed Interval (m-m bls)	350-362
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1	0.37	g/ft X	40	ft (interval)	=	14.8	gallons
2		g/ft X		ft (interval)	=		gallons
		TOTAL PURGE VOLUME (one) =					gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) 7.14 gpm 42 sec/5 gal=7.14 gpm
Volume/Rate 2.07 minutes **X THREE =** 6.2 minutes
Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer
Comments:

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: 10:37
Purge End Time: 10:55
Sample Time: 11:45
Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	1111	Chloride (mg/L)	7.6
Temperature (°C)	26.24	Sulfate (mg/L)	640
pH (SU)	7.54		

Density (atm)
Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 7

Site Name: ROMP 27 – Scarborough Date: 10/27/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls)	1327	Packed Interval (ft-ft bls)	1277-1327
Casing (HQ) Depth (ft bls)	1195.3	Packed Interval (m-m bls)	389.2-404.5
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1	0.37	g/ft X	50	ft (interval) =	18.5	gallons
2		g/ft X		ft (interval) =		gallons

TOTAL PURGE VOLUME (one) = gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) 13 gpm
Volume/Rate 1.42 minutes **X THREE =** 4.16 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments:

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: __________

Purge End Time: __________

Sample Time: _________

Shipping Batch ID __________

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	1,125	Chloride (mg/L)	11
Temperature (°C)	25.01	Sulfate (mg/L)	630
pH (SU)	7.60		

Density (atm)

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 8

Site Name: ROMP 27 – Scarborough Date: 11/3/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls)	1427	Packed Interval (ft-ft bls)	1387-1427
Casing (HQ) Depth (ft bls)	1195.3	Packed Interval (m-m bls)	423-435
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	43.68/36.81' bls
Hole Diameter (in.)		Initial Annulus WL (ft bls)	38.71/36.29' bls

Purge Volume (gallons)

1	0.37	g/ft X	40	ft (interval)	=	14.8	gallons
2		g/ft X		ft (interval)	=		gallons

TOTAL PURGE VOLUME (one) = ____ gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) 12.4 gpm
Volume/Rate 1.19 minutes **X THREE =** 3.6 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments: got very gray, cloudy water for water sample

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

Test Information

Water Quality During Purge

Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: 9:45

Purge End Time: 10:30

Sample Time: 11:42

Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	1468	Chloride (mg/L)	14.5
Temperature (°C)	24.40	Sulfate (mg/L)	930
pH (SU)	7.65		

Density (atm)

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

GEOHYDROLOGIC DATA SECTION

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 9

Site Name: ROMP 27 – Scarborough Date: 11/16/2011

Well Name: CH 2 Performed by: JMC

SID: 778997

Well Depth (ft bls) 1547 Packed Interval (ft-ft bls) 1517-1547

Casing (HQ) Depth (ft bls) 1195.3 Packed Interval (m-m bls) 462.4-471.5

Casing (HQ) Diameter (in.) Initial Test Interval WL (ft bls)

Hole Diameter (in.) Initial Annulus WL (ft bls)

Purge Volume (gallons)

1	0.37	g/ft X	30	ft (interval) =	11.1	gallons
2		g/ft X		ft (interval) =		gallons
				TOTAL PURGE VOLUME (one) =		gallons

Pump Method airlift

Airline Length 160 feet

Discharge Rate (gpm) 8.89 gpm

Volume/Rate 1.25 minutes **X THREE =** 3.75 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments:

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: 8:15

Purge End Time: 9:00

Sample Time: 9:40

Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	2062	Chloride (mg/L)	13
Temperature (°C)	23.54	Sulfate (mg/L)	1750
pH (SU)	7.26		

Density (atm)

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

GEOHYDROLOGIC DATA SECTION

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 10

Site Name: ROMP 27 – Scarborough Date: 12/7/2011

Well Name: CH 2 Performed by: JMC

SID: 778997

Well Depth (ft bls)	1697	Packed Interval (ft-ft bls)	1657-1697
Casing (HQ) Depth (ft bls)	1195.3	Packed Interval (m-m bls)	505-517
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1	0.37	g/ft X	40	ft (interval) =	14.8	gallons
2		g/ft X		ft (interval) =		gallons
				TOTAL PURGE VOLUME (one) =		gallons

