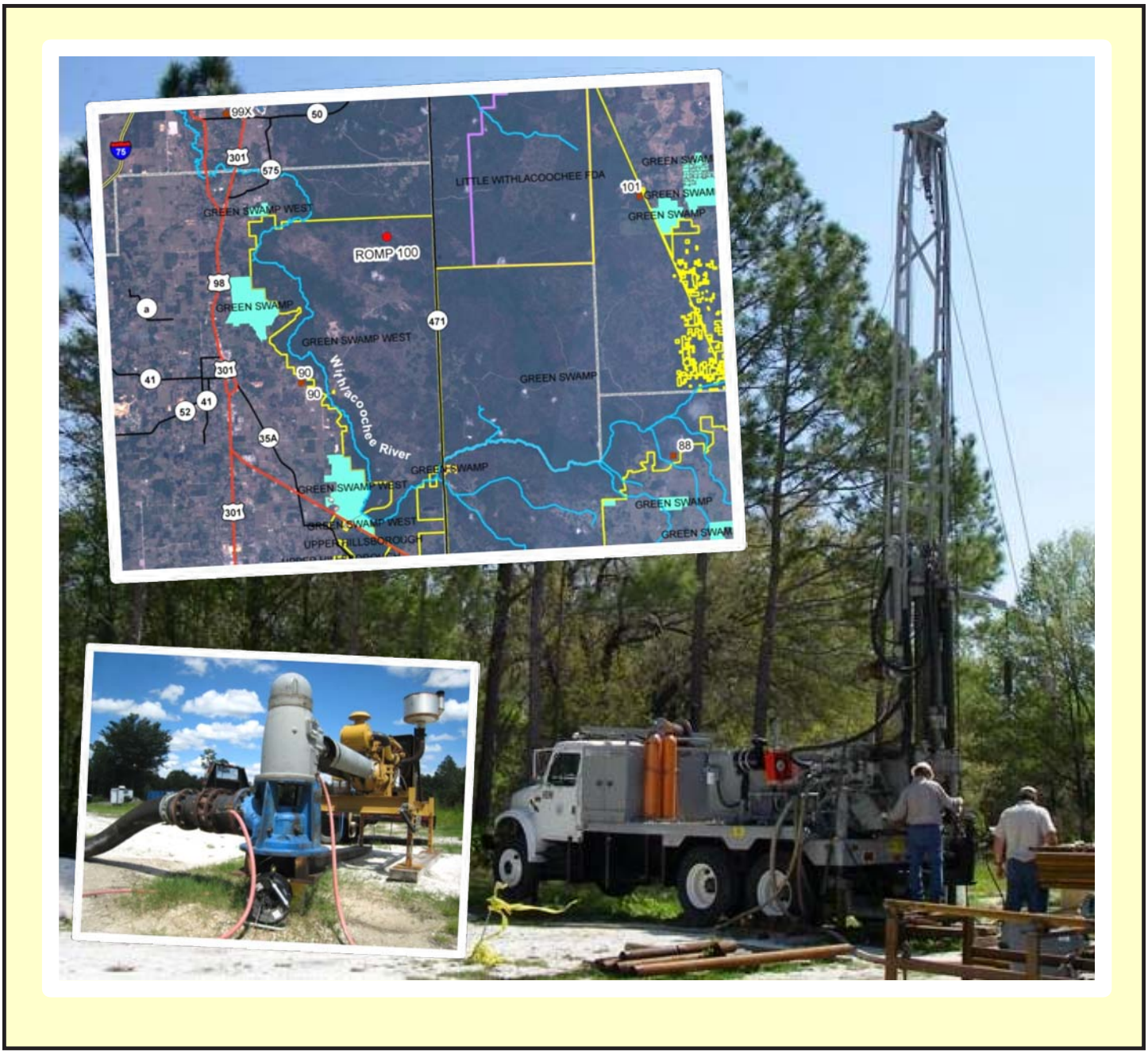
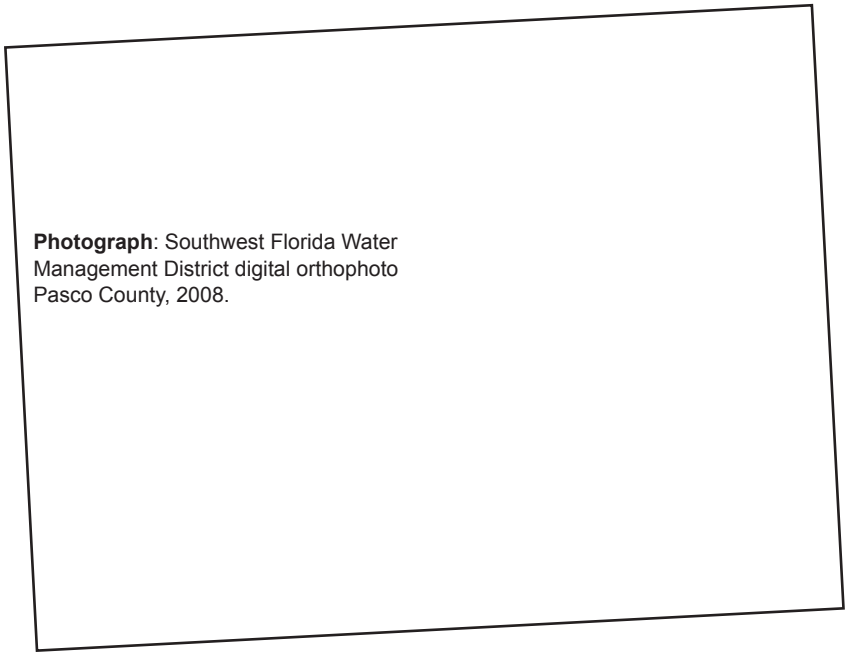
Southwest Florida
Water Management District

Hydrogeology, Water Quality, and Well Construction at the ROMP 100 - Clay Sink Well Site in Pasco County, Florida

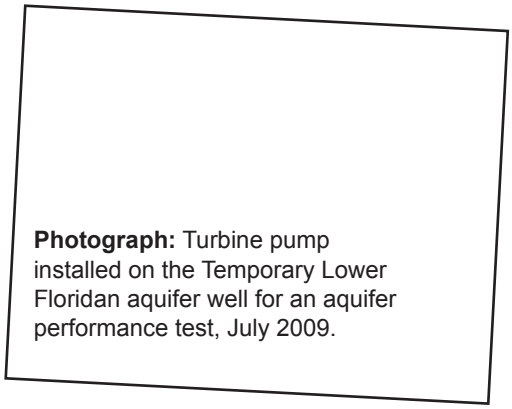


Southwest Florida Water Management District
Regional Observation and Monitor-well Program

July 2011



Photograph: Southwest Florida Water Management District digital orthophoto Pasco County, 2008.



Photograph: Turbine pump installed on the Temporary Lower Floridan aquifer well for an aquifer performance test, July 2009.

Photograph: Senior Well Driller Tim Lohner, and Well Driller Dale Jordan, wire-line coring at ROMP 100 in December 2007.

Hydrogeology, Water Quality, and Well Construction at the ROMP 100 - Clay Sink Well Site in Pasco County, Florida

By Michael T. Gates, P.G.

July 2011

Southwest Florida Water Management District
Regional Observation and Monitor-well Program

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Suggested citation:
Gates, M.T., 2011, Hydrogeology, Water Quality, and Well Construction at the ROMP 100 - Clay Sink Well Site in Pasco County, Florida: Southwest Florida Water Management District, 156 p.

The hydrogeologic evaluations and interpretations contained in *Hydrogeology, Water Quality, and Well Construction at the ROMP 100 - Clay Sink Well Site in Pasco County, Florida* have been prepared by or approved by a licensed Professional Geologist in the State of Florida, in accordance with Chapter 492, Florida Statutes.

M. T. Gates

Michael T. Gates
Professional Geologist
State of Florida License No. PG 1799

Date: 7-25-2011

Foreword

The Regional Observation and Monitor-well Program (ROMP) was started in 1974 in response to the need for hydrogeologic information by the Southwest Florida Water Management District (District). The focus of the ROMP is to quantify the flow characteristics and water quality of the groundwater systems which serve as the primary source of drinking water within southwest Florida. The original design of the ROMP consisted of a ten-mile grid network comprised of 122 well sites and a coastal transect network comprised of 24 coastal monitor transects of two to three wells sites each. Since its inception, the ROMP has taken on many more data collection and well construction activities outside these original two well networks. The broad objectives at each well site are to determine the geology, hydrology, water quality, and hydraulic properties, and install wells for long-term monitoring. The majority of these objectives are achieved by core drilling and testing, which provides data for the hydrogeologic characterization of the well site. The ROMP staff then uses this characterization to ensure the site's monitor wells are properly installed. The hydrologic data of each completed ROMP well site are presented in either an executive summary or report.

Each ROMP well site is given a unique number and a site name. The ten-mile grid network numbering starts in the southern District with ROMP No. 1 and generally increases northward. The coastal transect network numbering starts with ROMP TR 1 in the south and also increases northward.

Jerry Mallams
Manager

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Conversion Factors

Multiply	By	To obtain
	Length	
inch (in.)	25.4	centimeter (cm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
square foot (ft^2)	0.09290	square meter (m^2)
	Flow Rate	
gallon per minute (gpm)	0.06309	liters per second (l/sec)
	Hydraulic conductivity	
feet per day (ft/day)	3.53×10^{-4}	centimeters per second (cm/sec)

Conversion Factors (continued)

Multiply	By	To obtain
Specific capacity		
gallons per minute per foot [(gal/min)/ft]	0.2070	liter per second per meter [(L/s)/m]
Transmissivity		
feet squared per day (ft^2/day)	1.08×10^{-6}	meter squared per second (m^2/sec)
Leakance		
foot per day per foot [(ft/day)/ft]	1	meter per day per meter [(m/d)/m]
Temperature		
Celsius (°C)	°F = (1.8 x °C) + 32	Fahrenheit (°F)
Fahrenheit (°F)	°C = (°F - 32) / 1.8	Celsius (°C)

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

Horizontal coordinate information is referenced to the “North American Datum of 1983 (NAD 83).”

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

Acronyms and Abbreviations

µg/l	micrograms per liter
APT	aquifer performance test
bls	below land surface
btoc	below top of casing
CAL	caliper
CME	Central Mining Equipment
FGS	Florida Geological Survey
ft	feet
ft/day	feet per day
GAM	gamma
gpm	gallons per minute
k	hydraulic conductivity
meq	milliequivalent
mg/l	milligrams per liter
PVC	poly vinyl-chloride
RES	resistance geophysical log
RES (16N)	short normal resistivity
RES (64N)	long normal resistivity
ROMP	Regional Observation and Monitor-well Program
SA	surficial aquifer
SWFWMD	Southwest Florida Waer Management District
T	transmissivity
TDS	total dissolved solids
UDR	Universal Drill Rigs
USGS	United States Geological Survey
WQMP	Water Quality Monitoring Program
yr	year

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Hydrogeology, Water Quality, and Well Construction at the ROMP 100 - Clay Sink Well Site in Pasco County, Florida

By Michael T. Gates, P.G.

Introduction

The Southwest Florida Water Management District's (District) Regional Observation and Monitor-well Program (ROMP) obtained the ROMP 100 Clay Sink well site to construct a dedicated groundwater monitoring station, and characterize the geology, hydrogeology, and water quality in an area of northeastern Pasco County where little existing hydrogeologic data is available (figure 1).

Drilling and testing activities were divided into three phases: (1) wire-line core drilling (2) monitor well construction, and (3) aquifer performance testing. The wire-line core drilling phase involved exploratory coring from land surface to 1,253 feet below land surface (bls). Lithologic samples, water quality samples, geophysical logs, and hydraulic data were collected while coring to define the geologic formations and delineate the aquifers and confining units. Wire-line coring (phase 1) began on July 18, 2007 and was completed on March 7, 2008. Monitor wells were designed for the site based on the data collected during the wire-line coring phase. Monitor well construction (phase 2) began on June 4, 2008 and was completed on October 3, 2008. Aquifer performance tests (phase 3) were conducted on the Upper Floridan aquifer and the Lower Floridan aquifer below middle confining unit I (Miller, 1986). The Upper Floridan aquifer test was conducted from August 11, 2009 to August 14, 2009. The Lower Floridan aquifer test was conducted from July 20, 2009 to July 24, 2009.

Site Location

The ROMP 100 well site is located in the Western Valley physiographic region in the west-central Florida (White, 1970). The Western Valley lowlands are located between the Brooksville Ridge to the west and the Lake Uplands to the east. The Withlacoochee River Basin is the dominant physical feature of the valley. The well site is approximately 2 miles west of State Road 471 in the northeast corner of Pasco County. The well site is located in the District-owned Green Swamp West property in the Northwest ¼ of the Southwest ¼ of Section 35 Township 23 Range 22. The well site is located at latitude 28° 26' 15.9" and longitude 82° 05' 5.06" at an elevation of 78 feet above the North American Vertical Datum of 1988.

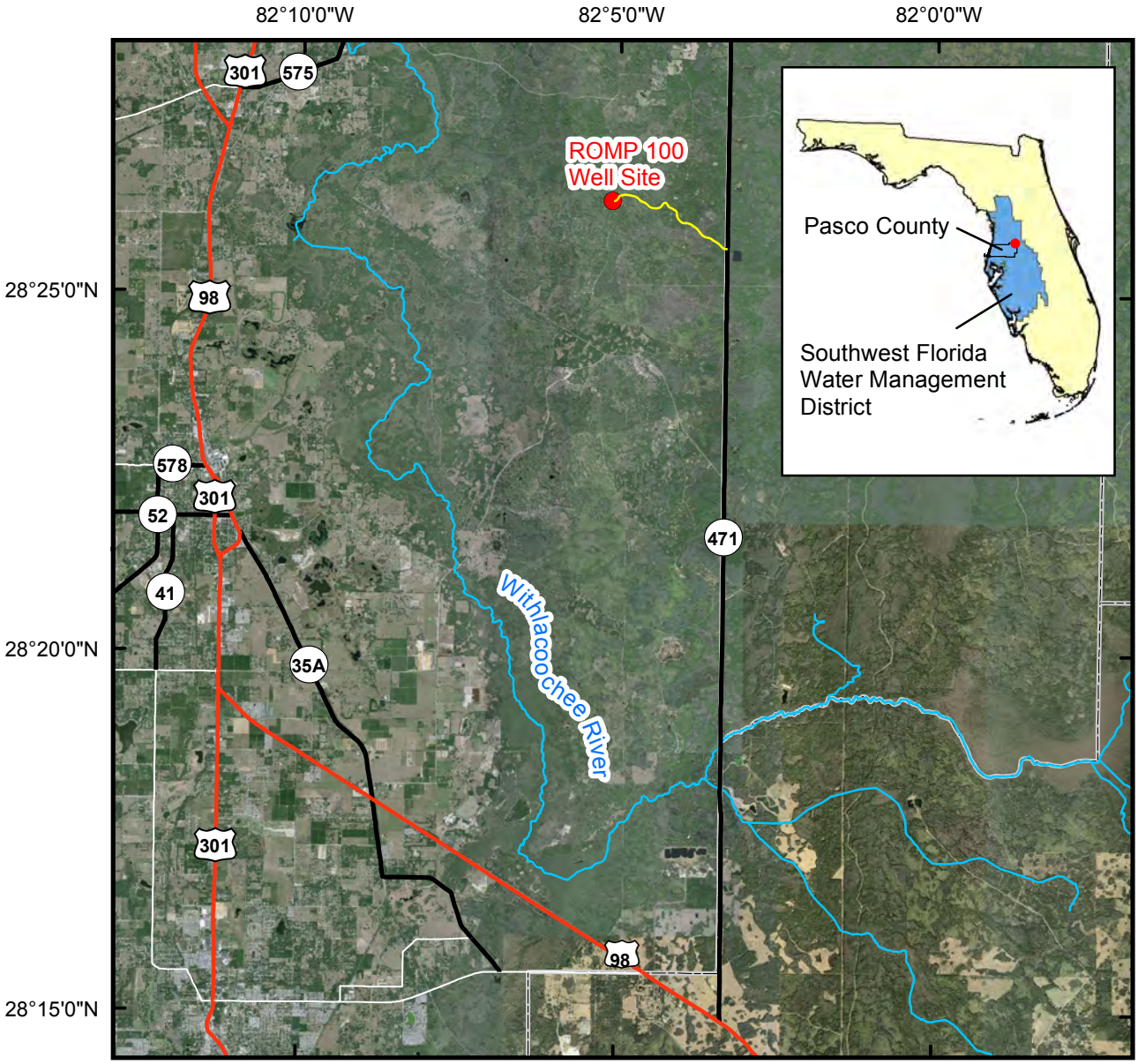
Purpose and Scope

This report presents a summary of the hydrogeologic framework in northeast Pasco County. The objectives of the study were to: (1) delineate the geologic formations, aquifers, and confining units present at the well site; (2) describe the water quality of the hydrogeologic units underlying the well site; (3) determine the hydraulic parameters of the aquifers and confining units present beneath the site; and (4) construct a dedicated groundwater monitoring station at the site. Information presented in this report consists of lithologic, hydraulic, geophysical, and water quality data collected from July 2007 to August 2009.

Data pertaining to this wellsite are available online in the District's Water Management Information System (WMIS) data warehouse. The WMIS can be accessed at the following web address: http://www8.swfwmd.state.fl.us/WMIS/ResourceData/ExtDefault.aspx.

Methods

The ROMP uses a variety of methods for the collection of lithologic, water level, water quality, and hydraulic data. The wire-line coring method was the primary drilling method used to collect the lithologic samples. Water level data were measured with pressure transducers and electronic water level meters. Water quality data were collected during the coring phase by pumping borehole intervals isolated with an off-bottom packer. Hydraulic data were collected during slug tests and aquifer performance tests. In addition, geophysical logs and borehole video logs were collected at various intervals during the coring and monitor well construction phases. A detailed description of the data-collection methods is presented in appendix A.



Base from Southwest Florida Water Managemetn District digital orthophoto, 2008
NAD 1983 HARN StatePlane Florida West FIPS 0902 Feet Projection

0 1 2 Miles
0 1 2 Kilometers

EXPLANATION

Dirt road to well site

Regional Observation and Monitor-well Program (ROMP) 100 Well Site:
NW 1/4 of SW 1/4
of Section 35 Township 23 Range 22
Elevation: ~78 feet NAVD88
Latitude: 28 26' 15.9"
Longitude: 82 5' 5.06"

Directions: From the intersection of SR 471 and Highway 98 proceed North on SR 471 for 12.4 miles to gate on the west side of SR471. Proceed through the gate on the shell road for 2.2 miles, stay right at fork in road, proceed to well site on the right side of the shell road.

Figure 1. Location of the ROMP 100 Well Site.

Lithologic Sampling

A District-owned Central Mine Equipment (CME) 85 drill rig using the wire-line coring method was used to collect the continuous lithologic samples. Drilling was performed by the following District staff: Tim Lohner, Senior Well Driller, Earl Young, Well Driller, and Dale Jordan, Well Driller. Two-inch diameter core was collected in 5-foot intervals from land surface to 1,253 feet bls. Core drilling was terminated at 1,253 feet bls in the middle confining unit II. Core samples were described, photographed, and boxed by the on-site geologist. The core hole was plugged from 1,253 feet bls to land surface with cement grout.

Slug Testing

Slug tests were conducted at 20 to 40 feet intervals while core drilling from land surface to 1,253 feet bls to estimate the hydraulic parameters of the aquifers sand confining units. An off-bottom packer was used to isolate specific intervals of the borehole for slug testing. A detailed description of the slug testing methodology is presented in appendix A. Water level data collected from the slug tests were analyzed with AQTESOLV for Windows Professional Version 4.50 software (Hydrosolve, 1996-2000).

Water Quality Sampling

Groundwater samples were collected at 20 to 40 foot intervals while coring from land surface to 1,253 feet bls. The off-bottom packer was used to isolate the borehole prior to collecting the sample. Once the packer was installed at the selected interval, the interval was pumped using the air-lifting method. The majority of the groundwater samples were collected from the discharge line. Three samples collected between 963 feet bls and 1,150 feet bls were collected using the nested bailer. The samples were split; one sample was analyzed in the field for temperature, specific conductance, pH, chloride concentration, and sulfate concentration, whereas the other sample was delivered to the District Environmental Chemistry Laboratory for additional analyses. Established sampling and analysis protocols were used while conducting the study (SWFWMD, 2005).

Geophysical Logging

Borehole geophysical logs were collected at the ROMP 100 well site using the District-owned Century geophysical logging equipment. Geophysical logs were run in the core hole during the wire-line coring phase. Additional geophysical logs were run in the monitor wells following construction. The details of the geophysical logging are presented in table 1.

Aquifer Performance Testing

Aquifer performance tests (APT's) were conducted on the Upper Floridan aquifer and the Lower Floridan aquifer below middle confining unit I. A pumped well and an observation well were installed into both aquifers. Discharge from the pumped wells for both tests was piped approximately 1,000 feet away to a creek northeast of the well site. Backgroundwater levels were recorded in all on-site wells from July 8, 2009

Table 1. Borehole Geophysical logs collected at the ROMP 100 well site

[Borehole fluid was water; well locations shown in figure 2; BLS, below land surface; Cal, caliper; Perm, permanent; LFA, Lower Floridan aquifer; Temp, temporary; UFA, Upper Floridan aquifer; PVC, poly-vinyl chloride]

Date	Well	Geophysical tool number	Geophysical log	Borehole diameter (inches)	Casing material	Casing depth (feet BLS)	Total depth (feet BLS)
8/29/2007	Core hole	9074C	Cal/gamma	3	Steel	45	234
8/29/2007	Core hole	8044C	Multi	3	Steel	45	234
1/31/2008	Core hole	9511C	Induction-slim	3	Steel	259	1160
1/31/2008	Core hole	8044C	Multi[1]	3	Steel	259	462[2]
2/1/2008	Core hole	8044C	Multi	3	Steel	259	1163
2/1/2008	Core hole	9165C	Cal/gamma	3	Steel	259	1163
10/31/2008	Perm LFA	9074C	Cal/gamma	6	PVC	370	900
10/31/2008	Perm LFA	8044C	Multi	6	PVC	370	900
10/31/2008	Temp LFA	9074C	Cal/gamma	14	Steel	370	900
10/31/2008	Temp LFA	8044C	Multi	14	Steel	370	900
10/31/2008	Perm UFA	9074C	Cal/gamma	6	PVC	75	215
10/31/2008	Temp UFA	9074C	Cal/gamma	12	Steel	75	215

[1] Multi - includes natural gamma, 16-inch normal resistivity, 64-inch resistivity, fluid resistivity, lateral resistivity, spontaneous potential, single point resistance, temperature and temperature logs

[2] Logging was stopped because of an obstruction at 462 feet bls

to August 26, 2009. The backgroundwater level data indicate the Lower Floridan aquifer head level was increasing at a rate of 0.00003 feet per minute prior to starting the drawdown phase of the Lower Floridan aquifer test. The Upper Floridan aquifer was declining at a rate of 0.00004 feet per minute prior to the drawdown phase of the Upper Floridan aquifer test. The backgroundwater level trend was insignificant to the water level change during the aquifer tests. The data were analyzed using AQTESOLV software.

Monitor Well Construction

Diversified Drilling Corporation and Huss Drilling, Inc. were contracted to construct the monitor wells at the ROMP 100 site. Mud-rotary, reverse-air rotary and hollow-stem auger methods were used to construct the wells. One 4-inch diameter temporary surficial monitor well was constructed by Huss Drilling Company on June 19, 2009. Diversified Drilling Corporation constructed one temporary 14-inch diameter Lower Floridan aquifer pumped well, one permanent 6-inch diameter Lower Floridan aquifer well, one temporary 12-inch diameter Upper Floridan aquifer pumped well, one permanent 6-inch Upper Floridan aquifer well, one temporary 12-inch surficial aquifer pumped well, and one permanent 6-inch surficial well. Diversified constructed the four wells between June 4, 2008, and October 3, 2008. Lloyd Johnson, Senior Well Driller for the District supervised the contracts during construction. The temporary monitor wells were plugged following the aquifer performance tests. The monitor well locations are presented in figure 2.

The monitor well construction details are presented in table 2; the monitor well construction diagrams are shown in appendix B. The permanent monitor wells will be equipped with continuous water level recorders and will be periodically sampled as part of the District's Water Quality Monitoring Program (WQMP).

While digging a trench for the temporary Lower Floridan aquifer pumped well, an abandoned 13.375-inch steel cased well was discovered on the ROMP 100 well site (figure 2). A search of the Florida Geological Survey's Oil and Gas Permit Database revealed that the well was an abandoned exploratory oil well. The District plugged and abandoned the well on October 21, 2009. The details of the oil well plugging are presented in a separate District report entitled "Abandonment of the Cummer Company #35-3 Exploratory Oil Well in the Green Swamp, Pasco County, Florida".

Geology

The stratigraphy at ROMP 100 was defined from lithologic descriptions of the core samples collected while wire-line coring. The geologic units encountered, include in ascending order: the Avon Park Formation, Ocala Limestone, and undifferentiated surficial deposits. In this area of Pasco County, the Suwannee Limestone and Hawthorn Group sediments are absent because of past erosion (SWFWMD, 1988). The stratigraphy and hydrogeology underlying the study area is shown in figure 3. The lithologic log is presented in appendix C and digital photographs of the core are presented in appendix D.

Avon Park Formation

The Avon Park Formation is Eocene in age and extends from 195 feet bls to more than 1,253 feet bls. Wire-line coring was terminated at 1,253 feet bls. Between 195 feet bls and 235 feet bls, the Avon Park consists of poorly to well indurated, fossiliferous mudstone and wackestone. Organic lenses numerous coral and fossil molds and casts are present. Weathered wackestone to packstone, with numerous fossils characterize the Avon Park from 235 feet bls to 255 feet bls. Dictyoconus americanus foraminifera and Neolaganum dalli echinoid fossils are identified in this core section. Moderate to poorly indurated mudstone is present from 255 feet bls to 262 feet bls.

Fine-grained, well-indurated, limestone with some hard dolostone lenses is present from 262 feet bls to 365 feet bls. A 4-foot thick lens of hard, moldic, dolostone is present from 301.5 to 305.5. This dolostone lens is indicated by the increase from 100 ohm/meters to 250 ohm/meters on the 16N electric log. A response is not seen on the 64 electric log because the dolostone lens is less than 64-inches thick, the minimum bed thickness detected by the 64N electric log electrode array (appendix E, figure E-2).

Hard, crystalline, fractured, dolostone is present from 365 feet bls to 500 feet bls. This section alternates between very hard, low porosity dolostone lenses and very hard, moldic, high porosity dolostone lenses. Differing thicknesses, densities, and porosities of the dolostone beds are indicated by the resistivity changes from 100 ohm/meters to 500 ohm/meters on the electric logs (appendix E, figure E-2).

Between 500 feet bls and 625 feet bls the Avon Park Formation consists of a pale-orange to yellowish-brown granular, dolostone with few vugs or fractures. The decrease in resistance from the dolostone section above this interval is evident on the electric logs (appendix E, figure E-2).

From 625 feet bls and 825 feet bls, alternating layers of hard, dense, dolostone and less dense, hard, dolostone characterize the Avon Park Formation. Fractures and fossil molds are common in this interval.

A fractured interval of very hard, dense, crystalline dolostone is present between 825 feet bls and 910 feet bls. This section has high secondary porosity. Between 910 feet bls and 960 feet bls, the Avon Park is characterized by hard, less dense, dolostone with numerous vugs and fossil molds. Some fracture zones were also present.

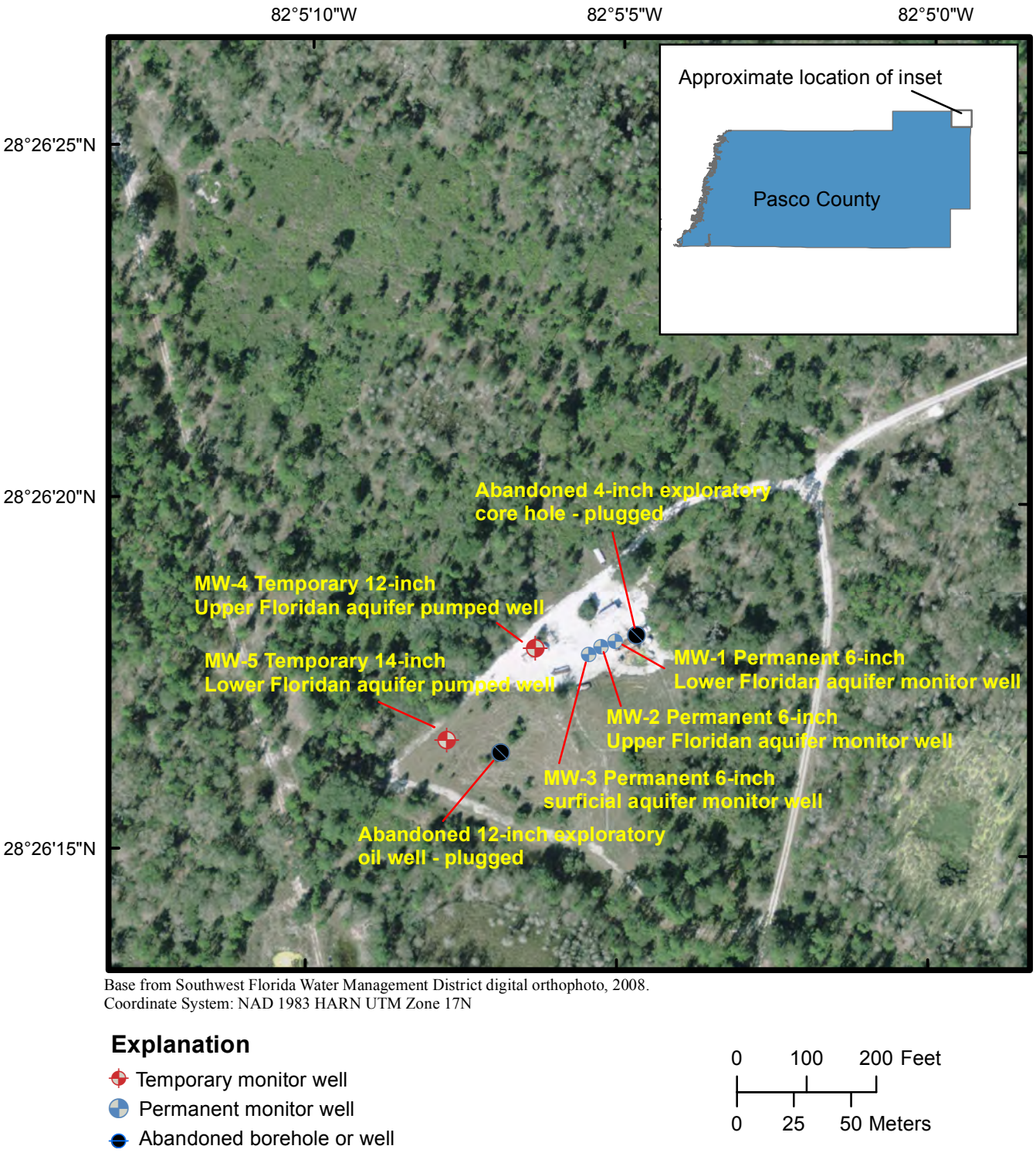


Figure 2. Location of the monitor wells at the ROMP 100 wellsite.

From 960 feet bls to 1,104 feet bls the Avon Park is composed of very hard dolomitic limestone and dolostone, with lenses of gypsum. A very hard, crystalline, lens of dolostone with gypsum-filled fossil molds and vugs was noted at 1,050 feet bls. At 1,100 feet bls additional lenses of clay and organic materials are present. These lenses are apparent on the natural gamma and electric (single-point, 16N, and 64N) logs (appendix E, figure E-2).

Between 1,104 feet bls and 1,253 feet bls yellowish to olive gray, very hard, dense, dolostone predominates. Solid gypsum layers are present along with gypsum-filled vugs and molds within the dolostone. Organic layers are also present

Table 2. Monitor Well Construction Details for the ROMP 100 Well Site

[SID, site identification; WCP, well construction permit; TOC, top of casing; NAVD, north american vertical datum of 1988; bls, below land surface; btoc, below top of casing; deg, degree; min, minutes; sec, seconds; MW, monitor well]

Well Name	Status	Aquifer Monitored	Well Type	SID	WCP	TOC (feet NAVD)	Casing Depth (feet bls)	Total Depth (feet bls)	Depth to Water (feet btoc)	Water Level 6/24/2009 (feet NAVD)	Trimble Latitude (deg min sec)	Trimble Longitude (deg min sec)
MW1	Active	Lower Floridan	6-inch open hole	714922	774966	81.27	370	900	8.86	72.41	28° 26' 18.071"	82° 05' 05.045"
MW2	Active	Upper Floridan	6-inch open hole	717345	775941	81.17	75	215	8.31	72.86	28° 26' 17.864"	82° 05' 05.291"
MW3	Active	Surficial	6-inchscreen	736736	785367	82.56	4	20	8.79	73.77	28° 26' 17.758"	82° 05' 05.440"
MW4	Abandoned	Upper Floridan	12-inch open hole	718860	776724	79.89	75	215	7.08	72.81	28° 26' 17.855"	82° 05' 06.395"
MW5	Abandoned	Lower Floridan	14-inch open hole	719668	777109	79.80	370	900	7.34	72.46	28° 26' 16.466"	82° 05' 07.791"

within this section. A well preserved Dictyoconus americanus foraminifera fossil is present at 1,140 feet bls. Sand-sized pyrite crystals were also noted at 1,160 feet bls. Coral casts and molds are present from 1,204 to 1,207 feet bls. Core recovery averaged 91 percent in the Avon Park Formation.

Ocala Limestone

The Ocala Limestone is Eocene in age and extends from 20 feet bls to 195 feet bls. The Ocala Limestone consists of white to olive-gray, fossiliferous limestone. From 20 feet bls to 35 feet bls, the Ocala Limestone is a very pale orange, fossiliferous, packstone to grainstone with moderate induration and numerous mollusk, gastropod, coral, foraminifera, and echinoid molds and casts.

The section from 35 feet bls to 65 feet bls consists of very pale orange, fossiliferous, packstone to grainstone. The section appeared weathered but has moderate to good induration. Between 65 feet bls and 70 feet bls the core consists of very soft and friable limestone. From 70 feet bls to 135 feet bls, the Ocala Limestone is composed of very fossiliferous grainstone. Numerous Nummulites vanderstoki and Lepidocyclina ocalana fossils are present within this interval. A well-preserved Eupatagus sp. echinoid fossil was observed at 92 feet bls. Bryzoa, mollusks, and coral molds and casts are also present.

The section from 135 feet bls to 167 feet bls is characterized by very light gray to olive-gray, fossiliferous, grainstone. This section has moderate to poor induration. From 167 feet bls to 180 feet bls, yellowish gray, moderately indurated, fossiliferous grainstone predominates. From 180 feet bls to 195 feet bls, the unit is characterized by yellowish gray to very pale orange, hard, oolitic, fossiliferous wackestone. Core recovery averaged 77 percent in the Ocala Limestone.

Undifferentiated Surficial Deposits

The Pliocene-Pleistocene to Holocene-age undifferentiated surficial deposits extend from land surface to 20 feet bls. From land surface to 5 feet bls, the unit is composed of dark yellowish brown to moderate yellowish-brown, fine, quartz sand, with organics and clay stringers. Between 5 feet bls and 13.5 feet bls, alternating layers of pale yellowish-brown clayey sand and sandy clay predominate. Between 13.5 feet bls and 20 feet bls the units consists of clay, very fine, white sand, and silt. The sand and silt are fairly well indurated, due to the clay binding the grains together. The clay is indicated by the increase in radioactivity as indicated by the counts per second (CPS) on the gamma log (appendix E, Figure E-1). Core recovery averaged 72 percent in the undifferentiated surficial deposits.

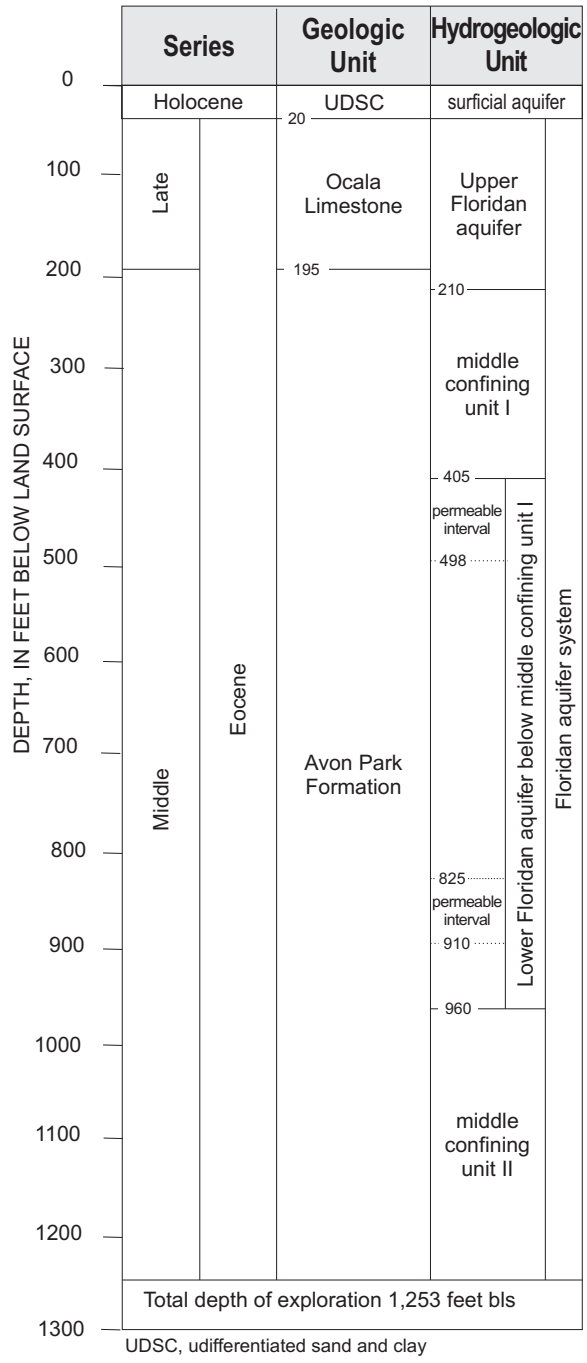


Figure 3. Stratigraphic column detailing the hydrogeologic setting at the ROMP 100 well site.

Hydrogeology

The hydrogeology underlying the ROMP 100 site was defined during initial wire-line coring. The surficial aquifer, the Upper Floridan aquifer, middle confining unit I, Lower Floridan aquifer below confining unit I and the middle confining unit II were present. Hydrogeologic units were delineated from lithologic descriptions, hydraulic testing, potentiometric levels, geophysical log data, and water quality data collected during coring.

Surficial Aquifer

The surficial aquifer extends from land surface to 13.5 feet bls. Quartz sand, silt, organics, and interbedded clays comprise the surficial aquifer. Clay and well cemented fine sand at the base of the aquifer extend from 13.5 feet bls to 20 feet bls, and provide a leaky confining unit between the surficial aquifer and underlying Upper Floridan aquifer. The water level in the surficial aquifer was 76.26 feet above the NAVD 88 or 2.85 feet bls on August 4, 2009.

Floridan Aquifer System

The Floridan aquifer system is composed of the Upper Floridan aquifer, middle confining units, and the Lower Floridan Aquifer. The Upper Floridan aquifer, middle confining unit I, Lower Floridan aquifer, and middle confining unit II were delineated while core drilling from land surface to 1,253 feet bls.

