

**The Geology, Hydrology, and Water Quality
of the ROMP WR6 - Withlacoochee Transect Well Sites
Hernando and Sumter Counties, Florida**



Photograph by Richard Gant

Prepared by

Southwest Florida Water Management District
2379 Broad Street
Brooksville FL 34604

February 2007

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By J.L. Mallams, P.G.

Southwest Florida Water Management District

Resource Conservation & Data Department

Eric DeHaven, P.G., Director

ROMP Section

Eric DeHaven, P.G., Manager

Southwest Florida Water Management District
2379 Broad Street
Brooksville, Florida 34668-6899

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The hydrogeological evaluations and interpretations contained in the *The Geology, Hydrology, and Water Quality of the ROMP WR6 - Withlacoochee Transect Well Sites* have been prepared by or approved by a licensed Professional Geologist in the State of Florida, in accordance with Chapter 492, Florida Statutes.

Jerry L. Mallams
Professional Geologist
License No. PG2249

Date: _____

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1.0 INTRODUCTION

The Southwest Florida Water Management District's (District) Regional Observation and Monitor-well Program (ROMP) constructed a transect of wells across the Withlacoochee River (River) in Hernando and Sumter Counties. The purpose of this transect is to evaluate the relationship between the ground-water levels and the River stage. These data will be used to estimate the rate of exchange between the ground and surface water systems. The transect consists of four sites, two on the east side and two on the west side of the River. Each site contains multiple wells: surficial aquifer well, a shallow Upper Floridan aquifer well, and a deep Upper

Floridan aquifer well. These transect sites are referred to as WR6A, WR6B, WR6C, and WR6D. WR6A is the western well site and WR6D is the eastern well site (figure 1).

The work consisted of two phases, a core drilling and testing phase and a well construction phase. Core drilling and testing was conducted to characterize the potable thickness of the Upper Floridan aquifer, and gather lithologic and hydraulic data of the Upper Floridan aquifer in order to better design the transect of wells. Additional exploration was made to drill through the middle confining unit II (Miller, 1986) and into the Lower Floridan aquifer to determine it's lithologic, hydraulic and water

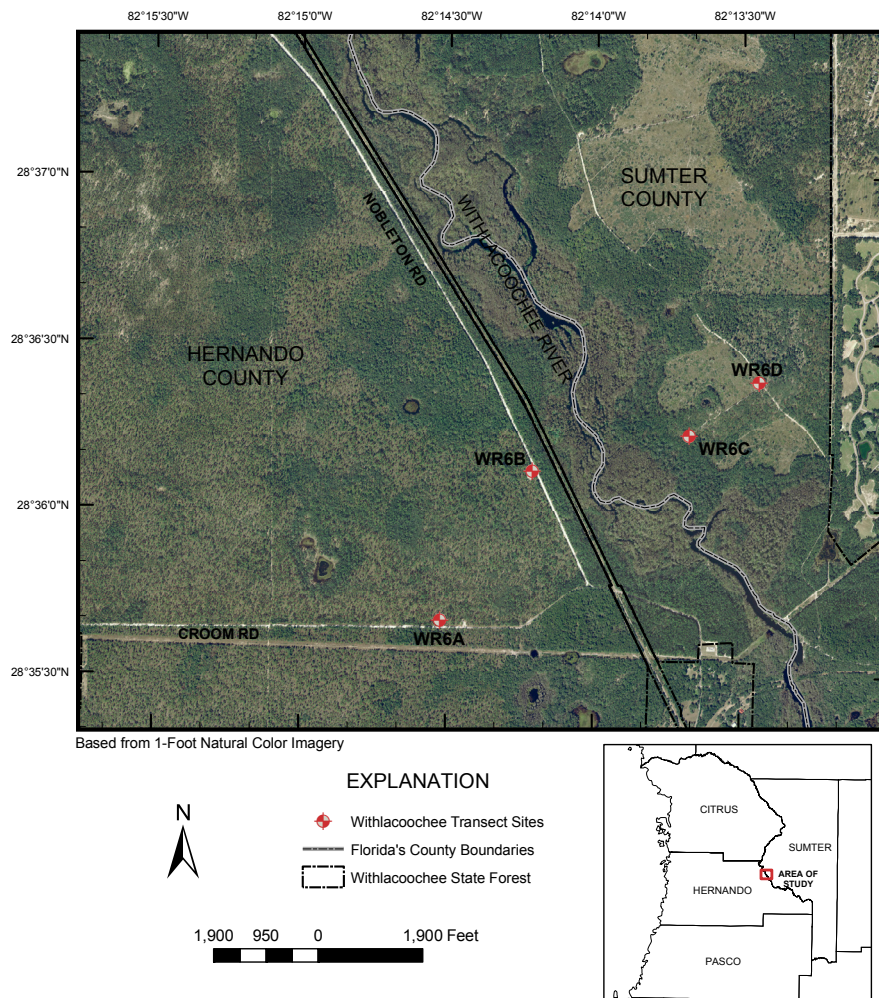


Figure 1 Location of the Withlacoochee Transect well sites in Hernando and Sumter counties, Florida.

quality characteristics.

Core drilling and testing was conducted at the WR6B well site. The coring began on July 10, 2003 and ended on November 14, 2003 at a depth of 1,290 feet below land surface (bls). The wells at WR6D were constructed with the District's Central Mining Equipment (CME) coring rig from February 14, 2003 to February 28, 2003, prior to the coring drilling and testing. The remaining well construction began on February 16, 2004 and ended on May 19, 2005. The finished Withlacoochee Transect consists of 12 permanent water-level monitor wells.

2.0 SITE LOCATION

All four sites were acquired from the Division of Forestry and are within the Withlacoochee State Forest (figure 1). The four sites consisted of 100 feet by 100 feet temporary working easements and 10 feet by 20 feet perpetual easements. The transect is located approximately 9 ½ miles east-northeast of the City of Brooksville.

WR6A is located in Section 7, Township 22 South, Range 21 East; WR6B is located in Section 6, Township 22 South, Range 21 East; and WR6C and 4 are located in Section 5, Township 22, Range 21. The well sites are located in the Saint Catherine Quadrangle – 7.5 minute series published by the U.S. Geological Survey. Table 1 summarizes details on each sites location.

The Withlacoochee Transect is located within the Brooksville Ridge physiographic province. The Brooksville Ridge is the "most massive" of the ridges in the central portion of the Florida peninsula (White 1970). It is characterized as an irregular surface with elevations ranging from 70 feet to over 200 feet above the National Geodetic Vertical Datum (NGVD). This physiographic province has little surface drainage with the exception of the Withlacoochee River, which travels along its eastern edge until it bisects the Brooksville Ridge at the Dunnellon Gap. The Tsala Apopka Plain, which is part of the Western Valley, is located approximately ¾ of a mile to the east of the Withlacoochee Transect. The Tsala Apopka Plain is flatter and lower than much of the remaining valley regions of the state.

3.0 DATA COLLECTION METHODS

The District collected the majority of the hydrogeologic data during the exploratory core drilling and testing phase of the project. High-quality lithologic samples were collected during the coring process along with hydraulic and water-quality data collected primarily during packer tests as the corehole was advanced. Geophysical logging was conducted on the borehole providing additional hydrogeologic data. A detailed description of the data collection methods can be found in Appendix A.

4.0 WELL CONSTRUCTION

The Withlacoochee Transect consists of four well sites each containing three wells

Table 1. Well site location information

(NGVD, National Geodetic Vertical Datum of 29; S, South; E, East; N, North; W, West; °, degrees; ', minutes; ", seconds)

Well site Name	Section-Township-Range	Land Elevation feet NGVD	Latitude	Longitude
WR6A	7-22S-21E	70.48	N28° 35' 39.5"	W82° 14' 26.3"
WR6B	6-22S-21E	73.2	N28° 36' 5.9"	W82° 14' 13.3"
WR6C	5-22S-21E	80.6	N28° 36' 13.48"	W82° 13' 40.66"
WR6D	5-22S-21E	56.82	N28° 36' 22.8"	W82° 13' 26.7"

(figure 2). The wells at each site include a deep Upper Floridan aquifer well, a shallow Upper Floridan aquifer well, and a surficial aquifer well. All surficial wells were installed using hollow stem augers. The Upper Floridan aquifer wells at WR6A, WR6B, and WR6D were installed using a rotary method, while the Upper Floridan aquifer wells at WR6C were installed using primarily cable tool drilling.

During the construction of the deep Upper Floridan aquifer well at the WR6A well site a sinkhole occurred. The sinkhole was located off of the front driver's side of the drilling rig or to the north-northwest of the borehole. The sinkhole measured approximately 30 feet in diameter and 10

feet in depth. The total and cased depth of the borehole at the time of the sinkhole was 276 feet and 94 feet bls, respectively. Mud-rotary drilling methods were being used. No circulation of drilling fluids and cuttings occurred between 102 feet and 276 feet bls. After the sinkhole, the borehole was tagged at 215 feet bls. The sinkhole was filled with clean sand and drilling resumed. The sinkhole re-opened while retrieving the rods. The total and cased depth of the borehole at the time the sinkhole re-opened was 305 feet and 94 feet bls, respectively. The borehole was tagged at 113 feet bls after the sinkhole re-opened. As a result of the sinkhole activity, 8-inch steel casing was driven with an air hammer to a depth of 305 feet bls. The open-hole interval was drilled

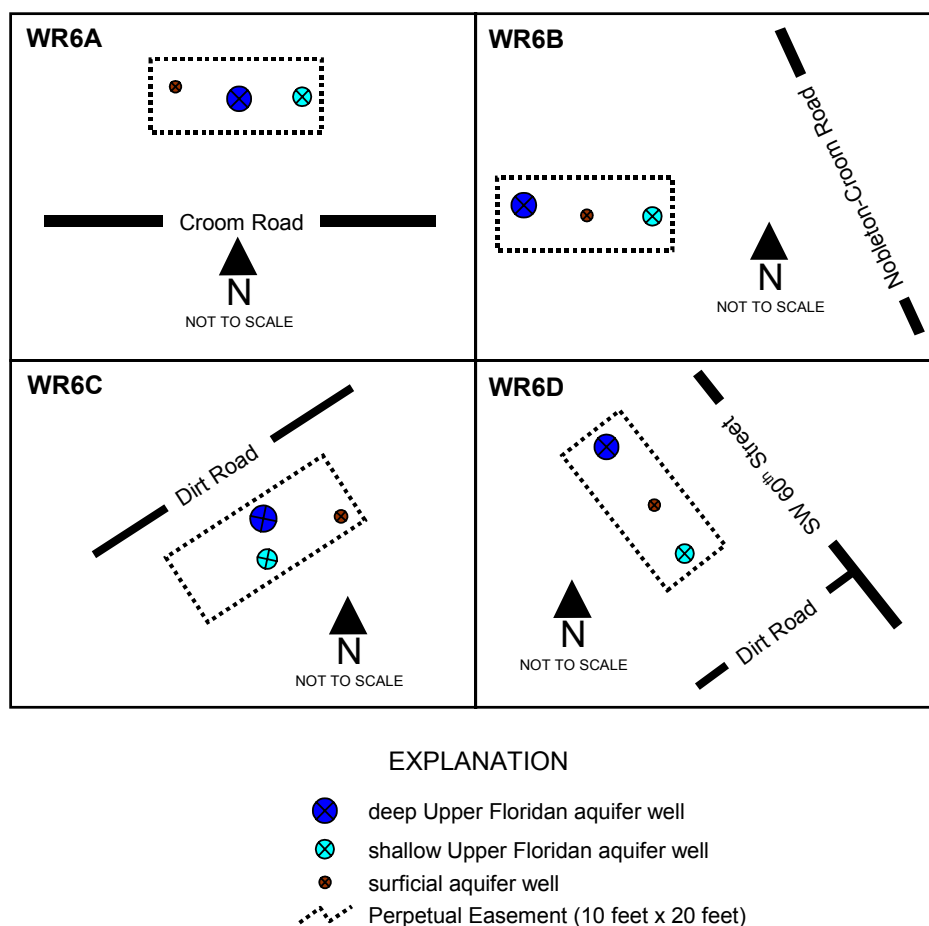


Figure 2. Well site layout for the WR6A, WR6B, WR6C, and WR6D well sites.

to a depth of 340 feet. After completion this well collapsed requiring it to be drilled out and screened to ensure a competent well.

Additional details on the well construction activities can be found under a separate report entitled *Well Construction at the ROMP WR 6 - Withlacoochee Transect Well Sites, Hernando and Sumter Counties, Florida*. Well construction as-built diagrams can be seen in Appendix B.

5.0 GEOLOGY

The geologic characterization is based on the exploratory core drilling conducted at WR6B. Exploration occurred to a total depth of 1,290 feet bls. The core collection was conducted using the District's CME 85 coring rig using NQ core rods with a wireline retrieval system as described in Appendix A.

The geologic formations encountered, in ascending order, are the Oldsmar Formation, Avon Park Formation, Ocala Formation, and the undifferentiated sands and clays (figure 3). A disconformity exists between the Avon Park Formation and the Ocala Formation; a second disconformity exists at the contact between the Ocala Formation and the undifferentiated sands and clays. The contact between the Oldsmar and the Avon Park Formation is transitional and does not contain a gap in the stratigraphic record.

This site is within a region of active karstification as indicated by the weathered limestone surface encountered at 27 feet bls. Numerous sand filled cavities provided evidence of an older karst process within the upper Avon Park Formation between 236 feet and 332 feet bls. Wood and charcoal was observed in the sand within these cavities suggesting its history as surface sediments. Evaporitic minerals were encountered starting at a depth of 513 feet bls and persisted through the remainder of the corehole. The evaporitic minerals

effectively reduced the permeability of the rock from 513 feet to 1,122 feet bls. At 1,122 feet bls a coarse cream-colored grainstone was encountered which had significant permeability. This coarse cream-colored grainstone is part of the Oldsmar Formation, which was not fully penetrated during this investigation. A detailed lithologic log is included in Appendix C.

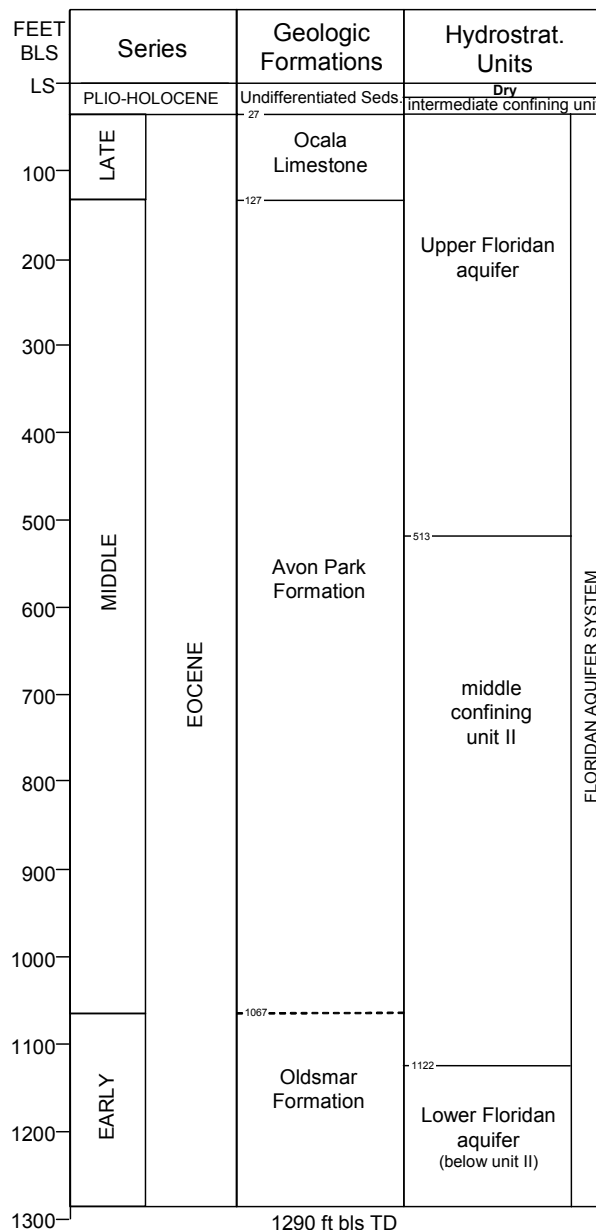


Figure 3. Stratigraphic column detailing the hydrogeologic setting at the WR6B well site.

5.1 Oldsmar Formation (Early Eocene)

The Oldsmar Formation exists from a depth of 1,067 feet bls and extends past the total depth of exploration (1,290 feet bls). The contact between the Oldsmar and the Avon Park Formation is gradational and not marked by a distinct contact. This formation consists of alternating beds of cream-tan limestones and gray-brown dolostones. The limestone sections contain abundant fossils, have less evaporitic sediments, and are grainy in texture. The dolostones are highly altered crystalline dolostones with few fossils, abundant evaporates, and little permeability. Echinoid molds are the primary fossil to a depth of 1,122 feet bls. Below 1,122 feet bls, echinoids, cones, mollusks, and foraminifera were observed. One abundant fossil within the limestone section from 1,122 feet to 1,194 feet bls is *Helicostegina gyralis*. Miller (1986) identified *H. gyralis* as a common part of the Oldsmar fauna. The core recovery within the Oldsmar Formation was 100 percent.

Limestone intervals within the Oldsmar Formation are located from 1,068.5 feet to 1,095 feet bls, 1,105 feet to 1,115.3 feet bls, 1,122.2 feet to 1,194.1 feet bls, and 1,225.2 feet to 1,280.6 feet bls. The dominant color within these limestones is cream-tan. Porosity values vary within these intervals but are typically higher than the dolostones intervals. The highest porosity (10 to 20 percent) and permeabilities were observed within the interval from 1,122.2 feet to 1,194.1 feet bls, which is the first permeable zone of the Lower Floridan aquifer. This interval was a medium grained biogenic grainstone. The remaining intervals were a combination of packstones and grainstones. Fossils were abundant within the limestone intervals, consisting of echinoid molds, mollusks, cones, benthic foraminifera, and coral. *Helicostegina gyralis* is the most noteworthy fossil occurrence (1,122.2 feet to 1,194.1 feet bls). Gypsum and organics were abundant within the shallowest two limestone intervals. The deeper two

intervals contained significantly less gypsum and little to no organics.

Dolostones intervals within the Oldsmar Formation are located from 1,067 feet to 1,068.5 feet bls, 1,095 feet to 1,105 feet bls, 1,115.3 feet to 1,122.2 feet bls, 1,194.1 feet to 1,225.2 feet bls, and 1,280.6 feet to 1,290 feet bls. The dominant color of these dolostones is gray-brown. Porosity values are less than 10 percent, with decreasing porosity with depth. The interval from 1,280.6 feet to 1,290 feet bls had a maximum porosity of 2 percent. The main source of porosity within these rocks is from pin point vugs. The dolostones are massive, highly altered, crystalline, and very fine grained. Laminations were observed but not common. Gypsum, organics, and chert were common accessory minerals. Fossils included echinoid and mollusk molds. Many times these fossil molds were filled with organics or gypsum.

5.2 Avon Park Formation (Middle Eocene)

The Avon Park Formation exists from a depth of 127 feet to 1,067 feet bls. The Avon Park Formation conformably overlies the Oldsmar Formation (Chen, 1965). This Formation consists of tan-brown and gray limestones and dolostones. Sedimentary structures in this formation include abundant laminations and cross bedding with less common bioturbation, mottling, and brecciated sections. The porosity within this formation significantly decreases below 513 feet bls resulting from pore infilling with evaporitic sediments. Organics are present throughout in laminates, fossil mold infilling, as well as thicker beds. Common fossils observed within this Formation were benthic foraminifera, echinoids, cones, and mollusks. The core recovery within the Avon Park Formation was 87 percent.

From 127 feet to 263 feet bls the Avon Park Formation consists of tan-brown, gray limestones. The upper portion of limestones, above 152 feet bls, is

grainstones. Below 152 feet bls these limestones consists mainly of packstones and wackestones. The porosity of the grainstones range from 5 to 20 percent and the porosity of the packstones and wackestones range from 5 to 10 percent. The primary source of porosity observed within the limestones results from intergranular and moldic sources. Fossils within this section include echinoids, mollusks, and benthic foraminifera. A five-foot bed of gray-brown clay exists from 145 feet to 150 feet bls.

Below 263 feet bls the carbonates of the Avon Park Formation become predominately brown-gray dolostones. These dolostones exhibited moderate to high alteration and were typically fine grained. Laminations and cross bedding are common structures within the dolostones; bioturbation, breccia, and mottling were also observed. The porosity above 513 feet bls is approximately 5 to 15 percent. The primary sources of this porosity is pin-point vugs, intergranular, and moldic; with occasional fracture porosity observed. Below 513 feet bls intergranular evaporates (primarily gypsum) begin to diminish the porosity. Porosity values below approximately 10 percent occur to a depth of 750 feet; below 750 feet bls the porosity drops to below approximately 5 percent. Isolated sections of higher porosity dolostones do occur within this evaporitic section. The source of porosity in this evaporitic section is very similar to the dolostones above 513 feet bls. Fossils within this dolostones section of the Avon Park Formation include cones, echinoids, and mollusks, many of which are molds. Distinctly unique zones within this section include an unconsolidated dolosilt zone between 470 feet to 500 feet bls, a sucrosic zone between 930 feet and 943 feet bls, and several lignite beds with the largest located between 912.6 feet to 917.7 feet bls.

During the coring of the Avon Park Formation several bit drops were recorded.

The recorded bit drops were from 236 feet to 238 feet bls, 251 feet to 252 feet bls, 254 to 255 feet bls, 256 to 258 feet bls, 261 feet to 262 feet bls, 263 feet to 264 feet bls, four drops between 265 feet and 270 feet bls, 285 feet to 290 feet bls, 291 feet to 292 feet bls, 298 feet to 300 feet bls, several drops between 300 feet and 303.3 feet bls, six drops between 315 feet and 320 feet bls, and 331 feet to 332 feet bls. The voids above 292 feet bls were filled with fine grained quartz sand. Gray-black clay balls, charcoal, and a two-inch piece of wood were retrieved with the sand during air-lifting of these voids. The sediments collected during the air-lifting was bagged and sent to the Florida Geological Survey with the core samples. Below 292 feet bls only minor amounts (to no) of sand was observed during the airlifting process.

5.3 Ocala Formation (Late Eocene)

The Ocala Formation exists from a depth of 27 feet to 127 feet bls. The Ocala Formation unconformably overlies the Avon Park Formation. This formation consists of a white-cream colored limestone and is weathered throughout its extent. Weathering above 55 feet bls is extensive resulting in a weathered residuum of carbonate material. Little to no textural or structural properties remain in this shallow section. Below 55 feet bls, unconsolidated to poorly indurated, medium sized grainstone is the most common rock type with a muddier zone of packstones and wackstones between 89 feet and 115 feet bls. Highly weathered beds occur throughout the extent of the Ocala Formation ranging in thickness from 0.5 feet to 5 feet in thickness.

Little to no sedimentary structure was observed within the Ocala Formation at this well site. Minor bedding and laminates were observed below 116 feet bls. Benthic foraminifera, coral, and numerous fossil fragments were observed between 50 feet and 80 feet bls. Oolites, numerous fossil

fragments and molds were present below 80 feet bls. The observed porosity within this formation ranged from approximately 10 to 20 percent, with lower values noted within the highly weathered intervals. The main source of porosity is intergranular with moldic porosity important from 30 feet to 80 feet bls and intermittently throughout the remainder of the section (Appendix C). Secondary porosity from the active karstification/weathering process is known to be important in this region but was not greatly observed at the scale of the core sampling. The average core recovery achieved within the Ocala Formation was approximately 44 percent.

5.4 Undifferentiated Sand and Clay (Plio-Holocene)

The undifferentiated sand and clay unit exists from a depth of 27 feet bls to land surface. The undifferentiated sands and clay unconformably overlies the Ocala Formation. This geologic unit consists of a light brown to yellowish gray clay from 27 feet to 14 feet bls. This clay portion contained minor amounts of limestone within the bottom ten feet. The upper portion of this clay portion contained quartz sand on the order of 25 to 40 percent sand. Clay continues to be present on the order of 30 percent in the overlying sandy clay that exists to 10.4 feet bls. Above 10.4 feet bls this unit consists of a very pale orange to yellowish orange, medium to fine grained quartz sand. The upper surface (1.3 feet bls) of the sand portion contained organics and was browner in color.

5.0 HYDROLOGY

Four hydrostratigraphic units were identified at the WR6B well site with the possibility of a fifth (figure 3). They include the upper confining unit of the Upper Floridan aquifer referred to as the intermediate confining unit, the Upper Floridan aquifer, the middle confining unit II (Miller, 1986), and the Lower Floridan aquifer below middle confining unit II herein call the Lower Floridan aquifer II. The undifferentiated

sands over the intermediate confining unit may constitute a surficial aquifer during periods of high rainfall. Saturation of these surficial sediments is a phenomenon that has not been observed at the WR6B well site, to date. The Upper Floridan aquifer is highly permeable and contains fresh water and is the only unit at this site that qualifies as a viable potable aquifer. The hydraulic testing at the Withlacoochee Transect consisted of a slug test(s) performed during each of the 24 packer tests conducted during the core-drilling phase. One additional packer test was conducted at the end of the corehole but no slug test was performed. The results from these packer tests (figure 4 and table 2) were used to delineate the three main hydrostratigraphic units within the Floridan aquifer system; the Upper Floridan aquifer, the middle confining unit II, and the Lower Floridan aquifer II.

Due to the sources of error identified in Appendix A – Methods of the Regional Observation and Monitor-Well Program, the hydraulic conductivity values from these tests should not be taken as representative of the actual unit properties rather a relative guide as to permeable versus confining intervals. Table 2 includes the estimate of hydraulic conductivity value, the test initiation method, and the analytical solution used for each slug test. Figure 4 displays the estimated hydraulic conductivity values with corehole depth providing a representation of the vertical distribution of hydraulic conductivity at this site. It should be noted that a packer assembly was not used during all tests, which may contribute to those tests having a relatively higher hydraulic conductivity value than other tests. The Slug Test – Data Acquisition Sheets can be seen in Appendix D (in digital form only) and curve matches for the slug test are presented in Appendix E (in digital form only).

6.1 Surficial Aquifer

At the WR6B well site, sand and silt sized sediments exist from land surface to a depth

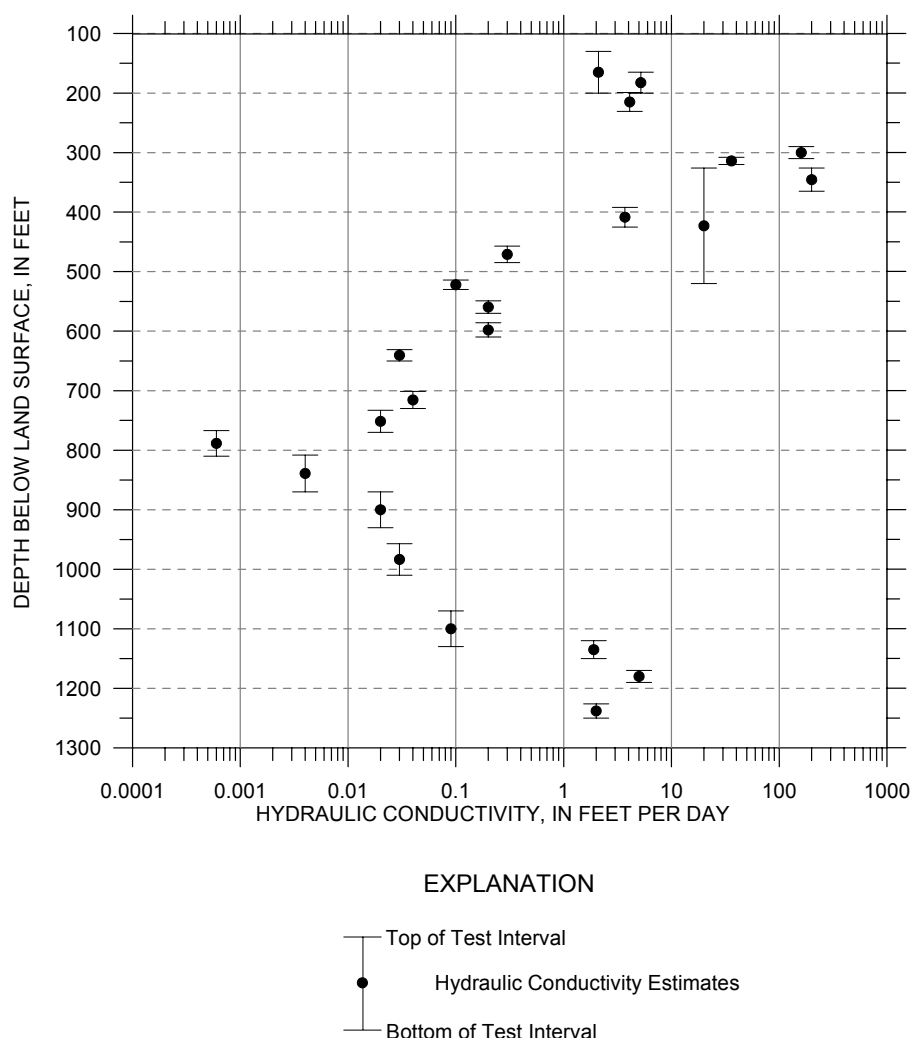


Figure 4. Hydraulic conductivity with depth below land surface. Data collected from 23 packer test conducted at the WR6B well site. Depth represents the total depth of the corehole at the time of testing.

of 10.7 feet bls. These sediments were dry at the time of investigation but are the sediments that would compose the surficial aquifer if they became saturated. No saturation of these sediments was observed at this site. Water level measurements taken from the surficial aquifer well at the WR6D well site indicated saturated conditions from late July 2003 through the end of October 2003. No slug tests were conducted on this unit.

6.2 Intermediate Confining Unit

At the WR6B well site, clay sediments exist from 10.7 feet to 27 feet bls. These low

permeability sediments overlie the permeable carbonates of the Upper Floridan aquifer and therefore form the upper confining unit of the Upper Floridan aquifer also called the intermediate confining unit. The intermediate confining unit effectively restricts vertical migration of water from land surface or the surficial aquifer (if present) into the Upper Floridan aquifer. The District borehole intercepted a competent area of the intermediate confining unit, not to imply and lateral continuity of this unit. It is well known that this unit is perforated by numerous sinkholes, which provides the

Table 2. Summary of the hydrologic/hydraulic data collected at the Withlacoochee Transect WR6B well site.

[bls, below land surface; ft/day, feet per day; WL, water level; K, hydraulic conductivity; PT, packer test; H₀, initial displacement]

Date	Test ID	Packer Depth (feet bls)	Total Depth (feet bls)	Static Water Level (feet bls)	Displacement (feet)	Hydraulic Conductivity (feet/day)	Solution	Test Initiation Method
7/28/2003	PT 1A ^b	130	200	28.43	7.65	2.1	KGS	Standpipe
7/29/2003	PT 2A ^b	165	200	27.31	7.42	5.2	KGS	Standpipe
8/1/2003	PT 3A ^b	199	231	27.23	7.69	4.1	KGS	Standpipe
8/19/2003	PT 4A ^{ab}	290	310	27.5	1.16	160	Butler	Standpipe
8/21/2003	PT 5C	308	320	26.46	1.9	36	Butler	Pneumatic
8/28/2003	PT 6C ^{ab}	326	365	26.1	1	200	Butler	Pneumatic
9/3/2003	PT 7A ^b	392	425	26.01	2.5	3.7	KGS	Pneumatic
9/5/2003	PT 8A	457	485	32.26	36	0.3	KGS	Standpipe
9/8/2003	PT 9A ^{ab}	326	520	26.59	1.325	20	Butler	Pneumatic
9/10/2003	PT 10A	514	530	25.63	34.25	0.1	KGS	Standpipe
9/11/2003	PT 11A ^b	549	570	25.43	3.6	0.2	KGS	Standpipe
9/15/2003	PT 12A	586	610	24.83	36	0.2	KGS	Standpipe
9/18/2003	PT 13A	631	650	28.83	40	0.03	KGS	Standpipe
9/26/2003	PT 15A	701	730	26.12	35.7	0.04	KGS	Standpipe
9/30/2003	PT 16A	733	770	26.49	34.6	0.02	KGS	Standpipe
10/3/2003	PT 17A	767	810	26.33	9.6	0.0006	KGS	Drop
10/8/2003	PT18A	808	870	26.4	7.02	0.004	KGS	Drop
10/16/2003	PT 19A	870	930	26.59	8.61	0.02	KGS	Drop
10/27/2003	PT 21A	957	1010	27.79	8.6	0.03	KGS	Drop
11/6/2003	PT 23A	1070	1130	-1.5	14.6	0.09	KGS	Drawdown
11/7/2003	PT 24A	1120	1150	0.84	10	1.9	KGS	Drop
11/10/2003	PT 25A	1170	1190	3.01	9.24	5	KGS	Drop
11/13/2003	PT 26A	1226	1250	0.19	11.8	2	KGS	Standpipe

^a No packer used during these tests^b Translation method applied

preferential pathways for vertical movement of water in this region. This understanding is supported by the evidence of sinkholes in the aerial photography (figure 1) as well as the sinkhole activity observed during the construction at the WR6A well site. No slug tests were performed on this unit.

6.2 Upper Floridan Aquifer

At the WR6B well site a weathered residual of limestone was encountered at 25 feet bls. Circulation of drilling fluids was lost at approximately 27 feet bls, identifying an increase in permeability from the overlying intermediate confining unit. This is the top of the Upper Floridan aquifer which continues to a depth of 513 feet bls. The hydraulic conductivity of the Upper Floridan aquifer was moderate to high throughout its extent with water quality meeting potable standards to a depth of 392 feet bls. The overlying clay within the intermediate confining unit restricts flow to the Upper Floridan aquifer at this well site.

A total 9 of slug tests were conducted within the Upper Floridan aquifer. The last test penetrates seven feet into the middle confining unit II. The water level within this aquifer (326 to 520 feet bls) was 26.59 feet bls on September 8, 2003 (table 3). Slug tests conducted on this aquifer (130 to 513 feet bls) indicate the hydraulic conductivity values range from 0.3 to 200 feet/day (table 2 and figure 4) with a geometric mean

hydraulic conductivity value of 10 feet/day. The highest measured hydraulic conductivity values, 160 feet/day and 200 feet/day, were from test intervals 290 to 310 feet bls and 326 to 365 feet bls (table 2 and figure 4). These two tests were conducted without the use of the packer assembly which is the most likely reason they are an order of magnitude higher than all other tests within the Upper Floridan aquifer. However, these tests results are better representations of the actual hydraulic conductivity values of the formation for their respective intervals compared to the other tests in this aquifer. All the hydraulic conductivity values measured are within the expected range of values for karst limestone (Freeze and Cherry, 1979).

6.4 Middle Confining Unit II

The middle confining unit II was encountered at 513 feet bls and extends to 1,122 feet bls. This unit was identified by both a decrease in permeability but also the presence of evaporitic infilling of pore space. This evaporitic infilling is indicative of middle confining unit II as defined by Miller (1986).

A total of 11 slug tests were conducted within the middle confining unit II. The last tests penetrated eight feet into the Lower Floridan aquifer II. The water level within this unit (663 to 690 feet bls) was 28.27 feet bls on September 23, 2003 (table 3). Slug tests conducted on this unit indicated the

Table 3. Water levels in the major hydrostratigraphic units at the WR6B well site.

(bls, below land surface; NGVD, National Geodetic Vertical Datum of 1929)

Hydrostratigraphic Unit	Interval (feet bls)	Date	Depth to Water (feet bls)	Water Level Elevation (feet NGVD)
surficial aquifer	3 – 12		Dry	Dry
intermediate confining unit			Not Taken	Not Taken
Upper Floridan aquifer	326 – 520	9/8/2003	26.59	46.61
middle confining unit II	663 – 690	9/23/2003	28.27	44.93
Lower Floridan aquifer II	1,070 – 1,130	11/6/2003	-1.5	74.70
Lower Floridan aquifer II	1,226 – 1,250	11/13/2003	0.19	73.01

hydraulic conductivity values range from 0.0006 to 0.2 feet/day (table 2 and figure 4) with a geometric mean hydraulic conductivity value of 0.03 feet/day. The lowest measured hydraulic conductivity values were between 770 to 870 feet bls, where the very dense crystalline dolomite with evaporitic infilling produced parameters on the order of 10^{-3} to 10^{-4} feet/day. Much of the remainder of the middle confining unit II had hydraulic conductivity values on the order of 10^{-1} to 10^{-2} feet/day.

6.5 Lower Floridan aquifer II

The Lower Floridan aquifer II was encountered at 1,122 feet bls and extended past the total depth of exploration (1,290 feet bls). This aquifer was identified by an increase in permeability and a significant increase in hydraulic head. This aquifer is a confined artesian aquifer with water levels reaching land surface and above (table 3). This aquifer consisted of two discrete permeable zones separated by a low permeability crystalline dolomite. Evaporitic sediments occurred in both the high and low permeability zones.

The upper permeable zone extended from 1,122 to 1,192 feet bls. This zone was a medium (grained) grainstone with little secondary permeability. Many of the grains of this zone are thought to be composed of *Helicostegina gyralis*, which are a foraminifera said to be abundant in the upper portion of the Oldsmar Formation (Miller, 1986). Two slug tests were conducted in this permeable zone. The first test from 1,120 to 1,150 feet bls produced a hydraulic conductivity value of approximately 2 feet/day. The second slug test was conducted on the interval from 1,170 to 1,190 feet bls and produced a hydraulic conductivity value of 5 feet/day.

Low permeability crystalline dolomite exists at the base of the upper permeable zone of the Lower Floridan aquifer II. This zone extends from 1,190 to 1,227 feet bls. No

slug tests were conducted on this zone, but little to no visible porosity existed in this zone.

The lower permeable zone is a medium to fine grained grainstone to packstone. This zone contains secondary permeability created by the many fossil molds that exist. One slug test was conducted within this zone, from 1,226 to 1,250 feet bls. The water level and hydraulic conductivity value were 0.19 feet bls and 2 feet/day, respectively.

6.0 GROUND-WATER QUALITY

The ground-water quality characterization is based on the exploratory core drilling conducted at the WR6B well site.

Exploration occurred to a total depth of 1,290 feet bls. Ground-water samples were collected from 80 feet bls to 1,290 feet bls during each of the packer tests conducted during the core drilling. These samples were prepared and sent to the District laboratory for analysis as well as being tested in the field. The results of the field and laboratory tests can be seen in Appendix F. The water quality for packer Test 7 (392 to 425 feet bls) was the first sample not to meet drinking water standards. The sulfate and total dissolved solids (TDS) concentrations for this sample were 1,000 milligrams per liter (mg/L) and 1,740 mg/L, respectively (figure 5). The secondary drinking water standards for sulfate and TDS are 250 mg/L and 500 mg/L, respectively. From 392 feet bls to 1,290 feet bls the sulfate concentration ranged from 1,000 mg/L to 2,810 mg/L with an average concentration of 2,300 mg/L. Therefore, the extent of the potable water at this site was from the top of the Upper Floridan aquifer (27 feet bls) to less than 392 feet bls.

The equivalent weights and water types for each sample can be seen in table 4. The primary cations observed were calcium and magnesium and the primary anions observed were bicarbonate and sulfate.

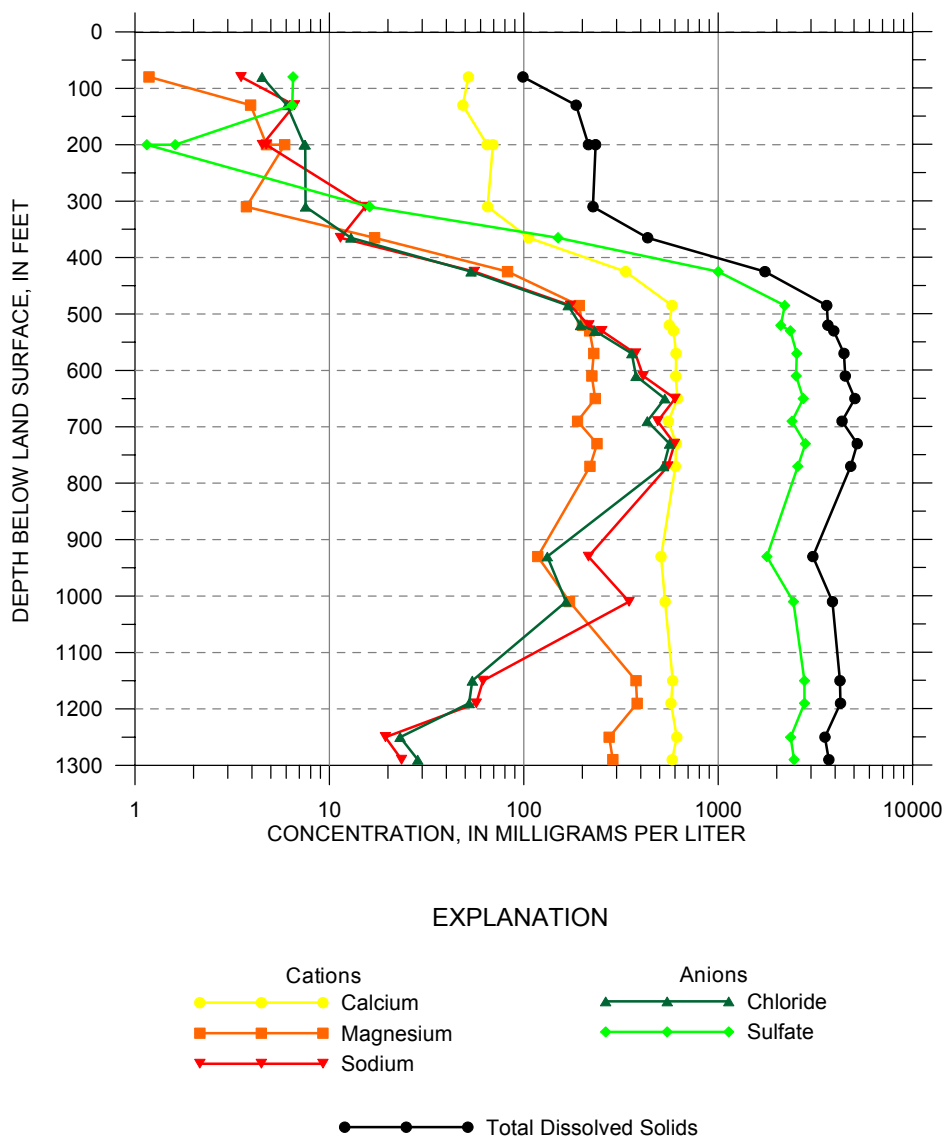


Figure 5. Water quality with depth below land surface. Data collected from 22 packer test conducted at the WR6B well site. Depth represents the total depth of the corehole at the time of collection.

The water type through the potable portion of the Upper Floridan aquifer is calcium bicarbonate, which is typical of a shallow carbonate aquifer. Select molar ratios were calculated (table 5) to investigate the changes in water quality with depth. Three

main changes in water quality were observed: sulfate concentration increased with depth, magnesium concentration increased with depth, and sodium chloride concentration increased through the middle confining unit II (figure 6).

Table 4. The concentration, equivalent weight, and percent equivalent weight for select anions and cations, and the water type or the WR6B well site.

[bls, below land surface; mg/L, milligrams per liter; meq/L, milliequivalents per liter; %, percent; WSW, water supply well; ID, identification; UFA, Upper Floridan aquifer; SC, specific capacity]														
Test ID	Open Interval (feet bls)	MAJOR CATIONS				MAJOR ANIONS				Water Type				
		Ca ²⁺ (meq/L)	Mg ²⁺ (meq/L)	Na ¹⁺ (meq/L)	Cl ¹⁻ (meq/L)	SO ₄ ²⁻ (meq/L)	HCO ₃ ¹⁻ (meq/L)	(%)						
shallow UFA well	50-80	2.59	0.10	3.4	0.15	5.4	0.13	11.9	0.14	12.6	0.81	75.5	Calcium Bicarbonate	
SC Test	80-130	2.43	0.32	10.7	0.29	9.5	0.17	7.1	0.13	5.6	1.28	80.8	Calcium Bicarbonate	
PT 1	130-200	3.23	0.39	10.2	0.20	5.1	0.21	6.8	0.03	1.1	1.74	87.8	Calcium Bicarbonate	
PT 2	165-200	3.46	0.48	11.7	0.21	5.0	0.21	6.3	0.02	0.7	1.89	88.9	Calcium Bicarbonate	
PT 4 ^a	290-310	3.25	0.31	7.3	0.67	15.7	0.21	6.2	0.34	9.8	1.76	76.3	Calcium Bicarbonate	
PT 6 ^a	326-365	5.29	1.41	19.6	0.50	6.9	0.36	5.6	3.12	48.4	1.81	34.2	Calcium Mixed-Anion	
PT 7	392-425	16.67	6.80	26.3	2.42	9.3	1.51	6.0	20.82	82.8	1.71	7.1	Calcium Sulfate	
PT 8	457-485	28.89	15.88	30.3	7.57	14.5	4.77	8.9	45.80	85.4	1.85	3.5	Calcium Sulfate	
PT 9	506-520	27.99	16.46	30.6	9.40	17.4	5.53	10.5	43.72	83.4	1.95	3.8	Calcium Sulfate	
PT 10	514-530	29.44	17.94	30.7	10.96	18.8	6.54	11.2	48.93	83.4	1.96	3.4	Calcium Sulfate	
PT 11	549-570	30.29	18.84	28.8	16.31	24.9	10.16	15.2	52.88	79.3	2.25	3.4	Mixed-Cation Sulfate	
PT 12	586-610	30.19	18.43	27.7	17.88	26.9	10.66	16.0	52.47	78.5	2.27	3.5	Mixed-Cation Sulfate	
PT 13	631-650	30.84	40.5	19.17	25.2	26.10	34.3	14.98	19.8	57.05	75.3	2.26	3.0	Mixed-Cation Sulfate
PT 14	663-690	27.69	42.9	15.55	24.1	21.27	33.0	12.19	18.6	49.97	76.3	2.05	3.2	Mixed-Cation Sulfate
PT 15	701-730	30.34	40.0	19.59	25.8	25.93	34.2	15.85	20.3	58.50	74.9	2.28	3.0	Mixed-Cation Sulfate
PT 16	733-770	30.09	41.8	18.02	25.0	23.93	33.2	14.78	20.5	53.51	74.2	2.31	3.3	Mixed-Cation Sulfate
PT 19	870-930	25.35	57.1	9.71	21.9	9.35	21.1	3.72	8.6	37.06	85.7	1.49	3.5	Calcium Sulfate
PT 21	957-1010	26.65	47.6	14.15	25.3	15.14	27.1	4.65	8.1	50.80	88.1	1.36	2.4	Mixed-Cation Sulfate
PT 24	1120-1150	29.09	46.3	31.11	49.5	2.68	4.3	1.53	2.5	57.88	92.7	1.85	3.0	Calcium-Magnesium Sulfate
PT 25	1170-1190	28.54	45.6	31.52	50.4	2.48	4.0	1.48	2.4	57.88	92.8	1.85	3.0	Calcium-Magnesium Sulfate
PT 26	1226-1250	30.59	56.6	22.63	41.9	0.84	1.6	0.65	1.3	49.14	95.5	1.02	2.0	Calcium-Magnesium Sulfate
PT 27	1250-1290	28.94	54.0	23.62	44.1	1.02	1.9	0.80	1.5	51.22	95.1	1.12	2.1	Calcium-Magnesium Sulfate

^a No packer used during these tests.

Table 5. Select molar ratios for the water quality at the WR6B well site.

[bls, below land surface; mg/L, milligrams per liter; meq/L, milliequivalents per liter; %, percent; WSW, water supply well]

Monitor Well UID #	Test Interval (feet bls)	Cl ¹⁺ :SO ₄ ²⁻	Ca ²⁺ :HCO ₃ ¹⁻	Ca ²⁺ :Mg ²⁺	Cl ¹⁻ :HCO ₃ ¹⁻	Na ¹⁺ :HCO ₃ ¹⁻	Na ¹⁺ :Cl ¹⁻
shallow UFA well	50-80	1.88	1.6	26.67	0.16	0.19	1.20
SC Test	80-130	2.55	0.95	7.50	0.13	0.22	1.68
PT 1	130-200	12.47	0.93	8.29	0.12	0.11	0.94
PT 2	165-200	17.67	0.92	7.14	0.11	0.11	0.97
PT 4 ^a	290-310	1.27	0.92	10.57	0.12	0.38	3.13
PT 6 ^a	326-365	0.23	1.46	3.76	0.20	0.27	1.36
PT 7	392-425	0.14	4.87	2.45	0.88	1.41	1.60
PT 8	457-485	0.21	7.81	1.82	2.58	4.09	1.59
PT 9	506-520	0.25	7.18	1.70	2.84	4.82	1.70
PT 10	514-530	0.27	7.51	1.64	3.34	5.59	1.67
PT 11	549-570	0.38	6.73	1.61	4.51	7.25	1.61
PT 12	586-610	0.41	6.65	1.64	4.70	7.88	1.68
PT 13	631-650	0.53	6.82	1.61	6.63	11.55	1.74
PT 14	663-690	0.49	6.76	1.78	5.95	10.38	1.75
PT 15	701-730	0.54	6.65	1.55	6.95	11.37	1.64
PT 16	733-770	0.55	6.51	1.67	6.40	10.36	1.62
PT 19	870-930	0.20	8.51	2.61	2.50	6.28	2.51
PT 21	957-1010	0.18	9.80	1.88	3.42	11.13	3.25
PT 24	1120-1150	0.05	7.86	0.94	0.83	1.45	1.75
PT 25	1170-1190	0.05	7.72	0.91	0.80	1.34	1.68
PT 26	1226-1250	0.03	15.00	1.35	0.64	0.83	1.30
PT 27	1250-1290	0.03	12.92	1.23	0.72	0.91	1.27

^a No packer used during these tests.

6.1 Surficial Aquifer

Universal Drilling Services constructed a surficial aquifer well at the WR6B well site on December 30, 2004. This well was dry during well construction and no water has been observed in this well since construction. No water quality data exists for this unit.

of 27 feet bls and extends to 513 feet bls. A total of seven water quality samples were collected throughout this unit. The samples start at 80 feet bls and extend to 485 feet bls. An eighth sample was conducted from 506 to 520 feet bls, which straddles the boundary between the Upper Floridan aquifer and the middle confining unit II.

6.2 Upper Floridan Aquifer

The Upper Floridan aquifer starts at a depth

The laboratory results (Appendix F.2) for the ground-water samples from the first four packer tests indicate that the ground-water

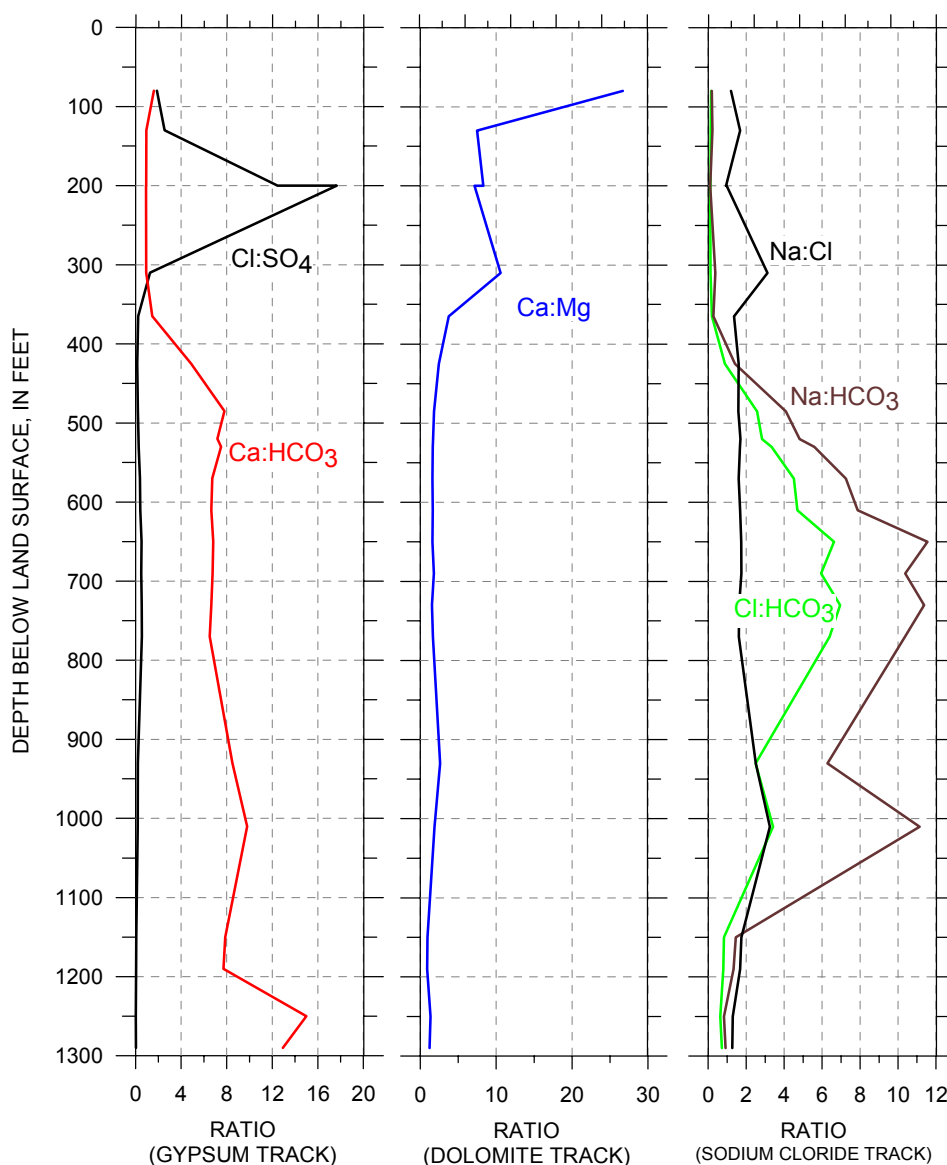


Figure 6. Select molar ratios with depth for the water quality data at the WR6B well site. Depth values based on the total depth of the corehole at the time of sampling.

quality is very fresh to a depth of 310 feet bls with a total dissolved solid value of 227 milligrams per liter (mg/L). The water type from 80 to 310 feet bls is calcium bicarbonate (table 4). Bicarbonate ion as the dominant anion is typical for carbonate aquifers where the dissolution of limestone (CaCO_3) and dolostone [$\text{CaMg}(\text{CO}_3)_2$] produces this ion. The ground-water quality from packer test 6 (326 to 365 feet bls) meets both primary and secondary drinking water standards but does begin to show a transition toward poorer quality water. The ground-water data from this packer test indicates that calcium is the dominant cation with no dominant anion resulting in a calcium mixed-anion water type. The mixed anion was a result of the reduction in the relative abundance of bicarbonate due to an increase in sulfate concentration. The remaining two tests within the Upper Floridan aquifer do not meet the secondary standards for sulfates and total dissolved solids. The water type for the last two tests is calcium sulfate. This information shows a transition in dominant anion from bicarbonate to sulfate. This change in the dominant anion is a result of the dissolution of evaporitic sediments (gypsum and anhydrite) present in the underlying middle confining unit II.