Pump Method airlift

Airline Length 160 feet

Discharge Rate (gpm) * gpm

Volume/Rate minutes **X THREE =** minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments: middle confinining unit II will purge and recover enough to fill bailer

*blew well twice and got over 120 feet of recovery over 3 to 40 foot intervals

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

Test Information

Water Quality During Purge

Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time:

Purge End Time:

Sample Time:

Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	3203	Chloride (mg/L)	13
Temperature (°C)	22.07	Sulfate (mg/L)	3500
pH (SU)	7.22		

Density (atm) 1.002

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 11

Site Name: ROMP 27 – Scarborough Date: 12/15/2011
Well Name: CH 2 Performed by: JMC
SID: 778997

Well Depth (ft bls) 1807 Packed Interval (ft-ft bls) 1757-1807
Casing (HQ) Depth (ft bls) 1195.3 Packed Interval (m-m bls) 535.6-550.8
Casing (HQ) Diameter (in.) Initial Test Interval WL (ft bls)
Hole Diameter (in.) Initial Annulus WL (ft bls)

Purge Volume (gallons)

1	0.37	g/ft X	50	ft (interval)	=	18.5	gallons
2		g/ft X		ft (interval)	=		gallons

TOTAL PURGE VOLUME (one) = ______ gallons

Pump Method airlift
Airline Length 160 feet
Discharge Rate (gpm) ______ gpm
Volume/Rate ______ minutes **X THREE =** ______ minutes
Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer
Comments: NRQ holds 404 gallons at 6 gpm = 67 minutes to fill NRQ with test zone water

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: 9:15
Purge End Time: 10:45
Sample Time: 11:15
Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer		
Spec.Cond. (uS)	3783	Chloride (mg/L)	30.3	dilute x5
Temperature (°C)	22.59	Sulfate (mg/L)	above 20x dilution	
pH (SU)	7.15			

Density (atm) 1.003
Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

GEOHYDROLOGIC DATA SECTION

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 12

Site Name: ROMP 27 – Scarborough Date: 2/2/2012

Well Name: CH 2 Performed by: JMC

SID: 778997

Well Depth (ft bls)	2537	Packed Interval (ft-ft bls)	2497-2537
Casing (HQ) Depth (ft bls)	1195.3	Packed Interval (m-m bls)	761.1-773.3
Casing (HQ) Diameter (in.)		Initial Test Interval WL (ft bls)	40.04
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1	0.37	g/ft X	40	ft (interval)	=	14.8	gallons
2		g/ft X		ft (interval)	=		gallons
				TOTAL PURGE VOLUME (one) =			gallons

Pump Method airlift

Airline Length 160 feet

Discharge Rate (gpm) 9 gpm

Volume/Rate 1.64 minutes **X THREE =** 5 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments: 574 gal/9 gpm=64 min to evacuate all NRQ of fresher water ~~and replace~~ with test interval water for non-mixed water level for slug test 12

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: 8:45

Purge End Time: 10:00

Sample Time: 10:45

Shipping Batch ID

Sample Field Analysis

YSI Multimeter		YSI 9300 Photometer	
Spec.Cond. (uS)	15,400	Chloride (mg/L)	6400
Temperature (°C)	24.26	Sulfate (mg/L)	5600
pH (SU)	7.21		

diluted x200

Density (atm) 1.0065

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

GEOHYDROLOGIC DATA SECTION

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 1

Site Name: ROMP 27 – Scarborough Date: 2/21/2017

Well Name: Avon Park pumped well Performed by: JC & JZ

SID: 884739

Well Depth (ft bls)	1360	Tested ~~Packed~~ Interval (ft-ft bls)	1220-1360
10" steel Casing (~~HQ~~) Depth (ft bls)	1220	Packed Interval (m-m bls)	
Casing (~~HQ~~) Diameter (in.)	10	Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1 ______ g/ft X ______ ft (interval) = ______ gallons

2 ______ g/ft X ______ ft (interval) = ______ gallons

TOTAL PURGE VOLUME (one) = ______ gallons

Pump Method ______

Airline Length ______ feet

Discharge Rate (gpm) ______ gpm

Volume/Rate ______ minutes **X THREE =** ______ minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments: ______