Upper Floridan Aquifer

The Upper Floridan aquifer underlies the surficial aquifer and is separated by a clay and fine sand semi-confining unit extending from 13.5 to 20 feet bls. The Upper Floridan aquifer is composed of limestone and dolostone rocks of Eocene age and extends from 20 feet bls to 210 feet bls. The top of the Upper Floridan aquifer is coincident with the top of the Ocala Limestone. The Ocala Limestone permeability results from the numerous fossil molds, vugs, and fractures present throughout the unit. Four slug tests were performed with the use of a packer while core drilling from 45 to 210 feet bls in the Upper Floridan aquifer (figure 3). The horizontal hydraulic conductivity of the Upper Floridan aquifer ranged from 2 to 38 feet/day with a geometric mean value of 10 feet/day (table 3 and figure 4). The curve analyses are presented in appendix F.

An aquifer performance test was conducted on the Upper Floridan aquifer in August 2009. The static water level in the 12-inch Upper Floridan aquifer water well was 4.93 feet btoc or 74.87 feet above NAVD 88 prior to starting the drawdown phase of the test on August 11, 2009. The well was pumped at an average discharge rate of 1,100 gallons per minute for 72 hours starting at 09:05 on August 11, 2009. During pumping, the maximum drawdown in the pumped well was 29.17 feet. Maximum drawdown in the 6-inch Upper Floridan aquifer observation well, located 100 feet from the pumped well, was 12.12 feet. Drawdown was also observed in the Lower Floridan aquifer wells on-site after approximately 50 minutes of elapsed time since pumping. The Lower Floridan aquifer well continued to drawdown until the pump was stopped at the end of the test. The maximum drawdown in the 6-inch

Table 3. Results of slug tests performed while wire-line coring at the ROMP 100 well site.

[ID, identification; bls, below land surface; PT, packer test; Foss, fossiliferous; UFA, Upper Floridan aquifer; MCU, middle confining unit; KGS, Kansas Geological Survey; LFA, Lower Floridan aquifer]

Test ID	Test Date	Packer Set Depth (feet bls)	Corehole Total Depth (feet bls)	Interval thickness (feet)	Lithology	Aquifer or Confining Unit Tested	Analytical Method	Estimated Hydraulic Conductivity (feet/day)	Test Initiation Method
PT1	8/2/2007	45	65	20	Foss limestone	UFA	Butler 1988	5	Pneumatic
PT2	8/9/2007	86	115	29	Foss limestone	UFA	Butler 1988	2	Pneumatic
PT3	8/21/2007	139	165	26	Foss limestone	UFA	Butler 1988	22	Pneumatic
PT4	8/23/2007	180	210	30	Foss limestone	UFA	Butler 1988	38	Pneumatic
PT5	8/28/2007	211	240	29	Mudstone, limestone	MCU I	KGS model	0.1	Drop
PT6	9/7/2007	255	285	30	Limestone, dolostone	MCU I	Butler 1988	0.1	Drop
PT7	9/12/2007	302	345	43	Limestone	MCU I	Butler 1988	0.6	Pneumatic
PT8	9/19/2007	365	405	40	Limestone, dolostone	MCU I/LFA	Butler 1988	7	Pneumatic
PT9	10/2/2007	404	445	41	Limestone, dolostone	LFA	Butler 1988	120	Pneumatic
PT10	10/25/2007	445	485	40	Dolostone, fractured	LFA	Butler 1988	100	Pneumatic
PT11	10/29/2007	505	545	40	Dolostone	LFA	KGS model	3	Pneumatic
PT12	11/1/2007	590	625	35	Dolostone fractured	LFA	Butler 1988	100	Pneumatic
PT13	11/6/2007	660	705	45	Dolostone fractured	LFA	Butler 1988	22	Pneumatic
PT14	12/5/2007	755	785	30	Dolostone fractured	LFA	Butler 1988	65	Pneumatic
PT15	12/18/2007	824	855	31	Dolostone fractured	LFA	Butler 1988	92	Pneumatic
PT16	12/21/2007	887	920	33	Dolostone, fractured	LFA	Butler 1988	23	Pneumatic
PT17	12/26/2007	887	920	33	Dolostone, fractured	LFA	Butler 1988	23	Pneumatic [1]
PT18	1/2/2008	963	1,000	37	Dolostone, gypsum	MCU II	KGS model	.02	Drop
PT19	1/11/2008	1,040	1,080	40	Dolostone, gypsum	MCU II	KGS model	.01	Drop
PT20	1/29/2008	1,120	1,150	30	Dolostone, gypsum	MCU II	KGS model	.15	Drop
PT21	2/19/2008	1,160	1,188	28	Dolostone, gypsum	MCU II	KGS model	.01	Drop

[3] Packer was leaking during this pneumatic test - results unreliable

Lower Floridan aquifer well, located 120 feet from the 12-inch Upper Floridan pumped well was 1.0 feet. Drawdown was also observed in the surficial aquifer while pumping the Upper Floridan aquifer. The drawdown in the surficial well began approximately 10 minutes after pumping of the Upper Floridan aquifer began. The maximum drawdown in the surficial aquifer well was 8.5 feet. The drawdown in the surficial aquifer appeared to be stabilizing when the pump was stopped for the Upper Floridan aquifer test (figure 5). The transmissivity value for the Upper Floridan aquifer is 9,800 feet^2/day; the storativity is 8 x 10^{-4}; the calculated value for leakance is 1.1 x 10^{-3} feet/day/foot. The leakance value is calculated from the Hantush-Jacob solution method which assumes the leakance is coming from the overlying confining unit. The aquifer performance test results are presented in table 4. The aquifer performance test curve match analyses are presented in appendix G. The potentiometric surface of the Upper Floridan aquifer was 75.59 feet above NAVD 88 or 3.52 feet bls on August 4, 2009.

Middle Confining Unit I

The middle confining I separates the overlying Upper Floridan aquifer from the underlying Lower Floridan aquifer. The middle confining unit I extends from 210 to 405 feet bls at the ROMP 100 well site. The unit is composed of poor to well indurated wackestone alternating with dense crystalline dolostone and dolomitic limestone. Fossils are present but interconnected fossil molds are not present. Four slug tests were conducted while core drilling from 211 feet bls to 405 feet bls in the middle confining unit I. The hydraulic conductivity value for test from 365 feet bls to 405 feet bls was 7 feet/day. This relatively high value indicates the bottom of the packer test interval may have intersected the permeable top of the Lower Floridan aquifer below middle confining unit I. The horizontal hydraulic conductivity ranged from 0.1 to 7 feet/day with a geometric mean value of 0.5 feet/day.

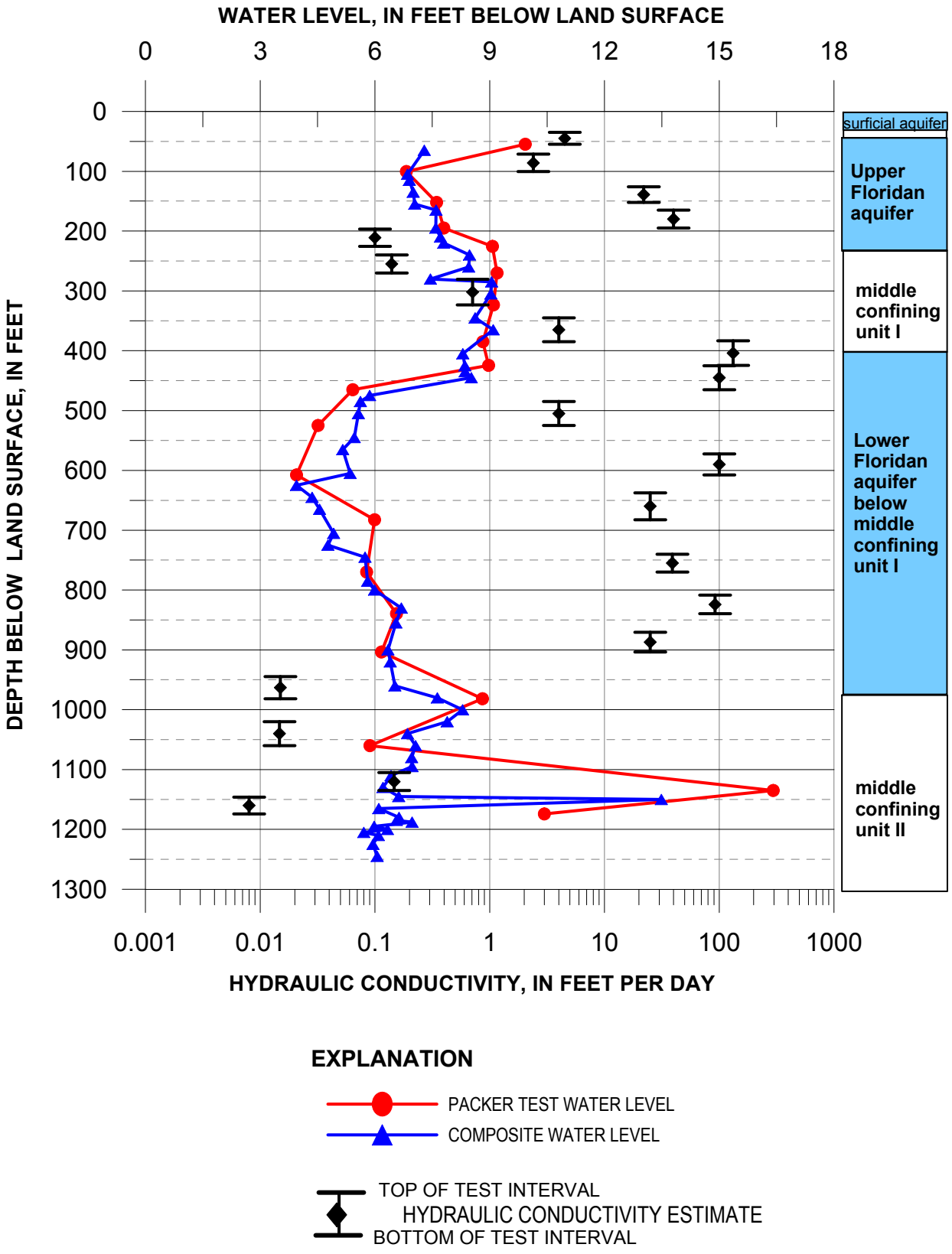


Figure 4. Water levels and hydraulic conductivity estimates from packer tests conducted at the ROMP 100 well site.

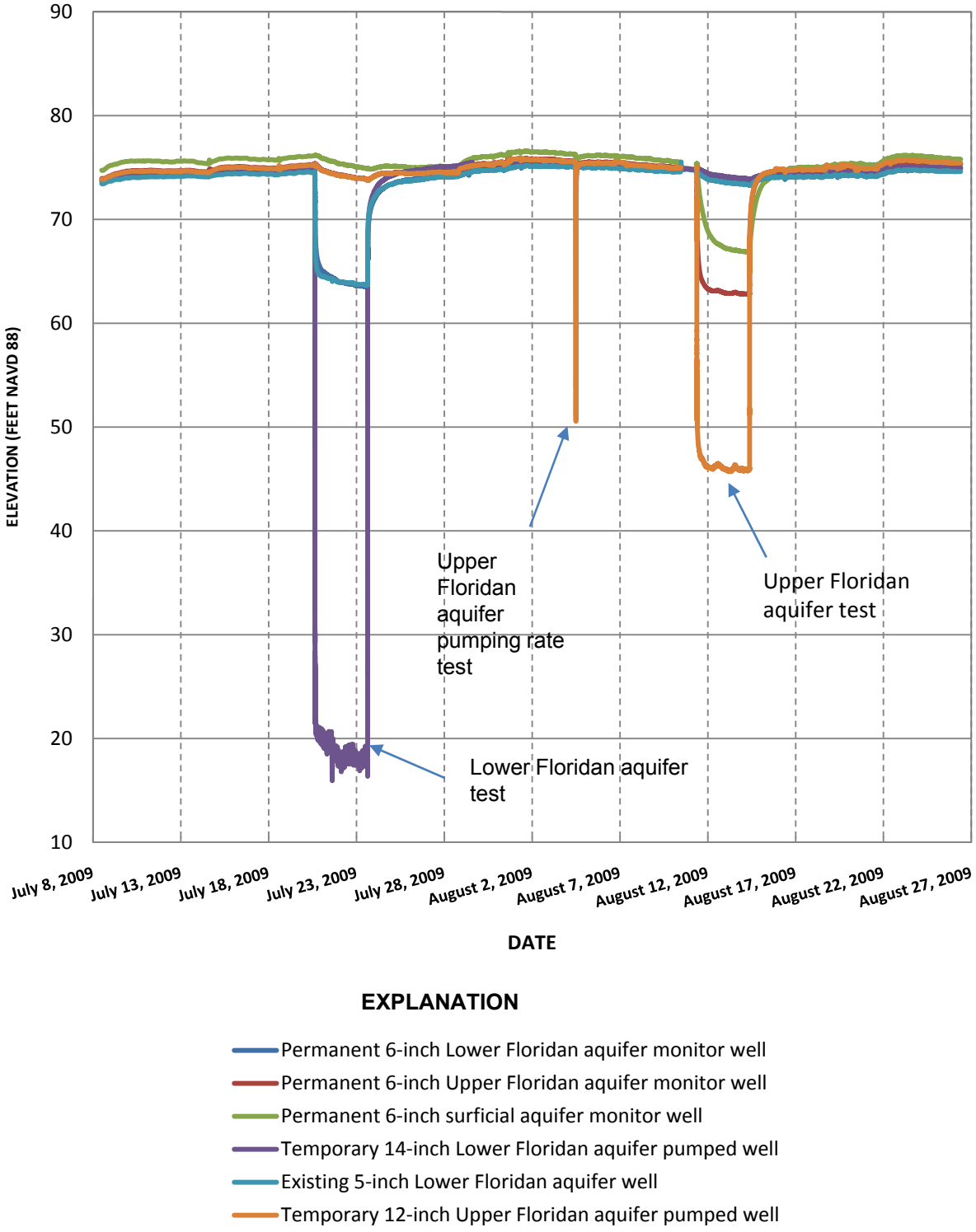


Figure 5. Hydrograph showing the aquifer performance tests conducted at the ROMP 100 well site.

Table 4. Results of the aquifer performance tests conducted at the ROMP 100 well site.

[Data from the drawdown phase was analyzed for each test; OB, observation well; T, transmissivity; S, storativity; r/B, leakage parameter of the confining unit; LFA, Lower Floridan aquifer; UFA, Upper Floridan aquifer]

Aquifer Tested	Aquifer Thickness (feet)	Overlying Confining Unit Thickness (feet)	OB Well Distance from Pumped Well (feet)	Analytical Method	T (ft^2/day)	Horizontal Hydraulic Conductivity of Aquifer (feet/day)	S	r/B	Vertical Hydraulic Conductivity of Overlying Confining Unit (ft/day)	Leakance of Overlying Confining Unit (feet/day/foot)
UFA	140	20	100	Hantush-Jacob (1955)	9,800	70	.0008	.03	.021	.011
LFA	530	200	300	Hantush-Jacob (1955)	25,000	47	.0002	.002	.003	.00015

Lower Floridan Aquifer Below Unit I

The Lower Floridan aquifer below middle confining unit I extends from 405 feet bls to 960 feet bls. The Lower Floridan aquifer is entirely contained with the Avon Park Formation at the ROMP 100 well site. Two highly permeable zones are present within the Lower Floridan aquifer below middle confining unit I. The first zone extends from 405 feet bls to 498 feet bls and is characterized by fractured, crystalline, limestone and dolostone. The second highly permeable zone extends from 825 feet bls to 910 feet bls and is characterized by hard, vugular and fractured, crystalline dolostone. Nine slug tests were conducted in the Lower Floridan aquifer while core drilling from 405feet bls to 920 feet bls. The horizontal hydraulic conductivity ranged from 3 to 120 feet/day with a geometric mean value of 40 feet/day. An aquifer performance test was conducted on the Lower Floridan aquifer below confining unit I in July 2009. The static water level in the 14-inch Lower Floridan aquifer well was 5.03 feet btoc or 74.77 feet above NAVD 88 prior to starting the drawdown phase of the test on July 20, 2009. The well was pumped at an average discharge rate of 2,015 gallons per minute for 72 hours starting at 1515 on July 20, 2009. During pumping, the maximum drawdown in the pumped well was 57 feet. Maximum drawdown in the 6-inch Lower Floridan aquifer observation well, located 300 feet from the pumped well, was 11 feet. Drawdown was also observed in the Upper Floridan aquifer wells on-site after approximately 150 minutes of elapsed time since the start of pumping. The Upper Floridan aquifer wells continued to drawdown until the pump was stopped. The maximum drawdown in the 12-inch temporary upper Floridan aquifer pumped well, located 190 feet from the 14-inch Lower Floridan pumped well, was 1.3 feet. Drawdown in the surficial aquifer well was also observed. Maximum drawdown in the 6-inch surficial well was 1.2 feet. The transmissivity value for the Lower Floridan aquifer is 25,000 $feet^2$/day; the storativity is 2×10^{-4}; the calculated value for leakance is 1.5×10^{-4} feet/day/foot. The leakance value is calculated from the Hantush-Jacob solution method which assumes the leakance is coming from the overlying confining unit. The potentiometric surface of the Lower Floridan aquifer below confining unit I was 75.20 feet above the NAVD 88 or 3.91 feet bls on August 4, 2009.

Middle Confining Unit II

The middle confining unit II extends from 960 to 1,253 feet bls (the total depth of exploration). This unit consists of dolomitic limestone, and hard, dense, crystalline dolostone with gypsum filled fossil molds. Thin layers of clay and organics are also present within this unit. Numerous solid gypsum layers are present within the dolostone. Four slug tests were conducted in the middle confining unit II while core drilling from 963 feet bls to 1,253 feet bls. The horizontal hydraulic conductivity ranged from 0.01 to 0.15 feet/day with a geometric mean value of 0.02 feet/day. The middle confining unit II occurs within the lower portion of the Avon Park Formation. This unit forms the base of the Lower Floridan aquifer below unit I at the ROMP 100 well site.

Groundwater Quality

A total of 19 groundwater samples were collected at the ROMP 100 well site while core drilling. The samples began to exceed secondary drinking-water standards below 824 feet bls in the Lower Florida aquifer blow unit I (table 5 and figure 6). The secondary drinking-water standards for total dissolved solids (TDS), sulfate, chloride, and iron are 500 milligrams per liter (mg/L), 250 mg/L, 250 mg/L, and 0.3 mg/L, respectively.

The water types assigned to each aquifer are identified by the predominant cation and anion, reported in milliequivalents per liter (meq/L). Single cation/anion type waters must have cation/anion concentrations greater than 50% of the total cation/anion concentration. Mixed-ion type waters must have

Table 5. Results of the laboratory analyzed groundwater samples collected at the ROMP 100 well site.

[All samples collected from core hole; Corehole universal identification # 3082-24620; All samples collected from discharge line except where noted; bls, below land surface; °C, degrees Celsius; SU, standard units; umohs/cm, micromohs per centimeter; mg/L, milligrams per liter; NM, not measured]

					MAJOR ANIONS		MAJOR CATIONS								
Date	Time	Open Interval (feet bls)	pH (SU)	Specific Conductance (umohs/cm)	Cl $^{1-}$ (mg/L)	SO4 ^{2} (mg/L)	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 $CaCO_3$
8/02/07	1600	45-65	8.00	557	16.6	1.2	109	4.05	9.68	0.25	17.7	0	11.1	328	267.7
08/09/07	1500	86-115	8.02	475	15.4	0	106	4.13	9.16	0.27	0	0	11.4	299	246.5
08/20/07	1600	139-165	8.12	547	19.2	0	112	5.94	10.7	0.41	0	0	12.4	341	275.5
08/23/07	1300	180-210	8.03	564	18.9	0	112	5.82	10.9	0.42	38.8	0	12.4	344	295.2
08/27/07	1200	211-240	8.04	508	18.8	1.0	106	11	12.7	0.82	0	0	12.8	326	260.6
09/06/07	1400	255-285	8.09	584	18.36	0.96	108	12.8	13.9	0.89	0	0	14.0	359	298.3
09/12/07	1500	302-345	8.13	606	18.4	0	118	10.8	13.5	0.97	0	0	14.7	366	305.5
09/19/07	1500	365-405	8.21	636	18.8	1.0	117	11.1	14.2	1.1	0	0	14.4	385	309.8
10/01/07	1540	404-445	8.18	540	18.2	0.3	112	8.58	12.8	0.93	0	0	13.8	362	303.1
10/25/07	1350	445-485	8.17	613	18.2	1.1	113	10.3	13.2	1.01	0	0	14.2	370	310.8
10/29/07	1500	505-545	8.31	580	18.3	5.4	107	8.79	13.9	1.37	31.3	0	14.9	360	295.2
10/31/07	1520	590-625	8.30	584	18.0	5.3	106	8.91	13.9	1.39	19.7	0.38	14.9	346	295.6
11/06/07	1530	660-705	8.22	590	17.32	15.4	107	9.9	14	1.69	21.5	1.33	14.8	360	286.1
12/05/07	1515	755-785	8.21	615	18.7	42.0	116	12.4	15.6	1.52	15.7	2.98	15.0	410	299.8
12/18/07	1640	824-855	8.14	838	19.5	157	113	18.7	14.6	1.66	29	5.9	15.2	580	284.0
12/26/07	1500	887-920	8.03	1380	19.4	731.7	249	47.3	14.3	2.07	122	13.9	15.0	1130	249.7
01/04/08	1440	963-1000 [1]	7.66	6180	559	2868	600	186.0	865	64.1	401	10.1	28.95	5375	262.5
01/14/08	1300	1040-1080 [1]	7.82	12320	2372	3592	696	311.0	2170	123	193	10.5	14.36	9391	252.2
01/28/08	1450	1120-1150 [1]	7.52	18990	4040	4310	731	457.0	3520	177	136	11.5	24.77	13890	268.5

[1] Samples collected with nested bailer

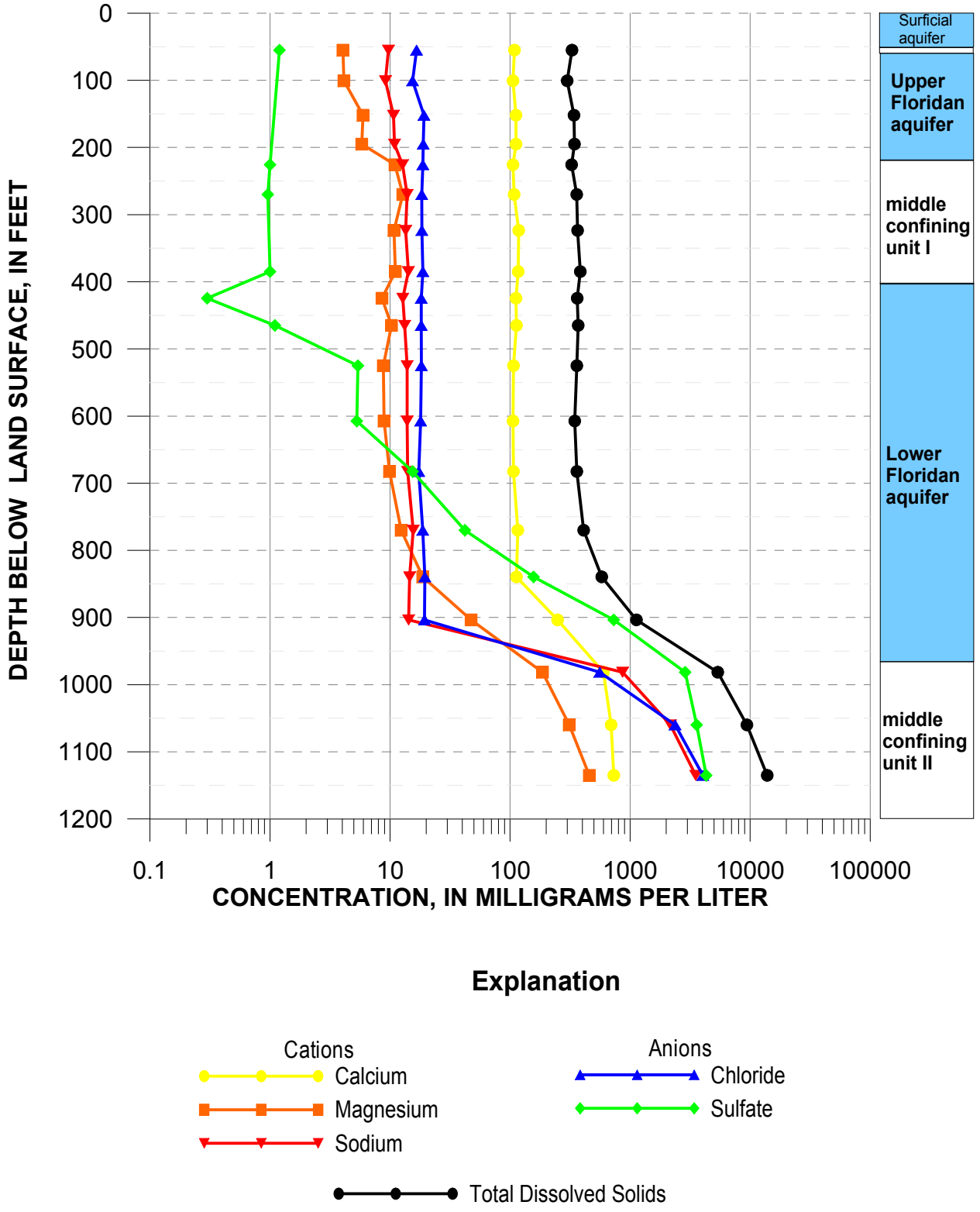


Figure 6. Select parameter concentrations for groundwater samples collected while wire-line coring at the ROMP 100 well site.

cation/anion concentrations less than or equal to 50% of the total cation/anion concentrations (Knochenmus, 2006).

Upper Floridan Aquifer

The Upper Floridan aquifer extends from 20 feet bls to 210 feet bls. A total of four groundwater samples were collected from the Upper Floridan aquifer while coring between 20 feet bls and 210 feet bls. All four samples are within secondary drinking-water standards. The highest TDS value, 344 mg/L, was collected from the 180 feet bls to 210 feet bls interval. One groundwater sample was collected during the 72-hour aquifer performance test conducted on the Upper Floridan aquifer. The sample was collected from the discharge line after pumping the Upper Floridan aquifer for approximately 24 hours. All constituents were below secondary drinking-water standards with the exception of iron (concentration of 3.75 mg/L). The iron concentration for this sample was well above the 0.3 mg/L secondary drinking-water standard for iron. Iron staining was prevalent in the discharge area. The predominant water type within the Upper Floridan aquifer is calcium bicarbonate (table 6). The likely source of the calcium (Ca^{2+}) and bicarbonate (HCO_3^{1-}) ions is from the dissolution of the limestone (CaCO3) rocks that compose the Ocala Limestone and Avon Park Formation. A piper diagram is presented in figure 7.

Middle Confining Unit I

The middle confining unit I extends from 210 feet bls to 405 feet bls in the Avon Park Formation at the ROMP 100 well site. A total of four groundwater samples were collected while core drilling through the middle confining unit I. The four samples are all within secondary drinking-water standards. The highest value for TDS, 385 mg/L, was obtained from the sample collected between 365 feet bls and 405 feet bls. The predominant water type within the middle confining unit I is calcium bicarbonate. The most likely source of the calcium (Ca^{2+}) and bicarbonate (HCO_3^{1-}) ions is from the dissolution of the limestone ($CaCO_3$) rocks that compose the Avon Park Formation. There was a slight increase in the percentage of dissolved magnesium present in the samples. The increased

Table 6. The equivalent weight, and equivalent percent weight for select cations and anions, and water type for ground water samples collected at the ROMP 100 site.

[ft, feet; bls, below land surface; meq/L, milliequivalents per liter; %, percent, PT, packer test]

Test	Test Interval	MAJOR CATIONS						MAJOR ANIONS						Water Type
		Ca 2+		Mg 2+		Na 1+		HCO3 1-		Cl 1-		SO4 1-		
	(ft bls)	meq/L	%	meq/L	%	meq/L	%	meq/L	%	meq	%	meq/L	%	
PT 1	45-65	5.44	87.71	0.33	5.4	0.42	6.8	4.39	89.9	0.47	9.6	0.02	0.5	Calcium Bicarbonate
PT 2	86-115	5.29	87.7	0.34	5.6	0.40	6.6	4.04	90.3	0.43	9.7	0	0	Calcium Bicarbonate
PT 3	139-165	5.59	85.3	0.49	7.5	0.47	7.1	4.53	89.3	0.54	10.7	0	0	Calcium Bicarbonate
PT 4	180-210	5.59	85.3	0.48	7.3	0.47	7.2	4.84	90.0	0.53	9.9	0	0	Calcium Bicarbonate
PT 5	211-240	5.29	78.2	0.91	13.4	0.55	8.2	4.27	88.6	0.53	11.0	0.02	0.4	Calcium Bicarbonate
PT 6	255-285	5.39	76.2	1.05	14.9	0.60	8.6	4.89	90.1	0.52	9.5	0.02	0.4	Calcium Bicarbonate
PT 7	302-345	5.89	79.7	0.89	12.0	0.59	7.9	5.01	90.6	0.52	9.4	0	0	Calcium Bicarbonate
PT 8	365-405	5.84	78.9	0.91	12.3	0.62	8.4	5.08	90.2	0.53	9.4	0.02	0.4	Calcium Bicarbonate
PT 9	404-445	5.59	81.3	0.71	10.3	0.56	8.1	4.97	90.5	0.51	9.4	0.01	0.1	Calcium Bicarbonate
PT 10	445-485	5.64	79.6	0.85	12.0	0.57	8.1	5.09	90.5	0.51	9.1	0.02	0.4	Calcium Bicarbonate
PT 11	505-545	5.34	79.7	0.72	10.8	0.60	9.0	4.84	88.5	0.52	9.4	0.11	2.1	Calcium Bicarbonate
PT 12	590-625	5.29	79.4	0.73	11.0	0.60	9.1	4.84	88.7	0.51	9.3	0.11	2.0	Calcium Bicarbonate
PT 13	660-705	5.34	85.3	0.81	12.0	0.61	8.9	4.69	85.3	0.49	8.9	0.32	5.8	Calcium Bicarbonate
PT 14	755-785	5.79	76.9	1.02	13.6	0.68	9.0	4.91	77.8	0.53	8.4	0.87	13.8	Calcium Bicarbonate
PT 15	824-855	5.64	71.5	1.54	19.6	0.63	8.0	4.63	54.9	0.55	6.5	3.27	38.6	Calcium Bicarbonate
PT 16	887-920	12.43	73.1	3.89	22.9	0.62	3.7	4.89	20.6	0.55	11.8	15.23	76.7	Calcium Sulfate
PT 17	963-1000	29.94	35.4	15.31	18.1	37.63	44.5	4.30	5.4	15.76	19.8	59.71	74.8	Mixed Cation Sulfate
PT 18	1040-1080	34.73	22.0	25.59	16.2	94.39	59.8	4.13	2.8	66.97	45.9	74.79	51.3	Sodium Sulfate
PT 19	1120-1150	36.48	15.7	37.61	16.2	153.11	66.1	4.40	2.1	115.21	55.0	89.79	42.9	Sodium Chloride

concentration in magnesium is likely due to the dissolution of dolomite [$CaMg(CO_3)^2$] also present in the Avon Park Formation.

Lower Floridan Aquifer Below Middle Confining Unit I

The Lower Floridan aquifer below middle confining unit I extends from 405 feet bls to 960 feet bls in the Avon Park Formation. A total of 8 water quality samples were collected while core drilling between 404 feet bls and 920 feet bls in the Lower Floridan aquifer. Various constituent concentrations began to exceed the secondary drinking-water standards below 824 feet bls in the Lower Floridan aquifer below confining unit I. The concentration of TDS increased from 410 mg/L to 580 mg/L between the 755 to 785 feet bls sample interval, and the 824 feet bls to 855 feet sample interval. The concentration of sulfate increased from 157 mg/L to 732 mg/L between the 824 to 855 feet bls sample interval, and the 887 feet bls to 920 feet sample interval. The concentration of chloride increased from 19 mg/L to 559 mg/L between the 887 feet bls to 920 feet bls sample interval, and the 963 feet bls to 1,000 feet sample interval. The concentration of iron increased from 122 mg/L to 401 mg/L between the 887 feet bls to 920 feet bls sample interval, and the 963 feet bls to 1,000 feet sample interval. One groundwater sample was collected during the aquifer test conducted on the Lower Floridan aquifer below confining unit I. The sample was collected from the discharge line after pumping the Lower Floridan aquifer for approximately 24 hours. All constituent concentrations were below secondary drinking-water standards with the exception of iron (concentrations 0.319 mg/L). This sample concentration

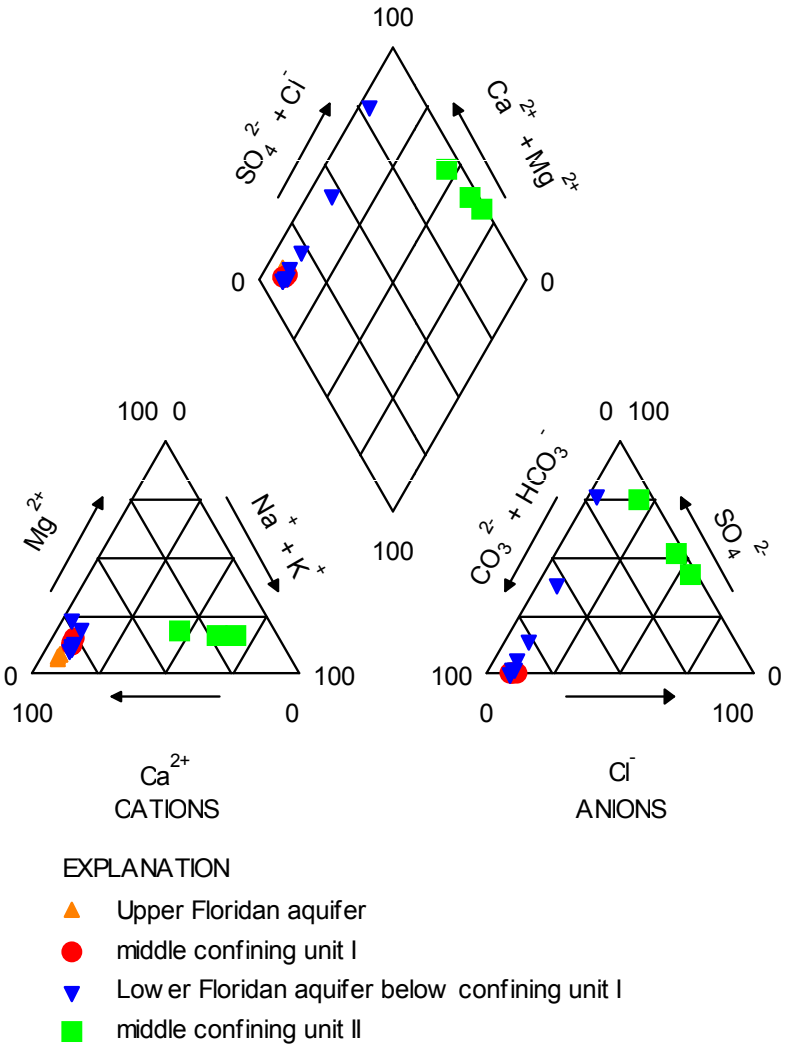


Figure 7. Piper diagram of the water quality samples collected during wire-line core drilling at the ROMP 100 well site.

was slightly above the 0.3 mg/L secondary drinking-water standards for iron. The predominant water type for the Lower Floridan aquifer is calcium bicarbonate. The water type for the sample collected between 887 feet bls and 920 feet bls is calcium sulfate. This change in water type is likely because of the increase in sulfate in the groundwater from the dissolution of gypsum ($CaSO_4 * 2H_2O$) and anhydrite ($CaSO_4$), contained in the middle confining unit II located just below the Lower Floridan aquifer (O'Reilly and others, 2002).

Middle Confining Unit II

The middle confining unit II extends from 960 feet bls to more than 1,253 feet bls (the total depth of exploration) in the Avon Park Formation. A total of three groundwater samples were collected while core drilling in the middle confining unit II. All three samples exceed secondary drinking water standards for TDS, sulfate, and chloride. The highest TDS concentration was 13,890 mg/L for the sample collected from the 1,120 feet bls to 1,150 feet bls interval. The highest sulfate concentration was 4,310 mg/L from the sample collected from the 1,120 feet bls to 1,150 feet bls interval. The highest chloride concentration was 4,040 mg/L from the sample collected from the 1,120 feet bls to 1,150 feet bls interval. There was not a predominant water type within the middle confining unit II. The sample collected from 963feet bls to 1000 feet bls is a mixed-cation sulfate type water. The sample collected from 1,040 feet bls to 1,080 feet bls is a sodium sulfate type water. The sample collected from 1,120 feet bls to 1,150 feet bls is a sodium chloride type water. The increase in sulfate is likely because of the dissolution of gypsum ($CaSO_4 * 2H_2O$) and anhydrite ($CaSO_4$), contained in the middle confining unit II. The increase in sodium and chloride is likely because of the presence of relict seawater trapped in the middle confining unit II during a previously higher stand of sea level (O'Reilly and others, 2002).

Summary

A hydrogeologic investigation was performed at the ROMP 100 Clay Sink well site in Pasco County, Florida beginning in July 2007 and ending in August 2009. Exploratory drilling, testing, and monitor well construction was performed to collect hydrogeologic data and establish a permanent groundwater monitoring station in an area of Pasco County where little hydrogeologic data exists.

The geologic formations delineated include in ascending order: the Avon Park Formation, Ocala Limestone, and undifferentiated sand and clay deposits. The Avon Park Formation extends from 195 feet bls to more than 1,253 feet bls. From 195 feet bls to 262 feet bls the Avon Park consists of mudstone, wackestone, and packstone. Fine-grained dolomitic limestone comprises the unit from 262 feet bls to 405 feet bls. Fractured dolostone is present from 405 feet bls to 500 feet bls. Between 500 and 1,022 feet bls the unit consists of layers of dolostone with variable density. From 1,022 feet bls to 1,104 feet bls, dolomitic limestone and dolostone is present. From 1,104 feet bls to 1,253 feet bls the unit consists of very hard dolostone with gypsum lenses and gypsum filled vugs and molds. The Ocala Limestone extends from 20 feet bls to 195 feet bls. The Ocala consists of fossiliferous packstone to grainstone from 20 feet bls to 180 feet bls. Between 180 feet bls and 195 feet bls the unit consists of fossiliferous wackestone and mudstone. The undifferentiated sand and clay deposits extend from land surface to 20 feet bls. Fine quartz sand with organics and clay lenses extend from land surface to 5 feet bls. Between 5 feet bls and 20 feet bls clay, sand, and silt lenses predominate.

The hydrogeologic units delineated at the ROMP 100 well site include, in descending order: the surficial aquifer, Upper Floridan aquifer, middle confining unit I, Lower Floridan aquifer below confining unit I, and the middle confining unit II. The surficial aquifer extends from land surface to 13.5 feet bls. A semi-confining unit consisting of fine sand and clay layers separates the surficial aquifer from the underlying Upper Floridan aquifer. The Upper Floridan aquifer extends from 20 feet bls to 210 feet bls. The geometric mean value for hydraulic conductivity, obtained by slug testing, was 10 feet/day. The transmissivity estimate for the Upper Floridan aquifer is 9,800 $feet^2$/day, the storativity is 8×10^{-4}, and the leakance value for the overlying confining unit is 1.1×10^{-3} feet/day/foot. The middle confining unit I underlies the Upper Floridan aquifer and extends from 210 feet bls to 405 feet bls. The geometric mean value for hydraulic conductivity is 0.5 feet/day. The Lower Floridan aquifer below middle confining unit I extends from 405 feet bls to 960 feet bls. The geometric mean value for hydraulic conductivity is 40 feet/day. The estimated transmissivity value is 25,000 $feet^2$/day, the storativity is 2×10^{-4}, and the calculated value for leakance of the overlying confining unit is 1.5×10^{-4} feet/day/foot. The middle confining unit II underlies the Lower Floridan aquifer below middle confining unit I and extends from 960 feet bls to1,253 feet bls (the total depth of exploration). The geometric mean value for hydraulic conductivity is 0.02 feet/day.