The relative abundance (in percent milliequivalents) of the major cations and anions for the water samples can be seen graphically in figure 7. This figure is referred to as Piper (1944) diagram. The change in relative abundance of the anion within the Upper Floridan aquifer can be seen in the anion trilinear and the quadrilateral field as range in the plotted values paralleling the carbonate plus bicarbonate ($\text{CO}_3^{2-} + \text{HCO}_3^-$) axis. The Upper Floridan aquifer data points plot along the deepwater mixing line (Tihanski, 2004). Two of the samples for the Upper Floridan aquifer are grouped with the samples from the middle confining unit II (deepwater) on the quadrilateral field of this diagram. These two samples represent the

bottom of the Upper Floridan aquifer (392 to 425 and 457 to 485 feet bls) and have water qualities highly influenced by the evaporitic sediments (gypsum and anhydrite) that occur within the middle confining unit II. The group of plotted values for the Upper Floridan aquifer in the cation trilinear indicate calcium is dominant cation for all the samples in the Upper Floridan aquifer.

The chloride to sulfate ratios (table 5 and figure 6) are similar to the ratio of seawater (19) in the samples from 130 to 200 feet bls. Starting at 290 feet bls the ratio decreases as a result of the increase in sulfate concentration relative to the chloride concentration. The chloride to sulfate ratios below 326 feet bls are less than 0.6. The ratio of calcium to bicarbonate indicates that below 392 feet bls an additional source of calcium is present other than the dissolution of limestone. The calcium to bicarbonate ratio increases from below 392 feet bls from less than one to a range between 2.97 to 9.15 with a geometric mean of 4.75. This additional source of calcium, as well as sulfate is from the dissolution of the evaporitic sediments, gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) and anhydrite (CaSO_4) contained in the middle confining unit II. The first occurrence of evaporitic sediments is at 513 feet bls (Appendix C), however the water quality changes are seen well above this occurrence.

The calcium to magnesium ratio (table 5 and figure 6) shows a reduction with depth. This ratio ranges from 7.14 to 10.57 for the first 310 feet of the corehole. Below 310 feet bls, the calcium to magnesium ratios are less than 3.8 with a geometric mean of 1.67. This change is a result of the increase in dolostone and dolomite ($\text{CaMg}(\text{CO}_3)_2$) with depth as seen in the lithologic log (Appendix C). The dissolution of dolostone and dolomite produces magnesium ions in addition to calcium ions, which caused the reduction in the calcium to magnesium ratios.

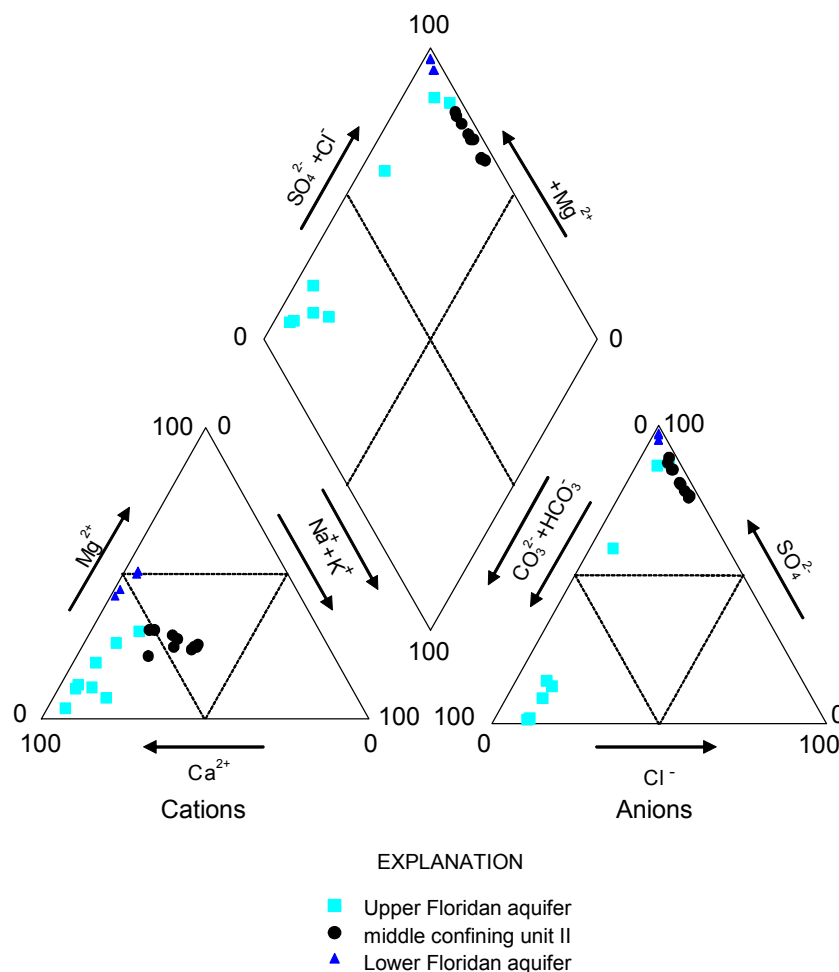


Figure 7. Piper diagram displaying the laboratory data from the 23 packer tests at the Withlacoochee Transect, WR6B well site.

6.3 Middle confining unit II

Miller (1986) defined the middle confining unit II as a low-permeability gypsiferous dolomite and dolomitic limestone. This is a change in the lithology from the overlying limestones and dolostones of the Upper Floridan aquifer, which do not contain evaporitic sediments and are permeable. The water quality within this unit is a result of the rock-water interaction with both the evaporitic sediments and the dolomite present in the middle confining unit II. The middle confining unit II starts at a depth of 513 feet bls and extends to a total depth of 1,122 feet bls. Ten packer tests with water quality samples were conducted throughout this unit. The packer test conducted from

506 feet to 520 feet bls straddles the boundary between the Upper Floridan aquifer and the middle confining unit II.

The laboratory results (Appendix F.2) for the ground-water samples indicate the water is saline and does not meet potable standards. The total dissolved solids concentration of the water within the middle confining unit II is in excess of 3,000 mg/L. The primary ion contributing to the high total dissolved solids concentration is sulfate and to a lesser degree calcium, chloride, sodium, and magnesium.

Through most of the middle confining unit II (549 to 770 feet bls and 957 to 1,010 feet bls) the water type is mixed-cation sulfate.

The mixed-cation occurs where the relative abundance of sodium reaches 25 percent or greater. Where sodium's relative abundance is less than 25 percent, calcium is the dominant cation resulting in calcium sulfate water type (table 4). Sulfate is the dominant anion within the middle confining unit II as a result of the dissolution of the evaporitic sediments, gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$) and anhydrite (CaSO_4) contained in this unit. The Piper diagram (figure 7) shows the data for the middle confining unit II adjacent to the calcium plus magnesium axis in the quadrilateral field. This is due to the strong dominance of sulfate anion that occurs in this unit. The relative abundance of sulfate in the middle confining unit II ranges from 74 to 88 percent.

The chloride to bicarbonate and sodium to bicarbonate ratios both show an increase through the middle confining unit II and then a subsequent reduction once the Lower Floridan aquifer II is encountered (figure 6). This increase in sodium and chloride concentrations is also evident in the ion concentrations (figure 5). These ratios change results from the increase in both chlorides and sodium within the middle confining unit. No apparent change in the ratio of sodium to chloride throughout the corehole was observed indicate the increases result from the increase of sodium chloride within the middle confining unit II. The increase in sodium chloride within the middle confining unit can be explained by either inclusion connate brine or incompletely leached deposits that were laid down in the sea or closed basin (Hem, 1960). Due to the origin and low permeability nature of the middle confining unit II both of the aforementioned explanations are plausible.

6.4 Lower Floridan aquifer II

The Lower Floridan aquifer II starts at 1,122 feet bls and extends past the total depth of the exploration (1,290 feet bls). Four packer tests with water quality samples were conducted within this aquifer. The

Lower Floridan aquifer II contains mineralized water primarily due to the concentration of sulfate (figure 5). Miller (1986) suggests that the poor water quality within the Lower Floridan aquifer II is consistent with a poor interconnection with the freshwater of the overlying Upper Floridan aquifer. The relatively high sodium and chloride ion concentrations present in the middle confining unit II decreased (sodium from 348 mg/L to 61.7 mg/L and chloride from 165 mg/L to 54.4 mg/L) once the Lower Floridan aquifer II was encountered. This also suggests that flushing may be a factor in the higher concentrations of these ions present in the middle confining unit II.

Below 1,122 feet bls (Lower Floridan aquifer II), the water type is calcium-magnesium sulfate (table 4). The relative dominance of calcium plus magnesium was greater than 95 percent in these samples. The dominance criteria for individual cations of 50 percent was relaxed slightly in order to appropriately classify the distinct water type within the Lower Floridan aquifer II. Sulfate remained the dominant anion. In the Piper diagram (figure 7), the points for the Lower Floridan aquifer II are located at the apex of the quadrilateral field. This is due to the strong relative dominance of the calcium plus magnesium cations and the sulfate anion. This results from the interaction with dolostone, gypsum, and anhydrite.

7.0 GEOPHYSICAL LOGGING

Two sets of geophysical logs were run on the corehole at the WR6B well site. The first suite of logs was conducted while the casing and total depths were 82 and 230 feet bls, respectively. The second suite was conducted while the casing and total depths were 326 to 1,290 feet bls, respectively. A gap in the logging effort between 230 and 326 feet bls is a result of sand filled cavities that existed within this interval making it difficult to maintain an open hole for logging. Once the HW casing was advanced through

the sand producing zones logging efforts resumed.

7.1 Corehole/Deep Upper Floridan Aquifer Logs – July 31, 2003

The District performed the first suite of geophysical logs conducted on July 31, 2003 (figure 8). The caliper log indicates a minor washout between the base of the casing (82 feet bls) and 155 feet bls. The natural gamma log has a kick of approximately 180 counts per second (cps) from 11 feet bls to 27 feet bls associated with the clay beds of the intermediate confining unit. A natural gamma kick can also be seen at 127 feet bls, which represents the top of the Avon Park Formation and the organics typically present at that contact. A gray-brown clay bed greater than 2 feet thick was encountered at 150 feet bls. This clay bed is represented by a kick in the natural gamma log. All the

aforementioned kicks in the natural gamma log are right kicks or peaks in the natural gamma-ray emissions from the formation.

The spontaneous potential log for this corehole was not very useful due to the fact the corehole was drilled on freshwater and little contrast between the borehole and formation fluid existed. The spontaneous potential log works best when the conductivity of the borehole and formation fluids differs such as when mud is used during drilling.

The resistivity logs indicate formation resistivities of approximately 200 ohm-meters (ohm-m). The presence of clay minerals will significantly reduce the formation resistivity (Collier, 1993) as seen by the left kick in both the single-point and 16N resistivity logs at 145 to 150 feet bls. This depth correlates with the gray-brown clay bed discussed above and seen in the

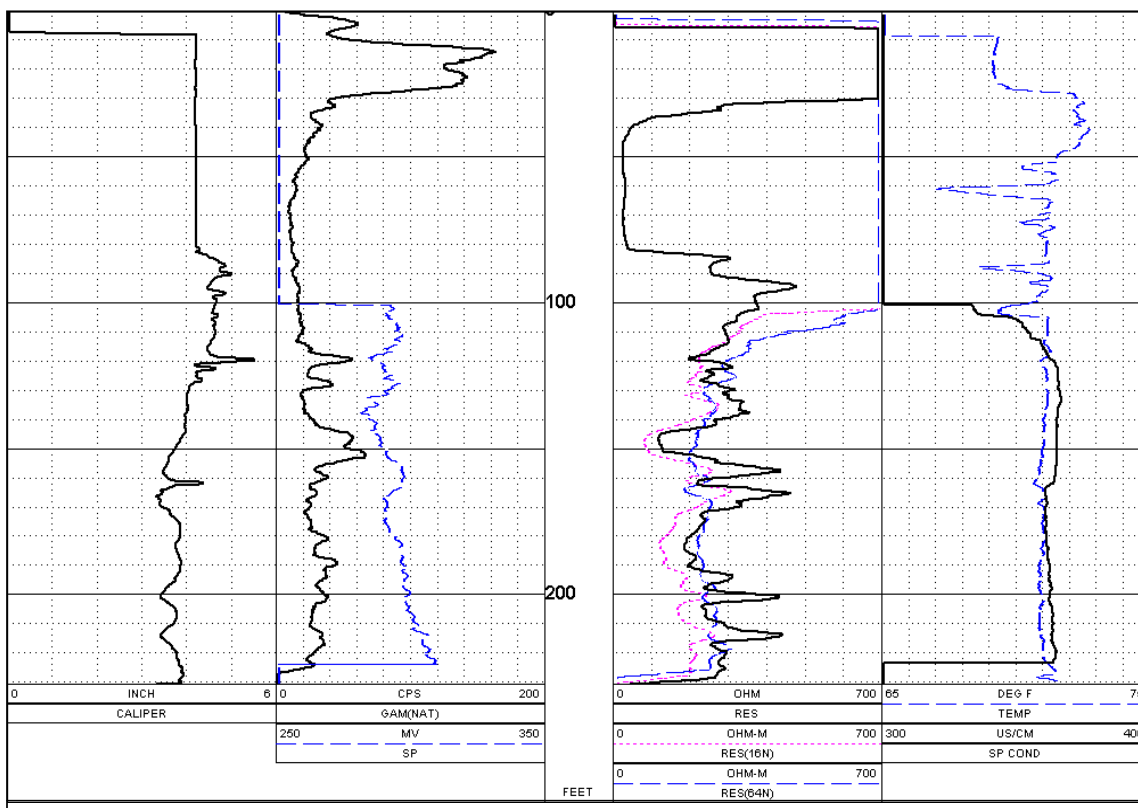


Figure 8. First Set of geophysical logs collected in the corehole/deep Upper Floridan well at the Withlacoochee Transect, WR6B well site. Logs were conducted on July 31, 2003 while the casing and total depths were 82 feet and 230 feet bls, respectively.

lithologic log (Appendix C). No response in the 64N resistivity log at 145 to 150 feet bls indicates that this bed was not thick enough to be detected by this log, which has the coarsest horizontal resolution of the three resistivity logs.

The temperature and specific conductivity logs indicate the borehole water was 71 degrees Fahrenheit (°F) with a specific conductivity between 360 and 370 micromhos per centimeter (umhos/cm).

7.2 Corehole/Deep Upper Floridan Aquifer Logs – November 17, 2003

The District performed the second suite of geophysical logs conducted on November 17, 2003 (figure 9) while the HW casing was set at 326 feet bls and the total depth of the corehole was 1,290 feet bls. A second version of these logs at a one-inch to 100 feet scale is included in Appendix G. The caliper log showed a washout, reaching nine inches in diameter, from 380 feet to 510 feet bls. The remainder of the corehole below 510 feet bls remained relatively gauge consistent with the increased competency of the dolostone. The gamma log above 230 feet bls is the same as that discussed in Section 8.1. Below 230 feet bls, the gamma log responds to the presence of organics (lignite) in the formation. The responses in the gamma log from these organic deposits can be observed at 535 feet, 745 feet, 760 feet, 913 feet, 1000 feet, and 1067 feet bls. The organic deposits at 913 feet BSL was approximately five feet thick and was the largest of these deposits.

The resistivity logs show an increasing trend in formation resistivity starting at 540 feet bls. This increase in formation resistivity is, in part, a result of a decrease

in porosity due to pore infilling with gypsum. The reduction in porosity reduces the amount of water present in the formation increasing the formation resistance. The porosity and permeability of the formation increased when the Lower Floridan aquifer II was encountered at 1,122 feet bls. As a result, the resistivity logs show reductions in the formation resistivity corresponding to the permeable zones within the Lower Floridan aquifer II (1,122 feet to 1,190 feet bls and 1,227 feet to 1,270 feet bls). The confining bed of crystalline dolomite within the Lower Floridan aquifer II results in rise in formation resistivity, as expected. Based on the resistivity logs and Appendix C it appears that the first permeable zone of the Lower Floridan aquifer II may actually be from 1,070 feet to 1,100 feet bls, above where it was detected in the field by a rise in the corehole water level.

The water temperature within the corehole increased 3.5°F from 350 feet bls to the base of corehole. The actual water temperature at the base of the corehole indicated by this log is approximately 4°F warmer than the value observed during water quality sampling (Appendix F) indicating that the temperature probe on this geophysical tool was out of calibration. From 326 feet to 1,170 feet bls the specific conductivity log shows only a very slight increasing trend with values of approximately 585 umhos/cm. The actual values of specific conductivity based on the water quality sampling for this same interval range from 625 to 5,910 umhos/cm (Appendix F) indicating that the specific conductivity probe on this geophysical tool was out of calibration. Neither the temperature nor specific conductivity logs provide accurate values but may be used

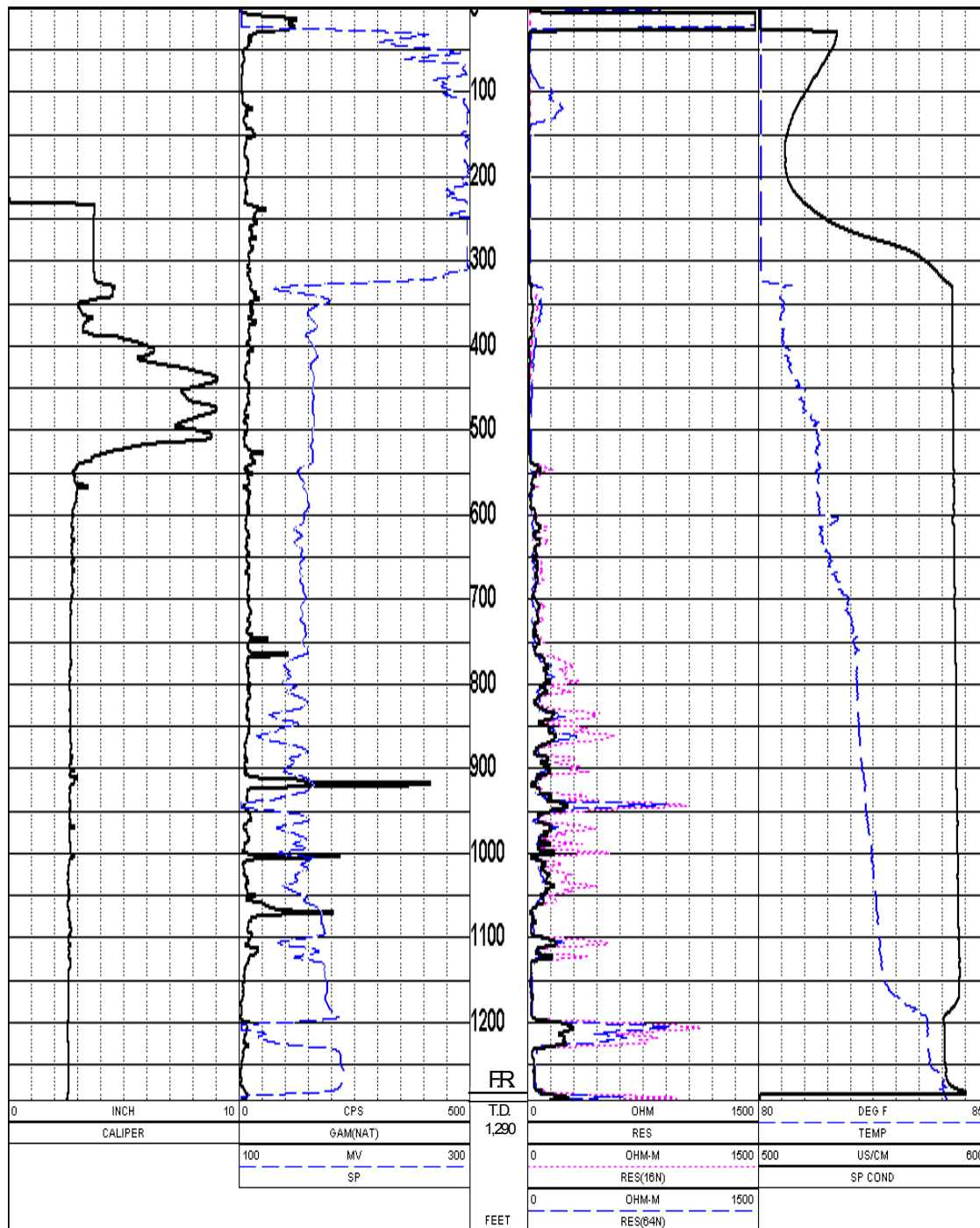


Figure 9. Second set of geophysical logs collected in the corehole/deep Upper Floridan well at the Withlacoochee Transect, WR6B well site. Logs were conducted on November 17, 2003 while the casing and total depths were 326 feet and 1,290 feet bls, respectively.

to show relative changes within the borehole. It should be noted that the head within the Lower Floridan aquifer II is more than 25 feet higher than that in the Upper

Floridan aquifer allowing the water of the Lower Floridan aquifer II to flow up the corehole and out into permeable units within the Upper Floridan aquifer. This movement

of water within the corehole will impact the borehole conditions recorded by the temperature and specific conductivity tools. The major response recorded by these logs was the warmer fresher water entering the corehole at 1,170 feet bls. This warmer fresher water is from the Lower Floridan aquifer II.

8.0 CROSS-SECTIONAL DATA

The Withlacoochee transects consists of four well sites each containing three wells. Extensive hydrogeologic data collection was conducted at the WR6B well site during the core drilling and testing phase of the project. The remaining three sites had drill cuttings collected during the construction of the wells and geophysical logs (caliper and gamma) run on the finished deep Upper Floridan aquifer well.

The wells of the Withlacoochee transect can be seen in figure 10 in elevations. The deep Upper Floridan aquifer wells are open to the Avon Park Formations between the elevations of -193.2 to -313.4 feet NGVD. The shallow Upper Floridan aquifer wells are open to the upper most competent limestone of the Ocala Formation between 6.8 to -53.2 feet NGVD. The surficial aquifer wells are screened in the unconsolidated surficial sands between 69.2 to 46.8 feet NGVD. To date, the only surficial aquifer well that has contained water was at the WR6D well site. The water levels in the wells of the Withlacoochee

Transect and date of observation are listed in Table 6.

The drill cuttings and gamma logs run on each of the deep Upper Floridan aquifer wells were used to construct a geologic cross-section of the Withlacoochee Transect. The gamma logs were very useful in identifying geologic boundaries because each change in lithology has a distinctive change in the gamma log for this geologic section. From the surficial sands to clay is identified by an increase in gamma activity, from clay to Ocala Formation is identified by decrease in gamma activity, and the top of the Avon Park Formation is marked by a spike in the gamma activity. Figure 10 shows the gamma logs for all four deep Upper Floridan aquifer wells along with the geology. The gamma log for the shallow Upper Floridan aquifer well for the WR6D well site was also included. This log provided a better response to the gamma activity in the shallow subsurface.

9.0 CONCLUSIONS

The Withlacoochee Transect was constructed to evaluate the relationship between the ground-water levels and the River stage. This was accomplished by characterizing the hydrogeology of the region (WR6B) and installing a transect of four permanent water-level monitoring well sites. Each of the well sites contains a surficial aquifer well, a shallow Upper Floridan aquifer well, and

Table 6. Water levels in the wells of the Withlacoochee Transect.
[ft, feet; NGVD, National Geodetic Vertical Datum]

Well Name	WR6A Well Site		WR6B Well Site		WR6C Well Site		WR6D Well Site	
	Date	Water Level (ft NGVD)	Date	Water Level (ft NGVD)	Date	Water Level (ft NGVD)	Date	Water Level (ft NGVD)
Surficial	5/3/2005	Dry	5/3/2005	Dry	8/10/2005	Dry	2/12/2004	Dry ^a
Shallow UFA	5/3/2005	43.23	5/3/2005	43.09	8/10/2005	45.7	2/12/2004	44.95
Deep UFA	5/3/2005	43.24	5/3/2005	42.92	8/10/2005	45.79	2/12/2004	45.26

The Geology, Hydrology, and Water Quality of the WR6 - Withlacoochee Transect Well Sites

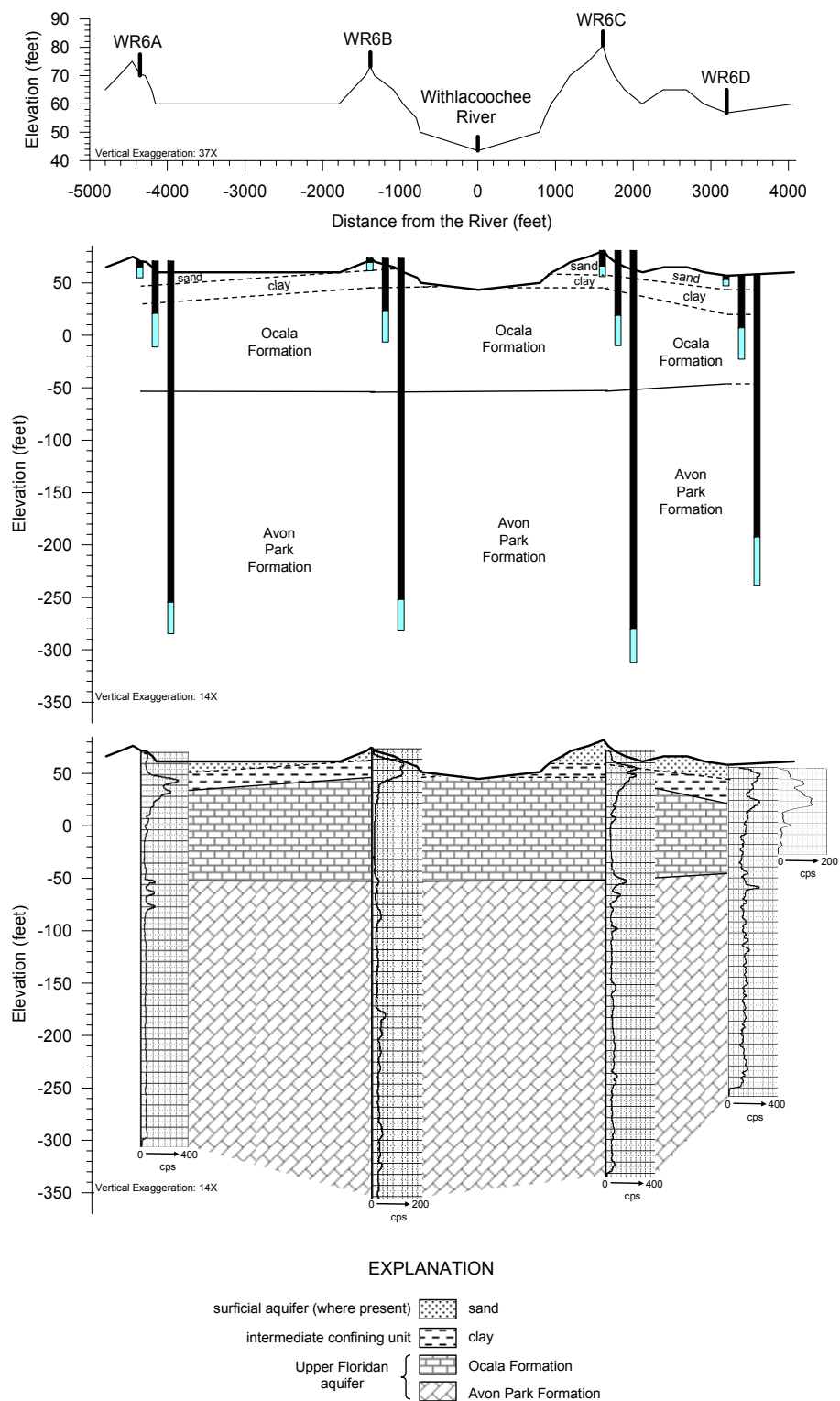


Figure 10. Cross sectional location of the monitor wells and the hydrogeology of the Withlacoochee Transect. The light blue portion of the well identifies the open-hole interval of each well. The gamma logs are included as supporting information to the presented hydrogeology. The top of the Upper Floridan aquifer was assumed to be the top of the Ocala Formation. Elevations are in the National Geodetic Vertical Datum 1929.

a deep Upper Floridan aquifer well. Water levels in these well will be monitored monthly to define the vertical and lateral head potential in this near River region.

The hydrogeologic characterization at the WR6B well site included core collection and description, water quality sampling, water level sampling, hydraulic testing, and geophysical logging. The total depth of exploration was 1,290 feet bls. The geologic units encountered were, in ascending order, the Oldsmar Formation, Avon Park Formation, Ocala Formation, and the unconsolidated sands and clay. Active weathering (karstification) was observed within the Ocala and the upper Avon Park formations. An older zone of karstification was observed within the Avon Park Formation from 236 feet to 332 feet bls. The hydrogeologic units encountered were the intermediate confining unit, Upper Floridan aquifer, middle confining unit II, and the Lower Floridan aquifer II below unit II.

The surficial sediments were dry during the time of investigation at the WR6B wells site. The only well site that has exhibited saturated surficial sediment is the WR6D well site. These saturated surficial sediments would be considered part of the surficial aquifer, when present.

The Upper Floridan aquifer, above 392 feet bls, is the only viable potable aquifer of the region. Below 392 feet bls, the water quality within the Upper Floridan aquifer no longer meets potable standards for sulfate and total dissolved solids. The Upper Floridan aquifer has a mean hydraulic conductivity value of 10 feet/day with values as high as 200 feet/day. The middle confining unit II had the lowest quality water of any unit tested. The primary difference contributing to the poorer quality of water within this unit is the poor circulation of water. The middle confining unit II has a mean hydraulic conductivity value of 0.03 feet/day. The Lower Floridan aquifer II contained saline water primarily from high concentrations of

sulfate. However, the water quality within the Lower Floridan aquifer II was slightly fresher than that of the overlying middle confining unit II. The total dissolved solids concentration dropped approximately 700 milligrams/liter once the Lower Floridan aquifer II was penetrated. The Lower Floridan aquifer II has a mean hydraulic conductivity value of 3.5 feet/day. The Lower Floridan aquifer II likely extends past the total depth of exploration of this corehole.

With the exception of the WR6D well site, all sites were constructed after the hydrogeologic investigation. Contractors constructed all wells with the exception of those at the WR6D well site and the shallow Upper Floridan aquifer well at the WR6B well site. The final well construction as-built diagrams for each well can be seen in Appendix B. During the construction of the deep Upper Floridan aquifer well at the WR6A well site a sinkhole opened and later reopened. This well also collapsed shortly after completion. As a result a screen was installed to maintain a viable well. Well construction problems during the construction of the deep Upper Floridan aquifer well at the WR6C well site resulted in the well being cased through the original open-hole interval. Water levels in all the wells are currently being monitored by the Hydrologic Data Department of the District.

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APPENDIX A

Methods of the Regional Observation and Monitor-Well Program

APPENDIX A. Methods of the Regional Observation and Monitor-Well Program.

The Southwest Florida Water Management District (District) collected the majority of the hydrogeologic data during the exploratory core-drilling phase of the project. High-quality lithologic samples were collected during the coring process along with hydraulic and water-quality data collected primarily during packer tests as the core hole was advanced. Geophysical logging was conducted on the borehole providing additional hydrogeologic data. After well construction an aquifer performance test (APT) may be conducted on each of the major aquifers or producing zones encountered at the site.

COLLECTION OF LITHOLOGIC SAMPLES

The District conducted hydraulic-rotary coring, referred to as diamond drilling, with a Central Mining Equipment (CME) 85 coring rig. 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 working casings along with NQ core drilling rods and associated bits and reaming shells from Boart Longyears® Wire Line products. The HW and NW working casings were set and advanced as necessary to maintain a competent core hole. The NQ size core bit(s) produces a nominal three-inch hole and core samples with a diameter of 1 7/8 inch diameter. The HW and NW working casings and NQ coring rods were removed at the end of the project. Details on the coring activities were recorded on Daily Drilling Logs completed by the District drilling crew.

Recovery of the core samples was accomplished using a wireline recovery system. The District drilling crew used the Boart Longyear®, NQ wireline, inner barrel assembly (5-foot length). This system allowed a 1 7/8-inch by 5-foot (or shorter) section of core to be retrieved without having to remove the core rods from the borehole (figure 1). The core was then placed in core boxes, depths marked, and recovery estimates calculated. The Florida Geological Survey under Contract with the District made detailed lithologic descriptions of core, cuttings, and unconsolidated sediments. All lithologic samples are archived at the Florida Geological Survey in Tallahassee, Florida.

Unconsolidated Coring

Several methods exist for obtaining core of unconsolidated material, which is extremely difficult as compared to coring of rock (Shuter and Teasdale, 1989). District drilling

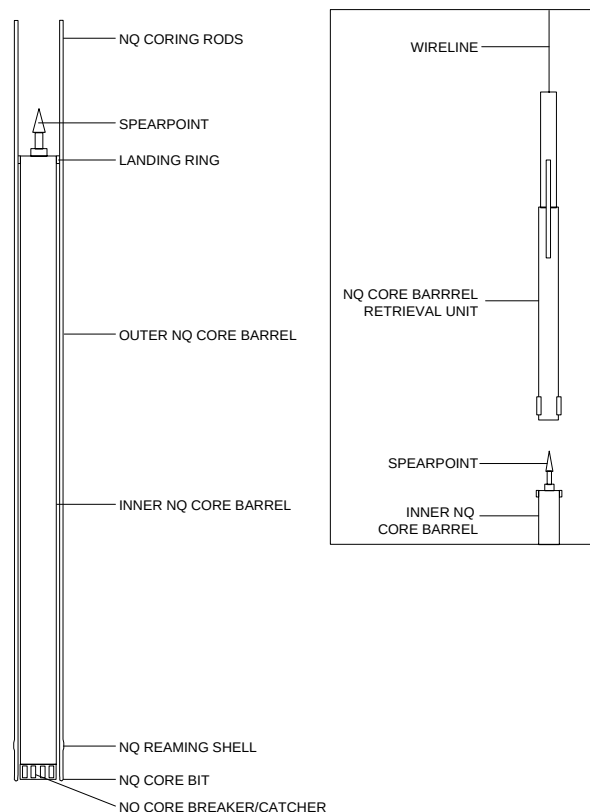


Figure 1. Longyear® NQ Wireline Coring Apparatus.

APPENDIX A. Data Methods of the Regional Observation and Monitor-Well Program. (Cont.)

crew utilized a four-inch split spoon with hollow stem augers to collect unconsolidated samples. In this method, the split spoon extend several inches passed the augers and are forced down with the augers. This method requires that that the split spoon is non-rotating allowing the samples to be forced into the spoons with minimal disturbance. The District drilling crew had difficulty preventing the split spoons from rotating and terminated this method at 21 feet below land surface (BLS). The District drilling crew collected the remainder of the unconsolidated samples using traditional rock coring methods.

Rock Coring

During rock coring, the District drilling crew utilized HW and NW working as well as permanent casings to stabilize the core hole. NQ core drilling rods and associated products were during the coring process. Coring was conducted using direct water methods. Direct water is not effective in removing the cutting from the borehole therefore the District reverse-air develops the borehole every 40 feet or as necessary. Two main types of coring bits used by the District are bottom-discharge and face-discharge bits for poorly-indurated and well-indurated rocks, respectively.

FORMATION PACKER TESTING

Formation (off-bottom) packer testing allows discrete testing of water levels, water quality, and hydraulic parameters. A competent borehole is necessary for packer testing of the core hole therefore unconsolidated sediments and some of the shallow weathered limestone cannot be tested using this technique. The packer assembly is employed by raising the NQ coring rods to a predetermined point, lowering the packer to the bottom of the rods by way of combination cable/air inflation line, and inflating the packer with nitrogen. This process isolates the interval of the borehole located from the packer to the total depth of the core hole (Figure 2). Test intervals were selected based on a regular routine of testing or at any distinct hydrogeologic change in the core hole that warranted testing.

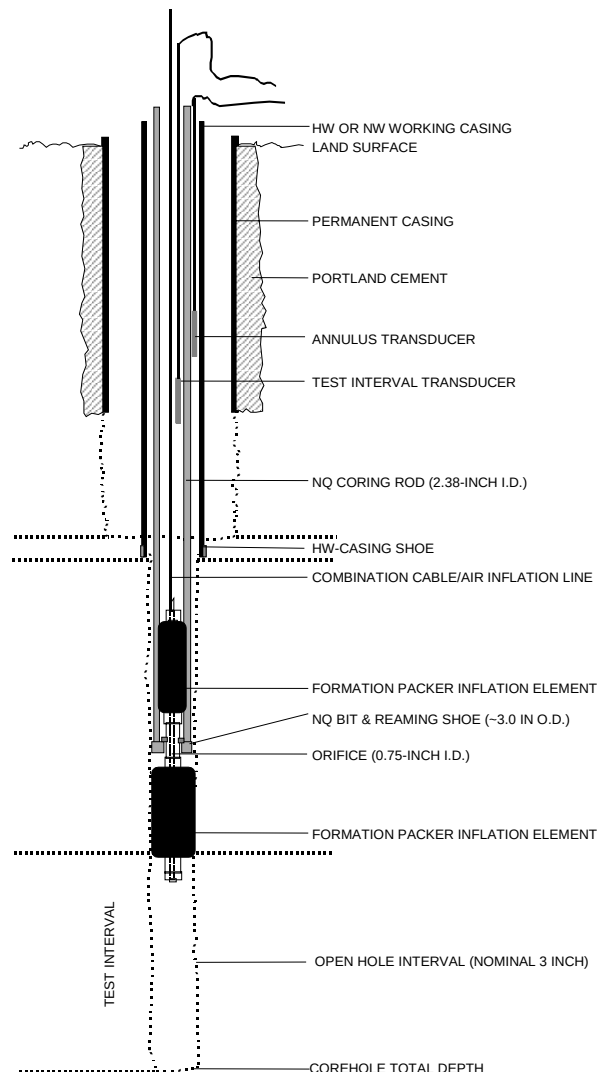


Figure 2. Formation (off-bottom) Packer Assembly Deployed in the Core Hole.

APPENDIX A. Data Methods of the Regional Observation and Monitor-Well Program. (Cont.)

Collection of Water-Level Data

Water-level data was collected during each of the formation packer tests using an electric tape. The static level was measured and recorded after the necessary equilibration time. Equilibration was determined when the change in water level per unit time was negligible. These water-level data were measured relative to an arbitrary datum near land surface, which was maintained throughout the project. These data provide a depiction of water level with borehole depth. However, these data were collected over several months and will include temporal variations in addition to the variation with depth.

Collection of Water-Quality Data

Water-quality sampling methods were consistent with the Standard Operation Procedure For the Collection of Water Quality Samples (Water Quality Monitoring Program, 2005). The method involved isolating the test interval with the off-bottom packer and air lifting the water in the NQ coring rods. Typically, three borehole volumes of water were removed to ensure a representative sample. Samples were collected using either a wireline or a nested bailer. Problems associated with having more than one cable (packer plus bailer) inside the NQ coring rods limits the wireline bailer's application in deep settings. The nested bailer is an alternative where the bailer is attached directly to the packer orifice and lowered into and removed from the core hole along with the packer assembly eliminating the need for a second cable.

Once the water samples were at the surface, they were transferred into a cleaned plastic pitcher. A portion of the water was used to collect field parameters, including specific conductivity, temperature, pH, chlorides (filtered), and sulfates (filtered). The remainder of the sample was filtered through a 0.45-micron filter membrane and properly bottled for laboratory analysis. One bottle for the laboratory was acidified with nitric acid to preserve metals for analysis.

The analysis of the water-quality data included the evaluation of relative ion abundance, determination of water type(s), and evaluation of ion or molar ratios. The laboratory data were 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 was determined (Hem, 1989). The data was 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. Lastly, select ion ratios were calculated for each sample to further evaluate chemical similarities or differences among waters and to help explain why certain ions changed with depth.

Collection of Hydraulic Data

Hydraulic properties were estimated by conducting 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 the water level returns to static. Typically, the slug tests were conducted while using the off-bottom packer, isolating discrete test intervals as the core hole was advanced. Pressure transducers were used to measure the water levels in the test interval and the annulus between the HW casing and the NQ

APPENDIX A. Data Methods of the Regional Observation and Monitor-Well Program. (Cont.)

coring rods to detect water level changes indicative of a poorly seated packer or physical connection (i.e. fractures or very permeable rocks) within the formation. When the NW was being used the annulus could not be monitored due to the limited size of the annulus. A third pressure transducer may be used to measure air pressure during pneumatic slug testing. These data were recorded on a datalogger.

Slug tests can be initiated several ways. The primary methods used by the District are the pneumatic slug method, the drop (water) slug method, and the physical slug method. The standpipe method was also used during this site. The pneumatic slug method uses air pressure to displace the static water level down resulting in a rising head test once the air is released. A falling head pneumatic test may also be used by creating a suction within the NQ rods and releasing the suction. The drop (water) slug involves inserting a predetermined volume of water into the test interval raising the static water level producing a falling head test. The physical slug involves lowering or raising a physical slug into the NQ core initiating a falling or rising head slug test, respectively. The standpipe method uses a standpipe with a hose connected to the rig's water pump to insert the water slug. This method results in a poor initiation time and poor quality test results. Prior to all slug tests the test interval was thoroughly developed.

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 levels for movement. Lastly, estimates of the hydraulic conductivity values were made based on the slug test data using AQTESOLVE® or similar program by applying the appropriate analytical solution.

These slug tests all have one common source of error resulting from the orifice restriction in the formation packer assembly (Figure 2). The water-level displacement during the slug tests occurs in the NQ coring rods with an inside diameter (ID) of 2.38 inches, the orifice on the packer assembly has an ID of 0.75 inches, and the diameter of the core hole being tested is approximately three inches in diameter. The error associated with this restriction will be evident as head dependence in the response data of multiple tests with varying initial displacements, conducted on the same test interval. 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 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.

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, formation delineation), and physical characteristics of the well (depth, diameter, casing depth, texture of well bore, packer points, and integrity of well construction).

APPENDIX A. Data Methods of the Regional Observation and Monitor-Well Program. (Cont.)

Geophysical logging entails lowering the geophysical tool into the monitor well on a wireline and measuring the tool's response, during retrieval, to the formations and water quality in and near the borehole. Borehole geophysical logs were run during various stages of the core drilling. The three types of geophysical tools used were the caliper/gamma, multifunctional and induction. The suites of logs conducted included 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. When feasible, geophysical logs were run prior to casing advancements, while the borehole was still open to the formation. In addition to the geophysical logs, the District may conduct a video log of the borehole. Video logs are typically taken from land surface to the total depth of the borehole.

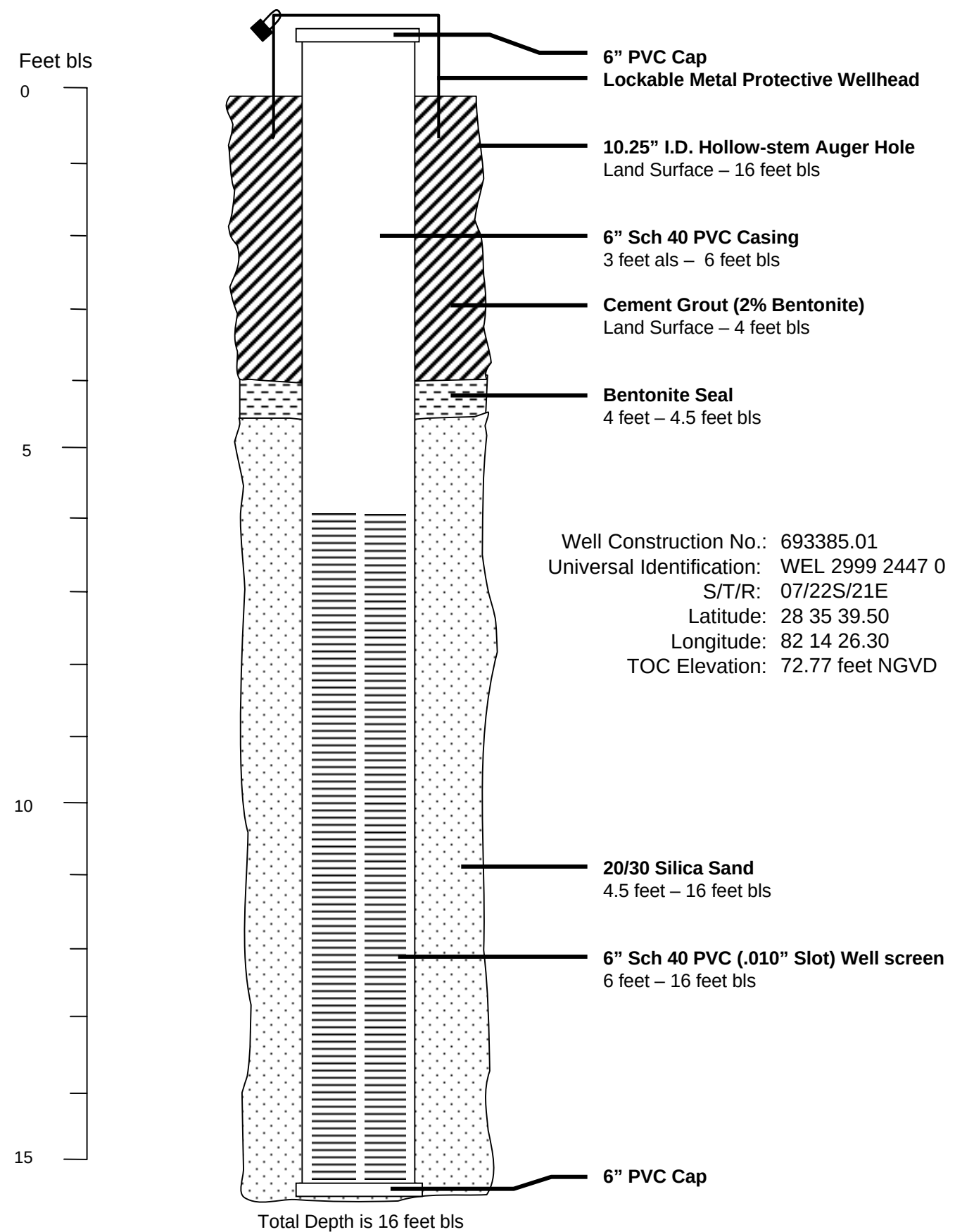
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APPENDIX B

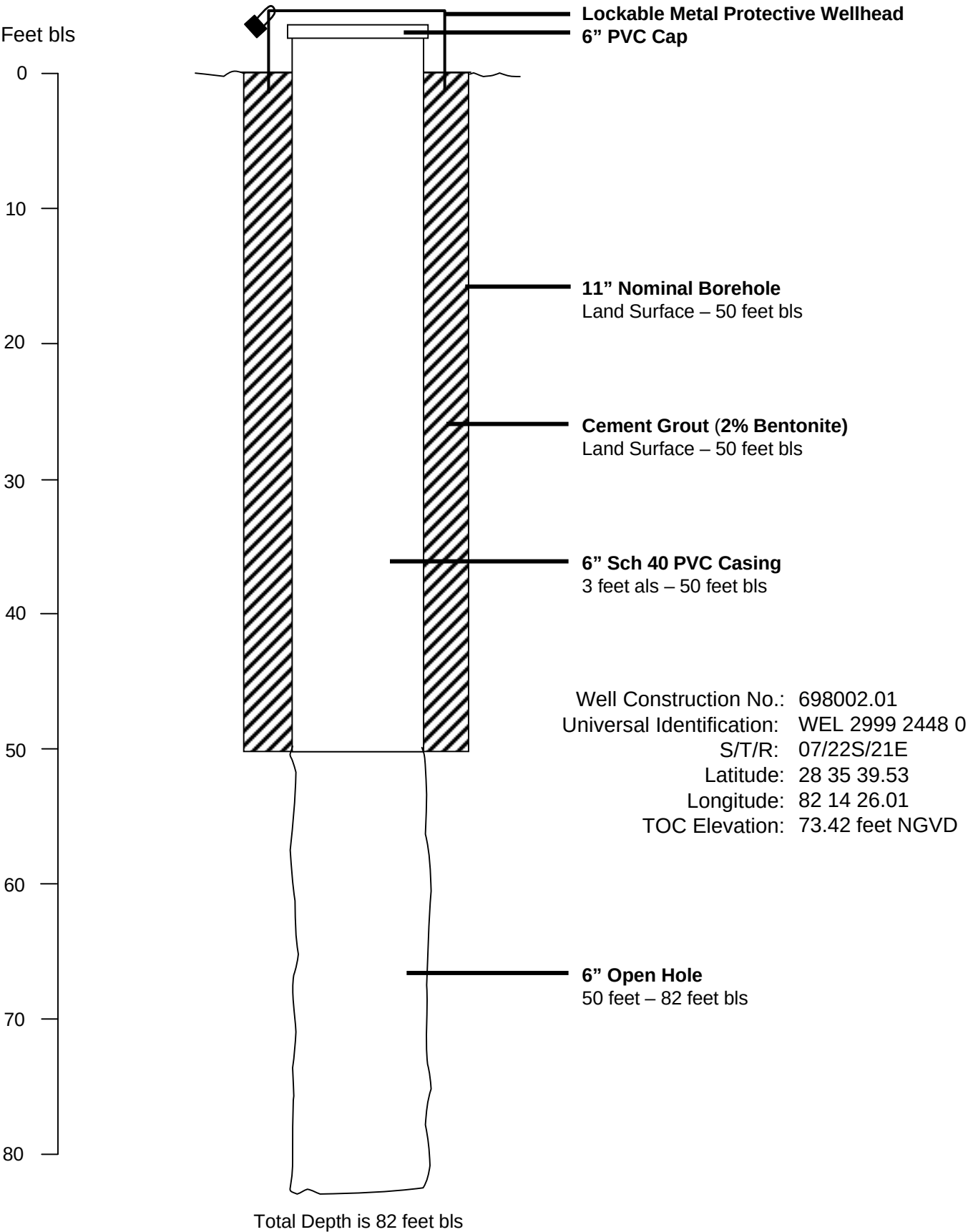
Well As-Built Diagrams

Appendix B.1. Well As-built Diagram for the surficial aquifer well at the Withlacoochee TR WR6A well site.
(* , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929; I.D., inside diameter)



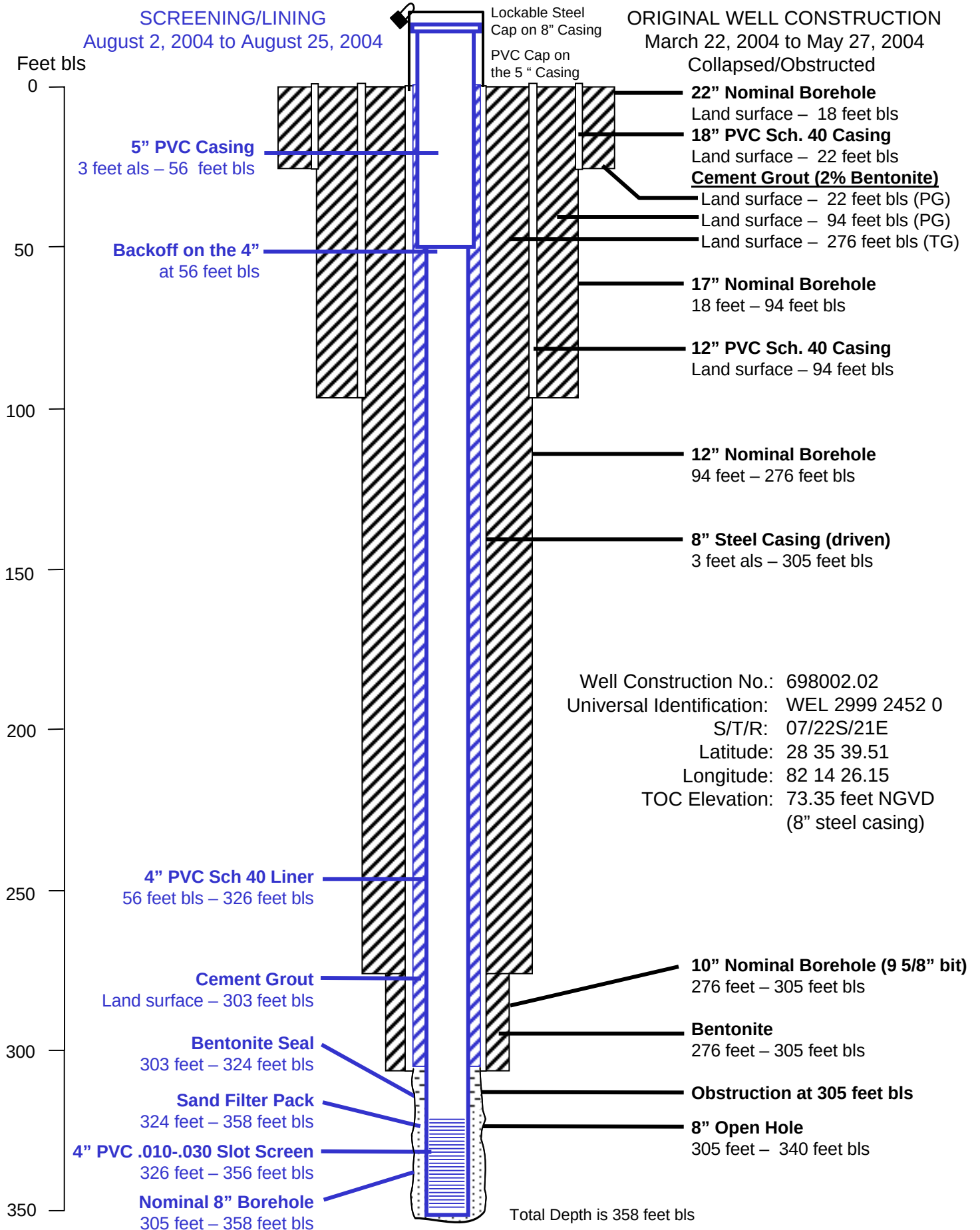
Appendix B.2. Well As-built Diagram for the shallow Upper Floridan aquifer well at the Withlacoochee TR WR6A well site.

(", inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929)

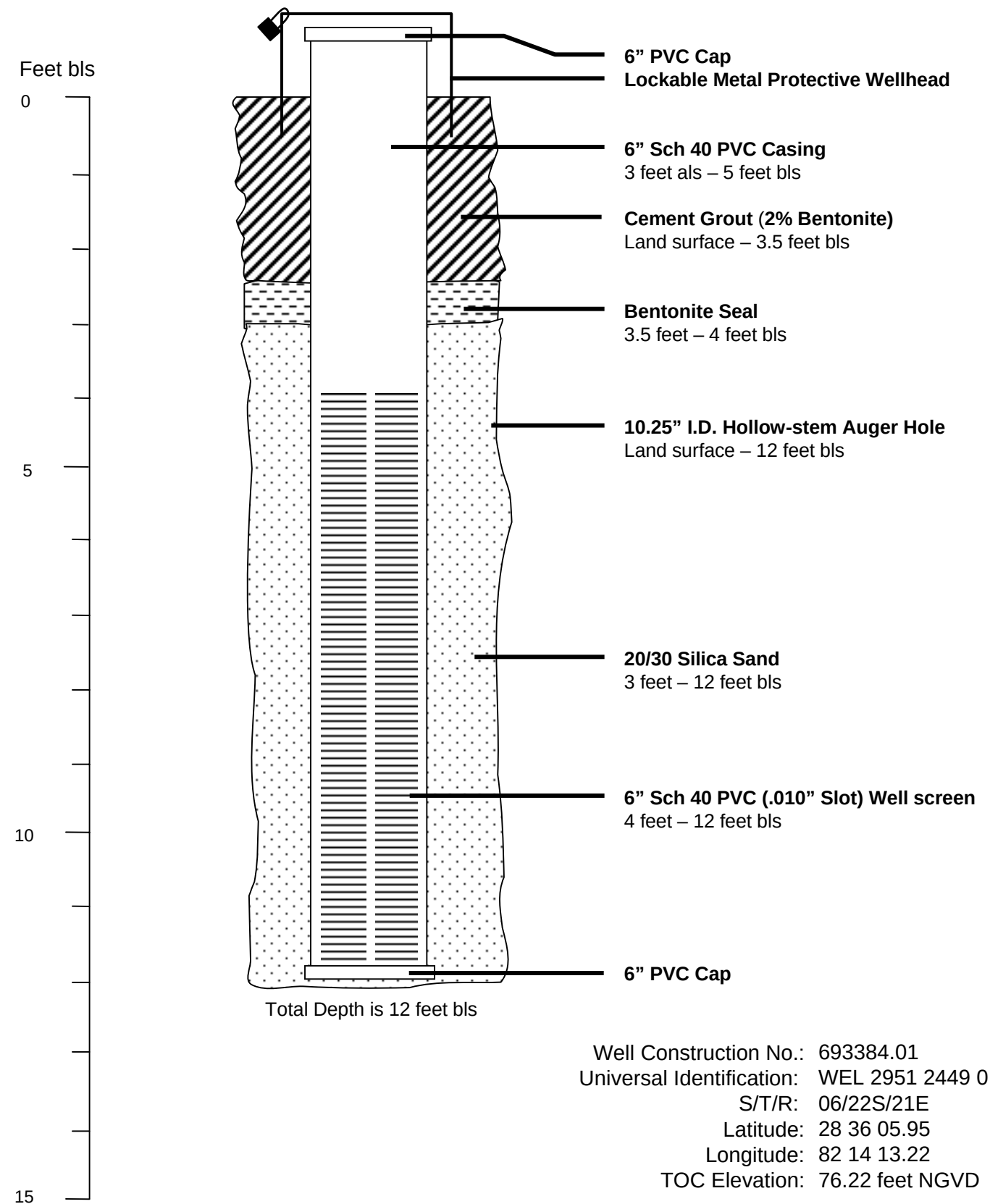


Appendix B.3. Well As-built Diagram for the deep Upper Floridan aquifer well at the Withlacoochee TR WR6A well site.

(" , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929)

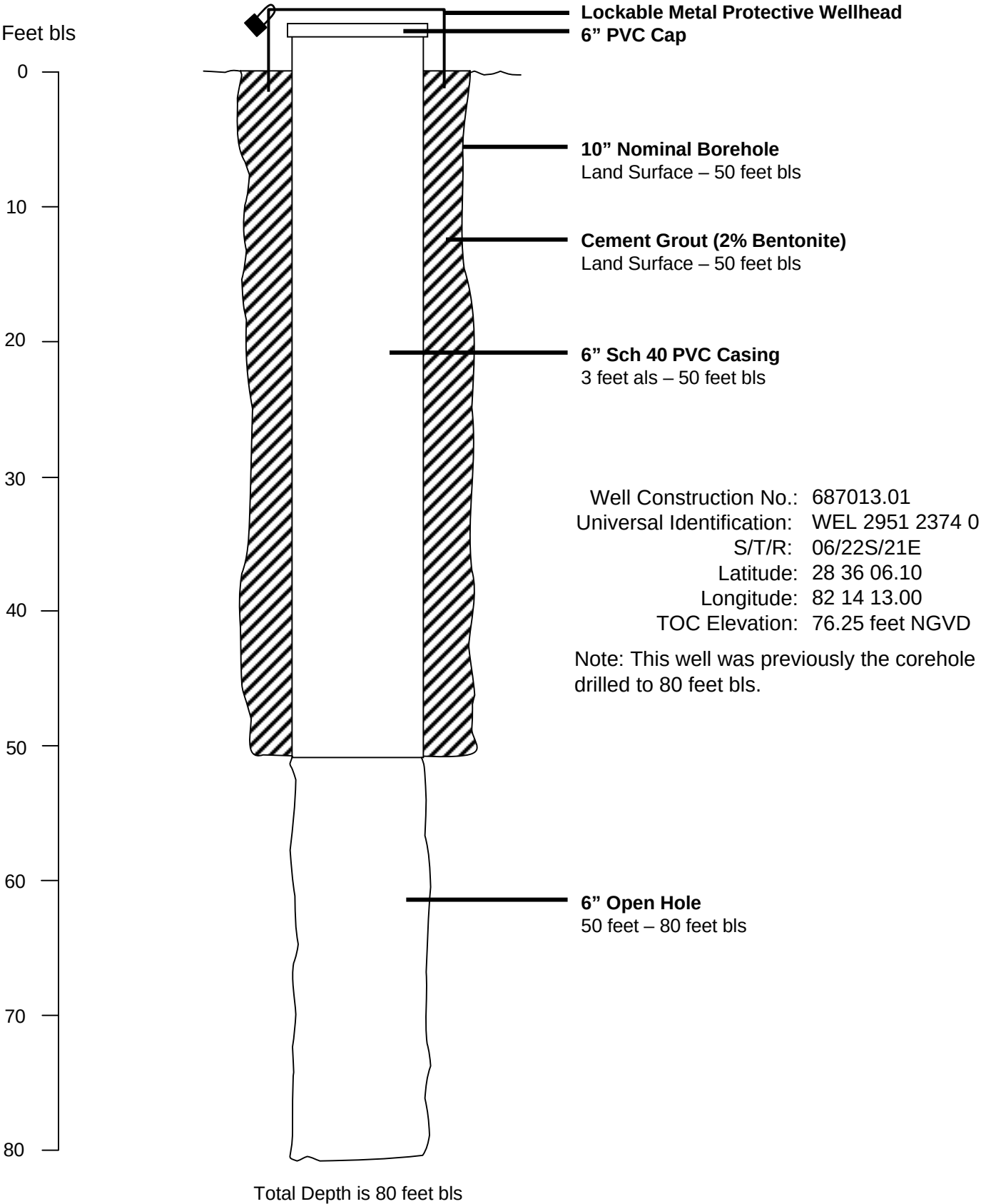


Appendix B.4. Well As-built Diagram for the surficial aquifer well at the Withlacoochee TR WR6B well site.
(* , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929; I.D., inside diameter)



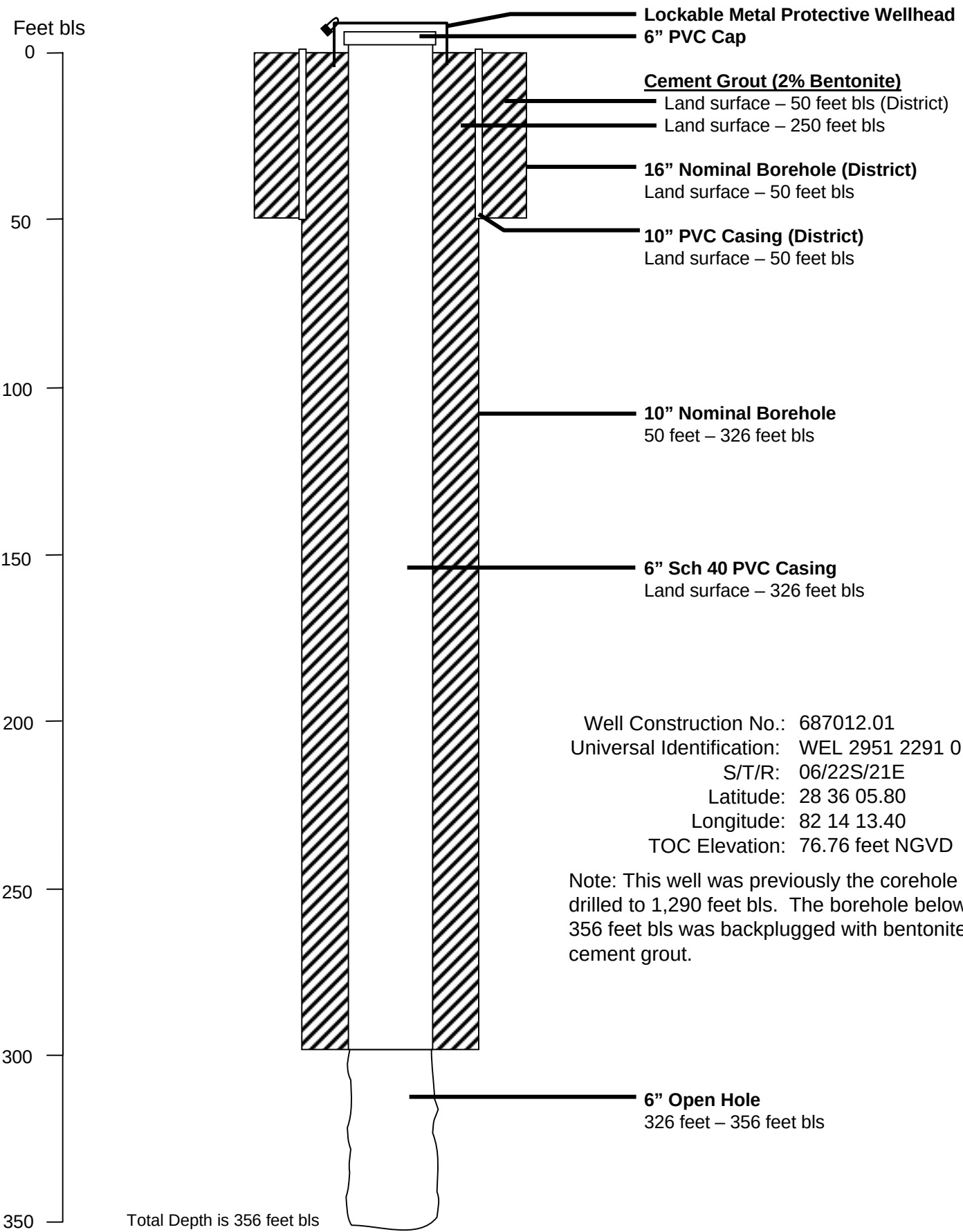
Appendix B.5. Well As-built Diagram for the shallow Upper Floridan aquifer well at the Withlacoochee TR WR6B well site.

(", inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929)

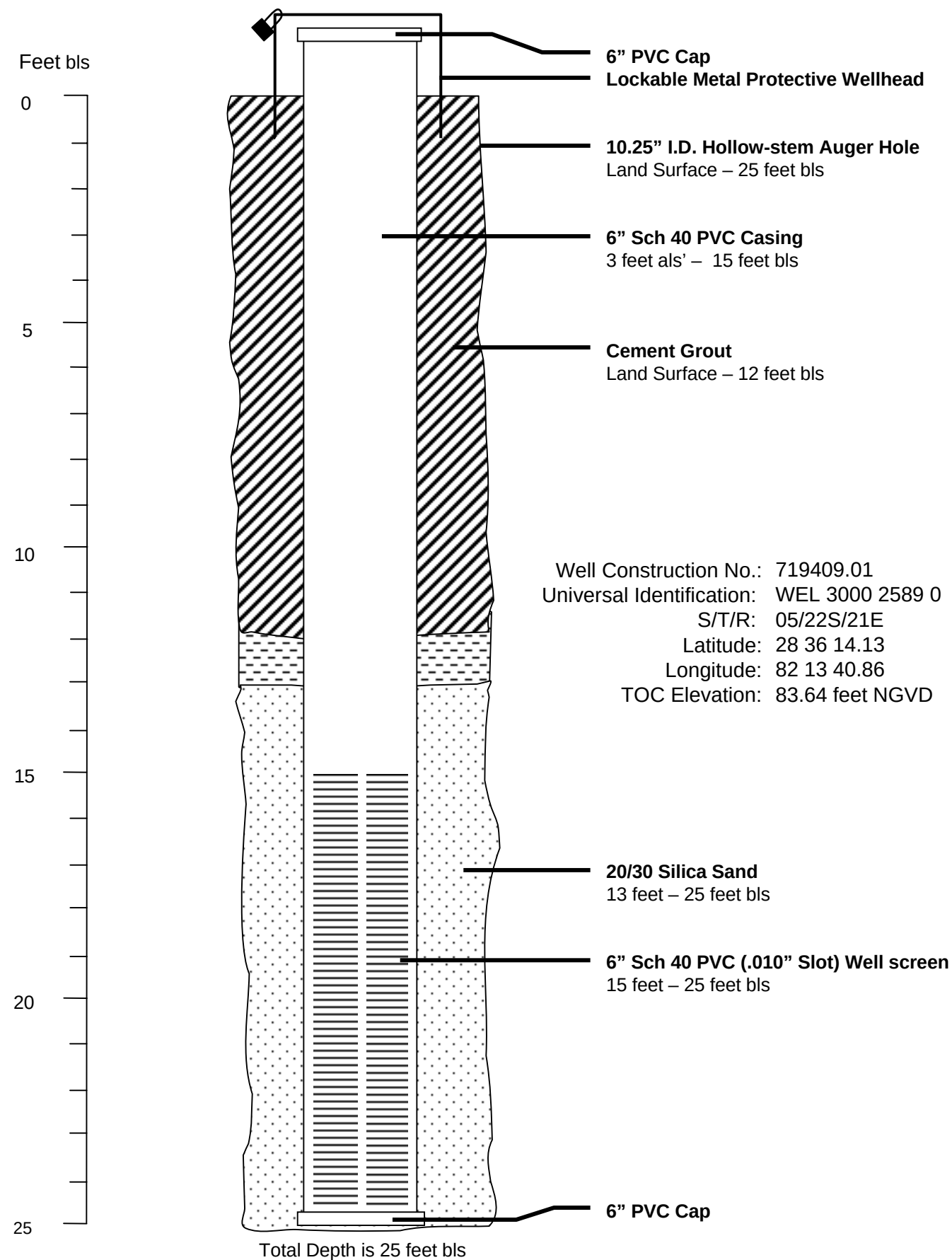


Appendix B.6. Well As-built Diagram for the deep Upper Floridan aquifer well at the Withlacoochee TR WR6B well site.

(" , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929)

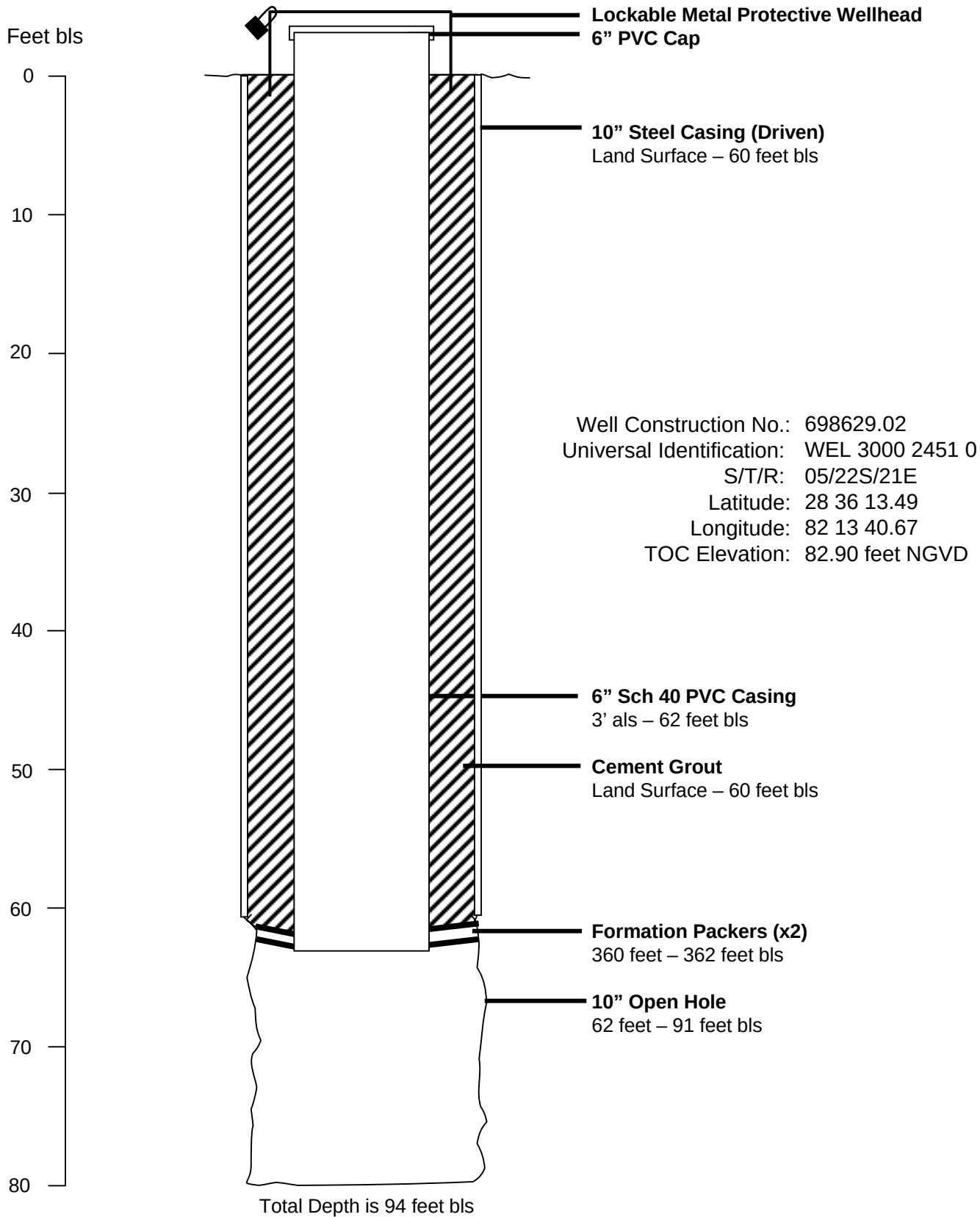


Appendix B.7. Well As-built Diagram for the surficial aquifer well at the Withlacoochee TR WR6C well site.
(* , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929; I.D., inside diameter)



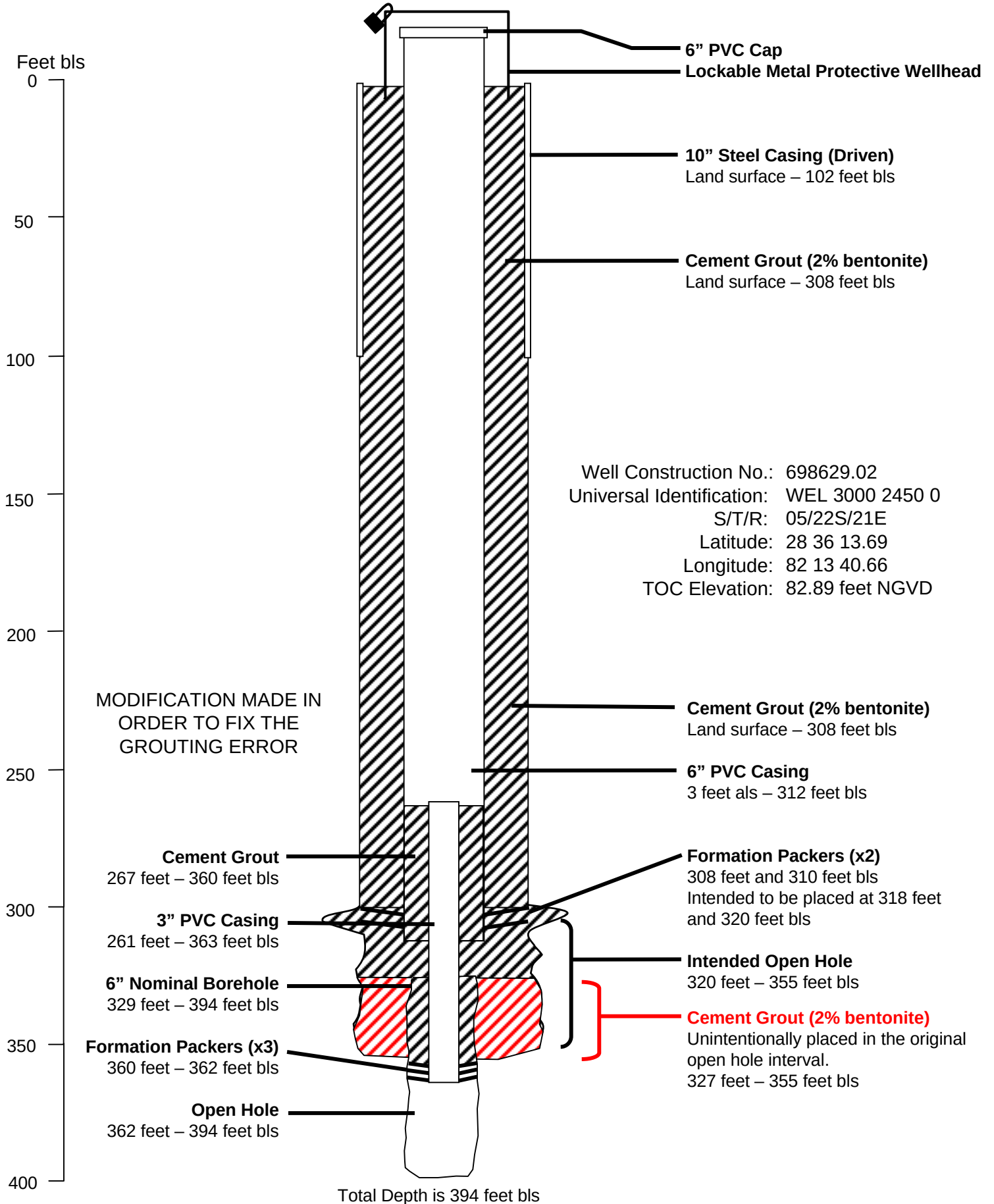
Appendix B.8. Well As-built Diagram for the shallow Upper Floridan aquifer well at the Withlacoochee TR WR6C well site.

(" , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929)

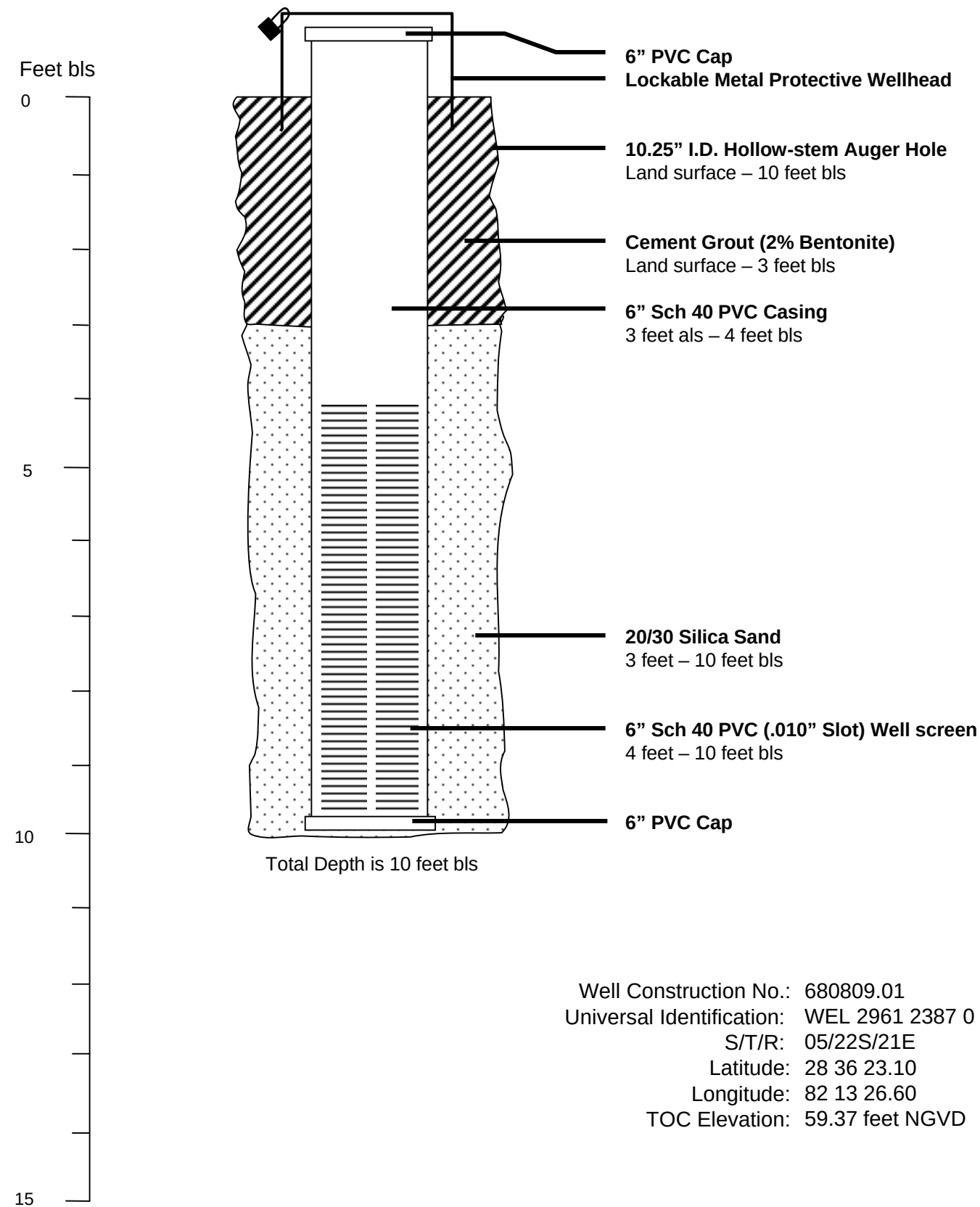


Appendix B.9. Well As-built Diagram for the deep Upper Floridan aquifer well at the Withlacoochee TR WR6C well site.

(" , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929)

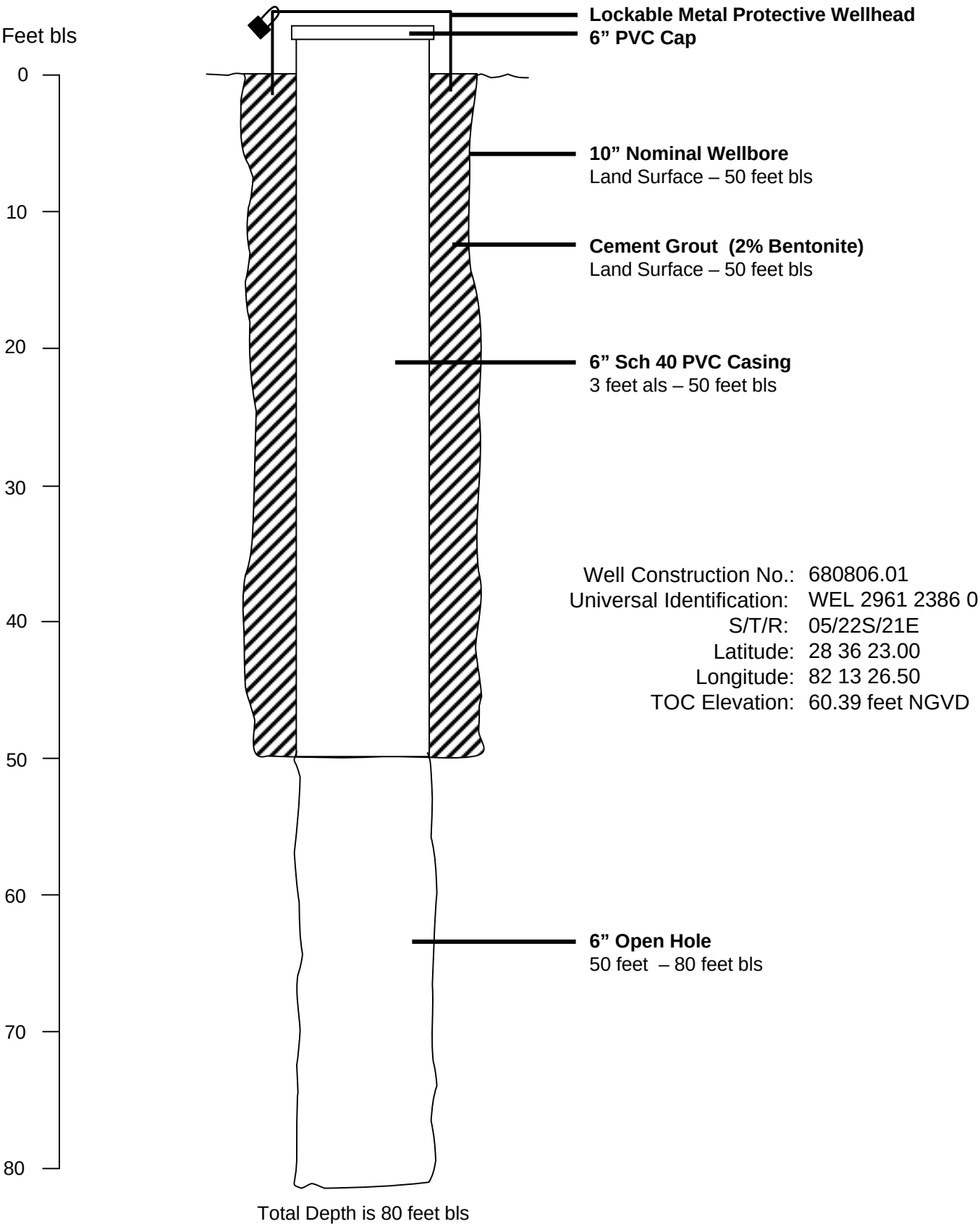


Appendix B.10. Well As-built Diagram for the surficial aquifer well at the Withlacoochee TR WR6D well site.
(* , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929; I.D., inside diameter)



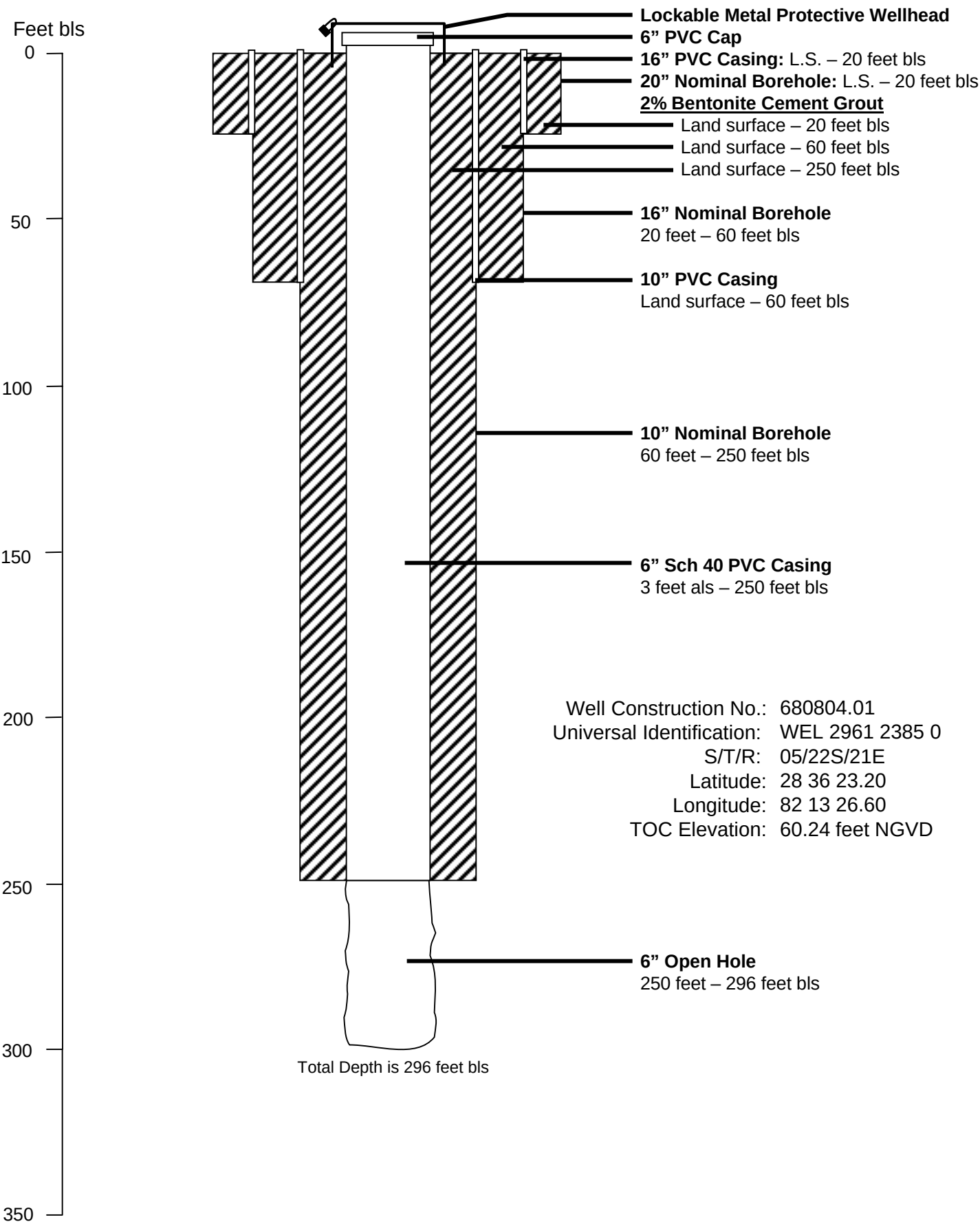
Appendix B.11. Well As-built Diagram for the shallow Upper Floridan aquifer well at the Withlacoochee TR WR6D well site.

(" , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929)



Appendix B.12. Well As-built Diagram for the shallow Upper Floridan aquifer well at the Withlacoochee TR WR6D well site.

(" , inches; bls, below land surface; Sch, Schedule; als, above land surface; PVC, polyvinyl chloride; TOC, top of casing; NGVD, National Geodetic Vertical Datum of 1929; L.S., land surface)



APPENDIX C

WR6B Corehole Lithology (digital only)

ROMP-WR6

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: ROMP-WR6
TOTAL DEPTH: 1290 FT.
117 SAMPLES FROM 0 TO 1290 FT.

COUNTY - HERNANDO
LOCATION: T.22S R.21E S.06 BD
LAT = 28D 36M 06S
LON = 82D 14M 13S

COMPLETION DATE: 14/11/03 ELEVATION: 65 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, GEOLOGIST, CALIPER, GAMMA, ELECTRIC,

OWNER/DRILLER:SWFWMD; LWR2; GEORGE DEGROOT & BERNIE COUCHMAN

WORKED BY:JERRY MALLAMS PG SWFWMD; WORKED 00/00/2003 TO 11/14/2003.
THE SAMPLE QUALITY FROM THIS SITE IS GOOD TO EXCELLENT.
JIM CLAYTON AND CAROL KRAFT ASSISTED IN THE FIELD WORK AND CORE DESCRIPTION.
BOUNDARY BETWEEN THE AVON PARK FMT AND THE OLDSMAR FMT IS GRADATIOAL.3
FGS W-number to be assigned.

0.0	-	27.0	090UDSC	UNDIFFERENTIATED SAND AND CLAY
27.0	-	127.0	1240CAL	OCALA GROUP
127.0	-	1026.0	124AVPK	AVON PARK FM.
1026.0	-	1290.0	1240LDM	OLDSMAR LIMESTONE
0	-	1	SHELL BED; MODERATE BROWN 10% POROSITY: INTERGRANULAR; UNCONSOLIDATED SHELL PAT PUT IN BY SWFWMD	
1	-	1.3	SAND; GRAYISH BROWN 15% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; MEDIUM SPHERICITY UNCONSOLIDATED ACCESSORY MINERALS: ORGANICS-10% FOSSILS: ORGANICS	
1.3-		5	SAND; DARK YELLOWISH ORANGE TO DARK BROWN 15% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; HIGH SPHERICITY UNCONSOLIDATED	
5	-	5.7	SAND; LIGHT YELLOWISH ORANGE 15% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; MEDIUM SPHERICITY UNCONSOLIDATED ACCESSORY MINERALS: ORGANICS-01% FOSSILS: ORGANICS	
5.7-		10.4	SAND; VERY LIGHT ORANGE TO DARK YELLOWISH ORANGE 15% POROSITY: INTERGRANULAR GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; MEDIUM SPHERICITY UNCONSOLIDATED IRON STAINED LAMINAE W\ 3/4" IRON CONCRETION FOUND IN SAMPLE	
10.4-		11.2	SAND; LIGHT BROWN 03% POROSITY: INTERGRANULAR; UNCONSOLIDATED SEDIMENTARY STRUCTURES: MOTTLED ACCESSORY MINERALS: CLAY-30%	
11.2-		12.1	SAND; LIGHT BROWN TO LIGHT OLIVE GRAY 03% POROSITY: INTERGRANULAR; UNCONSOLIDATED SEDIMENTARY STRUCTURES: MOTTLED ACCESSORY MINERALS: CLAY-30%	
12.1-		14	CLAY; LIGHT GREENISH GRAY	

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02% POROSITY: INTERGRANULAR; UNCONSOLIDATED
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: QUARTZ SAND-25%, LIMESTONE-02%

- 14 - 15 CLAY; LIGHT BROWN TO LIGHT OLIVE GRAY
05% POROSITY: INTERGRANULAR; UNCONSOLIDATED
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: QUARTZ SAND-40%
- 15 - 16.7 CLAY; LIGHT BROWN TO LIGHT OLIVE GRAY
02% POROSITY: INTERGRANULAR; UNCONSOLIDATED
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: IRON STAIN-05%
- 16.7- 20.7 CLAY; YELLOWISH GRAY
02% POROSITY: INTERGRANULAR; UNCONSOLIDATED
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: LIMESTONE-05%
- 20.7- 25 CLAY; YELLOWISH GRAY
02% POROSITY: INTERGRANULAR; UNCONSOLIDATED
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: LIMESTONE-05%
ONE IN A HALF IN OF RECOVERY FOR THE 5FT CORE RUN
- 25 - 30 LIMESTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO COARSE
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-35%
OTHER FEATURES: WEATHERED
- 30 - 45 LIMESTONE; VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR, MOLDIC
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-45%, CALCARENITE-10%
OTHER FEATURES: WEATHERED
VERY WEATHERED LMST WITH UN- TO POORLY INDURATED ZONES 20% RECOVERY
- 45 - 50 GRAINSTONE; WHITE TO VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CRYSTALS
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE; POOR INDURATION
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: WEATHERED
- 50 - 55 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
18% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
SEDIMENTARY STRUCTURES: LAMINATED
OTHER FEATURES: WEATHERED
- 55 - 60 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; POOR INDURATION
- 60 - 65 GRAINSTONE; VERY LIGHT ORANGE

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17% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE
POOR INDURATION
POOR RECOVERY (0.5%)

- 65 - 70 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
OTHER FEATURES: WEATHERED
- 70 - 75 GRAINSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS, SKELETAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; POOR INDURATION
- 75 - 80 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO MEDIUM
POOR INDURATION
OTHER FEATURES: WEATHERED
- 80 - 85 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
ACCESSORY MINERALS: CLAY-01%
OTHER FEATURES: GRANULAR
- 85 - 89 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
ACCESSORY MINERALS: CLAY-01%
OTHER FEATURES: GRANULAR
- 89 - 90 PACKSTONE; WHITE TO LIGHT GRAY
03% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-10%
OTHER FEATURES: WEATHERED, GRANULAR
- 90 - 93 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; POOR INDURATION
OTHER FEATURES: GRANULAR
- 93 - 93.5 PACKSTONE; VERY LIGHT ORANGE TO WHITE
05% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-03%
OTHER FEATURES: WEATHERED, GRANULAR
- 93.5- 94.5 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR

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GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; POOR INDURATION
OTHER FEATURES: GRANULAR

- 94.5- 95 WACKESTONE; WHITE TO GRAYISH YELLOW
02% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%
OTHER FEATURES: WEATHERED
- 95 - 96 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
OTHER FEATURES: GRANULAR
- 96 - 97 WACKESTONE; WHITE
03% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO COARSE
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-15%
OTHER FEATURES: WEATHERED
- 97 - 99.6 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO FINE; POOR INDURATION
ACCESSORY MINERALS: CLAY-03%
OTHER FEATURES: GRANULAR
- 99.6- 100 PACKSTONE; VERY LIGHT ORANGE TO WHITE
05% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-10%
OTHER FEATURES: WEATHERED
- 100 - 104 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
ACCESSORY MINERALS: CLAY-03%
OTHER FEATURES: GRANULAR
- 104 - 105 PACKSTONE; VERY LIGHT ORANGE TO WHITE
05% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-05%
OTHER FEATURES: WEATHERED, GRANULAR
- 105 - 109 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION

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OTHER FEATURES: GRANULAR

- 109 - 110 PACKSTONE; WHITE
03% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%

- 110 - 110.5 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
20% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO MEDIUM
MODERATE INDURATION

- 110.5- 111.5 PACKSTONE; VERY LIGHT ORANGE TO WHITE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, CRYSTALS
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-04%
OTHER FEATURES: WEATHERED

- 111.5- 112 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-01%
OTHER FEATURES: GRANULAR, WEATHERED

- 112 - 115 WACKESTONE; VERY LIGHT ORANGE TO WHITE
03% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS, SKELETAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%
OTHER FEATURES: WEATHERED

- 115 - 116 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS, SKELETAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
OTHER FEATURES: GRANULAR

- 116 - 119 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
18% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: SKELETAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
SEDIMENTARY STRUCTURES: BEDDED
FOSSILS: OOLITES, FOSSIL FRAGMENTS, FOSSIL MOLDS

- 119 - 120 GRAINSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-07%

- 120 - 121 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
12% POROSITY: INTERGRANULAR

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GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

- 121 - 125 GRAINSTONE; VERY LIGHT ORANGE TO WHITE
03% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-02%
OTHER FEATURES: GRANULAR, WEATHERED
- 125 - 125.8 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
13% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS, SKELETAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR, WEATHERED
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 125.8- 126.2 GRAINSTONE; DARK YELLOWISH BROWN TO BROWNISH GRAY
02% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CLAY-03%
OTHER FEATURES: GRANULAR, WEATHERED
- 126.2- 127.3 GRAINSTONE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
ACCESSORY MINERALS: ORGANICS-02%
MODERATELY INDURATED HARD LIMESTONE BROWNISH GRAY COLOR
- 127.3- 128.2 GRAINSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-01%
OTHER FEATURES: GRANULAR
LIMESTONE, UNCONSOLIDATED, SILTY VERY LITTLE CLAY
- 128.2- 130.1 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
07% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
SEDIMENTARY STRUCTURES: LAMINATED, BANDED
ACCESSORY MINERALS: ORGANICS-06%, CLAY-01%
LIMESTONE, HARD, GOOD-MODERATE INDURATION, LAMINATED
ORGANICS
- 130.1- 130.5 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION

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 ACCESSORY MINERALS: ORGANICS-02%
 OTHER FEATURES: GRANULAR
 LIMESTONE, POSSIBLY POOR INDURATION, LESS ORGANICS

- 130.5- 131 CLAY; GRAYISH BROWN TO DARK YELLOWISH BROWN
 02% POROSITY: INTERGRANULAR; UNCONSOLIDATED
 CEMENT TYPE(S): CLAY MATRIX
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: ORGANICS-10%
 OTHER FEATURES: GRANULAR
 UNCONSOLIDATED CLAY, ORGANICS PRESENT, LAMINATED
 GRAINSTONE
- 131 - 135.6 GRAINSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 15% POROSITY: INTERGRANULAR, MOLDIC
 GRAIN TYPE: CRYSTALS
 GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; POOR INDURATION
 ACCESSORY MINERALS: ORGANICS-01%
 OTHER FEATURES: GRANULAR, FOSSILIFEROUS
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, OOLITES, ECHINOID
 LIMESTONE, MOLDIC, FOSSILIFEROUS, POSSIBLY HIGH
 PERMEABILITY, POOR INDURATION
- 135.6- 136.2 GRAINSTONE; GRAYISH ORANGE TO GRAYISH BROWN
 20% POROSITY: INTERGRANULAR, MOLDIC
 POSSIBLY HIGH PERMEABILITY
 GRAIN TYPE: CRYSTALS
 GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; POOR INDURATION
 SEDIMENTARY STRUCTURES: INTERBEDDED
 OTHER FEATURES: GRANULAR, FOSSILIFEROUS
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 136.2- 137.2 GRAINSTONE; GRAYISH ORANGE TO GRAYISH BROWN
 17% POROSITY: INTERGRANULAR, MOLDIC
 POSSIBLY HIGH PERMEABILITY
 GRAIN TYPE: CRYSTALS
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
 MODERATE INDURATION
 ACCESSORY MINERALS: CALCITE-01%
 OTHER FEATURES: CRYSTALLINE, FOSSILIFEROUS
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
 LIMESTONE, MOLDIC, SOME CALCITE CRYSTALS IN MOLDS
- 137.2- 140 GRAINSTONE; GRAYISH ORANGE TO LIGHT GRAY
 15% POROSITY: INTERGRANULAR, MOLDIC
 POSSIBLY HIGH PERMEABILITY
 GRAIN TYPE: CRYSTALS
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
 SEDIMENTARY STRUCTURES: BANDED
 ACCESSORY MINERALS: ORGANICS-03%
 OTHER FEATURES: GRANULAR
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
 LIMESTONE, SOME ORGANICS, LOOKS TO HAVE SOME BIOTURBATION
- 140 - 143 GRAINSTONE; GRAYISH ORANGE TO LIGHT GRAY
 15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
 GRAIN TYPE: CRYSTALS
 GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
 OTHER FEATURES: VARVED, GREASY
 LIMESTONE, POSSIBLY SOME BURROWS?
- 143 - 145 CLAY; GRAYISH BROWN TO DARK YELLOWISH BROWN
 01% POROSITY: LOW PERMEABILITY, INTERGRANULAR

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UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: GRANULAR

- 145 - 150 CLAY; GRAYISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: LOW PERMEABILITY, INTERGRANULAR
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: GRANULAR
LIMESTONE, CLAYEY, WITH HARDER CLAY PIECES, SOME
LAMINATIONS, GRAINSTONE
- 150 - 150.5 GRAINSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
07% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: SPECKLED, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 150.5- 151.8 CLAY; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: INTERGRANULAR; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, BANDED
ACCESSORY MINERALS: ORGANICS-04%
OTHER FEATURES: GRANULAR
CLAY WITH SOME LIMESTONE PIECES, SOME LAMINATIONS BANDED?
GRAINSTONE
- 151.8- 152.8 PACKSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
10% POROSITY: MOLDIC, INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: ORGANICS-05%
- 152.8- 153.5 PACKSTONE; GRAYISH BROWN TO VERY DARK RED
1M% POROSITY
GRAIN TYPE: CALCILUTITE, SKELETAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: ORGANICS-05%
- 153.5- 156.4 GRAINSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
22% POROSITY: MOLDIC, INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
- 156.4- 157.4 MUDSTONE; VERY LIGHT ORANGE TO WHITE
03% POROSITY: MOLDIC, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

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SEDIMENTARY STRUCTURES: BIOTURBATED

- 157.4- 158.2 WACKESTONE; VERY LIGHT ORANGE TO MODERATE PINK
M % POROSITY
GRAIN TYPE: CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: ORGANICS-02%
- 158.2- 160 PACKSTONE; GRAYISH BROWN TO GRAYISH RED
IL% POROSITY
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%
- 160 - 160.5 MUDSTONE; WHITE TO BLACKISH RED
IP% POROSITY: LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
- 160.5- 161.5 DOLOSTONE; GRAYISH ORANGE TO MODERATE PINK
IM% POROSITY: LOW PERMEABILITY; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%
- 161.5- 162 MUDSTONE; VERY LIGHT ORANGE TO MODERATE PINK
IP% POROSITY: LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-10%
OTHER FEATURES: DOLOMITIC
- 162 - 165 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: MOLDIC, INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: DOLOMITIC
FOSSILS: BENTHIC FORAMINIFERA, CONES, FOSSIL MOLDS
- 165 - 165.4 PACKSTONE; VERY LIGHT ORANGE TO MODERATE YELLOWISH BROWN
25% POROSITY: VUGULAR, INTERCRYSTALLINE
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CALCILUTITE, CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: CALCITE-15%
FOSSILS: BENTHIC FORAMINIFERA
POSSIBLE SMALL VOID LINED WITH CALCITE CRYSTALS
- 165.4- 166 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
15% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY

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10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-05%
OTHER FEATURES: CALCAREOUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS

- 166 - 168 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CLAY-10%
OTHER FEATURES: DOLOMITIC
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
- 168 - 168.4 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
25% POROSITY: MOLDIC, INTERCRYSTALLINE
POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-03%
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
PROBABLE ECHINOID (NEOLAGENUM DALLI?) MOLDS
- 168.4- 169.2 WACKESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
10% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE
LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: DOLOMITE-02%
OTHER FEATURES: DOLOMITIC
FOSSILS: WORM TRACES, MOLLUSKS
POSSIBLE WORM BORINGS, GASTROPODS CASTS
- 169.2- 170.2 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
20% POROSITY: MOLDIC, INTERCRYSTALLINE, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS
- 170.2- 171 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
FOSSILS: BENTHIC FORAMINIFERA
- 171 - 173 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS

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FORAMS: RARE DICTYOCONUS COOKEI

- 173 - 173.1 CLAY; WHITE TO VERY LIGHT GRAY
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-05%
OTHER FEATURES: CALCAREOUS
FOSSILS: NO FOSSILS
- 173.1- 173.2 WACKESTONE; VERY LIGHT GRAY TO MODERATE LIGHT GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED, INTERBEDDED
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA
- 173.2- 174.3 WACKESTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, CONES, ORGANICS
FORAMS: DICTYOCONUS COOKEI AND OTHERS
- 174.3- 178 MUDSTONE; VERY LIGHT ORANGE TO VERY DARK RED
11% POROSITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ORGANICS
- 178 - 179.7 WACKESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
FOSSILS: BENTHIC FORAMINIFERA, ORGANICS
- 179.7- 183 MUDSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
SEDIMENTARY STRUCTURES: BIOTURBATED, LAMINATED
ACCESSORY MINERALS: ORGANICS-15%
OTHER FEATURES: PARTINGS
FOSSILS: BENTHIC FORAMINIFERA, ORGANICS
BORINGS INFILLED WITH COARSER MATERIAL , LAMINITES COMMON
- 183 - 185 MUDSTONE; VERY LIGHT ORANGE TO MODERATE PINK
11% POROSITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: BENTHIC FORAMINIFERA, ORGANICS
- 185 - 186.5 MUDSTONE; VERY LIGHT ORANGE TO VERY DARK RED

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IP% POROSITY: LOW PERMEABILITY
 GRAIN TYPE: BIOGENIC, CALCILUTITE
 MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX
 ACCESSORY MINERALS: ORGANICS-01%
 FOSSILS: BENTHIC FORAMINIFERA, ORGANICS

186.5- 187 MUDSTONE; VERY LIGHT ORANGE TO MODERATE PINK
 IL% POROSITY
 GRAIN TYPE: BIOGENIC, CALCILUTITE
 POOR INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX
 LOW EFFECTIVE POROSITY AND PERMEABILITY

187 - 187.7 MUDSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
 02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 GRAIN TYPE: CALCILUTITE
 POOR INDURATION
 CEMENT TYPE(S): CLAY MATRIX
 SEDIMENTARY STRUCTURES: LAMINATED

187.7- 188 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN RED
 IM% POROSITY
 GRAIN TYPE: CALCILUTITE, BIOGENIC
 GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
 MODERATE INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX
 ACCESSORY MINERALS: CALCITE-01%

188 - 190 MUDSTONE; VERY LIGHT ORANGE TO GRAYISH RED
 IM% POROSITY: LOW PERMEABILITY
 GRAIN TYPE: CALCILUTITE
 POOR INDURATION
 CEMENT TYPE(S): CLAY MATRIX
 FOSSILS: MOLLUSKS, ORGANICS

190 - 193.5 PACKSTONE; YELLOWISH GRAY TO MODERATE PINK
 IL% POROSITY
 GRAIN TYPE: CALCILUTITE
 GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO MEDIUM
 POOR INDURATION
 CEMENT TYPE(S): CLAY MATRIX
 SEDIMENTARY STRUCTURES: LAMINATED
 OTHER FEATURES: MUDDY

193.5- 193.7 GRAINSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
 04% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 GRAIN TYPE: CALCILUTITE
 GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX
 ACCESSORY MINERALS: CALCITE-02%
 FOSSILS: MOLLUSKS

193.7- 195 MUDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
 04% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 GRAIN TYPE: CALCILUTITE
 POOR INDURATION
 CEMENT TYPE(S): CLAY MATRIX

195 - 195.1 GRAINSTONE; VERY LIGHT ORANGE
 12% POROSITY: INTERGRANULAR
 GRAIN TYPE: CALCILUTITE, BIOGENIC
 GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE

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MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED

- 195.1- 196.1 MUDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
04% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
FOSSILS: MOLLUSKS
- 196.1- 197.7 MUDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
- 197.7- 200 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
06% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
FOSSILS: ECHINOID, MOLLUSKS
NEOLAGANUM DALLI ECHINOIDS PRESENT
- 200 - 202 DOLOSTONE; GRAYISH ORANGE
10% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 202 - 205 MUDSTONE; VERY LIGHT ORANGE
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
- 205 - 208.4 MUDSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-15%
FOSSILS: ORGANICS
- 208.4- 209.4 GRAINSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: ORGANICS-03%
FOSSILS: MOLLUSKS
- 209.4- 210.2 WACKESTONE; VERY LIGHT ORANGE
06% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE

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GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-03%

- 210.2- 211 MUDSTONE; VERY LIGHT ORANGE
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
- 211 - 214 AS ABOVE
- 214 - 215 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
04% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
- 215 - 216.5 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
06% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
- 216.5- 218 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
13% POROSITY: MOLDIC, INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: MOLLUSKS
MOLLUSKS: GASTROPODS AND PELECYPODS
- 218 - 220 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
- 220 - 222.5 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
08% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: CROSS-BEDDED
FOSSILS: MOLLUSKS
- 222.5- 223.5 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
08% POROSITY: INTERGRANULAR, VUGULAR; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%
- 223.5- 224 GRAINSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION

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CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: CROSS-BEDDED

- 224 - 229 GRAINSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, CROSS-BEDDED
ACCESSORY MINERALS: CALCITE-10%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA
- 229 - 229.2 PACKSTONE; VERY LIGHT ORANGE TO LIGHT GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: CALCITE-10%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA
SEVERAL 0.25" THICK ZONES OF MUDSTONE LAMINATIONS IN THIS UNIT
- 229.2- 230 GRAINSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: CALCITE-05%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID
ECHINOID: NEOLAGANUM DALLI
- 230 - 230.1 MUDSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
SEDIMENTARY STRUCTURES: LAMINATED
FOSSILS: BENTHIC FORAMINIFERA
THIS UNIT PREDOMINANTLY LAMINATIONS OF MUDSTONE
- 230.1- 232 GRAINSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
12% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA
- 232 - 233.5 PACKSTONE; VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION

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CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: CROSS-BEDDED
FOSSILS: BENTHIC FORAMINIFERA

- 233.5- 234 MUDSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: ORGANICS
THIS UNIT PREDOMINANTLY A LAMINITE
- 234 - 235 GRAINSTONE; VERY LIGHT ORANGE TO LIGHT GRAY
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, CONES, ECHINOID, MOLLUSKS
FORAMS: DICTYOCONUS COOKEI
- 235 - 236 PACKSTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-08%
RETRIEVED A FEW SMALL DIAMETER PIECES OF CORE AT TOP OF RUN
& 0.4' OF GOOD CORE AT TOP. SAND ZONE BETWEEN
- 236 - 238 SAND; GRAYISH BROWN
15% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
ROUNDNESS: SUB-ROUNDED TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: LIMESTONE-05%, ORGANICS-05%, CLAY-10%
BLACK CLAY CLOBS/BALLS PRESENT LATER IN THE AIR LIFTING
PROCESS. 2" PIECE OF WOOD AND CHARCOAL FRAGMENTS ALSO
RETRIEVED
- 238 - 240 GRAINSTONE; MODERATE ORANGE PINK
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-05%
FOSSILS: BENTHIC FORAMINIFERA
- 240 - 240.5 GRAINSTONE; LIGHT OLIVE GRAY TO GRAYISH ORANGE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
DISTINCT CHANGE IN COLOR RUNNING VERTICALLY THROUGH THE
CORE - 1/2 & 1/2

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- 240.5- 242 GRAINSTONE; LIGHT OLIVE GRAY
18% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED, CROSS-BEDDED
ACCESSORY MINERALS: ORGANICS-05%
OTHER FEATURES: MUDDY
FOSSILS: ECHINOID
- 242 - 243 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED, CROSS-BEDDED
- 243 - 244 GRAINSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: ORGANICS-01%
- 244 - 244.5 GRAINSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: ECHINOID, CONES
- 244.5- 245 GRAINSTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: ECHINOID
- 245 - 245.2 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH BROWN
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: LIMESTONE-04%
VERY THIN LAYER OF DOLOMITE WITH DOLOMITIC CLAY BENEATH.
CLAY APPEARS TO CONTAIN SOME ORGANICS.
- 245.2- 250.5 PACKSTONE; YELLOWISH GRAY
07% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-05%, ORGANICS-05%
FOSSILS: CONES, ECHINOID
- 250.5- 255 GRAINSTONE; VERY LIGHT ORANGE
09% POROSITY: INTERGRANULAR

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GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: CONES

- 255 - 257.5 GRAINSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-05%
FOSSILS: CONES
ORGANICS PRESENT AT TOP OF THIS INTERVAL (255'). CONES
PRESENT
- 257.5- 258 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: CONES
- 258 - 260 GRAINSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
FOSSILS: CONES
ENCOUNTERED A SAND ZONE WITHIN THE 255'-260 RUN.
- 260 - 260 SAND; GRAYISH BROWN
15% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: LIMESTONE-01%, ORGANICS-01%
- 260 - 261 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
08% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
ORGANICS NEAR CONCENTRATED AT APPROX. 260
- 261 - 262.5 PACKSTONE; YELLOWISH GRAY TO DARK GRAYISH YELLOW
08% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: DOLOMITE-12%
OTHER FEATURES: DOLOMITIC
FOSSILS: ECHINOID
- 262.5- 263 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
08% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM

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MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

- 263 - 265 DOLOSTONE; DARK GRAYISH YELLOW TO YELLOWISH GRAY
07% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: LIMESTONE-12%
FOSSILS: ECHINOID
ENCOUNTERED SAND NEAR BOTTOM OF RUN (265')
- 265 - 265 SAND; GRAYISH BROWN TO DARK YELLOWISH BROWN
17% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; HIGH SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: ORGANICS-02%
- 265 - 267.5 DOLOSTONE; DARK GRAYISH YELLOW TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: LIMESTONE-10%
- 267.5- 270 PACKSTONE; OLIVE GRAY TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS, OOLITE
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-10%
OTHER FEATURES: DOLOMITIC
HIT FOUR "SAND"/SOFT ZONES IN THE RUN FROM 265'-270'. NO
BIT ROTATION NECESSARY IN THESE ZONES.
- 270 - 275 DOLOSTONE; LIGHT REDDISH PURPLE TO LIGHT GREENISH GRAY
POROSITY: LOW PERMEABILITY; 0-10% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CHERT-01%
POOR RECOVERY, ONLY HARD DOLOSTONE RECOVERY; REST PROBABLY
SAND; DRILLED QUICKLY
- 275 - 282 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-03%
- 282 - 285 DOLOSTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
15% POROSITY: VUGULAR, POSSIBLY HIGH PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: NODULAR, INTERBEDDED

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ACCESSORY MINERALS: CALCITE-02%
OTHER FEATURES: LOW RECRYSTALLIZATION
BRECCIATED DOLOSTONE; NODULAR WHITE GRAINSTONE LITHOCLASTS
W/ GRAY WACKESTONE INFILL. PARTIALLY FILLED VUGULAR
POROSITY SOME CALCITE FILLED VOIDS

- 285 - 290 NO SAMPLES
NO RECOVERY FROM INNER BARREL. A 2-INCH PIECE OF DOLOMITE
AND WELL ROUNDED DOLOMITE ROCKS BLOCKED THE DRILL RODS
DURING AIR LIFTING. THIS INTERVAL, OTHERWISE WAS
PREDOMINATELY SAND.
- 290 - 291 DOLOSTONE; DARK YELLOWISH BROWN TO LIGHT OLIVE GRAY
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: PYRITE-01%
- 291 - 293.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 293.5- 294.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
10% POROSITY: MOLDIC, PIN POINT VUGS, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 294.5- 295.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 295.5- 295.7 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
12% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 295.7- 300 DOLOSTONE; LIGHT OLIVE GRAY TO DARK GRAYISH YELLOW
10% POROSITY: MOLDIC, PIN POINT VUGS, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: MOLLUSKS, CONES
- 300 - 305 DOLOSTONE; GREENISH GRAY TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: ECHINOID

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- 305 - 308 DOLOSTONE; MODERATE BROWN TO MODERATE BROWN
02% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
SMALL INTERVAL OF CLAY WITH ROUNDED DOLOMITE PEBBLES
RECOVERED. POOR RECOVERY.
- 308 - 310 DOLOSTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
02% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: ECHINOID, MOLLUSKS
- 310 - 315 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: FRACTURE, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
- 315 - 320 DOLOSTONE; MODERATE GRAY TO LIGHT OLIVE GRAY
04% POROSITY: FRACTURE, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-40%
- 320 - 321 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PYRITE-03%
FOSSILS: ECHINOID
NO RECOVERY FROM THE INNER BARREL FROM 320-325. RX
RECOVERED FROM NQ RODS DURING SUBSEQUENT WORK.
- 321 - 324.5 DOLOSTONE; MODERATE GRAY TO LIGHT BROWN
IV% POROSITY: POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-45%
NO RECOVERY FROM THE INNER BARREL FROM 320-325. RX
RECOVERED FROM NQ RODS DURING SUBSEQUENT WORK.
- 324.5- 325 DOLOSTONE; LIGHT OLIVE GRAY TO OLIVE GRAY
06% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
NO RECOVERY FROM THE INNER BARREL FROM 320-325. RX
RECOVERED FROM NQ RODS DURING SUBSEQUENT WORK.