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: ______

Purge End Time: ______

Sample Time: 19:35

Shipping Batch ID ______

Sample Field Analysis

Multimeter Serial # 05A1729 AF Photometer Serial # A09121570-d56b

Spec.Cond. (uS)	1097	Chloride (mg/L)	12.5
Temperature (°C)	27.07	Sulfate (mg/L)	195
pH (SU)	7.26		

Density (atm) ______

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

GEOHYDROLOGIC DATA SECTION

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 2

Site Name: ROMP 27 – Scarborough Date: 2/23/2017

Well Name: Avon Park pumped well Performed by: JC & JZ

SID: 884739

Well Depth (ft bls) 1360 — ~~Packed~~ Tested Interval (ft-ft bls) 1220-1360

10" steel

Casing (~~HQ~~) Depth (ft bls) 1220 — Packed Interval (m-m bls)

Casing (~~HQ~~) Diameter (in.) 10 — Initial Test Interval WL (ft bls)

Hole Diameter (in.) — Initial Annulus WL (ft bls)

Purge Volume (gallons)

1 g/ft X ft (interval) = gallons

2 g/ft X ft (interval) = gallons

TOTAL PURGE VOLUME (one) = gallons

Pump Method

Airline Length 160 feet

Discharge Rate (gpm) 9 gpm

Volume/Rate 1.64 minutes **X THREE =** 5 minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments:

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)
11:00	1106	29.21	7.38

Pumping AVPK

Purge Start Time:

Purge End Time:

Sample Time: 11:18

Shipping Batch ID

Sample Field Analysis

Multimeter		Photometer	
Spec.Cond. (uS)	1093	Chloride (mg/L)	11
Temperature (°C)	26.78	Sulfate (mg/L)	190.0
pH (SU)	7.47		

Density (atm)

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

GEOHYDROLOGIC DATA SECTION

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 3

Site Name: ROMP 27 – Scarborough Date: 2/28/2017

Well Name: Suwannee Performed by: JC & JZ

SID: 884738

Well Depth (ft bls)	534	Tested ~~Packed~~ Interval (ft-ft bls)	409-534
12" Casing (~~HQ~~) Depth (ft bls)	409	Packed Interval (m-m bls)	
PVC Casing (~~HQ~~) Diameter (in.)	12	Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1 ____ g/ft X ____ ft (interval) = ____ gallons

2 ____ g/ft X ____ ft (interval) = ____ gallons

TOTAL PURGE VOLUME (one) = ____ gallons

Pump Method Suwannee APT 6" submersible

Airline Length ____ feet

Discharge Rate (gpm) ____ gpm

Volume/Rate ____ minutes **X THREE =** ____ minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments:

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: ____

Purge End Time: ____

Sample Time: 18:45

Shipping Batch ID ____

Sample Field Analysis

Multimeter Serial #

Spec.Cond. (uS)	904
Temperature (°C)	25.31
pH (SU)	7.17

Photometer Serial #

Chloride (mg/L)	8.0
Sulfate (mg/L)	180

Density (atm) ____

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 4

Site Name: ROMP 27 – Scarborough Date: 3/7/2017
Well Name: Lower Arcadia aquifer APT Performed by: JC
SID: 884737

Well Depth (ft bls)	300	~~Packed~~ Tested Interval (ft-ft bls)	260-300
PVC Casing (~~HQ~~) Depth (ft bls)	260	Packed Interval (m-m bls)	
PVC Casing (~~HQ~~) Diameter (in.)	6	Initial Test Interval WL (ft bls)	
Hole Diameter (in.)		Initial Annulus WL (ft bls)	

Purge Volume (gallons)

1 ______ g/ft X ______ ft (interval) = ______ gallons
2 ______ g/ft X ______ ft (interval) = ______ gallons
TOTAL PURGE VOLUME (one) = ______ gallons

Pump Method Lower Arcadia aquifer APT
Airline Length ______ feet
Discharge Rate (gpm) ~15 gpm
Volume/Rate ______ minutes **X THREE =** ______ minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments: first water quality sample (Lower Arcadia aquifer APT) ~4 hours into pumping

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: ______
Purge End Time: ______
Sample Time: 18:49
Shipping Batch ID ______