A total of 19 groundwater samples were collected while core drilling from 20 feet bls to 1,253 feet bls at the ROMP 100 well site. Groundwater samples collected from the Upper Floridan aquifer were within secondary drinking-water standards for all constituents except iron (3.75 mg/L). The predominant water type for the Upper Floridan aquifer is calcium bicarbonate. Groundwater samples collected from the middle confining unit I were within secondary drinking-water standards for all constituents. The predominant water type within the middle confining unit is calcium bicarbonate. Groundwater samples collected from the Lower Floridan aquifer below middle confining unit I began to exceed the secondary drinking-water standards for various constituents below 824 feet bls. The first exceedance of the standard for TDS was the 580 mg/L concentration for the sample collected from the 824 to 855 feet bls interval. The first exceedance of

the standard for sulfate was the 731 mg/L concentration for the sample collected from the 887 to 920 feet bls interval. The first exceedance of the standard for chloride was the 559 mg/L concentration for the sample collected from the 963 feet bls to 1,000 feet bls interval. The predominant water type for the Lower Floridan aquifer is calcium bicarbonate. Two groundwater samples were collected from the middle confining unit II below the Lower Floridan aquifer. The concentrations of chloride, sulfate, and TDS all exceed secondary drinking water standards for the middle confining unit II. The groundwater sample collected from 1,040 feet bls to 1,080 feet bls interval was a sodium sulfate type water. The groundwater sample collected from the 1,120 feet bls to 1,150 feet bls interval was a sodium chloride type water.

A permanent groundwater monitoring station was established at the ROMP 100 well site. Three permanent monitor wells were constructed: one 6-inch surficial aquifer monitor well (screen interval 4 - 24 feet bls), one 6-inch diameter Upper Floridan monitor well (open hole interval 75 - 215 feet bls), and one 6-inch diameter Lower Floridan aquifer monitor well (open hole interval 370 - 900 feet bls).

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Appendix A. Methods of the Regional Observation and Monitor-well Program

The Southwest Florida Water Management District collects the majority of the hydrogeologic data during the exploratory core drilling phase of the project. High-quality lithologic samples will be collected during the coring process along with hydraulic and water quality data 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.

Collection of Lithologic Samples

The District conducts hydraulic rotary coring, referred to as diamond drilling, with a Central Mining Equipment (CME) 85 coring rig and the 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 HW and NW gauge working casings along with NQ core drilling rods, associated bits, and reaming shells from Boart Longyear®. The HW and NW working casings are set and advanced as necessary to maintain a competent core hole. The NQ size core bits) produce a nominal 3-inch hole. The HW and NW working casings and NQ coring rods are removed at the end of the project. Details on the coring activities are recorded on daily drilling logs completed by the District's drilling crew and hydrologists.

Recovery of the core samples is accomplished using a wireline recovery system (figure 1). The District's drilling crew uses the Boart Longyear® NQ wireline inner barrel assembly. This system allows a 1.87-inch by 5-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 due to 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 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.

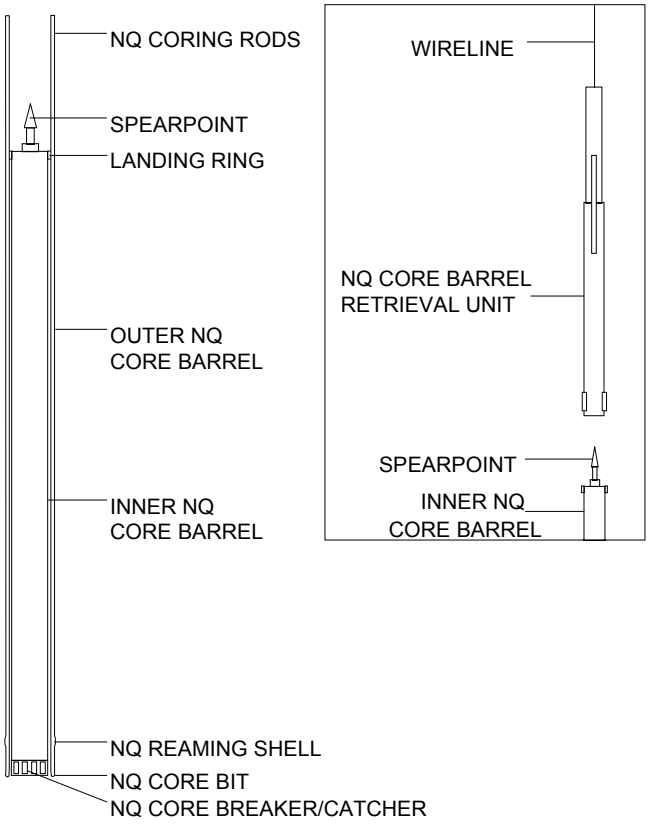


Figure 1. Boart Longyear® NQ Wireline Coring Apparatus.

Unconsolidated Coring

Various methods exist for obtaining core of unconsolidated material, 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 HW and NW working casings as well as permanent casings to stabilize the core hole. NQ core drilling rods and associated products are employed during the coring 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) discharge method (figure 2) 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

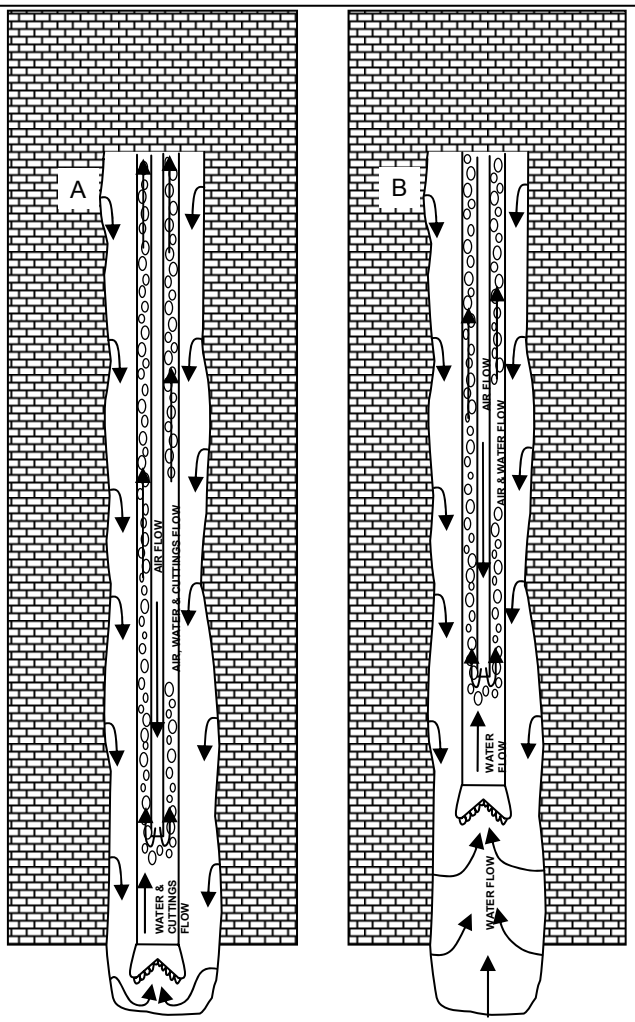
Formation (off-bottom) packer testing allows discrete testing of water levels, water quality, and hydraulic parameters. A competent core hole is necessary for packer testing, meaning unconsolidated sediments and some of the shallow weathered limestone cannot be tested using this technique. The packer assembly (figure 3) is employed by raising the NQ 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 coring. 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, 2006). The procedure involves isolating the test interval with the off-bottom packer (figure 3) as explained above, and air-lifting the water in the NQ 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 discharge point, with a wireline retrievable stainless steel bailer (figure 4), 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



Reverse-air drilling and water sampling procedure: Reverse-air drilling allows cuttings to be removed without 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 a suction at the bit. The water, which serves as the drilling fluid, 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 (A). After cuttings are cleaned from the hole and the water clears up, a reverse-air discharge water quality sample can be collected at the surface. If a bottom-hole bailer (non-aerated) sample is desired, the rods are raised the length of a drill rod in preparation for adding another rod and airlifting is continued. This draws water from the lower portion of the hole into the wellbore (B). Airlifting is ceased and the drill rods are lowered back to bottom, filling the lower rod with bottom-hole water. After the airline is removed, the bailer is lowered inside the rods by wire-line to the bottom to collect, theoretically, a bottom-hole water sample.

Figure 2. Reverse-air drilling and water sampling procedure.

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 may also be used to obtain non-aerated samples 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. Two bottles, one 250 ml and one 500 ml, are filled with water filtered through a 0.45-micron filter. Another 500 ml bottle is filled with unfiltered water. 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 and specific conductance are measured using a YSI® multi-parameter handheld meter. Chloride and sulfate concentrations, and pH are analyzed with a YSI® 9000 photometer. The samples are delivered to the District's environmental 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. 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 is plotted on a Piper 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 ground water and carbonate ions typically are not present in ground water with a pH less than 8.3 (Fetter, 2001).

Collection of Hydraulic Data

Hydraulic properties are 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.

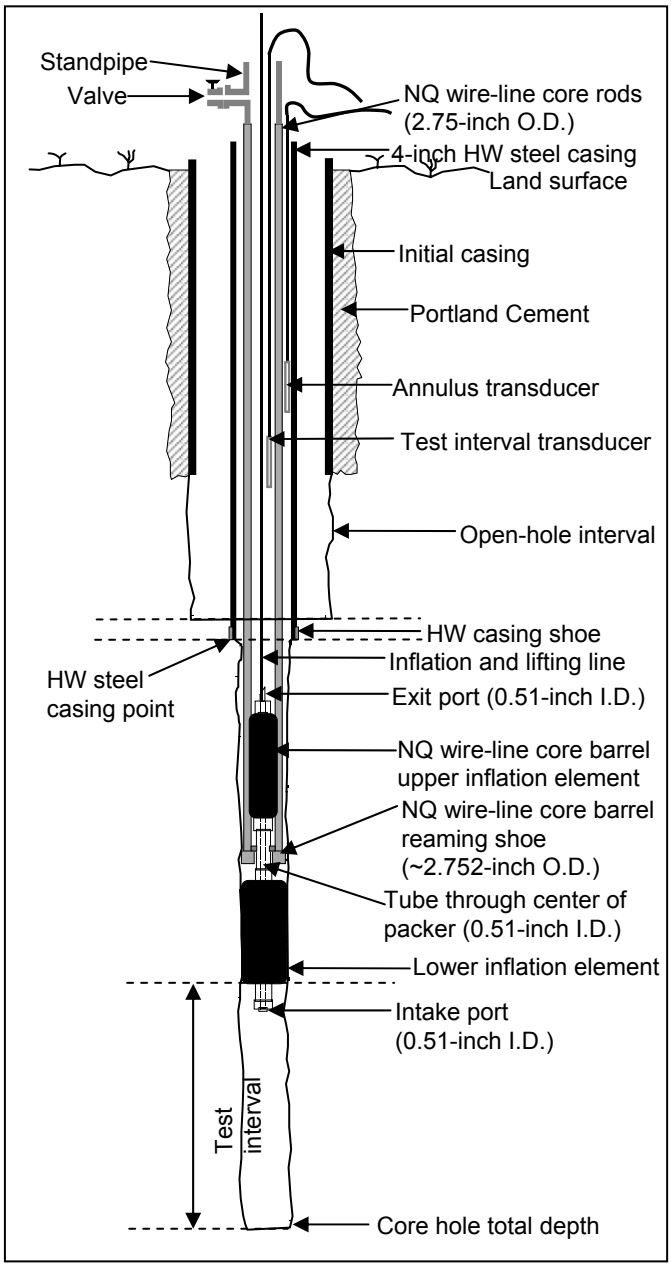


Figure 3. Formation (off-bottom) packer assembly deployed in the core hole.

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 HW casing and the NQ coring rods. The annulus pressure transducer is used as 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,

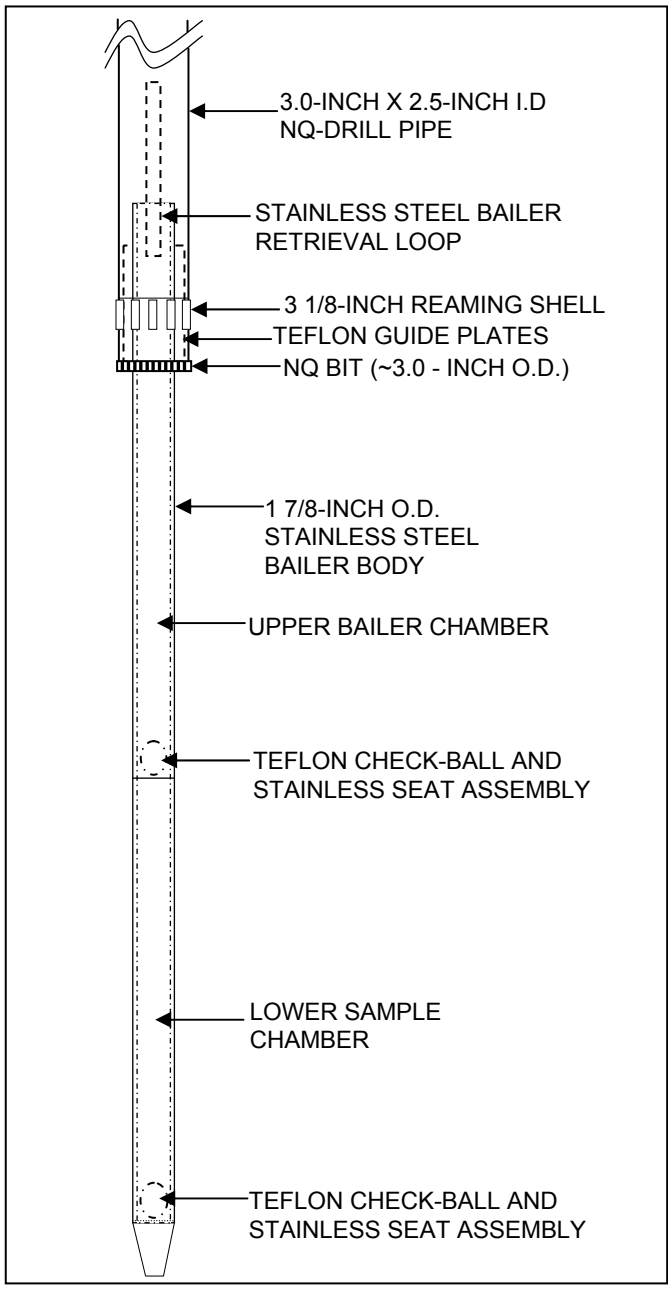


Figure 4. Diagram of the wireline retrievable bailer.

Inc CR800 datalogger. Prior to all slug 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 due to the near instantaneous slug initiation. The pneumatic slug method uses a NQ rod modified to include a pressure gauge and regulator, and an electronic 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 initial static water level the test is initiated. The electronic 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 due to 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 rods raising the static water level. A specially designed PVC funnel fitted with a ball valve placed over the NQ 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 AQTESOLVE® 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 (figure 3). The water during the slug tests moves through NQ coring rods with an inner diameter of 2.38-inches, the orifice on the packer assembly that has an inner diameter of 0.75-inches, 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 inches. A second technique used to minimize the effects caused by the orifice restrict 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 ground-water 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, forma-

tion 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 geophysical log data will be archived with the ROMP file of record and eventually incorporated into a statewide geologic database of lithologic and geophysical data.

The three types of geophysical probes used are the caliper/gamma, multifunction, and induction. The District uses Century® geophysical logging equipment. Suites of logs include the caliper, natural gamma-ray [GAM (NAT)], spontaneous potential (SP), single-point resistivity (RES), short [RES(16N)] and long [RES(64N)] normal resistivity, fluid temperature (TEMP) and fluid specific conductance (SP COND) logs. 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.

Gamma [GAM(NAT)]

Natural gamma logs measure the amount of natural radiation emitted by rocks in the borehole. Radioactive elements present in certain types of geologic materials emit natural gamma radiation, thus specific rock materials can be identified from the log. Typically, 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 radiation is that it can be measured through PVC and steel casing, although it is subdued slightly by steel casing. Gamma is used chiefly to identify rock lithology and correlate stratigraphic units because it 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. They are useful in identifying contacts between different lithologies and stratigraphic correlation.

Single-Point Resistance (RES)

Single-point resistance logs measures the electrical resistance 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 the current electrode in the borehole and the electrode at land surface. The log must be run in a fluid-filled, uncased borehole.

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 Testing

An APT is a controlled field experiment conducted to determine the hydraulic properties of water-bearing (aquifers) units (Stallman, 1976). APT's 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 proce-

dure, 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 taken and recorded accurately 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.

Single-Well Aquifer Test

Single-well APT's includes one test (pumped) well within the production zone used for both pumping and monitoring 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.

Multi-Well Aquifer Test

Multi-well APT's 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.

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Appendix B. Monitor well construction diagrams for the ROMP 100 well site

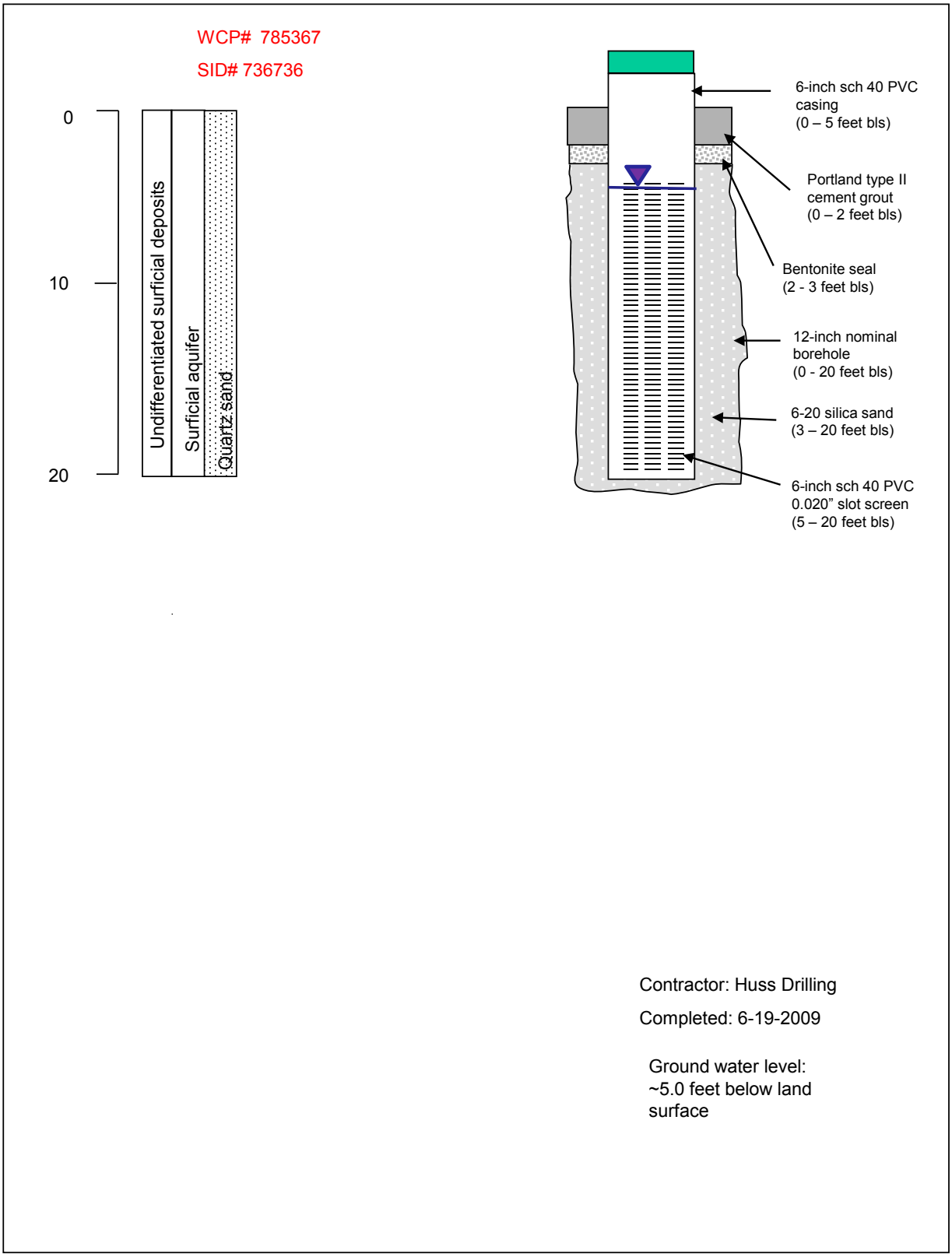

Figure B-1. As-built permanent surficial aquifer monitor well.

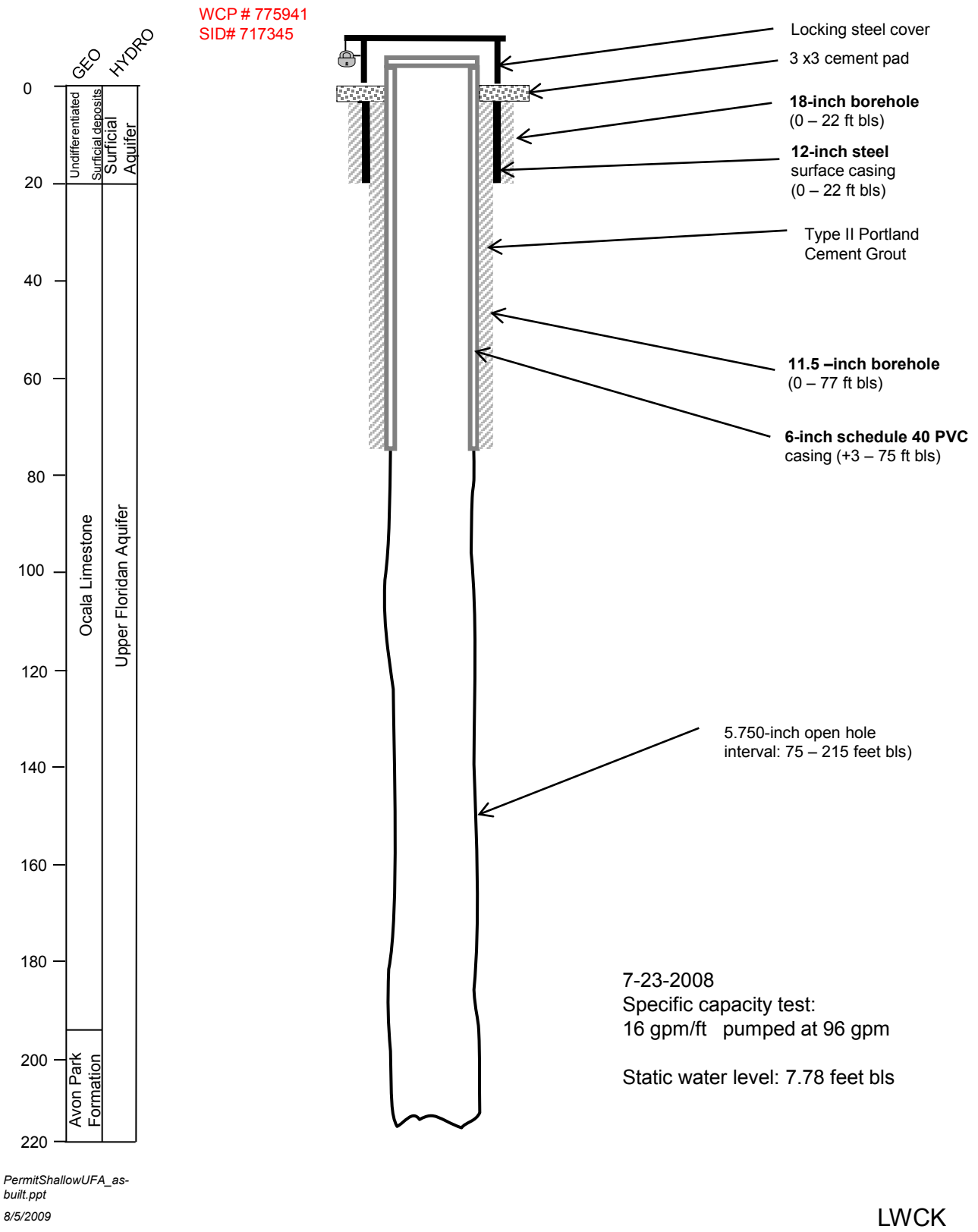

Figure B-2. As-built diagram permanent Upper Floridan aquifer monitor well.

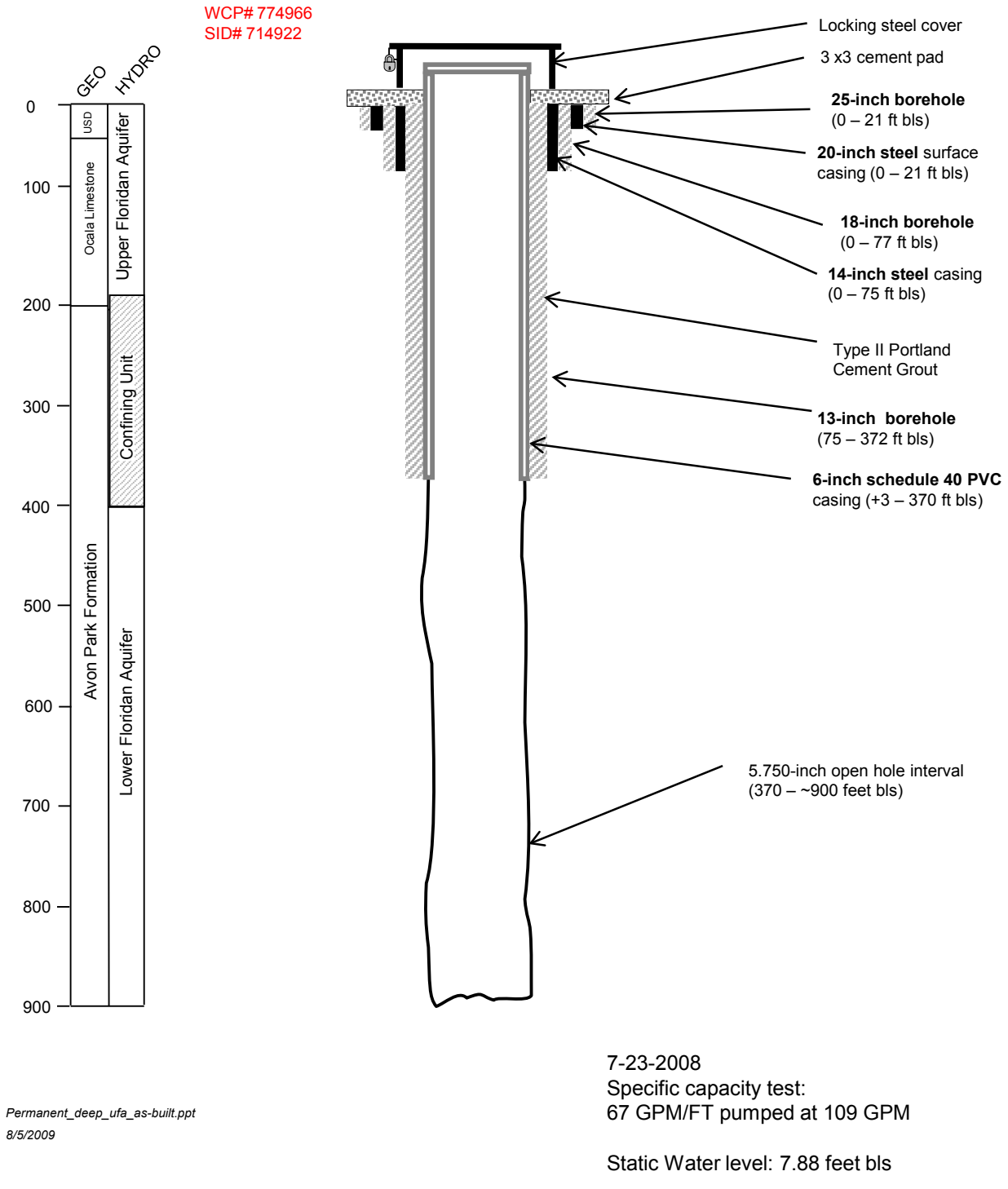

Figure B-3. As-built diagram permanent Lower Floridan aquifer monitor well.

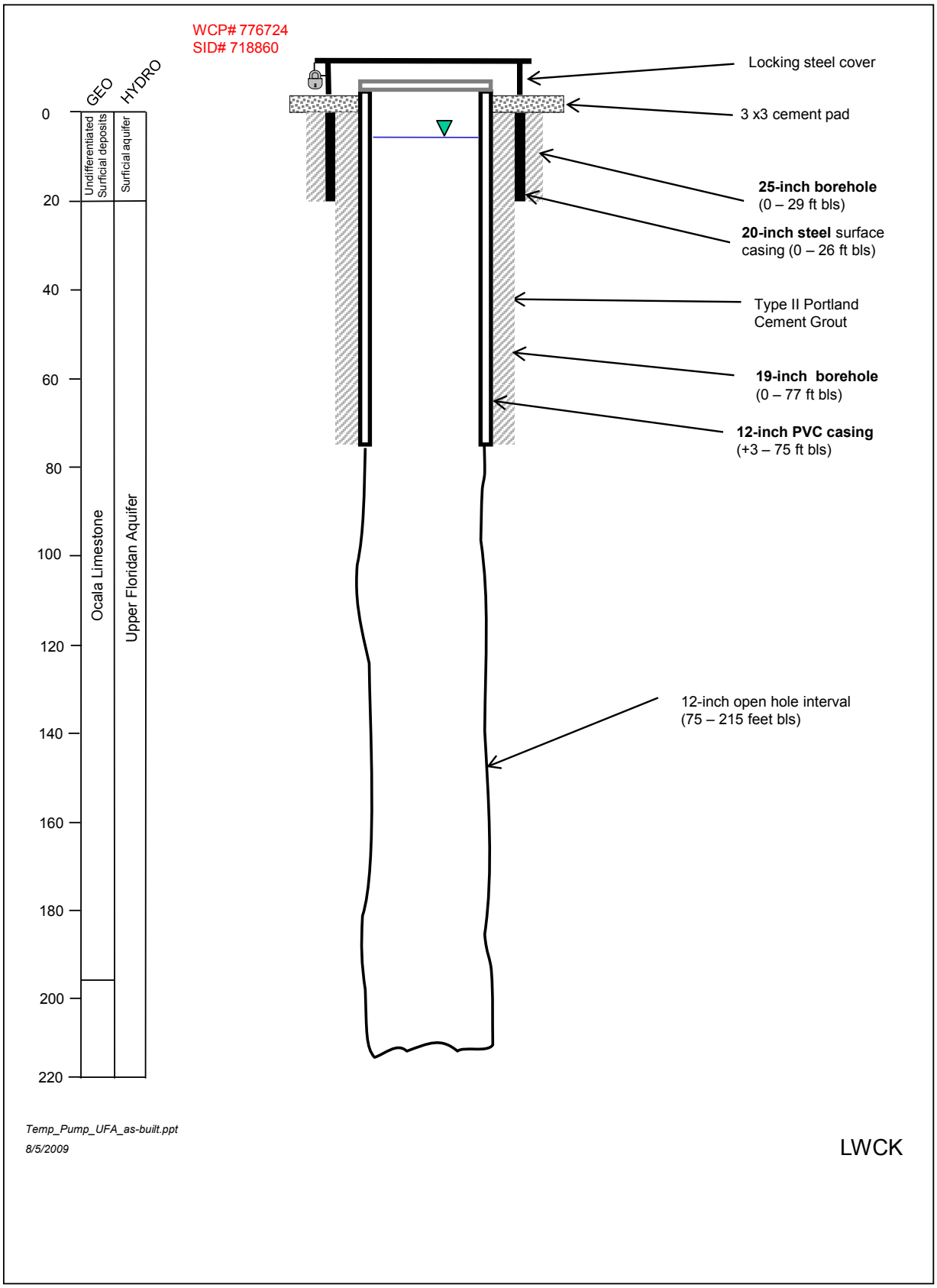

Figure B-4. As-built diagram temporary Upper Floridan aquifer well.

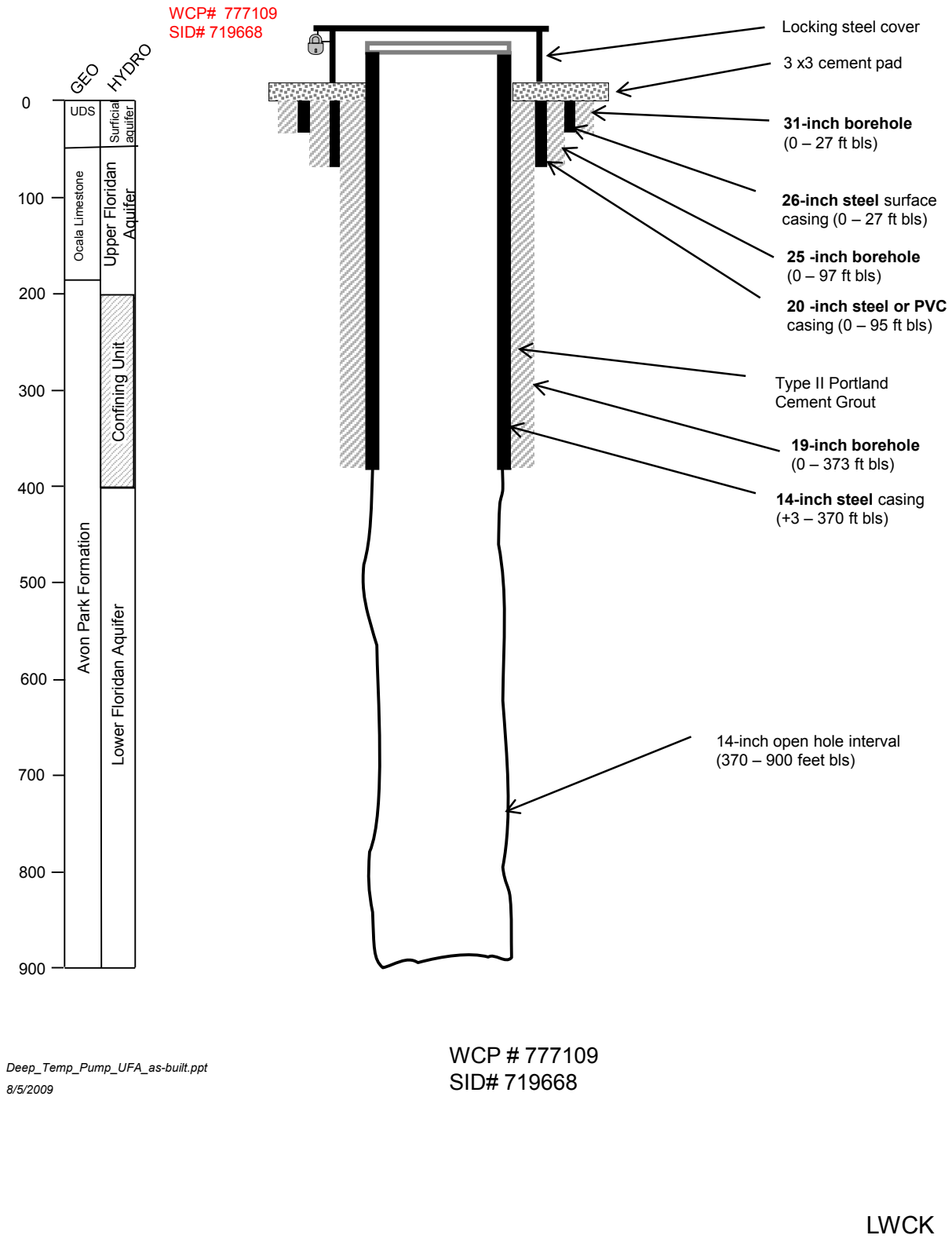

Figure B-5. As-built diagram temporary Lower Floridan aquifer well.

Appendix C. Lithologic log from the ROMP 100 well site

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LITHOLOGIC WELL LOG PRINTOUT                    SOURCE - FGS

WELL NUMBER:   W-19229                          COUNTY -   PS19229
TOTAL DEPTH:    1253  FT.                       LOCATION:  T.23S R.22E S.35
SAMPLES - NONE                                             LAT = 28D 26M 18S
                                                           LON = 82D 05M 05S
COMPLETION DATE: N/A                            ELEVATION: 80 FT
OTHER TYPES OF LOGS AVAILABLE - NONE

OWNER/DRILLER:Southwest Florida Water Management District
WELL NAME: ROMP 100, Clay Sink

WORKED BY:Scott Barrett Dyer; Completed 05/05/11
Lat/Long: 28d 26m 18.38s; 82d 05m 4.7s
Elevation Provided was ~80; 115 boxes

    0.   -   20.0  090UDSC   UNDIFFERENTIATED SAND AND CLAY
   20.0  -  180.2  124OCAL   OCALA GROUP
  180.2  - 1253.0  124AVPK   AVON PARK FM.