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- 325 - 325.8 DOLOSTONE; MODERATE OLIVE BROWN TO LIGHT OLIVE GRAY
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
- 325.8- 328 DOLOSTONE; LIGHT OLIVE GRAY TO DARK GREENISH GRAY
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: PYRITE-08%
- 328 - 330 DOLOSTONE; OLIVE GRAY TO LIGHT OLIVE GRAY
13% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
FOSSILS: ECHINOID
DOLO-GRAINSTONE WITH PREDOMINATELY FINE GRAINS. A 1-INCH
SOFT ZONE IS PRESENT NEAR THE BOTTOM
- 330 - 331 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
15% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PYRITE-02%
FOSSILS: MOLLUSKS
- 331 - 332 DOLOSTONE; MODERATE BLuish GRAY TO YELLOWISH GRAY
10% POROSITY: FRACTURE, INTERGRANULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED, BRECCIATED
ACCESSORY MINERALS: SILT-01%
- 332 - 334 DOLOSTONE; YELLOWISH GRAY TO LIGHT BLuish GRAY
09% POROSITY: FRACTURE, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 334 - 335.5 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PYRITE-01%
- 335.5- 336.5 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
15% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED

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SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: PYRITE-02%
FOSSILS: MOLLUSKS

- 336.5- 338 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
08% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, BIOTURBATED
- 338 - 339 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
06% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BIOTURBATED
- 339 - 340 DOLOSTONE; DARK YELLOWISH BROWN TO OLIVE GRAY
13% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: ORGANICS-01%
- 340 - 340.6 DOLOSTONE; DARK YELLOWISH BROWN
18% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: MOLLUSKS
- 340.6- 341.6 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
18% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PYRITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL MOLDS
- 341.6- 342 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
15% POROSITY: PIN POINT VUGS; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 342 - 344.6 DOLOSTONE; LIGHT OLIVE GRAY TO DARK YELLOWISH BROWN
09% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

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SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED

ACCESSORY MINERALS: ORGANICS-02%

ROCK TEXTURE CHANGES ON AN INCH BY INCH BASIS

- 344.6- 345 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
07% POROSITY: PIN POINT VUGS; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 345 - 346 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS
- 346 - 349.5 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
09% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, BIOTURBATED
ACCESSORY MINERALS: PYRITE-01%
DARK DOLOMITE CLASTS NEAR THE TOP OF INTERVAL
- 349.5- 350 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
07% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 350 - 350.8 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
07% POROSITY: INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, BIOTURBATED
- 350.8- 354 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
10% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
- 354 - 354.5 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
07% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
- 354.5- 355 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
05% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%

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- 355 - 356 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 356 - 356.5 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
- 356.5- 357 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
03% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 357 - 358 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
08% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 358 - 358.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%
- 358.8- 360.2 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
11% POROSITY: PIN POINT VUGS, MOLDIC, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: MOLLUSKS
- 360.2- 362 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN
15% POROSITY: FRACTURE, PIN POINT VUGS, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
- 362 - 362.8 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN
08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED

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ACCESSORY MINERALS: ORGANICS-03%

- 362.8- 363.3 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN
11% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
- 363.3- 363.7 DOLOSTONE; VERY LIGHT ORANGE
03% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 363.7- 365 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
09% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: MOLLUSKS
- 365 - 366 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
DOLO-GRAINSTONE 365-369.6
- 366 - 368.6 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
11% 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
SEDIMENTARY STRUCTURES: CROSS-BEDDED
- 368.6- 369.6 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
11% 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
SEDIMENTARY STRUCTURES: CROSS-BEDDED, LAMINATED
- 369.6- 370 DOLOSTONE; DARK GREENISH GRAY TO LIGHT OLIVE GRAY
03% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
- 370 - 370.1 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
09% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION

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CEMENT TYPE(S): DOLOMITE CEMENT
A FEW ROCK FRAGMENTS SIMILAR TO ZONE ABOVE 396.6. MAY HAVE
FALLEN IN AND WAS THE 1ST ROCK PICKED UP IN THE NEXT RUN.

- 370.1- 371 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 371 - 371.5 DOLOSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
- 371.5- 372.5 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
07% POROSITY: PIN POINT VUGS; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 372.5- 375 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
07% POROSITY: PIN POINT VUGS; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 375 - 380 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
09% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
- 380 - 382 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
11% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%
- 382 - 383.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
FOSSILS: MOLLUSKS
DARK GREY CLASTS OF DOLOMITE SCATTERED THROUGHOUT, MORE AND
LARGER NEAR THE BASE OF THIS INTERVAL.
- 383.5- 384 DOLOSTONE; OLIVE GRAY TO YELLOWISH GRAY

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09% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED, LAMINATED
ACCESSORY MINERALS: ORGANICS-01%

- 384 - 384.1 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
03% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
- 384.1- 385.2 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
03% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 385.2- 385.4 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
- 385.4- 387 DOLOSTONE; DARK YELLOWISH BROWN TO DARK GREENISH GRAY
06% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 387 - 390.4 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
10% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED, LAMINATED
CROSS-BEDDED
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: MOLLUSKS, FOSSIL MOLDS
BIOTURBATED NEAR TOP OF THE INTERVAL AND LAMINATED AT THE
CENTER OF THE INTERVAL.
- 390.4- 390.9 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
07% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-04%
- 390.9- 393 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
10% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, LAMINATED
GREY DOLOMITIC CLASTS PRESENT

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- 393 - 395.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: MOLLUSKS
- 395.4- 396.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
- 396.5- 400.2 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
09% POROSITY: FRACTURE, INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
- 400.2- 404.7 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
13% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 404.7- 405 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
- 405 - 405.8 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
08% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 405.8- 406.6 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
14% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 406.6- 407.5 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
06% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE

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RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE

MODERATE INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT

- 407.5- 409 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
16% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
- 409 - 410.2 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
09% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 410.2- 411.2 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
12% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
- 411.2- 411.5 DOLOSTONE; VERY LIGHT ORANGE
03% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 411.5- 412.5 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
10% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-03%
- 412.5- 416 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
13% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-03%
FOSSILS: MOLLUSKS
- 416 - 419 DOLOSTONE; YELLOWISH GRAY TO OLIVE GRAY
15% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 419 - 420 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
08% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL

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GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM

MODERATE INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT

- 420 - 420.2 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 420.2- 421.5 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 421.5- 425 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
07% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
- 425 - 430.1 DOLOSTONE; VERY LIGHT ORANGE TO DARK GREENISH GRAY
05% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: ECHINOID
- 430.1- 430.5 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
- 430.5- 431 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%
- 431 - 440 SILT-SIZE DOLOMITE; GRAYISH ORANGE TO MODERATE YELLOWISH BROW
04% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
- 440 - 445 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-03%
FOSSILS: ECHINOID
- 445 - 445.5 DOLOSTONE; VERY LIGHT ORANGE

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08% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED

- 445.5- 447 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
13% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-02%
- 447 - 447.5 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
16% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-03%
- 447.5- 449.4 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
- 449.4- 450.2 DOLOSTONE; VERY LIGHT ORANGE
03% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
SLIGHTLY BRECCIATED AT THE BASE OF THE INTERVAL
- 450.2- 450.6 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
- 450.6- 451.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 451.5- 453 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
08% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED, LAMINATED
ACCESSORY MINERALS: ORGANICS-03%
- 453 - 455 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

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SEDIMENTARY STRUCTURES: BRECCIATED, LAMINATED

- 455 - 459 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%
- 459 - 460.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% 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: CRYSTALLINE
FOSSILS: FOSSIL MOLDS
- 460.8- 462.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 462.4- 464 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
03% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%
- 464 - 465 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO PINKISH GRAY
02% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-05%
LAMINATED & SLIGHTLY BRECCIATED 0.2' PIECE OF DOLOMITE AT
END OF INTERVAL
- 465 - 470 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO PINKISH GRAY
05% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CLAY-01%
OTHER FEATURES: CHALKY, WEATHERED
0.15' PIECE OF DOLOMITE AT BEGINNING OF INTERVAL, ALSO
SMALLER PIECES OF DOLOMITE WITHIN THE INTERVAL, VERY BRITTLE
AND CRUMBLY
- 470 - 471.2 DOLOSTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
04% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
- 471.2- 472.5 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
02% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

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SEDIMENTARY STRUCTURES: INTERBEDDED

OTHER FEATURES: CHALKY, WEATHERED

- 472.5- 475 DOLOSTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
10% POROSITY: INTERGRANULAR, MOLDIC; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, INTERBEDDED
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-03%, CLAY-01%
OTHER FEATURES: WEATHERED
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 475 - 477 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
01% POROSITY: INTERGRANULAR; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CHALKY
- 477 - 482 SILT-SIZE DOLOMITE; VERY LIGHT GRAY TO LIGHT GRAY
01% POROSITY: INTERGRANULAR; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
OTHER FEATURES: CHALKY
- 482 - 485 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO PINKISH GRAY
01% POROSITY: INTERGRANULAR; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CHALKY
- 485 - 487 SILT-SIZE DOLOMITE; VERY LIGHT GRAY TO LIGHT GRAY
00% POROSITY: NOT OBSERVED; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
OTHER FEATURES: CHALKY
- 487 - 495 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
01% POROSITY: INTERGRANULAR; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CHALKY
SMALL PIECE OF DOLOMITE AT BEGINNING OF INTERVAL
- 495 - 496 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
00% POROSITY: NOT OBSERVED; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CHALKY
- 496 - 501 SILT-SIZE DOLOMITE; GRAYISH ORANGE TO MODERATE LIGHT GRAY
00% POROSITY: NOT OBSERVED; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: CHALKY
- 501 - 505 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
12% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: WEATHERED, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

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- 505 - 513 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: CRYSTALLINE, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
GYPSUM FILLED VUGS AND MOLDS
- 513 - 518 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: INTERGRANULAR, PIN POINT VUGS; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%
OTHER FEATURES: CRYSTALLINE
- 518 - 518.5 SILT-SIZE DOLOMITE; DARK YELLOWISH BROWN TO DARK YELLOWISH BR
00% POROSITY: NOT OBSERVED; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
- 518.5- 518.7 DOLOSTONE; VERY LIGHT ORANGE TO WHITE
03% POROSITY: INTERGRANULAR, FRACTURE; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-06%
OTHER FEATURES: CRYSTALLINE
- 518.7- 521 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
02% POROSITY: INTERGRANULAR; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-04%, CLAY-01%
SILT-SIZE DOLOMITE-01%
OTHER FEATURES: CRYSTALLINE
- 521 - 525 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
09% POROSITY: INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-09%, ORGANICS-09%, CLAY-01%
- 525 - 526.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-09%, CLAY-01%
- 526.5- 528.6 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO GRAYISH BROWN
06% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX

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ACCESSORY MINERALS: CLAY-03%

- 528.6- 530.1 DOLOSTONE; GRAYISH BROWN TO MODERATE RED
PI% POROSITY, 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
- 530.1- 531 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH ORANGE PINK
PI% POROSITY, 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-04%
SAMPLE IS POORLY INDURATED AND SILTY
- 531 - 533.8 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
12% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-06%
A 1.5 INCH ZONE OF PURE ORGANICS AT APPROXIMATELY 533.4 FT.
- 533.8- 534.2 DOLOSTONE; DARK YELLOWISH BROWN TO BLACK
04% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: ORGANICS-12%
- 534.2- 534.7 DOLOSTONE; VERY LIGHT ORANGE TO BLACK
06% POROSITY: PIN POINT VUGS, FRACTURE, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-09%, ORGANICS-09%, CLAY-01%
- 534.7- 535.1 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
02% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-06%, CLAY-60%
DOLOMITIC CLAY; DOLO- WACKESTONE
- 535.1- 536.6 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH ORANGE
14% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
- 536.6- 537 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL

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

- 537 - 538 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
18% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
- 538 - 541 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
10% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
GYPSUM INFILLING INCREASES WITH DEPTH IN THIS INTERVAL FROM
APPROX 40% TO NEARLY 100%
- 541 - 543.6 DOLOSTONE; MODERATE YELLOWISH BROWN TO WHITE
07% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-20%
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
CONTAINS A FEW OF INTERBEDDED ZONES OF PURE GYPSUM
APPROXIMATELY ONE TO TWO INCHES THICK.
- 543.6- 544.6 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS, MOLLUSKS
- 544.6- 545.5 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-05%
- 545.5- 547.2 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
09% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: FOSSIL MOLDS
- 547.2- 547.5 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX

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ACCESSORY MINERALS: CLAY-10%

- 547.5- 549 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
13% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: FOSSIL MOLDS, CORAL, ECHINOID, MOLLUSKS
- 549 - 551 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
04% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
- 551 - 552 DOLOSTONE; GRAYISH ORANGE TO WHITE
04% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-08%
- 552 - 556.5 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
05% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-15%
FOSSILS: FOSSIL MOLDS
CONTAINS A FEW OF INTERBEDDED ZONES OF PURE GYPSUM
APPROXIMATELY ONE TO TWO INCHES THICK.
- 556.5- 558 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
18% POROSITY: PIN POINT VUGS, MOLDIC
POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 558 - 561 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
05% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-06%
FOSSILS: FOSSIL MOLDS
- 561 - 564.7 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-01%, SILT-SIZE DOLOMITE-02%
CLAY-01%
- 564.7- 567.3 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN

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19% POROSITY: PIN POINT VUGS, MOLDIC
POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%, SILT-SIZE DOLOMITE-02%
CLAY-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
CONTAINS A FEW LENSE OF CLAYEY DOLOSILT ~1-2 IN.

- 567.3- 575 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
04% POROSITY: INTERGRANULAR, PIN POINT VUGS
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: SILT-SIZE DOLOMITE-05%, CLAY-02%
OTHER FEATURES: WEATHERED
FOSSILS: FOSSIL MOLDS
VERY BRITTLE, POORLY INDURATED DOLOMITE WITH 2-3 INCH LENSE
OF CLAYEY DOLOSILT
- 575 - 580 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
15% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-07%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 580 - 585 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
- 585 - 585.4 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS
- 585.4- 588 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: FOSSIL MOLDS
- 588 - 590 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
05% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%

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- 590 - 595 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-10%
FOSSILS: FOSSIL MOLDS
- 595 - 596 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
13% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 596 - 599.3 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
11% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-12%
- 599.3- 600 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
09% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
SILTY POORLY INDURATED SAMPLE
- 600 - 604 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-02%
- 604 - 608 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-04%
- 608 - 610 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%

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- 610 - 610.9 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ECHINOID
- 610.9- 612.1 DOLOSTONE; VERY LIGHT ORANGE TO WHITE
02% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-35%, ORGANICS-01%
- 612.1- 613.2 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
08% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-14%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
- 613.2- 614.2 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
- 614.2- 615.5 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-15%, ORGANICS-01%
A 1.3 FOOT BED OF PREDOMINATELY GYPSUM
- 615.5- 620 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
15% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-04%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
- 620 - 620.3 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED, LAMINATED
ACCESSORY MINERALS: GYPSUM-01%

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- 620.3- 621.7 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
10% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS
- 621.7- 623.4 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
07% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, BIOTURBATED
LAMINATED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
- 623.4- 625 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH ORANGE
11% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-01%
- 625 - 627.9 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-07%
GYPSUM INFILLS
- 627.9- 628.7 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-04%
- 628.7- 629 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
08% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS, ECHINOID
- 629 - 629.2 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-10%
- 629.2- 631 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL

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GRAIN SIZE: VERY FINE
 RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
 ACCESSORY MINERALS: GYPSUM-11%, ORGANICS-01%
 GYPSUM BEDS AND INFILLS

- 631 - 631.7 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
 06% POROSITY: PIN POINT VUGS, INTERGRANULAR
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-03%
- 631.7- 632.5 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
 10% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE
 RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: GYPSUM-04%
 FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
- 632.5- 633.9 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
 01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
 GOOD INDURATION
 CEMENT TYPE(S): GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: BEDDED, LAMINATED, BIOTURBATED
 ACCESSORY MINERALS: GYPSUM-09%
 OTHER FEATURES: PLATY
 FOSSILS: FOSSIL MOLDS
 BOTTOM HALF OF INTERVAL IS LAMINATED
- 633.9- 634 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO GRAYISH BROWN
 05% POROSITY: INTERGRANULAR; POOR INDURATION
 CEMENT TYPE(S): CLAY MATRIX
 ACCESSORY MINERALS: CLAY-10%
- 634 - 637.8 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
 08% POROSITY: PIN POINT VUGS, INTERGRANULAR
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
 ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
- 637.8- 640 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
 04% POROSITY: PIN POINT VUGS, INTERGRANULAR
 50-90% ALTERED; ANHEDRAL
 GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-20%, ORGANICS-01%, CLAY-01%
 COUPLE OF GYPSUM BEDS AND INFILLS
- 640 - 640.8 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
 06% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
 50-90% ALTERED; EUHEDRAL

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GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-06%
FOSSILS: FOSSIL MOLDS

- 640.8- 642 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
04% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-06%, ORGANICS-01%
OTHER FEATURES: PLATY
- 642 - 643 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
10% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS, ECHINOID, CONES, MOLLUSKS
- 643 - 643.2 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-0 %, SHELL-%
- 643.2- 645.2 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-01%
- 645.2- 646.3 DOLOSTONE; GRAYISH BROWN
05% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-06%, ORGANICS-01%
OTHER FEATURES: PLATY
GYPSUM INFILLS AND BED AT 645.4 FEET
- 646.3- 650 DOLOSTONE; VERY LIGHT ORANGE TO DARK GRAYISH RED
PM% POROSITY, 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS, ECHINOID
APPROXIMATELY 0.5 FT OF POOR SAMPLE (RUBBLED) ENDING AT
648.5 FT

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- 650 - 651.7 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
INTERGRANULAR; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%
- 651.7- 653 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-10%
OTHER FEATURES: CHALKY
- 653 - 660 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-10%
DOLOSTONE W/ GYPSUM FILLED VUGS
- 660 - 663 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
07% POROSITY: PIN POINT VUGS, FRACTURE, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-20%, ORGANICS-01%
DOLOSTONE W/ GYPSUM INFILLING AND FRACTIONS ALONG
LAMINATIONS
- 663 - 664 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
13% POROSITY: PIN POINT VUGS, INTERGRANULAR; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-05%
- 664 - 665 GYPSUM; TRANSPARENT TO WHITE
0F% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-10%
- 665 - 669 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
05% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-20%
- 669 - 670.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-04%

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- 670.5- 671.7 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: FRACTURE, INTERGRANULAR; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-08%
DOLOSTONE LAMINATED, FRACTURED ALONG LAMINATIONS
- 671.7- 672.2 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
INTERGRANULAR; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
- 672.2- 672.8 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
- 672.8- 673.6 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
18% POROSITY: PIN POINT VUGS, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
- 673.6- 675 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
ACCESSORY MINERALS: GYPSUM-10%
- 675 - 676.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: MOLDIC, PIN POINT VUGS; 10-50% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: CALCITE-10%, GYPSUM-02%
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS, CONES
ALL THE OBSERVED FOSSILS ARE MOLDS
- 676.8- 677.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
09% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CALCITE-08%, GYPSUM-08%, ORGANICS-0 %
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL MOLDS, ECHINOID, CONES

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- 677.8- 678.3 GYPSUM; TRANSPARENT TO WHITE
02% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-15%, ORGANICS-03%
- 678.3- 680.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS
LITTLE TO NO INFILLING, ONE MAJOR BED/NODULE OF GYPSUM
MIDWAY THROUGH INTERVAL.
- 680.5- 682.5 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
07% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-01%
- 682.5- 683.5 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-01%
- 683.5- 685.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
09% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ECHINOID, CONES, MOLLUSKS
- 685.5- 686 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-05%, ORGANICS-03%
- 686 - 686.7 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-04%, ORGANICS-01%
- 686.7- 689 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
14% POROSITY: INTERGRANULAR, PIN POINT VUGS

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50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, LAMINATED
ACCESSORY MINERALS: GYPSUM-08%

- 689 - 690 GYPSUM; TRANSPARENT TO WHITE
03% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-25%, ORGANICS-01%
- 690 - 691 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
11% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-06%
- 691 - 693.9 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
14% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
A 0.3 FT ZONE OF SIGNIFICANT GYPSUM NODULES/INFILLS AT THE
BASE OF THIS INTERVAL.
- 693.9- 694.1 SILT-SIZE DOLOMITE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: GYPSUM-08%, CLAY-04%
- 694.1- 695 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
14% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
- 695 - 695.2 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH RED
P % POROSITY, 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BIOTURBATED
ACCESSORY MINERALS: GYPSUM-01%
- 695.2- 697.2 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

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ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS, ECHINOID

- 697.2- 697.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
- 697.8- 699 DOLOSTONE; GRAYISH ORANGE TO LIGHT GRAYISH RED
MP% POROSITY, 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, LAMINATED
ACCESSORY MINERALS: GYPSUM-01%
- 699 - 700 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-08%
A 1.5 INCH GYPSUM BED LOCATED IN THE MIDDLE OF THIS
INTERVAL
- 700 - 700 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-08%
A 1.5 INCH GYPSUM BED LOCATED IN THE MIDDLE OF THIS
INTERVAL
- 700 - 700.7 DOLOSTONE; GRAYISH ORANGE
12% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS, CONES, ECHINOID
- 700.7- 701.5 DOLOSTONE; GRAYISH BROWN
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, LAMINATED
ACCESSORY MINERALS: GYPSUM-04%
OTHER FEATURES: PLATY
GYPSUM INFILLS
- 701.5- 703 DOLOSTONE; GRAYISH ORANGE
12% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
SUBHEDRAL

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GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS, ECHINOID

- 703 - 703.5 DOLOSTONE; GRAYISH ORANGE
10% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: CROSS-BEDDED, LAMINATED
ACCESSORY MINERALS: GYPSUM-05%
- 703.5- 705.2 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
12% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
Euhedral
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS, ECHINOID
GYPSUM INFILLS, MANY OF WHICH ARE INFILLS OF ECHINOID
MOLDS.
- 705.2- 706.2 DOLOSTONE; VERY LIGHT ORANGE
04% POROSITY: PIN POINT VUGS; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%
- 706.2- 706.6 GYPSUM; TRANSPARENT TO WHITE
03% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-05%
VERTICAL FRACTURE INFILLED WITH DOLOMITE.
- 706.6- 707.3 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
07% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-15%
- 707.3- 708.5 DOLOSTONE; VERY LIGHT ORANGE
05% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
- 708.5- 709.9 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
09% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION

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CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: GYPSUM-01%
 FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS

709.9- 714 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
 05% POROSITY: MOLDIC, PIN POINT VUGS, LOW PERMEABILITY
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-02%
 FOSSILS: FOSSIL MOLDS, ECHINOID

714 - 714.2 GYPSUM; TRANSPARENT TO WHITE
 01% POROSITY: FRACTURE, LOW PERMEABILITY
 MODERATE INDURATION
 CEMENT TYPE(S): GYPSUM CEMENT
 ACCESSORY MINERALS: DOLOMITE-01%

714.2- 715 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
 08% POROSITY: INTERGRANULAR, PIN POINT VUGS
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-03%
 OTHER FEATURES: PLATY

715 - 715.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
 14% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
 SUBHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: BIOTURBATED
 ACCESSORY MINERALS: GYPSUM-02%
 FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS

715.4- 716.9 DOLOSTONE; VERY LIGHT ORANGE
 06% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
 SUBHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
 MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-03%
 OTHER FEATURES: PLATY
 FOSSILS: FOSSIL MOLDS
 MINOR (<0.1) GYPSUM BED AT THE BASE OF THIS INTERVAL.

716.9- 717.6 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 08% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
 EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 POOR INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-01%
 OTHER FEATURES: PLATY

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- 717.6- 718.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
12% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
EUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: FOSSIL MOLDS, ECHINOID, MOLLUSKS
- 718.8- 719.3 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-04%
OTHER FEATURES: PLATY
- 719.3- 720.6 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%
- 720.6- 723.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%, CALCITE-02%
LARGE GYPSUM INFILLS, PORE INFILLS, AND BEDS.
- 723.8- 725 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-08%
FOSSILS: FOSSIL MOLDS
- 725 - 730 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL MOLDS
LAMINATED PIECE OF DOLOMITE ~0.15' AT BEGINNING OF INTERVAL
- 730 - 730.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: PIN POINT VUGS, INTERGRANULAR
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION

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CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%

- 730.5- 733 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%, SILT-SIZE DOLOMITE-01%
CLAY-01%
OTHER FEATURES: PLATY
- 733 - 734 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-12%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 734 - 735.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: PLATY
- 735.5- 736.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 736.5- 738.8 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: WEATHERED
- 738.8- 740 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 740 - 741.2 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN

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05% POROSITY: INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%

- 741.2- 741.6 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
02% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, BIOTURBATED
ACCESSORY MINERALS: GYPSUM-02%
- 741.6- 743 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
15% POROSITY: PIN POINT VUGS, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
VERY SOLID WELL INDURATED PIECE OF DOLOMITE; GYPSUM
INFILLING IN MOLDS AND VUGS
- 743 - 745 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: LOW PERMEABILITY, INTERGRANULAR
PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: ORGANICS-20%
FOSSILS: FOSSIL MOLDS
VERY DENSE SOLID PIECE OF DOLOMITE WITH A 0.5' LENSE OF
ORGANICS WITH SOME GYPSUM ON THE OUTSIDE OF IT AT
744.5'-745'
- 745 - 748.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: LOW PERMEABILITY, INTERGRANULAR
PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: GYPSUM-10%, CLAY-02%
SILT-SIZE DOLOMITE-02%, ORGANICS-01%
OTHER FEATURES: PLATY
- 748.5- 749 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
10% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-07%
- 749 - 750 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS

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- INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: MOTTLED
 ACCESSORY MINERALS: GYPSUM-12%
 VERY DENSE SOLID PIECE OF DOLOMITE WITH GYPSUM FILLED VUGS
- 750 - 751.5 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
 03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-01%
 OTHER FEATURES: PLATY
- 751.5- 752.5 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
 02% POROSITY: INTERGRANULAR, LOW PERMEABILITY, FRACTURE
 SUBHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: MOTTLED
 ACCESSORY MINERALS: SILT-SIZE DOLOMITE-02%, CLAY-02%
 SILT-SIZE DOLOMITE-01%
 DENSE DOLOMITE WITH DENSE LAMINATED, CLAYEY, DOLOSILT
 LENSE(~0.2') AT END OF INTERVAL
- 752.5- 754 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
 02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: MOTTLED
 ACCESSORY MINERALS: GYPSUM-10%
 VERY SOLID DENSE DOLOMITE WITH GYPSUM ALMOST INFILLING
 PINPOINT VUGS COMPLETELY, LOW PERMEABILITY
- 754 - 756.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 01% POROSITY: LOW PERMEABILITY, INTERGRANULAR
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: MOTTLED
 ACCESSORY MINERALS: GYPSUM-05%
 DOLOMITE VERY DENSE AND HARD POSSIBLY LOW TO IMPERMEABLE
 GYPSUM FILLED VUGS.
- 756.5- 757.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 02% POROSITY: LOW PERMEABILITY, INTERGRANULAR
 10-50% ALTERED; SUBHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: MOTTLED
 ACCESSORY MINERALS: GYPSUM-01%

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- 757.5- 760 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
02% POROSITY: LOW PERMEABILITY, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-12%, ORGANICS-02%
SILT-SIZE DOLOMITE-01%
- 760 - 762.6 DOLOSTONE; WHITE TO VERY LIGHT GRAY
00% POROSITY: NOT OBSERVED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED, LAMINATED
ACCESSORY MINERALS: ORGANICS-25%, CHERT-05%
DENSE SOLID DOLOMITE POSSIBLY IMPERMEABLE
- 762.6- 763 PEAT; BLACK
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): ORGANIC MATRIX
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: FOSSIL MOLDS
SOLID ORGANICS (PEAT) WITH A SMALL AMOUNT OF GYPSUM
- 763 - 763.4 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-04%
- 763.4- 764 PEAT; BLACK
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): ORGANIC MATRIX
FOSSILS: FOSSIL MOLDS
SOLID ORGANICS - PEAT
- 764 - 766 DOLOSTONE; LIGHT BROWNISH GRAY TO BROWNISH GRAY
01% POROSITY: LOW PERMEABILITY, INTERGRANULAR
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-10%, CHERT-02%
OTHER FEATURES: PLATY
- 766 - 768 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
INTERGRANULAR; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS

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- 768 - 770 DOLOSTONE; LIGHT BROWNISH GRAY TO BROWNISH GRAY
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%, SILT-SIZE DOLOMITE-01%
CHERT-01%
- 770 - 770.8 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: SUCROSIC
- 770.8- 771.3 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: FRACTURE, LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-01%
- 771.3- 772.6 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
04% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, CHERT-02%
- 772.6- 773.6 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: FRACTURE, LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: CHERT-04%
- 773.6- 774.4 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CHERT-06%
LAMINATIONS OCCUR AT THE BASE OF THE INTERVAL, LESS
INTURATED IN LAST 0.1', ALSO.
- 774.4- 774.7 GYPSUM; WHITE TO DARK YELLOWISH BROWN
04% POROSITY: INTERGRANULAR; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: DOLOMITE-15%, CHERT-01%
MAINLY LARGE GRAINS OF GYPSUM CEMENTED WITH A FINE GRAINED
DOLOMITE.
- 774.7- 775 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
04% POROSITY: FRACTURE, LOW PERMEABILITY; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION

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 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-01%

- 775 - 778.2 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
 02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: MASSIVE
 ACCESSORY MINERALS: GYPSUM-03%
 IRON STAINS PRESENT WITH GYPSUM
- 778.2- 780 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
 07% POROSITY: PIN POINT VUGS, FRACTURE, INTERGRANULAR
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED, INTERBEDDED
 ACCESSORY MINERALS: GYPSUM-08%, CHERT-03%, ORGANICS-02%
 OTHER FEATURES: PLATY
 DOLOMITE INTERBEDDED WITH 3-4 SMALL LENSES OF GYPSUM.
- 780 - 780.5 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
 02% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
- 780.5- 783.8 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
 07% POROSITY: MOLDIC, PIN POINT VUGS, LOW PERMEABILITY
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED, CROSS-BEDDED
 ACCESSORY MINERALS: GYPSUM-01%
 FOSSILS: FOSSIL MOLDS, ECHINOID, CONES
 ECHINOID (NEOLAGENUM DALLI?) MOLDS
- 783.8- 785.6 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
 04% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: MASSIVE
 ACCESSORY MINERALS: GYPSUM-05%
 FOSSILS: CORAL
- 785.6- 786.9 DOLOSTONE; DARK YELLOWISH BROWN
 02% POROSITY: PIN POINT VUGS, INTERGRANULAR
 LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: ORGANICS-04%, GYPSUM-01%
- 786.9- 790 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
 03% POROSITY: MOLDIC, PIN POINT VUGS, LOW PERMEABILITY

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50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED, MASSIVE
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
FOSSILS: MOLLUSKS, ECHINOID, FOSSIL MOLDS

- 790 - 791 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
07% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: MOLLUSKS, PLANT REMAINS, FOSSIL MOLDS
- 791 - 792.7 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
08% POROSITY: MOLDIC, INTERGRANULAR; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-04%
FOSSILS: MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS
FOSSIL MOLDS
- 792.7- 793.5 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
06% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%
PORE AND FRACTURE (LAMINATE) INFILLS
- 793.5- 795 DOLOSTONE; MODERATE YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-04%, ORGANICS-01%
OTHER FEATURES: PLATY
- 795 - 798.4 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-01%
- 798.4- 800 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
09% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-03%
DOLO-GRAINSTONE WITH GYPSUM INFILLS AND CEMENT
- 800 - 801.7 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN

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09% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-04%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ECHINOID
DOLO-GRAINSTONE. ECHINOID MOLDS INFILLED WITH GYPSUM

- 801.7- 802.7 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
06% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-04%
FOSSILS: FOSSIL MOLDS, ECHINOID
DOLO-GRAINSTONE. ECHINOID MOLDS INFILLED WITH GYPSUM
- 802.7- 802.9 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-04%
- 802.9- 803.2 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-10%
- 803.2- 805.2 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
- 805.2- 810 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-04%
GYPSUM INFILLS AND THREE BEDS AT 806.6, 807.6, AND 808.0 FT
BLS, EACH APPROX. 0.2 FT THICK.
- 810 - 813.5 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
INTERGRANULAR; 50-90% ALTERED; ECHINOID
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%
OTHER FEATURES: PLATY
- 813.5- 820 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE

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RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS, ECHINOID
DOLOMITE WITH SOME GYPSUM INFILLING. ECHINOID MOLDS
INFILLED WITH GYPSUM. THIS INTERVAL IS NOT PLATY, IT IS
DENSER AND BETTER INDURATED, WITH A FEW SMALL LENS

- 820 - 823.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-06%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 823.5- 827 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%, SILT-SIZE DOLOMITE-01%
FOSSILS: FOSSIL MOLDS
DOLOMITE WITH GYPSUM FILLED FRACTURE AND PIN POINT VUGS
THERE IS A DOLOSILT LENSE AT 824.5' THAT IS ~0.15' THICK
- 827 - 829 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS, INTERGRANULAR
LOW PERMEABILITY; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-04%, SILT-SIZE DOLOMITE-01%
CLAY-01%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL MOLDS
DOLOMITE SOME PLATINESS AND A 0.01' LENSE OF CLAYEY
DOLOSILT, LAMINATIONS, TIGHT
- 829 - 831 DOLOSTONE; PINKISH GRAY TO LIGHT GRAY
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS, ECHINOID
DOLOMITE VERY DENSE LOW PERMEABILITY, SOME GYPSUM FILLED
ECHINOID MOLDS
- 831 - 832.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
06% POROSITY: PIN POINT VUGS, MOLDIC, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%, CLAY-01%

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FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
DOLOMITE WITH SOME FRACTURES AND ALSO GYPSUM FILLED MOLDS
AND VUGS.

- 832.4- 833.4 DOLOSTONE; PINKISH GRAY TO LIGHT GRAY
02% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-20%, ORGANICS-01%
DOLOMITE WITH ALTERNATING 0.15' GYPSUM LENSES. SOME
LAMINAE.
- 833.4- 835.6 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
03% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: PLATY
DOLOMITE, VERY DENSE, PLATY, FRACTURES ALONG LAMINATIONS(?)
- 835.6- 837.6 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 837.6- 840 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-03%
OTHER FEATURES: PLATY
- 840 - 841.7 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
05% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-04%, ORGANICS-02%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL MOLDS
- 841.7- 842.6 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
01% POROSITY: PIN POINT VUGS, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED, BRECCIATED
ACCESSORY MINERALS: GYPSUM-02%

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- 842.6- 844.6 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
03% POROSITY: PIN POINT VUGS, FRACTURE, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-04%, CLAY-01%
SILT-SIZE DOLOMITE-01%, ORGANICS-01%
OTHER FEATURES: PLATY
- 844.6- 847.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
03% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
DENSE SOLID DOLOMITE
- 847.4- 849 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: LOW PERMEABILITY, INTERGRANULAR, FRACTURE
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-02%
LAMINATED DOLOMITE WITH 0.03' PIECE OF GYPSUM AT END OF
INTERVAL.
- 849 - 850.3 DOLOSTONE; PINKISH GRAY TO VERY LIGHT GRAY
02% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%
FOSSILS: FOSSIL MOLDS, ECHINOID
- 850.3- 852.2 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
03% POROSITY: PIN POINT VUGS, FRACTURE, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-02%
OTHER FEATURES: PLATY
- 852.2- 853.2 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-04%
FOSSILS: ECHINOID, MOLLUSKS

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- 853.2- 854.3 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-02%
FOSSILS: ECHINOID
- 854.3- 856.6 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: ECHINOID
- 856.6- 856.9 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-04%
ORGANICS PRESENT AT TOP AND BOTTOM AND INFILLING FRACTURES
IN THE GYPSUM.
- 856.9- 858.2 DOLOSTONE; MODERATE YELLOWISH BROWN
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: MOLLUSKS
- 858.2- 858.5 GYPSUM; WHITE TO TRANSPARENT
FL% POROSITY, MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-04%
ORGANICS PRESENT AT TOP AND BOTTOM AND INFILLING FRACTURES
IN THE GYPSUM.
- 858.5- 859.9 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
07% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%
GYPSUM INFILLS INCREASES WITH DEPTH WITHIN THIS INTERVAL.
- 859.9- 860.2 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-01%
- 860.2- 861 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
03% POROSITY: PIN POINT VUGS, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-01%

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VUG INFILLING WITH GYPSUM PLUS LARGE NODULES OF GYPSUM
PRESENT.

- 861 - 861.9 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
07% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-06%
- 861.9- 862.4 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
05% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-07%, ORGANICS-01%
OTHER FEATURES: PLATY
- 862.4- 862.7 DOLOSTONE; GRAYISH BROWN
03% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%
- 862.7- 863.7 DOLOSTONE; GRAYISH BROWN
07% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-04%
- 863.7- 864 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
05% POROSITY: PIN POINT VUGS, FRACTURE, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-06%, ORGANICS-03%
- 864 - 865 DOLOSTONE; GRAYISH BROWN
04% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-01%
VUGS PLUS HORIZONTAL FRACTURES INFILLED WITH GYPSUM.
- 865 - 865.9 DOLOSTONE; GRAYISH BROWN TO OLIVE GRAY
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BIOTURBATED

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ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-02%

- 865.9- 867.4 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
07% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%
FOSSILS: FOSSIL MOLDS, ECHINOID
MAJORITY OF ECHINOID MOLDS ARE INFILLED WITH GYPSUM.
- 867.4- 868.8 DOLOSTONE; VERY LIGHT ORANGE
04% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-07%
FOSSILS: FOSSIL MOLDS
HORIZONTAL FRACTURES INFILLED WITH GYPSUM NEAR THE TOP OF
THIS INTERVAL.
- 868.8- 870 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, FRACTURE, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-09%
- 870 - 870.5 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
03% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-07%, ORGANICS-01%
- 870.5- 870.6 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-06%
- 870.6- 871 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
03% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-07%, ORGANICS-01%
- 871 - 871.1 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-06%
- 871.1- 872 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
06% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL

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- GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-04%
- 872 - 872.2 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-06%
- 872.2- 873.1 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
06% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-04%
- 873.1- 873.2 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-06%, ORGANICS-01%
- 873.2- 873.7 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
- 873.7- 874 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-12%, ORGANICS-01%
- 874 - 874.8 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
09% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: FOSSIL FRAGMENTS
- 874.8- 875 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-06%
- 875 - 876.4 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-01%

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FOSSILS: MOLLUSKS

MUCH OF THE PORE SPACE IS INFILLED WITH GYPSUM.

- 876.4- 876.6 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
- 876.6- 878.7 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
07% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
- 878.7- 880.1 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%
TEXTURE CHANGES ON AN INCH BY INCH SCALE.
- 880.1- 880.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: INTERGRANULAR; ANHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
- 880.5- 881 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
11% POROSITY: INTERGRANULAR, PIN POINT VUGS; ANHEDRAL
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-01%
- 881 - 882.2 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-08%
FOSSILS: MOLLUSKS, FOSSIL MOLDS
- 882.2- 883.2 DOLOSTONE; GRAYISH BROWN
06% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-09%
- 883.2- 883.9 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: FRACTURE, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-02%

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FRACTURES INFILLED WITH ORGANICS.

- 883.9- 885 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
04% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
- 885 - 885.6 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-02%
SMALL BED OF GYPSUM NEAR THE TOP OF THE INTERVAL.
- 885.6- 888.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
03% POROSITY: MOLDIC, LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-02%
FOSSILS: ECHINOID, FOSSIL MOLDS
- 888.3- 889.7 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
03% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS
GRAINY APPEARANCE.
- 889.7- 890.2 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: PLATY
- 890.2- 890.5 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-01%
- 890.5- 891.7 DOLOSTONE; GRAYISH ORANGE
08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE

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MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%

- 891.7- 891.8 GYPSUM; WHITE TO TRANSPARENT
MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-06%
- 891.8- 892.8 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
08% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: DOLOMITE-05%
FOSSILS: ECHINOID, MOLLUSKS, FOSSIL MOLDS
FOSSIL FRAGMENTS
SIGNIFICANT BIOTURBATION AND FOSSILS. CONTACT AT BASE OF
THIS INTERVAL.
- 892.8- 895.3 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
08% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, FOSSIL MOLDS
0.25 FOOT GYPSUM LENSE IN MIDDLE OF INTERVAL.
- 895.3- 895.6 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-02%
OTHER FEATURES: PLATY
- 895.6- 896.7 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
08% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 896.7- 897.3 DOLOSTONE; GRAYISH BROWN TO GRAYISH ORANGE
09% POROSITY: PIN POINT VUGS, MOLDIC; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-01%, CLAY-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

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- 897.3- 897.5 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
12% POROSITY: PIN POINT VUGS, MOLDIC; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS
- 897.5- 898 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: PIN POINT VUGS; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-02%
- 898 - 899.2 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
15% POROSITY: PIN POINT VUGS, MOLDIC; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 899.2- 899.8 DOLOSTONE; VERY LIGHT GRAY TO LIGHT GRAY
15% POROSITY: MOLDIC, FRACTURE, PIN POINT VUGS; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 899.8- 900.5 GYPSUM; WHITE TO TRANSPARENT
00% POROSITY: NOT OBSERVED; MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
- 900.5- 902 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
08% POROSITY: PIN POINT VUGS, MOLDIC; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
ACCESSORY MINERALS: GYPSUM-08%
OTHER FEATURES: CRYSTALLINE, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
0.15 FOOT LENSE OF GYPSUM AT THE BASE OF THE INTERVAL.
- 902 - 904 DOLOSTONE; PINKISH GRAY TO VERY LIGHT GRAY
15% POROSITY: PIN POINT VUGS, MOLDIC; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
SOME GYPSUM FILLED MOLDS AND VUGS.
- 904 - 904.4 DOLOSTONE; PINKISH GRAY TO VERY LIGHT GRAY
01% POROSITY: LOW PERMEABILITY, INTERGRANULAR; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED

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ACCESSORY MINERALS: CLAY-01%

OTHER FEATURES: PLATY

- 904.4- 905.1 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
10% POROSITY: PIN POINT VUGS, MOLDIC; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
ACCESSORY MINERALS: CLAY-01%, ORGANICS-01%, GYPSUM-03%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL MOLDS
- 905.1- 906.1 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
03% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
OTHER FEATURES: SUCROSIC
- 906.1- 909 PEAT; BLACK TO DARK YELLOWISH BROWN
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): ORGANIC MATRIX
ACCESSORY MINERALS: GYPSUM-08%
FOSSILS: FOSSIL MOLDS
PEAT
- 909 - 911 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%
- 911 - 912.1 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
12% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: FOSSIL MOLDS
- 912.1- 912.6 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
06% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-02%
FOSSILS: FOSSIL MOLDS
- 912.6- 917.7 PEAT; BLACK TO DARK YELLOWISH BROWN
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): ORGANIC MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-10%
FOSSILS: FOSSIL MOLDS

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PEAT - PROMINENT FUEL OIL SMELL, SIGNIFICANT AMOUNTS OF GYPSUM THROUGHOUT THE INTERVAL

- 917.7- 918.3 PACKSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
06% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: ORGANICS-08%
- 918.3- 919.6 PACKSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
04% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-07%
- 919.6- 920 LIMESTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: INTERGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, DOLOMITE-20%
OTHER FEATURES: DOLOMITIC
APPEARS TO BE RECRYSTALIZED. DIFFICULT TO CLASSIFY
ACCORDING TO THE DUNAM SYSTEM, MAYBE PACKSTONE.
- 920 - 921.6 LIMESTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
04% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CRYSTALS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%, DOLOMITE-20%
OTHER FEATURES: DOLOMITIC, PLATY
- 921.6- 922.6 DOLOSTONE; DARK YELLOWISH BROWN
04% POROSITY: INTERCRYSTALLINE, FRACTURE; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCITE-05%, ORGANICS-07%
OTHER FEATURES: PLATY
- 922.6- 925 LIMESTONE; GRAYISH BROWN
04% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: DOLOMITE-15%, ORGANICS-04%
OTHER FEATURES: DOLOMITIC, PLATY
- 925 - 926.8 LIMESTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: CRYSTALS, BIOGENIC
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION

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CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: DOLOMITE-15%
 OTHER FEATURES: DOLOMITIC, PLATY

- 926.8- 928.3 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
 04% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: CALCITE-08%, ORGANICS-01%
- 928.3- 929.1 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
 01% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: ORGANICS-01%
- 929.1- 929.5 DOLOSTONE; GRAYISH BROWN
 02% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
 LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: CALCITE-02%, ORGANICS-01%
- 929.5- 930 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
 01% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: CALCITE-01%
- 930 - 930.1 PEAT; BLACK TO DARK BROWN
 01% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
 CEMENT TYPE(S): ORGANIC MATRIX
 SMALL BED OF ORGANICS - PEAT.
- 930.1- 930.5 DOLOSTONE; DARK YELLOWISH BROWN
 04% POROSITY: INTERCRYSTALLINE, FRACTURE; 50-90% ALTERED
 EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 OTHER FEATURES: SUCROSIC
- 930.5- 931 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
 04% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS, FRACTURE
 10-50% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: BRECCIATED, LAMINATED
 ACCESSORY MINERALS: GYPSUM-04%

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OTHER FEATURES: SUCROSIC
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS

- 931 - 931.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK BROWN
04% POROSITY: INTERCRYSTALLINE, FRACTURE; 10-50% ALTERED
Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-10%
OTHER FEATURES: SUCROSIC
- 931.3- 933.7 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
50-90% ALTERED; Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
OTHER FEATURES: SUCROSIC, PLATY
- 933.7- 934 SILT-SIZE DOLOMITE; DARK YELLOWISH BROWN TO DARK YELLOWISH BR
05% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
OTHER FEATURES: SUCROSIC
- 934 - 934.2 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
02% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
LOW PERMEABILITY; 50-90% ALTERED; Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: SUCROSIC
- 934.2- 934.6 SILT-SIZE DOLOMITE; DARK YELLOWISH BROWN TO DARK YELLOWISH BR
05% POROSITY: INTERCRYSTALLINE, INTERGRANULAR
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: SUCROSIC
- 934.6- 935 DOLOSTONE; DARK YELLOWISH BROWN
01% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: SUCROSIC
SMALL ORGANIC LAYER AT THE TOP OF THIS INTERVAL.
- 935 - 935.6 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
03% POROSITY: FRACTURE, INTERCRYSTALLINE; 50-90% ALTERED
Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-04%, CALCITE-01%
OTHER FEATURES: SUCROSIC

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- 935.6- 936.9 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: SUCROSIC
- 936.9- 937.8 DOLOSTONE; MODERATE YELLOWISH BROWN
01% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-02%
OTHER FEATURES: SUCROSIC
FOSSILS: ECHINOID, FOSSIL MOLDS
THE ECHINOID AND OTHER FOSSIL MOLDS ARE INFILLED WITH GYPSUM.
- 937.8- 940 DOLOSTONE; DARK YELLOWISH BROWN TO WHITE
01% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-20%, ORGANICS-01%
OTHER FEATURES: SUCROSIC
ABUNDANT INFILLING WITH GYPSUM - LARGE Voids, VUGS, AND FRACTURES.
- 940 - 942.7 DOLOSTONE; DARK YELLOWISH BROWN
02% POROSITY: FRACTURE, INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-07%, ORGANICS-01%
OTHER FEATURES: SUCROSIC
- 942.7- 943.7 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: INTERCRYSTALLINE, FRACTURE; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-07%, ORGANICS-02%
- 943.7- 945 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
05% POROSITY: INTERCRYSTALLINE, FRACTURE; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-05%
- 945 - 946 DOLOSTONE; LIGHT BROWNISH GRAY TO BROWNISH GRAY
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; EUHEDRAL

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GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
ACCESSORY MINERALS: GYPSUM-20%, CLAY-01%, ORGANICS-01%
OTHER FEATURES: CRYSTALLINE

- 946 - 946.8 DOLOSTONE; BROWNISH GRAY TO DARK GRAY
04% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-18%, CLAY-01%, ORGANICS-02%
OTHER FEATURES: CRYSTALLINE, PLATY
- 946.8- 948.3 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
02% POROSITY: INTERGRANULAR, PIN POINT VUGS; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-10%
FOSSILS: ECHINOID, FOSSIL MOLDS
DENSE SOLID DOLOMITE, WITH ORGANIC AND GYPSUM INFILLING.
- 948.3- 949.1 DOLOSTONE; BROWNISH GRAY TO DARK GRAY
04% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-10%
OTHER FEATURES: PLATY
DOLOMITE, PLATY, GYPSUM AND ORGANIC INFILLING POSSIBLE
LAMINATIONS.
- 949.1- 950 DOLOSTONE; BROWNISH GRAY TO DARK GRAY
03% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-05%
DOLOMITE FRACTURES INFILLED WITH GYPSUM, POSSIBLE
LAMINATIONS, ORGANICS.
- 950 - 951 DOLOSTONE; BROWNISH GRAY TO DARK GRAY
03% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-07%
FOSSILS: FOSSIL MOLDS
- 951 - 952.3 DOLOSTONE; BROWNISH GRAY TO DARK GRAY
03% POROSITY: INTERGRANULAR, FRACTURE; 10-50% ALTERED

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SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-07%
FOSSILS: FOSSIL MOLDS, ECHINOID

- 952.3- 953 DOLOSTONE; BROWNISH GRAY TO DARK GRAY
03% POROSITY: INTERGRANULAR, FRACTURE; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-05%
OTHER FEATURES: SUCROSIC
- 953 - 953.5 DOLOSTONE; BROWNISH GRAY TO DARK GRAY
05% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-03%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL MOLDS
- 953.5- 955 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
04% POROSITY: INTERGRANULAR, PIN POINT VUGS; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS
- 955 - 955.7 DOLOSTONE; BROWNISH GRAY TO DARK GRAY
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-02%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 955.7- 956 GYPSUM; WHITE TO TRANSPARENT
01% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: DOLOMITE-05%, ORGANICS-02%
- 956 - 956.8 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
05% POROSITY: INTERGRANULAR; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-03%, CLAY-01%
SILT-SIZE DOLOMITE-01%
OTHER FEATURES: SUCROSIC
- 956.8- 957.3 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
12% POROSITY: PIN POINT VUGS, MOLDIC; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE

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GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID

- 957.3- 959.8 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
02% POROSITY: PIN POINT VUGS, INTERGRANULAR; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-01%
- 959.8- 960.2 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
08% POROSITY: INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: GRANULAR
GRAINY APPEARANCE.
- 960.2- 961.2 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
18% POROSITY: FRACTURE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
DOLOMITE, FOSSILIFEROUS, SOME GYPSUM AND ORGANIC INFILLING.
- 961.2- 962 DOLOSTONE; MODERATE LIGHT GRAY TO MODERATE GRAY
10% POROSITY: MOLDIC, FRACTURE, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-03%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
ORGANIC INFILLING IN SOME MOLDS, ALSO SOME FRACTURES
INFILLED WITH GYPSUM.
- 962 - 962.6 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-02%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 962.6- 963 DOLOSTONE; LIGHT GRAY TO LIGHT BROWNISH GRAY
04% POROSITY: PIN POINT VUGS, FRACTURE; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-03%

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FOSSILS: FOSSIL MOLDS

- 963 - 965.8 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
06% POROSITY: PIN POINT VUGS, MOLDIC, FRACTURE
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-10%, ORGANICS-04%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
DOLOMITE, PLATY, SOME LAMINATIONS, GYPSUM LENSE APPROX. 0.2
FT THICK. ORGANIC LENSE APPROX. 0.1 FT THICK. LOTS OF
FOSSIL MOLDS & FRAGMENTS.
- 965.8- 966.2 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
02% POROSITY: FRACTURE, INTERGRANULAR; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-04%
OTHER FEATURES: PLATY
- 966.2- 967.3 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: LOW PERMEABILITY, INTERGRANULAR, FRACTURE
GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT
ACCESSORY MINERALS: ORGANICS-05%
- 967.3- 970 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: LOW PERMEABILITY, FRACTURE, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED, MOTTLED
ACCESSORY MINERALS: GYPSUM-20%
TIGHT, DENSE DOLOMITE WITH POSSIBLE BIOTURBATION, SOME
FRACTURES, WORM BORINGS INFILLED WITH GYPSUM.
- 970 - 972 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: PIN POINT VUGS; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS
DENSE, SOLID DOLOMITE, SOME PLATINESS AT TOP OF INTERVAL
APPROX. 0.15 FT THICK.
- 972 - 972.6 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
05% POROSITY: FRACTURE, INTERGRANULAR, PIN POINT VUGS
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-03%

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OTHER FEATURES: PLATY
BRITTLE, PLATTY DOLOMITE, SOME ORGANICS, LITTLE GYPSUM. 0.1
FT PIECE OF DOLOMITE AT BOTTOM OF INTERVAL WITH INFILLING
OF A LIGHT TAN DOLOMITE.