Sample Field Analysis

Multimeter Serial # Photometer Serial #

Spec.Cond. (uS)	~~7361~~ 559 JC	Chloride (mg/L)	25.5
Temperature (°C)	20.66	Sulfate (mg/L)	7
pH (SU)	7.04		

Density (atm) ______

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 5

Site Name: ROMP 27 – Scarborough Date: 3/9/2017
Well Name: Lower Arcadia aquifer pumped well Performed by: JC
SID: 884737

Well Depth (ft bls) 300 ~~Packed~~ Tested Interval (ft-ft bls) 260-300
6" PVC Casing (~~HQ~~) Depth (ft bls) 260 Packed Interval (m-m bls)
Casing (~~HQ~~) Diameter (in.) 6 Initial Test Interval WL (ft bls)
Hole Diameter (in.) Initial Annulus WL (ft bls)

Purge Volume (gallons)
1 g/ft X ft (interval) = gallons
2 g/ft X ft (interval) = gallons
TOTAL PURGE VOLUME (one) = gallons

Pump Method submersible
Airline Length feet
Discharge Rate (gpm) 14 gpm
Volume/Rate minutes **X THREE =** minutes
Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer
Comments: Lower Arcadia aquifer end of test water sample

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time:
Purge End Time:
Sample Time: 12:00
Shipping Batch ID

Sample Field Analysis

Multimeter

Spec.Cond. (uS)	561
Temperature (°C)	24.95
pH (SU)	7.24

Photometer

Chloride (mg/L)	29
Sulfate (mg/L)	15

Density (atm)
Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 6

Site Name: ROMP 27 – Scarborough
Date: 3/20/2017
Well Name: surficial aquifer pumped well
Performed by: JZ & JC
SID: 884736

Well Depth (ft bls) 50
sand ~~Packed~~ Interval (ft-ft bls) 3-50
Casing (~~HQ~~) Depth (ft bls) 5
Packed Interval (m-m bls)
Casing (~~HQ~~) Diameter (in.) 6
Initial Test Interval WL (ft bls)
Hole Diameter (in.)
Initial Annulus WL (ft bls)

Purge Volume (gallons)

1 [ ] g/ft X [ ] ft (interval) = [ ] gallons
2 [ ] g/ft X [ ] ft (interval) = [ ] gallons
TOTAL PURGE VOLUME (one) = [ ] gallons

Pump Method
Airline Length feet
Discharge Rate (gpm) gpm
Volume/Rate minutes **X THREE =** [ ] minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments: first water quality sample ~6 hours 20 minutes into pumping

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time:

Purge End Time:

Sample Time: 18:27

Shipping Batch ID

Sample Field Analysis

Multimeter	
Spec.Cond. (uS)	339
Temperature (°C)	24.04
pH (SU)	5.89

Photometer	
Chloride (mg/L)	24.5
Sulfate (mg/L)	10

Density (atm) [ ]

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

GEOHYDROLOGIC DATA SECTION

WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 7

Site Name: ROMP 27 – Scarborough Date: 3/22/2017

Well Name: surficial aquifer pumped well Performed by: HR & JC

SID: 884736

Well Depth (ft bls) 50 sand ~~Packed~~ Interval (ft-ft bls) 3-50

PVC Casing (~~HQ~~) Depth (ft bls) 5 Packed Interval (m-m bls)

Casing (~~HQ~~) Diameter (in.) 6 Initial Test Interval WL (ft bls)

Hole Diameter (in.) Initial Annulus WL (ft bls)

Purge Volume (gallons)

1 g/ft X ft (interval) = gallons

2 g/ft X ft (interval) = gallons

TOTAL PURGE VOLUME (one) = gallons

Pump Method submersible 1.5 hp

Airline Length feet

Discharge Rate (gpm) gpm

Volume/Rate minutes **X THREE =** minutes

Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer

Comments: first water quality sample ~6 hours 20 minutes into pumping

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time:

Purge End Time:

Sample Time:

Shipping Batch ID

Sample Field Analysis

Multimeter	
Spec.Cond. (uS)	312
Temperature (°C)	24.53
pH (SU)	5.65

Photometer	
Chloride (mg/L)	22.5
Sulfate (mg/L)	9

Density (atm)