    0  -    3   SAND; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
                 30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
                 GRAIN SIZE: FINE; RANGE: FINE TO COARSE
                 ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
                 UNCONSOLIDATED
                 CEMENT TYPE(S): CLAY MATRIX
                 ACCESSORY MINERALS: ORGANICS-03%, PLANT REMAINS-01%
                 CLAY-01%
                 OTHER FEATURES: GRANULAR

    3  -    5   SAND; GRAYISH BROWN
                 30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
                 GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
                 ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
                 UNCONSOLIDATED
                 CEMENT TYPE(S): CLAY MATRIX
                 ACCESSORY MINERALS: CLAY-03%, PLANT REMAINS-03%, SILT-01%
                 IRON STAIN-01%
                 OTHER FEATURES: GRANULAR

    5  -    7.3 SAND; GRAYISH BROWN
                 25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
                 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
                 ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
                 UNCONSOLIDATED
                 CEMENT TYPE(S): CLAY MATRIX
                 ACCESSORY MINERALS: HEAVY MINERALS-02%, IRON STAIN-02%
                 ORGANICS-01%
                 OTHER FEATURES: GRANULAR

    7.3-   12.5 SAND; GRAYISH BROWN
                 20% 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: HEAVY MINERALS-02%, SHELL-01%
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12.5- 13.5 SAND; GRAYISH BROWN
20% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: HEAVY MINERALS-02%, IRON STAIN-01%

13.5- 20 CLAY; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: HEAVY MINERALS-02%

20 - 25 MUDSTONE; WHITE
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CALCILUTITE; 01% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: GLAUCONITE-01%
OTHER FEATURES: CHALKY
Top Of Ocala Formation

25 - 30 MUDSTONE; WHITE
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%, HEAVY MINERALS-01%
PYRITE-01%
OTHER FEATURES: CHALKY
25-30': Only 6 inches of rubble recovered; vug or cavity

30 - 33 WACKESTONE; VERY LIGHT ORANGE TO WHITE
25% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY COARSE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%, HEAVY MINERALS-01%
OTHER FEATURES: CALCAREOUS, FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS, CORAL
BENTHIC FORAMINIFERA
30-33': Only 1 ft recovery

33 - 35 WACKESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%, HEAVY MINERALS-01%
ORGANICS-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS

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FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS, CORAL
BENTHIC FORAMINIFERA
33-35': Only 0.5 ft recovery

35 - 42.5 PACKSTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%, ORGANICS-01%, SHELL-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS, CORAL
BENTHIC FORAMINIFERA

42.5- 55 WACKESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS

55 - 65 PACKSTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%, CALCITE-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, WORM TRACES
BENTHIC FORAMINIFERA

65 - 70 WACKESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRANULE
UNCONSOLIDATED
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
65-70': almost no recovery; 6 inches of wackestone rubble

70 - 115.2 PACKSTONE; VERY LIGHT ORANGE
33% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELTAL CAST, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE
RANGE: MICROCRYSTALLINE TO GRANULE; POOR INDURATION

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CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%, CALCITE-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA, BRYOZOA, MOLLUSKS
70-115':Gradation from 50% allochems to 70% allochems over the interval

115.2- 130 GRAINSTONE; VERY LIGHT ORANGE
33% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: BIOGENIC, PELLET, SKELTAL CAST
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%, IRON STAIN-01%
CALCILUTITE-03%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BRYOZOA, BENTHIC FORAMINIFERA, MILIOLIDS
FOSSIL FRAGMENTS, FOSSIL MOLDS

130 - 135 GRAINSTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: BIOGENIC, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, CALCILUTITE-03%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: MILIOLIDS, BRYOZOA, BENTHIC FORAMINIFERA
130-135': Still a grainstone but grains finer than above less whole allochems, more of shell or skeletal material possible shore wave break zone

135 - 140.2 GRAINSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-03%, CALCITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA, FOSSIL FRAGMENTS
FOSSIL MOLDS

140.2- 147.8 GRAINSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, PELLET
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-03%, CALCITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA, FOSSIL FRAGMENTS

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FOSSIL MOLDS, MILIOLIDS

147.8- 152 GRAINSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-03%, CALCITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA, FOSSIL FRAGMENTS
FOSSIL MOLDS

152 - 165 GRAINSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, PELLET
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-03%, CALCITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, BRYOZOA, FOSSIL FRAGMENTS
FOSSIL MOLDS, MILIOLIDS

165 - 165.5 MUDSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-02%

165.5- 174.9 GRAINSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
25% POROSITY: INTERGRANULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC, PELLET
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS
FOSSIL MOLDS
Low recovery, about 30%

174.9- 177.8 WACKESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%

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177.8- 180.2 PACKSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-04%, PYRITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: MILIOLIDS, ALGAE, FOSSIL FRAGMENTS, CONES
Top of Avon Park

180.2- 183 WACKESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
GRAIN TYPE: CALCILUTITE, SKELTAL CAST, BIOGENIC
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%, CALCITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, CONES
184':possibly mislabeled; Interpreted recovery and other footage markings and believe marker for 184' is actually 183'

183 - 185 PACKSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-02%
OTHER FEATURES: FOSSILIFEROUS, CHALKY
FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS

185 - 185.2 MUDSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-01%
OTHER FEATURES: CHALKY

185.2- 192.1 GRAINSTONE; GRAYISH ORANGE PINK TO GRAYISH BROWN
25% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, PELLET
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PYRITE-04%, ORGANICS-02%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: ALGAE, BENTHIC FORAMINIFERA, MILIOLIDS, CONES
ORGANICS

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186': beautiful dark green pyrite; at this area, percent increases up to 10% for narrow range of <1 foot.

192.1- 193 WACKESTONE; GRAYISH BROWN TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, GLAUCONITE-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS

193 - 197.4 PACKSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-05%, CALCILUTITE-02%
OTHER FEATURES: SPECKLED, FOSSILIFEROUS
FOSSILS: MILIOLIDS, MOLLUSKS, BENTHIC FORAMINIFERA, CONES
FOSSIL MOLDS

197.4- 200.4 WACKESTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, INTRACLASTS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: MILIOLIDS, CONES, FOSSIL FRAGMENTS

200.4- 201.9 PACKSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%, CALCITE-01%
OTHER FEATURES: SPECKLED, FOSSILIFEROUS
FOSSILS: CONES, MILIOLIDS, BENTHIC FORAMINIFERA

201.9- 204 PACKSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, CRYSTALS
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
ACCESSORY MINERALS: CALCITE-10%, ORGANICS-01%
IRON STAIN-01%
OTHER FEATURES: LOW RECRYSTALLIZATION, CRYSTALLINE
FOSSILIFEROUS
FOSSILS: CONES, MILIOLIDS, FOSSIL FRAGMENTS

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Higher volume of Dictyoconus over last several feet
Calcite recrystallization of matrix; transitioned to calcite spar matrix vs. micrite mud

204 - 204.2 PACKSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%, CALCITE-01%
FOSSILS: CONES, MILIOLIDS
At this depth +/- 3 inches: section of micrite as matrix (not calcite as above)

204.2- 212.1 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%, SPAR-02%, ORGANICS-01%
OTHER FEATURES: LOW RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: CONES, MILIOLIDS, MOLLUSKS, ALGAE
FOSSIL FRAGMENTS

212.1- 214.7 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-20%
OTHER FEATURES: WEATHERED, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, ORGANICS
At 212.4': 6 inch layer of organics and micrite; High organics throughout 212-214.7; fine layers and chunks. Most shell fragments are highly weathered, almost mostly white micrite of shell casts. At 214.5':layers of highly weathered shell fragments inter-lain with micrite and fine organics

214.7- 216.3 PACKSTONE; GRAYISH ORANGE PINK TO VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: INTRACLASTS, BIOGENIC, SKELTAL CAST
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: CALCITE-02%, ORGANICS-01%
OTHER FEATURES: SPECKLED, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS, FOSSIL FRAGMENTS
FOSSIL MOLDS
Noticeably higher quantity of what appears of Spirolina and

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Cribrobulimina

216.3- 222.5 MUDSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, INTRACLASTS
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, ORGANICS-01%

222.5- 224.6 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
25% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: INTRACLASTS, BIOGENIC, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: GRANULAR, SPECKLED, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, ORGANICS

224.6- 230 PACKSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: SPECKLED, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS, CONES
FOSSIL FRAGMENTS, FOSSIL MOLDS

230 - 234.9 PACKSTONE; GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS

234.9- 237.7 PACKSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, ORGANICS-01%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS, CONES
FOSSIL FRAGMENTS, FOSSIL MOLDS

237.7- 240 PACKSTONE; GRAYISH ORANGE

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25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, ORGANICS-01%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS, CONES
FOSSIL FRAGMENTS, FOSSIL MOLDS

240 - 245 CALCARENITE; GRAYISH ORANGE
30% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, INTRACLASTS
GRAIN SIZE: MEDIUM; RANGE: FINE TO VERY COARSE
UNCONSOLIDATED
ACCESSORY MINERALS: PYRITE-01%, ORGANICS-01%
OTHER FEATURES: CALCAREOUS, GRANULAR, WEATHERED
FOSSILIFEROUS
240-245': No recovery,1 bag of calcareous sand sized grains
of loose allochems and biofragments

245 - 248.9 PACKSTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: CALCITE-01%, PYRITE-01%, ORGANICS-02%
OTHER FEATURES: GRANULAR, SPECKLED, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, CONES, MILIOLIDS
FOSSIL FRAGMENTS

248.9- 250.5 PACKSTONE; VERY LIGHT ORANGE
25% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
GRAIN TYPE: BIOGENIC, INTRACLASTS, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, PYRITE-01%, ORGANICS-01%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS, CONES
FOSSIL FRAGMENTS

250.5- 257.7 WACKESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, PYRITE-01%, ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, MILIOLIDS, CONES
FOSSIL FRAGMENTS

ROMP 100: Clay Sink
W-19229

257.7- 261 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE; 01% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, ORGANICS-01%
OTHER FEATURES: CHALKY
At 260-260.2: Small range of laminae of brown euhedral dolomite crystals.

261 - 263.5 MUDSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: INTRACLASTS, CRYSTALS, CALCILUTITE
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-20%, ORGANICS-01%
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION
CRYSTALLINE, SUCROSIC

263.5- 265.7 DOLOSTONE; GRAYISH ORANGE PINK TO MODERATE ORANGE PINK
20% POROSITY: INTRAGRANULAR, INTERCRYSTALLINE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-01%, ORGANICS-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CRYSTALLINE
FOSSILS: ORGANICS, NO FOSSILS

265.7- 269.1 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-01%, ORGANICS-01%
OTHER FEATURES: SUCROSIC, HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, ECHINOID

269.1- 270.1 DOLOSTONE; GRAYISH ORANGE PINK
25% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-03%, ORGANICS-01%
OTHER FEATURES: FROSTED, HIGH RECRYSTALLIZATION

270.1- 271 MUDSTONE; GRAYISH ORANGE PINK
25% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CRYSTALS, CALCILUTITE
03% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE

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MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-10%, ORGANICS-01%
OTHER FEATURES: DOLOMITIC, FROSTED, LOW RECRYSTALLIZATION
FOSSILS: NO FOSSILS

271 - 272 MUDSTONE; GRAYISH ORANGE PINK
25% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
GRAIN TYPE: CALCILUTITE, CRYSTALS
03% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%, CALCITE-01%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS

272 - 275 MUDSTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS

275 - 276.5 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 01% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-10%
OTHER FEATURES: MUDDY, VARVED, FROSTED
FOSSILS: NO FOSSILS
Organic laminae throughout; fine and silty texture

276.5- 280 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 01% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, ORGANICS-01%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS

280 - 285 WACKESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
UNCONSOLIDATED
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, ORGANICS-01%

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OTHER FEATURES: POOR SAMPLE, GRANULAR, SPECKLED
FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, ORGANICS
280.0-285.0': Poor recovery; 1 ft granular wackestone and fossil fragments and bag of medium grained calcareous sand.

285 - 290 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS
07% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, CALCITE-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: CONES, BENTHIC FORAMINIFERA, MILIOLIDS

290 - 291.8 WACKESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC
18% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, CALCITE-01%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, CONES, FOSSIL FRAGMENTS
FOSSIL MOLDS, ORGANICS

291.8- 300 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS
04% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, CALCITE-01%
OTHER FEATURES: CHALKY
FOSSILS: ORGANICS

300 - 300.7 PACKSTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-03%, CLAY-02%, ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS
Grains are fossil fragments composed of micrite. Clay is present as laminae with some organics.

300.7- 301.2 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE

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POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%, CLAY-01%
FOSSILS: ORGANICS, NO FOSSILS

301.2- 301.5 MUDSTONE; GRAYISH BROWN TO GRAYISH ORANGE PINK
20% POROSITY: INTRAGRANULAR, PIN POINT VUGS
GRAIN TYPE: CRYSTALS; 08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
ACCESSORY MINERALS: DOLOMITE-30%, ORGANICS-01%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
FROSTED, SUCROSIC

301.5- 305.7 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
25% POROSITY: INTRAGRANULAR, VUGULAR, INTERCRYSTALLINE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-02%, CALCILUTITE-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, FROSTED, SUCROSIC

305.7- 308.2 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, INTRACLASTS
08% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS

308.2- 311 WACKESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%, ORGANICS-01%
OTHER FEATURES: PLATY, MUDDY
FOSSILS: ECHINOID, CONES, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS, MILIOLIDS
310.8-311.2': section has noticeable large (>1cm) vugs and
fossil molds.

311 - 321.9 PACKSTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: INTRACLASTS, BIOGENIC, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-03%, ORGANICS-01%, CLAY-01%

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OTHER FEATURES: FOSSILIFEROUS, MUDDY
FOSSILS: CONES, BENTHIC FORAMINIFERA, ECHINOID, MILIOLIDS
FOSSIL FRAGMENTS
AT 315.7' 2 inches of varves of clay and organics

321.9- 324.9 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
GRAIN TYPE: INTRACLASTS, CALCILUTITE, BIOGENIC
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-25%, ORGANICS-01%
OTHER FEATURES: LOW RECRYSTALLIZATION, CRYSTALLINE
FOSSILIFEROUS
FOSSILS: CONES, MILIOLIDS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
Anhedral to subhedral calcite; recrystallization now part of matrix giving orange coloration.

324.9- 325.2 WACKESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS
18% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-10%, ORGANICS-01%, SHELL- %
OTHER FEATURES: FOSSILIFEROUS, CRYSTALLINE
FOSSILS: MILIOLIDS, CONES, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

325.2- 340.6 PACKSTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: INTRACLASTS, SKELETAL, BIOGENIC
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-03%, ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: ECHINOID, CONES, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

340.6- 342.5 WACKESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS, CRYSTALS
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-20%, ORGANICS-02%, PYRITE-01%
OTHER FEATURES: LOW RECRYSTALLIZATION, CRYSTALLINE
FOSSILS: WORM TRACES, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
Recrystallization is very fine anhedral calcite crystals speckled throughout.

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342.5- 343.7 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, INTERGRANULAR
LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, CRYSTALS, INTRACLASTS
03% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-05%, ORGANICS-02%
FOSSILS: CONES, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

343.7- 344.5 MUDSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE; 03% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CHALKY

344.5- 345 MUDSTONE; VERY LIGHT ORANGE
15% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE; 01% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS

345 - 348.7 PACKSTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: INTRACLASTS, SKELETAL, BIOGENIC
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-03%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, CONES, FOSSIL FRAGMENTS

348.7- 352.5 WACKESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS, SKELETAL
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS

352.5- 355.5 WACKESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, INTRACLASTS

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30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-04%, CALCITE-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS, ORGANICS

355.5- 357.4 WACKESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CALCILUTITE, INTRACLASTS, SKELTAL CAST
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-07%, ORGANICS-02%
OTHER FEATURES: CRYSTALLINE, FOSSILIFEROUS
FOSSILS: ORGANICS, FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA

357.4- 362.7 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, CRYSTALS
09% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-30%, ORGANICS-01%
OTHER FEATURES: CHALKY, VARVED, MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS
358.0-358.5': Recrystalized calcite represented as varve like appearance; 358.5-360.0': Recrystalized calcite, both varved and mottled; 360.0-360.5': Return to varve recrystallization.

362.7- 363.3 WACKESTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-20%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CRYSTALLINE
FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, BRACHIOPOD
FOSSIL FRAGMENTS, FOSSIL MOLDS

363.3- 364.9 MUDSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC
09% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-20%

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OTHER FEATURES: LOW RECRYSTALLIZATION, CRYSTALLINE
FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS

364.9- 366 MUDSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CALCILUTITE, CRYSTALS
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY COARSE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-02%
Interval has dolomite crystals suspended in calcilutite matrix (1-4 mm in size).

366 - 370 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTRAGRANULAR, MOLDIC, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: FROSTED, HIGH RECRYSTALLIZATION
CRYSTALLINE
FOSSILS: NO FOSSILS

370 - 373 DOLOSTONE; GRAYISH ORANGE
15% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: CRYSTALLINE, HIGH RECRYSTALLIZATION, MUDDY

373 - 374 DOLOSTONE; MODERATE YELLOWISH BROWN
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: FROSTED, SUCROSIC, HIGH RECRYSTALLIZATION
POOR SAMPLE
FOSSILS: NO FOSSILS
1 foot interval: 50% recovery; unconsolidated sucrosic rubble

374 - 376.9 DOLOSTONE; MODERATE YELLOWISH BROWN
25% POROSITY: INTERGRANULAR, FRACTURE
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: GRANULAR, SUCROSIC, HIGH RECRYSTALLIZATION
FOSSILS: NO FOSSILS
The last 0.3 ft of interval is highly sucrosic, has higher porosity, moldic and is less consolidated.

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376.9- 381.9 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-01%
OTHER FEATURES: FROSTED, HIGH RECRYSTALLIZATION
CRYSTALLINE
FOSSILS: FOSSIL MOLDS
Interval mostly crystalline with frosted or sucrosic texture along healed fractures, around small vugs, and at random regions of the core.

381.9- 388.9 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-01%
OTHER FEATURES: FROSTED, GRANULAR, HIGH RECRYSTALLIZATION
CRYSTALLINE, SUCROSIC
FOSSILS: FOSSIL MOLDS
Interval mostly sucrosic but does contain intervals of nearly crystalline. Significant interval of finer less porous crystalline area from 386.6-387.0'

388.9- 389.6 MUDSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, INTERCRYSTALLINE
INTERGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-15%, ORGANICS-01%
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION, SPECKLED
FOSSILS: FOSSIL FRAGMENTS
Section of mudstone has subhedral, very fine crystals of dolomite; dolomite is +/- 15% total core

389.6- 390.8 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-20%, ORGANICS-04%
OTHER FEATURES: CALCAREOUS, HIGH RECRYSTALLIZATION
SUCROSIC
Has interbedded thin laminae of dolomitic mudstone at 390.1' and 390.5'; also laminae of crystalline dolomite bed at 390.3'.

390.8- 391.5 MUDSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTRAGRANULAR, INTERGRANULAR, FRACTURE

ROMP 100: Clay Sink
W-19229

GRAIN TYPE: CALCILUTITE, CRYSTALS
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-20%, ORGANICS-01%
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION
CRYSTALLINE, SPECKLED, MUDDY
FOSSILS: FOSSIL FRAGMENTS, ORGANICS

391.5- 396.5 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-01%
OTHER FEATURES: SUCROSIC, GRANULAR, HIGH RECRYSTALLIZATION
CRYSTALLINE
FOSSILS: FOSSIL MOLDS

396.5- 400 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-01%
OTHER FEATURES: FROSTED, HIGH RECRYSTALLIZATION
CRYSTALLINE
FOSSILS: NO FOSSILS

400 - 402.9 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CRYSTALLINE
FOSSILS: FOSSIL MOLDS

402.9- 404.2 DOLOSTONE; GRAYISH BROWN
23% POROSITY: INTERGRANULAR; 90-100% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: FROSTED, HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILS: NO FOSSILS

404.2- 405 DOLOSTONE; GRAYISH BROWN
28% POROSITY: FRACTURE, PIN POINT VUGS, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

ROMP 100: Clay Sink
W-19229

SEDIMENTARY STRUCTURES: LAMINATED, MOTTLED
OTHER FEATURES: HIGH RECRYSTALLIZATION, CRYSTALLINE SUCROSIC
FOSSILS: NO FOSSILS
Crystalline dolostone has frosted sucrosic crystals infilling vugs and fractures.

405 - 407.9 DOLOSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
90-100% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CLAY-01%, ORGANICS-01%
OTHER FEATURES: GRANULAR, HIGH RECRYSTALLIZATION, SUCROSIC
FOSSILS: FOSSIL MOLDS

407.9- 411.3 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-03%
OTHER FEATURES: CALCAREOUS
FOSSILS: NO FOSSILS

411.3- 415 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTRAGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, MOTTLED
ACCESSORY MINERALS: CALCILUTITE-04%
OTHER FEATURES: CALCAREOUS
After 411': micrite amount increases but still a dolostone

415 - 416.5 DOLOSTONE; LIGHT OLIVE GRAY
30% POROSITY: VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-04%, CALCITE-01%
OTHER FEATURES: CALCAREOUS, HIGH RECRYSTALLIZATION CRYSTALLINE
FOSSILS: FOSSIL MOLDS

416.5- 420.1 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, FRACTURE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: HIGH RECRYSTALLIZATION, CRYSTALLINE

ROMP 100: Clay Sink
W-19229

FOSSILS: FOSSIL MOLDS

420.1- 426.5 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, MOTTLED
OTHER FEATURES: POOR SAMPLE, HIGH RECRYSTALLIZATION
FOSSILS: NO FOSSILS
Poor sample; only 50% recovery; areas of laminations with some medium anhedral dolomite deposits.

426.5- 429.5 DOLOSTONE; GRAYISH BROWN
22% POROSITY: INTERGRANULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: POOR SAMPLE, HIGH RECRYSTALLIZATION
Poor sample; 50% recovery

429.5- 431.3 DOLOSTONE; LIGHT OLIVE GRAY
18% POROSITY: INTRAGRANULAR, FRACTURE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: POOR SAMPLE, HIGH RECRYSTALLIZATION
FOSSILS: NO FOSSILS
Noticeable fracture and vugs infilled with medium grained dolostone

431.3- 431.4 CLAY; DARK BROWN
25% POROSITY: INTRAGRANULAR, INTERGRANULAR
LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: POOR SAMPLE, HIGH RECRYSTALLIZATION

431.4- 435.3 DOLOSTONE; LIGHT OLIVE GRAY
18% POROSITY: INTRAGRANULAR, INTERCRYSTALLINE
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: CRYSTALLINE
Only 1 foot of combined rubble recovered. Possible open void (and high permeability)

435.3- 439.8 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PYRITE-01%

ROMP 100: Clay Sink
W-19229

OTHER FEATURES: POOR SAMPLE, HIGH RECRYSTALLIZATION
CRYSTALLINE
FOSSILS: NO FOSSILS
50% recovery

439.8- 442 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PYRITE-01%
OTHER FEATURES: POOR SAMPLE, HIGH RECRYSTALLIZATION
FOSSILS: NO FOSSILS

442 - 443.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
25% POROSITY: INTERGRANULAR, VUGULAR
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: GRANULAR, HIGH RECRYSTALLIZATION
FOSSILS: NO FOSSILS, FOSSIL MOLDS

443.3- 448.5 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PYRITE-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, CRYSTALLINE
FOSSILS: FOSSIL MOLDS

448.5- 459.9 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
25% POROSITY: MOLDIC, FRACTURE, VUGULAR; 90-100% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-01%
OTHER FEATURES: POOR SAMPLE, HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS

459.9- 467 DOLOSTONE; GRAYISH BROWN
25% POROSITY: MOLDIC, FRACTURE, VUGULAR; 90-100% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-01%, ORGANICS-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS
At 462': 6 inch section of finer grained dolostone

467 - 470.1 DOLOSTONE; VERY LIGHT ORANGE
23% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS

ROMP 100: Clay Sink
W-19229

90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%, CLAY-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, ORGANICS
At 469.9': Thin layer of clay with thin laminae of organics. Clay is dolomitic and same color as the section.

470.1- 471.9 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, FRACTURE, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
OTHER FEATURES: POOR SAMPLE
Interval is rubble, similar to intervals above and below.

471.9- 472.4 CLAY; DARK YELLOWISH BROWN TO MODERATE OLIVE BROWN
25% POROSITY: INTRAGRANULAR

472.4- 473.9 DOLOSTONE; GRAYISH BROWN
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

473.9- 498 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
24% POROSITY: INTERGRANULAR, FRACTURE, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CALCAREOUS, CHALKY, VARVED
FOSSILS: ORGANICS, FOSSIL MOLDS
Interval has varved organics at several locations. In addition, significant organic layers at 479.5 (4mm), 482 (2mm), 488, and 497'.

498 - 507 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%, CLAY-04%
OTHER FEATURES: CHALKY, SPECKLED, MUDDY
FOSSILS: ORGANICS, FOSSIL MOLDS
Varves of clay and organics throughout

507 - 514.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION

ROMP 100: Clay Sink
W-19229

CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-03%, ORGANICS-03%
OTHER FEATURES: CALCAREOUS

514.5- 520.5 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, INTERGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-02%, ORGANICS-03%
OTHER FEATURES: CHALKY, VARVED
Organic varves at 515 - 516'.

520.5- 524 DOLOSTONE; VERY LIGHT ORANGE
24% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-02%, ORGANICS-02%
FOSSILS: FOSSIL MOLDS, ORGANICS

524 - 530.5 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, VUGULAR, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-01%, ORGANICS-01%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL MOLDS

530.5- 533 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-01%, ORGANICS-01%
OTHER FEATURES: FROSTED
FOSSILS: FOSSIL MOLDS, ORGANICS

533 - 534 DOLOSTONE; GRAYISH ORANGE
28% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS

534 - 545 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, FRACTURE, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION

ROMP 100: Clay Sink
W-19229

CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL MOLDS
Represented by <4 feet of rubble core. Possibly vugular area due to absence if core.

545 - 551 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: FINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

551 - 558 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-02%

558 - 559.5 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 10-50% ALTERED ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-05%, ORGANICS-01%
OTHER FEATURES: CALCAREOUS
Exceptionally clean and uniform fine grain low alteration dolostone.

559.5- 566.8 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-02%
OTHER FEATURES: CALCAREOUS

566.8- 568.7 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-02%, ORGANICS-01%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS

568.7- 572.8 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL

ROMP 100: Clay Sink
W-19229

GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-02%, ORGANICS-02%
OTHER FEATURES: CALCAREOUS, CHALKY
FOSSILS: NO FOSSILS, ORGANICS

572.8- 575.5 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ-02%, CALCILUTITE-02%
ORGANICS-01%
OTHER FEATURES: CALCAREOUS
FOSSILS: NO FOSSILS, ORGANICS
Quartz vein at 572.9; subhedral to euhedral and clusters

575.5- 579.2 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-02%, ORGANICS-01%
OTHER FEATURES: CALCAREOUS, CHALKY
FOSSILS: NO FOSSILS, ORGANICS
Peculiar mold of organic growth on core at 575; possibly post-recovery growth

579.2- 586.5 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ-01%, CALCILUTITE-02%
ORGANICS-02%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS
Quartz sub to euhedral crystals at 585.5; Slightly calcareous; 583.4-585': Poor recovery, interval of unconsolidated very fine to fine sized grains, has slightly darker color.

586.5- 589 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%, CALCILUTITE-01%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS, ORGANICS

589 - 592.5 DOLOSTONE; VERY LIGHT ORANGE

ROMP 100: Clay Sink
W-19229

23% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%, CALCILUTITE-01%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ORGANICS

592.5- 599.5 DOLOSTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY COARSE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ORGANICS
Poor recovery 595-599.0'; Only 50%; what remains is more vugular

599.5- 600.8 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ORGANICS

600.8- 602.8 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS, ORGANICS

602.8- 605 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY COARSE TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS
At 603.0-603.2': Narrow range of grey microcrystalline dolostone rubble

605 - 608.1 DOLOSTONE; GRAYISH BROWN
23% POROSITY: INTERGRANULAR, MOLDIC, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM

ROMP 100: Clay Sink
W-19229

POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-07%
OTHER FEATURES: MUDDY
FOSSILS: FOSSIL MOLDS, ORGANICS

608.1- 609.2 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%
OTHER FEATURES: MUDDY
FOSSILS: FOSSIL MOLDS, NO FOSSILS

609.2- 610.5 DOLOSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-13%
OTHER FEATURES: MUDDY
FOSSILS: FOSSIL MOLDS, NO FOSSILS
At 610.0-610.3': Very vuggy with higher organics

610.5- 615 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
ACCESSORY MINERALS: ORGANICS-15%
OTHER FEATURES: MUDDY
FOSSILS: NO FOSSILS, ORGANICS

615 - 615.8 DOLOSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

615.8- 618 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%, QUARTZ-04%
CALCILUTITE-01%
OTHER FEATURES: CALCAREOUS
FOSSILS: ORGANICS
Thin well-defined organic layer at 616.0'.

ROMP 100: Clay Sink
W-19229

618 - 622.4 DOLOSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
FOSSILS: FOSSIL MOLDS

622.4- 625.8 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
FOSSILS: FOSSIL MOLDS

625.8- 629.1 DOLOSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
FOSSILS: FOSSIL MOLDS, ORGANICS

629.1- 631.1 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%

631.1- 639 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: MOLDIC, PIN POINT VUGS, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: FOSSIL MOLDS
Varies from pinpoint vugs to more vugular, back to pinpoint vugs

639 - 640 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTRAGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
FOSSILS: ORGANICS
Defined organic layer at 639.0'.

640 - 643.1 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE

ROMP 100: Clay Sink
W-19229

25% POROSITY: VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
FOSSILS: FOSSIL MOLDS
642.0': 2 inch section of varved organics

643.1- 643.3 CLAY; GRAYISH BROWN
25% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ-01%

643.3- 650 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
25% POROSITY: VUGULAR, MOLDIC, POSSIBLY HIGH PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
FOSSILS: FOSSIL MOLDS

650 - 652.5 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
22% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL MOLDS

652.5- 656.3 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: FRACTURE, 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-04%
OTHER FEATURES: FROSTED, CRYSTALLINE, MUDDY
FOSSILS: FOSSIL MOLDS, ORGANICS

656.3- 657.6 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%, QUARTZ-01%
OTHER FEATURES: CHALKY, MUDDY, VARVED
FOSSILS: ORGANICS
656.5': Varves of organics with dual ended prisms of quartz

657.6- 658 DOLOSTONE; GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL

ROMP 100: Clay Sink
W-19229

GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: GRANULAR
FOSSILS: NO FOSSILS

658 - 661.2 DOLOSTONE; GRAYISH ORANGE
24% POROSITY: INTERGRANULAR, MOLDIC, 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-02%
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: NO FOSSILS, FOSSIL MOLDS, ORGANICS

661.2- 661.8 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: CHALKY, MUDDY
FOSSILS: ORGANICS
At 661.5': Varves of organics

661.8- 663.9 DOLOSTONE; GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: NO FOSSILS
At 663.7': Sub to euhedral quartz crystals in vugs

663.9- 665.2 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTRAGRANULAR, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: MUDDY
FOSSILS: ORGANICS
At 664.8': Odd dendritic organic growth on the outside of the core-post drill

665.2- 667.9 DOLOSTONE; GRAYISH ORANGE
22% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%

ROMP 100: Clay Sink
W-19229

OTHER FEATURES: FROSTED

667.9- 669 DOLOSTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: VARVED
FOSSILS: NO FOSSILS, ORGANICS
Varves at 668.0'.

669 - 671.2 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: PIN POINT VUGS, MOLDIC, INTERCRYSTALLINE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%, QUARTZ-01%
OTHER FEATURES: CRYSTALLINE
FOSSILS: NO FOSSILS
Small (<2mm) euhedral quartz crystals at lower portion of
interval

671.2- 671.9 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: FRACTURE, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ-05%
OTHER FEATURES: CRYSTALLINE
FOSSILS: NO FOSSILS

671.9- 673.9 DOLOSTONE; GRAYISH ORANGE
22% POROSITY: PIN POINT VUGS, FRACTURE, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: NO FOSSILS, FOSSIL MOLDS

673.9- 674.2 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: MUDDY, VARVED
FOSSILS: ORGANICS

674.2- 684.9 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
22% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL

ROMP 100: Clay Sink
W-19229

GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

684.9- 686.2 DOLOSTONE; GRAYISH ORANGE PINK TO VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CHALKY, VARVED
FOSSILS: NO FOSSILS, ORGANICS

686.2- 688.1 DOLOSTONE; GRAYISH ORANGE PINK
20% POROSITY: PIN POINT VUGS, INTERGRANULAR
INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: FROSTED, CRYSTALLINE, MUDDY
FOSSILS: FOSSIL MOLDS, ORGANICS

688.1- 689.1 DOLOSTONE; GRAYISH ORANGE PINK
25% POROSITY: VUGULAR, FRACTURE, MOLDIC; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-09%
OTHER FEATURES: FROSTED, CRYSTALLINE, MUDDY
FOSSILS: FOSSIL MOLDS, ORGANICS
Some of larger vugs infilled with dolosilt and organics

689.1- 689.7 DOLOSTONE; GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%, QUARTZ-01%
OTHER FEATURES: MUDDY, VARVED
FOSSILS: ORGANICS
Varves of organics at top portion of interval; organic
layer +/- 2 mm; 689.4': with 1mm euhedral quartz crystals

689.7- 693 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
20% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%

ROMP 100: Clay Sink
W-19229

OTHER FEATURES: MUDDY
FOSSILS: FOSSIL MOLDS, ORGANICS

693 - 698.2 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
25% POROSITY: PIN POINT VUGS, MOLDIC, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

698.2- 698.7 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%, CALCILUTITE-01%
OTHER FEATURES: CALCAREOUS, CHALKY, VARVED
FOSSILS: NO FOSSILS, ORGANICS

698.7- 700.2 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, INTERCRYSTALLINE
PIN POINT VUGS; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS, NO FOSSILS

700.2- 704.5 DOLOSTONE; VERY LIGHT ORANGE
21% POROSITY: PIN POINT VUGS, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS, NO FOSSILS

704.5- 706.2 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CHALKY, VARVED
FOSSILS: ORGANICS, NO FOSSILS

706.2- 708.9 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION

ROMP 100: Clay Sink
W-19229

CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: MUDDY, VARVED
FOSSILS: ORGANICS, NO FOSSILS
Interval has varves at the top and small vugs near bottom.

708.9- 710 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: VARVED
FOSSILS: NO FOSSILS

710 - 711.8 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, NO FOSSILS, ORGANICS

711.8- 713.1 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS, ORGANICS

713.1- 715.5 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH ORANGE
24% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: MUDDY, CRYSTALLINE, FROSTED
FOSSILS: NO FOSSILS, FOSSIL MOLDS, ORGANICS

715.5- 719.6 DOLOSTONE; GRAYISH ORANGE
24% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL MOLDS, OSTRACODS
At 716.5': 1 inch layer of very fine varved dolostone

ROMP 100: Clay Sink
W-19229

719.6- 723.1 DOLOSTONE; GRAYISH ORANGE
21% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS

723.1- 726.1 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH ORANGE
24% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: NO FOSSILS

726.1- 728.5 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: GREASY, VARVED, CHALKY
FOSSILS: NO FOSSILS, ORGANICS

728.5- 732.5 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTRAGRANULAR, VUGULAR, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS, ORGANICS

732.5- 735 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS, FOSSIL MOLDS

735 - 736.4 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CHALKY, VARIEGATED, MUDDY
FOSSILS: NO FOSSILS

ROMP 100: Clay Sink
W-19229

736.4- 737.5 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTRAGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CRYSTALLINE
FOSSILS: NO FOSSILS, FOSSIL MOLDS, ORGANICS

737.5- 740.5 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, FRACTURE, 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-03%
OTHER FEATURES: CHALKY, MUDDY, VARVED
FOSSILS: FOSSIL MOLDS, ORGANICS
At 738.5': 3 inch section of small vugs with medium grained dolostone; At 739.8': distinct 2mm organic layer

740.5- 743.6 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%, GLAUCONITE-01%
FOSSILS: NO FOSSILS, FOSSIL MOLDS

743.6- 744.8 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CHALKY, MUDDY
FOSSILS: NO FOSSILS, ORGANICS

744.8- 750 DOLOSTONE; VERY LIGHT ORANGE
24% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: VERY FINE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: VARVED, CHALKY
FOSSILS: NO FOSSILS, FOSSIL MOLDS
Some varves at top 2 inches (organics); 745-745.1': Small section with more fines and varves.

750 - 750.4 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTRAGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION

ROMP 100: Clay Sink
W-19229

CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: VARVED, CHALKY

750.4- 752.6 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
24% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS
Organics in molds and vug spaces.

752.6- 751.1 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS, NO FOSSILS

751.1- 765 DOLOSTONE; VERY LIGHT ORANGE
24% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL MOLDS
At 3 locations, have a 1-2 inch layer of very fine to fine dolomite with organic varves. At the middle of each is a distinctive 1-2mm thick organic layer

765 - 765.9 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
18% POROSITY: INTERCRYSTALLINE, FRACTURE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: CRYSTALLINE

765.9- 769.7 DOLOSTONE; GRAYISH ORANGE
18% POROSITY: INTRAGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: GRANULAR

769.7- 771 DOLOSTONE; VERY LIGHT ORANGE
21% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL

ROMP 100: Clay Sink
W-19229

GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: CRYSTALLINE

771 - 771.5 DOLOSTONE; LIGHT BROWN TO GRAYISH ORANGE
15% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%

771.5- 773.1 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: GRANULAR, CRYSTALLINE, MUDDY
FOSSILS: FOSSIL MOLDS, ORGANICS

773.1- 776.2 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ORGANICS

776.2- 777.3 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS, ORGANICS
At 777': very dark brown to black crystalline calcite with organic and dolomite intrusions (up to approx. 1cm thick)

777.3- 780 DOLOSTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: CRYSTALLINE, MUDDY
FOSSILS: FOSSIL MOLDS, ORGANICS

780 - 781.3 DOLOSTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK
24% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL

ROMP 100: Clay Sink
W-19229

GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: MUDDY
FOSSILS: ORGANICS

781.3- 789.6 DOLOSTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-06%
OTHER FEATURES: MUDDY, SPECKLED
FOSSILS: BENTHIC FORAMINIFERA, CONES, FOSSIL MOLDS
ORGANICS

789.6- 795.3 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: MUDDY
FOSSILS: FOSSIL MOLDS, ORGANICS
At 793.0': 2 inch section of pure fines with a couple of varves, no pinpoint vugs or molds

795.3- 798 DOLOSTONE; GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, VUGULAR, INTERCRYSTALLINE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS
Predominantly crystalline with vugs filled with medium to coarse grains

798 - 800 DOLOSTONE; GRAYISH ORANGE
2O% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CHALKY
FOSSILS: ORGANICS
Varves of organics at 798.4'

800 - 810 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; GOOD INDURATION

ROMP 100: Clay Sink
W-19229

CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CRYSTALLINE, GRANULAR
FOSSILS: FOSSIL MOLDS
At 800.5': cobbles of microcrystalline iron-stained dolostones; Larger vugs at 801 and 803 for 1 foot at each section.

810 - 811 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%

811 - 811.2 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, VUGULAR, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-09%
OTHER FEATURES: CALCAREOUS
Interval Has significant portions of calcilutite within dolostone vugs; euhedral calcite crystals up to 2mm at 811.1 in fractures and vugs.

811.2- 815.2 DOLOSTONE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL MOLDS
At 813.0': 2 inch section of fines with 1mm organic varve

815.2- 816 DOLOSTONE; GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO GRANULE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-10%, CALCILUTITE-10%
OTHER FEATURES: CHALKY, CRYSTALLINE
FOSSILS: NO FOSSILS
Contains anhedral to euhedral calcite crystals, micrite infills, and patches of micrite in and around the dolostone.

816 - 819.9 MUDSTONE; WHITE TO YELLOWISH GRAY
10% POROSITY: INTRAGRANULAR, INTERGRANULAR, FRACTURE
GRAIN TYPE: CALCILUTITE; 01% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

ROMP 100: Clay Sink
W-19229

ACCESSORY MINERALS: ORGANICS-05%, DOLOMITE-03%
CALCITE-05%
OTHER FEATURES: DOLOMITIC, CHALKY, CRYSTALLINE, MUDDY
FOSSILS: NO FOSSILS
Calcite crystals anhedral to subhedral; 818.0-818.7 rock is crystalline and calcareous (looks to have been dolomitic but now calcareous).

819.9- 820.4 MUDSTONE; BROWNISH GRAY TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, INTRAGRANULAR, FRACTURE
GRAIN TYPE: CALCILUTITE, CRYSTALS
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY COARSE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-10%, ORGANICS-20%
OTHER FEATURES: CALCAREOUS, DOLOMITIC, POOR SAMPLE SPECKLED
FOSSILS: NO FOSSILS
Rubble of crystalline calcite, subhedral to euhedral calcite crystals, and mudstone with heavy organics

820.4- 826.2 DOLOSTONE; GRAYISH BROWN
20% POROSITY, 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-10%, ORGANICS-12%
OTHER FEATURES: CALCAREOUS, CRYSTALLINE, MUDDY
FOSSILS: ORGANICS
Subhedral to euhedral calcite crystals scattered throughout.