- 972.6- 974.2 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
07% POROSITY: PIN POINT VUGS; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS
- 974.2- 975 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
09% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%, CALCITE-01%
OTHER FEATURES: PLATY
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 975 - 976 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
09% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-01%, CALCITE-01%
FOSSILS: FOSSIL MOLDS
POSSIBLY SOME CALCITE CRYSTALS IN VUGS.
- 976 - 977 DOLOSTONE; LIGHT GRAY TO LIGHT BROWNISH GRAY
15% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%, CALCITE-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 977 - 977.6 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
20% POROSITY: PIN POINT VUGS; ANHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL MOLDS
- 977.6- 978.5 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
05% POROSITY: PIN POINT VUGS, FRACTURE; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: PLATY
- 978.5- 980 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
03% POROSITY: INTERGRANULAR, FRACTURE; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

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 SEDIMENTARY STRUCTURES: MOTTLED
 ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
 FRACTURES ARE INFILLED WITH GYPSUM.

- 980 - 981 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
 08% POROSITY: PIN POINT VUGS, INTERGRANULAR
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 POOR INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: ORGANICS-03%, SILT-SIZE DOLOMITE-03%
 CLAY-01%
 OTHER FEATURES: GRANULAR
- 981 - 983.7 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
 17% POROSITY: PIN POINT VUGS, MOLDIC
 POSSIBLY HIGH PERMEABILITY; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: CLAY-01%, ORGANICS-02%, GYPSUM-01%
 OTHER FEATURES: PLATY, GRANULAR
 FOSSILS: FOSSIL MOLDS
 DOLOMITE, PLATY, LOTS OF PIN POINT VUGS. POORLY INDURATED
 0.2 FT INTERVAL AT BASE, CHALKY GYPSUM IN VUGS.
- 983.7- 984.5 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
 04% POROSITY: PIN POINT VUGS, FRACTURE; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-04%
 CHALKY GYPSUM IN VUGS, ORGANICS IN FRACTURES.
- 984.5- 986 DOLOSTONE; LIGHT GRAY TO GRAYISH BROWN
 03% POROSITY: FRACTURE, PIN POINT VUGS; SUBHEDRAL
 GRAIN SIZE: MICROCRYSTALLINE
 RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-01%
- 986 - 986.5 GYPSUM; TRANSPARENT TO WHITE
 01% POROSITY: LOW PERMEABILITY; GOOD INDURATION
 CEMENT TYPE(S): GYPSUM CEMENT
 ACCESSORY MINERALS: DOLOMITE-04%
- 986.5- 987.4 DOLOSTONE; MODERATE YELLOWISH BROWN
 06% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-01%
- 987.4- 988 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
 08% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: GYPSUM-01%, ORGANICS-01%, CALCITE-01%
- 988 - 988.9 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
 07% POROSITY: INTERCRYSTALLINE; 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION

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 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: ORGANICS-01%
 OTHER FEATURES: PLATY, SUCROSIC

- 988.9- 991 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
 15% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-02%
- 991 - 991.8 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH ORANGE
 12% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: ORGANICS-02%
 OTHER FEATURES: SUCROSIC
- 991.8- 992.2 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
 06% POROSITY: PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 ACCESSORY MINERALS: GYPSUM-05%, ORGANICS-02%
- 992.2- 992.9 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
 06% POROSITY: INTERCRYSTALLINE; 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: ORGANICS-01%
 OTHER FEATURES: GRANULAR
- 992.9- 993.5 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
 06% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 MODERATE INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-03%, ORGANICS-02%
 OTHER FEATURES: SUCROSIC
- 993.5- 995.1 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
 05% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-01%
 OTHER FEATURES: SUCROSIC
 FRACTURE AND VUG INFILLING WITH GYPSUM. APPEARS TO BE A FEW
 MOLLUSK MOLDS INFILLED WITH GYPSUM NEAR THE BASE OF THIS
 INTERVAL.
- 995.1- 996.3 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
 05% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION

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CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-08%, ORGANICS-02%
 OTHER FEATURES: PLATY
 MAY BE MILDLY SUCROSIC.

- 996.3- 997.2 GYPSUM; WHITE TO TRANSPARENT
 01% POROSITY: FRACTURE, LOW PERMEABILITY
 MODERATE INDURATION
 CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
 ACCESSORY MINERALS: DOLOMITE-08%
- 997.2- 998.4 DOLOSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
 03% POROSITY: INTERCRYSTALLINE, FRACTURE; 10-50% ALTERED
 SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-02%
- 998.4- 999.3 DOLOSTONE; MODERATE YELLOWISH BROWN
 01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
 50-90% ALTERED; EUHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: ORGANICS-04%, GYPSUM-01%
- 999.3- 1000 PEAT; DARK BROWN TO GRAYISH BROWN
 01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 POOR INDURATION
 CEMENT TYPE(S): ORGANIC MATRIX, GYPSUM CEMENT
 ACCESSORY MINERALS: GYPSUM-12%
 PEAT WITH SIGNIFICANT AMOUNTS OF GYPSUM.
- 1000 - 1000.6 GYPSUM; WHITE TO DARK BROWN
 01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 MODERATE INDURATION
 CEMENT TYPE(S): GYPSUM CEMENT, ORGANIC MATRIX
 ACCESSORY MINERALS: ORGANICS-12%
 GYPSUM WITH SIGNIFICANT AMOUNTS OF ORGANICS.
- 1000.6- 1001.2 PEAT; DARK BROWN TO GRAYISH BROWN
 01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 POOR INDURATION
 CEMENT TYPE(S): ORGANIC MATRIX
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-02%
 PEAT WITH MINOR AMOUNTS OF GYPSUM.
- 1001.2- 1002.4 DOLOSTONE; OLIVE GRAY TO LIGHT OLIVE GRAY
 04% POROSITY: INTERGRANULAR; 0-10% ALTERED; ANHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 POOR INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
 ORGANIC MATRIX
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: DOLOMITE-10%, ORGANICS-06%
 OTHER FEATURES: DOLOMITIC
 SAMPLE CONTAINS A SMALL LENSE OF BIOGENIC MATERIAL.
 CONTAINS SIGNIFICANT AMOUNTS OF BIOGENIC MATERIAL AND

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ORGANICS.

- 1002.4- 1002.5 PEAT; DARK BROWN TO GRAYISH BROWN
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): ORGANIC MATRIX
- 1002.5- 1003.4 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CHERT-04%, DOLOMITE-03%, ORGANICS-02%
FEW PIECES OF Rx @ THE TOP OF THIS INTERVAL MAY NOT BE
REPRESENTATIVE OF THIS INTERVAL. RODS WERE REMOVED AND THESE
Rx MAY HAVE FALLEN FROM UP HOLE. POOR RECOVERY FROM 1,002.5
TO 1010 FEET BLS.
- 1003.4- 1004.6 DOLOSTONE; DARK YELLOWISH BROWN TO VERY LIGHT ORANGE
03% POROSITY: INTERCRYSTALLINE; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BIOTURBATED
ACCESSORY MINERALS: CHERT-03%, PYRITE-01%
POOR RECOVERY FROM 1,002.5 TO 1010 FEET BLS.
- 1004.6- 1010 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
02% POROSITY: INTERCRYSTALLINE, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CHERT-04%, ORGANICS-01%
LAMINATIONS THAT LOOK LIKE ORGANICS ARE CHERT. POOR
RECOVERY FROM 1,002.5 TO 1010 FEET BLS.
- 1010 - 1015 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
03% POROSITY: INTERCRYSTALLINE, INTERGRANULAR, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CHERT-10%, ORGANICS-05%
ENTIRE INTERVAL IS LAMINATED, ORGANICS AND CHERT PRESENT.
- 1015 - 1017 DOLOSTONE; VERY LIGHT GRAY TO PINKISH GRAY
05% POROSITY: PIN POINT VUGS; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CHERT-08%
- 1017 - 1018 DOLOSTONE; VERY LIGHT GRAY TO GRAYISH BROWN
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION

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CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: CHERT-08%, GYPSUM-02%
 LAMINATIONS ARE MORE PREVELANT HERE THAN IN PREVIOUS
 INTERVAL

- 1018 - 1018.8 DOLOSTONE; VERY LIGHT GRAY TO GRAYISH BROWN
 05% POROSITY: PIN POINT VUGS, INTERGRANULAR
 10-50% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: CHERT-05%
- 1018.8- 1021 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 06% POROSITY: INTERGRANULAR, PIN POINT VUGS, FRACTURE
 10-50% ALTERED; SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: CHERT-10%, GYPSUM-03%
- 1021 - 1021.5 DOLOSTONE; VERY LIGHT GRAY TO PINKISH GRAY
 10% POROSITY: PIN POINT VUGS, INTERGRANULAR; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: GYPSUM-01%
- 1021.5- 1021.8 DOLOSTONE; VERY LIGHT GRAY TO PINKISH GRAY
 03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
- 1021.8- 1022.4 DOLOSTONE; VERY LIGHT GRAY TO GRAYISH BROWN
 10% POROSITY: PIN POINT VUGS, INTERGRANULAR; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: GYPSUM-01%, CHERT-03%
- 1022.4- 1022.8 DOLOSTONE; VERY LIGHT GRAY TO GRAYISH BROWN
 03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
 10-50% ALTERED; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: ORGANICS-01%, GYPSUM-02%
- 1022.8- 1024 DOLOSTONE; PINKISH GRAY TO VERY LIGHT GRAY
 06% POROSITY: PIN POINT VUGS, INTERGRANULAR; SUBHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
- 1024 - 1024.5 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 08% POROSITY: PIN POINT VUGS, INTERGRANULAR; SUBHEDRAL

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GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: FOSSIL MOLDS

- 1024.5- 1025 DOLOSTONE; PINKISH GRAY TO VERY LIGHT GRAY
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: LIMESTONE-04%, GYPSUM-10%
SILT-SIZE DOLOMITE-02%
DOLOMITE WITH INFILLING OF GYPSUM AND LIMESTONE
- 1025 - 1025.9 DOLOSTONE; LIGHT GRAY TO VERY LIGHT GRAY
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
INTERGRANULAR; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-03%, GYPSUM-01%
DOLOMITE, DENSE, SOLID, WITH SOME BUGS AND MOLDS INFILLED
WITH LIMESTONE
- 1025.9- 1026.2 DOLOSTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
03% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
INTERGRANULAR; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-07%
LIMESTONE-01%
OTHER FEATURES: SPECKLED
DOLOMITE WITH LITTLE LIMESTONE AND GYPSUM, "SPECKLED"
APPEARANCE
- 1026.2- 1028.3 DOLOSTONE; LIGHT GRAY TO MODERATE LIGHT GRAY
03% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-12%, GYPSUM-04%
OTHER FEATURES: CRYSTALLINE
DOLOMITE WITH LITTLE LIMESTONE INFILLING, 0.3'
LENSE/INFILLING OF LIMESTONE @ END OF RUN
- 1028.3- 1030 DOLOSTONE; MODERATE LIGHT GRAY TO MODERATE GRAY
03% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%, LIMESTONE-01%
DOLOMITE WITH LESS LIMESTONE INFILLING
- 1030 - 1030.4 DOLOSTONE; MODERATE LIGHT GRAY TO MODERATE GRAY
10% POROSITY: PIN POINT VUGS; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

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ACCESSORY MINERALS: GYPSUM-03%
DOLOMITE, PINPOINT VUGS, SOME GYPSUM

- 1030.4- 1030.6 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
08% POROSITY: FRACTURE, INTERGRANULAR; 50-90% ALTERED
Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-12%, ORGANICS-04%
TAL FRACTURES, SOME ORGANICS
- 1030.6- 1032 DOLOSTONE; VERY LIGHT GRAY TO YELLOWISH GRAY
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-03%, LIMESTONE-01%
DOLOMITE, POSSIBLY SOME BIOTURATION, SOME LIMESTONE
INFILLING
- 1032 - 1032.8 DOLOSTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-15%, GYPSUM-10%
FOSSILS: FOSSIL MOLDS, ECHINOID
DOLOMITE WITH GENEROUS INFILLING OF LIMESTONE AND GYPSUM
- 1032.8- 1033.8 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
04% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-12%, GYPSUM-10%
FOSSILS: FOSSIL MOLDS
- 1033.8- 1035 DOLOSTONE; VERY LIGHT ORANGE TO VERY LIGHT GRAY
03% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
50-90% ALTERED; Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: LIMESTONE-03%, GYPSUM-15%
FOSSILS: FOSSIL MOLDS
- 1035 - 1035.3 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: LIMESTONE-10%, GYPSUM-15%
DOLOMITE WITH GENEROUS INFILLING OF LIMESTONE AND GYPSUM
- 1035.3- 1037 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: FRACTURE, INTERGRANULAR, LOW PERMEABILITY
50-90% ALTERED; Euhedral
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE

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GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-17%, LIMESTONE-01%
DOLOMITE, LOTS OF GYPSUM INFILLING AND LENSES

- 1037 - 1038 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-04%
- 1038 - 1042.4 DOLOSTONE; PINKISH GRAY TO YELLOWISH GRAY
06% POROSITY: PIN POINT VUGS, INTERGRANULAR
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-10%
FOSSILS: FOSSIL MOLDS
- 1042.4- 1044.4 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
04% POROSITY: PIN POINT VUGS, INTERGRANULAR, FRACTURE
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-20%, LIMESTONE-02%
ORGANICS-01%
- 1044.4- 1045 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
06% POROSITY: INTERGRANULAR, FRACTURE; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-18%, ORGANICS-03%, CLAY-01%
- 1045 - 1046 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
07% POROSITY: PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS
- 1046 - 1046.8 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
06% POROSITY: FRACTURE, INTERGRANULAR, PIN POINT VUGS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CHERT-05%
- 1046.8- 1049.5 DOLOSTONE; VERY LIGHT GRAY TO YELLOWISH GRAY
12% POROSITY: PIN POINT VUGS, INTERGRANULAR; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS
- 1049.5- 1050 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
06% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL

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GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-05%
DOLOMITE WITH LOTS OF PINPOINT VUGS INFILLED WITH GYPSUM

- 1050 - 1051 GYPSUM; TRANSPARENT TO WHITE
01% POROSITY: LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-07%
- 1051 - 1052.5 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
04% POROSITY: PIN POINT VUGS, FRACTURE; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ECHINOID
- 1052.5- 1053.5 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
12% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-10%
FOSSILS: FOSSIL MOLDS
DOLOMITE WITH HORIZONTAL FRACTURES INFILLED WITH GYPSUM
- 1053.5- 1054 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY, FRACTURE
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-10%, SILT-SIZE DOLOMITE-10%
SOME HORIZONTAL FRACTURES INFILLED WITH GYPSUM
- 1054 - 1056.5 DOLOSTONE; YELLOWISH GRAY TO LIGHT GRAY
12% POROSITY: PIN POINT VUGS, MOLDIC; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-08%, GYPSUM-04%, CHERT-02%
LIMESTONE-02%
FOSSILS: FOSSIL MOLDS, ECHINOID
- 1056.5- 1057 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
15% POROSITY: PIN POINT VUGS, MOLDIC; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
- 1057 - 1058.3 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
10% POROSITY: MOLDIC, PIN POINT VUGS; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

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ACCESSORY MINERALS: LIMESTONE-12%, GYPSUM-01%
 OTHER FEATURES: FOSSILIFEROUS
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
 DOLOMITE WITH LOTS OF FOSSIL MOLDS INFILLED WITH LIMESTONE
 POSSIBLY ECHINOIDS AND FORAMINIFERA MOLDS 0.1' THICK LENSE
 OF ORGANICS @ END OF INTERVAL

- 1058.3- 1059.3 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 10% POROSITY: MOLDIC, VUGULAR; EUHEDRAL
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: GYPSUM-02%, ORGANICS-02%
 LIMESTONE-10%
 OTHER FEATURES: FOSSILIFEROUS
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID, CORAL
- 1059.3- 1060 DOLOSTONE; LIGHT GRAY TO MODERATE DARK GRAY
 10% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
 SUBHEDRAL
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: LIMESTONE-10%, ORGANICS-01%
 OTHER FEATURES: FOSSILIFEROUS
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 1060 - 1060.7 DOLOSTONE; LIGHT BROWNISH GRAY TO BROWNISH GRAY
 11% POROSITY: MOLDIC, PIN POINT VUGS, INTERGRANULAR
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT
 ACCESSORY MINERALS: LIMESTONE-20%, ORGANICS-01%
 OTHER FEATURES: FOSSILIFEROUS
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 1060.7- 1064.6 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 08% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
 GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
 GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
 ACCESSORY MINERALS: LIMESTONE-25%, ORGANICS-05%
 OTHER FEATURES: FOSSILIFEROUS
 FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
 DOLOSTONE WITH GENEROUS INFILLING OF LIMESTONE, MATRIX IS
 DOLOMITE BUT HAS A HIGH CONTENT OF LIMESTONE, POSSIBLE
 CALCILUTITE MATRIX?
- 1064.6- 1065.6 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
 10% POROSITY: INTERGRANULAR, PIN POINT VUGS
 GRAIN SIZE: FINE; RANGE: MEDIUM TO FINE; GOOD INDURATION
 CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
 SEDIMENTARY STRUCTURES: LAMINATED
 ACCESSORY MINERALS: ORGANICS-07%
 DOLOSTONE WITH GENEROUS INFILLING OF LIMESTONE, MATRIX IS
 DOLOMITE BUT HAS A HIGH CONTENT OF LIMESTONE, POSSIBLE
 CALCILUTITE MATRIX?
- 1065.6- 1066.6 DOLOSTONE; DARK BROWN TO DARK YELLOWISH BROWN
 05% POROSITY: INTERGRANULAR, PIN POINT VUGS
 GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
 CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
 ORGANIC MATRIX

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SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: LIMESTONE-18%, ORGANICS-18%
DOLOSTONE WITH GENEROUS INFILLING OF LIMESTONE, MATRIX IS
DOLOMITE BUT HAS A HIGH CONTENT OF LIMESTONE, POSSIBLE
CALCILUTITE MATRIX, & ORGANIC MATRIX?

- 1066.6- 1067 PEAT; DARK BROWN TO GRAYISH BROWN
01% POROSITY: INTERGRANULAR, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): ORGANIC MATRIX
PEAT
- 1067 - 1068.5 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
12% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-20%, ORGANICS-08%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
DOLOSTONE WITH GENEROUS INFILLING OF LIMESTONE, MATRIX IS
DOLOMITE BUT HAS A HIGH CONTENT OF LIMESTONE, CALCILUTITE
MATRIX?, FOSSILIFEROUS
- 1068.5- 1070.5 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
03% POROSITY: LOW PERMEABILITY, INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS, CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: DOLOMITE-05%, CALCITE-02%
ORGANICS-01%
OTHER FEATURES: FOSSILIFEROUS
LIMESTONE WITH CALCITE CRYSTAL INSIDE MOLDS, SOME DOLOMITE
PRESENT
- 1070.5- 1071.6 LIMESTONE; GRAYISH ORANGE TO GRAYISH BROWN
07% POROSITY: PIN POINT VUGS, INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-02%, ORGANICS-05%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 1071.6- 1073.3 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-01%, ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 1073.3- 1076 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
03% POROSITY: INTERGRANULAR, PIN POINT VUGS
LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED

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FOSSILS: FOSSIL MOLDS

- 1076 - 1079 DOLOSTONE; VERY LIGHT ORANGE TO PINKISH GRAY
02% POROSITY: LOW PERMEABILITY, INTERGRANULAR
PIN POINT VUGS; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-03%
- 1079 - 1080.5 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
05% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: GYPSUM-02%, CALCITE-02%
FOSSILS: FOSSIL MOLDS
LIMESTONE WITH CALCITE CRYSTAL INSIDE MOLDS
- 1080.5- 1083 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 1083 - 1084 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
05% POROSITY: LOW PERMEABILITY, INTERGRANULAR
PIN POINT VUGS; ANHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-18%, ORGANICS-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 1084 - 1085 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
03% POROSITY: LOW PERMEABILITY, INTERGRANULAR
PIN POINT VUGS
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL MOLDS
- 1085 - 1086.6 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
03% POROSITY: LOW PERMEABILITY, INTERGRANULAR
PIN POINT VUGS
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: FOSSIL MOLDS
- 1086.6- 1087 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: INTERGRANULAR, LOW PERMEABILITY

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GRAIN TYPE: CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

- 1087 - 1089 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
15% POROSITY: POSSIBLY HIGH PERMEABILITY, INTERGRANULAR
PIN POINT VUGS
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-03%
OTHER FEATURES: FOSSILIFEROUS, GRANULAR
- 1089 - 1089.5 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
- 1089.5- 1090 LIMESTONE; VERY LIGHT ORANGE TO PINKISH GRAY
08% POROSITY: INTERGRANULAR, PIN POINT VUGS, MOLDIC
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-01%, DOLOMITE-01%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
- 1090 - 1091.5 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH YELLOW
07% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL, BIOGENIC
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-04%, GYPSUM-02%, CALCITE-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
CALCITE CRYSTALS IN SOME VUGS/MOLDS
- 1091.5- 1093.5 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
03% POROSITY: INTERGRANULAR, LOW PERMEABILITY
PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, CRYSTALS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%, CALCITE-02%
DOLOMITE-04%, GYPSUM-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
SOME CALCITE CRYSTALS PRESENT IN VUGS, ALSO SOME MOLDS ARE
INFILLED WITH GYPSUM AND ORGANICS, POSSIBLY SOME
BIOTURBATION?
- 1093.5- 1095.2 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
04% POROSITY: INTERGRANULAR, LOW PERMEABILITY

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PIN POINT VUGS

GRAIN TYPE: CALCILUTITE, CRYSTALS, SKELETAL

GRAIN SIZE: VERY FINE; RANGE: FINE TO VERY FINE

GOOD INDURATION

CEMENT TYPE(S): CALCILUTITE MATRIX

SEDIMENTARY STRUCTURES: BANDED

ACCESSORY MINERALS: ORGANICS-02%, CALCITE-03%, GYPSUM-02%

DOLOMITE-02%

OTHER FEATURES: FOSSILIFEROUS

FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID

ECHINOID MOLDS INFILLED W/ A LIGHTER CREAM COLORED

LMST/CALCILUTITE? SOME MOLDS ARE INFILLED W/ GYPSUM OTHERS
ARE INFILLED W/ CALCITE CRYSTALS

- 1095.2- 1096 DOLOSTONE; LIGHT BROWNISH GRAY TO BROWNISH GRAY
02% POROSITY: LOW PERMEABILITY, INTERGRANULAR
PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-06%
LIMESTONE-01%
OTHER FEATURES: CRYSTALLINE
- 1096 - 1098.1 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
07% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-15%, ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ECHINOID
MANY OF THE FOSSILE MOLDS, MAINLY ECHINOIDS, ARE INFILLED
WITH GYPSUM.
- 1098.1- 1098.7 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
07% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-05%
FOSSILS: FOSSIL MOLDS, ECHINOID
- 1098.7- 1103.5 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
04% POROSITY: MOLDIC, PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-08%
FOSSILS: FOSSIL MOLDS, ECHINOID
MUCH OF THE GYPSUM EXISTS AS FRACTURE AND LARGE VUG
INFILLING.
- 1103.5- 1106.8 GYPSUM; TRANSPARENT TO WHITE
03% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: DOLOMITE-25%, LIMESTONE-07%
ORGANICS-01%
FOSSILS: FOSSIL MOLDS, ECHINOID

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THE DOLOMITE IS A PALE YELLOWISH BROWN, CRYSTALLINE, FINE GRAINED ROCK WITH ECHINOID MOLDS AND LAMINATIONS. NEARLY ALL THE POROSITY ABOVE OCCURS IN THE DOLOMITE PORTION. LIMESTONE OCCURS WITH AND IN PLACE OF DOLOMITE WITHIN THE LAST 1.5' OF THIS INTERVAL.

- 1106.8- 1109.4 LIMESTONE; DARK YELLOWISH BROWN TO OLIVE GRAY
03% POROSITY: INTERCRYSTALLINE, PIN POINT VUGS
LOW PERMEABILITY
GRAIN TYPE: CRYSTALS, BIOGENIC
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BIOTURBATED
ACCESSORY MINERALS: DOLOMITE-10%, ORGANICS-01%
- 1109.4- 1110.1 LIMESTONE; OLIVE GRAY TO DARK BROWN
05% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
GRAIN TYPE: CRYSTALS, BIOGENIC
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: DOLOMITE-20%, ORGANICS-02%
FOSSILS: ECHINOID
- 1110.1- 1113.5 LIMESTONE; MODERATE YELLOWISH BROWN TO OLIVE GRAY
03% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
GRAIN TYPE: CRYSTALS, BIOGENIC
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: DOLOMITE-20%, ORGANICS-01%
FOSSILS: ECHINOID, FOSSIL MOLDS, MOLLUSKS
ABUNDANT FOSSILS, MAINLY ECHINOIDS, BETWEEN 1112' AND 1112.5'. THIS FOSSILIFEROUS ZONE ALSO HAS REMANTS OF LAMINATIONS.
- 1113.5- 1115.3 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
03% POROSITY: PIN POINT VUGS, INTERCRYSTALLINE
LOW PERMEABILITY
GRAIN TYPE: CRYSTALS, BIOGENIC
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: DOLOMITE-10%, GYPSUM-02%
- 1115.3- 1116.5 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
06% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: ECHINOID, FOSSIL MOLDS
- 1116.5- 1117.1 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
02% POROSITY: PIN POINT VUGS; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-02%, GYPSUM-04%

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- 1117.1- 1120 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: ECHINOID, MOLLUSKS, FOSSIL MOLDS
- 1120 - 1122.2 DOLOSTONE; LIGHT OLIVE GRAY TO MODERATE YELLOWISH BROWN
07% POROSITY: MOLDIC, PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: CORAL, ECHINOID
- 1122.2- 1124 LIMESTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
08% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, BIOGENIC, PELLET
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: LOW RECRYSTALLIZATION, GRANULAR
FOSSILS: CONES, CORAL, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
APPEARS TO CONTAIN REMAINS OF DICTYOCONUS (COOKEI??).
- 1124 - 1125.5 LIMESTONE; VERY LIGHT ORANGE TO MODERATE RED
IX% POROSITY: POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, BIOGENIC, PELLET
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-03%
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, CONES
- 1125.5- 1126 GRAINSTONE; LIGHT OLIVE GRAY TO MODERATE PINK
IA% POROSITY: POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, BIOGENIC, PELLET
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-10%
OTHER FEATURES: GRANULAR
FOSSILS: CORAL, BENTHIC FORAMINIFERA, CONES
- 1126 - 1127.2 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
IY% POROSITY
GRAIN TYPE: BIOGENIC, CRYSTALS, PELLET
GRAIN SIZE: FINE; RANGE: FINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS
- 1127.2- 1130.5 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CRYSTALS, PELLET
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION

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CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT

OTHER FEATURES: GRANULAR

FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES

- 1130.5- 1131.4 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
14% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CRYSTALS, PELLET
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, MOLLUSKS
CONES
- 1131.4- 1136.8 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
13% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS
- 1136.8- 1137.8 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, CONES, MOLLUSKS
FOSSIL FRAGMENTS
MAY CONTAIN MINOR AMOUNTS OF MUD.
- 1137.8- 1140.3 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
17% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, CONES
FOSSIL FRAGMENTS
- 1140.3- 1141.2 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, CRYSTALS, BIOGENIC
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA
ONLY ABUNDANT FOSSIL IS THE OOLITIC LOOKING FOSSIL (FORAM?)
- 1141.2- 1142 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CRYSTALS, PELLET

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GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

- 1142 - 1144.1 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CRYSTALS, PELLET
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS, GRANULAR
FOSSILS: CONES, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
- 1144.1- 1144.9 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
14% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, CRYSTALS, BIOGENIC
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA
- 1144.9- 1145.2 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
17% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CRYSTALS, PELLET
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, CONES
- 1145.2- 1150 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
14% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: CONES, BENTHIC FORAMINIFERA
- 1150 - 1153.6 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
13% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, CONES
- 1153.6- 1161.1 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CONES
FOSSIL FRAGMENTS

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- 1161.1- 1162.2 GRAINSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, CRYSTALS, BIOGENIC
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, CONES, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
- 1162.2- 1163.4 GRAINSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
20% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC, CRYSTALS
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, CORAL, CONES
FOSSIL FRAGMENTS
CONES APPEAR TO BE PRESENT IN THE MATERIAL INFILLING
BURROWS
- 1163.4- 1164.5 GRAINSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC, CRYSTALS
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: CONES, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
- 1164.5- 1165.3 PACKSTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, INTRAGRANULAR, MOLDIC
GRAIN TYPE: PELLET, BIOGENIC, PELLET
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: FOSSILIFEROUS, GRANULAR
FOSSILS: CORAL, MOLLUSKS, CONES, OOLITES
- 1165.3- 1166.1 PACKSTONE; YELLOWISH GRAY
13% POROSITY: PIN POINT VUGS, MOLDIC
GRAIN TYPE: CALCILUTITE, PELLET, CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR, MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA
A CLUSTER OF SPHERICAL SPINEY FORAMS OCCUR AT 1165.5'
- 1166.1- 1167.3 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
20% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, PELLET
GRAIN SIZE: VERY COARSE; RANGE: MEDIUM TO VERY COARSE
MODERATE INDURATION

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

- 1167.3- 1169 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
24% POROSITY: INTERGRANULAR, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, PELLET
GRAIN SIZE: VERY COARSE; RANGE: COARSE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL, CONES
MILIOLIDS
VERY COARSE GRAINED ROCK.
- 1169 - 1169.5 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, BIOGENIC
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-08%
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS
MAJORITY OF POROSITY IS INFILLED WITH GYPSUM.
- 1169.5- 1171.7 GRAINSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, PELLET
GRAIN SIZE: COARSE; RANGE: COARSE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: CONES, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
ABUNDANT CONES.
- 1171.7- 1172.6 GRAINSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
08% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, PELLET
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, GYPSUM CEMENT
SPARRY CALCITE CEMENT
ACCESSORY MINERALS: GYPSUM-05%
OTHER FEATURES: GRANULAR
FOSSILS: CONES, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
GYPSUM INFILLING.
- 1172.6- 1175 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
17% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: GRANULAR
FOSSILS: CONES, BENTHIC FORAMINIFERA, MOLLUSKS
FOSSIL FRAGMENTS
- 1175 - 1176.6 GRAINSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: PELLET, BIOGENIC

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GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, GYPSUM CEMENT
SPARRY CALCITE CEMENT
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: GRANULAR
FOSSILS: CONES, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

- 1176.6- 1177.4 GRAINSTONE; VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC
GRAIN SIZE: COARSE; RANGE: COARSE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA
- 1177.4- 1178.5 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: CONES, BENTHIC FORAMINIFERA, MOLLUSKS
FOSSIL FRAGMENTS
- 1178.5- 1180.4 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
19% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: CONES, BENTHIC FORAMINIFERA
- 1180.4- 1185 GRAINSTONE; GRAYISH BROWN TO VERY LIGHT ORANGE
23% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: CONES, CORAL, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
- 1185 - 1185.3 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
07% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
FOSSILS: CONES, BENTHIC FORAMINIFERA
- 1185.3- 1189.6 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR

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FOSSILS: BENTHIC FORAMINIFERA, CONES, MOLLUSKS
FOSSIL FRAGMENTS

- 1189.6- 1190 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
20% POROSITY: INTERGRANULAR, INTRAGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: PELLET, BIOGENIC
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: CONES, BENTHIC FORAMINIFERA, MOLLUSKS, CORAL
FOSSIL FRAGMENTS
- 1190 - 1191.7 PACKSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, INTRAGRANULAR
GRAIN TYPE: BIOGENIC, PELLET
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-04%
FOSSILS: CONES, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
- 1191.7- 1194.1 LIMESTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
10% POROSITY: MOLDIC, INTRAGRANULAR, INTERGRANULAR
GRAIN TYPE: CRYSTALS, CALCILUTITE, BIOGENIC
GRAIN SIZE: FINE; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-07%
OTHER FEATURES: FOSSILIFEROUS, MEDIUM RECRYSTALLIZATION
FOSSILS: CONES, MOLLUSKS, BENTHIC FORAMINIFERA, CORAL
FOSSIL FRAGMENTS
DEPOSITIONAL TEXTURE NOT RECOGNIZABLE.
- 1194.1- 1194.6 GYPSUM; OLIVE GRAY TO LIGHT BLuish GRAY
01% POROSITY: LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-25%, DOLOMITE-25%
- 1194.6- 1195 DOLOSTONE; OLIVE GRAY TO BLACK
03% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BIOTURBATED
- 1195 - 1197 DOLOSTONE; OLIVE GRAY TO TRANSPARENT
PX% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
DENSE HARD CRYSTALLINE DOLOMITE
- 1197 - 1197.5 CHERT; OLIVE GRAY TO DARK GRAY
00% POROSITY: LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT

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- 1197.5- 1200 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%
- 1200 - 1200.5 CHERT; OLIVE GRAY TO DARK GRAY
00% POROSITY: LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT
FOSSILS: CORAL
SCATTERED WHITE FOSSILS THAT APPEAR TO BE CORAL
- 1200.5- 1203 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-01%, CHERT-04%
FOSSILS: ECHINOID
NODULE OF POSSIBLY CHERT/DOLOMITE MIX (1202.5).
- 1203 - 1203.2 CHERT; OLIVE GRAY TO DARK GRAY
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
GOOD INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT
ACCESSORY MINERALS: GYPSUM-03%
- 1203.2- 1204.7 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
00% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: ECHINOID
FRACTURES INFILLED WITH GYPSUM PLUS SOME GYPSUM NODULES.
- 1204.7- 1205 CHERT; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
GOOD INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%
THE SOFTER LIGHTER (IN COLOR) PORTIONS APPEARS TO BE A
WEATHERED RESIDUUM OF THE CHERT AND NOT A CARBONATE
(DOLOMITE).
- 1205 - 1205.5 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: ECHINOID
- 1205.5- 1205.8 CHERT; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
GOOD INDURATION

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CEMENT TYPE(S): CHALCEDONY CEMENT

FOSSILS: ECHINOID

- 1205.8- 1206.2 GYPSUM; WHITE TO DARK YELLOWISH BROWN
00% POROSITY: LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-20%
THE COLOR OF THE GYPSUM IS BETTER DESCRIBED AS A VERY PALE BLUE.
- 1206.2- 1206.9 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-20%
- 1206.9- 1207.4 CHERT; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
02% POROSITY: MOLDIC, LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT
OTHER FEATURES: WEATHERED
FOSSILS: ECHINOID
- 1207.4- 1208.2 DOLOSTONE; GRAYISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%, CHERT-03%
FOSSILS: ECHINOID
- 1208.2- 1209.4 DOLOSTONE; DARK YELLOWISH BROWN TO GRAYISH BROWN
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
- 1209.4- 1209.8 CHERT; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT
ACCESSORY MINERALS: GYPSUM-05%
OTHER FEATURES: WEATHERED
FOSSILS: ECHINOID
POWDERED SAMPLES OF THIS INTERVAL DO NOT EFFERVESCE IN ACID. PORTIONS ARE SOFTER AND APPEAR TO BE A WEATHERED RESIDUUM OF CHERT.
- 1209.8- 1210.7 DOLOSTONE; DARK YELLOWISH BROWN TO DARK YELLOWISH BROWN
03% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-10%, CHERT-04%
- 1210.7- 1211.7 GYPSUM; WHITE TO DARK YELLOWISH BROWN

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00% POROSITY: LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): GYPSUM CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-20%
FRACTURES IN GYPSUM CONTAIN DOLOMITE.

- 1211.7- 1213.6 CHERT; LIGHT OLIVE GRAY TO YELLOWISH GRAY
01% POROSITY: MOLDIC, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
OTHER FEATURES: WEATHERED
FOSSILS: ECHINOID
THE HARDNESS OF THIS SAMPLES RANGES +/- 6 ON THE MOHS
SCALE. THE CHEMICAL COMPOSITION IS SUCH THAT A POWDERED
SAMPLE DOES NOT EFFERVESCE IN ACID.
- 1213.6- 1215 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
02% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: ECHINOID
- 1215 - 1215.3 CHERT; LIGHT OLIVE GRAY TO YELLOWISH GRAY
00% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: WEATHERED
FOSSILS: ECHINOID
- 1215.3- 1216.9 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: ECHINOID
- 1216.9- 1217.3 CHERT; LIGHT OLIVE GRAY TO DARK YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CHALCEDONY CEMENT
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: WEATHERED
- 1217.3- 1218.2 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: ECHINOID, MOLLUSKS
- 1218.2- 1218.5 CHERT; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN
02% POROSITY: MOLDIC, PIN POINT VUGS, LOW PERMEABILITY
MODERATE INDURATION

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CEMENT TYPE(S): CHALCEDONY CEMENT

OTHER FEATURES: WEATHERED

FOSSILS: MOLLUSKS

- 1218.5- 1223 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%
- 1223 - 1223.4 LIMESTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
06% POROSITY: INTRAGRANULAR
GRAIN TYPE: CRYSTALS
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BRECCIATED
ACCESSORY MINERALS: GYPSUM-08%
- 1223.4- 1224.1 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CLAY-20%, GYPSUM-01%
FOSSILS: MOLLUSKS
- 1224.1- 1225.2 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: INTRAGRANULAR, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: MOLLUSKS
- 1225.2- 1226.8 LIMESTONE; MODERATE YELLOWISH BROWN TO VERY LIGHT ORANGE
14% POROSITY: VUGULAR, INTERCRYSTALLINE
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CRYSTALS, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
FOSSILS: MOLLUSKS
- 1226.8- 1237 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
08% POROSITY: INTRAGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: CALCILUTITE, CRYSTALS, BIOGENIC
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: LOW RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: BRYOZOA, BENTHIC FORAMINIFERA, MOLLUSKS
APPEARS TO VARY BETWEEN A WACKSTONE AND PACKSTONE WITH LOW
TO MODERATE RECRYSTALLIZATION. ABUNDANT BRYOZOA
- 1237 - 1239.7 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
09% POROSITY: INTRAGRANULAR, MOLDIC

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POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, BRYOZOA

1239.7- 1240.1 LIMESTONE; MODERATE YELLOWISH BROWN
09% POROSITY: INTERCRYSTALLINE, MOLDIC, INTRAGRANULAR
GRAIN TYPE: CRYSTALS, BIOGENIC, CALCILUTITE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR
FOSSILS: BRYOZOA, BENTHIC FORAMINIFERA, OOLITES

1240.1- 1248.7 GRAINSTONE; VERY LIGHT ORANGE
12% POROSITY: MOLDIC, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, CALCILUTITE
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: MOLLUSKS, CONES, BENTHIC FORAMINIFERA
APPEARS TO BE PREDOMINATELY A GRAINSTONE WITH MUDDIER
POCKETS.

1248.7- 1263.6 PACKSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
11% POROSITY: MOLDIC, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL
VERY LITTLE CHANGE IN THE ROCK FROM 1244 FT TO 1272 FT.

1263.6- 1268.7 GRAINSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
13% POROSITY: MOLDIC, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL

1268.7- 1273.8 PACKSTONE; VERY LIGHT ORANGE
08% POROSITY: MOLDIC, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, CALCILUTITE
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-02%

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OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL
MAJORITY OF ROCK IS A PACKSTONE BUT SIGNIFICANT PATCHES OF
GRAIN- STONE ARE PRESENT. THE GRAINSTONE IS NOT PRESENT AS
BEDS.

- 1273.8- 1275 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
06% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: PELLET, CALCILUTITE, BIOGENIC
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: GYPSUM-04%
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA
SOME SMALL PATCHES OF GRAINSTONE. MAJORITY OF GYPSUM IS
PRESENT AS MOLDIC INFILLING.
- 1275 - 1276.2 LIMESTONE; VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CRYSTALS, CALCILUTITE
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: GYPSUM-03%
FOSSILS: MOLLUSKS
- 1276.2- 1278.4 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%
FOSSILS: MOLLUSKS
- 1278.4- 1280.6 LIMESTONE; VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, CRYSTALS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
DOLOMITE CEMENT
ACCESSORY MINERALS: GYPSUM-03%, DOLOMITE-02%
- 1280.6- 1282.7 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-01%
- 1282.7- 1284 DOLOSTONE; GRAYISH ORANGE TO GRAYISH BROWN
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: GYPSUM-05%
LARGE NODULES OF LIGHT BLUE GYPSUM PRESENT.

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- 1284 - 1285.6 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: GYPSUM-03%
- 1285.6- 1288 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-01%
FOSSILS: MOLLUSKS
- 1288 - 1290 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
01% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: FINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, GYPSUM CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: GYPSUM-02%, CHERT-02%
CHERT AND GYPSUM NODULES PRESENT.

TOTAL DEPTH

APPENDIX D

Slug Test Data Acquisition Sheets (digital only)

SLUG TEST - DATA ACQUISITION SHEET

PT 1

General Information					
Site Name		Withlacoochee TR		Date	7/28/03
Well No.		LWR 2		Performed by	JLM
Well Depth (ft bls)		200		Slot Size	n/a
Casing Height (ft als)		8.82 TOMP		Packed Interval (ft)	130-200
Casing Diameter				Date of Last Development	7/28/03
Casing Type		NO RODS		Initial Static WL (ft btoc)	37.25' bto NQ
Screen Length		Packed Zone		Final Static WL (ft btoc)	
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	10 psi	7036	Annulus (Not Used)		
Transducer #2	20 psi	6483	NQ (40' Down)		
Data Logger & Serial No. Hermit 3000 - MOE					
Logger Program Log (10 sec - TOC setting)					
Pressure Head Units		Time Units			
Comments Annulus 28.25' bto HW 0 0.9' to MP					
NQ 36.12' bto NQ - Start of Test					

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	stand pipe			
Rising/Falling head	falling		S(O) = 36.33'	
Airlift Rate (if applicable)	n/a		H = 171.51'	
Airline Length (if appl.)	n/a		D = 484.57'	
Pre-test NQ WL (ft bls)	36.12' bto NQ		v/h = 0.01	
Daily Static NQ WL (ft bls)	27.3' bto MP		L = 68'	
Pre-test HW WL (ft bls)	28.25' bto HW		r(c)= 1.19" =0.0997'	
Daily Static HW WL (ft bls)	n/a		r(w)= 1.5" =0.125'	
Specific Conductance (uS)	342		r(sk)= 1.5" =0.125'	
Temperature (C)				
Lithology	Avon Park (upper)			
Calculated K (ft/d)				
Other				
Comments Test 4 (LWR 2 - PT 01) on Moe				
Riser Ripe 5.55'		Test End 3:05 PM		
NQ above MP 2.35'				
7.90' above MP				

SLUG TEST - DATA ACQUISITION SHEET

PT 2

General Information					
Site Name		Withlacoochee TR		Date	7/29/03
Well No.		LWR 2 - core hole		Performed by	JLM
Well Depth (ft bls)		200'		Slot Size	n/a
Casing Height (ft als)		8.0' (stand pipe)		Packed Interval (ft)	165-200
Casing Diameter		2.38		Date of Last Development	7/28/03
Casing Type		NQ		Initial Static WL (ft btoc)	27.25
Open Hole Length		35		Final Static WL (ft btoc)	35.31'-8.0' bmp
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	20 psi	6483	NQ (depth 43)	0.36	
Transducer #2	10 psi	7036	Annulus (depth 40)	0.041	
Data Logger & Serial No. Hermit 3000 - MOE					
Logger Program Log					
Pressure Head Units			Time Units log-using 1 min		
Comments					

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	standpipe			
Rising/Falling head	falling		S(O) = 36.36'	
Airlift Rate (if applicable)	n/a		H = 171.35'	
Airline Length (if appl.)	n/a		D = 484.35'	
Pre-test NQ WL (ft bls)	36.65'-8.0' bmp		v/h = 0.01	
Daily Static NQ WL (ft bls)			L = 33'	
Pre-test HW WL (ft bls)	28.15'-0.8' bmp		r(c) = 1.19"	
Daily Static HW WL (ft bls)			r(w) = 1.05"	
Specific Conductance (uS)	349		r(sk) = 1.5"	
Temperature (C)	25.8			
Lithology	Avon Park			
Calculated K (ft/d)				
Other				
Comments Test was completed properly on the 3rd attempt. Attempt 1 logger was started late due to the pop-up box ("areyou sure you want to start"). Attempt 2 was not done using log function. This was my first time ever using this equipment with no training.				

SLUG TEST - DATA ACQUISITION SHEET

PT 3

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>8/1/03</u>		
Well No. <u>LWR 2 - core hole</u>		Performed by <u>CS</u>		
Well Depth (ft bls)	<u>~230'</u>	Slot Size	<u>n/a</u>	
Casing Height (ft als)		Packed Interval (ft)	<u>189-231</u>	
Casing Diameter		Date of Last Development		
Casing Type		Initial Static WL (ft btoc)	<u>27.23' bmp</u>	
Screen Length		Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (depth 213')	
Transducer #2	20 psi	7036	Annulus (depth 40')	
Data Logger & Serial No. <u>Hermit 3000 - MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units		Time Units <u>log - using 1 min</u>		
Comments <u>Core hole no rods HW</u>				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	standpipe			
Rising/Falling head	falling		S(O) = unk ~35'	
Airlift Rate (if applicable)	n/a		H = 203.77 (not base)	
Airline Length (if appl.)	n/a		D = 485.77 (on test interval level)	
Pre-test NQ WL (ft bls)			v/h = 0.01	
Daily Static NQ WL (ft bls)			L = 30'	
Pre-test HW WL (ft bls)			r(c) = 1.19"	
Daily Static HW WL (ft bls)			r(w) = 1.5"	
Specific Conductance (uS)			r(sk) = 1.5"	
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments				

SLUG TEST - DATA ACQUISITION SHEET

PT 4

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>8/19/03</u>		
Well No. <u>LWR 2 - core hole</u>		Performed by <u>JLM</u>		
Well Depth (ft bls)	<u>310' bls</u>	Slot Size	<u>n/a</u>	
Casing Height (ft als)		Packed Interval (ft)	<u>n/a</u>	
Casing Diameter	<u>4"</u>	Date of Last Development	<u>8/19/03</u>	
Casing Type	<u>HW</u>	Initial Static WL (ft btoc)	<u>28.01'-1.5' bmp</u>	
Open Hole Length	<u>290'-310(20)'</u>	Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	HW (<u>43' btoc</u>)	n/a
Transducer #2				
Data Logger & Serial No. <u>Hermit 3000 - MOE</u>				
Logger Program <u>Log (1 min)</u>				
Pressure Head Units		Time Units <u>sec</u>		
Comments <u>top of casing 1.5' above measuring pt.</u>				
<u>no packer</u>				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	NQ pump			
Rising/Falling head	falling		S(O) = 2.95	
Airlift Rate (if applicable)	n/a		H = 283.5	
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	n/a			
Daily Static NQ WL (ft bls)	n/a			
Pre-test HW WL (ft bls)	~26.51' bmp			
Daily Static HW WL (ft bls)	26.47' bmp			
Specific Conductance (uS)				
Temperature (C)				
Lithology	Dolomite - Avon Park			
Calculated K (ft/d)				
Other				
Comments <u>Last 1.7' is solid, dense, dolomite and will not produce (much) water. Actual test</u>				
<u>interval is the "ledgey" zone from 290' to 308'.</u>				

SLUG TEST - DATA ACQUISITION SHEET

PT 5.01

General Information					
Site Name		Withlacoochee TR		Date	8/21/03
Well No.		LWR 2 - core hole		Performed by	JLM
Well Depth (ft bls)		320'		Slot Size	n/a
Casing Height (ft als)				Packed Interval (ft)	308-320
Casing Diameter		NQ rods		Date of Last Development	
Casing Type		NQ		Initial Static WL (ft btoc)	see daily log (11.588' bto WL)
Screen Length		open		Final Static WL (ft btoc)	
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	20 psi	6483	NQ (43' below)	n/a	
Transducer #2	10 psi	7036	HW	n/a	
Data Logger & Serial No. Hermit 2000 - MOE					
Logger Program Log (1 min)					
Pressure Head Units			Time Units		
Comments					

TEST INFORMATION				
	Test 1 - (5)	Test 2 - (5d)	Test 3 - (5b)	Test 4 - (5c)
Initiation method	Air	Air	Air	Air
Rising/Falling head	rising	rising	rising	rising
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	11.588' (of submerg.)	11.628	11.612	11.608
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	12.238' (of submerg.)	12.279	12.265	12.269
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Deflection	60"	4 - 9.23 psi	40"	20"
Lithology				
Calculated K (ft/d)				
Other				
Comments NQ Transducer is hanging 4.75' above MP				
HW is 1.45' above MP				
*For test 5e, the transducer was lowered an additional 25' into the NQ rods				

SLUG TEST - DATA ACQUISITION SHEET

PT 5.02

General Information					
Site Name		Withlacoochee TR		Date	8/21/03
Well No.		LWR 2 - core hole		Performed by	JLM
Well Depth (ft bls)	320'		Slot Size	n/a	
Casing Height (ft als)			Packed Interval (ft)	308-320	
Casing Diameter	NQ rods		Date of Last Development		
Casing Type	NQ		Initial Static WL (ft btoc)	see daily log (11.588' bto WL)	
Screen Length	open		Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	20 psi	6483	NQ (43' below)	n/a	
Transducer #2	10 psi	7036	HW	n/a	
Data Logger & Serial No. Hermit 2000 - MOE					
Logger Program Log (1 min)					
Pressure Head Units		Time Units			
Comments					

TEST INFORMATION				
	Test 5 - (5e)*			
Initiation method	Air			
Rising/Falling head	rising			
Airlift Rate (if applicable)				
Airline Length (if appl.)				
Pre-test NQ WL (ft bls)	36.494			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	12.29			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Deflection	14 - 32.34 psi			
Lithology				
Calculated K (ft/d)				
Other				
Comments NQ Transducer is hanging 4.75' above MP				
HW is 1.45' above MP				
*For test 5e, the transducer was lowered an additional 25' into the NQ rods				

SLUG TEST - DATA ACQUISITION SHEET

PT 6

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>8/28/03</u>		
Well No. <u>LWR</u>		Performed by <u>JLM</u>		
Well Depth (ft bls)	<u>365</u>	Slot Size	<u>n/a</u>	
Casing Height (ft als)		Packed Interval (ft)	<u>n/a</u>	
Casing Diameter	<u>4"</u>	Date of Last Development		
Casing Type	<u>HW</u>	Initial Static WL (ft btoc)	<u>26.1' bmp</u>	
<u>Open Hole</u> Length	<u>326-365</u>	Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (68')	
Transducer #2				
Data Logger & Serial No. <u>Hermit 2000 - MOE</u>				
Logger Program <u>Log (1 sec)</u>				
Pressure Head Units		Time Units		
Comments				

TEST INFORMATION				
	Test 1 - (1A)	Test 2 - (B)	Test 3 -(C)	Test 4
Initiation method	Air	Air	Air	
Rising/Falling head	rising	rising	rising	
Airlift Rate (if applicable)	n/a	n/a	n/a	
Airline Length (if appl.)	n/a	n/a	n/a	
Pre-test NQ WL (ft bls)	26.1			
Daily Static NQ WL (ft bls)	26.1			
Pre-test HW WL (ft bls)	26.1			
Daily Static HW WL (ft bls)	26.1			
Specific Conductance (uS)	~700	~700		
Initial Submergence (ft)	38.189	37.9	37.55	
Test Submergence (ft)	38.242		37.754	
Calculated K (ft/d)	10 psi = 23.1 ft	14 psi = 32.32 ft	4 psi = 9.23 ft	
Other				
Comments <u>20 psi ~ 46 ft</u>				
<u>Initial</u>				
<u>*Had storm pass during tests</u>				

SLUG TEST - DATA ACQUISITION SHEET

PT 7

General Information					
Site Name		Withlacoochee TR		Date	9/3/03
Well No.		LWR 2 - core hole		Performed by	JLM
Well Depth (ft bls)		425'		Slot Size	n/a
Casing Height (ft als)		HW 1.25' NQ 5.64'		Packed Interval (ft)	392 - 425
Casing Diameter		NQ 3		Date of Last Development	9/3/03
Casing Type		NQ 3		Initial Static WL (ft btoc)	31.65' (bto NQ)
Open Hole Length		392 - 425		Final Static WL (ft btoc)	
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	20 psi	6483	NQ (68')	-0.054'	
Transducer #2	10 psi	7036	HW (40')		
Data Logger & Serial No. Hermit 3000 - MOE					
Logger Program Log (1 min)					
Pressure Head Units			Time Units log		
Comments					

TEST INFORMATION				
	Test 1 - (A)	Test 2 -(B)	Test 3	Test 4
Initiation method	air	air		
Rising/Falling head	rising	rising		
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	31.65-5.64' mp	28.10 sub		
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	13.397	13.40' sub		
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
??	4 psi = 9.23'	6 psi = 13.86'		
Lithology				
Calculated K (ft/d)				
Other				
Comments	Jason and Tim were here. Bernie did great.			