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

GEOHYDROLOGIC DATA SECTION
WATER QUALITY SAMPLE ACQUISITION

General Information Water Quality No.: 8

Site Name: ROMP 27 – Scarborough Date: 3/23/2017
Well Name: surficial aquifer pumped well Performed by: JC
SID: 884736

Well Depth (ft bls) 50 — sand ~~Packed~~ Interval (ft-ft bls) 3-50
Casing (~~HQ~~) Depth (ft bls) 5 — Packed Interval (m-m bls)
Casing (~~HQ~~) Diameter (in.) 6 — Initial Test Interval WL (ft bls)
Hole Diameter (in.) — Initial Annulus WL (ft bls)

Purge Volume (gallons)
1 ____ g/ft X ____ ft (interval) = ____ gallons
2 ____ g/ft X ____ ft (interval) = ____ gallons
TOTAL PURGE VOLUME (one) = ____ gallons

Pump Method surficial aquifer APT third water quality sample
Airline Length ____ feet
Discharge Rate (gpm) ____ gpm
Volume/Rate ____ minutes **X THREE =** ____ minutes
Collection Method: Surface Discharge or Wireline Bailer or Nested Bailer
Comments: first water quality sample ~6 hours 20 minutes into pumping

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

Test Information

Water Quality During Purge			
Time	Specific Cond. (±5%)	Temp. (±0.2°C)	pH (±0.1 SU)

Purge Start Time: ____
Purge End Time: ____
Sample Time: 12:42
Shipping Batch ID ____

Sample Field Analysis

Multimeter		Photometer	
Spec.Cond. (uS)	306	Chloride (mg/L)	20.5
Temperature (°C)	24.81	Sulfate (mg/L)	1
pH (SU)	5.78		

Density (atm) ____
Samples Sent to District's Laboratory for Standard Complete Analysis? Y or N

Appendix M. Water Quality Data for the Groundwater Quality Samples Collected at the ROMP 27 – Scarborough Well Site in DeSoto County, Florida

Table M1. Field analyses results of the water quality samples collected during core drilling and testing at the ROMP 27 – Scarborough well site in DeSoto County, Florida

[No., number; SID, station identification; MM/DD/YYYY, month/day/year; HH:MM, hours:minutes; ft, feet; bls, below land surface; °C, degrees Celsius; SU, standard units; µmhos/cm, micromhos per centimeter; Cl^-, chloride; mg/L, milligrams per Liter; SO_4^{2-}, sulfate; --, not applicable/not recorded]

Water Quality Sample No.	Monitor Well SID No.	Date (MM/DD/YYYY)	Time (HH:MM)	Sample Interval (ft bls)	Temperature (°C)	pH (SU)	Specific Conductance (µmhos/cm)	Major Anions		Sample Collection Method/ Remarks
								Cl^- (mg/L)	SO_4^{2-} (mg/L)	
1	778997	06/15/2011	16:20	517.1-557.7	26.11	7.26	1,037	9.6	560	Nested bailer sample
2	778997	06/23/2011	08:30	626.6-666	23.92	7.03	1,018	12.5	1,500	Nested bailer sample
3	778997	06/29/2011	15:00	748-836.6	24.66	7.46	1,150	9.2	710	Nested bailer sample
4	778997	07/07/2011	11:25	917-964.6	25.39	7.51	1,087	10.5	600	Nested bailer sample
5	778997	07/14/2011	11:55	1,047-1,086	26.54	7.40	1,098	7.9	650	Nested bailer sample
6	778997	07/21/2011	11:45	1,148-1,188	26.24	7.54	1,111	7.6	640	Nested bailer sample
7	778997	10/27/2011	13:30	1,276.2-1,325.5	25.01	7.60	1,125	11	630	
8	778997	11/03/2011	11:42	1,388-1,427	24.40	7.65	1,468	14.5	930	Nested bailer sample
9	778997	11/16/2011	10:00	1,517-1,547	23.54	7.26	2,062	13	1,750	Nested bailer sample
10	778997	12/07/2011	15:15	1,657-1,696	22.07	7.22	3,203	13	3,500	Nested bailer sample
11	778997	12/15/2011	11:15	1,755-1,804	22.59	7.15	3,783	30.3	--	Chloride 5 times dilution; Sulfate above 20 times dilution
12	778997	02/02/2012	10:45	2,497-2,537	24.26	7.21	15,400	6,400	5,600	Nested bailer sample; chloride and sulfate 200 times dilution