826.2- 829.7 MUDSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR, FRACTURE
GRAIN TYPE: CALCILUTITE, CRYSTALS
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%
OTHER FEATURES: DOLOMITIC, CRYSTALLINE

829.7- 845 DOLOSTONE; GRAYISH BROWN
25% POROSITY: MOLDIC, VUGULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: COARSE; RANGE: MICROCRYSTALLINE TO VERY COARSE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS- %
FOSSILS: FOSSIL MOLDS, ORGANICS

845 - 850 DOLOSTONE; GRAYISH BROWN
25% POROSITY: PIN POINT VUGS, FRACTURE, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION

ROMP 100: Clay Sink
W-19229

CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-04%
OTHER FEATURES: POOR SAMPLE, CALCAREOUS
FOSSILS: FOSSIL MOLDS
Rubble; <50% recovery, combo of fine grained dolostone and crystalline fragments of dolostone

850 - 857 DOLOSTONE; GRAYISH BROWN
25% POROSITY: PIN POINT VUGS, MOLDIC, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ-01%, CALCILUTITE-01%
ORGANICS-01%
FOSSILS: FOSSIL MOLDS
Quartz crystals in fracture at 854.2; vugs contain euhedral quartz crystals

857 - 860 DOLOSTONE; GRAYISH BROWN
25% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ-01%, CALCILUTITE-01%
FOSSILS: FOSSIL MOLDS
Nice euhedral splayed quartz crystals at 859.1

860 - 864.5 DOLOSTONE; GRAYISH BROWN
25% POROSITY: VUGULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ-05%, CALCILUTITE-05%
CALCITE-05%, ORGANICS-01%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL MOLDS
Calcite and quartz in vugs throughout; organics varved at lower portion

864.5- 875 DOLOSTONE; GRAYISH BROWN
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ-01%, ORGANICS-01%

875 - 882 WACKESTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: CALCILUTITE, CRYSTALS
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

ROMP 100: Clay Sink
W-19229

ACCESSORY MINERALS: CALCITE-30%
OTHER FEATURES: GRANULAR, CRYSTALLINE

882 - 882.2 MUDSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
15% POROSITY: FRACTURE
GRAIN TYPE: CRYSTALS; 05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
Crystalline section of calcite between two sections of micrite

882.2- 883 WACKESTONE; GRAYISH BROWN
40% POROSITY: INTERGRANULAR, FRACTURE, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-30%
FOSSILS: FOSSIL MOLDS

883 - 885.2 DOLOSTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK
25% 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: CALCILUTITE-01%, CALCITE-01%
FOSSILS: FOSSIL MOLDS

885.2- 887 DOLOSTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, INTRAGRANULAR, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ-01%, CALCILUTITE-01%
ORGANICS-01%
FOSSILS: ORGANICS

887 - 889.5 DOLOSTONE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: CRYSTALLINE, FROSTED
FOSSILS: FOSSIL MOLDS

889.5- 890.9 DOLOSTONE; VERY LIGHT ORANGE
30% POROSITY: VUGULAR, MOLDIC, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-15%, CALCILUTITE-04%

ROMP 100: Clay Sink
W-19229

OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: FOSSIL MOLDS
Euhedral Calcite crystals in vugs and fractures

890.9- 897.1 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: PIN POINT VUGS, INTERGRANULAR, VUGULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, CALCILUTITE-02%
FOSSILS: FOSSIL MOLDS

897.1- 898 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%, CALCILUTITE-02%
OTHER FEATURES: VARVED, MUDDY
FOSSILS: FOSSIL MOLDS

898 - 901 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-10%, CALCILUTITE-02%
ORGANICS-03%
OTHER FEATURES: FROSTED, GRANULAR, CRYSTALLINE, MUDDY
FOSSILS: ORGANICS, FOSSIL MOLDS
1-2mm euhedral calcite crystals in open vugs and within matrix pores.

901 - 902.9 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-15%, CALCILUTITE-05%
ORGANICS-08%
OTHER FEATURES: CALCAREOUS, CRYSTALLINE, MUDDY
Increased euhedral calcite crystals along with more micrite; varves are organics and calcites

902.9- 910.3 DOLOSTONE; VERY LIGHT ORANGE
25% POROSITY: PIN POINT VUGS, VUGULAR, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%, CALCILUTITE-01%
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL MOLDS

ROMP 100: Clay Sink
W-19229

910.3- 912 NO SAMPLES
Bit Drop, No Recovery 910.3-912.0

912 - 912.8 DOLOSTONE; GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
FOSSILS: ORGANICS

912.8- 913.6 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
15% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%, CALCILUTITE-01%
OTHER FEATURES: CALCAREOUS
FOSSILS: NO FOSSILS, ORGANICS

913.6- 915.2 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, VUGULAR, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%, CALCITE-10%
FOSSILS: NO FOSSILS, ORGANICS
Euhedral Calcite crystals in vugs and fractures

915.2- 915.4 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH ORANGE
15% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS

915.4- 919.9 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH ORANGE
25% POROSITY: PIN POINT VUGS, VUGULAR, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: ORGANICS, NO FOSSILS
917-917.5': Very fine grained dolostone with varves of
organics; also one fracture with of finer euhedral quartz

919.9- 923 DOLOSTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK
25% POROSITY: PIN POINT VUGS, VUGULAR, INTERGRANULAR
50-90% ALTERED; ANHEDRAL

ROMP 100: Clay Sink
W-19229

GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ-02%
OTHER FEATURES: CRYSTALLINE, GRANULAR
FOSSILS: FOSSIL MOLDS

923 - 923.4 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, FRACTURE; 90-100% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-15%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS

923.4- 925 DOLOSTONE; GRAYISH ORANGE
23% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: CRYSTALLINE, FROSTED
FOSSILS: FOSSIL MOLDS

925 - 927.6 DOLOSTONE; GRAYISH ORANGE TO GRAYISH ORANGE PINK
23% POROSITY: PIN POINT VUGS, VUGULAR, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%, QUARTZ-01%
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: FOSSIL MOLDS

927.6- 928.1 DOLOSTONE; GRAYISH ORANGE PINK
23% POROSITY: INTERGRANULAR, FRACTURE, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-15%, CLAY-01%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS, NO FOSSILS

928.1- 929.6 DOLOSTONE; YELLOWISH GRAY TO GRAYISH ORANGE PINK
20% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-15%, CLAY-20%
SILT-SIZE DOLOMITE-50%
FOSSILS: ORGANICS, NO FOSSILS

929.6- 930.4 DOLOSTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS

ROMP 100: Clay Sink
W-19229

90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: NO FOSSILS, ORGANICS

930.4- 935 DOLOSTONE; VERY LIGHT ORANGE
35% POROSITY: INTERGRANULAR, VUGULAR
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: FOSSIL MOLDS

935 - 943.3 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: GRANULAR

943.3- 943.8 DOLOSTONE; WHITE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CHALKY
Organic varve at top and bottom of section

943.8- 945 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: NO FOSSILS

945 - 952.2 DOLOSTONE; VERY LIGHT ORANGE
28% POROSITY: VUGULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-10%, ORGANICS-01%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS
Euhedral calcite crystals in vugs and cavities

952.2- 952.8 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION

ROMP 100: Clay Sink
W-19229

CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-02%, ORGANICS-20%
OTHER FEATURES: MUDDY
FOSSILS: ORGANICS

952.8- 954.5 DOLOSTONE; VERY LIGHT ORANGE
25% POROSITY: VUGULAR, MOLDIC; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-10%, ORGANICS-03%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS

954.5- 955.8 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS

955.8- 957.5 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-02%, ORGANICS-15%
FOSSILS: ORGANICS, FOSSIL MOLDS
Organics more prevalent in molds and pinpoint vugs at lower range of interval

957.5- 958.2 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, INTERGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-25%
OTHER FEATURES: MUDDY
FOSSILS: FOSSIL MOLDS

958.2- 959.7 DOLOSTONE; GRAYISH BROWN
22% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
ACCESSORY MINERALS: ORGANICS-05%, CALCITE-01%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

959.7- 960.2 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION

ROMP 100: Clay Sink
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CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-15%, ORGANICS-30%
CALCILUTITE-03%
OTHER FEATURES: CALCAREOUS
FOSSILS: ORGANICS
Grades quickly to darker brown, high organics at lower portion; fine subhedral calcite crystals bedded near bottom.

960.2- 961.6 DOLOSTONE; MODERATE YELLOWISH BROWN
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

961.6- 963.9 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%, GYPSUM-04%
OTHER FEATURES: CRYSTALLINE
FOSSILS: ORGANICS
Gypsum lens at 963.4, gypsum in fracture at 963.9'.

963.9- 964.5 DOLOSTONE; DARK YELLOWISH BROWN
18% POROSITY: INTRAGRANULAR, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-20%, GYPSUM-03%, CALCITE-01%
CALCILUTITE-01%
OTHER FEATURES: CALCAREOUS
FOSSILS: ORGANICS
interval grades to darker color. Gypsum in small fractures micrite and minute subhedral calcite crystals at middle of section

964.5- 967 DOLOSTONE; GRAYISH BROWN
20% POROSITY: PIN POINT VUGS, INTERGRANULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-20%
OTHER FEATURES: CRYSTALLINE, FROSTED
FOSSILS: NO FOSSILS, ORGANICS

967 - 967.3 DOLOSTONE; DARK YELLOWISH BROWN
15% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 10-50% ALTERED; ANHEDRAL

ROMP 100: Clay Sink
W-19229

GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ORGANIC MATRIX
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-20%, ORGANICS-30%
GYPSUM-03%
OTHER FEATURES: DOLOMITIC
Clayey Dolomite with high organics, low permeability and traces of gypsum

967.3- 967.8 DOLOSTONE; DARK YELLOWISH BROWN
20% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: CRYSTALLINE
FOSSILS: ORGANICS
Dolostone bound by organic contact at 967.3 and 967.8

967.8- 968 GYPSUM; YELLOWISH GRAY
OTHER FEATURES: CRYSTALLINE

968 - 969.4 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-12%, GYPSUM-12%
Gypsum scattered throughout with concentrations in fractures and lenses at 968.7'

969.4- 969.8 DOLOSTONE; GRAYISH BROWN
20% 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
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-02%
OTHER FEATURES: CRYSTALLINE, VARVED
FOSSILS: FOSSIL MOLDS

969.8- 970.6 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-25%, PLANT REMAINS-02%
970.1-970.2': Thick organic clayey layer

970.6- 971 DOLOSTONE; DARK YELLOWISH BROWN
21% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE

ROMP 100: Clay Sink
W-19229

GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%, GYPSUM-01%

971 - 971.2 GYPSUM; YELLOWISH GRAY

971.2- 972.3 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT GRAY
15% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-30%
Gypsum fills nearly all open pores, some large gypsum filled cavities

972.3- 975.3 DOLOSTONE; DARK YELLOWISH BROWN
15% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-05%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS
Gypsum more toward top of interval while organics in lower portion

975.3- 975.9 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-15%
OTHER FEATURES: VARVED
Thin 1 cm organic layer at 775.6'

975.9- 979.1 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-10%
Gypsum in pores and molds, open spaces in dolostone possibly low permeability

979.1- 980.7 DOLOSTONE; GRAYISH ORANGE PINK TO VERY LIGHT ORANGE
20% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-03%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

ROMP 100: Clay Sink
W-19229

980.7- 980.9 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, INTERGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-50%
Dolosilt mixed with high content organics

980.9- 981 DOLOSTONE; GRAYISH BROWN
22% POROSITY: INTERGRANULAR, INTRAGRANULAR, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-20%
OTHER FEATURES: MUDDY
FOSSILS: ORGANICS, NO FOSSILS

981 - 984.5 DOLOSTONE; GRAYISH BROWN
20% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-13%, GYPSUM-05%
OTHER FEATURES: MUDDY
FOSSILS: ORGANICS, FOSSIL MOLDS, NO FOSSILS

984.5- 987 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-10%, GYPSUM-04%
OTHER FEATURES: MUDDY
FOSSILS: ORGANICS, FOSSIL MOLDS, NO FOSSILS

987 - 993.6 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-07%, GYPSUM-04%
OTHER FEATURES: MUDDY
FOSSILS: ORGANICS, FOSSIL MOLDS, NO FOSSILS

993.6- 994.9 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%, GYPSUM-10%

ROMP 100: Clay Sink
W-19229

OTHER FEATURES: MUDDY
FOSSILS: ORGANICS, FOSSIL FRAGMENTS, NO FOSSILS
Porous crystalline dolostone interlain with gypsum throughout in fractures and pores

994.9- 995.5 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-15%
OTHER FEATURES: MUDDY, VARVED
FOSSILS: ORGANICS, NO FOSSILS

995.5- 997.1 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: CHALKY
FOSSILS: ORGANICS, NO FOSSILS

997.1- 997.8 GYPSUM; VERY LIGHT GRAY
ACCESSORY MINERALS: ORGANICS-20%
Predominantly gypsum with organics interlain

997.8- 999.3 DOLOSTONE; LIGHT OLIVE GRAY TO BROWNISH GRAY
22% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-30%
OTHER FEATURES: VARVED
998.0-998.3': High concentration of organics (up to 80%)

999.3- 1000 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%, CALCILUTITE-02%
FOSSILS: ORGANICS

1000 - 1012.1 DOLOSTONE; DARK YELLOWISH BROWN
22% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-27%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS

ROMP 100: Clay Sink
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1012.1- 1012.4 PEAT; BLACK
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-15%
3 inch layer of black organics, may contain 15% silt-size dolostone

1012.4- 1013.6 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-15%, GYPSUM-08%

1013.6- 1015 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%, GYPSUM-02%
FOSSILS: ORGANICS, NO FOSSILS

1015 - 1015.3 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1015.3- 1016.1 PEAT;
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-10%
Black 10 inch section of organics with 10% dolosilt

1016.1- 1017.5 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-08%, GYPSUM-01%
Green clay with gypsum crystals at 1016.5, about 2 inches thick

1017.5- 1017.6 PEAT;
2 inch thin layer of organics

1017.6- 1017.8 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
22% POROSITY: INTERGRANULAR, INTRAGRANULAR, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-25%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS

ROMP 100: Clay Sink
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1017.8- 1019.7 DOLOSTONE; MODERATE YELLOWISH BROWN
15% POROSITY: INTRAGRANULAR, FRACTURE, 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: ORGANICS-05%, GYPSUM-25%
OTHER FEATURES: CRYSTALLINE
Most pore space filled with gypsum

1019.7- 1020.7 DOLOSTONE; GRAYISH ORANGE
15% POROSITY: INTRAGRANULAR, FRACTURE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-05%
FOSSILS: NO FOSSILS
Fractures filled with gypsum

1020.7- 1020.9 PEAT;
Organic fines

1020.9- 1021.3 GYPSUM; VERY LIGHT GRAY

1021.3- 1022 DOLOSTONE; GRAYISH ORANGE
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-01%
FOSSILS: NO FOSSILS

1022 - 1022.6 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: PIN POINT VUGS, LOW PERMEABILITY, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-20%, ORGANICS-01%
Low permeability due to gypsum filled pores, fractures, and vugs

1022.6- 1024.4 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
22% POROSITY: PIN POINT VUGS, FRACTURE, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
OTHER FEATURES: SUCROSIC
Gypsum only filling small portion of pores around 1024'

1024.4- 1025 DOLOSTONE; MODERATE YELLOWISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL

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GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%, GYPSUM-01%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS, NO FOSSILS

1025 - 1026.5 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
15% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-02%
OTHER FEATURES: SUCROSIC
90% of all vugs and molds filled with gypsum

1026.5- 1029.3 DOLOSTONE; DARK YELLOWISH BROWN
18% POROSITY: PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-08%
OTHER FEATURES: FROSTED, CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS
Pinpoint vugs decrease in quantity toward end of section
gypsum more prevalent toward end of section; gypsum and
organic rich layer at end of interval

1029.3- 1030.1 DOLOSTONE; MODERATE YELLOWISH BROWN
22% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-03%
CALCILUTITE-01%
OTHER FEATURES: FROSTED
FOSSILS: FOSSIL MOLDS, ORGANICS

1030.1- 1035 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
18% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-08%
OTHER FEATURES: FROSTED, GRANULAR
FOSSILS: FOSSIL MOLDS, ORGANICS
Gypsum filled pores, vugs, and fractures; 1034-1034.8':
extremely large vug filled with gypsum; gypsum filled vugs
are 90% of this portion of core; end of section: fines to
dolosilt and organics at 1035'

1035 - 1035.8 DOLOSTONE; MODERATE YELLOWISH BROWN
20% POROSITY: PIN POINT VUGS, INTERGRANULAR, INTRAGRANULAR

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90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-04%
OTHER FEATURES: FROSTED
FOSSILS: FOSSIL MOLDS, ORGANICS

1035.8- 1037.7 DOLOSTONE; GRAYISH BROWN
18% POROSITY: PIN POINT VUGS, INTRAGRANULAR
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-10%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS
Half pinpoint vugs are filled with gypsum

1037.7- 1038.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
22% POROSITY: PIN POINT VUGS, INTERGRANULAR, INTRAGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-02%, CALCILUTITE-05%
OTHER FEATURES: CALCAREOUS

1038.4- 1042.5 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS

1042.5- 1044.1 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%, GYPSUM-01%
CALCILUTITE-01%
OTHER FEATURES: CHALKY

1044.1- 1044.9 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: PIN POINT VUGS, FRACTURE, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-03%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

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1044.9- 1045.6 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, INTERGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-07%
CALCILUTITE-01%
OTHER FEATURES: CHALKY, MUDDY
FOSSILS: ORGANICS

1045.6- 1047.8 DOLOSTONE; VERY LIGHT ORANGE
22% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-05%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

1047.8- 1048.3 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: CHALKY
FOSSILS: NO FOSSILS

1048.3- 1051.3 DOLOSTONE; GRAYISH BROWN
20% POROSITY: PIN POINT VUGS, INTERGRANULAR
INTERCRYSTALLINE; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%, GYPSUM-03%, QUARTZ-01%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, NO FOSSILS, ORGANICS
At 1049.7, there is a 2 inch section of dolosilt, chalky
with gypsum filled fractures

1051.3- 1052.5 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%, GYPSUM-04%
OTHER FEATURES: CHALKY

1052.5- 1056.5 DOLOSTONE; GRAYISH BROWN
22% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION

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CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%, GYPSUM-10%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS
2 inches of dolosilt at 1054.5'

1056.5- 1056.8 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

1056.8- 1059.1 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%, GYPSUM-03%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS

1059.1- 1063.4 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-02%
Last 2 inches has higher organics and is varved.

1063.4- 1070 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: PIN POINT VUGS, INTERGRANULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%, CALCILUTITE-03%
ORGANICS-08%
OTHER FEATURES: CHALKY, CRYSTALLINE
FOSSILS: NO FOSSILS, FOSSIL MOLDS, ORGANICS

1070 - 1080 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-05%, CALCILUTITE-01%
ORGANICS-05%
OTHER FEATURES: CHALKY
FOSSILS: ORGANICS
Organic layers: 1070.3 (0.5 inch thick); 1074.7 (0.5 inch thick); 1076.0 (0.5 inch thick). Large 2 inch vug filled with gypsum at 1078.5. Gypsum/organic dense layer at 1079.2 (1 inch thick).

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1080 - 1080.9 GYPSUM; VERY LIGHT GRAY

1080.9- 1087.6 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-03%
OTHER FEATURES: CHALKY
FOSSILS: ORGANICS

1087.6- 1089 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: CRYSTALLINE
FOSSILS: ORGANICS

1089 - 1090 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: FROSTED
FOSSILS: NO FOSSILS, ORGANICS

1090 - 1091 DOLOSTONE; GRAYISH BROWN
20% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE
ACCESSORY MINERALS: ORGANICS-03%, GYPSUM-10%
OTHER FEATURES: VARVED, FROSTED
FOSSILS: FOSSIL MOLDS, NO FOSSILS, ORGANICS
Many of the pores filled with gypsum

1091 - 1092.1 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTRAGRANULAR, 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-05%
OTHER FEATURES: CRYSTALLINE
FOSSILS: NO FOSSILS

1092.1- 1093.1 GYPSUM; VERY LIGHT GRAY
ACCESSORY MINERALS: ORGANICS-05%
FOSSILS: NO FOSSILS
Several infills of dolosilt with organics

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1093.1- 1095.1 DOLOSTONE; GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%, GYPSUM-04%
FOSSILS: NO FOSSILS, FOSSIL MOLDS, ORGANICS

1095.1- 1103 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH ORANGE
18% POROSITY: INTRAGRANULAR, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-02%
CALCILUTITE-03%
OTHER FEATURES: CALCAREOUS
FOSSILS: NO FOSSILS

1103 - 1103.2 GYPSUM; VERY LIGHT GRAY

1103.2- 1104.4 DOLOSTONE; GRAYISH ORANGE PINK TO VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%, GYPSUM-04%
FOSSILS: ORGANICS, NO FOSSILS

1104.4- 1111.6 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
22% POROSITY: INTRAGRANULAR, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-25%, GYPSUM-10%
CALCILUTITE-01%
OTHER FEATURES: VARVED, MUDDY, CHALKY
FOSSILS: ORGANICS, NO FOSSILS
Gypsum concentrations/crystals at 1104.5, 1106.4, 1107
1108, 1111.5'

1111.6- 1112.8 DOLOSTONE; DARK YELLOWISH BROWN
22% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-35%, GYPSUM-02%
CALCILUTITE-01%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS

1112.8- 1115.7 DOLOSTONE; GRAYISH BROWN

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22% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-25%, CALCILUTITE-01%
FOSSILS: ORGANICS

1115.7- 1117.1 DOLOSTONE; GRAYISH ORANGE PINK TO VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%, CALCILUTITE-02%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS

1117.1- 1123 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
18% POROSITY: INTRAGRANULAR, FRACTURE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-15%, GYPSUM-04%
OTHER FEATURES: CRYSTALLINE, CHALKY
FOSSILS: FOSSIL MOLDS, ORGANICS
The few fractures present are filled with gypsum; pinpoint
vugs present in lower 1.5 feet of section

1123 - 1125 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-25%, GYPSUM-08%
CALCILUTITE-02%
OTHER FEATURES: VARVED, MUDDY, CHALKY
FOSSILS: ORGANICS

1125 - 1131 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%, GYPSUM-03%
CALCILUTITE-02%
OTHER FEATURES: VARVED, CHALKY
FOSSILS: ORGANICS

1131 - 1137.2 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH BROWN
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION

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CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-08%
CALCILUTITE-01%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL MOLDS, ORGANICS
Large gypsum infills at 1132, 1133.2'

1137.2- 1137.9 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%, CALCILUTITE-03%
OTHER FEATURES: CHALKY, VARVED
FOSSILS: ORGANICS

1137.9- 1139.4 DOLOSTONE; GRAYISH ORANGE PINK TO GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%, CALCILUTITE-02%
GYPSUM-07%
FOSSILS: FOSSIL MOLDS

1139.4- 1140 DOLOSTONE; GRAYISH ORANGE
23% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%, CALCILUTITE-02%
FOSSILS: FOSSIL MOLDS

1140 - 1140.2 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%, CALCILUTITE-01%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS

1140.2- 1144.1 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-04%, GYPSUM-03%
FOSSILS: FOSSIL MOLDS

1144.1- 1144.3 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED

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ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: VARVED
Thin 1 cm organic layer at 1145.2'

1144.3- 1147.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
18% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-07%, ORGANICS-05%
FOSSILS: FOSSIL MOLDS, ORGANICS
Gypsum in fractures

1147.5- 1150 DOLOSTONE; GRAYISH ORANGE PINK
22% POROSITY: PIN POINT VUGS, FRACTURE, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-08%
FOSSILS: ORGANICS

1150 - 1151.8 DOLOSTONE; GRAYISH ORANGE
24% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: IRON STAIN-02%, ORGANICS-02%
FOSSILS: FOSSIL MOLDS

1151.8- 1152 DOLOSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: NO FOSSILS

1152 - 1154.9 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-02%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS
At 1152.9': thin 1-2 cm layer of organics and dolosilt

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1154.9- 1155.2 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
18% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-08%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

1155.2- 1156.5 GYPSUM; VERY LIGHT GRAY
ACCESSORY MINERALS: ORGANICS-04%, SILT-SIZE DOLOMITE-04%

1156.5- 1157.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
22% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%, GYPSUM-09%
CALCILUTITE-01%
OTHER FEATURES: VARVED, FROSTED
FOSSILS: ORGANICS, FOSSIL MOLDS

1157.8- 1158.9 DOLOSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-01%, GYPSUM-01%
ORGANICS-01%
OTHER FEATURES: VARVED

1158.9- 1160.2 DOLOSTONE; DARK YELLOWISH BROWN
24% POROSITY: PIN POINT VUGS, MOLDIC; 90-100% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL MOLDS

1160.2- 1160.9 DOLOSTONE; DARK YELLOWISH BROWN
18% POROSITY: INTERGRANULAR, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-07%
Gypsum seems to be throughout as a cement and fills
fractures; fine dolosilt clusters at bottom of section.

1160.9- 1162 GYPSUM; VERY LIGHT GRAY
Organic layer at beginning of section. Dolosilt present in
gypsum along angular cross section of gypsum; may be
fracture line.

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1162 - 1165 DOLOSTONE; MODERATE YELLOWISH BROWN
18% POROSITY: INTERGRANULAR, FRACTURE, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-02%
OTHER FEATURES: VARVED
FOSSILS: FOSSIL MOLDS
Organics, micrite and dolosilt in thin (1 cm) layers at
1162.9, 1163.2, 1164.1, 1164.9'

1165 - 1165.9 GYPSUM; VERY LIGHT GRAY
Thin layer (3mm) of dark brown organics at end of section

1165.9- 1169.5 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
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-05%, ORGANICS-02%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS, ORGANICS

1169.5- 1169.9 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
Dictyoconus sp. molds present 1169-1170.

1169.9- 1170.4 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-25%, ORGANICS-20%
FOSSILS: NO FOSSILS

1170.4- 1179.5 DOLOSTONE; GRAYISH BROWN
18% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE
INTRAGRANULAR; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-02%
FOSSILS: FOSSIL MOLDS

1179.5- 1180 DOLOSTONE; GRAYISH BROWN
22% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-11%
OTHER FEATURES: VARVED
FOSSILS: ORGANICS
2 cm dark organic layer at top of section

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1180 - 1187.5 DOLOSTONE; GRAYISH BROWN
18% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-02%
OTHER FEATURES: CRYSTALLINE
FOSSILS: FOSSIL MOLDS

1187.5- 1188.2 GYPSUM; VERY LIGHT GRAY
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-20%

1188.2- 1190 DOLOSTONE; DARK YELLOWISH BROWN
22% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%, GYPSUM-05%
OTHER FEATURES: CRYSTALLINE, FROSTED
FOSSILS: FOSSIL MOLDS, NO FOSSILS

1190 - 1192 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-06%, GYPSUM-05%
FOSSILS: ORGANICS

1192 - 1192.6 GYPSUM; VERY LIGHT GRAY
ACCESSORY MINERALS: ORGANICS-15%, SILT-SIZE DOLOMITE-15%
FOSSILS: ORGANICS

1192.6- 1197.2 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
18% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-12%, SILT-SIZE DOLOMITE-20%
FOSSILS: ORGANICS, FOSSIL MOLDS
Plentiful coral molds infilled with gypsum

1197.2- 1199.9 GYPSUM; VERY LIGHT GRAY
ACCESSORY MINERALS: ORGANICS-08%, SILT-SIZE DOLOMITE-05%

1199.9- 1203 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, INTRAGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT

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ACCESSORY MINERALS: GYPSUM-25%, ORGANICS-08%
FOSSILS: ORGANICS, FOSSIL MOLDS
Coral molds filled with gypsum

1203 - 1204.4 GYPSUM; VERY LIGHT GRAY
ACCESSORY MINERALS: ORGANICS-15%, SILT-SIZE DOLOMITE-15%
FOSSILS: ORGANICS

1204.4- 1206.5 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, INTRAGRANULAR, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-25%, SILT-SIZE DOLOMITE-25%
Mottled combo of dolosilt, gypsum, and organics

1206.5- 1207.4 DOLOSTONE; MODERATE YELLOWISH BROWN
10% POROSITY: INTERCRYSTALLINE, INTRAGRANULAR
LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%

1207.4- 1212.4 DOLOSTONE; GRAYISH ORANGE
18% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-12%, ORGANICS-03%
FOSSILS: FOSSIL MOLDS, ORGANICS
Numerous coral molds, many infilled with gypsum

1212.4- 1213.3 DOLOSTONE; GRAYISH ORANGE PINK TO VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-25%, ORGANICS-08%
Mottled dolomite, gypsum, except for last few inches which
has varved dolosilt and organics.

1213.3- 1217.3 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-05%
FOSSILS: FOSSIL MOLDS

1217.3- 1220 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BLUE GREEN
18% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC

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90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-25%, ORGANICS-08%

1220 - 1225 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-04%

1225 - 1228.3 DOLOSTONE; MODERATE YELLOWISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%

1228.3- 1228.9 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
22% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-08%
OTHER FEATURES: VARVED
FOSSILS: NO FOSSILS

1228.9- 1231.3 DOLOSTONE; MODERATE YELLOWISH BROWN
24% POROSITY: INTERGRANULAR, PIN POINT VUGS, INTRAGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-01%, GYPSUM-04%
OTHER FEATURES: FROSTED, GRANULAR, SPECKLED, SUCROSIC
FOSSILS: NO FOSSILS

1231.3- 1234 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, PIN POINT VUGS, INTRAGRANULAR
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-03%
OTHER FEATURES: FROSTED, GRANULAR, SPECKLED
FOSSILS: NO FOSSILS

1234 - 1234.8 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
19% POROSITY: INTERGRANULAR, PIN POINT VUGS, INTRAGRANULAR
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION

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CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-04%
OTHER FEATURES: CRYSTALLINE, SUCROSIC

1234.8- 1235.4 DOLOSTONE; GRAYISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-04%, GYPSUM-01%
OTHER FEATURES: GRANULAR, SPECKLED
FOSSILS: ORGANICS

1235.4- 1240 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
INTERCRYSTALLINE; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-03%, GYPSUM-08%
There are several locations where more granular fine dolostone exists. Crystalline and fine alternate over interval.

1240 - 1240.4 GYPSUM; DARK YELLOWISH BROWN
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-15%, ORGANICS-10%
CALCILUTITE-05%

1240.4- 1246.7 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
22% POROSITY: INTERGRANULAR, INTRAGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-08%, ORGANICS-08%
CALCILUTITE-01%
OTHER FEATURES: CALCAREOUS, GRANULAR, FROSTED, CRYSTALLINE
SPECKLED
Large gypsum clasts and gypsum cement throughout.

1246.7- 1247.3 GYPSUM; VERY LIGHT GRAY

1247.3- 1249 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-12%, ORGANICS-02%
OTHER FEATURES: CRYSTALLINE

1249 - 1249.3 DOLOSTONE; MODERATE YELLOWISH BROWN
22% POROSITY: INTERGRANULAR, INTRAGRANULAR; 50-90% ALTERED
ANHEDRAL

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GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-07%, ORGANICS-07%
CALCILUTITE-01%
OTHER FEATURES: CALCAREOUS

1249.3- 1252.1 DOLOSTONE; GRAYISH BROWN
12% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CRYSTALLINE

1252.1- 1253 DOLOSTONE; GRAYISH BROWN
18% POROSITY: INTERGRANULAR, PIN POINT VUGS
INTERCRYSTALLINE; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-04%, SILT-SIZE DOLOMITE-03%
CALCILUTITE-01%
1252.1-1252.3': Crystalline dolomite, gypsum and organic mix; dark organic 1 cm layer at beginning of section.

1253 TOTAL DEPTH

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Appendix D. Digital Photographs of core collected from the ROMP 100 well site.

Digital photographs (.jpg) files are included on the compact disc (CD) attached to the inside back cover of the report.


RAMP 100
59.5'
60'
65'
70'
75'


RAMP 100
75'
80'
85'
87'


RAMP 100
87'
90'
95'
97'


RAMP 100
97'
100'
105'
110'
112'


Romp 100
112'
115'
120'
121.5'


Romp 100
121.5'
125'
130'
135'
135.3'


Romp 100
135.3'
140'
145'
149'


Romp 100
149'
150'
155'
157.4'


RUMP 100
157.4'
160'
165'
170'


RUMP 100
170'
175'
180'
184'


Romp 100
184'
190
185'
195'


RUMP 100
195'
200'
205'


ROMP 100
205'
210'
215'
216.3'


ROMP 100
216.3'
220'
225'
230'
234'


ROMP 100
234'
240'
ROMP 100
HOLE # CH
DEPTH 240-25'
235'
245'
250'
250.4'


ROMP 100
250.4'
255'
260'
261'


RDMP 100
261'
265'
270'
271'


RDMP 100
271'
275'
280'
285'
286'


RDMP 100
286'
290'
295'
297'


RDMP 100
297'
300'
305'
306.7'


ROMP 100
306.7'
310'
315'
316.3'


ROMP 100
316.3'
320'
325'
326.3'


ROMP 100
326.3'
330'
335'
335.5


ROMP 100
335.5'
340'
345'


RQMP
100
345'
350'
354.5

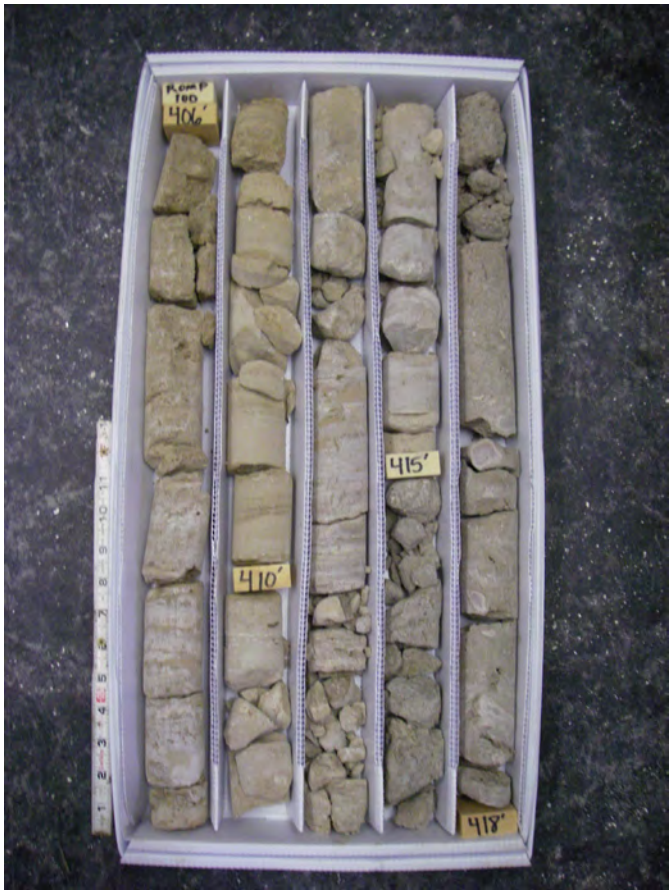

RQMP
100
354.5'
355'
360'
364.7'

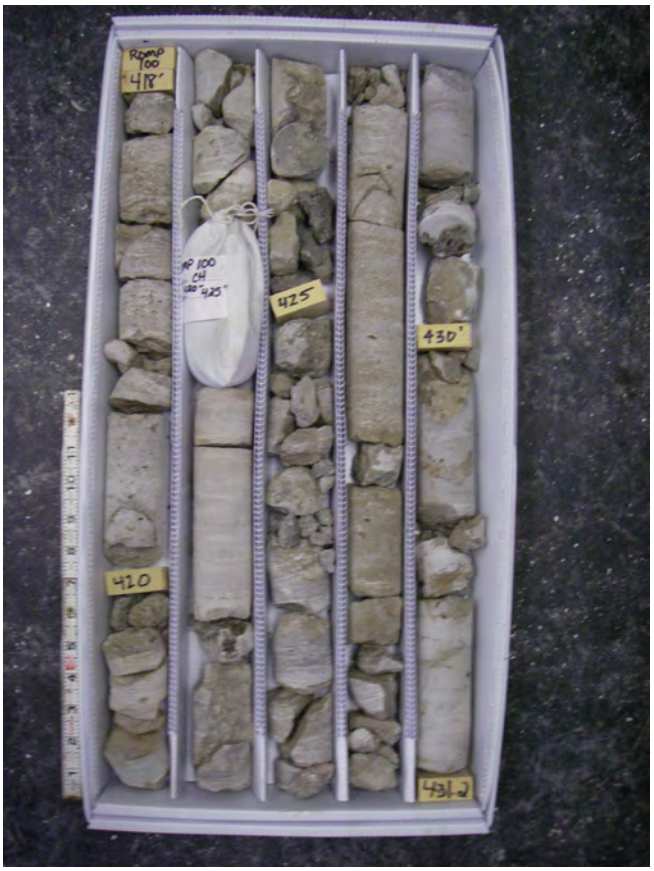

RQMP
100
364.7
365'
370'
374'
PROJECT
HOLE NO.
FROM
TO
BOX NO.
NQ


RQMP
100
374'
375'
380'
385'
PROJECT
HOLE NO.
FROM
TO
BOX NO.
NQ


ROMP 100
385
390
395'
395.7'


ROMP 100
395.7'
400'
405'
406'


ROMP 100
406'
410'
415'
418'


ROMP 100
418'
420
425'
430'