SLUG TEST - DATA ACQUISITION SHEET

PT 8

General Information				
Site Name	Withlacoochee TR		Date	9/5/03
Well No.		Performed by		
Well Depth (ft bls)	485		Slot Size	
Casing Height (ft als)	NQ 4.86'	HW 1.26'	Packed Interval (ft)	457-485
Casing Diameter			Date of Last Development	
Casing Type			Initial Static WL (ft btoc)	37.26 btoc (NQ) 27.01' btoc (HW)
Screen Length			Final Static WL (ft btoc)	
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ	
Transducer #2	10 psi	7036	HW	
Data Logger & Serial No. Hermit 3000 - MOE				
Logger Program				
Pressure Head Units		Time Units		
Comments				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	standpipe			
Rising/Falling head	falling			
Airlift Rate (if applicable)				
Airline Length (if appl.)				
Pre-test NQ WL (ft bls)				
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)				
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments				

SLUG TEST - DATA ACQUISITION SHEET

PT 9

General Information				
Site Name	Withlacoochee TR	Date	9/8/03	
Well No.	LWR 2	Performed by	CLS	
Well Depth (ft bls)	520	Slot Size		
Casing Height (ft als)		Packed Interval (ft)		
Casing Diameter	4"	Date of Last Development		
Casing Type	HW	Initial Static WL (ft btoc)	26.59 (TOC)	
Open Hole Length	326-520	Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ	
Transducer #2				
Data Logger & Serial No. Hermit 3000 - MOE				
Logger Program Log (1 sec)				
Pressure Head Units		Time Units		
Comments				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	air			
Rising/Falling head	rising			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	26.59			
Daily Static NQ WL (ft bls)	26.71			
Pre-test HW WL (ft bls)	26.59			
Daily Static HW WL (ft bls)	25.65			
Specific Conductance (uS)				
Initial Submergence	33.077			
Test Submergence	32.844 (XD#1)			
Calculated K (ft/d)	4 psi = 9.23'			
Other				
Comments Good test, 20 psi (XD) = 46'				
XD set to 63' (btoc), depressed WL 4 psi = 9.23'				

SLUG TEST - DATA ACQUISITION SHEET

PT 10

General Information				
Site Name	<u>Withlacoochee TR</u>	Date	<u>9/10/03</u>	
Well No.	<u>LWR 2 - core hole</u>	Performed by	<u>JLM</u>	
Well Depth (ft bls)	<u>530</u>	Slot Size	<u>n/a</u>	
Casing Height (ft als)		Packed Interval (ft)	<u>514-530</u>	
Casing Diameter	<u>2.3</u>	Date of Last Development	<u>9/10/03</u>	
Casing Type	<u>NQ</u>	Initial Static WL (ft btoc)	<u>25.63' bls (34.29' btoc)</u>	
Screen Length	<u>16</u>	Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1 - NQ	20 psi	6483	NQ	-0.057
Transducer #2	10 psi	7036	HW	-0.015
Data Logger & Serial No. <u>Hermit 3000 - MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units		Time Units <u>10 min</u>		
Comments <u>Test on upper portion of middle confining unit.</u>				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	<u>water</u>			
Rising/Falling head	<u>falling</u>			
Airlift Rate (if applicable)				
Airline Length (if appl.)				
Pre-test NQ WL (ft bls)	<u>24.43'</u>			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	<u>13.12' sub</u>			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)	<u>4240</u>			
Lithology				
Calculated K (ft/d)				
Other				
Comments				

SLUG TEST - DATA ACQUISITION SHEET

PT 11

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>9/12/03</u>		
Well No. <u>LWR 2</u>		Performed by <u>JLM</u>		
Well Depth (ft bls)	<u>570</u>	Slot Size	<u>n/a</u>	
Casing Height (ft als)		Packed Interval (ft)	<u>549-570</u>	
Casing Diameter	<u>3"</u>	Date of Last Development	<u>9/12/03</u>	
Casing Type	<u>NQ</u>	Initial Static WL (ft btoc)		
Screen Length	<u>21'</u>	Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (43')	
Transducer #2	10 psi	7036	HW (40')	
Data Logger & Serial No. <u>Hermit 3000 - MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units		Time Units <u>5 min</u>		
Comments <u>let run over night</u>				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	<u>water</u>			
Rising/Falling head	<u>falling</u>			
Airlift Rate (if applicable)	<u>n/a</u>			
Airline Length (if appl.)	<u>n/a</u>			
Pre-test NQ WL (ft bls)	<u>*29.32 - 3.35</u>			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)				
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments <u>*Not equilibrated but close - static will be checked tomorrow morning.</u>				
<u>ran pump ~20 min</u>				
<u>WL 9/13/03: 34.32 - 8.89 = 25.43</u>				

SLUG TEST - DATA ACQUISITION SHEET

PT 12

General Information					
Site Name		Withlacoochee TR		Date	9/15/03
Well No.		LWR 2		Performed by	C. Kraft
Well Depth (ft bls)	610	Slot Size	n/a		
Casing Height (ft als)	6.05 & 5.55	Packed Interval (ft)	586-610		
Casing Diameter	3"	Date of Last Development	9/15/03		
Casing Type	NQ	Initial Static WL (ft btoc)	36.43		
Screen Length	24'	Final Static WL (ft btoc)	24.83		
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	20 psi	6483	NQ		
Transducer #2	10 psi	7036	HW		
Data Logger & Serial No. Hermit 3000 - MOE					
Logger Program Log					
Pressure Head Units		Time Units			
Comments Carol started on 9/15, JLM stopped on 9/16					

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)				
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)				
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments Not equilibrated - static will be checked tomorrow morning				

SLUG TEST - DATA ACQUISITION SHEET

PT 13

General Information				
Site Name	Withlacoochee TR	Date	9/18/03	
Well No.	LWR 2 - core	Performed by	JLM	
Well Depth (ft bls)	650	Slot Size	n/a	
Casing Height (ft als)	11.65' (NQ)	Packed Interval (ft)	631-650	
Casing Diameter	3" (NQ)	Date of Last Development	9/18/03	
Casing Type	NQ	Initial Static WL (ft btoc)	28.83	
Screen Length	19'	Final Static WL (ft btoc)	32.87 bls	
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (~43')	
Transducer #2	10 psi	7036	HW (~40')	
Data Logger & Serial No. MOE				
Logger Program Log				
Pressure Head Units		Time Units 2 min		
Comments				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	29.155' sub			
Daily Static NQ WL (ft bls)	28.83			
Pre-test HW WL (ft bls)	13.247' sub			
Daily Static HW WL (ft bls)	25.55			
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments	George filled rods 3X to make up for air lifting (maybe too much)			

SLUG TEST - DATA ACQUISITION SHEET

PT 14

General Information					
Site Name		Withlacoochee TR		Date	9/23/03
Well No.		LWR 2 - core		Performed by	JLM
Well Depth (ft bls)	690	Slot Size	n/a		
Casing Height (ft als)	9.6	Packed Interval (ft)	663-690		
Casing Diameter	3"	Date of Last Development	9/23/03		
Casing Type	NQ	Initial Static WL (ft btoc)	NT		
Open Hole Length	27'	Final Static WL (ft btoc)	28.27' bmp		
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1 - NQ	20 psi	6483	NQ (43')		
Transducer #2 - NW	10 psi	7036	HW (40')		
Data Logger & Serial No. MOE					
Logger Program Log					
Pressure Head Units		Time Units 2 min			
Comments Stand pipe method					

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	5' btoc (then 42.65' sub)			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	13.368			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)	5010			
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments Did WQ before test. WL ~10' higher than static in the NQ rods during filling. Filled for ~7 min.				
Missing bin				

SLUG TEST - DATA ACQUISITION SHEET

PT 15

General Information					
Site Name		Withlacoochee TR		Date	9/26/03
Well No.		LWR 2 - core		Performed by	JLM
Well Depth (ft bls)	730	Slot Size	n/a		
Casing Height (ft als)	11.25	Packed Interval (ft)	701-730		
Casing Diameter	3"	Date of Last Development	9/26/03		
Casing Type	NQ	Initial Static WL (ft btoc)			
Screen Length	29'	Final Static WL (ft btoc)			
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	20 psi	6483	NQ		
Transducer #2	10 psi	7031	HW		
Data Logger & Serial No. MOE					
Logger Program Log					
Pressure Head Units		Time Units 2 min			
Comments					

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	5.642' sub / 37.37' bloc			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	13.40' sub / NT			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments Ran Hydro test before water quality. Other test through MCU the WQ test was ran first. Need to compare.				

SLUG TEST - DATA ACQUISITION SHEET

PT 16

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>9/30/03</u>		
Well No. <u>LWR 2 - core</u>		Performed by <u>JLM</u>		
Well Depth (ft bls)	<u>770</u>	Slot Size	<u>n/a</u>	
Casing Height (ft als)	<u>9.7</u>	Packed Interval (ft)	<u>733-770</u>	
Casing Diameter	<u>3"</u>	Date of Last Development	<u>9/30/03</u>	
Casing Type	<u>NQ</u>	Initial Static WL (ft btoc)	<u>36.19' btoc</u>	
Open Hole Length	<u>37</u>	Final Static WL (ft btoc)	<u></u>	
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ	
Transducer #2	10 psi	7036	HW	
Data Logger & Serial No. <u>MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units <u>ft H2O</u>		Time Units <u>2 min</u>		
Comments <u>Test conducted prior to WQ test. Pre-packer the well was pumped (air lifted) to</u>				
<u>develope the hole.</u>				
<u></u>				
<u></u>				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	<u>water</u>			
Rising/Falling head	<u>falling</u>			
Airlift Rate (if applicable)	<u>n/a</u>			
Airline Length (if appl.)	<u>n/a</u>			
Pre-test NQ WL (ft bls)	<u>43.756' sub</u>			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	<u>13.324' sub</u>			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments	<u></u>			
	<u></u>			
	<u></u>			

SLUG TEST - DATA ACQUISITION SHEET

PT 17

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>10/3/03</u>		
Well No. <u>LWR 2 - core</u>		Performed by <u>JLM</u>		
Well Depth (ft bls)	<u>810</u>	Slot Size	<u>n/a</u>	
Casing Height (ft als)	<u>5.45</u>	Packed Interval (ft)	<u>767-810</u>	
Casing Diameter	<u>3"</u>	Date of Last Development	<u>10/3/03</u>	
Casing Type	<u>NQ</u>	Initial Static WL (ft btoc)	<u>31.78' btoc</u>	
Open Hole Length	<u>43'</u>	Final Static WL (ft btoc)	<u>29.40 btoc - 5.45 bls</u>	
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (35')	
Transducer #2	10 psi	7036	HW (40')	
Data Logger & Serial No. <u>MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units <u>ft H2O</u>		Time Units <u>2 min</u>		
Comments				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	<u>water (10')</u>			
Rising/Falling head	<u>falling</u>			
Airlift Rate (if applicable)	<u>n/a</u>			
Airline Length (if appl.)	<u>n/a</u>			
Pre-test NQ WL (ft bls)	<u>3.154' - 3.127' sub</u>			
Daily Static NQ WL (ft bls)	<u>(see WL log)</u>			
Pre-test HW WL (ft bls)	<u>13.257' sub</u>			
Daily Static HW WL (ft bls)	<u>(see WL log)</u>			
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments	<u>Used big funnel w/ valve to dump 2.3 gallons or 10' of water into NQ rods. Some water blew out of the top.</u>			

SLUG TEST - DATA ACQUISITION SHEET

PT 18

General Information					
Site Name		Withlacoochee TR		Date	10/8/03
Well No.		LWR 2 - core		Performed by	
Well Depth (ft bls)	870	Slot Size	n/a		
Casing Height (ft als)	4.5	Packed Interval (ft)	808-870		
Casing Diameter	~3"	Date of Last Development	10/7/03		
Casing Type	NQ	Initial Static WL (ft btoc)	26.4 btoc (23.60' bmp)		
Open Hole Length	62	Final Static WL (ft btoc)			
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	20 psi	6483	NQ (35')		
Transducer #2	10 psi	7036	HW (40')		
Data Logger & Serial No. MOE					
Logger Program Log					
Pressure Head Units		ft H2O	Time Units	2	
Comments In MCU					

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water (10')			
Rising/Falling head	falling			
Airlift Rate (if applicable)				
Airline Length (if appl.)				
Pre-test NQ WL (ft bls)	4.132 sub/6.866 sub (end)			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	12.996 sub / 12.970 (end)			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments Used big funnel to add slug.				
Note WL was not @ static at start of test. Need to adjust initial slug to reflect test from static.				

SLUG TEST - DATA ACQUISITION SHEET

PT 19

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>10/16/03</u>		
Well No. <u>LWR 2 - core</u>		Performed by <u>JLM</u>		
Well Depth (ft bls)	<u>930</u>	Slot Size	<u>n/a</u>	
Casing Height (ft als)	<u>3.1'</u>	Packed Interval (ft)	<u>870-930</u>	
Casing Diameter	<u>~3</u>	Date of Last Development	<u>10/14/03</u>	
Casing Type	<u>NQ</u>	Initial Static WL (ft btoc)	<u>26.59' btoc</u>	
Screen Length	<u>60'</u>	Final Static WL (ft btoc)	<u></u>	
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ	-0.148
Transducer #2	10 psi	7036	HW (40')	0.009
Data Logger & Serial No. <u>Hermit 3000 - MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units <u>ft H2O</u>		Time Units <u>2 min</u>		
Comments <u></u>				
<u></u>				
<u></u>				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water (10 ft) *8600 mL, NOT 8700 mL			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	8.74' sub			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	21.630' sub			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments <u>Set up on the 15th but packer was leaking, & DeGroot was on leave. Reset on the 16th. NQ may not be @ static, let equilibrate 1.5 hrs. Slug took ~ 2.0 sec.</u>				
<u></u>				

SLUG TEST - DATA ACQUISITION SHEET

PT 21

General Information					
Site Name		Withlacoochee TR		Date	10/24/03
Well No.		LWR 2 - core		Performed by	Carol Kraft
Well Depth (ft bls)	1010	Slot Size	n/a		
Casing Height (ft als)	5.6'	Packed Interval (ft)	957-1010		
Casing Diameter	~3"	Date of Last Development	10/23/03		
Casing Type	NQ	Initial Static WL (ft btoc)	27.4	**Test is Possibly no good - analyze on computer	
Open Hole Length	53'	Final Static WL (ft btoc)	27.66		
	Type	Serial No.	Purpose & Placement	Reading in Air	
Transducer #1	20 psi	6483	NQ (45')		
Transducer #2	10 psi	7036	HW (40')		
Data Logger & Serial No. Hermit 3000 - MOE					
Logger Program Log					
Pressure Head Units		ft H2O	Time Units		
Comments Took WL after Packer was inflated. It went down (36.8' @ 10:25, 36.7' @10:40, 36.1' @10:50, 33' @ 12:20) then came back up. XD#1 was lowered to 45'.					

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water (10')			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	12.336 sub (probe)			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	12.498 sub (probe)			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments Let test run over night, came back in the morning, NQ XD#1 read 12.609. HW XD#2 read 12.396. Test was stopped, packer was found to be leaking/deflated, did not have software to look @ results. Test may possibly be bad? Packer was checked before it was left over night, it was fine then. Test looked bad, will redo on mon 10/27, test 21a.				

SLUG TEST - DATA ACQUISITION SHEET

PT 21

General Information				
Site Name	Withlacoochee TR	Date	10/27/03	
Well No.	LWR 2 - core	Performed by	Carol Kraft	
Well Depth (ft bls)	1010	Slot Size	n/a	
Casing Height (ft als)	5.67'	Packed Interval (ft)	957-1010	
Casing Diameter	~3"	Date of Last Development	10/25/03	
Casing Type	NQ	Initial Static WL (ft btoc)	33.46'	
Open Hole Length	53'	Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (45')	-0.114
Transducer #2	10 psi	7036	HW (40')	-0.023
Data Logger & Serial No. Hermit 3000 - MOE				
Logger Program Log				
Pressure Head Units ft H2O		Time Units		
Comments Initial HW WL = 28.15' - 1.25'				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water (10')			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	11.345 sub			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	12.345 sub			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments				

SLUG TEST - DATA ACQUISITION SHEET

PT 22

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>11/4/03</u>		
Well No. <u>LWR 2</u>		Performed by <u>DDewitt</u>		
Well Depth (ft bls) <u>1070</u>		Slot Size <u></u>		
Casing Height (ft als) <u>2.87'</u>		Packed Interval (ft) <u>1010-1070</u>		
Casing Diameter <u>3"</u>		Date of Last Development <u>11/4/03 (10:00)</u>		
Casing Type <u>NQ</u>		Initial Static WL (ft btoc) <u>NQ 29.78' (close to static)</u>		
Screen Length <u></u>		Final Static WL (ft btoc) <u>n/a</u>		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	3" NQ (45')	
Transducer #2	10 psi	7036	4" HW (40')	
Data Logger & Serial No. <u>Hermit 3000 - MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units <u>ft H2O</u>		Time Units <u></u>		
Comments <u>Test started at 11:25 Am (Nextel time).</u>				
<u>NQ WL stablized prior to slug test (31.30', 30.03', 29.87', 29.78', static)</u>				
<u>HW WL: 28.45-1.22=27.33'</u>				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method				
Rising/Falling head				
Airlift Rate (if applicable)				
Airline Length (if appl.)				
Pre-test NQ WL (ft bls)				
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)				
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments <u>Terminated test after 200 min - no recovery response at all. Water levels increased!</u>				
<u>Tape down test zone - 19.2'</u>				
<u>No water sample was collected from test zone.</u>				
<u>initial NQ static WL: 29.78 - 2.87 = 26.91' MP</u>				

SLUG TEST - DATA ACQUISITION SHEET

PT 23

General Information				
Site Name <u>Withlacoochee TR</u>		Date <u>11/6/03</u>		
Well No. <u>LWR 2</u>		Performed by <u>DD</u>		
Well Depth (ft bls)	<u>1130</u>	Slot Size <u></u>		
Casing Height (ft als)	<u>2.75'</u>	Packed Interval (ft)	<u>1070-1130</u>	
Casing Diameter	<u>3"</u>	Date of Last Development	<u>11/5/03 (18:30)</u>	
Casing Type	<u>NQ</u>	Initial Static WL (ft btoc)	<u>~ +1.5' above mp</u>	
Screen Length	<u></u>	Final Static WL (ft btoc)	<u>1.49</u>	
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1		6483		
Transducer #2		7036		
Data Logger & Serial No. <u>Hermit MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units <u>ft H2O</u>		Time Units <u>min/sec</u>		
Comments <u>Test commenced at approx 13:00 hrs. 3 hr test.</u>				
<u></u>				
<u></u>				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	<u>drawdown</u>			
Rising/Falling head	<u>rising</u>			
Airlift Rate (if applicable)				
Airline Length (if appl.)	<u>20' top NQ</u>			
Pre-test NQ WL (ft bls)	<u>~1.5' als</u>			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	<u>28.5</u>			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments <u>initial NQ ducer - 43.68'</u>				
<u>HW ducer - 12.04'</u>				
<u>Displaced water in NQ with 20' of 1" pue line set at top of NQ mp. Direct airlift</u>				
<u>displacement.</u>				

SLUG TEST - DATA ACQUISITION SHEET

PT 24

General Information				
Site Name	Withlacoochee TR	Date	11/7/03	
Well No.	LWR 2	Performed by	Carol Kraft	
Well Depth (ft bls)	1150	Slot Size		
Casing Height (ft als)	2.38 (w/o riser pipe)	Packed Interval (ft)	1120-1150	
Casing Diameter	~3"	Date of Last Development	11/6/03	
Casing Type	NQ	Initial Static WL (ft btoc)	8.33' (w/o riser pipe)	
Open Hole Length	30'	Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (45')	-0.104
Transducer #2	10 psi	7036	HW (40')	0.003
Data Logger & Serial No. Hermit 3000 - MOE				
Logger Program Log				
Pressure Head Units ft H2O		Time Units		
Comments Riser pipe for slug 15.55' + 2.38' above mp = 17.93' toc (w/ riser pipe).				
WL = 18.77' btoc (w/ riser pipe).				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water (10')			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	*28.870 sub			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	*11.996 sub			
Daily Static HW WL (ft bls)	28.04			
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments Test took ~10 min to complete. Zone seems to be pretty permieable. Added riser				
pioe because WL was above land surface.				

SLUG TEST - DATA ACQUISITION SHEET

PT 25

General Information				
Site Name	Withlacoochee TR	Date	11/10/03	
Well No.	LWR 2	Performed by	Carol Kraft	
Well Depth (ft bls)	1190	Slot Size		
Casing Height (ft als)	2.6' (w/o riser pipe)	Packed Interval (ft)	1170-1190	
Casing Diameter	~3"	Date of Last Development	11/10/03	
Casing Type	NQ	Initial Static WL (ft btoc)	5.61' (w/o riser pipe)	
Open Hole Length	20'	Final Static WL (ft btoc)		
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (45')	-0.123
Transducer #2	10 psi	7036	HW (40')	0.011
Data Logger & Serial No. Hermit 3000 - MOE				
Logger Program Log				
Pressure Head Units ft H2O		Time Units		
Comments Riser pipe for slug = 15.55' + 2.6' above mp = 18.15 tocl w/ riser pipe.				
WL = 21.16 btoc w/ riser pipe.				

TEST INFORMATION				
	Test 1	Test 2	Test 3	Test 4
Initiation method	water (10')			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	*23.558 sub			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	*12.143 sub			
Daily Static HW WL (ft bls)	8.40 btoc (w/ packer se			
Specific Conductance (uS)				
Temperature (C)				
Lithology				
Calculated K (ft/d)				
Other				
Comments Added riser pipe 15.55' because WL was above land surface.				

SLUG TEST - DATA ACQUISITION SHEET

PT 26

General Information

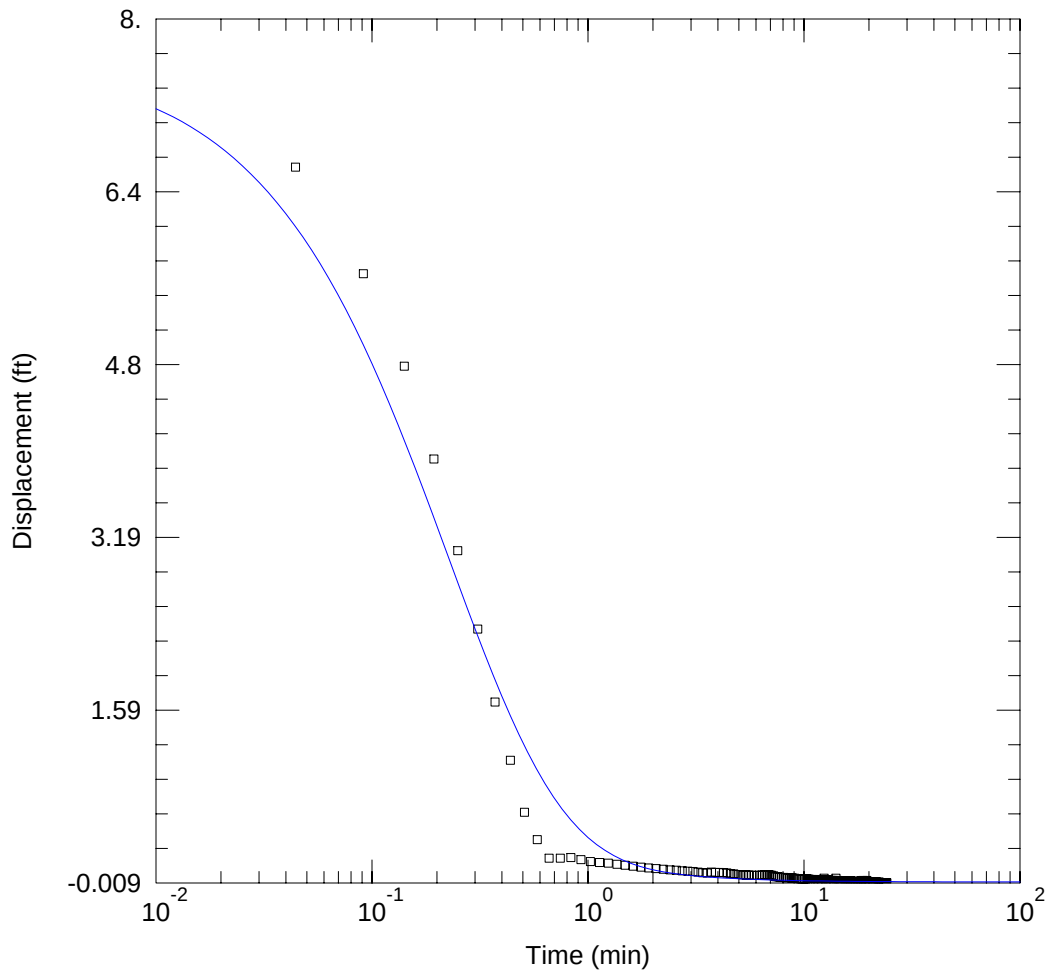
Site Name <u>Withlacoochee TR</u>		Date <u>11/13/03</u>		
Well No. <u>LWR 2 - core</u>		Performed by <u>JLM</u>		
Well Depth (ft bls)	<u>1250</u>	Slot Size <u></u>		
Casing Height (ft als)	<u>11.95</u>	Packed Interval (ft)	<u>1226-1250</u>	
Casing Diameter	<u>3"</u>	Date of Last Development	<u>11/13/03</u>	
Casing Type	<u>NQ</u>	Initial Static WL (ft btoc)	<u>0.19' bmp</u>	
Open Hole Length	<u>24'</u>	Final Static WL (ft btoc)	<u></u>	
	Type	Serial No.	Purpose & Placement	Reading in Air
Transducer #1	20 psi	6483	NQ (39.4')	-0.12
Transducer #2	10 psi	7036	HW (40')	0.008
Data Logger & Serial No. <u>Hermit 3000 - MOE</u>				
Logger Program <u>Log</u>				
Pressure Head Units <u>ft H2O</u>		Time Units <u>1 min</u>		
Comments <u>loop in reel for XD#1 is still @ 45'.</u>				
<u>start test 14:15</u>				
<u>stop test 14:20</u>				

TEST INFORMATION

	Test 1	Test 2	Test 3	Test 4
Initiation method	water			
Rising/Falling head	falling			
Airlift Rate (if applicable)	n/a			
Airline Length (if appl.)	n/a			
Pre-test NQ WL (ft bls)	26.704' sub/ 12.14' btoc			
Daily Static NQ WL (ft bls)				
Pre-test HW WL (ft bls)	12.297 sub			
Daily Static HW WL (ft bls)				
Specific Conductance (uS)	3410			
Temperature (C)	26.1			
Lithology	LFA lmst			
Calculated K (ft/d)				
Other				
Comments	slug ~12.14'. Test complete/recovered in ~2 min.			

APPENDIX E

Slug Test Analytical Solutions/Curve Matches (digital only)



PT 1A (130-200)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 130-200
 Test Well: Core Hole/Deep UFA
 Test Date: 7/28/2003

AQUIFER DATA

Saturated Thickness: 486. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: <u>7.65</u> ft	Static Water Column Height: <u>171.6</u> ft
Total Well Penetration Depth: <u>273</u> . ft	Screen Length: <u>70</u> . ft
Casing Radius: <u>0.0997</u> ft	Well Radius: <u>0.125</u> ft

SOLUTION

Aquifer Model: <u>Confined</u>	Solution Method: <u>KGS Model</u>
Kr = <u>2.056</u> ft/day	Ss = <u>1.717E-6</u> ft ⁻¹
Kz/Kr = <u>0.1084</u>	

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT01a_systematic translation2.aqt
 Title: PT 1a (130-200)
 Date: 06/02/06
 Time: 15:08:53

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 130-200
 Test Date: 7/28/2003
 Test Well: Core Hole/Deep UFA

AQUIFER DATA

Saturated Thickness: 486. ft
 Anisotropy Ratio (Kz/Kr): 0.1084

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 7.65 ft
 Static Water Column Height: 171.6 ft
 Casing Radius: 0.0997 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 70. ft
 Total Well Penetration Depth: 273. ft

No. of Observations: 157

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	7.64	11.4	0.02244
0.0443	6.625	11.57	0.01944
0.0913	5.637	11.73	0.01944
0.1412	4.781	11.9	0.01944
0.1938	3.92	12.07	0.01744
0.2497	3.07	12.23	0.01944
0.3088	2.344	12.4	0.03444
0.3715	1.667	12.57	0.01944
0.4378	1.127	12.73	0.01744
0.5082	0.6454	12.9	0.01744
0.5827	0.3924	13.07	0.01744
0.6617	0.2204	13.23	0.01444
0.7453	0.2204	13.4	0.01444
0.8338	0.2264	13.57	0.01444
0.9277	0.2064	13.73	0.01444
1.027	0.1894	13.9	0.01444
1.132	0.1804	14.07	0.03444
1.244	0.1744	14.23	0.01144
1.362	0.1634	14.4	0.01444
1.487	0.1544	14.57	0.01144
1.62	0.1464	14.73	0.008436
1.76	0.1374	14.9	0.01144
1.909	0.1294	15.07	0.01144
2.067	0.1234	15.23	0.01144
2.233	0.1174	15.4	0.008436
2.4	0.1114	15.57	0.008436
2.567	0.1084	15.73	0.008436
2.733	0.1034	15.9	0.005436
2.9	0.1004	16.07	0.008436
3.067	0.09744	16.23	0.008436

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
3.233	0.09144	16.4	0.01144
3.4	0.08544	16.57	0.008436
3.567	0.08344	16.73	0.005436
3.733	0.09144	16.9	0.005436
3.9	0.08844	17.07	0.002436
4.066	0.08844	17.23	0.002436
4.233	0.08544	17.4	0.002436
4.4	0.08344	17.57	0.005436
4.566	0.07744	17.73	0.005436
4.733	0.07444	17.9	0.002436
4.9	0.06844	18.07	0.002436
5.066	0.06844	18.23	0.002436
5.233	0.06544	18.4	0.01144
5.4	0.06344	18.57	0.01144
5.566	0.06344	18.73	0.01444
5.733	0.06344	18.9	0.01144
5.9	0.06044	19.07	0.01144
6.066	0.06044	19.23	0.01144
6.233	0.06344	19.4	0.01144
6.4	0.06344	19.57	0.01444
6.566	0.06544	19.73	-0.0005641
6.733	0.06544	19.9	-0.0005641
6.9	0.06544	20.07	-0.0005641
7.066	0.06344	20.23	-0.0005641
7.233	0.05744	20.4	-0.0005641
7.4	0.04844	20.57	-0.002564
7.566	0.04844	20.73	-0.002564
7.733	0.04544	20.9	-0.002564
7.9	0.04044	21.07	-0.002564
8.066	0.04244	21.23	-0.0005641
8.233	0.04044	21.4	-0.002564
8.4	0.03744	21.57	-0.005564
8.566	0.04044	21.73	-0.002564
8.733	0.03744	21.9	-0.005564
8.9	0.03444	22.07	-0.005564
9.066	0.03444	22.23	-0.002564
9.233	0.03144	22.4	-0.002564
9.4	0.03144	22.57	-0.005564
9.566	0.02844	22.73	-0.005564
9.733	0.02844	22.9	-0.005564
9.9	0.02544	23.07	-0.005564
10.07	0.02844	23.23	-0.005564
10.23	0.02844	23.4	-0.005564
10.4	0.02544	23.57	-0.005564
10.57	0.02544	23.73	-0.005564
10.73	0.02244	23.9	-0.005564
10.9	0.02244	24.07	-0.005564
11.07	0.02244	24.23	-0.008564
11.23	0.02244		

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	
Kr	2.056	ft/day
Ss	1.717E-6	ft ⁻¹
Kz/Kr	0.1084	

K = 0.0007253 cm/sec

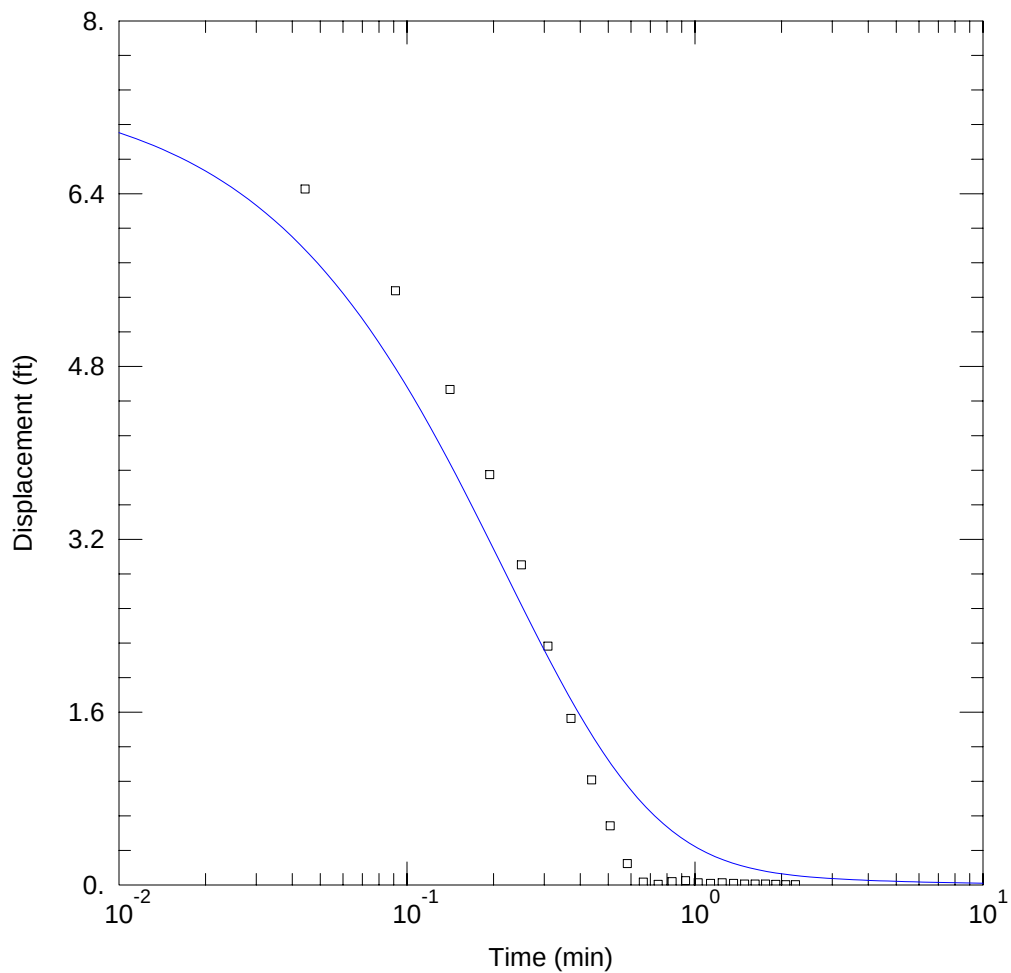
NOTES

Specific Storage froze in the 10^{-6} range.

System solved to be anisotropic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.

The translation method was applied to reduce the slug magnitude of the test from 35 feet to 7.65 feet. This was to reduce some of the non-linear errors present.



PT 2C (165-200)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 165-200
 Test Well: Core Hole/Deep UFA
 Test Date: 7/29/2003

AQUIFER DATA

Saturated Thickness: 35. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 7.42 ft
 Total Well Penetration Depth: 173. ft
 Casing Radius: 0.0997 ft

Static Water Column Height: 171.3 ft
 Screen Length: 35. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 5.153 \text{ ft/day}$
 $K_z/K_r = 0.1704$

Solution Method: KGS Model
 $S_s = 1.584\text{E-}6 \text{ ft}^{-1}$

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT02a_systematic translation2.aqt
 Title: PT 2c (165-200)
 Date: 06/02/06
 Time: 15:13:16

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 165-200
 Test Date: 7/29/2003
 Test Well: Core Hole/Deep UFA

AQUIFER DATA

Saturated Thickness: 35. ft
 Anisotropy Ratio (Kz/Kr): 0.1704

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 7.42 ft
 Static Water Column Height: 171.3 ft
 Casing Radius: 0.0997 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 35. ft
 Total Well Penetration Depth: 173. ft

No. of Observations: 39

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	7.413	1.62	0.007852
0.0443	6.444	1.76	0.007852
0.0913	5.501	1.909	0.004852
0.1411	4.587	2.067	0.002852
0.1938	3.8	2.233	0.002852
0.2496	2.964	2.41	-0.0001481
0.3088	2.211	2.598	-0.003148
0.3715	1.542	2.796	-0.006148
0.4378	0.9729	3.006	-0.009148
0.5081	0.5479	3.229	-0.009148
0.5826	0.1979	3.465	-0.01215
0.6616	0.02585	3.714	-0.01215
0.7453	0.004852	3.979	-0.01515
0.8338	0.03085	4.259	-0.01215
0.9276	0.03985	4.556	-0.01215
1.027	0.01985	4.871	-0.01815
1.132	0.01385	5.204	-0.01815
1.244	0.01985	5.557	-0.02315
1.362	0.01385	5.931	-0.02615
1.487	0.007852		

SOLUTION

Slug Test
 Aquifer Model: Confined
 Solution Method: KGS Model

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
Kr	5.153	ft/day
Ss	1.584E-6	ft ⁻¹
Kz/Kr	0.1704	

K = 0.001818 cm/sec

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
Kr	5.153	0.3436	+/- 0.6962	14.99	ft/day
Ss	1.584E-6	not estimated			ft ⁻¹
Kz/Kr	0.1704	0.4749	+/- 0.9621	0.3589	

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 0.001818 cm/sec

Parameter Correlations

	Kr	Kz/Kr
Kr	1.00	-0.60
Kz/Kr	-0.60	1.00

Residual Statistics

for weighted residuals

Sum of Squares 4.523 ft²
 Variance 0.1222 ft²
 Std. Deviation 0.3496 ft
 Mean -0.09033 ft
 No. of Residuals. 39
 No. of Estimates. 2

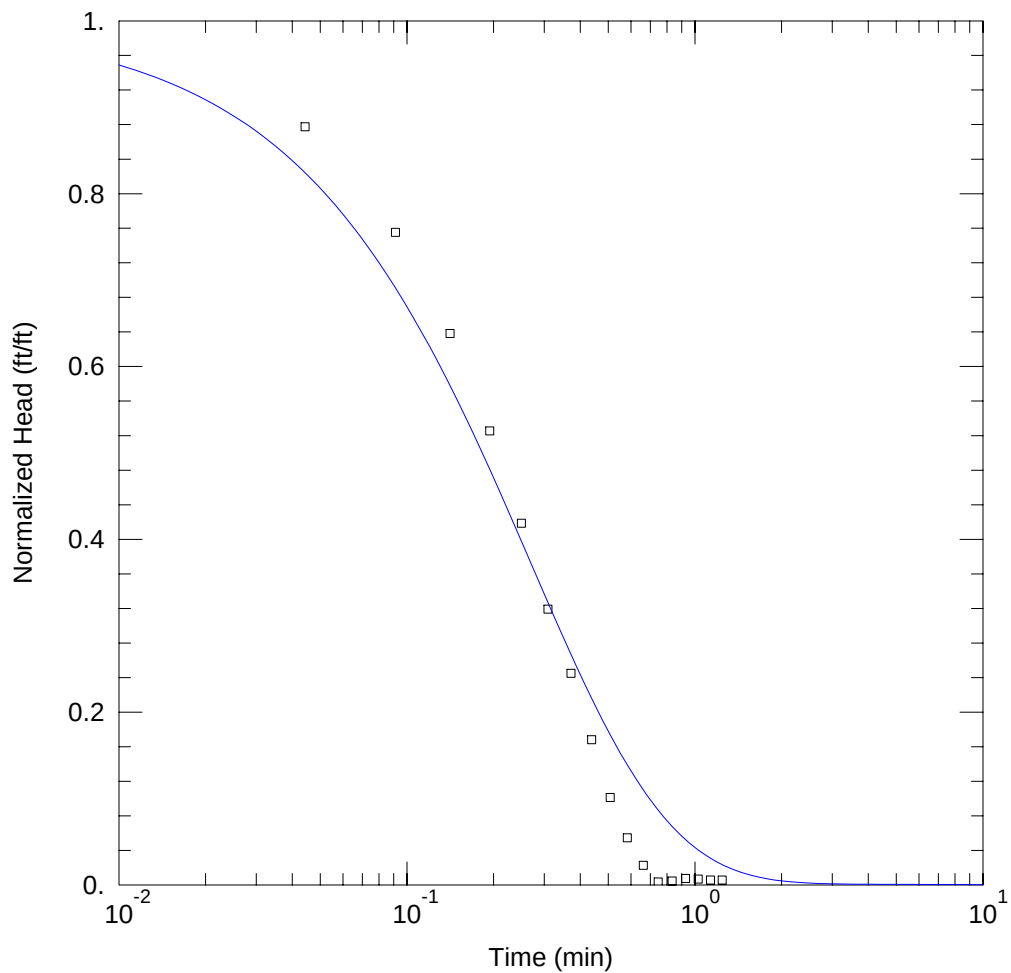
NOTES

Specific Storage froze in the 10⁻⁶ range.

System solved to be anisotropic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.

The translation method was applied to reduce the slug magnitude of the test from 35 feet to 7.42 feet. This was to reduce some of the non-linear errors present.



PT 3A (199-231)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 199-231
 Test Well: CH/Deep UFA
 Test Date: 8/1/03

AQUIFER DATA

Saturated Thickness: 486. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 7.69 ft
 Total Well Penetration Depth: 204. ft
 Casing Radius: 0.0997 ft

Static Water Column Height: 203.8 ft
 Screen Length: 30. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined

Solution Method: KGS Model

Kr = 4.097 ft/day
 Kz/Kr = 1.

Ss = 1.918E-6 ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT03a_systematic translation2.aqt
 Title: PT 3a (199-231)
 Date: 06/02/06
 Time: 15:18:23

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 199-231
 Test Date: 8/1/03
 Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 486. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 7.69 ft
 Static Water Column Height: 203.8 ft
 Casing Radius: 0.0997 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 30. ft
 Total Well Penetration Depth: 204. ft

No. of Observations: 18

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	7.682	0.5082	0.778
0.0443	6.748	0.5827	0.419
0.0913	5.808	0.6617	0.175
0.1412	4.908	0.7453	0.026
0.1938	4.041	0.8338	0.035
0.2497	3.219	0.9277	0.058
0.3088	2.455	1.027	0.052
0.3715	1.884	1.132	0.043
0.4378	1.292	1.244	0.043

SOLUTION

Slug Test
 Aquifer Model: Confined
 Solution Method: KGS Model

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
Kr	4.097	ft/day
Ss	1.918E-6	ft ⁻¹
Kz/Kr	1.	

K = 0.001445 cm/sec

NOTES

Specific Storage froze in the 10⁻⁶ range.

System solved to be isotrophic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a K_r value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.

The translation method was applied to reduce the slug magnitude of the test from 35 feet to 7.69 feet. This was to reduce some of the non-linear errors present.

Estimating Aquifer Transmissivity and Hydraulic Conductivity from Specific Capacity Data

$$T = \frac{Q}{(h_o - h)} \frac{2.3}{4\pi} \log \frac{2.25Tt}{r^2 S}$$

where

$\frac{Q}{(h_o - h)}$ is specific Capacity of the well (L²/T)

t is the period of pumping (T)

r is the radius of the pumping well (L)

T is the aquifer transmissivity (L²/T)

S is the aquifer storativity (d'less)

INPUTS		
$\frac{Q}{(h_o - h)}$	=	27 gpm/ft
t	=	45 min.
r	=	1.5 in.
T _i	=	6,000 ft ² /d - INITIAL ESTIMATE
S	=	0.01 d'less - ESTIMATE
b	=	18.3 ft

OUTPUTS			
T ₁	=	6,121 ft ² /d	-1.97%
T ₂	=	6,129 ft ² /d	-0.13%
T ₃	=	6,130 ft ² /d	-0.01%
T ₄	=	6,130 ft ² /d	0.00%
T ₄	=	45,856 gpd/ft	
K ₄	=	335.0 ft/d	

Instructions: Complete the "Inputs" using the indicated units. You must enter an initial estimate for the transmissivity and an estimate for storativity. The calculated transmissivity and hydraulic conductivity are in the "Outputs" section indicated by the subscript 4.

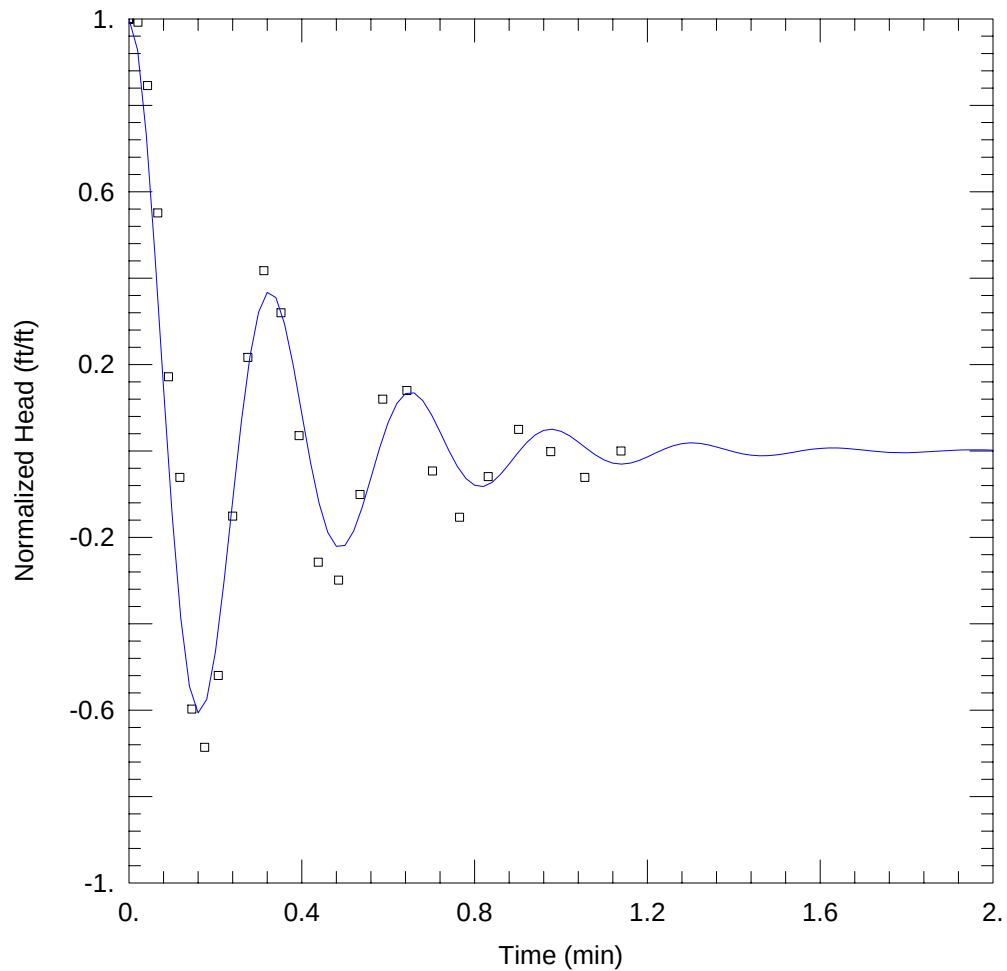
Note: Discrepancy is the ratio of the T_i and T₄. This method may be referred to Herr's Method.

Assumptions: Thies assumptions & pumped well 100% efficient.

Reference: Thies 1963

Storage: well-confined -> 0.00001; semi-confined -> 0.0001; poorly-confined -> 0.001; and unconfined -> 0.01 - 0.1

Comments: Test 4 at Withlacoochee Transect site WR6B (LWR 2). Conducted on the interval 290 feet to 310 feet BLS. No packer was set during this test. Water was pumped in the well at an average rate of 108 gpm with 4 feet of water level rise. This results in a specific capacity of 27 gpm/ft of water level rise. The bottom 1.7 feet of the test interval was dense dolomite with little apparent water bearing capability, meaning the real production zone was from 290 feet to 308.3 feet BLS.



"P" T4A (290-310)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 290-310
 Test Well: CH/Deep UFA
 Test Date: 8/19/2003

AQUIFER DATA

Saturated Thickness: 486. ft Anisotropy Ratio (Kz/Kr): 0.01

WELL DATA (CH/Deep UFA)

Initial Displacement: 1.16 ft Static Water Column Height: 283.5 ft
 Total Well Penetration Depth: 283. ft Screen Length: 20. ft
 Casing Radius: 0.0997 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler
 K = 164.6 ft/day Le = 303.3 ft

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT04a_butler translation.aqt
 Title: "P" T4a (290-310)
 Date: 06/02/06
 Time: 15:50:23

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 290-310
 Test Date: 8/19/2003
 Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 486. ft
 Anisotropy Ratio (Kz/Kr): 0.01

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 1.16 ft
 Static Water Column Height: 283.5 ft
 Casing Radius: 0.0997 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 20. ft
 Total Well Penetration Depth: 283. ft

No. of Observations: 26

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	1.16	0.3938	0.041
0.021	1.151	0.4382	-0.299
0.0432	0.981	0.4852	-0.347
0.0667	0.639	0.535	-0.117
0.0915	0.199	0.5877	0.139
0.1178	-0.071	0.6435	0.162
0.1458	-0.693	0.7027	-0.054
0.1755	-0.796	0.7653	-0.178
0.2068	-0.603	0.8317	-0.069
0.24	-0.175	0.902	0.058
0.2752	0.251	0.9765	-0.002
0.3125	0.484	1.056	-0.071
0.352	0.371	1.139	0.

SOLUTION

Slug Test
 Aquifer Model: Confined
 Solution Method: Butler
 Log Factor: 0.1887

VISUAL ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	
K	164.6	ft/day
Le	303.3	ft

K = 0.05806 cm/sec

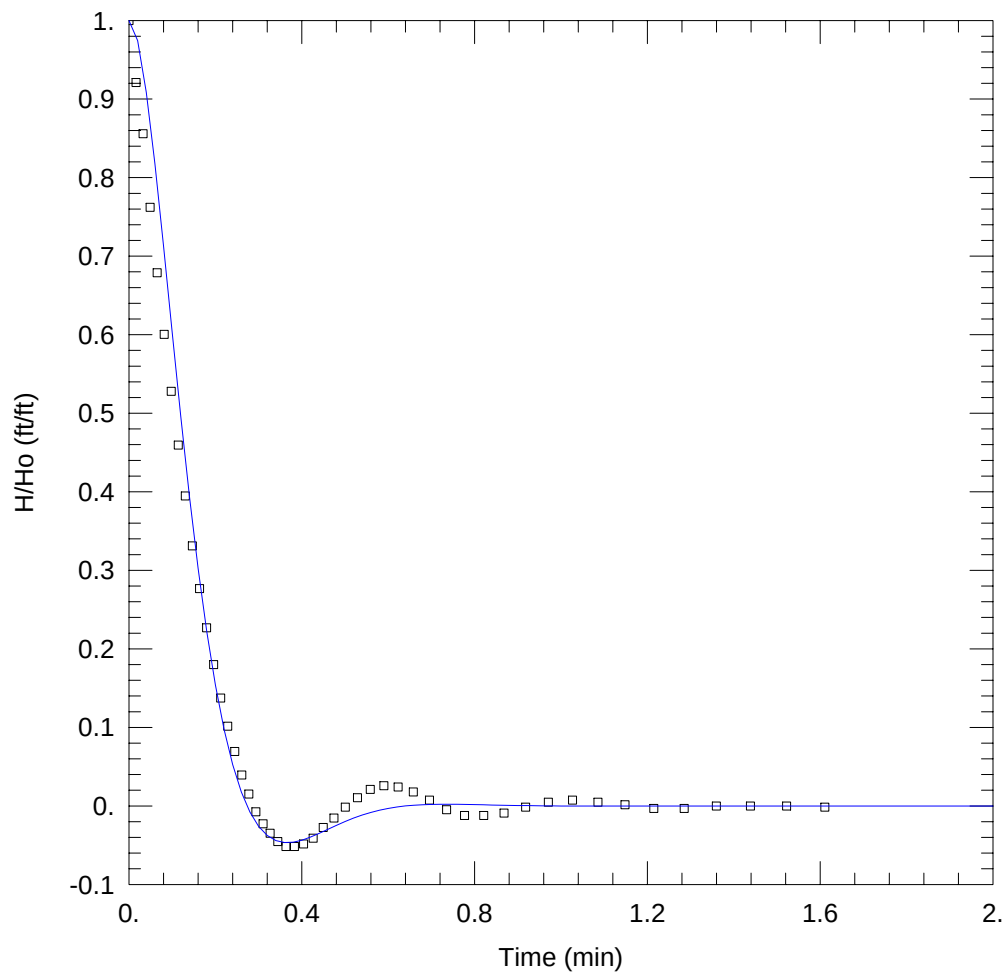
$L_e = 303.3$ ft

Solution is critically damped when $C(D) = 1$.

NOTES

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a K_r value that is underpredicted.

The translation method was applied to reduce the slug magnitude of the test from 3 feet to 1.16 feet. This was to reduce some of the non-linear errors present.



PT 5A (308-320)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 308-320
 Test Well: CH/Deep UFA
 Test Date: 8/21/2003

AQUIFER DATA

Saturated Thickness: 486 ft Anisotropy Ratio (K_z/K_r): 0.01

WELL DATA (CH/Deep UFA)

Initial Displacement: 1.9 ft Static Water Column Height: 288.6 ft
 Total Well Penetration Depth: 293 ft Screen Length: 12 ft
 Casing Radius: 0.0997 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler
 $K = 35.6$ ft/day $L_e = 806.4$ ft

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT05c_systematic.aqt

Title: PT 5a (308-320)

Date: 06/02/06

Time: 15:46:14

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2

Location: 308-320

Test Date: 8/21/2003

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 486. ft

Anisotropy Ratio (Kz/Kr): 0.01

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 1.9 ft

Static Water Column Height: 288.6 ft

Casing Radius: 0.0997 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 12. ft

Total Well Penetration Depth: 293. ft

No. of Observations: 50

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	1.919	0.4264	-0.078
0.0164	1.75	0.4499	-0.052
0.0327	1.626	0.4747	-0.029
0.049	1.448	0.501	-0.003
0.0654	1.29	0.529	0.02
0.0817	1.141	0.5587	0.04
0.098	1.003	0.59	0.049
0.1144	0.873	0.6232	0.046
0.1307	0.75	0.6584	0.034
0.147	0.629	0.6957	0.014
0.1634	0.526	0.7352	-0.009
0.1797	0.431	0.777	-0.023
0.196	0.342	0.8214	-0.023
0.2124	0.261	0.8684	-0.017
0.2287	0.193	0.9182	-0.003
0.245	0.132	0.9709	0.009
0.2614	0.075	1.027	0.014
0.2777	0.029	1.086	0.009
0.294	-0.014	1.149	0.003
0.3104	-0.043	1.215	-0.006
0.327	-0.066	1.285	-0.006
0.3447	-0.086	1.36	0.
0.3634	-0.098	1.439	0.
0.3832	-0.098	1.522	0.
0.4042	-0.092	1.611	-0.003

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: Butler

Log Factor: 0.1456

VISUAL ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
K	35.6	ft/day
Le	806.4	ft

K = 0.01256 cm/sec

Le = 806.4 ft

Solution is critically damped when C(D) = 1.

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	<u>Std. Error</u>	<u>Approx. C.I.</u>	<u>t-Ratio</u>	
K	35.6	0.654	+/- 1.315	54.43	ft/day
Le	557.9	33.36	+/- 67.09	16.72	ft

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 0.01256 cm/sec

Le = 557.9 ft

Solution is critically damped when C(D) = 1.