Table M2. Laboratory analyses results of the water quality samples collected during exploratory core drilling and testing at

[No., number; SID, station identification; MM/DD/YYYY, month/day/year; HH:MM, hours:minutes; ft, feet; bls, below land surface; SU, standard units; Fe^{2+}, iron; Sr^{2+}, strontium; Si, silica; SiO_2, silicon dioxide; $CaCO_3$, calcium carbonate]

Water Quality Sample No.	Monitor Well SID No.	Date (MM/DD/YYYY)	Time (HH:MM)	Sample Interval (ft bls)	pH (SU)	Specific Conductance (µmhos/cm)	Major Anions	
							Cl^- (mg/L)	SO_4^{2-} (mg/L)
1	778997	06/15/2011	16:20	517.1-557.7	7.26	1,037	9.8	424
2	778997	06/23/2011	08:30	626.6-666	7.03	1,018	10.8	398
3	778997	06/29/2011	15:00	748-836.6	7.46	1,150	10.8	473
4	778997	07/07/2011	11:25	917-964.6	7.51	1,087	9.8	466
5	778997	07/14/2011	11:55	1,047-1,086	7.40	1,098	10	460
6	778997	07/21/2011	11:45	1,148-1,188	7.54	1,111	9.5	446
7	778997	10/27/2011	13:30	1,276.3-1,325.5	7.60	1,125	11.4	447
8	778997	11/03/2011	11:42	1,388-1,427	7.65	1,468	11.8	686
9	778997	11/16/2011	10:00	1,517-1,547	7.26	2,062	12.4	1,110
10	778997	12/07/2011	15:15	1,657-1,696	7.22	3,203	16.6[I]	2,080
11	778997	12/15/2011	11:15	1,755-1,804	7.15	3,783	31.9	2,490
12	778997	02/02/2012	10:45	2,497.1-2,537	7.21	15,400	3,680	3,570
1	884739	02/21/2017	19:35	1,220-1,360	7.26	1,097	10.9	495
2	884739	02/23/2017	11:18	1,220-1,360	7.47	1,093	10.9	492
3	884738	02/28/2017	18:45	409-534	7.17	904	12.5	354
4	884737	03/07/2017	18:49	260-300	7.04	559	36.4	15.8
5	884737	03/09/2017	12:00	260-300	7.24	561	36.2	14.3
6	884736	03/20/2017	18:27	3-50	5.89	339	46.7	41.6
7	884736	03/22/2017	14:00	3-50	5.65	312	44.8	33.5
8	884736	03/23/2017	12:42	3-50	5.78	306	44.5	34.4

[I] Value is between the method detection limit and the laboratory practical quantitation limit, which is four times the detection limit.

[N1] Test is not NELAC certified by this laboratory. Certification was not requested.

the ROMP 27 – Scarborough well site in DeSoto County, Florida

μmhos/cm, micromhos per centimeter; Cl^-, chloride; mg/L, milligrams per Liter; SO_4^{2-}, sulfate; Ca^{2+}, calcium; Mg^{2+}, magnesium; Na^+, sodium; K^+, potassium;