RUN NO
431.2
440
445
435'
446


RUN
446
455
450
460
460.3

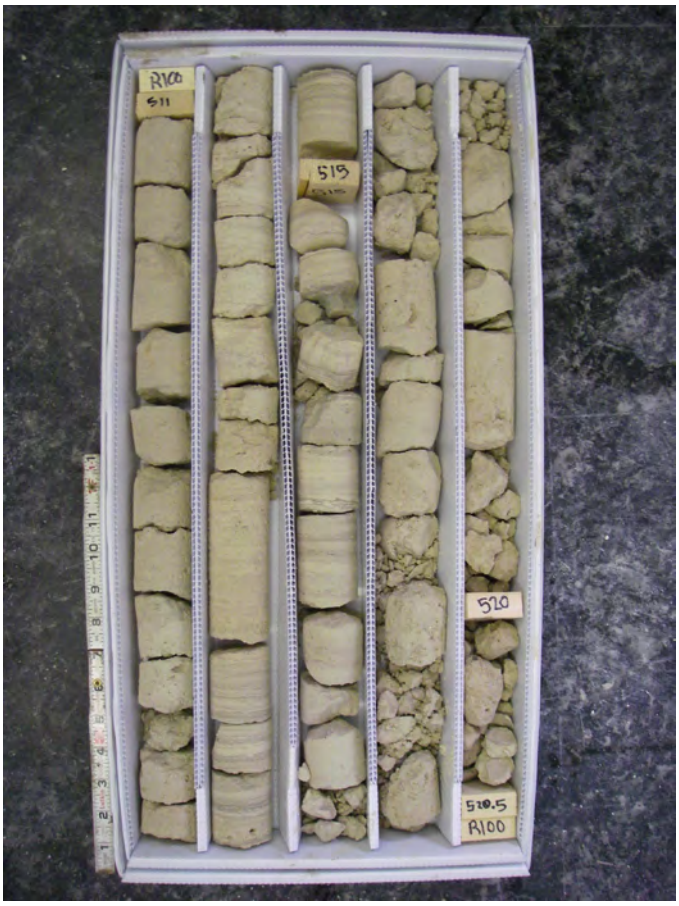

RUN NO
465
469.5


RUN NO
469.5
470
475
478.9


485
490
490


R100
490
495
500
501.9


R100
501.1
505
510
511
R100

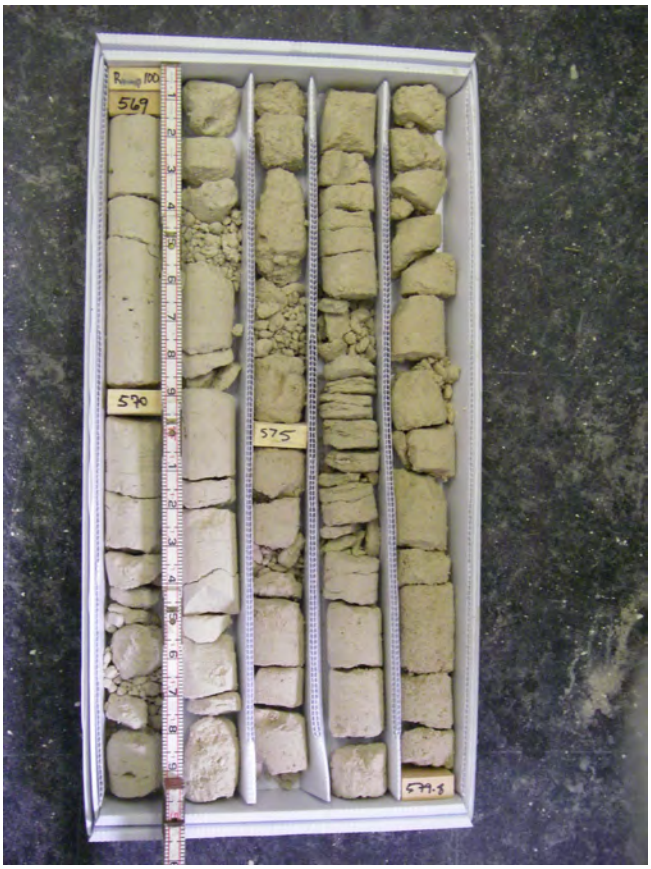

R100
511
513
520
520.5
R100


R100
520.5
525
529.8
R180


R100
529.8
530
535
540
545
546.3


550
555
557


557
560
565
569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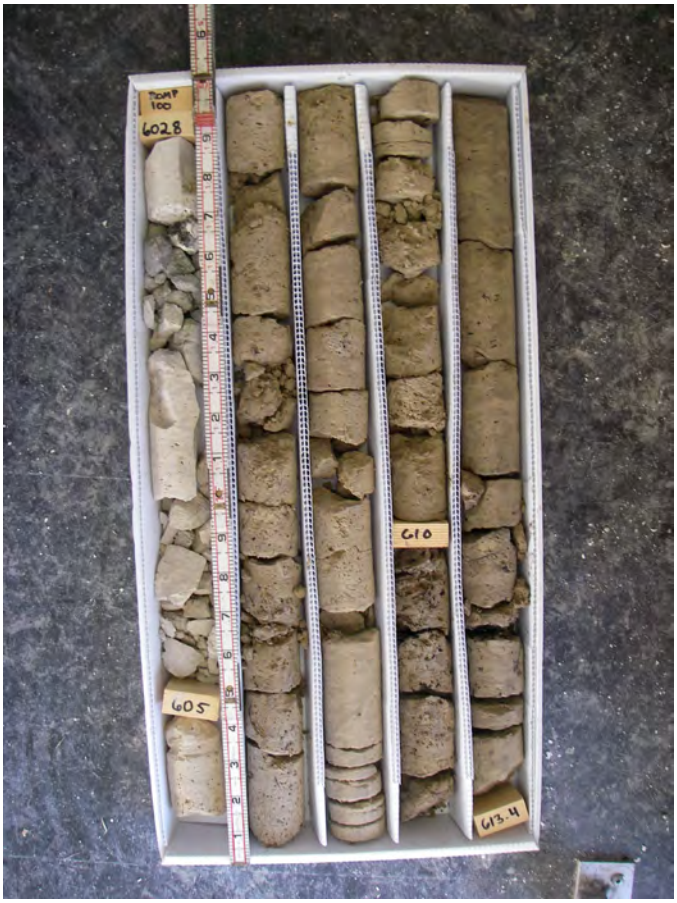
570
575
577.5


580
585
590.4


590.4
595
600
602.8


602.8
605
610
613.4


613.4
620
623


623
625
630


635
640
645
646

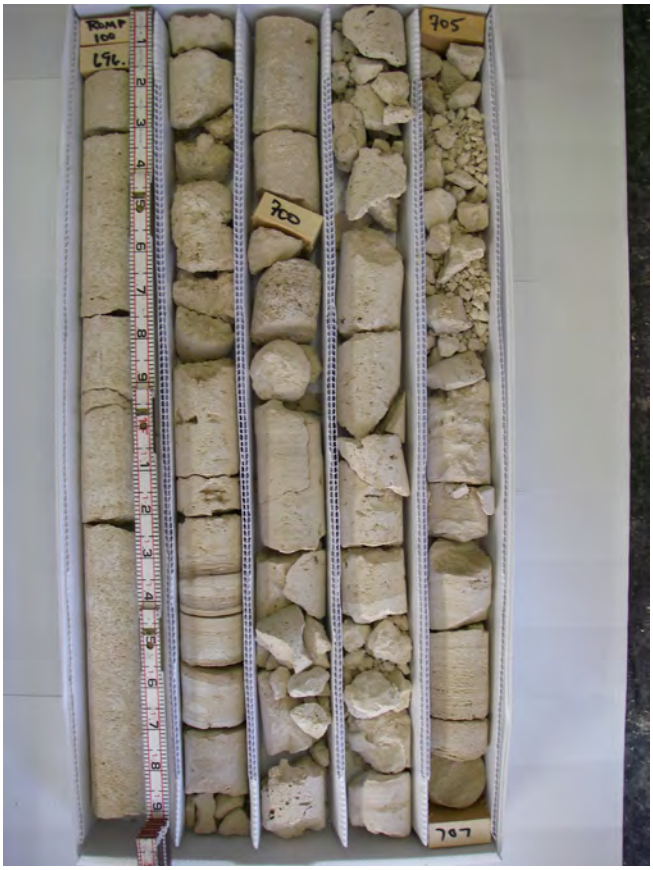

646
650
655
653.5


Romp 100
655.5
660
665
665.3


Romp 100
665.3
670
674.5


Romp 100
674.5
675
680
685


Romp 100
685
690
695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705
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710
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720
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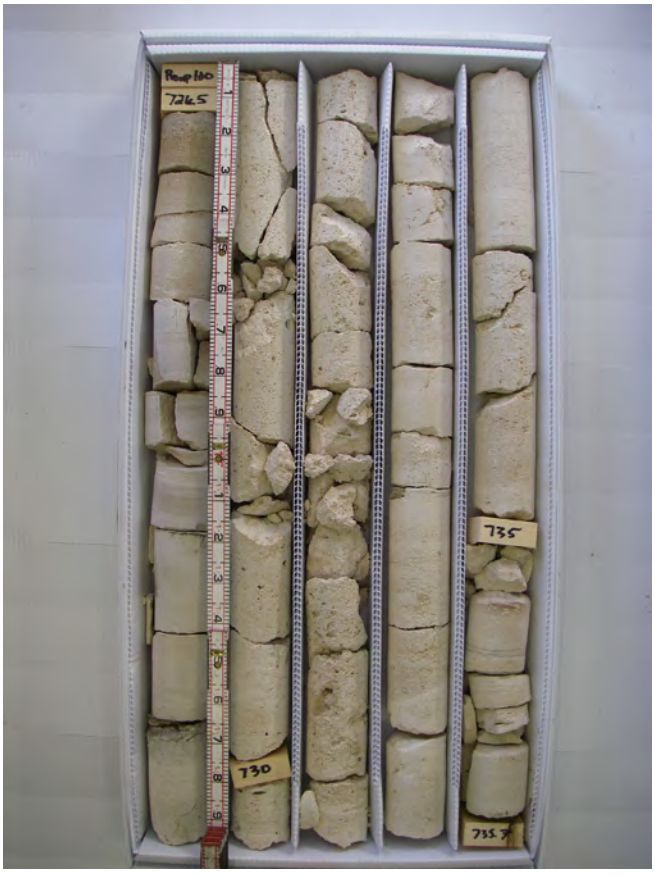
726.5


726.5
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735


740
744.7


745
750
755
756.8


765
760
766.5

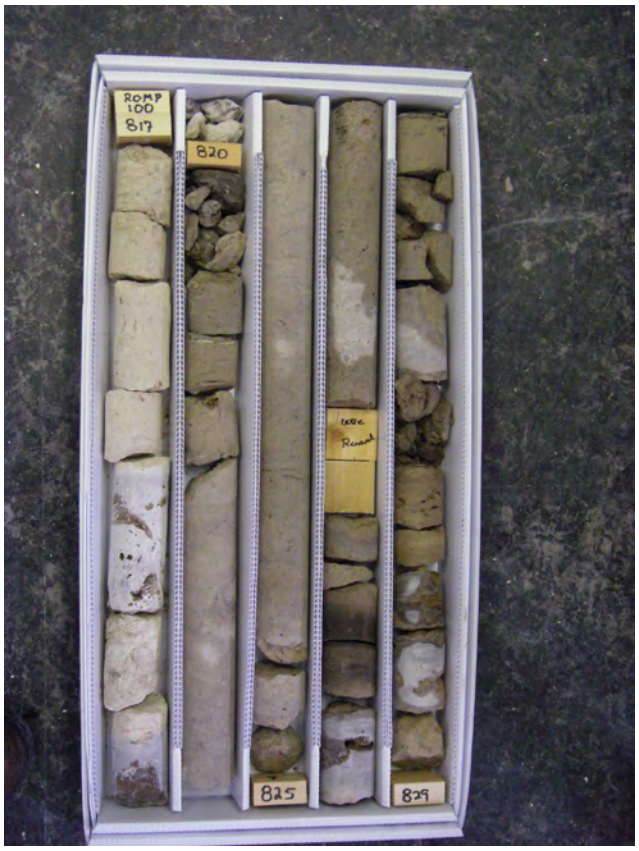

770
775
775.7


Rampton
775.7
785
780
786.1


Rampton
786.1
790
795
796


Rampton
796
800
805
806


806
810
815
819


ROMP 100
817
820
825
829


ROMP 100
829
830
835
839.8


ROMP 100
839.8
840
BIT DROP
845
850
853.3


R 100
853.7
860
855
864


865
870
875


880
887


890
895
897


700
905
907.5


907.5
915
910
919.9


R 100
919.9
920
925
929.6


R 100
929.6
930
935
940
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946


ROMP 100
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950
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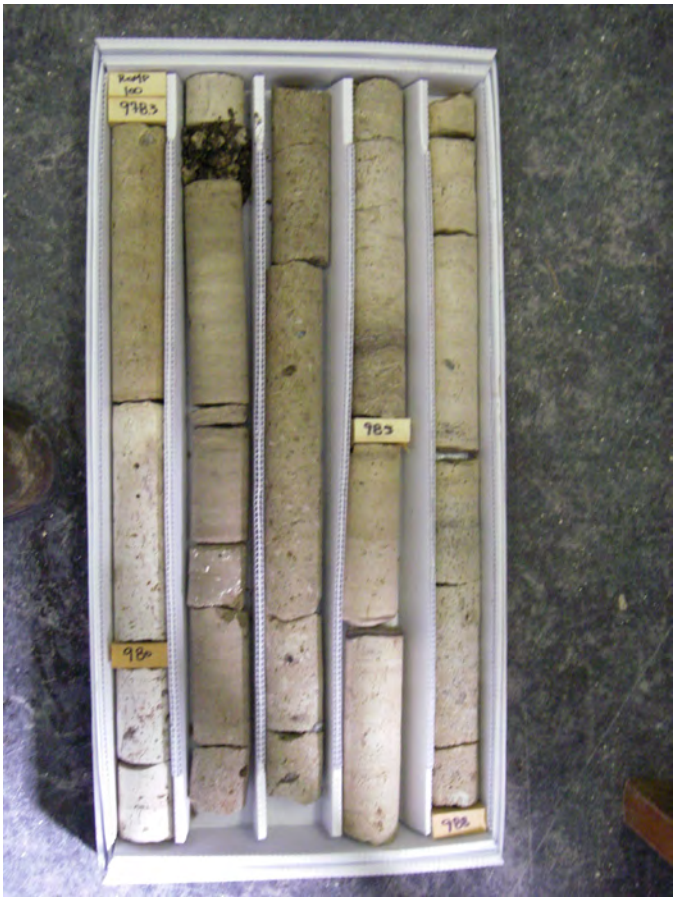
959.7


960
965
969


970
975
978.3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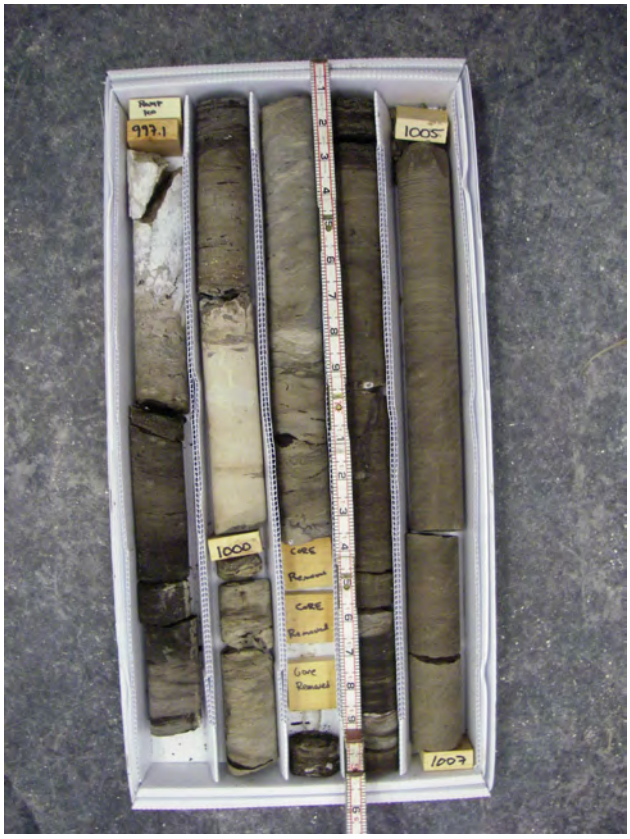
983
988


990
995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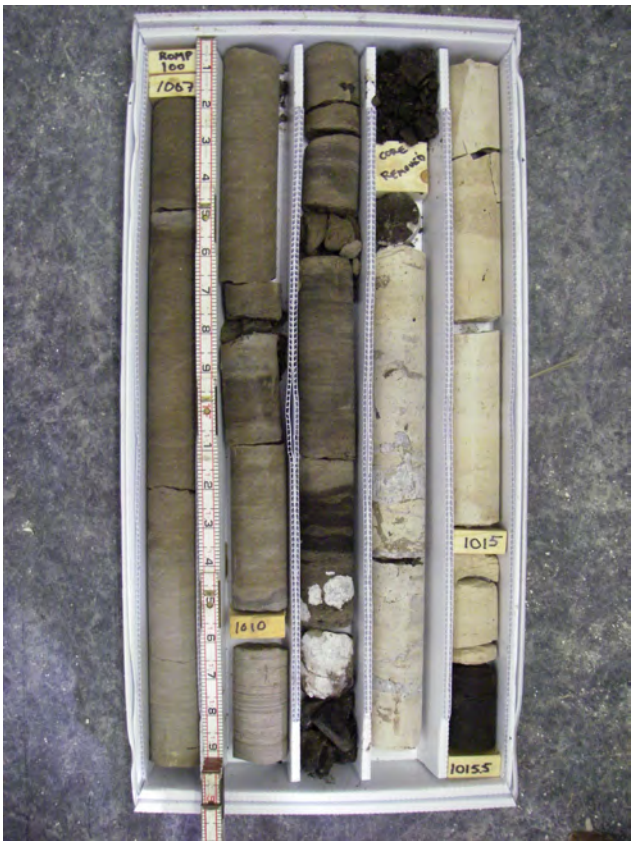
1000
1007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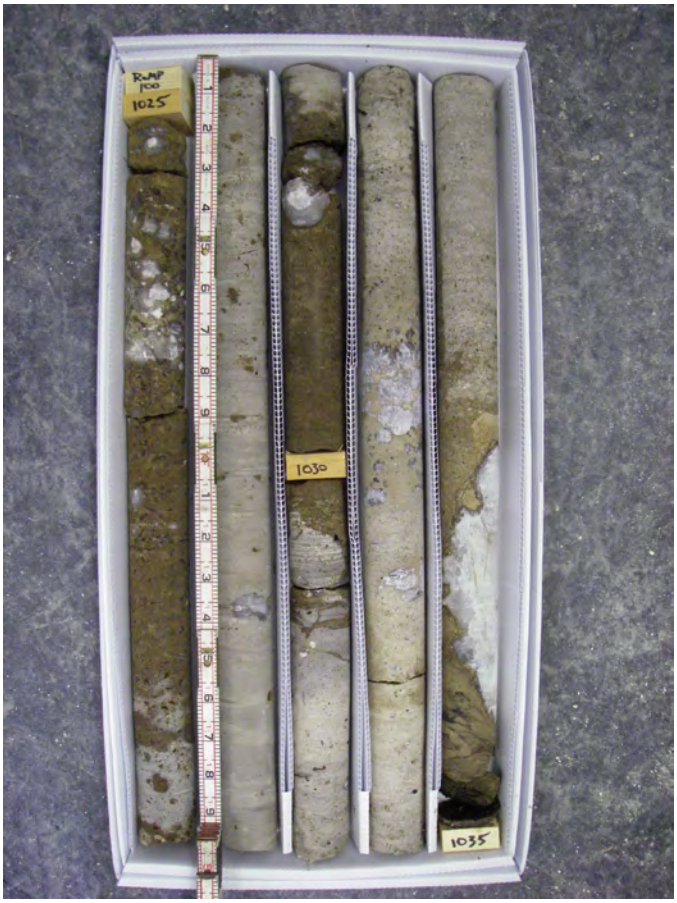
1007
1010
1015
1015.5


ROMP 100
1015.5
1020
1025

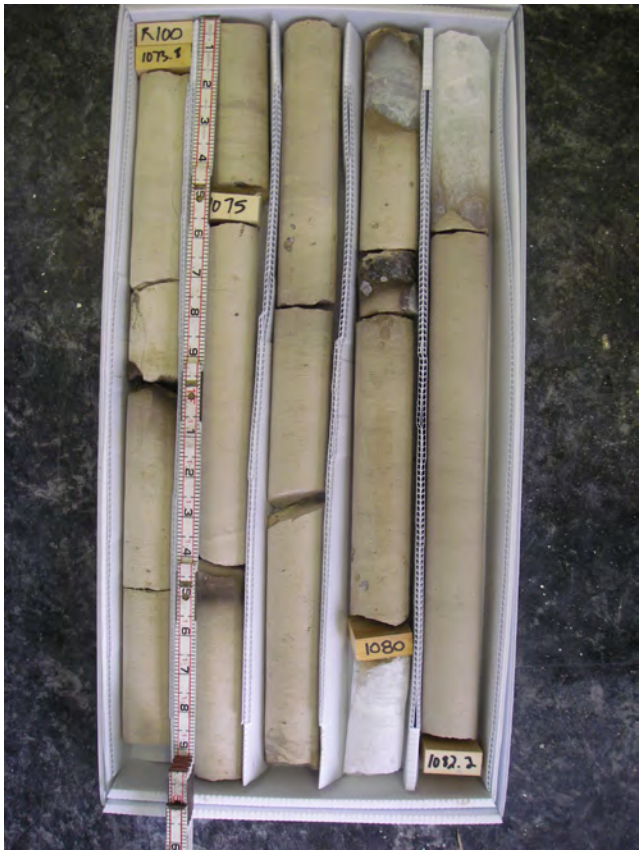

ROMP 100
1025
1030
1035


Ramp 100
1035
Core Removed
Core Removed
CORE Removed
1040
1044.5

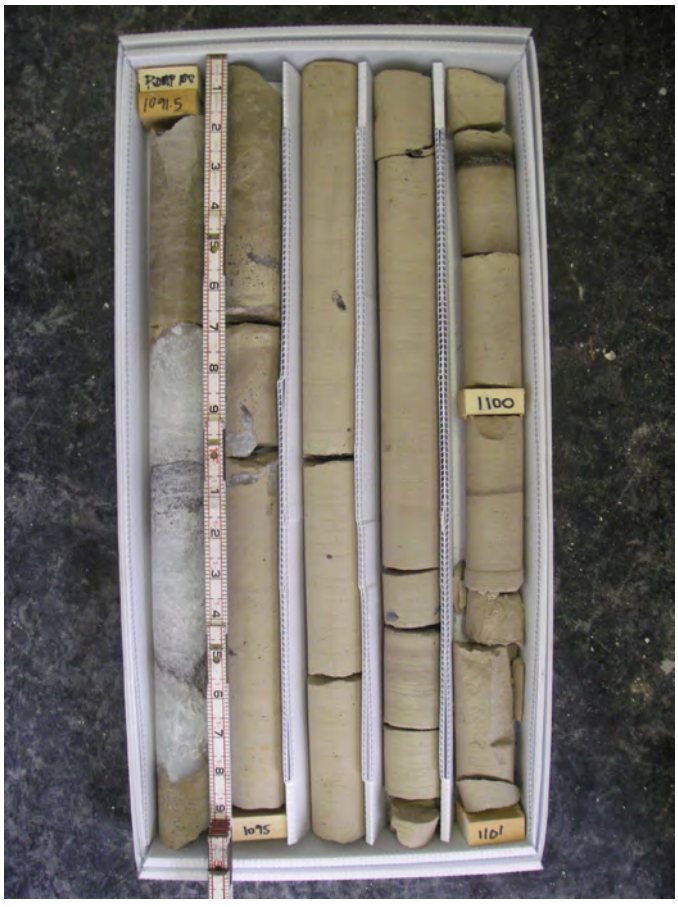

R 100
1044.5
1045
1050
1053.5

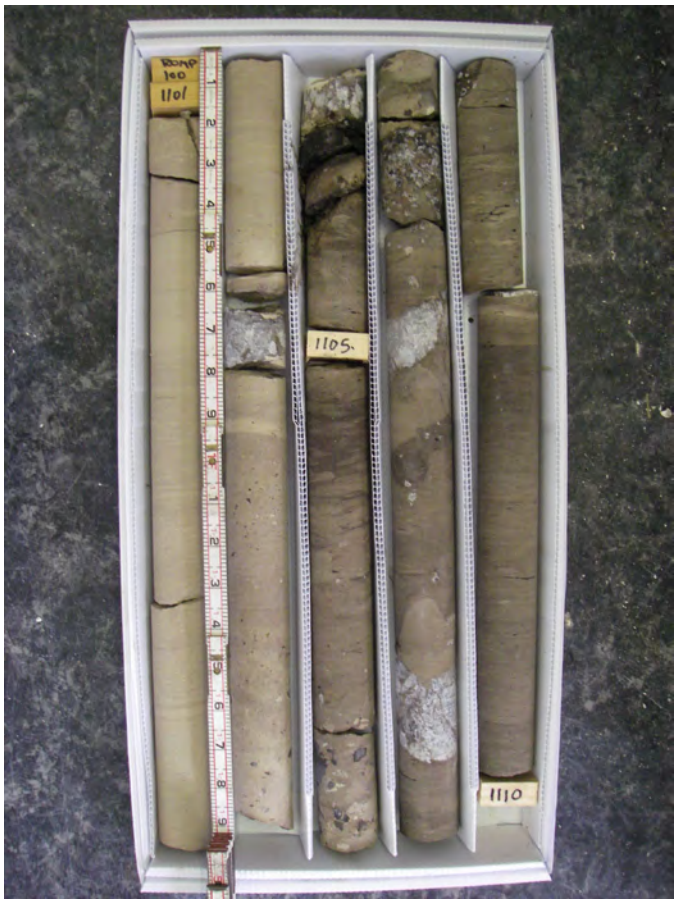

R100
1053.5
1060
1055
1063.4

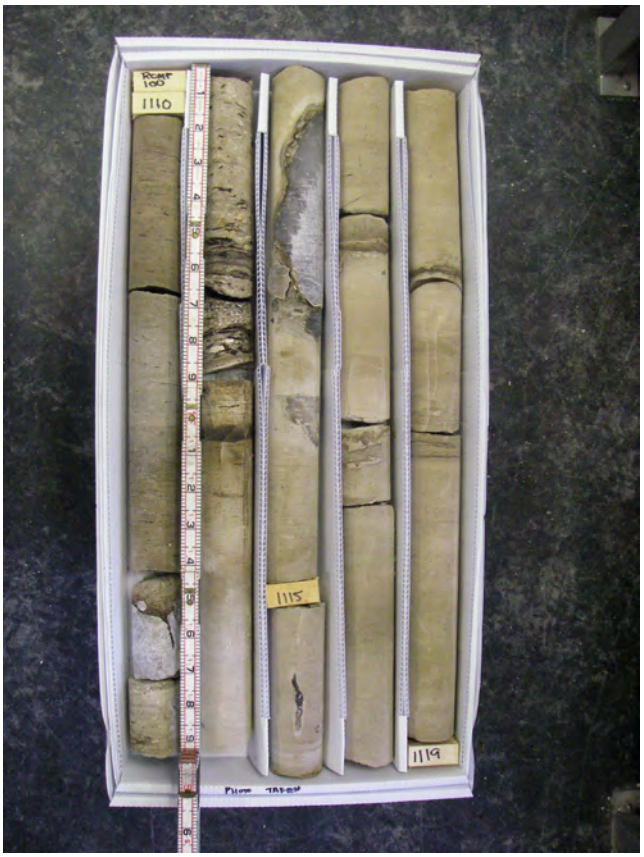

Ramp 100
1063.4
1070
1065
1073.8


R100
1075
1080
1082.2


Core removed
Core Removed
1085
1090
1091.5


1091.5
1075
1100
1101


1101
1105
1110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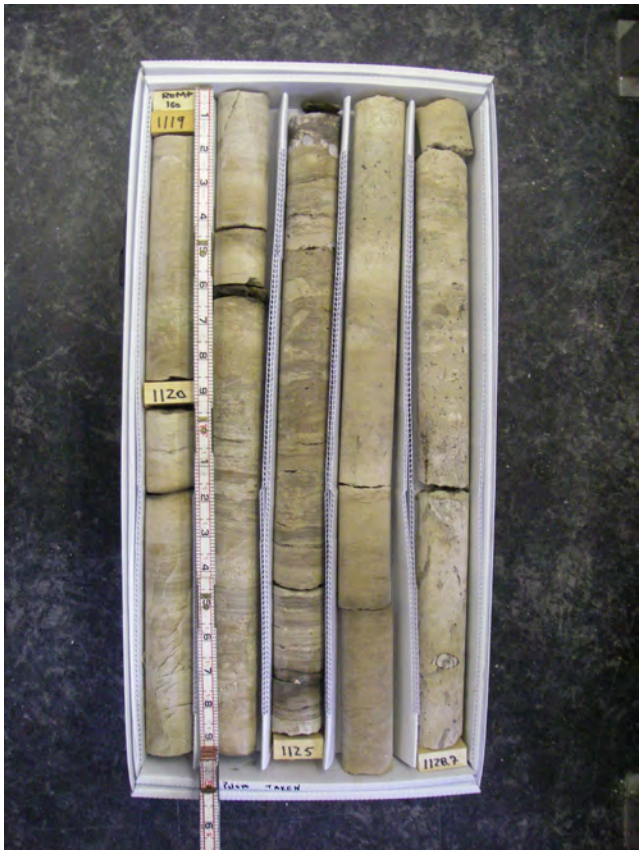
1115
1119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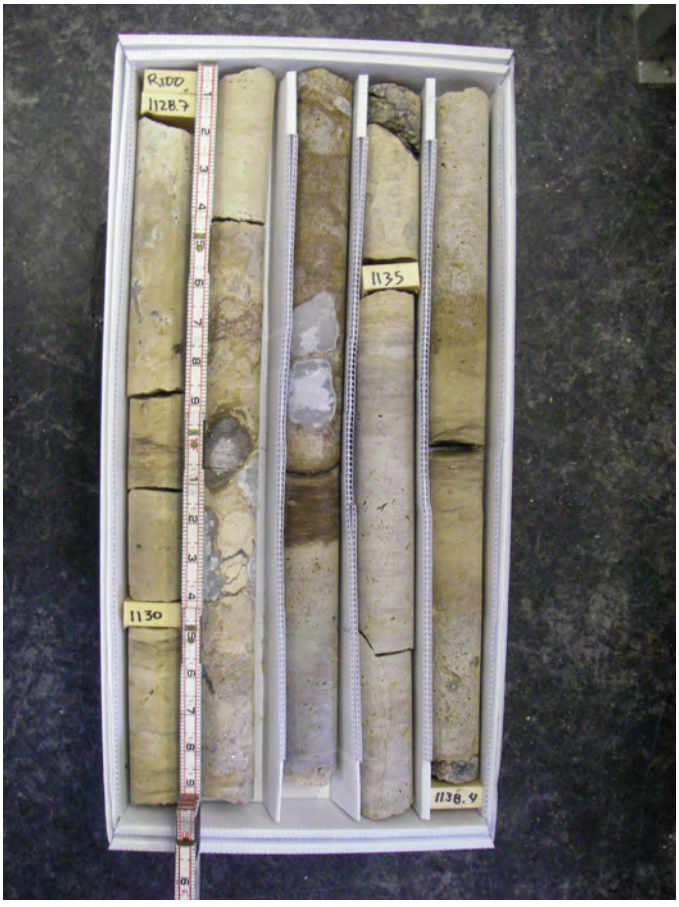
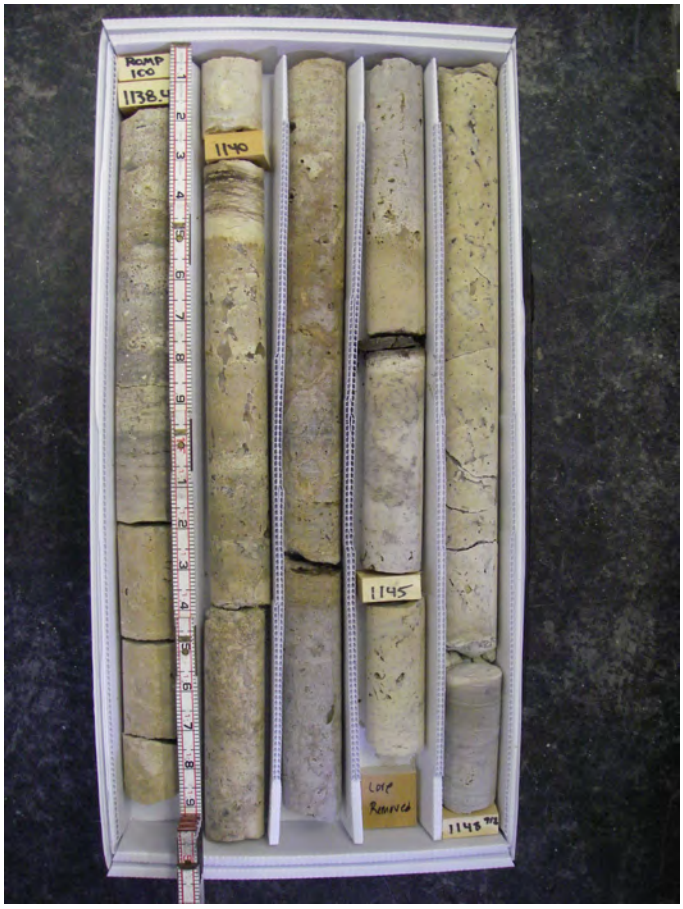
1125
1128.7


RAMP 100
1128.7
1130
1135
1138.4


RAMP 100
1138.4
1140
1145

Appendix E. Geophysical logs collected from the ROMP 100 well site

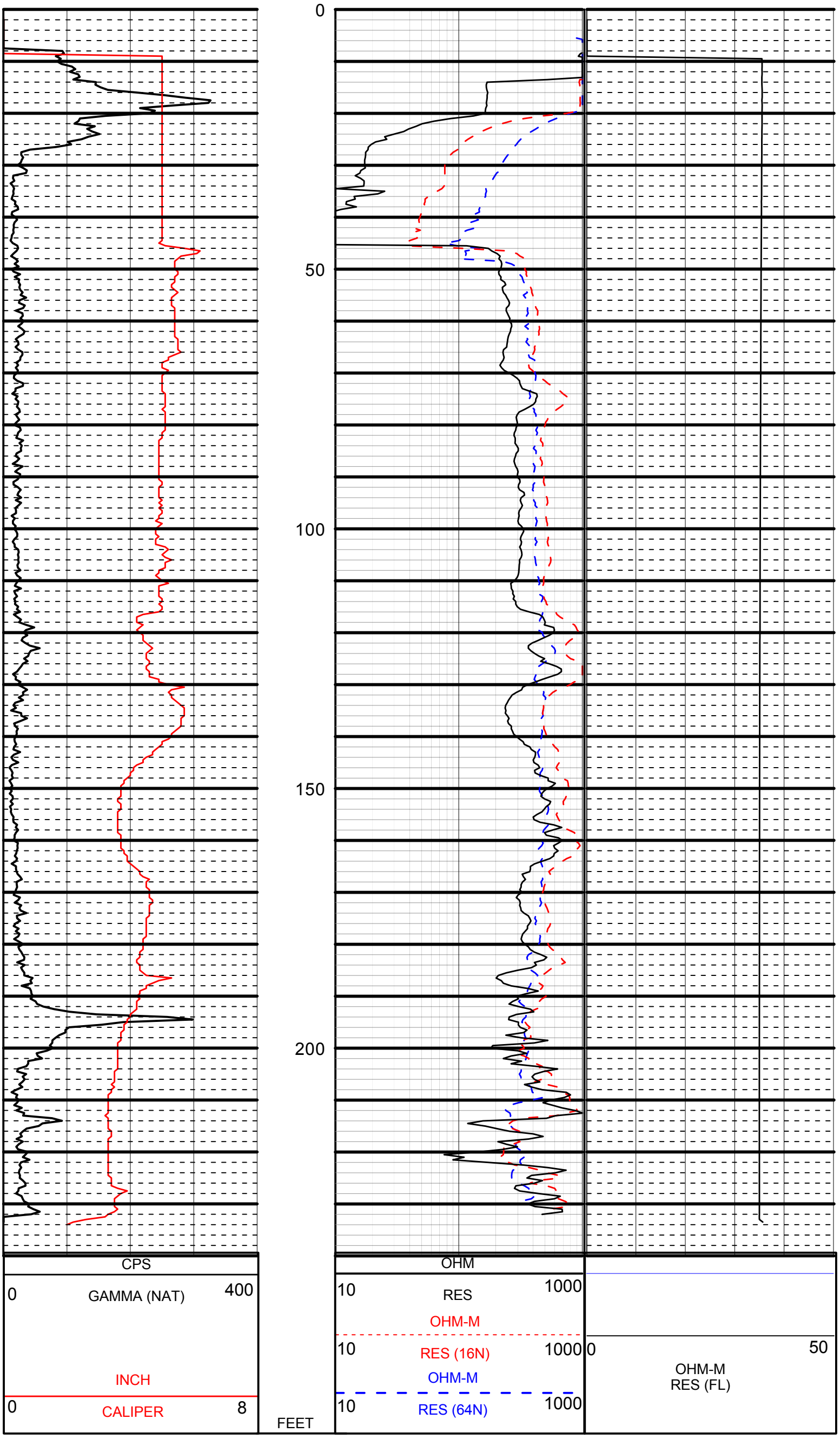


Figure E-1. ROMP 100 Geophysical log suite from land surface to 234 feet bls. The logs were collected from the corehole on 8-29-2007 using tools 8044C (multi-tool), and 9165 (caliper-gama). The steel casing depth at the time of logging was 45 feet bls. The log scale is 5-inch per 100 feet. Tracks 1 and 3 are in linear scale and track 2 is in logarithmic scale.

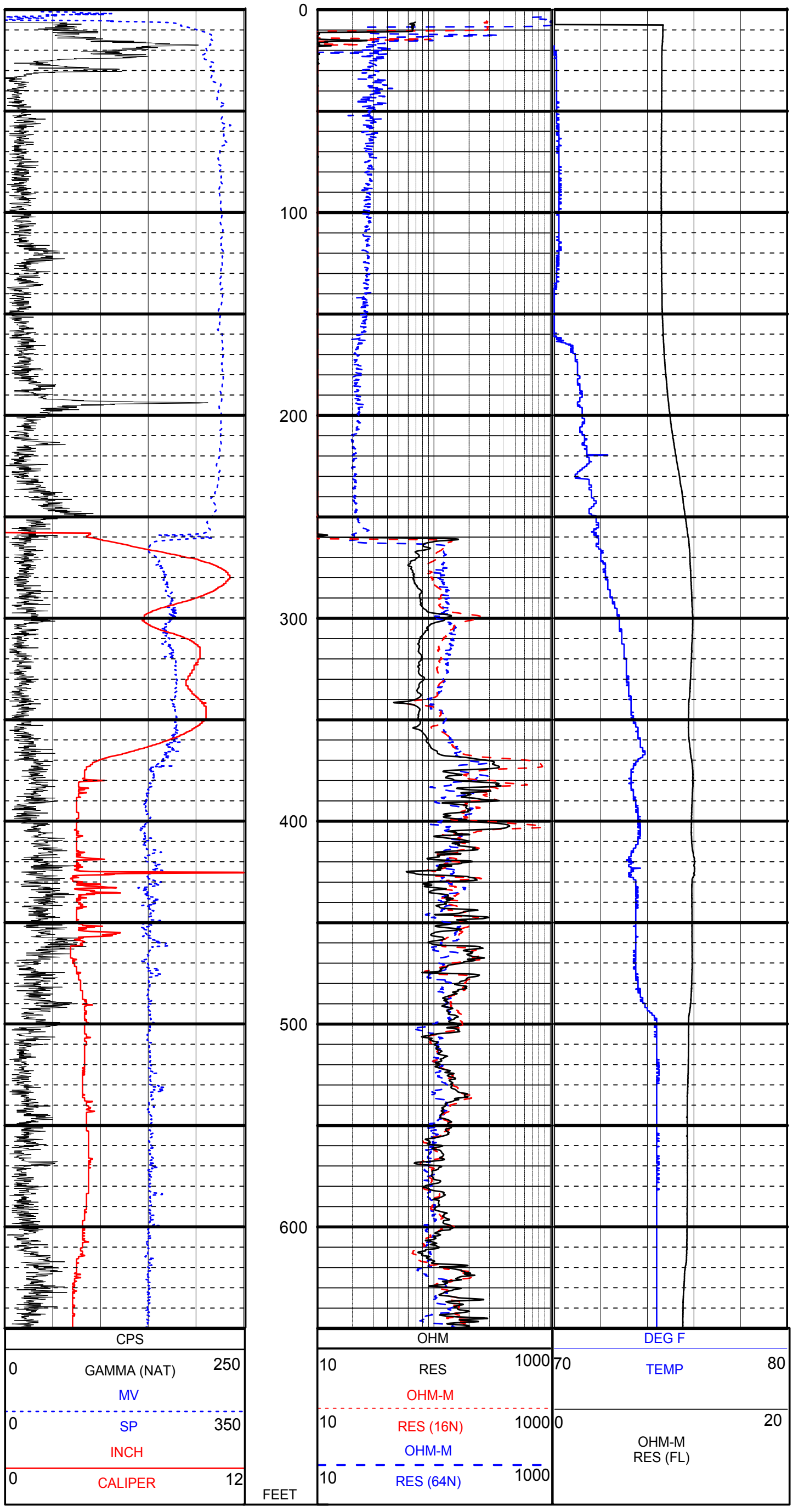


Figure E-2. ROMP 100 Geophysical log suite from land surface to 1,253 feet bls. The logs were collected from the corehole on 1-30-2008 using tools 8044C (multi-tool), and 9165 (caliper-gama). The steel casing depth at the time of logging was 259 feet bls. The log scale is 2-inch per 100 feet. Tracks 1 and 3 are in linear scale and track 2 is in logarithmic scale.