Parameter Correlations

	K	Le
K	1.00	0.03
Le	0.03	1.00

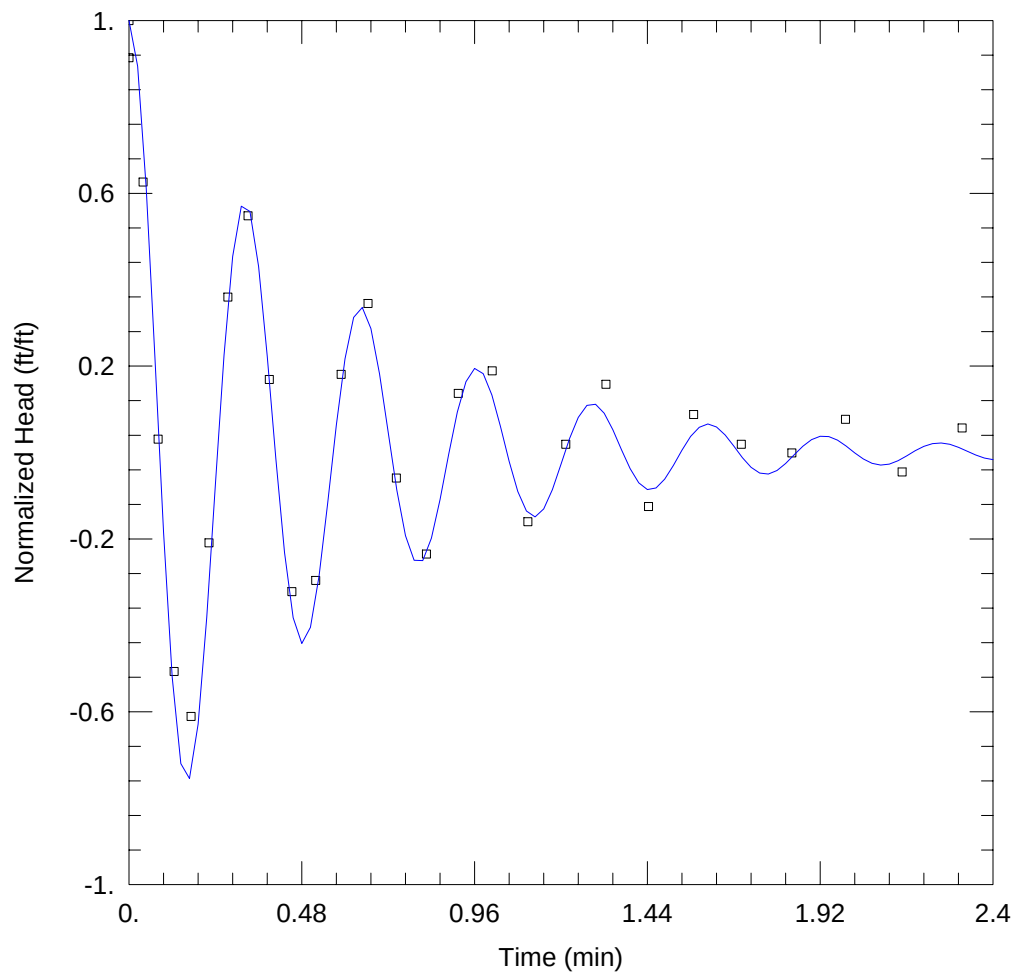
Residual Statistics

for weighted residuals

Sum of Squares 0.134 ft²
 Variance 0.002792 ft²
 Std. Deviation 0.05284 ft
 Mean -0.01283 ft
 No. of Residuals. 50
 No. of Estimates. 2

NOTES

A newly fabricated pneumatic slug testing head was used to conduct this test. This device solved many of the problems with the previously tests' initiation method. A packer orifice restriction exists. A test for head dependency was conducted and verifies the orifice restriction as a problem. Slug Discrepancy is 1.6%.



PT 6C (326-365) - TRUNCATED

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2 C
 Location: 326-365
 Test Well: CH/Deep UFA
 Test Date: 8/28/2003

AQUIFER DATA

Saturated Thickness: 486 ft Anisotropy Ratio (K_z/K_r): 0.01

WELL DATA (CH/Deep UFA)

Initial Displacement: 1 ft Static Water Column Height: 339 ft
 Total Well Penetration Depth: 338 ft Screen Length: 39 ft
 Casing Radius: 0.099 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler
 $K = 204.7$ ft/day $L_e = 301.1$ ft

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT06c truncation_butler.aqt

Title: PT 6C (326-365) - truncated

Date: 06/02/06

Time: 15:52:27

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2 C

Location: 326-365

Test Date: 8/28/2003

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 486. ft

Anisotropy Ratio (Kz/Kr): 0.01

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 1. ft

Static Water Column Height: 339. ft

Casing Radius: 0.099 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 39. ft

Total Well Penetration Depth: 338. ft

No. of Observations: 34

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	0.914	1.108	-0.16
0.0395	0.626	1.214	0.019
0.0813	0.031	1.325	0.158
0.1256	-0.507	1.443	-0.125
0.1726	-0.611	1.569	0.088
0.2225	-0.209	1.701	0.019
0.2751	0.36	1.841	-0.001
0.331	0.548	1.99	0.077
0.3901	0.169	2.148	-0.045
0.4528	-0.322	2.315	0.057
0.5191	-0.296	2.491	-0.019
0.5895	0.181	2.679	0.016
0.664	0.345	2.877	0.028
0.743	-0.059	3.087	-0.027
0.8266	-0.235	3.31	0.019
0.9151	0.137	3.546	0.022
1.009	0.189	3.796	-0.007

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: Butler

Log Factor: 0.1243

VISUAL ESTIMATION RESULTS

Estimated Parameters

Parameter	Estimate	
K	204.7	ft/day
Le	301.1	ft

$K = 0.07221 \text{ cm/sec}$

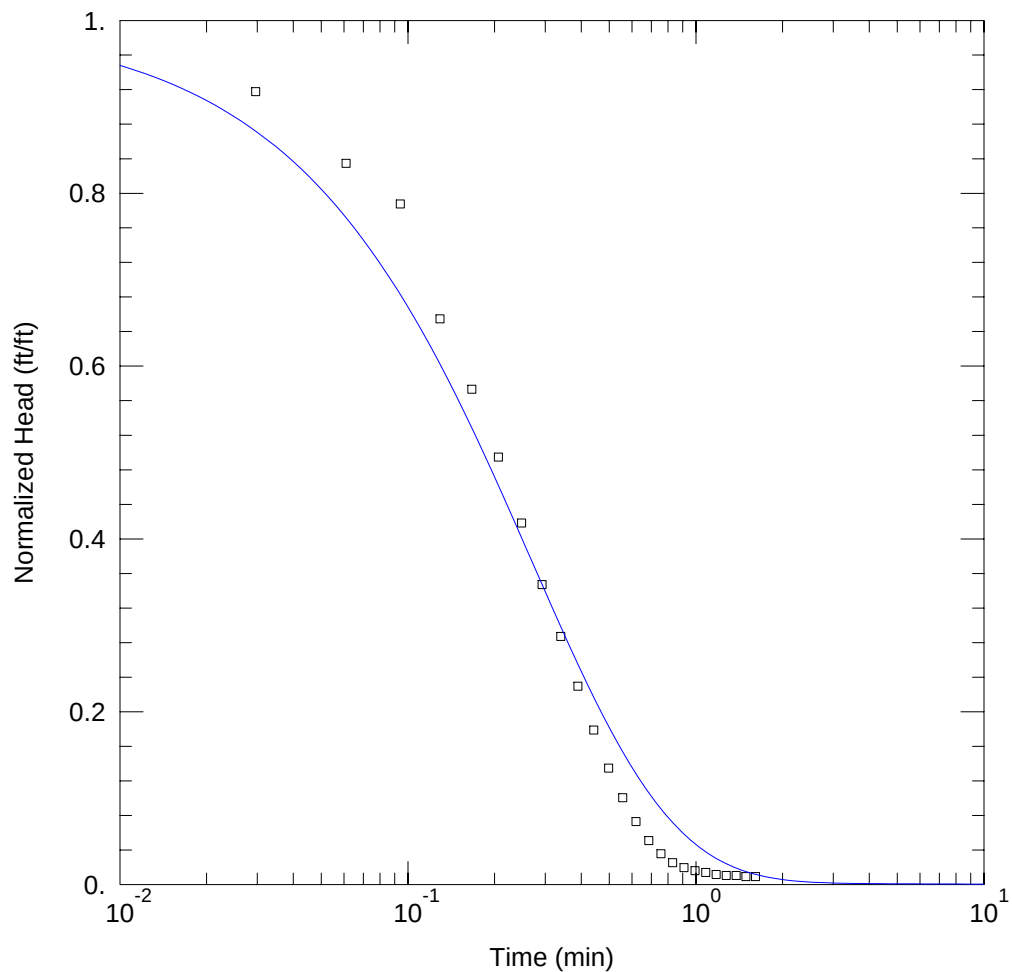
$L_e = 301.1 \text{ ft}$

Solution is critically damped when $C(D) = 1$.

NOTES

A newly fabricated pneumatic slug testing head was used to conduct this test. This device solved many of the problems with the previously tests' initiation method. A packer orifice restriction exists. A test for head dependency was conducted and verifies the orifice restriction as a problem.

The translation method was used to reduce the initial slug from 9.23 feet to 1 foot.



PT 7A (392-425)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 392-425
 Test Well: CH//Deep UFA
 Test Date: 9/3/2003

AQUIFER DATA

Saturated Thickness: 485 ft

WELL DATA (CH//Deep UFA)

Initial Displacement: 2.5 ft
 Total Well Penetration Depth: 398 ft
 Casing Radius: 0.099 ft

Static Water Column Height: 399 ft
 Screen Length: 33 ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 3.66$ ft/day
 $K_z/K_r = 1$

Solution Method: KGS Model
 $S_s = 2.062E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT07a_systematic translation2.aqt
 Title: PT 7A (392-425)
 Date: 06/02/06
 Time: 15:58:00

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 392-425
 Test Date: 9/3/2003
 Test Well: CH//Deep UFA

AQUIFER DATA

Saturated Thickness: 485. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: CH//Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 2.5 ft
 Static Water Column Height: 399. ft
 Casing Radius: 0.099 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 33. ft
 Total Well Penetration Depth: 398. ft

No. of Observations: 26

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	2.508	0.5568	0.251
0.0296	2.294	0.6195	0.182
0.061	2.087	0.6858	0.127
0.0941	1.969	0.7561	0.089
0.1293	1.637	0.8306	0.063
0.1666	1.433	0.9096	0.049
0.2061	1.237	0.9933	0.04
0.248	1.046	1.082	0.035
0.2923	0.868	1.176	0.029
0.3393	0.718	1.275	0.026
0.3891	0.574	1.38	0.026
0.4418	0.447	1.492	0.023
0.4976	0.337	1.61	0.023

SOLUTION

Slug Test
 Aquifer Model: Confined
 Solution Method: KGS Model

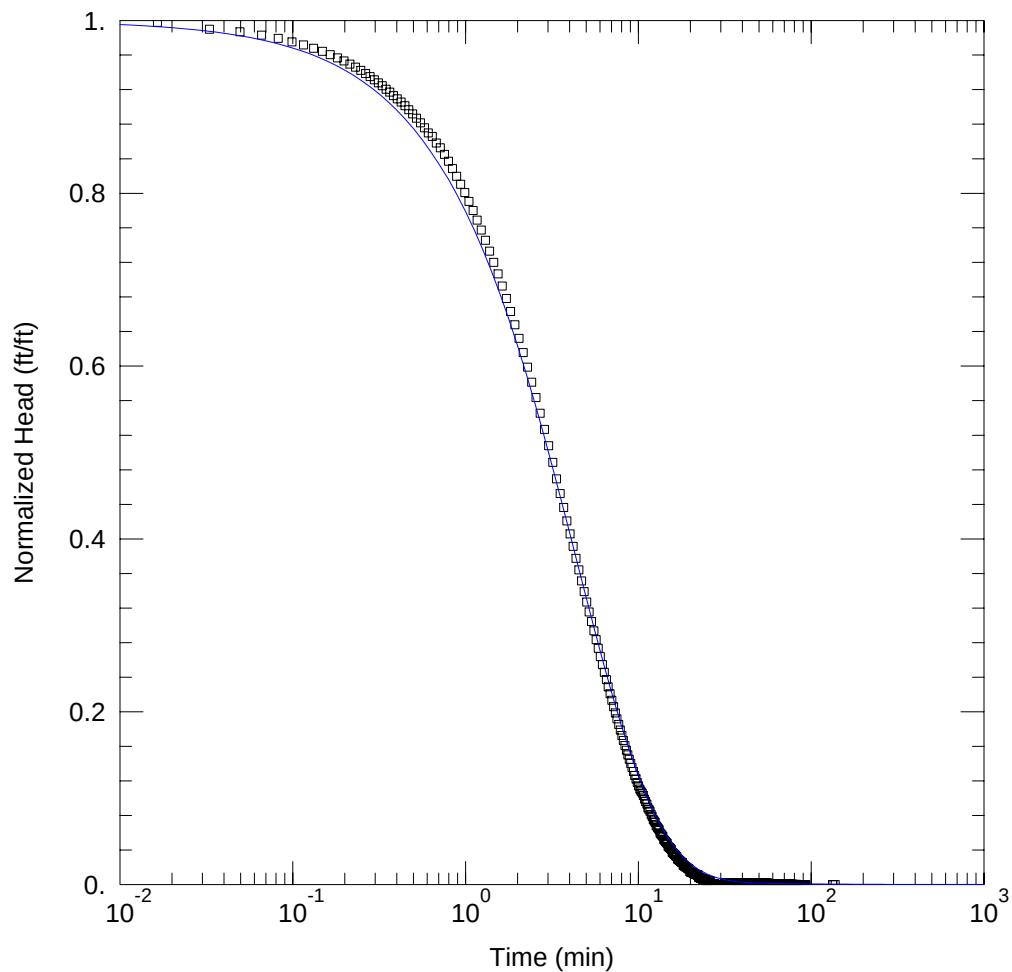
VISUAL ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	
Kr	3.66	ft/day
Ss	2.062E-6	ft ⁻¹
Kz/Kr	1.	

K = 0.001291 cm/sec

NOTES

A newly fabricated pneumatic slug testing head was used to conduct this test. This device solved many of the problems with the previously tests' initiation method. A packer orifice restriction exists. A test for head dependency was conducted and verifies the orifice restriction as a problem. The translation method was used to reduce the initial slug from 9.23 feet to 2.5 feet.



PT 8A (457-485)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 457-485
 Test Well: CH/Deep UFA
 Test Date: 9/5/2003

AQUIFER DATA

Saturated Thickness: 485 ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 36 ft
 Total Well Penetration Depth: 458 ft
 Casing Radius: 0.099 ft

Static Water Column Height: 453 ft
 Screen Length: 28 ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.2666$ ft/day
 $K_z/K_r = 1$

Solution Method: KGS Model
 $S_s = 1.2E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT08a_systematic.aqt

Title: PT 8A (457-485)

Date: 06/02/06

Time: 16:01:44

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2

Location: 457-485

Test Date: 9/5/2003

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 485. ft

Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 36. ft

Static Water Column Height: 453. ft

Casing Radius: 0.099 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 28. ft

Total Well Penetration Depth: 458. ft

No. of Observations: 871

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	35.98	65.53	0.015
0.0165	35.92	65.7	0.012
0.033	35.64	65.86	0.012
0.0495	35.53	66.03	0.015
0.066	35.39	66.2	0.015
0.0825	35.26	66.36	0.015
0.099	35.11	66.53	0.015
0.1155	34.99	66.7	0.012
0.132	34.84	66.86	0.012
0.1485	34.71	67.03	0.012
0.165	34.58	67.2	0.012
0.1815	34.45	67.36	0.012
0.198	34.32	67.53	0.012
0.2145	34.19	67.7	0.012
0.231	34.06	67.86	0.015
0.2475	33.92	68.03	0.015
0.264	33.79	68.2	0.012
0.2805	33.66	68.36	0.012
0.297	33.53	68.53	0.015
0.3135	33.41	68.7	0.012
0.33	33.28	68.86	0.012
0.3467	33.14	69.03	0.012
0.3643	33.02	69.2	0.012
0.383	32.87	69.36	0.009
0.4028	32.73	69.53	0.009
0.4238	32.6	69.7	0.009
0.446	32.45	69.86	0.006
0.4695	32.28	70.03	0.006
0.4943	32.11	70.2	0.006
0.5207	31.93	70.36	0.006
0.5487	31.73	70.53	0.006
0.5783	31.53	70.7	0.006

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
0.6097	31.32	70.86	0.006
0.6428	31.17	71.03	0.009
0.678	30.9	71.2	0.009
0.7153	30.7	71.36	0.012
0.7548	30.42	71.53	0.009
0.7967	30.14	71.7	0.006
0.841	29.83	71.86	0.006
0.888	29.51	72.03	0.006
0.9378	29.18	72.2	0.009
0.9905	28.83	72.36	0.009
1.046	28.47	72.53	0.009
1.105	28.08	72.7	0.006
1.168	27.69	72.86	0.009
1.234	27.27	73.03	0.006
1.305	26.84	73.2	0.006
1.379	26.39	73.36	0.006
1.458	25.93	73.53	0.009
1.542	25.44	73.7	0.009
1.631	24.94	73.86	0.009
1.724	24.42	74.03	0.009
1.824	23.88	74.2	0.009
1.929	23.33	74.36	0.009
2.041	22.75	74.53	0.006
2.159	22.16	74.7	0.006
2.284	21.56	74.86	0.006
2.416	20.93	75.03	0.006
2.557	20.29	75.2	0.006
2.706	19.64	75.36	0.009
2.863	18.97	75.53	0.006
3.03	18.28	75.7	0.006
3.196	17.59	75.86	0.006
3.363	16.9	76.03	0.006
3.53	16.29	76.2	0.
3.696	15.71	76.36	0.006
3.863	15.15	76.53	0.006
4.03	14.61	76.7	0.009
4.197	14.09	76.86	0.009
4.363	13.59	77.03	0.009
4.53	13.11	77.2	0.003
4.697	12.65	77.36	0.003
4.863	12.2	77.53	0.
5.03	11.77	77.7	0.
5.197	11.36	77.86	0.
5.363	10.96	78.03	0.003
5.53	10.57	78.2	0.003
5.697	10.2	78.36	0.003
5.863	9.841	78.53	0.003
6.03	9.499	78.7	0.003
6.197	9.163	78.86	0.
6.363	8.844	79.03	-0.002
6.53	8.536	79.2	-0.002
6.697	8.237	79.36	0.
6.863	7.952	79.53	0.
7.03	7.679	79.7	0.
7.197	7.412	79.86	0.
7.363	7.153	80.03	0.
7.53	6.906	80.2	0.
7.697	6.667	80.36	0.003
7.863	6.437	80.53	0.
8.03	6.213	80.7	0.
8.197	6.003	80.86	0.
8.363	5.793	81.03	0.
8.53	5.595	81.2	0.
8.697	5.403	81.36	0.
8.863	5.219	81.53	0.
9.03	5.043	81.7	0.
9.197	4.874	81.86	0.
9.363	4.707	82.03	0.

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
9.53	4.546	82.2	0.
9.697	4.397	82.36	0.003
9.863	4.248	82.53	0.003
10.03	4.107	82.7	0.003
10.2	3.98	82.86	0.003
10.36	3.891	83.03	0.
10.53	3.808	83.2	0.
10.7	3.708	83.36	0.
10.86	3.555	83.53	0.
11.03	3.458	83.7	0.
11.2	3.348	83.86	0.
11.36	3.199	84.03	0.
11.53	3.127	84.2	0.
11.7	3.058	84.36	0.
11.86	2.918	84.53	0.
12.03	2.84	84.7	0.
12.2	2.702	84.86	0.
12.36	2.648	85.03	0.
12.53	2.593	85.2	0.
12.7	2.45	85.36	-0.002
12.86	2.392	85.53	0.
13.03	2.335	85.7	0.
13.2	2.28	85.86	0.
13.36	2.151	86.03	0.
13.53	2.102	86.2	0.
13.7	2.056	86.36	0.
13.86	2.002	86.53	-0.002
14.03	1.875	86.7	-0.002
14.2	1.835	86.86	-0.002
14.36	1.792	87.03	-0.002
14.53	1.743	87.2	-0.002
14.7	1.72	87.36	-0.002
14.86	1.597	87.53	-0.002
15.03	1.559	87.7	-0.002
15.2	1.531	87.86	-0.002
15.36	1.496	88.03	-0.002
15.53	1.456	88.2	0.
15.7	1.344	88.36	-0.002
15.86	1.315	88.53	0.
16.03	1.281	88.7	0.
16.2	1.255	88.86	0.
16.36	1.232	89.03	0.
16.53	1.186	89.2	-0.002
16.7	1.172	89.36	-0.002
16.86	1.06	89.53	-0.002
17.03	1.048	89.7	-0.002
17.2	1.014	89.86	0.
17.36	0.997	90.03	0.
17.53	0.968	90.2	0.
17.7	0.936	90.36	0.
17.86	0.922	90.53	0.
18.03	0.905	90.7	0.
18.2	0.799	90.86	0.
18.36	0.787	91.03	0.
18.53	0.764	91.2	-0.002
18.7	0.747	91.36	0.
18.86	0.73	91.53	-0.002
19.03	0.707	91.7	-0.002
19.2	0.698	91.86	-0.002
19.36	0.669	92.03	-0.002
19.53	0.652	92.2	-0.002
19.7	0.643	92.36	0.
19.86	0.54	92.53	0.
20.03	0.532	92.7	-0.002
20.2	0.511	92.86	0.
20.36	0.506	93.03	0.
20.53	0.497	93.2	-0.002
20.7	0.477	93.36	-0.005

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
20.86	0.457	93.53	-0.005
21.03	0.448	93.7	-0.002
21.2	0.44	93.86	-0.005
21.36	0.425	94.03	-0.005
21.53	0.42	94.2	-0.002
21.7	0.411	94.36	-0.002
21.86	0.402	94.53	-0.002
22.03	0.402	94.7	-0.002
22.2	0.394	94.86	-0.005
22.36	0.296	95.03	-0.005
22.53	0.293	95.2	-0.005
22.7	0.276	95.36	-0.005
22.86	0.27	95.53	-0.005
23.03	0.262	95.7	-0.008
23.2	0.256	95.86	-0.011
23.36	0.239	96.03	-0.011
23.53	0.233	96.2	-0.008
23.7	0.224	96.36	-0.008
23.86	0.219	96.53	-0.008
24.03	0.216	96.7	-0.008
24.2	0.21	96.86	-0.005
24.36	0.196	97.03	-0.005
24.53	0.199	97.2	-0.005
24.7	0.178	97.36	-0.005
24.86	0.173	97.53	-0.005
25.03	0.164	97.7	-0.005
25.2	0.158	97.86	-0.002
25.36	0.155	98.03	-0.005
25.53	0.153	98.2	-0.005
25.7	0.147	98.36	-0.005
25.86	0.141	98.53	-0.005
26.03	0.138	98.7	-0.005
26.2	0.138	98.86	-0.005
26.36	0.041	99.03	-0.005
26.53	0.044	99.2	-0.005
26.7	0.041	99.36	-0.005
26.86	0.038	99.53	-0.008
27.03	0.026	99.7	-0.008
27.2	0.023	99.86	-0.005
27.36	0.023	100.	-0.005
27.53	0.018	100.2	-0.008
27.7	0.015	100.4	-0.008
27.86	0.012	100.5	-0.005
28.03	0.006	100.7	-0.008
28.2	0.009	100.9	-0.011
28.36	0.003	101.	-0.014
28.53	-0.011	101.2	-0.011
28.7	-0.02	101.4	-0.011
28.86	-0.022	101.5	-0.011
29.03	-0.025	101.7	-0.011
29.2	-0.022	101.9	-0.011
29.36	-0.028	102.	-0.005
29.53	-0.034	102.2	-0.005
29.7	-0.034	102.4	-0.005
29.86	-0.037	102.5	-0.008
30.03	-0.04	102.7	-0.008
30.2	-0.043	102.9	-0.008
30.36	-0.045	103.	-0.005
30.53	-0.048	103.2	-0.008
30.7	-0.051	103.4	-0.008
30.86	-0.051	103.5	-0.011
31.03	-0.051	103.7	-0.011
31.2	-0.048	103.9	-0.008
31.36	-0.054	104.	-0.008
31.53	-0.022	104.2	-0.005
31.7	0.064	104.4	-0.005
31.86	0.075	104.5	-0.002
32.03	0.075	104.7	-0.002

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
32.2	0.081	104.9	-0.002
32.36	0.078	105.	-0.002
32.53	0.081	105.2	-0.002
32.7	0.078	105.4	-0.005
32.86	0.081	105.5	-0.005
33.03	0.084	105.7	-0.005
33.2	0.078	105.9	-0.005
33.36	0.075	106.	-0.005
33.53	0.081	106.2	-0.005
33.7	0.078	106.4	-0.005
33.86	0.078	106.5	-0.005
34.03	0.075	106.7	-0.005
34.2	0.075	106.9	-0.005
34.36	0.078	107.	-0.002
34.53	0.078	107.2	-0.002
34.7	0.078	107.4	-0.005
34.86	0.075	107.5	-0.005
35.03	0.075	107.7	-0.005
35.2	0.075	107.9	-0.005
35.36	0.075	108.	-0.005
35.53	0.075	108.2	-0.005
35.7	0.078	108.4	-0.005
35.86	0.072	108.5	-0.005
36.03	0.072	108.7	-0.005
36.2	0.069	108.9	-0.005
36.36	0.069	109.	-0.005
36.53	0.069	109.2	-0.005
36.7	0.069	109.4	-0.005
36.86	0.075	109.5	-0.008
37.03	0.069	109.7	-0.008
37.2	0.069	109.9	-0.008
37.36	0.066	110.	-0.008
37.53	0.066	110.2	-0.008
37.7	0.066	110.4	-0.005
37.86	0.066	110.5	-0.005
38.03	0.072	110.7	-0.005
38.2	0.064	110.9	-0.005
38.36	0.061	111.	-0.008
38.53	0.064	111.2	-0.005
38.7	0.061	111.4	-0.008
38.86	0.064	111.5	-0.011
39.03	0.061	111.7	-0.011
39.2	0.066	111.9	-0.011
39.36	0.064	112.	-0.011
39.53	0.064	112.2	-0.011
39.7	0.061	112.4	-0.011
39.86	0.061	112.5	-0.011
40.03	0.061	112.7	-0.011
40.2	0.064	112.9	-0.011
40.36	0.058	113.	-0.011
40.53	0.058	113.2	-0.011
40.7	0.055	113.4	-0.008
40.86	0.058	113.5	-0.008
41.03	0.061	113.7	-0.008
41.2	0.061	113.9	-0.008
41.36	0.058	114.	-0.008
41.53	0.061	114.2	-0.008
41.7	0.055	114.4	-0.011
41.86	0.058	114.5	-0.008
42.03	0.055	114.7	-0.008
42.2	0.058	114.9	-0.008
42.36	0.055	115.	-0.008
42.53	0.061	115.2	-0.011
42.7	0.055	115.4	-0.011
42.86	0.061	115.5	-0.011
43.03	0.055	115.7	-0.005
43.2	0.055	115.9	-0.005
43.36	0.055	116.	-0.008

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
43.53	0.055	116.2	-0.008
43.7	0.052	116.4	-0.008
43.86	0.049	116.5	-0.008
44.03	0.055	116.7	-0.008
44.2	0.052	116.9	-0.005
44.36	0.052	117.	-0.008
44.53	0.049	117.2	-0.005
44.7	0.052	117.4	-0.005
44.86	0.049	117.5	-0.002
45.03	0.055	117.7	-0.005
45.2	0.049	117.9	-0.008
45.36	0.049	118.	-0.008
45.53	0.049	118.2	-0.011
45.7	0.049	118.4	-0.011
45.86	0.049	118.5	-0.008
46.03	0.046	118.7	-0.008
46.2	0.049	118.9	-0.008
46.36	0.052	119.	-0.008
46.53	0.049	119.2	-0.008
46.7	0.049	119.4	-0.005
46.86	0.049	119.5	-0.005
47.03	0.049	119.7	-0.002
47.2	0.046	119.9	-0.005
47.36	0.046	120.	-0.002
47.53	0.049	120.2	-0.005
47.7	0.046	120.4	-0.005
47.86	0.049	120.5	-0.008
48.03	0.049	120.7	-0.008
48.2	0.046	120.9	-0.005
48.36	0.049	121.	-0.005
48.53	0.046	121.2	-0.008
48.7	0.046	121.4	-0.008
48.86	0.049	121.5	-0.005
49.03	0.052	121.7	-0.002
49.2	0.046	121.9	-0.005
49.36	0.049	122.	-0.008
49.53	0.049	122.2	-0.011
49.7	0.055	122.4	-0.011
49.86	0.049	122.5	-0.008
50.03	0.049	122.7	-0.011
50.2	0.049	122.9	-0.011
50.36	0.049	123.	-0.011
50.53	0.049	123.2	-0.011
50.7	0.049	123.4	-0.011
50.86	0.049	123.5	-0.008
51.03	0.055	123.7	-0.011
51.2	0.052	123.9	-0.011
51.36	0.046	124.	-0.011
51.53	0.044	124.2	-0.011
51.7	0.046	124.4	-0.011
51.86	0.046	124.5	-0.008
52.03	0.046	124.7	-0.008
52.2	0.046	124.9	-0.008
52.36	0.046	125.	-0.011
52.53	0.044	125.2	-0.011
52.7	0.049	125.4	-0.011
52.86	0.044	125.5	-0.014
53.03	0.044	125.7	-0.014
53.2	0.046	125.9	-0.017
53.36	0.046	126.	-0.014
53.53	0.041	126.2	-0.017
53.7	0.044	126.4	-0.017
53.86	0.041	126.5	-0.014
54.03	0.044	126.7	-0.017
54.2	0.044	126.9	-0.014
54.36	0.044	127.	-0.014
54.53	0.041	127.2	-0.014
54.7	0.046	127.4	-0.011

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
54.86	0.041	127.5	-0.011
55.03	0.018	127.7	-0.011
55.2	0.049	127.9	-0.011
55.36	0.046	128.	-0.014
55.53	0.052	128.2	-0.014
55.7	0.023	128.4	-0.014
55.86	0.055	128.5	-0.02
56.03	0.046	128.7	-0.011
56.2	0.055	128.9	-0.005
56.36	0.046	129.	-0.008
56.53	0.044	129.2	-0.008
56.7	0.046	129.4	-0.025
56.86	0.044	129.5	-0.008
57.03	0.046	129.7	-0.008
57.2	0.044	129.9	-0.014
57.36	0.041	130.	-0.014
57.53	0.038	130.2	-0.011
57.7	0.044	130.4	-0.008
57.86	0.038	130.5	-0.008
58.03	0.026	130.7	-0.008
58.2	0.026	130.9	-0.002
58.36	0.026	131.	-0.005
58.53	0.023	131.2	-0.002
58.7	0.021	131.4	-0.008
58.86	0.023	131.5	-0.008
59.03	0.021	131.7	-0.008
59.2	0.021	131.9	-0.008
59.36	0.021	132.	-0.005
59.53	0.021	132.2	-0.008
59.7	0.021	132.4	-0.011
59.86	0.023	132.5	-0.005
60.03	0.021	132.7	-0.002
60.2	0.021	132.9	-0.002
60.36	0.021	133.	-0.002
60.53	0.021	133.2	0.
60.7	0.021	133.4	0.
60.86	0.021	133.5	-0.005
61.03	0.021	133.7	-0.002
61.2	0.021	133.9	-0.005
61.36	0.018	134.	-0.005
61.53	0.018	134.2	-0.008
61.7	0.018	134.4	-0.005
61.86	0.021	134.5	-0.002
62.03	0.018	134.7	-0.005
62.2	0.021	134.9	-0.011
62.36	0.018	135.	-0.011
62.53	0.021	135.2	-0.005
62.7	0.018	135.4	-0.002
62.86	0.018	135.5	-0.011
63.03	0.021	135.7	-0.002
63.2	0.021	135.9	-0.005
63.36	0.021	136.	-0.002
63.53	0.018	136.2	-0.005
63.7	0.018	136.4	-0.008
63.86	0.015	136.5	-0.002
64.03	0.015	136.7	-0.005
64.2	0.015	136.9	-0.008
64.36	0.018	137.	-0.005
64.53	0.018	137.2	-0.005
64.7	0.018	137.4	-0.002
64.86	0.021	137.5	-0.005
65.03	0.021	137.7	-0.005
65.2	0.015	137.9	0.
65.36	0.015		

SOLUTION

Slug Test

Aquifer Model: Confined
Solution Method: KGS Model

VISUAL ESTIMATION RESULTS

Estimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	0.2666	ft/day
Ss	1.2E-6	ft ⁻¹
Kz/Kr	1.	

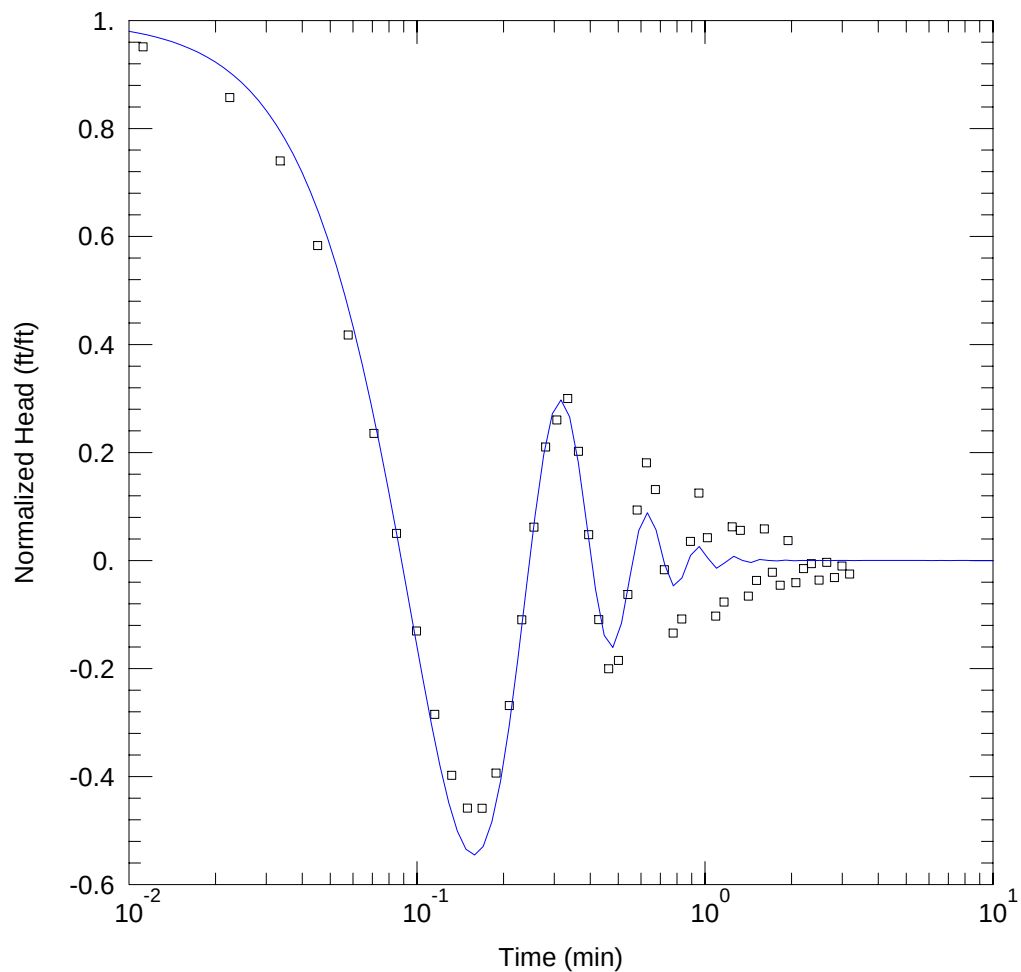
K = 9.405E-5 cm/sec

NOTES

Specific Storage froze in the 10⁻⁶ range.

System solved to be isotropic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.



PT 9A (326-520)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 326-520
 Test Well: CH/Deep UFA
 Test Date: 9/8/2003

AQUIFER DATA

Saturated Thickness: 485. ft Anisotropy Ratio (K_z/K_r): 0.01

WELL DATA (CH/Deep UFA)

Initial Displacement: 1.325 ft Static Water Column Height: 490. ft
 Total Well Penetration Depth: 485. ft Screen Length: 194. ft
 Casing Radius: 0.099 ft Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined Solution Method: Butler
 $K = 20.16$ ft/day $L_e = 280.8$ ft

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT09a_butler translation2.aqt
 Title: PT 9A (326-520)
 Date: 06/03/06
 Time: 11:23:50

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 326-520
 Test Date: 9/8/2003
 Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 485. ft
 Anisotropy Ratio (Kz/Kr): 0.01

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 1.325 ft
 Static Water Column Height: 490. ft
 Casing Radius: 0.099 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 194. ft
 Total Well Penetration Depth: 485. ft

No. of Observations: 53

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	1.324	0.6264	0.2395
0.0112	1.261	0.6734	0.174
0.0224	1.136	0.7232	-0.0225
0.0335	0.9805	0.7759	-0.178
0.0452	0.773	0.8317	-0.1435
0.0577	0.5535	0.8909	0.047
0.0709	0.312	0.9535	0.1655
0.0849	0.0665	1.02	0.056
0.0997	-0.173	1.09	-0.1365
0.1154	-0.3775	1.165	-0.102
0.132	-0.527	1.244	0.0825
0.1497	-0.6075	1.327	0.074
0.1684	-0.608	1.416	-0.0875
0.1882	-0.5215	1.51	-0.049
0.2092	-0.356	1.609	0.0775
0.2314	-0.1455	1.714	-0.029
0.2549	0.082	1.826	-0.0605
0.2797	0.2785	1.944	0.049
0.306	0.345	2.069	-0.0545
0.334	0.3975	2.202	-0.02
0.3637	0.268	2.342	-0.0075
0.395	0.0635	2.491	-0.048
0.4282	-0.145	2.648	-0.0045
0.4634	-0.2655	2.815	-0.042
0.5007	-0.245	2.992	-0.0135
0.5402	-0.0835	3.18	-0.033
0.582	0.124		

SOLUTION

Slug Test
 Aquifer Model: Confined

Solution Method: Butler
Log Factor: 0.09668

VISUAL ESTIMATION RESULTS

Estimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
K	20.16	ft/day
Le	280.8	ft

K = 0.007111 cm/sec

Le = 280.8 ft

Solution is critically damped when C(D) = 1.

AUTOMATIC ESTIMATION RESULTS

Estimated Parameters

<u>Parameter</u>	<u>Estimate</u>	<u>Std. Error</u>	<u>Approx. C.I.</u>	<u>t-Ratio</u>	
K	20.16	0.8443	+/- 1.695	23.88	ft/day
Le	280.8	4.859	+/- 9.756	57.8	ft

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 0.007111 cm/sec

Le = 280.8 ft

Solution is critically damped when C(D) = 1.

Parameter Correlations

	<u>K</u>	<u>Le</u>
K	1.00	0.08
Le	0.08	1.00

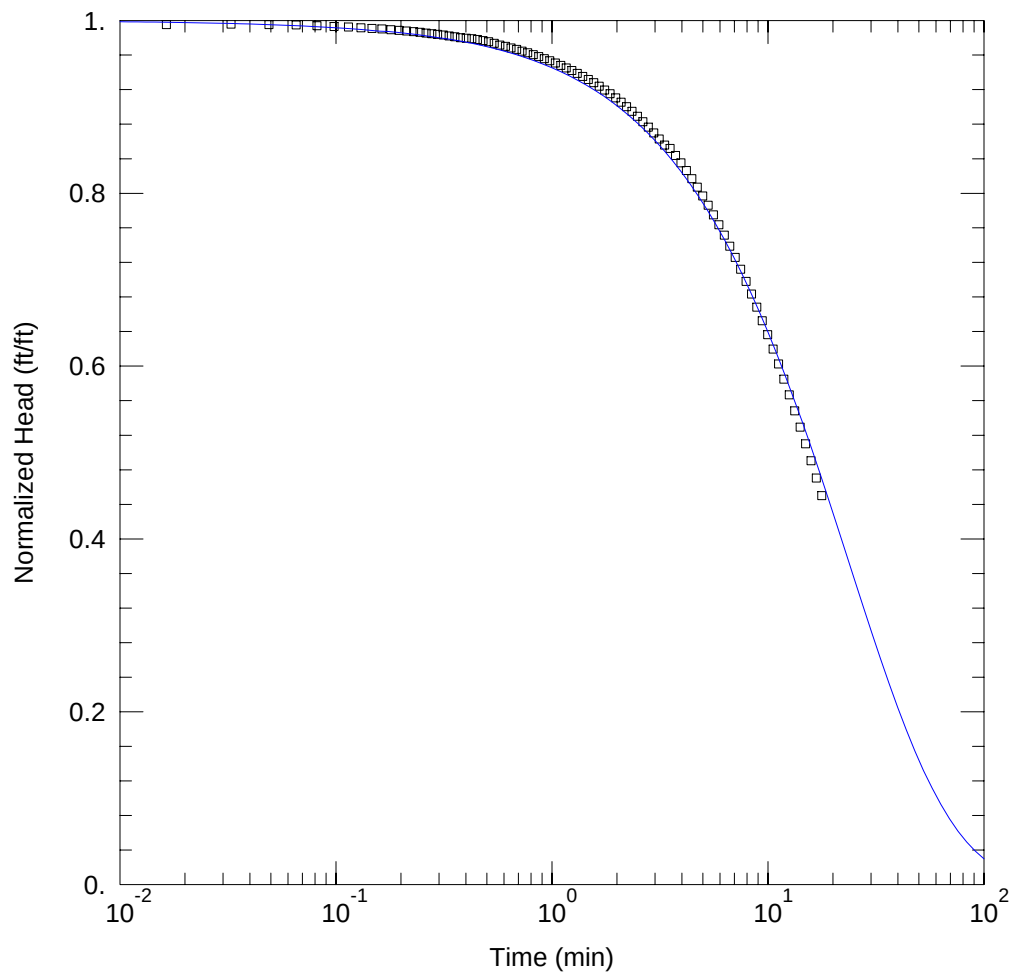
Residual Statistics

for weighted residuals

Sum of Squares 0.2146 ft²
 Variance 0.004208 ft²
 Std. Deviation 0.06487 ft
 Mean -0.001601 ft
 No. of Residuals. 53
 No. of Estimates. 2

NOTES

A newly fabricated pneumatic slug testing head was used to conduct this test. This device solved many of the problems with the previously tests' initiation method. A packer orifice restriction exists. Multiple tests were not conducted but analysis of the single test implies head dependence.
 The translation method was used to reduce the initial slug from 9.23 feet to 1.325 foot.



PT 10A (514-530)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 514-530
 Test Well: CH/Deep UFA
 Test Date: 9/10/03

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 34.25 ft
 Total Well Penetration Depth: 18. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 504. ft
 Screen Length: 16. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.08357$ ft/day
 $K_z/K_r = 1.$

Solution Method: KGS Model
 $S_s = 2.487E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT10a_systematic.aqt

Title: PT 10A (514-530)

Date: 06/03/06

Time: 11:35:23

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2

Location: 514-530

Test Date: 9/10/03

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft

Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 34.25 ft

Static Water Column Height: 504. ft

Casing Radius: 0.099 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 16. ft

Total Well Penetration Depth: 18. ft

No. of Observations: 89

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	34.25	1.473	31.91
0.0164	34.09	1.562	31.78
0.0327	34.1	1.656	31.65
0.049	34.09	1.755	31.5
0.0654	34.07	1.86	31.35
0.0817	34.04	1.972	31.18
0.098	34.02	2.09	31.02
0.1144	33.99	2.215	30.84
0.1307	33.96	2.348	30.65
0.147	33.94	2.488	30.45
0.1634	33.91	2.637	30.24
0.1797	33.89	2.795	30.02
0.196	33.86	2.961	29.79
0.2124	33.84	3.138	29.56
0.2287	33.81	3.325	29.31
0.245	33.78	3.524	29.18
0.2614	33.76	3.734	28.9
0.278	33.73	3.957	28.61
0.2957	33.7	4.192	28.3
0.3144	33.67	4.442	27.98
0.3342	33.64	4.707	27.64
0.3552	33.61	4.987	27.3
0.3774	33.57	5.284	26.93
0.4009	33.55	5.599	26.55
0.4257	33.53	5.932	26.15
0.452	33.5	6.285	25.74
0.48	33.45	6.659	25.31
0.5097	33.41	7.055	24.86
0.541	33.34	7.474	24.39
0.5742	33.27	7.918	23.91
0.6094	33.22	8.389	23.41
0.6467	33.16	8.887	22.89

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
0.6862	33.1	9.415	22.35
0.728	33.03	9.975	21.79
0.7724	32.97	10.57	21.23
0.8194	32.9	11.19	20.64
0.8692	32.82	11.86	20.04
0.9219	32.74	12.56	19.41
0.9777	32.65	13.31	18.78
1.037	32.56	14.1	18.13
1.099	32.47	14.94	17.47
1.166	32.37	15.82	16.8
1.236	32.27	16.76	16.11
1.311	32.15	17.76	15.42
1.39	32.03		

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	0.08357	ft/day
Ss	2.487E-6	ft ⁻¹
Kz/Kr	1.	

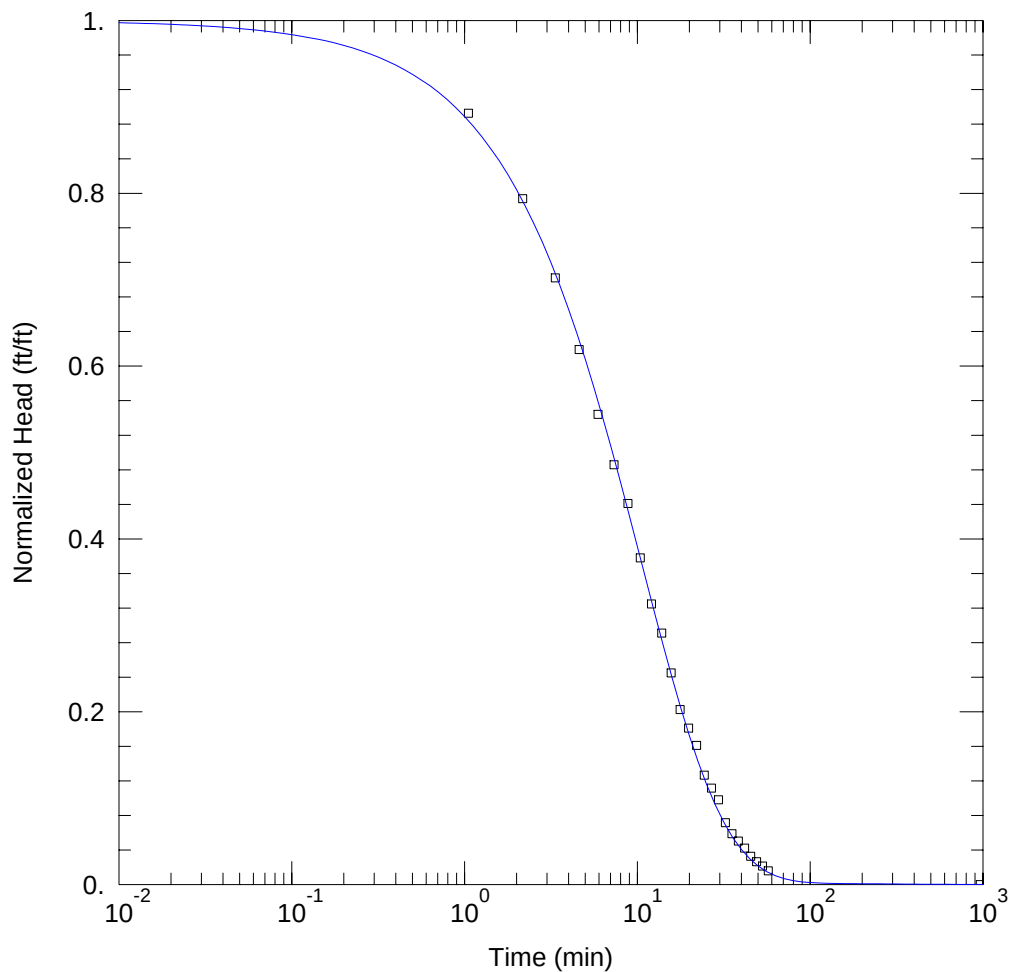
K = 2.948E-5 cm/sec

NOTES

Specific Storage froze in the 10⁻⁶ range.

System solved to be isotropic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.



PT 11A (549-570)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 549-570
 Test Well: CH/Deep UFA
 Test Date: 9/12/2003

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 3.6 ft
 Total Well Penetration Depth: 58. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 544. ft
 Screen Length: 21. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = \underline{0.1507}$ ft/day
 $K_z/K_r = \underline{0.397}$

Solution Method: KGS Model
 $S_s = \underline{2.048E-6}$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT11a_systematic_trans3.aqt
 Title: PT 11A (549-570)
 Date: 06/08/06
 Time: 13:09:14

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 549-570
 Test Date: 9/12/2003
 Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft
 Anisotropy Ratio (Kz/Kr): 0.397

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 3.6 ft
 Static Water Column Height: 544. ft
 Casing Radius: 0.099 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 21. ft
 Total Well Penetration Depth: 58. ft

No. of Observations: 208

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	3.597	451.3	-0.287
1.054	3.214	456.3	-0.29
2.17	2.858	461.3	-0.293
3.352	2.528	466.3	-0.296
4.604	2.229	471.3	-0.296
5.931	1.959	476.3	-0.299
7.335	1.749	481.3	-0.299
8.824	1.588	486.3	-0.299
10.4	1.361	491.3	-0.299
12.07	1.169	496.3	-0.302
13.84	1.048	501.3	-0.305
15.71	0.882	506.3	-0.302
17.7	0.729	511.3	-0.305
19.8	0.652	516.3	-0.307
22.03	0.58	521.3	-0.31
24.39	0.456	526.3	-0.31
26.88	0.402	531.3	-0.31
29.53	0.353	536.3	-0.31
32.33	0.258	541.3	-0.31
35.3	0.212	546.3	-0.31
38.45	0.181	551.3	-0.31
41.78	0.152	556.3	-0.31
45.31	0.118	561.3	-0.31
49.05	0.095	566.3	-0.31
53.01	0.077	571.3	-0.31
57.2	0.057	576.3	-0.31
61.65	-0.017	581.3	-0.313
66.35	-0.026	586.3	-0.313
71.34	-0.037	591.3	-0.313
76.34	-0.049	596.3	-0.313
81.34	-0.058	601.3	-0.313
86.34	-0.066	606.3	-0.313

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
91.34	-0.075	611.3	-0.313
96.34	-0.081	616.3	-0.313
101.3	-0.086	621.3	-0.31
106.3	-0.095	626.3	-0.31
111.3	-0.098	631.3	-0.31
116.3	-0.104	636.3	-0.31
121.3	-0.106	641.3	-0.307
126.3	-0.109	646.3	-0.305
131.3	-0.112	651.3	-0.302
136.3	-0.118	656.3	-0.302
141.3	-0.121	661.3	-0.302
146.3	-0.126	666.3	-0.302
151.3	-0.129	671.3	-0.302
156.3	-0.132	676.3	-0.296
161.3	-0.135	681.3	-0.296
166.3	-0.141	686.3	-0.299
171.3	-0.141	691.3	-0.299
176.3	-0.147	696.3	-0.299
181.3	-0.147	701.3	-0.296
186.3	-0.155	706.3	-0.296
191.3	-0.161	711.3	-0.296
196.3	-0.164	716.3	-0.293
201.3	-0.167	721.3	-0.296
206.3	-0.17	726.3	-0.296
211.3	-0.172	731.3	-0.293
216.3	-0.175	736.3	-0.293
221.3	-0.178	741.3	-0.284
226.3	-0.181	746.3	-0.282
231.3	-0.184	751.3	-0.279
236.3	-0.184	756.3	-0.276
241.3	-0.193	761.3	-0.27
246.3	-0.195	766.3	-0.261
251.3	-0.195	771.3	-0.253
256.3	-0.198	776.3	-0.25
261.3	-0.198	781.3	-0.244
266.3	-0.204	786.3	-0.236
271.3	-0.198	791.3	-0.227
276.3	-0.201	796.3	-0.224
281.3	-0.207	801.3	-0.221
286.3	-0.21	806.3	-0.221
291.3	-0.216	811.3	-0.218
296.3	-0.216	816.3	-0.216
301.3	-0.218	821.3	-0.213
306.3	-0.218	826.3	-0.213
311.3	-0.221	831.3	-0.21
316.3	-0.224	836.3	-0.21
321.3	-0.227	841.3	-0.21
326.3	-0.23	846.3	-0.21
331.3	-0.23	851.3	-0.216
336.3	-0.236	856.3	-0.221
341.3	-0.244	861.3	-0.23
346.3	-0.244	866.3	-0.23
351.3	-0.247	871.3	-0.233
356.3	-0.25	876.3	-0.233
361.3	-0.25	881.3	-0.233
366.3	-0.256	886.3	-0.236
371.3	-0.256	891.3	-0.236
376.3	-0.259	896.3	-0.238
381.3	-0.264	901.3	-0.233
386.3	-0.267	906.3	-0.227
391.3	-0.267	911.3	-0.221
396.3	-0.267	916.3	-0.207
401.3	-0.27	921.3	-0.187
406.3	-0.27	926.3	-0.17
411.3	-0.273	931.3	-0.164
416.3	-0.273	936.3	-0.172
421.3	-0.276	941.3	-0.178
426.3	-0.279	946.3	-0.178

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
431.3	-0.279	951.3	-0.172
436.3	-0.282	956.3	-0.158
441.3	-0.282	961.3	-0.086
446.3	-0.287	966.3	0.

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	0.1507	ft/day
Ss	2.048E-6	ft ⁻¹
Kz/Kr	0.397	

K = 5.315E-5 cm/sec

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	<u>Std. Error</u>	<u>Approx. C.I.</u>	<u>t-Ratio</u>	
Kr	0.1507	0.008368	+/- 0.01649	18.	ft/day
Ss	2.048E-6	not estimated			ft ⁻¹
Kz/Kr	0.397	not estimated			

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 5.315E-5 cm/sec

Parameter Correlations

	Kr
Kr	1.00

Residual Statistics

for weighted residuals

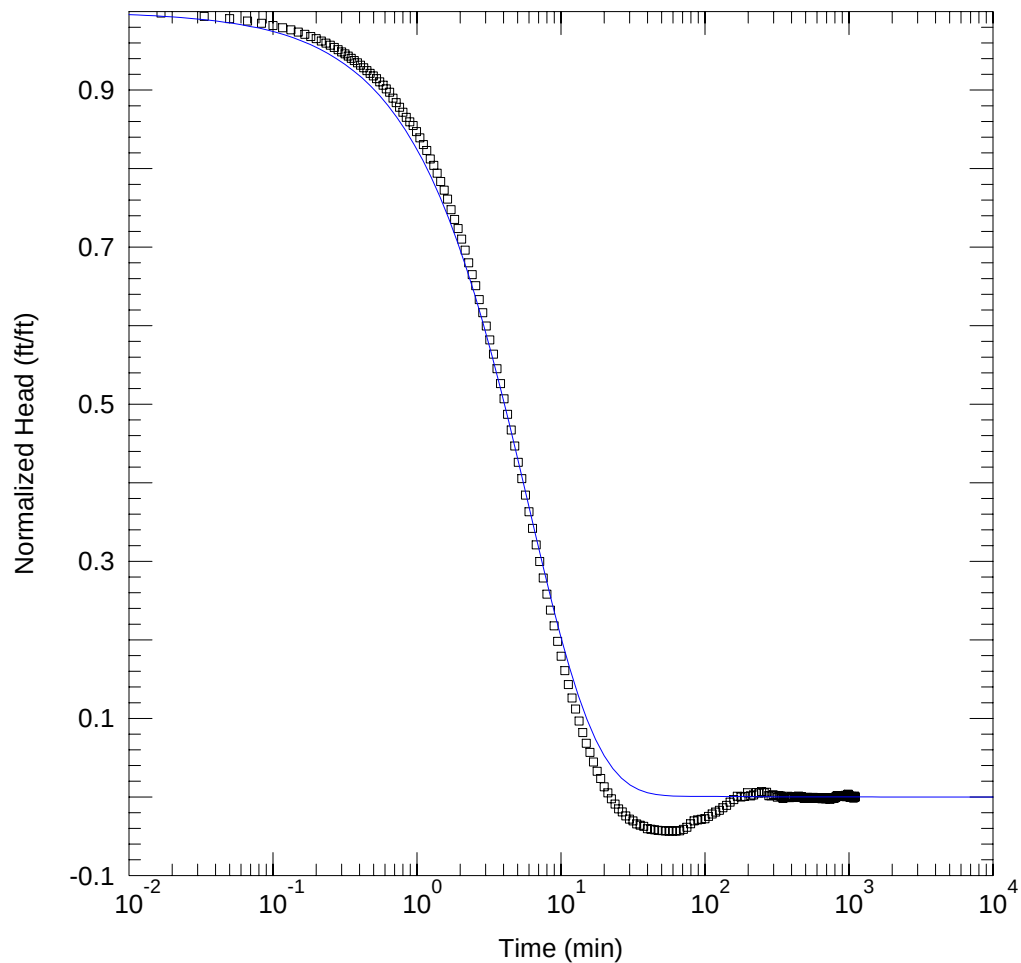
Sum of Squares 10.79 ft²
 Variance 0.05211 ft²
 Std. Deviation 0.2283 ft
 Mean -0.2025 ft
 No. of Residuals. 208
 No. of Estimates. 1

NOTESSpecific Storage froze in the 10⁻⁶ range.