Major Cations									
Ca^{2+} (mg/L)	Mg^{2+} (mg/L)	Na^+ (mg/L)	K^+ (mg/L)	Fe^{2+} (mg/L)	Sr^{2+} (mg/L)	Si as SiO_2 (mg/L)	Total Dissolved Solids (mg/L)	Total Alkalinity $CaCO_3$ (mg/L)	Sample Collection Method/ Remarks
118	57.1	10.9	2.87	0.0299	19.9	16.6[N1]	754	106.3	Nested bailer sample
114	56.8	11.9	2.89	0.161	19.2	11.4[N1]	734	105.7	Nested bailer sample
125	70	9.74	3.35	0.0383	18.9	17.7[N1]	886	102.8	Nested bailer sample
126	60.7	14.2	3.2	0.0307	18.6	16.3[N1]	812	105.2	Nested bailer sample
133	62.1	11.5	3.21	0.05	19.4	16.2[N1]	825	107.3	Nested bailer sample
125	61	9.24	2.94	0.304	19.7	16.6[N1]	823	105.7	Nested bailer sample
129	62.5	18.6	3.52	0.216	19.4	17.2[N1]	829	119	Nested bailer sample
175	88.1	14	3.6	0.0726	17.4	17.4[N1]	1,130	112.2	Nested bailer sample
300	121	8.9[I]	4.14	0.113	13.8	17.9[N1]	1,800	94.6	Nested bailer sample
610	193	11.1	6.09	0.997	12.1	19.1[N1]	3,300	93.9	Nested bailer sample
628	287	31.1	7.59	0.126	11.8	21.9[N1]	3,910	97.5	Nested bailer; Chloride 5 times dilution; Sulfate above 20 times dilution
892	467	2,110	96.7	0.0753	13.9	17.8[N1]	11,300	83.8	Nested bailer sample; chloride and sulfate 200 times dilution
131	65.1	10.2	2.99	0.0477	20	16.5	860	101.8	Sample during Avon Park aquifer performance test
131	65.2	10.2	2.97	0.0491	20.2	16.4	846	102	Sample during Avon Park aquifer performance test
94.9	50.3	15.5	2.96	0.0717	21.1	19.2	672	113.1	Sample during Suwannee Limestone aquifer performance test
37.3	28.5	27.4	5.27	<0.056	11.8	49.3	350	219.8	Sample during Lower Arcadia aquifer performance test
37.2	28.9	28.3	5.38	<0.056	11.7	51.4	351	218.5	Sample during Lower Arcadia aquifer performance test
11.5	8.38	35.3	1.27	5.97	0.17	12.3	236	28.2	Sample during surficial aquifer performance test
10.4	7.3	33.5	1.46	4.59	0.12	14.5	219	26.8	Sample during surficial aquifer performance test
10.3	7.26	33.6	1.53	4.28	0.11	14.6	218	26.9	Sample during surficial aquifer performance test

Table M3. The equivalent weight and percent equivalent weight for select ions and the water type for groundwater quality

[No., number; ft, feet; bls, below land surface; Ca^{2+}, calcium; Mg^{2+}, magnesium; Na^{+}, sodium; K^{+}, potassium; HCO_3^{-}, bicarbonate; Cl^{-}, chloride; SO_4^{2-}, sulfate; this site because hydroxyl ions are insignificant in groundwater and carbonate ions are typically not present if pH is less than 8.3 standard units (Hem, 1985); See

Water Quality Sample No.	Sample Interval (ft bls)	Cations							
		Ca^{2+}		Mg^{2+}		Na^{+}		K^{+}	
		meq/L	%	meq/L	%	meq/L	%	meq/L	%
1	517.1-557.7	5.89	53.2	4.70	42.5	0.47	4.3	0.01	0.1
2	626.6-666	5.69	52.3	4.67	42.9	0.52	4.8	0.01	0.0
3	748-836.6	6.24	49.9	5.76	46.1	0.42	3.4	0.09	0.7
4	917-964.6	6.29	52.5	5.00	41.7	0.62	5.2	0.08	0.7
5	1,047-1,086	6.64	53.8	5.11	41.4	0.50	4.1	0.08	0.7
6	1,148-1,188	6.24	53.2	5.02	42.8	0.40	3.4	0.08	0.6
7	1,276.2-1,325.5	6.44	51.6	5.14	41.2	0.81	6.5	0.09	0.7
8	1,388-1,427	8.73	52.3	7.25	43.5	0.61	3.7	0.09	0.6
9	1,517-1,547	14.97	58.9	9.96	39.2	0.39	1.5	0.11	0.4
10	1,657-1,696	30.44	64.8	15.88	33.8	0.48	1.0	0.16	0.3
11	1,755-1,804	31.34	55.5	23.62	41.8	1.35	2.4	0.19	0.3
12	2,497-2,537.1	44.51	25.1	38.43	21.7	91.79	51.8	2.47	1.4

samples collected during core drilling and testing at the ROMP 27 – Scarborough well site in DeSoto County, Florida

meq/L, milliequivalents per liter; %, percent; 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 tables M1 and M2 for sample site identification (SID) numbers]