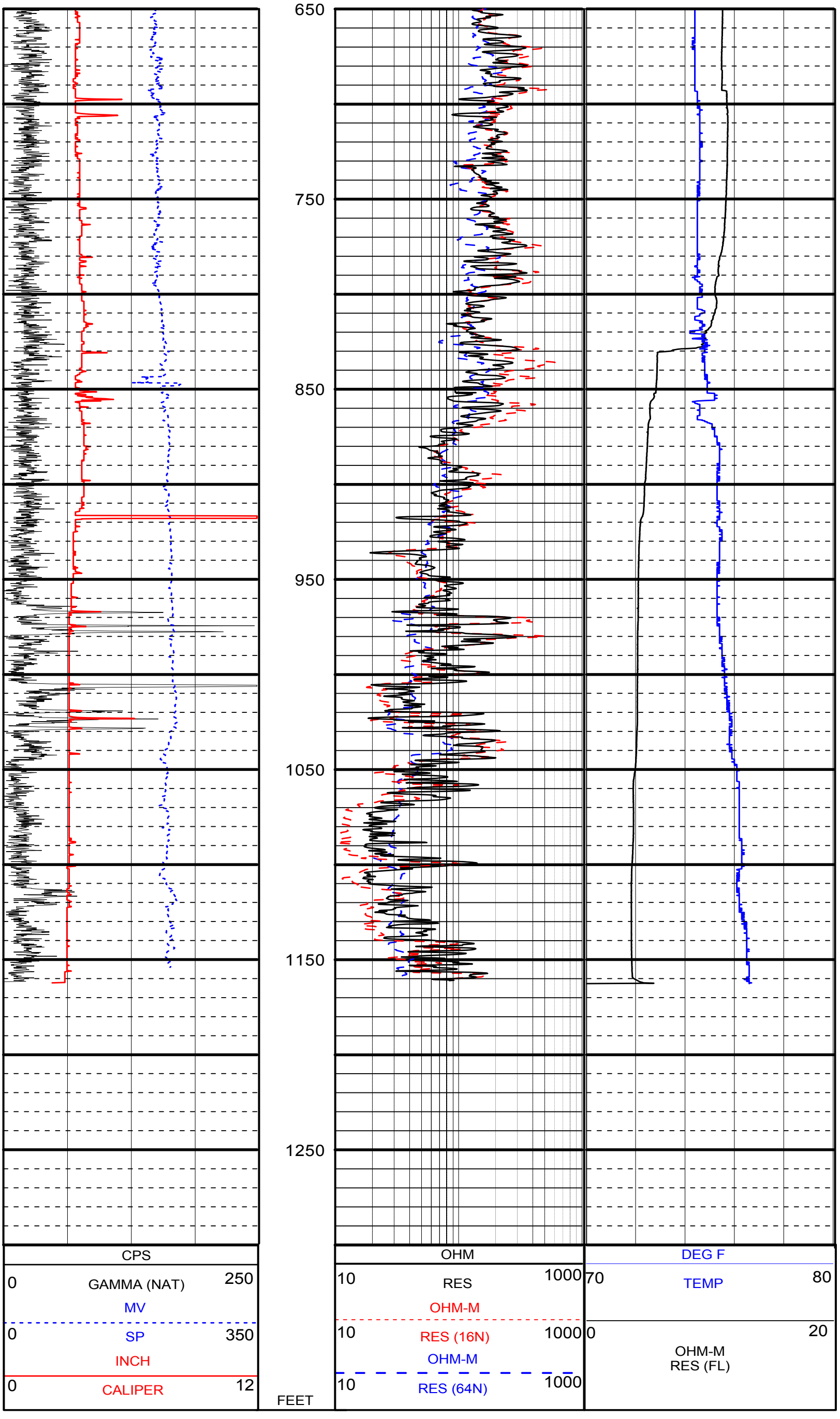


Figure E-2 (continued). ROMP 100 Geophysical log suite from land surface to 1,253 feet bls. The logs were collected from the corehole on 1-30-2008 using tools 8044C (multi-tool) and 9165 (caliper/gamma). The steel casing depth at the time of logging was 259 feet bls. The log scale is 2-inches per 100 feet. Tracks 1 and 3 are in linear scale and track 2 is in logarithmic scale.

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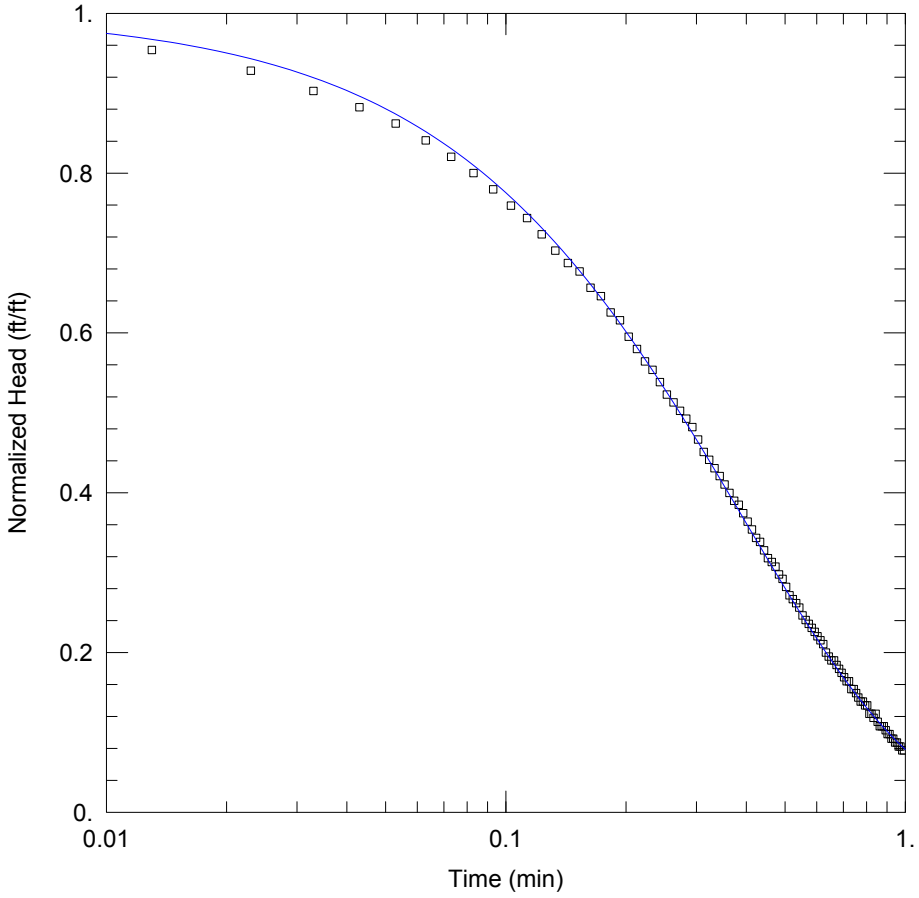
Appendix F. Slug test curve analyses from the ROMP 100 well site



SLUG TEST ANALYSIS

Data Set: D:\...\ROMP100_ST1D_45-65_Butler.aqt
Date: 03/17/10 Time: 17:03:22

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 8/02/2007

AQUIFER DATA

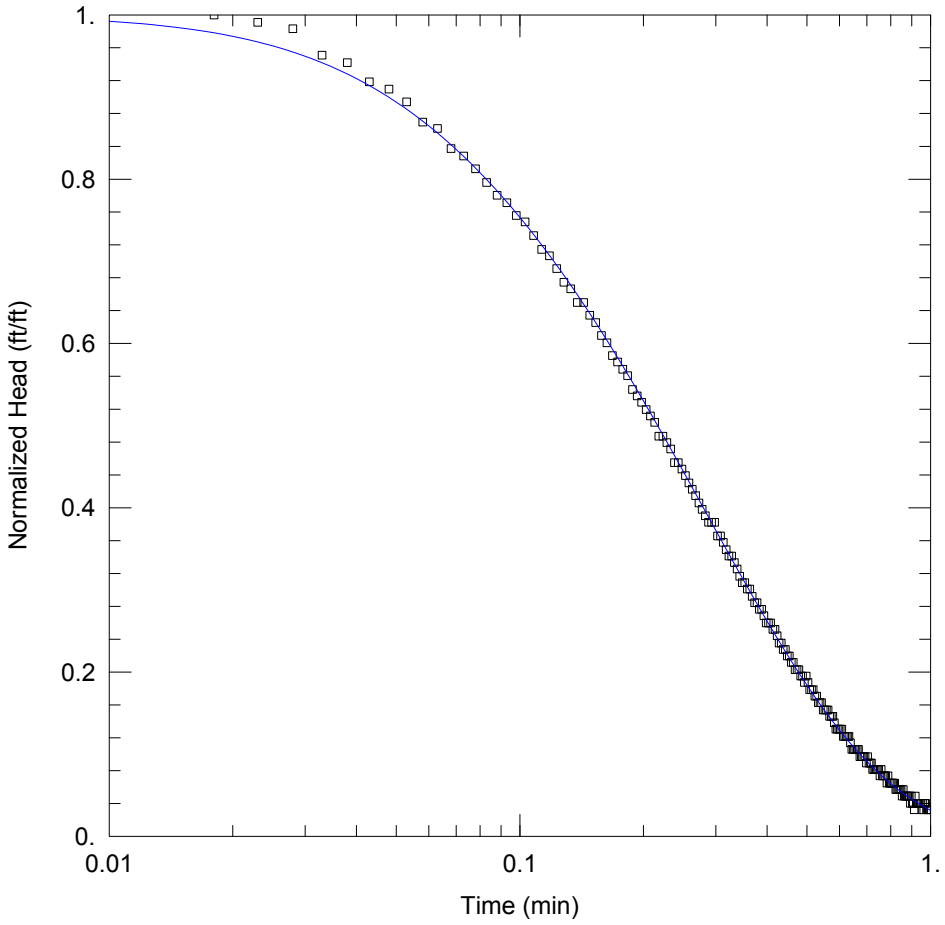
Saturated Thickness: 175. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (ST1D_45-65)

Initial Displacement: 1.421 ft Static Water Column Height: 55.07 ft
Total Well Penetration Depth: 45. ft Screen Length: 20. ft
Casing Radius: 0.09862 ft Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler
K = 4.51 ft/day Le = 0.1 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST2B_86-115_Butler.aqt
Date: 03/17/10 Time: 17:06:14

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 8/09/2007

AQUIFER DATA

Saturated Thickness: 175. ft Anisotropy Ratio (Kz/Kr): 1.

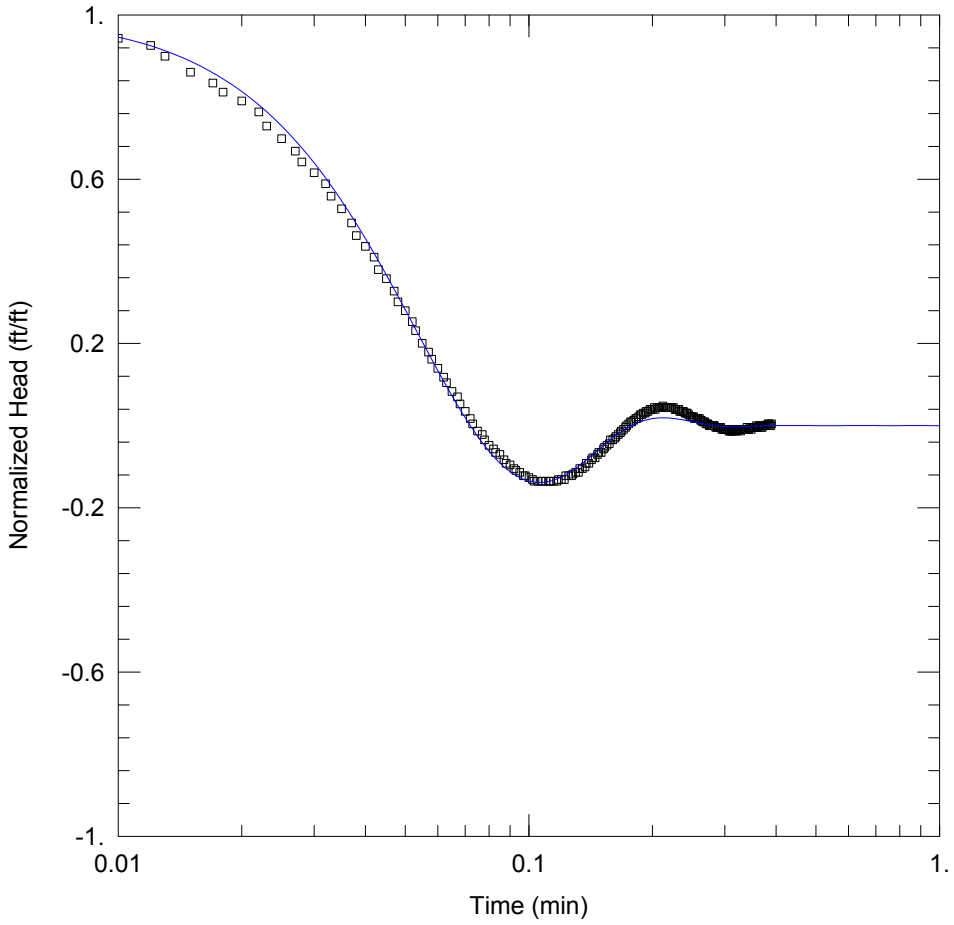
WELL DATA (ST2B_86-115)

Initial Displacement: 0.897 ft Static Water Column Height: 108.2 ft
Total Well Penetration Depth: 95. ft Screen Length: 29. ft
Casing Radius: 0.06684 ft Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 1.992 ft/day Le = 630.3 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST3D_139-165_Butler.aqt
Date: 03/17/10 Time: 17:08:02

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 8/21/2007

AQUIFER DATA

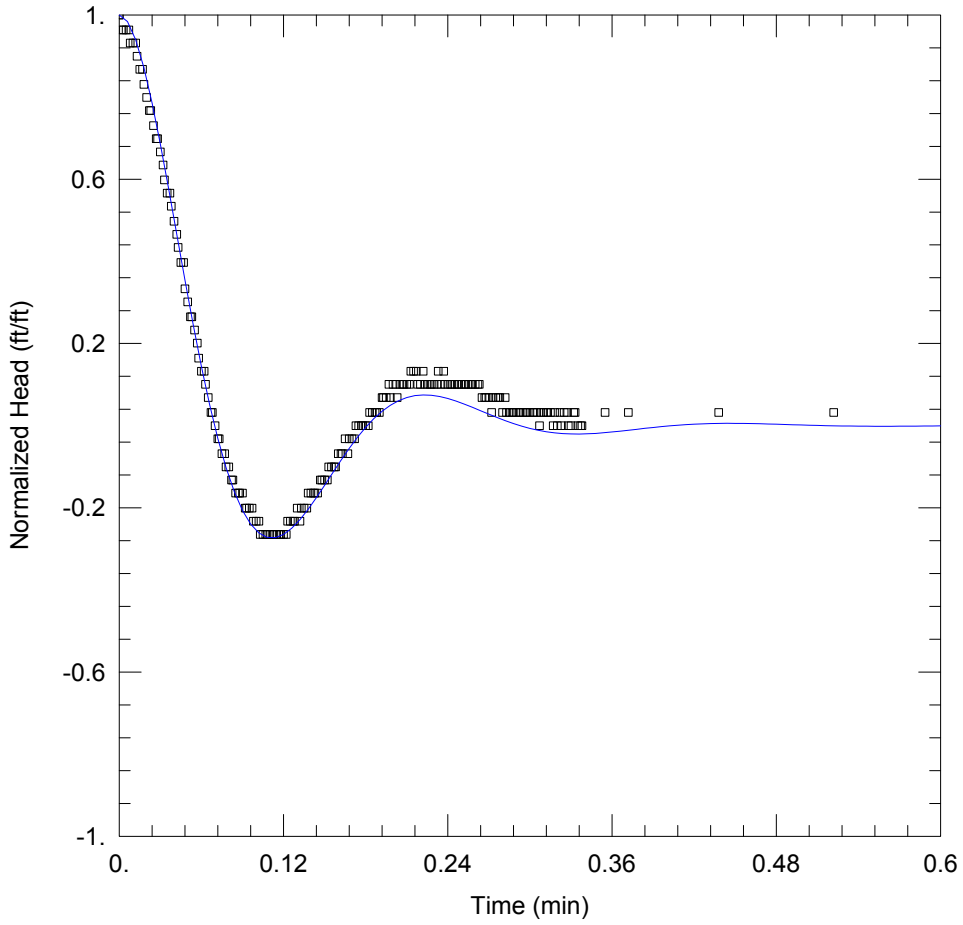
Saturated Thickness: 175. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (ST3C_139-165)

Initial Displacement: 1.67 ft
Total Well Penetration Depth: 56. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 157.4 ft
Screen Length: 26. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 21.67 ft/day
Le = 94.53 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST4F_180-210_Butler.aqt
Date: 03/17/10 Time: 17:10:41

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 8/23/2007

AQUIFER DATA

Saturated Thickness: 700. ft Anisotropy Ratio (Kz/Kr): 0.001

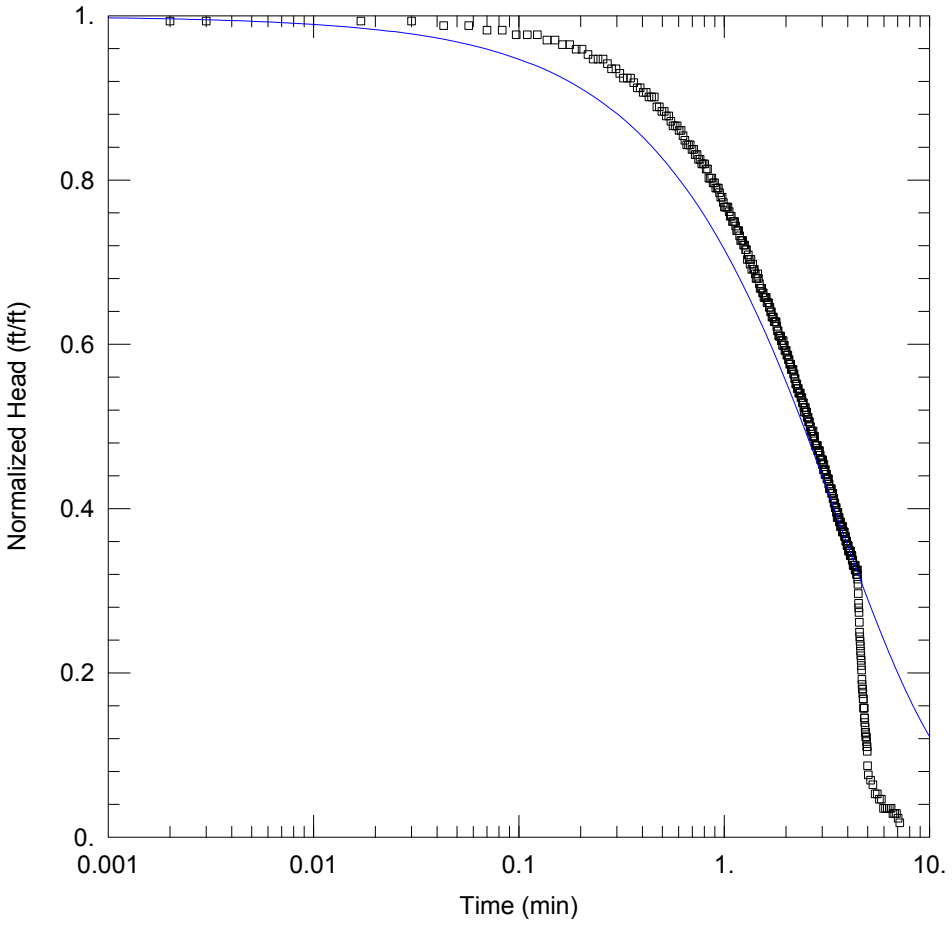
WELL DATA (ST4A_180-210)

Initial Displacement: 0.219 ft
Total Well Penetration Depth: 45. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 202.2 ft
Screen Length: 30. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 38.24 ft/day Le = 124.5 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST5C_211-240_KGS.aqt
Date: 03/17/10 Time: 17:13:45

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 8/28/2007

AQUIFER DATA

Saturated Thickness: 700. ft

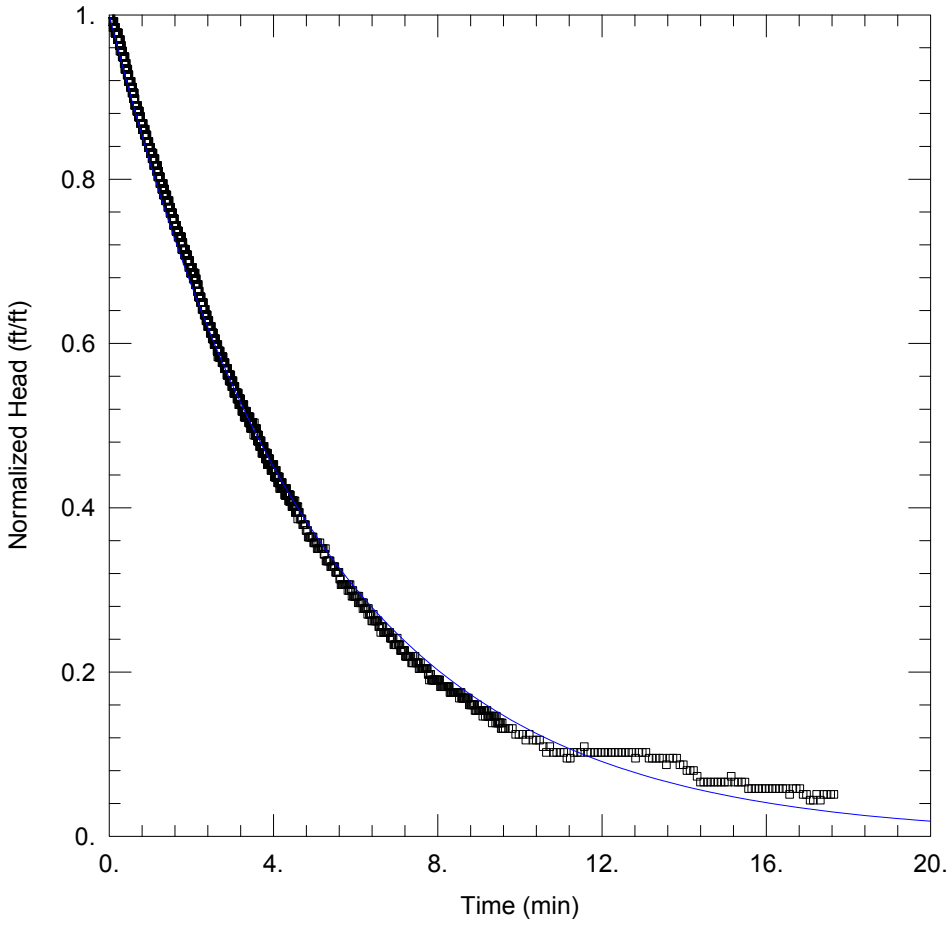
WELL DATA (ST5C_211-240)

Initial Displacement: 1.254 ft
Total Well Penetration Depth: 45. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 230.9 ft
Screen Length: 29. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.1073 ft/day
Kz/Kr = 1.
Ss = 1.429E-5 ft^{-1}



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST6E_255-285_KGS.aqt
Date: 03/17/10 Time: 17:14:25

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/13/2007

AQUIFER DATA

Saturated Thickness: 700. ft Anisotropy Ratio (Kz/Kr): 0.1

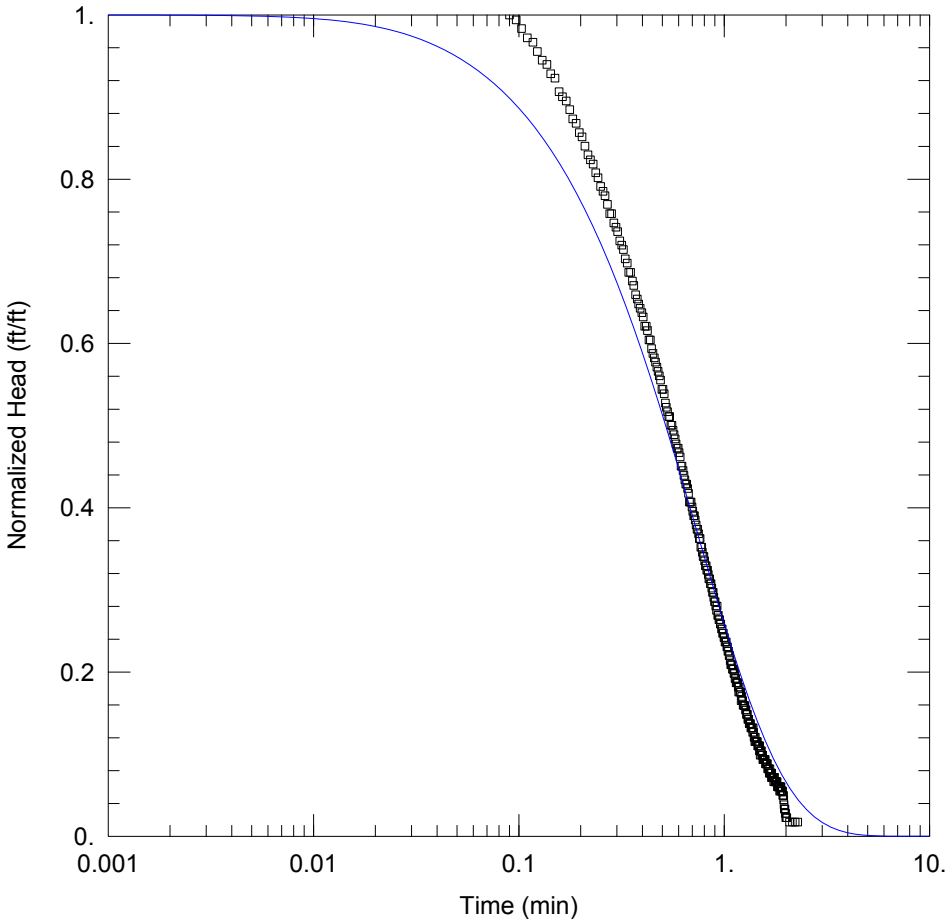
WELL DATA (ST6E_255-285)

Initial Displacement: 0.999 ft
Total Well Penetration Depth: 285. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 276. ft
Screen Length: 30. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 0.1418 ft/day Le = 251.2 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST7F_302-345_Butler.aqt
Date: 03/18/10 Time: 09:07:32

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/13/2007

AQUIFER DATA

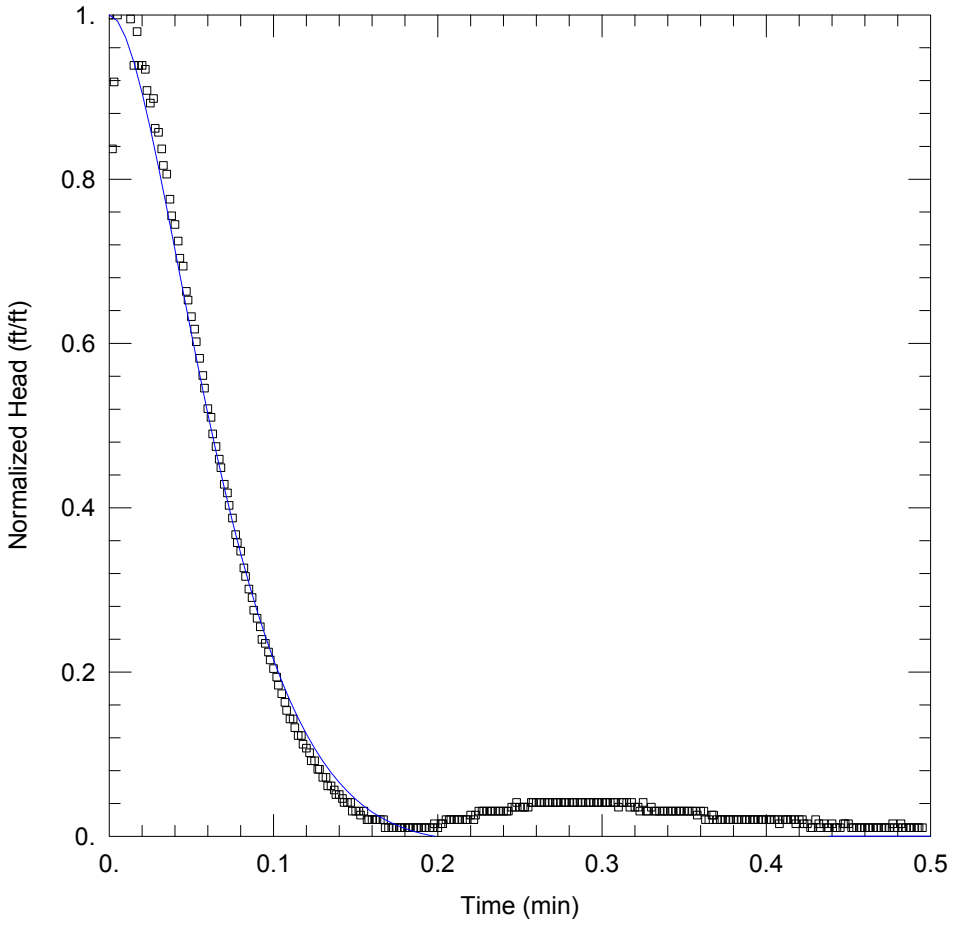
Saturated Thickness: 700. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (STB_302-345)

Initial Displacement: 1.327 ft
Total Well Penetration Depth: 150. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 335.9 ft
Screen Length: 43. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 0.5873 ft/day
Le = 1000. ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST8E_365-405_Butler.aqt
Date: 03/18/10 Time: 09:08:28

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 700. ft Anisotropy Ratio (Kz/Kr): 1.

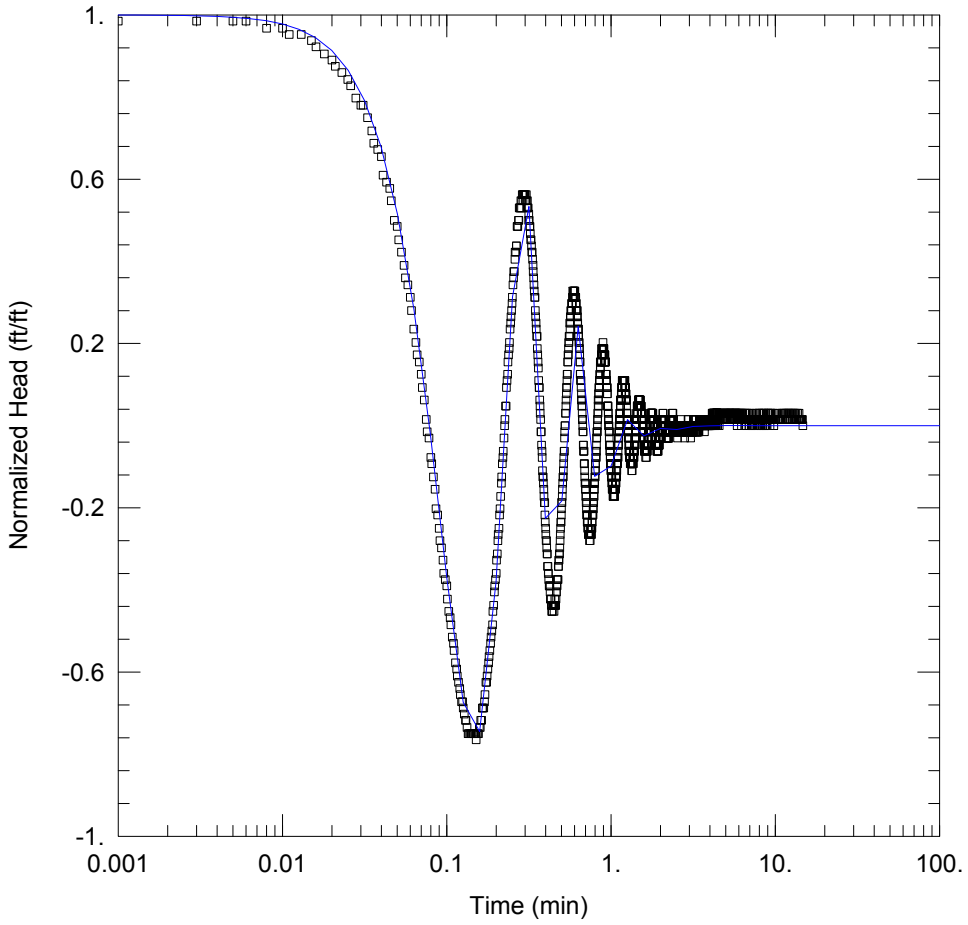
WELL DATA (ST8E_365-405)

Initial Displacement: 1.435 ft Static Water Column Height: 396.2 ft
Total Well Penetration Depth: 210. ft Screen Length: 40. ft
Casing Radius: 0.06684 ft Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 6.821 ft/day Le = 182.8 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST9D_404-445_Butler.aqt
Date: 03/18/10 Time: 09:24:16

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

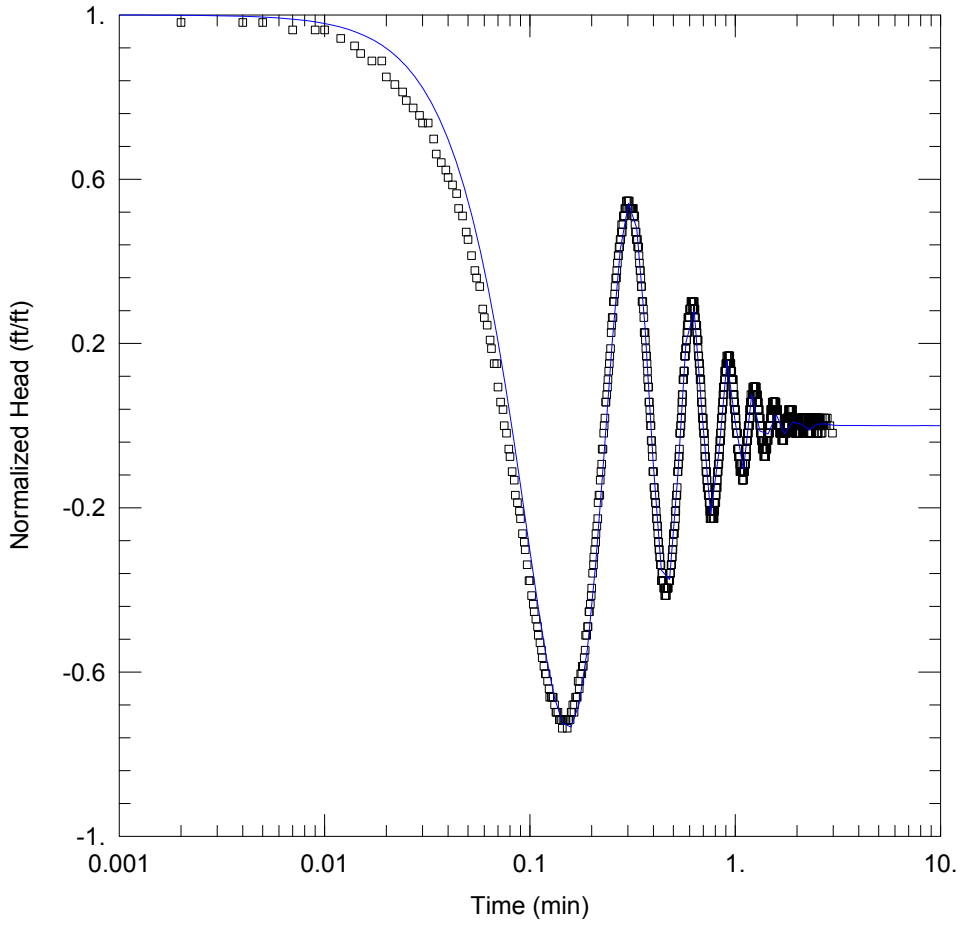
Saturated Thickness: 700. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (ST9C_404-445)

Initial Displacement: 0.464 ft
Total Well Penetration Depth: 435. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 434. ft
Screen Length: 40. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 124.5 ft/day
Le = 256.5 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST10A_445-485_Butler.aqt
Date: 03/18/10 Time: 09:25:46

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 700. ft Anisotropy Ratio (Kz/Kr): 0.1

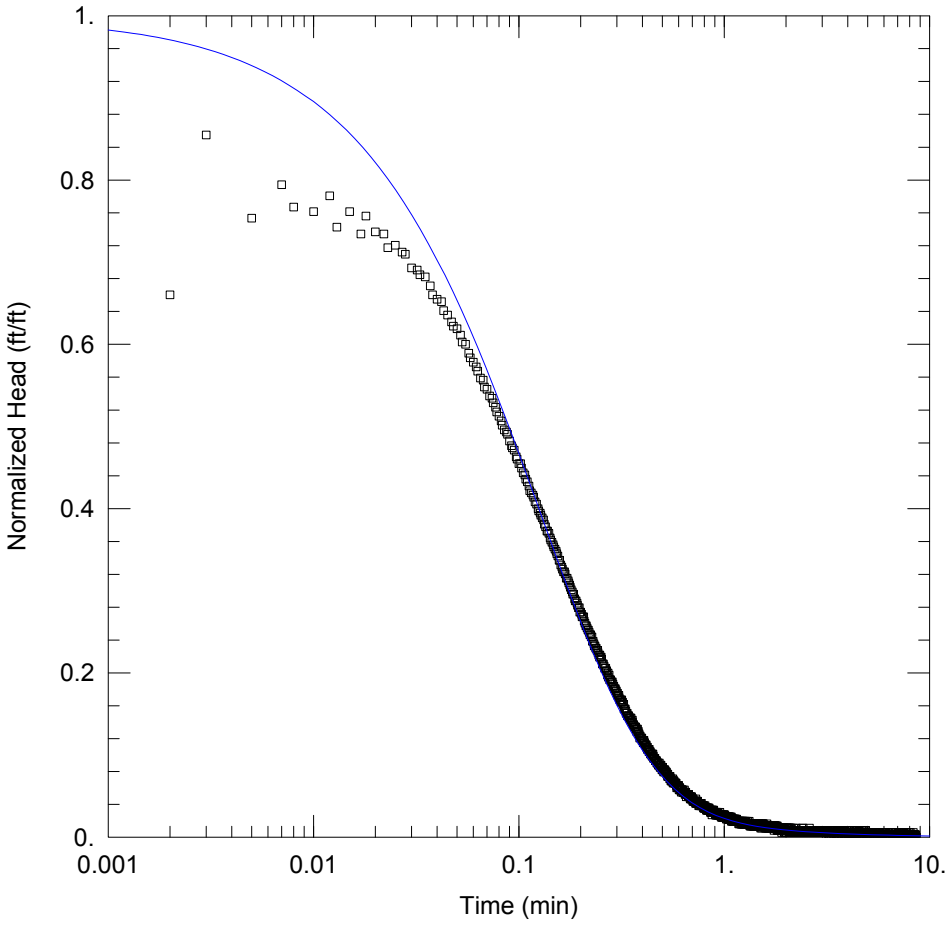
WELL DATA (ST10A_445-485)

Initial Displacement: 0.384 ft
Total Well Penetration Depth: 495. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 480. ft
Screen Length: 40. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 104.8 ft/day Le = 273.8 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST11B_505-545_Butler.aqt
Date: 03/18/10 Time: 09:46:38

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 700. ft

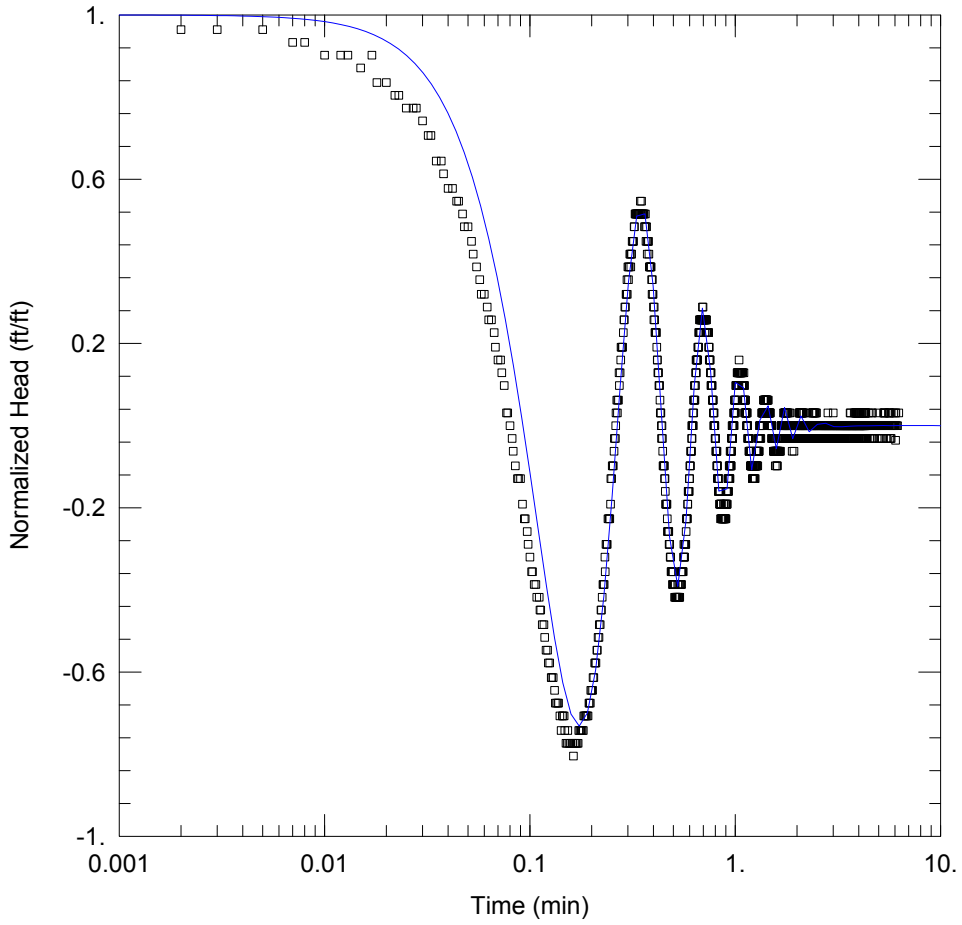
WELL DATA (ST11B_505-545)

Initial Displacement: 2.646 ft
Total Well Penetration Depth: 515. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 540. ft
Screen Length: 40. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 2.669 ft/day
Kz/Kr = 0.001
Ss = 2.573E-6 ft^{-1}



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST12B_590-625_Butler.aqt
Date: 03/18/10 Time: 09:47:56

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 700. ft Anisotropy Ratio (Kz/Kr): 0.1

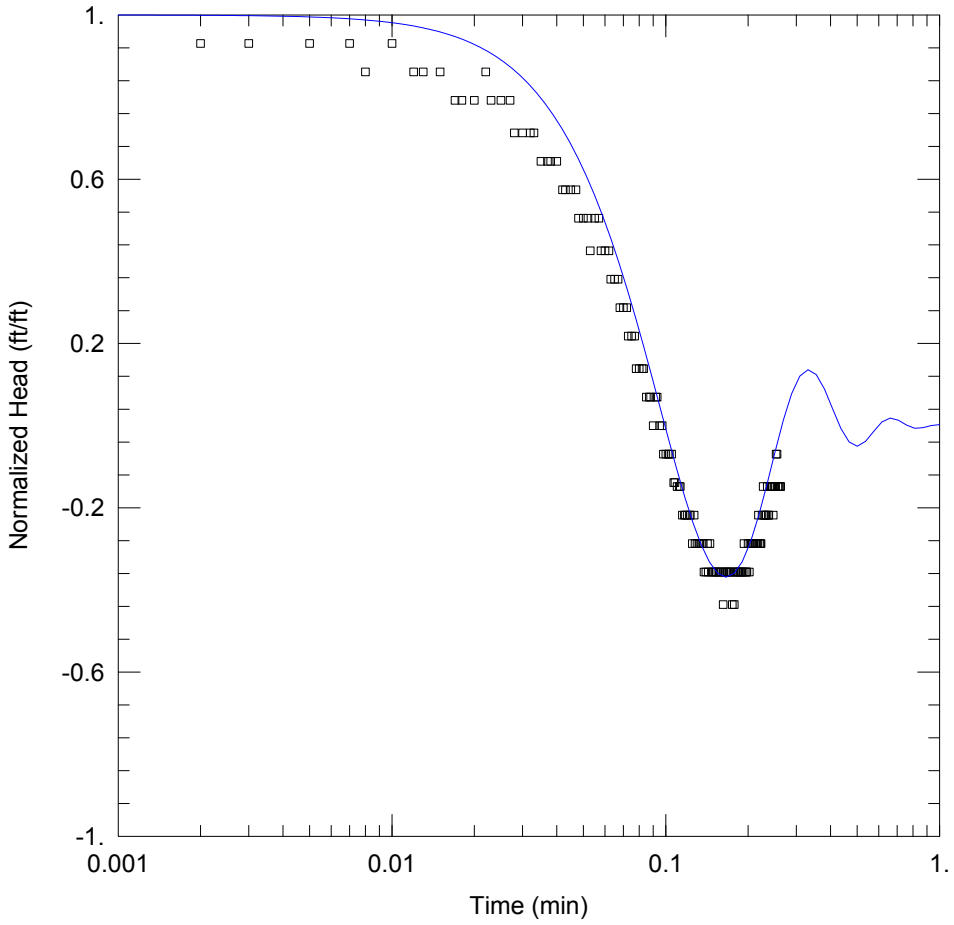
WELL DATA (ST12B_590-625)

Initial Displacement: 0.225 ft
Total Well Penetration Depth: 630. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 620. ft
Screen Length: 40. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 100.3 ft/day Le = 351.4 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST13B_660-705_Butler.aqt
Date: 03/18/10 Time: 09:49:50

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 900. ft Anisotropy Ratio (Kz/Kr): 0.1

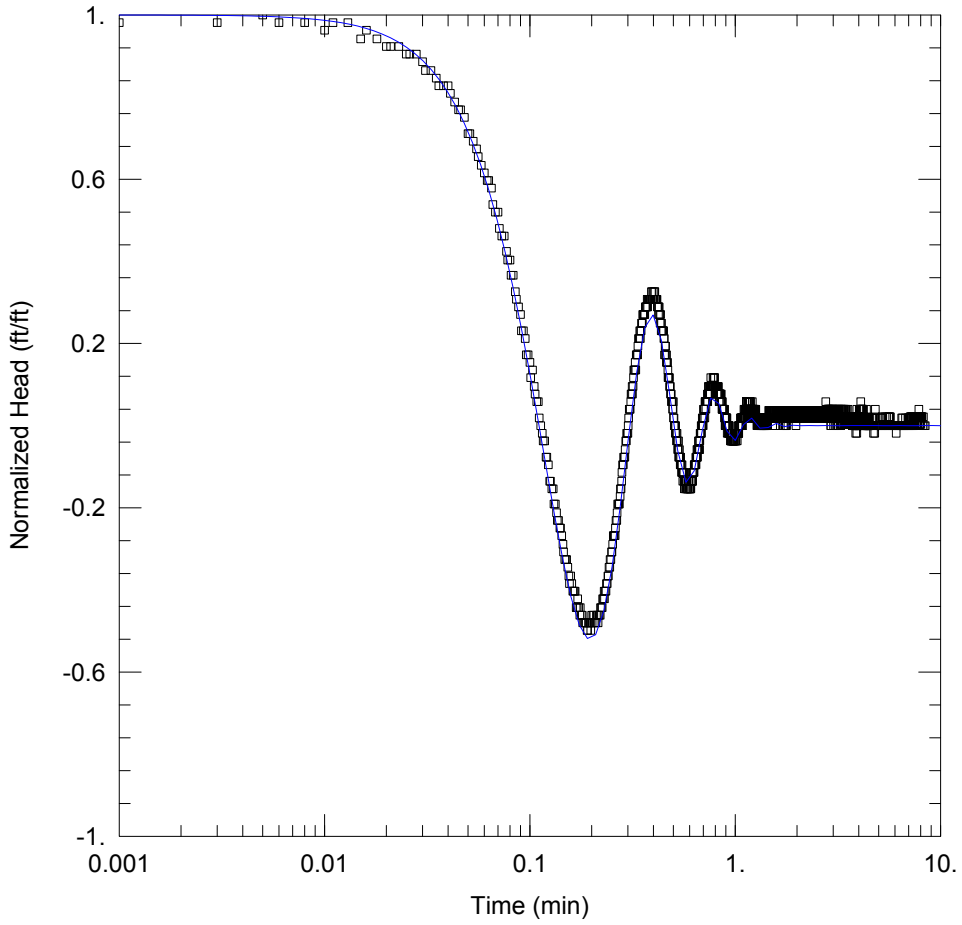
WELL DATA (ST13B_660-705)

Initial Displacement: 0.101 ft
Total Well Penetration Depth: 705. ft
Casing Radius: 0.06684 ft
Static Water Column Height: 900. ft
Screen Length: 45. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 22.22 ft/day Le = 294.4 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST14A_755-785_Butler.aqt
Date: 03/18/10 Time: 09:50:27

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 900. ft Anisotropy Ratio (Kz/Kr): 0.1

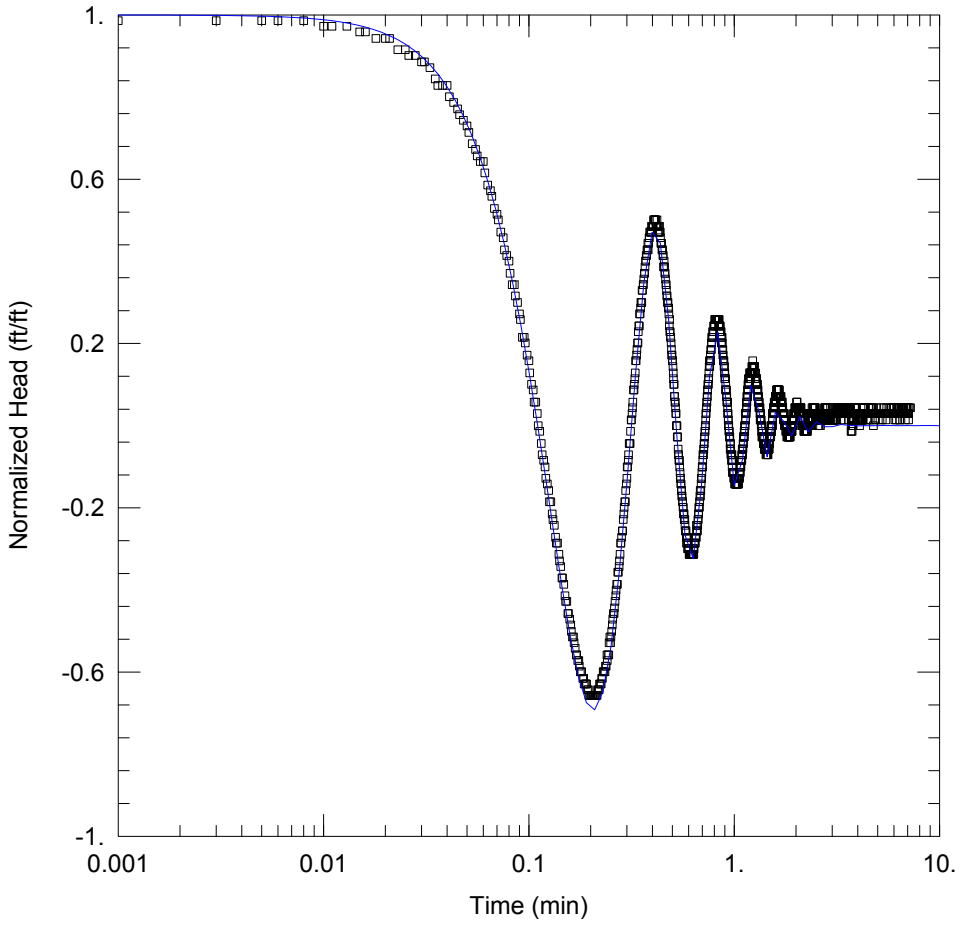
WELL DATA (ST14A_660-705)

Initial Displacement: 0.377 ft
Total Well Penetration Depth: 785. ft
Casing Radius: 0.099 ft
Static Water Column Height: 700. ft
Screen Length: 30. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 65.1 ft/day Le = 431.7 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST15A_824-855_Butler.aqt
Date: 03/18/10 Time: 09:56:32

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 900. ft Anisotropy Ratio (Kz/Kr): 0.1

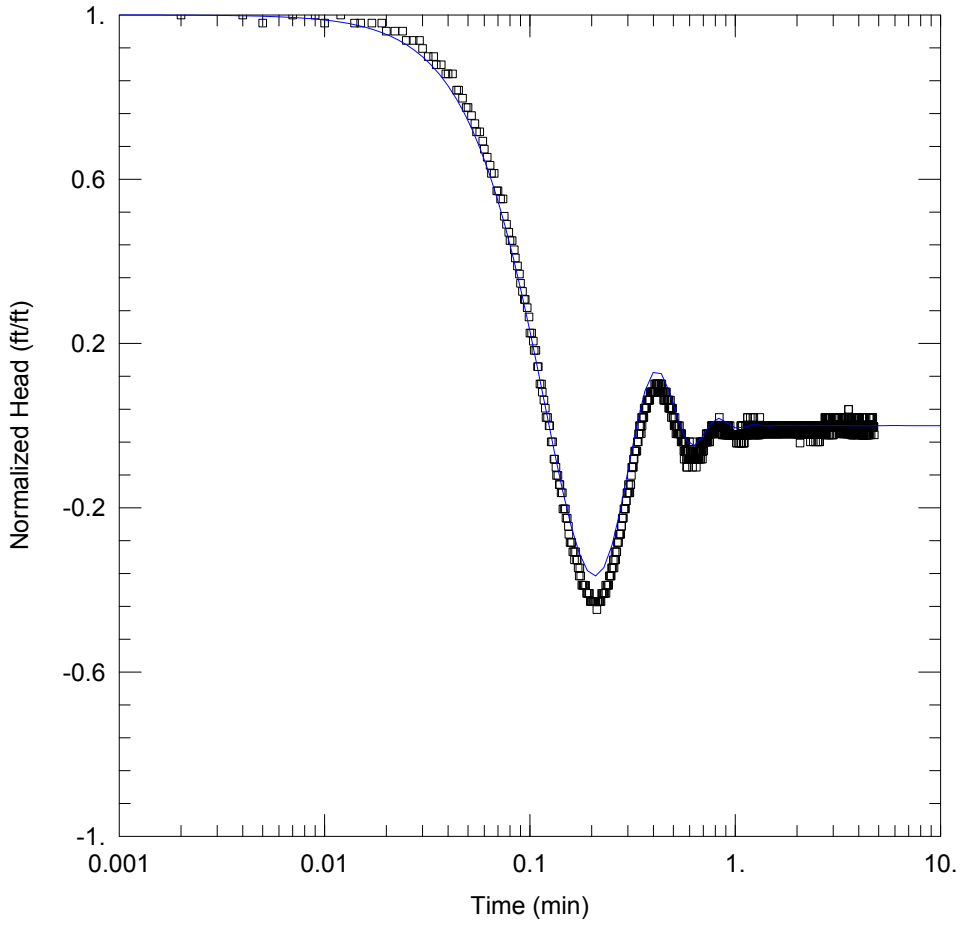
WELL DATA (ST15A_824-855)

Initial Displacement: 0.507 ft
Total Well Penetration Depth: 855. ft
Casing Radius: 0.06751 ft
Static Water Column Height: 850. ft
Screen Length: 31. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 92.1 ft/day Le = 488.1 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST16A_897-920_Butler.aqt
Date: 03/18/10 Time: 09:57:06

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 920. ft Anisotropy Ratio (Kz/Kr): 0.1

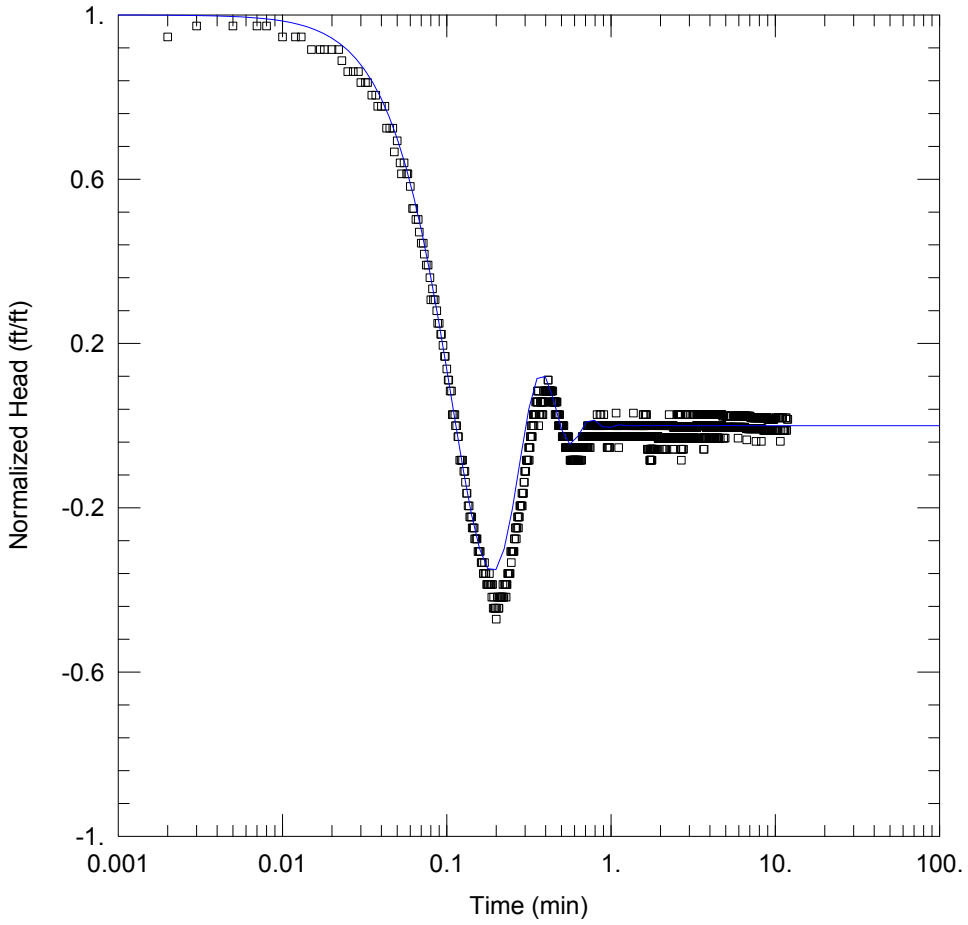
WELL DATA (ST16A_887-920)

Initial Displacement: 0.355 ft
Total Well Penetration Depth: 918. ft
Casing Radius: 0.06751 ft
Static Water Column Height: 920. ft
Screen Length: 31. ft
Well Radius: 0.1263 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Confined Solution Method: Butler

K = 23.33 ft/day Le = 456.3 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST17A_897-920_Butler.aqt
Date: 03/18/10 Time: 09:57:48

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

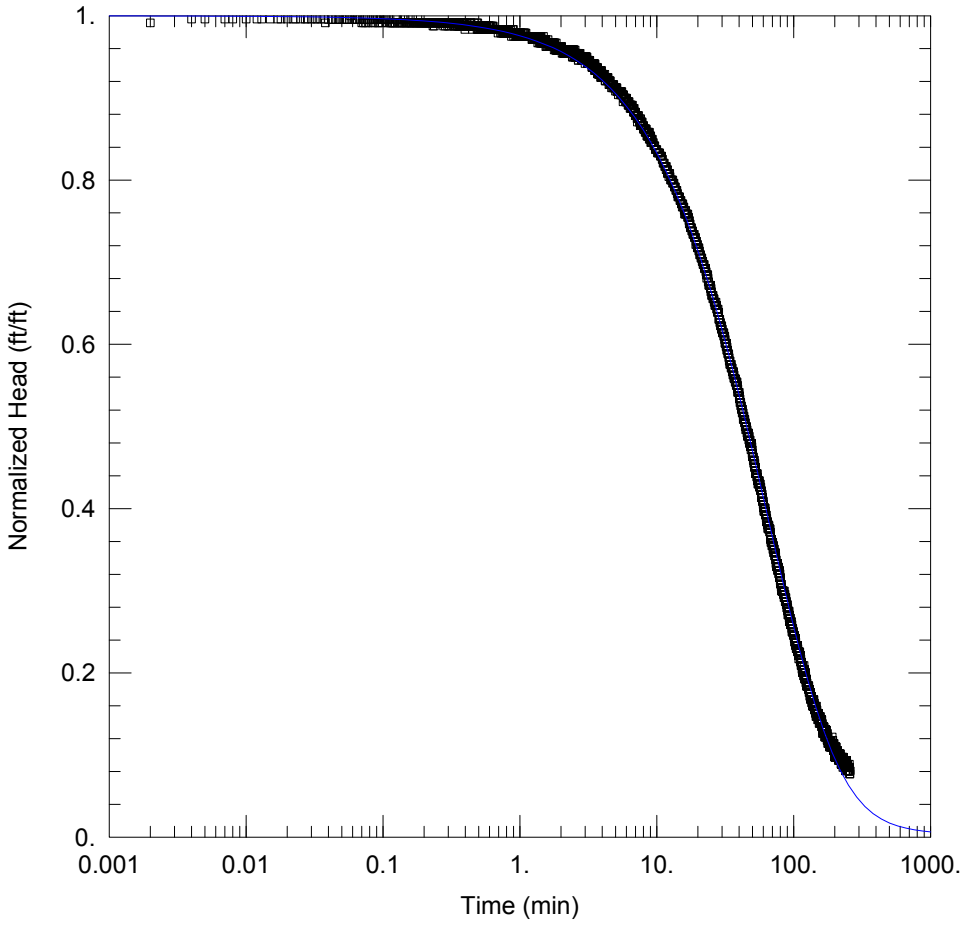
Saturated Thickness: 920. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (ST17A_887-920)

Initial Displacement: 0.261 ft
Total Well Penetration Depth: 918. ft
Casing Radius: 0.06751 ft
Static Water Column Height: 920. ft
Screen Length: 31. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 25.4 ft/day
Le = 379.6 ft



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST18A_963-1000_KGS.aqt
Date: 03/18/10 Time: 09:58:41

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 1000. ft

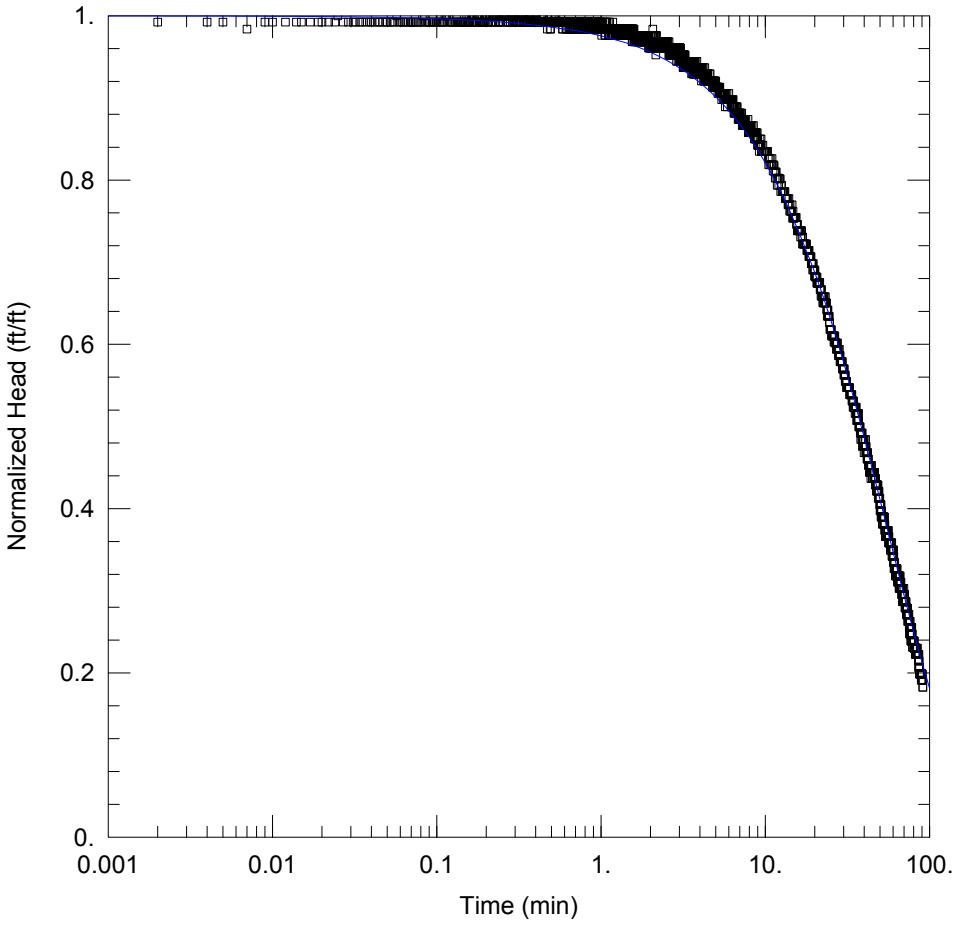
WELL DATA (ST18A_963-1000)

Initial Displacement: 1.756 ft
Total Well Penetration Depth: 1000. ft
Casing Radius: 0.0949 ft
Static Water Column Height: 1000. ft
Screen Length: 37. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.01503 ft/day
Kz/Kr = 0.001
Ss = 4.786E-7 ft^{-1}



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST19A_1040-1080_KGS.aqt
Date: 03/18/10 Time: 09:59:10

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 1500. ft

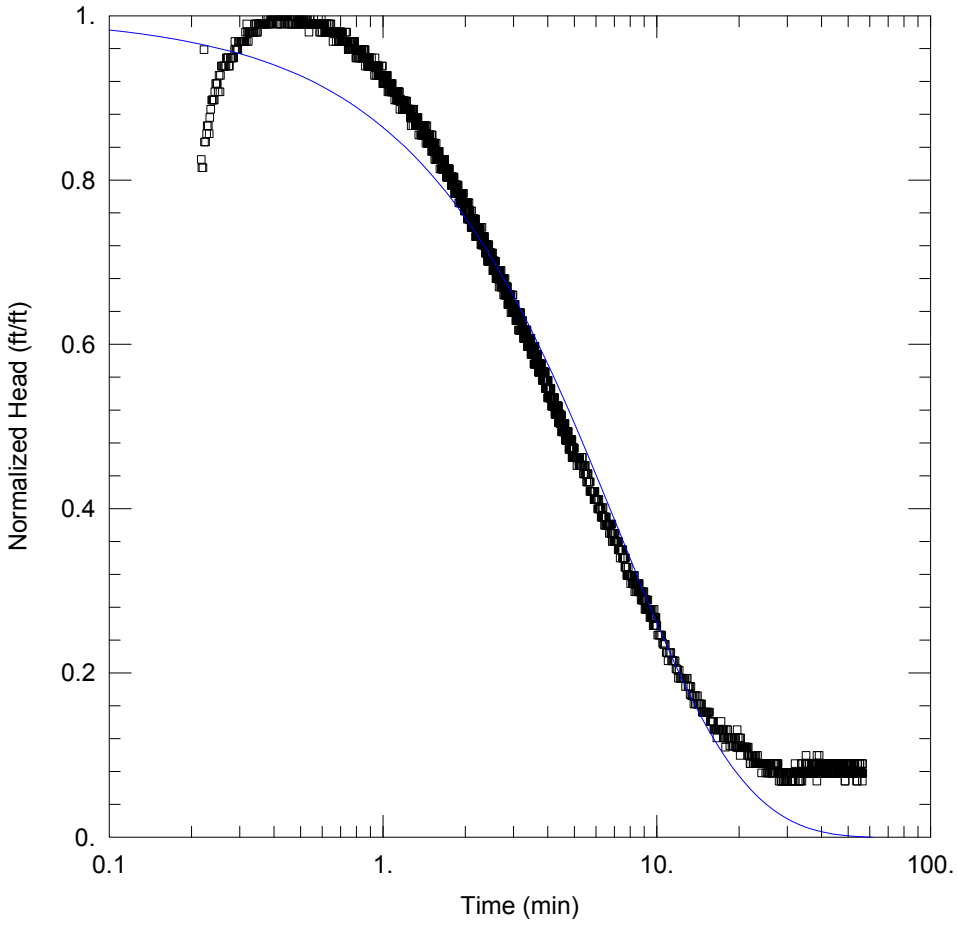
WELL DATA (ST19A_1040-1080)

Initial Displacement: 0.921 ft
Total Well Penetration Depth: 1080. ft
Casing Radius: 0.0949 ft
Static Water Column Height: 1080. ft
Screen Length: 40. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.01475 ft/day
Kz/Kr = 1.
Ss = 2.291E-7 ft^{-1}



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST20A_1120-1150_KGS.aqt
Date: 03/18/10 Time: 09:59:59

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 1500. ft

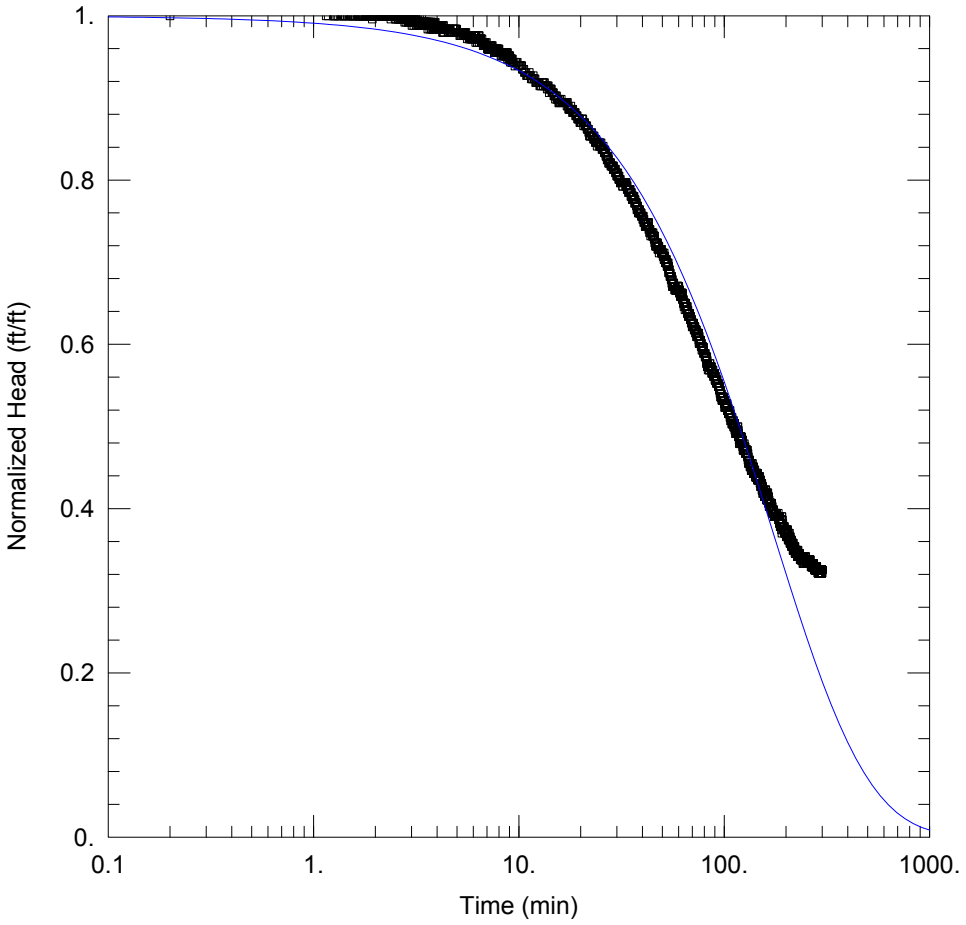
WELL DATA (ST20A_1120-1150)

Initial Displacement: 0.703 ft
Total Well Penetration Depth: 1150. ft
Casing Radius: 0.0949 ft
Static Water Column Height: 1150. ft
Screen Length: 30. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.147 ft/day
Kz/Kr = 1.
Ss = 1.0E-7 ft^{-1}



SLUG TEST ANALYSIS

Data Set: D:\...\R100_ST21A_1160-1188_KGS.aqt
Date: 03/18/10 Time: 10:13:22

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco County
Test Well: CH
Test Date: 9/19/2007

AQUIFER DATA

Saturated Thickness: 370. ft

WELL DATA (ST1A_715-740)

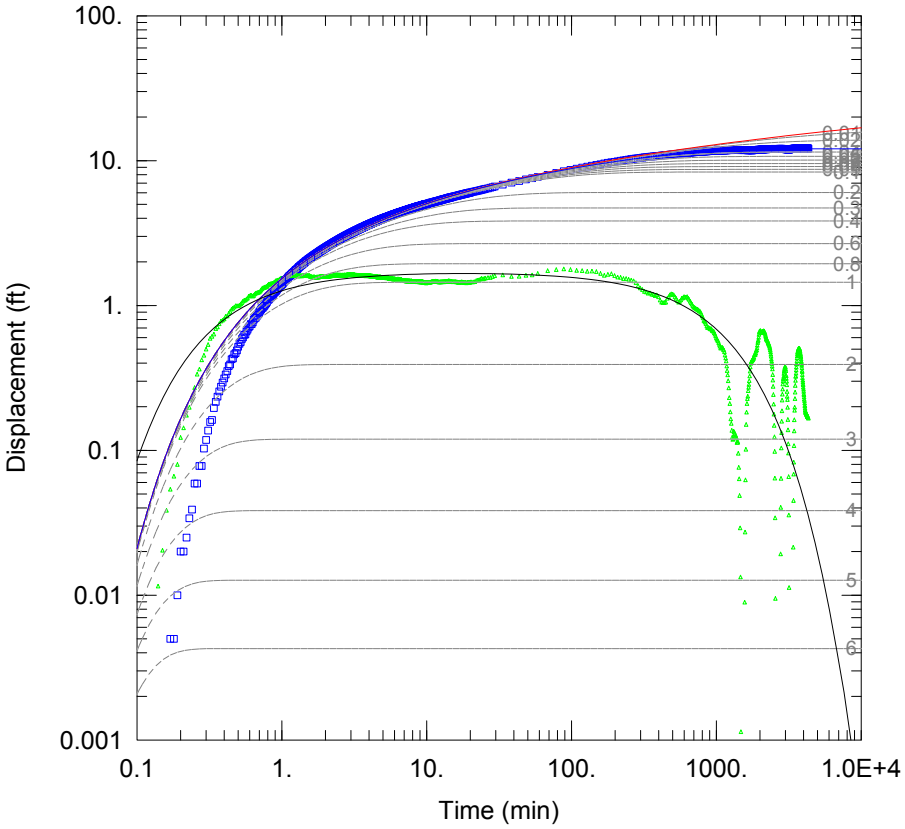
Initial Displacement: 1.783 ft
Total Well Penetration Depth: 712. ft
Casing Radius: 0.125 ft
Static Water Column Height: 712. ft
Screen Length: 25. ft
Well Radius: 0.365 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.01255 ft/day
Kz/Kr = 0.1
Ss = 1.0E-7 ft^{-1}

Appendix G. Aquifer performance test curve analyses data from the ROMP 100 well site



WELL TEST ANALYSIS

Data Set: D:\...\UFA_hantush_jacob.aqt
Date: 10/01/09 Time: 10:22:06

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco Co.
Test Well: 12-inch UFA
Test Date: 8-11-2009

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
12-inch UFA	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
▫ 6-inch ufa	100	0

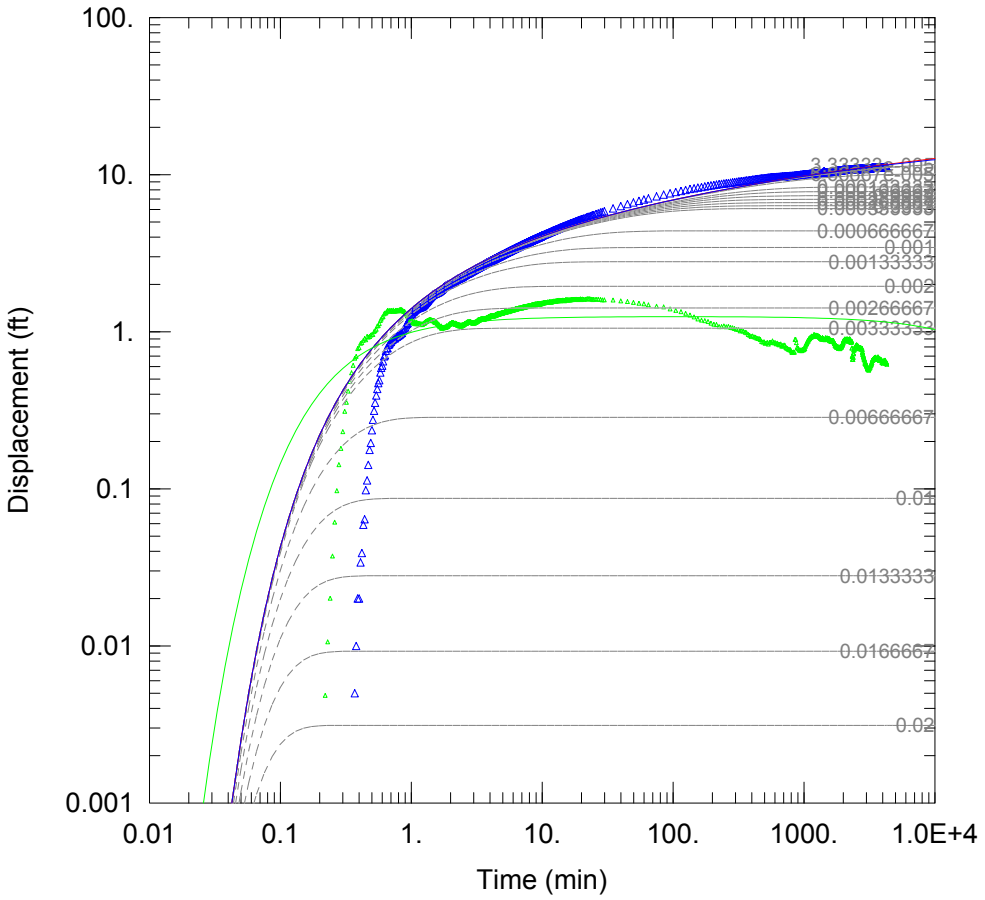
SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

T = 9797.5 ft^2/day
r/B = 0.03348
b = 140. ft

S = 0.0008307
Kz/Kr = 0.1

Figure G-1. Upper Floridan aquifer test observation well curve analysis.



WELL TEST ANALYSIS

Data Set: D:\...\LFA_hantush.aqt
Date: 10/20/09 Time: 16:02:40

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 100
Location: Pasco Co.
Test Well: 14-inch LFA
Test Date: 7-20-2009

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
14-inch LFA	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
△ 6-inch LFA	300	0

SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

T = 2.465E+4 ft^2/day
1/B = 1.372E-5 ft^{-1}
b = 530. ft

S = 0.0001721
Kz/Kr = 0.01972

Figure G-2. Lower Floridan aquifer test observation well curve analysis.