Anions						Water Type
HCO_3^-		Cl^-		SO_4^{2-}		
meq/L	%	meq/L	%	meq/L	%	
1.74	16.1	0.28	2.5	8.83	81.4	Calcium Sulfate
1.73	16.8	0.30	3.0	8.29	80.3	Calcium Sulfate
1.68	14.2	0.30	2.6	9.85	83.2	Mixed Cation Sulfate
1.72	14.7	0.28	2.4	9.70	82.9	Calcium Sulfate
1.76	15.1	0.28	2.4	9.58	82.4	Calcium Sulfate
1.73	15.4	0.27	2.4	9.29	82.3	Calcium Sulfate
1.95	16.8	0.32	2.8	9.31	80.4	Calcium Sulfate
1.84	11.2	0.33	2.0	14.28	86.8	Calcium Sulfate
1.55	6.2	0.35	1.4	23.11	92.4	Calcium Sulfate
1.54	3.4	0.47	1.0	43.31	95.6	Calcium Sulfate
1.60	2.9	0.90	1.7	51.84	95.4	Calcium Sulfate
1.37	0.8	103.81	57.8	74.33	41.4	Sodium Chloride

Table M4. Select molar ratios for groundwater quality samples collected during core dilling and testing at the ROMP 27 – Scarborough well site in DeSoto County, Florida

[No., number; ft, feet; bls, below land surface; Cl^-, chloride; SO_4^{2-}, sulfate; Ca^{2+}, calcium; HCO_3^-, bicarbonate; Mg^{2+}, magnesium; Na^+, sodium; 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 groundwater and carbonate ions are typically not present if pH is less than 8.3 standard units (SU) (Hem, 1985): See tables M1 and M2 for sample site identification (SID) numbers]

Water Quality Sample No.	Sample Interval (ft bls)	$Cl^-:SO_4^{2-}$	$Ca^{2+}:HCO_3^-$	$SO_4^{2-}:HCO_3^-$	$Ca^{2+}:Mg^{2+}$	$Cl^{1-}:HCO_3^-$	$Na^+:HCO_3^-$	$Na^+:Cl^-$
1	517.1-557.7	0.06	1.69	2.53	1.25	0.16	0.27	1.72
2	626.6-666	0.07	1.64	2.39	1.22	0.18	0.30	1.70
3	748-836.6	0.06	1.85	2.92	1.08	0.18	0.25	1.39
4	917-964.6	0.06	1.82	2.81	1.26	0.16	0.36	2.23
5	1,047-1,086	0.06	1.89	2.72	1.30	0.16	0.28	1.77
6	1,148-1,188	0.06	1.80	2.68	1.24	0.15	0.23	1.50
7	1,276.2-1,325.5	0.07	1.65	2.39	1.25	0.16	0.41	2.52
8	1,388-1,427	0.05	2.37	3.88	1.20	0.18	0.33	1.83
9	1,517-1,547	0.03	4.83	7.45	1.50	0.23	0.25	1.11
10	1,657-1,696	0.02	9.89	14.07	1.92	0.30	0.31	1.03
11	1,755-1,804	0.03	9.80	16.22	1.33	0.56	0.85	1.50
12	2,497-2,537	2.79	16.20	27.06	1.16	75.58	66.83	0.88

Table M5. Field water quality readings during the aquifer performance tests conducted at the ROMP 27 – Scarborough well site in DeSoto County, Florida

[MM/DD/YYYY, month/day/year; HH:MM, hours:minutes; µmhos/cm, micromhos per centimeter; °C, degrees Celsius]

Aquifer Performance Test	Date (MM/DD/YYYY)	Time (HH:MM)	Specific Conductance (µmhos/cm)	Temperature (°C)
Upper Floridan aquifer (Avon Park Formation)	02/21/2017	19:35	1,097	27.07
Upper Floridan aquifer (Avon Park Formation)	02/23/2017	11:18	1,093	26.78
Upper Floridan aquifer (Suwannee Limestone)	02/28/2017	18:45	904	25.31
Lower Arcadia aquifer	03/07/2017	18:49	559	20.66
Lower Arcadia aquifer	03/09/2017	12:00	561	24.95
Surficial aquifer	03/20/2017	18:27	339	24.04
Surficial aquifer	03/22/2017	14:00	312	24.53
Surficial aquifer	03/23/2017	12:42	306	24.81

Southwest Florida
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