System solved to be anisotropic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.

The translation method was applied to reduce the slug magnitude of the test from 35 feet to 3.6 feet. This was to reduce some of the non-linear errors present.



PT 12A (586-610)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 586-610
 Test Well: CH/Deep UFA
 Test Date: 9/15/2003

AQUIFER DATA

Saturated Thickness: 610 ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 36 ft
 Total Well Penetration Depth: 98 ft
 Casing Radius: 0.099 ft

Static Water Column Height: 597 ft
 Screen Length: 24 ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.2236$ ft/day
 $K_z/K_r = 1$

Solution Method: KGS Model
 $S_s = 1.971E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT12a_systematic.aqt

Title: PT 12A (586-610)

Date: 06/03/06

Time: 11:49:42

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2

Location: 586-610

Test Date: 9/15/2003

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft

Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 36. ft

Static Water Column Height: 597. ft

Casing Radius: 0.099 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 24. ft

Total Well Penetration Depth: 98. ft

No. of Observations: 226

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	35.97	59.61	-1.561
0.0167	35.93	63.14	-1.561
0.0333	35.78	66.88	-1.55
0.05	35.67	70.84	-1.481
0.0667	35.56	75.03	-1.389
0.0833	35.46	79.48	-1.225
0.1	35.36	84.18	-1.096
0.1167	35.26	89.17	-1.048
0.1333	35.16	94.45	-1.019
0.15	35.06	100.	-0.999
0.1667	34.95	106.	-0.89
0.1833	34.85	112.2	-0.781
0.2	34.75	118.9	-0.692
0.2167	34.65	125.9	-0.614
0.2333	34.55	133.4	-0.491
0.25	34.46	141.3	-0.387
0.2667	34.35	149.7	-0.235
0.2833	34.25	158.5	-0.118
0.3	34.15	167.9	0.032
0.3167	34.06	177.9	-0.006
0.3333	33.96	187.9	0.023
0.35	33.85	197.9	0.195
0.3677	33.75	207.9	0.052
0.3863	33.65	217.9	0.095
0.4062	33.54	227.9	0.201
0.4272	33.42	237.9	0.184
0.4493	33.29	247.9	0.25
0.4728	33.16	257.9	0.195
0.4977	33.05	267.9	0.215
0.524	32.93	277.9	0.055
0.552	32.78	287.9	0.057
0.5817	32.62	297.9	0.1

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
0.613	32.45	307.9	0.072
0.6462	32.3	317.9	-0.009
0.6813	32.03	327.9	0.055
0.7187	31.83	337.9	0.034
0.7582	31.61	347.9	-0.069
0.8	31.38	357.9	-0.026
0.8443	31.15	367.9	-0.026
0.8913	30.94	377.9	0.032
0.9412	30.77	387.9	-0.029
0.9938	30.5	397.9	-0.006
1.05	30.21	407.9	-0.003
1.109	29.91	417.9	0.006
1.172	29.63	427.9	0.009
1.238	29.24	437.9	-0.023
1.308	28.95	447.9	0.043
1.383	28.59	457.9	-0.011
1.462	28.21	467.9	0.011
1.545	27.81	477.9	-0.023
1.634	27.4	487.9	-0.072
1.728	26.92	497.9	-0.017
1.827	26.47	507.9	-0.063
1.932	26.05	517.9	-0.02
2.044	25.57	527.9	-0.032
2.162	25.06	537.9	-0.052
2.287	24.48	547.9	-0.049
2.42	23.94	557.9	-0.034
2.56	23.43	567.9	-0.014
2.709	22.8	577.9	-0.046
2.866	22.2	587.9	-0.052
3.033	21.58	597.9	-0.049
3.21	20.95	607.9	-0.063
3.398	20.3	617.9	-0.057
3.596	19.63	627.9	-0.049
3.806	18.95	637.9	-0.032
4.029	18.25	647.9	-0.08
4.265	17.54	657.9	-0.055
4.514	16.82	667.9	-0.049
4.779	16.09	677.9	-0.052
5.059	15.34	687.9	-0.08
5.356	14.59	697.9	-0.057
5.671	13.83	707.9	-0.069
6.004	13.07	717.9	-0.057
6.357	12.31	727.9	-0.069
6.731	11.55	737.9	-0.106
7.127	10.79	747.9	-0.069
7.546	10.04	757.9	-0.078
7.99	9.294	767.9	-0.032
8.461	8.561	777.9	-0.057
8.959	7.845	787.9	-0.057
9.487	7.135	797.9	-0.049
10.05	6.448	807.9	-0.009
10.64	5.787	817.9	0.014
11.27	5.155	827.9	0.055
11.93	4.54	837.9	0.046
12.64	4.029	847.9	0.037
13.38	3.483	857.9	0.037
14.17	2.954	867.9	0.06
15.01	2.46	877.9	0.04
15.89	2.041	887.9	0.046
16.83	1.602	897.9	0.017
17.83	1.18	907.9	0.023
18.88	0.847	917.9	0.063
20.	0.465	927.9	0.066
21.18	0.187	937.9	0.04
22.43	-0.086	947.9	0.077
23.76	-0.324	957.9	0.011
25.16	-0.545	967.9	0.069
26.65	-0.686	977.9	0.1

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
28.23	-0.87	987.9	0.129
29.9	-1.016	997.9	0.086
31.67	-1.096	1007.9	0.017
33.54	-1.234	1017.9	-0.009
35.53	-1.297	1027.9	-0.014
37.63	-1.346	1037.9	-0.011
39.85	-1.452	1047.9	0.029
42.21	-1.475	1057.9	-0.011
44.71	-1.507	1067.9	-0.029
47.36	-1.527	1077.9	-0.049
50.16	-1.544	1087.9	-0.011
53.13	-1.558	1097.9	0.04
56.28	-1.561	1107.9	0.

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	0.2236	ft/day
Ss	1.971E-6	ft ⁻¹
Kz/Kr	1.	

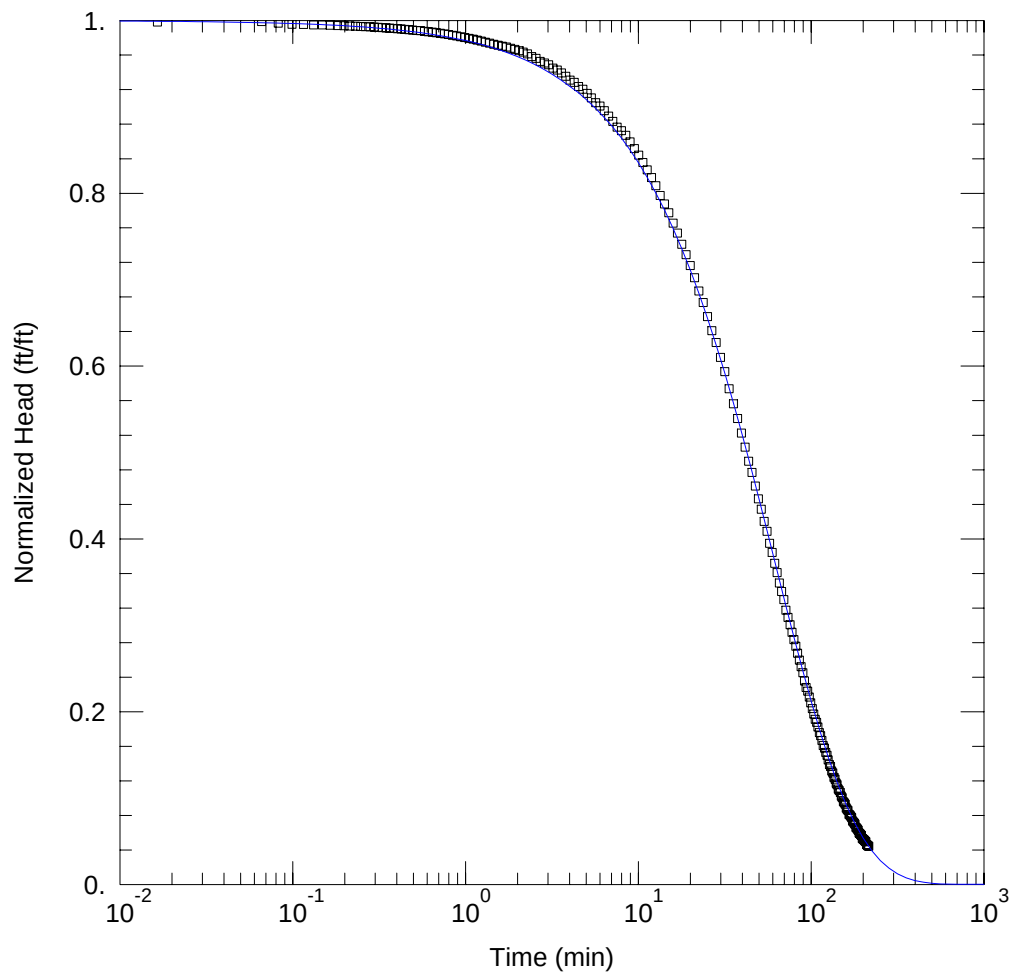
K = 7.887E-5 cm/sec

NOTES

Specific Storage froze in the 10⁻⁶ range.

System solved to be isotropic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.



PT 13A (631-650)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 631-650
 Test Well: CH/Deep UFA
 Test Date: 9/18/2003

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (Ch/Deep UFA)

Initial Displacement: 40. ft
 Total Well Penetration Depth: 138. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 633. ft
 Screen Length: 19. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.02646$ ft/day
 $K_z/K_r = 1$.

Solution Method: KGS Model
 $S_s = 1.639E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT13a_systematic.aqt
 Title: PT 13A (631-650)
 Date: 06/03/06
 Time: 12:17:06

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 631-650
 Test Date: 9/18/2003
 Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: Ch/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 40. ft
 Static Water Column Height: 633. ft
 Casing Radius: 0.099 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 19. ft
 Total Well Penetration Depth: 138. ft

No. of Observations: 195

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	40.	25.16	26.29
0.0165	39.93	26.65	25.64
0.033	40.01	28.23	25.09
0.0495	40.2	29.9	24.4
0.066	39.95	31.66	23.74
0.0825	39.88	33.54	22.95
0.099	39.82	35.52	22.25
0.1155	39.81	37.52	21.58
0.132	39.8	39.52	20.9
0.1485	39.8	41.52	20.25
0.165	39.78	43.52	19.6
0.1815	39.77	45.52	19.08
0.198	39.76	47.52	18.45
0.2145	39.75	49.52	17.85
0.231	39.73	51.52	17.37
0.2475	39.73	53.52	16.81
0.264	39.71	55.52	16.35
0.2805	39.7	57.52	15.8
0.297	39.69	59.52	15.37
0.3135	39.69	61.52	14.87
0.33	39.67	63.52	14.44
0.3467	39.66	65.52	13.96
0.3643	39.65	67.52	13.57
0.383	39.64	69.52	13.19
0.4028	39.62	71.52	12.7
0.4238	39.61	73.52	12.36
0.446	39.59	75.52	12.03
0.4695	39.58	77.52	11.68
0.4943	39.56	79.52	11.34
0.5207	39.54	81.52	11.03
0.5487	39.53	83.52	10.71
0.5783	39.5	85.52	10.39

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
0.6097	39.48	87.52	10.09
0.6428	39.46	89.52	9.803
0.678	39.43	91.52	9.427
0.7153	39.41	93.52	9.119
0.7548	39.38	95.52	8.95
0.7967	39.35	97.52	8.68
0.841	39.32	99.52	8.409
0.888	39.28	101.5	8.148
0.9378	39.25	103.5	7.895
0.9905	39.21	105.5	7.648
1.046	39.17	107.5	7.51
1.105	39.13	109.5	7.289
1.168	39.09	111.5	7.033
1.234	39.05	113.5	6.893
1.305	39.	115.5	6.674
1.379	38.95	117.5	6.433
1.458	38.9	119.5	6.318
1.542	38.85	121.5	6.112
1.631	38.81	123.5	5.979
1.724	38.77	125.5	5.767
1.824	38.72	127.5	5.552
1.929	38.66	129.5	5.463
2.041	38.6	131.5	5.259
2.159	38.54	133.5	5.167
2.284	38.46	135.5	4.96
2.416	38.33	137.5	4.88
2.557	38.24	139.5	4.696
2.706	38.11	141.5	4.621
2.863	38.04	143.5	4.418
3.03	37.95	145.5	4.352
3.207	37.8	147.5	4.263
3.394	37.71	149.5	4.093
3.592	37.58	151.5	4.021
3.803	37.42	153.5	3.835
4.025	37.24	155.5	3.78
4.261	37.13	157.5	3.714
4.511	36.95	159.5	3.542
4.776	36.82	161.5	3.482
5.056	36.62	163.5	3.424
5.353	36.42	165.5	3.246
5.667	36.2	167.5	3.209
6.	36.04	169.5	3.158
6.353	35.83	171.5	3.091
6.727	35.58	173.5	2.942
7.123	35.33	175.5	2.899
7.543	35.07	177.5	2.845
7.987	34.9	179.5	2.79
8.457	34.68	181.5	2.65
8.956	34.38	183.5	2.609
9.484	34.07	185.5	2.563
10.04	33.76	187.5	2.518
10.64	33.43	189.5	2.386
11.26	33.08	191.5	2.36
11.93	32.73	193.5	2.317
12.63	32.35	195.5	2.271
13.38	31.9	197.5	2.127
14.17	31.51	199.5	2.11
15.01	31.1	201.5	2.076
15.89	30.62	203.5	2.05
16.83	30.16	205.5	2.013
17.83	29.64	207.5	1.975
18.88	29.16	209.5	1.846
19.99	28.66	211.5	1.823
21.18	28.09	213.5	1.792
22.43	27.48	215.5	1.777
23.76	26.94		

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTS

Estimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	0.02646	ft/day
Ss	1.639E-6	ft ⁻¹
Kz/Kr	1.	

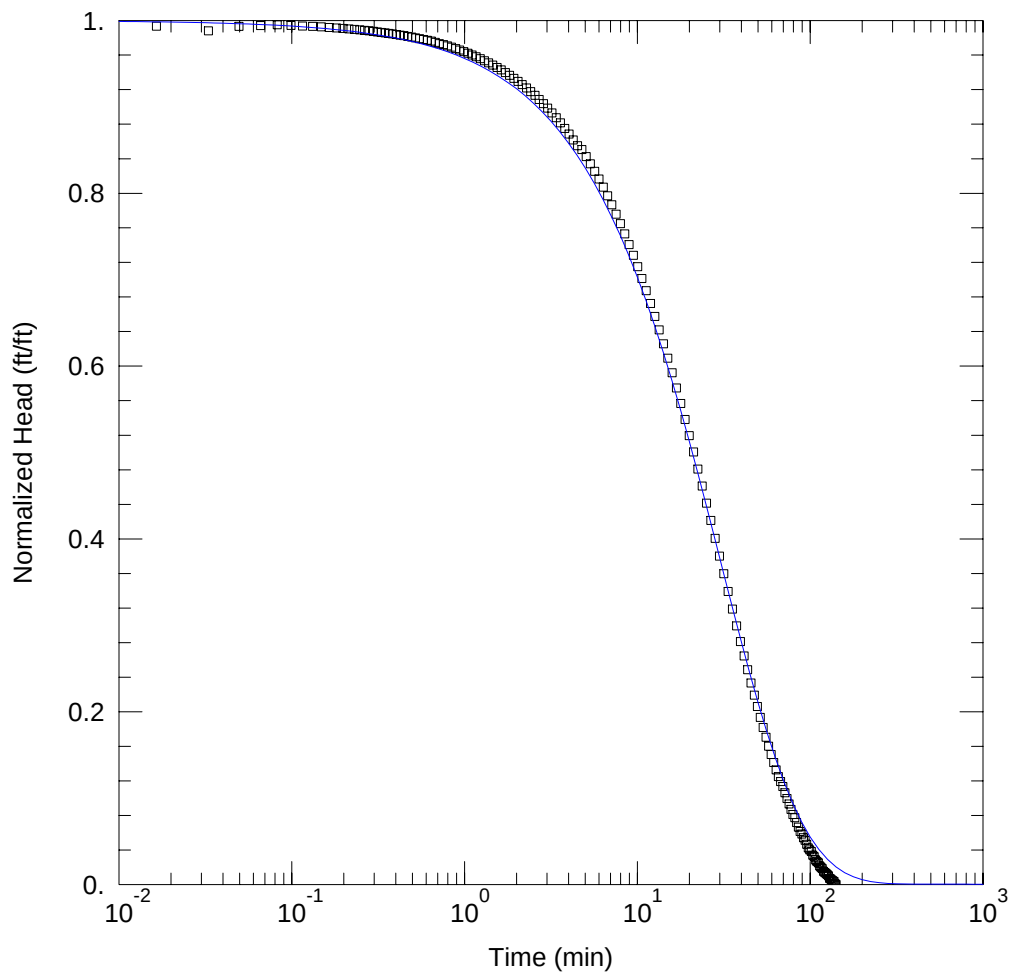
K = 9.335E-6 cm/sec

NOTES

Specific Storage froze in the 10⁻⁶ range.

System solved to be isotrophic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.



PT 15A (701-730)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 701-730
 Test Well: CH/Deep UFA
 Test Date: 9/26/2003

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 35.7 ft
 Total Well Penetration Depth: 218. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 715. ft
 Screen Length: 29. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.03757$ ft/day
 $K_z/K_r = 1$.

Solution Method: KGS Model
 $S_s = 1.15E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT15a_systematic.aqt

Title: PT 15A (701-730)

Date: 06/03/06

Time: 12:25:47

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2

Location: 701-730

Test Date: 9/26/2003

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft

Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 35.7 ft

Static Water Column Height: 715. ft

Casing Radius: 0.099 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 29. ft

Total Well Penetration Depth: 218. ft

No. of Observations: 158

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	35.66	8.457	26.88
0.0165	35.46	8.956	26.44
0.033	35.28	9.484	26.
0.0495	35.46	10.04	25.53
0.066	35.49	10.64	25.04
0.0825	35.53	11.26	24.54
0.099	35.5	11.93	24.01
0.1155	35.48	12.63	23.47
0.132	35.46	13.38	22.92
0.1485	35.44	14.17	22.34
0.165	35.41	15.01	21.75
0.1815	35.39	15.89	21.15
0.198	35.37	16.83	20.52
0.2145	35.35	17.83	19.88
0.231	35.33	18.88	19.22
0.2475	35.31	19.99	18.55
0.264	35.29	21.18	17.87
0.2805	35.27	22.43	17.17
0.297	35.25	23.76	16.47
0.3135	35.23	25.16	15.76
0.33	35.21	26.65	15.04
0.3467	35.19	28.23	14.31
0.3643	35.17	29.9	13.57
0.383	35.15	31.66	12.84
0.4028	35.12	33.54	12.11
0.4238	35.1	35.52	11.38
0.446	35.07	37.52	10.69
0.4695	35.04	39.52	10.04
0.4943	35.02	41.52	9.442
0.5207	34.99	43.52	8.873
0.5487	34.95	45.52	8.329
0.5783	34.92	47.52	7.826

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.6097	34.88	49.52	7.355
0.6428	34.85	51.52	6.906
0.678	34.8	53.52	6.487
0.7153	34.75	55.52	6.087
0.7548	34.7	57.52	5.713
0.7967	34.65	59.52	5.369
0.841	34.6	61.52	5.044
0.888	34.54	63.52	4.736
0.9378	34.48	65.52	4.458
0.9905	34.41	67.52	4.256
1.046	34.35	69.52	4.05
1.105	34.28	71.52	3.794
1.168	34.2	73.52	3.553
1.234	34.12	75.52	3.331
1.305	34.04	77.52	3.102
1.379	33.95	79.52	2.892
1.458	33.86	81.52	2.757
1.542	33.76	83.52	2.562
1.631	33.66	85.52	2.372
1.724	33.55	87.52	2.191
1.824	33.44	89.52	2.088
1.929	33.31	91.52	1.933
2.041	33.19	93.52	1.829
2.159	33.05	95.52	1.666
2.284	32.91	97.52	1.508
2.416	32.76	99.52	1.43
2.557	32.61	101.5	1.364
2.706	32.44	103.5	1.215
2.863	32.27	105.5	1.146
3.03	32.08	107.5	1.014
3.207	31.89	109.5	0.951
3.394	31.69	111.5	0.893
3.592	31.47	113.5	0.77
3.803	31.24	115.5	0.715
4.025	31.01	117.5	0.661
4.261	30.77	119.5	0.543
4.511	30.53	121.5	0.497
4.776	30.37	123.5	0.457
5.056	30.08	125.5	0.411
5.353	29.78	127.5	0.362
5.667	29.47	129.5	0.253
6.	29.15	131.5	0.23
6.353	28.81	133.5	0.184
6.727	28.46	135.5	0.147
7.123	28.09	137.5	0.124
7.543	27.7	139.5	0.032
7.987	27.31	141.5	0.

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	
Kr	0.03757	ft/day
Ss	1.15E-6	ft ⁻¹
Kz/Kr	1.	

K = 1.326E-5 cm/sec

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
Kr	0.03757	0.0001863	+/- 0.000368	201.6	ft/day
Ss	1.15E-6	not estimated			ft ⁻¹
Kz/Kr	1.	not estimated			

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 1.326E-5 cm/sec

Parameter Correlations

	Kr
Kr	1.00

Residual Statistics

for weighted residuals

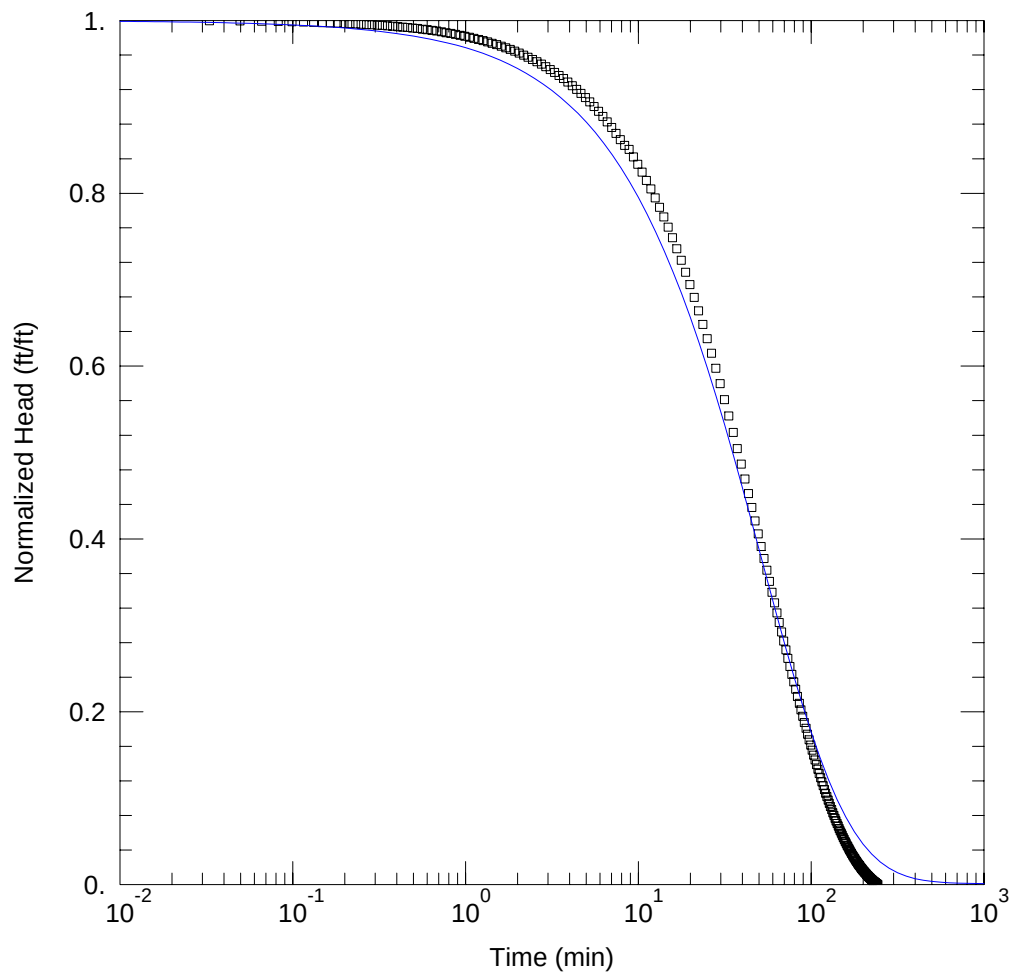
Sum of Squares 23.55 ft²
 Variance 0.15 ft²
 Std. Deviation 0.3873 ft
 Mean 0.01387 ft
 No. of Residuals. 158
 No. of Estimates. 1

NOTES

Specific Storage froze in the 10⁻⁶ range.

System solved to be isotrophic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.



PT 16A (733-770)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 733-770
 Test Well: CH/Deep UFA
 Test Date: 9/30/2003

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 34.6 ft
 Total Well Penetration Depth: 258. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 743. ft
 Screen Length: 37. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.01672$ ft/day
 $K_z/K_r = 1$.

Solution Method: KGS Model
 $S_s = 2.598E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT16a_systematic.aqt
 Title: PT 16A (733-770)
 Date: 06/03/06
 Time: 12:30:37

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 733-770
 Test Date: 9/30/2003
 Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 34.6 ft
 Static Water Column Height: 743. ft
 Casing Radius: 0.099 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 37. ft
 Total Well Penetration Depth: 258. ft

No. of Observations: 202

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	34.61	43.41	15.65
0.0165	34.6	45.41	15.1
0.033	34.59	47.41	14.56
0.0495	34.58	49.41	14.04
0.066	34.57	51.41	13.54
0.0825	34.56	53.41	13.05
0.099	34.55	55.41	12.59
0.1155	34.54	57.41	12.14
0.132	34.53	59.41	11.7
0.1485	34.52	61.41	11.28
0.165	34.51	63.41	10.88
0.1815	34.49	65.41	10.49
0.198	34.48	67.41	10.11
0.2145	34.48	69.41	9.751
0.2312	34.46	71.41	9.397
0.2488	34.45	73.41	9.058
0.2675	34.44	75.41	8.733
0.2873	34.43	77.41	8.417
0.3083	34.41	79.41	8.115
0.3305	34.4	81.41	7.818
0.354	34.38	83.41	7.534
0.3788	34.37	85.41	7.258
0.4052	34.36	87.41	6.996
0.4332	34.34	89.41	6.74
0.4628	34.32	91.41	6.49
0.4942	34.3	93.41	6.254
0.5273	34.28	95.41	6.021
0.5625	34.25	97.41	5.797
0.5998	34.23	99.41	5.584
0.6393	34.2	101.4	5.38
0.6812	34.18	103.4	5.182
0.7255	34.15	105.4	4.986

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
0.7725	34.11	107.4	4.803
0.8223	34.08	109.4	4.616
0.875	34.04	111.4	4.446
0.9308	34.01	113.4	4.277
0.99	33.97	115.4	4.113
1.053	33.93	117.4	3.955
1.119	33.88	119.4	3.802
1.189	33.84	121.4	3.656
1.264	33.8	123.4	3.518
1.343	33.75	125.4	3.377
1.427	33.69	127.4	3.251
1.515	33.64	129.4	3.122
1.609	33.57	131.4	3.001
1.708	33.51	133.4	2.874
1.813	33.44	135.4	2.765
1.925	33.37	137.4	2.65
2.043	33.3	139.4	2.544
2.168	33.21	141.4	2.446
2.301	33.13	143.4	2.34
2.441	33.04	145.4	2.242
2.59	32.95	147.4	2.151
2.748	32.85	149.4	2.059
2.914	32.75	151.4	1.975
3.091	32.64	153.4	1.886
3.279	32.52	155.4	1.809
3.477	32.4	157.4	1.728
3.687	32.27	159.4	1.654
3.91	32.14	161.4	1.576
4.146	31.99	163.4	1.507
4.396	31.84	165.4	1.435
4.66	31.68	167.4	1.372
4.941	31.52	169.4	1.306
5.237	31.34	171.4	1.246
5.552	31.16	173.4	1.183
5.885	30.96	175.4	1.134
6.238	30.76	177.4	1.076
6.612	30.54	179.4	1.022
7.008	30.32	181.4	0.967
7.427	30.08	183.4	0.921
7.871	29.83	185.4	0.87
8.342	29.6	187.4	0.824
8.841	29.44	189.4	0.781
9.368	29.14	191.4	0.737
9.928	28.84	193.4	0.692
10.52	28.53	195.4	0.651
11.15	28.2	197.4	0.62
11.81	27.86	199.4	0.574
12.52	27.5	201.4	0.536
13.26	27.12	203.4	0.502
14.05	26.73	205.4	0.468
14.89	26.32	207.4	0.436
15.78	25.9	209.4	0.402
16.72	25.46	211.4	0.37
17.71	25.	213.4	0.341
18.76	24.52	215.4	0.312
19.88	24.02	217.4	0.287
21.06	23.51	219.4	0.261
22.31	22.97	221.4	0.232
23.64	22.43	223.4	0.203
25.05	21.86	225.4	0.18
26.53	21.28	227.4	0.16
28.11	20.68	229.4	0.132
29.78	20.06	231.4	0.117
31.55	19.42	233.4	0.091
33.42	18.77	235.4	0.074
35.41	18.11	237.4	0.051
37.41	17.46	239.4	0.034
39.41	16.84	241.4	0.014

Time (min)
41.41

Displacement (ft)
16.24

Time (min)
243.4

Displacement (ft)
0.

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	
Kr	0.01672	ft/day
Ss	2.598E-6	ft ⁻¹
Kz/Kr	1.	

K = 5.899E-6 cm/sec

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
Kr	0.01672	0.0001586	+/- 0.0003127	105.5	ft/day
Ss	2.598E-6	not estimated			ft ⁻¹
Kz/Kr	1.	not estimated			

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 5.899E-6 cm/sec

Parameter Correlations

	Kr
Kr	1.00

Residual Statistics

for weighted residuals

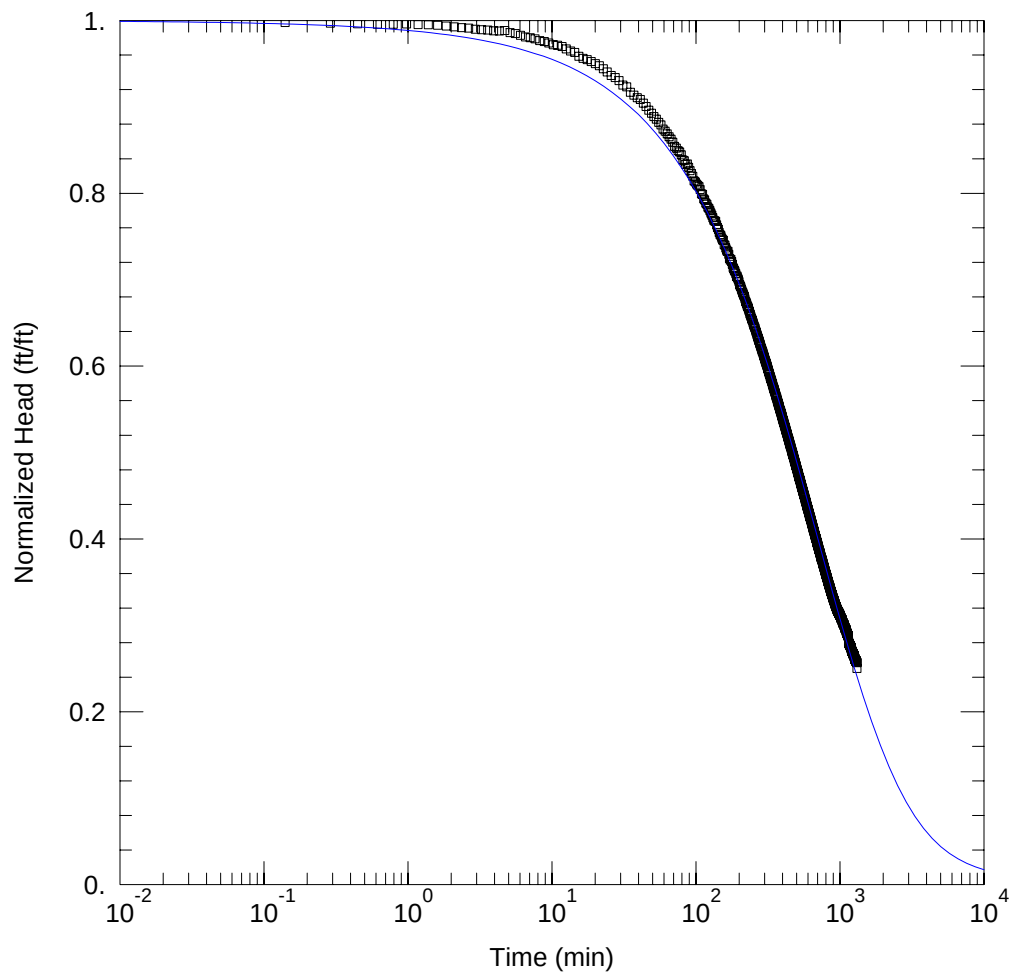
Sum of Squares 137.4 ft²
 Variance 0.6835 ft²
 Std. Deviation 0.8268 ft
 Mean 0.003839 ft
 No. of Residuals. 202
 No. of Estimates. 1

NOTESSpecific Storage froze in the 10⁻⁶ range.

System solved to be isotropic.

The standpipe was used to initiate the test. The test method is such that the initiation time is slow (greater than 5 minutes) and the volume of water used to initiate the slug is unknown. This impacts the initial static water level and will result in a Kr value that is underpredicted. A packer orifice restriction also exists, no test for head dependency was conducted.

Appears to be a low K skin.



PT 17A (767-810)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 767-810
 Test Well: CH/Deep UFA
 Test Date: 10/3/2003

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 9.6 ft
 Total Well Penetration Depth: 298. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 790. ft
 Screen Length: 43. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.0005728$ ft/day
 $K_z/K_r = 0.1479$

Solution Method: KGS Model
 $S_s = 0.000153$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT17a_systematic.aqt

Title: PT 17A (767-810)

Date: 06/03/06

Time: 13:06:58

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2

Location: 767-810

Test Date: 10/3/2003

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft

Anisotropy Ratio (Kz/Kr): 0.1479

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 9.6 ft

Static Water Column Height: 790. ft

Casing Radius: 0.099 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 43. ft

Total Well Penetration Depth: 298. ft

No. of Observations: 688

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	9.584	627.1	4.058
0.1405	9.578	629.1	4.052
0.2894	9.57	631.1	4.04
0.4469	9.564	633.1	4.032
0.6137	9.558	635.1	4.023
0.7905	9.558	637.1	4.017
0.9779	9.561	639.1	4.009
1.176	9.555	641.1	4.
1.386	9.553	643.1	3.994
1.609	9.547	645.1	3.983
1.845	9.538	647.1	3.977
2.095	9.53	649.1	3.971
2.359	9.521	651.1	3.96
2.64	9.515	653.1	3.951
2.937	9.504	655.1	3.946
3.251	9.498	657.1	3.937
3.584	9.495	659.1	3.931
3.937	9.486	661.1	3.923
4.311	9.484	663.1	3.917
4.707	9.489	665.1	3.908
5.126	9.466	667.1	3.9
5.571	9.455	669.1	3.894
6.041	9.435	671.1	3.882
6.54	9.417	673.1	3.877
7.068	9.409	675.1	3.868
7.627	9.397	677.1	3.862
8.22	9.377	679.1	3.854
8.847	9.366	681.1	3.848
9.512	9.351	683.1	3.842
10.22	9.331	685.1	3.834
10.96	9.325	687.1	3.825
11.75	9.311	689.1	3.819

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
12.59	9.285	691.1	3.811
13.48	9.262	693.1	3.802
14.41	9.245	695.1	3.796
15.41	9.202	697.1	3.788
16.46	9.179	699.1	3.779
17.58	9.165	701.1	3.773
18.76	9.144	703.1	3.765
20.01	9.121	705.1	3.759
21.34	9.098	707.1	3.753
22.74	9.064	709.1	3.748
24.23	9.029	711.1	3.739
25.81	8.989	713.1	3.733
27.48	8.966	715.1	3.722
29.25	8.932	717.1	3.716
31.12	8.883	719.1	3.71
33.11	8.863	721.1	3.702
35.11	8.802	723.1	3.696
37.11	8.771	725.1	3.69
39.11	8.742	727.1	3.684
41.11	8.722	729.1	3.676
43.11	8.682	731.1	3.67
45.11	8.644	733.1	3.664
47.11	8.604	735.1	3.659
49.11	8.57	737.1	3.647
51.11	8.532	739.1	3.641
53.11	8.504	741.1	3.633
55.11	8.469	743.1	3.627
57.11	8.44	745.1	3.621
59.11	8.394	747.1	3.616
61.11	8.371	749.1	3.61
63.11	8.34	751.1	3.604
65.11	8.308	753.1	3.595
67.11	8.282	755.1	3.59
69.11	8.248	757.1	3.584
71.11	8.202	759.1	3.578
73.11	8.182	761.1	3.57
75.11	8.153	763.1	3.564
77.11	8.139	765.1	3.555
79.11	8.107	767.1	3.55
81.11	8.05	769.1	3.544
83.11	8.041	771.1	3.538
85.11	8.001	773.1	3.532
87.11	8.007	775.1	3.527
89.11	7.969	777.1	3.521
91.11	7.932	779.1	3.515
93.11	7.9	781.1	3.506
95.11	7.869	783.1	3.498
97.11	7.817	785.1	3.492
99.11	7.805	787.1	3.486
101.1	7.782	789.1	3.481
103.1	7.768	791.1	3.475
105.1	7.754	793.1	3.469
107.1	7.722	795.1	3.461
109.1	7.673	797.1	3.455
111.1	7.668	799.1	3.449
113.1	7.619	801.1	3.443
115.1	7.607	803.1	3.438
117.1	7.573	805.1	3.432
119.1	7.558	807.1	3.426
121.1	7.527	809.1	3.42
123.1	7.51	811.1	3.412
125.1	7.487	813.1	3.409
127.1	7.461	815.1	3.4
129.1	7.438	817.1	3.395
131.1	7.409	819.1	3.389
133.1	7.38	821.1	3.383
135.1	7.372	823.1	3.38
137.1	7.369	825.1	3.374

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
139.1	7.329	827.1	3.369
141.1	7.3	829.1	3.363
143.1	7.28	831.1	3.357
145.1	7.245	833.1	3.351
147.1	7.222	835.1	3.343
149.1	7.208	837.1	3.337
151.1	7.182	839.1	3.331
153.1	7.162	841.1	3.326
155.1	7.159	843.1	3.32
157.1	7.11	845.1	3.317
159.1	7.104	847.1	3.311
161.1	7.073	849.1	3.306
163.1	7.05	851.1	3.3
165.1	7.036	853.1	3.297
167.1	7.036	855.1	3.288
169.1	7.001	857.1	3.285
171.1	6.955	859.1	3.28
173.1	6.938	861.1	3.271
175.1	6.946	863.1	3.265
177.1	6.921	865.1	3.262
179.1	6.892	867.1	3.257
181.1	6.855	869.1	3.254
183.1	6.84	871.1	3.248
185.1	6.823	873.1	3.242
187.1	6.809	875.1	3.234
189.1	6.786	877.1	3.231
191.1	6.754	879.1	3.225
193.1	6.76	881.1	3.219
195.1	6.737	883.1	3.217
197.1	6.72	885.1	3.214
199.1	6.697	887.1	3.208
201.1	6.665	889.1	3.199
203.1	6.651	891.1	3.194
205.1	6.639	893.1	3.191
207.1	6.616	895.1	3.185
209.1	6.596	897.1	3.182
211.1	6.579	899.1	3.176
213.1	6.562	901.1	3.173
215.1	6.544	903.1	3.168
217.1	6.53	905.1	3.162
219.1	6.507	907.1	3.156
221.1	6.481	909.1	3.153
223.1	6.47	911.1	3.151
225.1	6.45	913.1	3.145
227.1	6.432	915.1	3.139
229.1	6.418	917.1	3.136
231.1	6.404	919.1	3.128
233.1	6.381	921.1	3.125
235.1	6.366	923.1	3.122
237.1	6.343	925.1	3.116
239.1	6.329	927.1	3.11
241.1	6.312	929.1	3.107
243.1	6.292	931.1	3.102
245.1	6.274	933.1	3.099
247.1	6.269	935.1	3.096
249.1	6.246	937.1	3.093
251.1	6.228	939.1	3.09
253.1	6.211	941.1	3.087
255.1	6.194	943.1	3.082
257.1	6.182	945.1	3.076
259.1	6.162	947.1	3.073
261.1	6.145	949.1	3.07
263.1	6.131	951.1	3.064
265.1	6.111	953.1	3.062
267.1	6.096	955.1	3.056
269.1	6.082	957.1	3.053
271.1	6.068	959.1	3.05
273.1	6.047	961.1	3.047

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
275.1	6.039	963.1	3.041
277.1	6.016	965.1	3.041
279.1	6.002	967.1	3.039
281.1	5.987	969.1	3.036
283.1	5.973	971.1	3.033
285.1	5.956	973.1	3.03
287.1	5.941	975.1	3.03
289.1	5.927	977.1	3.027
291.1	5.915	979.1	3.024
293.1	5.898	981.1	3.021
295.1	5.875	983.1	3.018
297.1	5.872	985.1	3.016
299.1	5.852	987.1	3.013
301.1	5.838	989.1	3.007
303.1	5.821	991.1	3.004
305.1	5.806	993.1	3.004
307.1	5.792	995.1	3.001
309.1	5.78	997.1	2.998
311.1	5.766	999.1	2.996
313.1	5.752	1001.1	2.99
315.1	5.734	1003.1	2.987
317.1	5.72	1005.1	2.99
319.1	5.706	1007.1	2.987
321.1	5.694	1009.1	2.975
323.1	5.677	1011.1	2.973
325.1	5.666	1013.1	2.967
327.1	5.648	1015.1	2.967
329.1	5.637	1017.1	2.964
331.1	5.622	1019.1	2.958
333.1	5.608	1021.1	2.955
335.1	5.599	1023.1	2.955
337.1	5.585	1025.1	2.955
339.1	5.568	1027.1	2.952
341.1	5.554	1029.1	2.947
343.1	5.539	1031.1	2.944
345.1	5.525	1033.1	2.941
347.1	5.513	1035.1	2.938
349.1	5.502	1037.1	2.938
351.1	5.49	1039.1	2.927
353.1	5.473	1041.1	2.921
355.1	5.462	1043.1	2.918
357.1	5.45	1045.1	2.915
359.1	5.436	1047.1	2.912
361.1	5.421	1049.1	2.909
363.1	5.41	1051.1	2.904
365.1	5.396	1053.1	2.904
367.1	5.381	1055.1	2.901
369.1	5.37	1057.1	2.898
371.1	5.358	1059.1	2.898
373.1	5.344	1061.1	2.895
375.1	5.332	1063.1	2.892
377.1	5.321	1065.1	2.886
379.1	5.309	1067.1	2.886
381.1	5.295	1069.1	2.881
383.1	5.281	1071.1	2.878
385.1	5.269	1073.1	2.875
387.1	5.258	1075.1	2.872
389.1	5.243	1077.1	2.864
391.1	5.232	1079.1	2.861
393.1	5.22	1081.1	2.858
395.1	5.206	1083.1	2.855
397.1	5.195	1085.1	2.849
399.1	5.183	1087.1	2.846
401.1	5.172	1089.1	2.843
403.1	5.16	1091.1	2.843
405.1	5.149	1093.1	2.841
407.1	5.137	1095.1	2.841
409.1	5.126	1097.1	2.838

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
411.1	5.111	1099.1	2.835
413.1	5.1	1101.1	2.832
415.1	5.088	1103.1	2.826
417.1	5.077	1105.1	2.823
419.1	5.065	1107.1	2.812
421.1	5.054	1109.1	2.806
423.1	5.042	1111.1	2.806
425.1	5.034	1113.1	2.803
427.1	5.017	1115.1	2.8
429.1	5.008	1117.1	2.797
431.1	4.996	1119.1	2.792
433.1	4.985	1121.1	2.792
435.1	4.973	1123.1	2.789
437.1	4.962	1125.1	2.786
439.1	4.953	1127.1	2.783
441.1	4.942	1129.1	2.78
443.1	4.93	1131.1	2.775
445.1	4.916	1133.1	2.772
447.1	4.907	1135.1	2.769
449.1	4.896	1137.1	2.766
451.1	4.884	1139.1	2.763
453.1	4.873	1141.1	2.76
455.1	4.864	1143.1	2.757
457.1	4.853	1145.1	2.754
459.1	4.844	1147.1	2.697
461.1	4.833	1149.1	2.697
463.1	4.818	1151.1	2.686
465.1	4.81	1153.1	2.683
467.1	4.798	1155.1	2.68
469.1	4.79	1157.1	2.677
471.1	4.778	1159.1	2.677
473.1	4.767	1161.1	2.671
475.1	4.758	1163.1	2.668
477.1	4.747	1165.1	2.665
479.1	4.738	1167.1	2.665
481.1	4.724	1169.1	2.66
483.1	4.715	1171.1	2.66
485.1	4.704	1173.1	2.657
487.1	4.695	1175.1	2.654
489.1	4.683	1177.1	2.654
491.1	4.675	1179.1	2.651
493.1	4.663	1181.1	2.648
495.1	4.655	1183.1	2.645
497.1	4.646	1185.1	2.643
499.1	4.632	1187.1	2.64
501.1	4.623	1189.1	2.64
503.1	4.615	1191.1	2.634
505.1	4.603	1193.1	2.631
507.1	4.594	1195.1	2.628
509.1	4.583	1197.1	2.625
511.1	4.574	1199.1	2.622
513.1	4.566	1201.1	2.608
515.1	4.554	1203.1	2.602
517.1	4.543	1205.1	2.602
519.1	4.531	1207.1	2.599
521.1	4.523	1209.1	2.597
523.1	4.514	1211.1	2.594
525.1	4.505	1213.1	2.591
527.1	4.497	1215.1	2.588
529.1	4.488	1217.1	2.588
531.1	4.477	1219.1	2.585
533.1	4.468	1221.1	2.582
535.1	4.457	1223.1	2.582
537.1	4.448	1225.1	2.577
539.1	4.439	1227.1	2.571
541.1	4.431	1229.1	2.568
543.1	4.419	1231.1	2.565
545.1	4.411	1233.1	2.562

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
547.1	4.402	1235.1	2.562
549.1	4.394	1237.1	2.559
551.1	4.385	1239.1	2.556
553.1	4.373	1241.1	2.556
555.1	4.365	1243.1	2.554
557.1	4.356	1245.1	2.548
559.1	4.345	1247.1	2.548
561.1	4.339	1249.1	2.548
563.1	4.33	1251.1	2.542
565.1	4.322	1253.1	2.539
567.1	4.313	1255.1	2.536
569.1	4.302	1257.1	2.533
571.1	4.296	1259.1	2.528
573.1	4.282	1261.1	2.525
575.1	4.276	1263.1	2.522
577.1	4.267	1265.1	2.519
579.1	4.259	1267.1	2.516
581.1	4.25	1269.1	2.508
583.1	4.241	1271.1	2.508
585.1	4.233	1273.1	2.502
587.1	4.224	1275.1	2.502
589.1	4.216	1277.1	2.502
591.1	4.204	1279.1	2.496
593.1	4.195	1281.1	2.496
595.1	4.187	1283.1	2.496
597.1	4.178	1285.1	2.493
599.1	4.172	1287.1	2.49
601.1	4.164	1289.1	2.49
603.1	4.155	1291.1	2.485
605.1	4.147	1293.1	2.482
607.1	4.138	1295.1	2.482
609.1	4.132	1297.1	2.479
611.1	4.121	1299.1	2.476
613.1	4.112	1301.1	2.476
615.1	4.104	1303.1	2.473
617.1	4.095	1305.1	2.473
619.1	4.089	1307.1	2.467
621.1	4.081	1309.1	2.47
623.1	4.072	1311.1	2.465
625.1	4.066	1313.1	2.401

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	0.0005728	ft/day
Ss	0.000153	ft ⁻¹
Kz/Kr	0.1479	

K = 2.021E-7 cm/sec

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	<u>Std. Error</u>	<u>Approx. C.I.</u>	<u>t-Ratio</u>	
Kr	0.0005728	4.692E-6	+/- 9.21E-6	122.1	ft/day
Ss	0.000153	5.786E-6	+/- 1.136E-5	26.44	ft ⁻¹
Kz/Kr	0.1479	not estimated			

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 2.021E-7 cm/sec

Parameter Correlations

	Kr	Ss
Kr	1.00	-0.98
Ss	-0.98	1.00

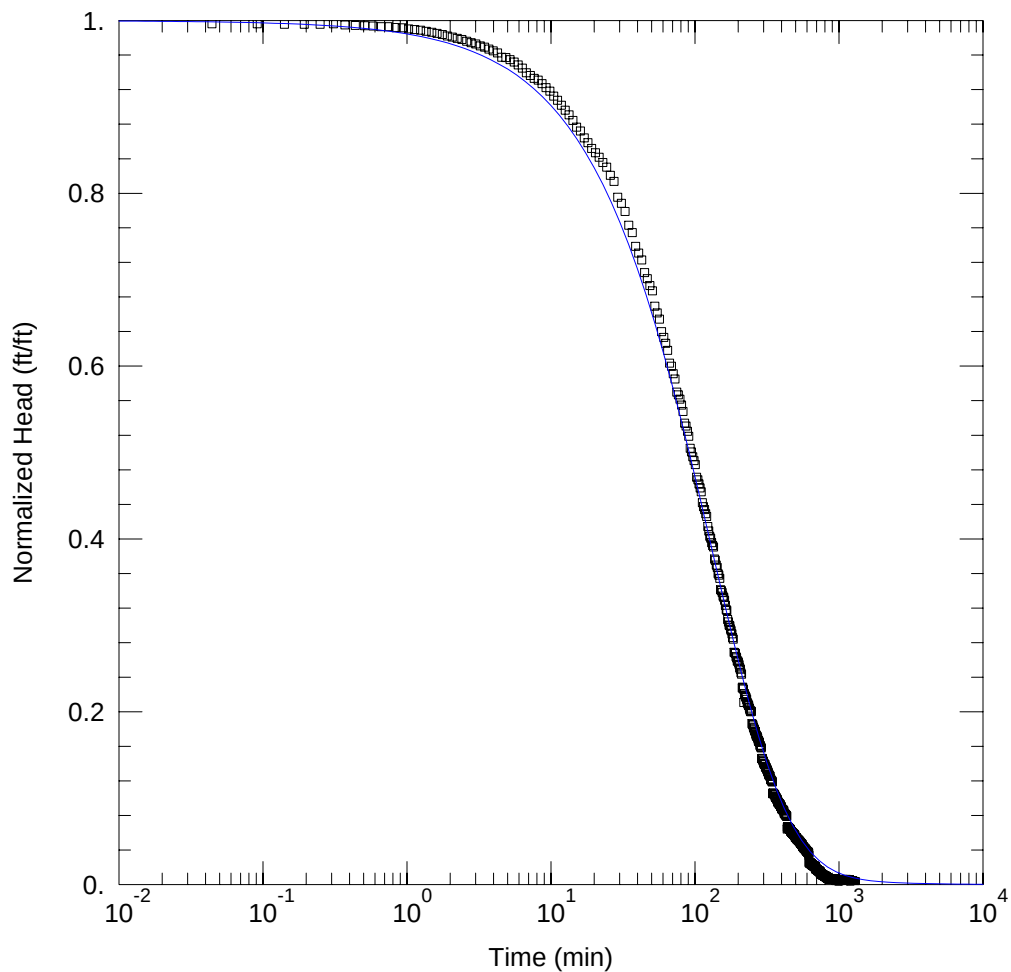
Residual Statistics

for weighted residuals

Sum of Squares 4.88 ft²
Variance 0.007114 ft²
Std. Deviation 0.08435 ft
Mean 0.01553 ft
No. of Residuals. 688
No. of Estimates. 2

NOTES

Specific Storage froze in the 10⁻⁶ range.
System solved to be anisotropic.
Drop slug method was used.
A packer orifice restriction existed,
no test for head dependency was conducted.
Test was not ran to completion.



PT 18A (808-870)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 808-870
 Test Well: CH/Deep UFA
 Test Date: 10/8/2003

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 7.02 ft
 Total Well Penetration Depth: 358. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 848. ft
 Screen Length: 62. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = \underline{0.003803}$ ft/day
 $K_z/K_r = \underline{1}$.

Solution Method: KGS Model
 $S_s = \underline{2.342E-6}$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT18a_systematic.aqt
 Title: PT 18A (808-870)
 Date: 06/03/06
 Time: 13:11:51

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 808-870
 Test Date: 10/8/2003
 Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 7.02 ft
 Static Water Column Height: 848. ft
 Casing Radius: 0.099 ft
 Well Radius: 0.125 ft
 Well Skin Radius: 0.125 ft
 Screen Length: 62. ft
 Total Well Penetration Depth: 358. ft

No. of Observations: 699

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	7.016	600.7	0.27
0.0443	6.993	602.7	0.267
0.0913	6.993	604.7	0.267
0.1412	6.99	606.7	0.265
0.1938	6.99	608.7	0.265
0.2497	6.99	610.7	0.265
0.3088	6.993	612.7	0.259
0.3715	6.984	614.7	0.256
0.4378	6.981	616.7	0.256
0.5082	6.978	618.7	0.239
0.5827	6.975	620.7	0.176
0.6617	6.97	622.7	0.181
0.7453	6.97	624.7	0.178
0.8338	6.964	626.7	0.176
0.9277	6.961	628.7	0.176
1.027	6.952	630.7	0.176
1.132	6.947	632.7	0.173
1.244	6.941	634.7	0.173
1.362	6.932	636.7	0.17
1.487	6.924	638.7	0.167
1.62	6.915	640.7	0.167
1.76	6.906	642.7	0.167
1.909	6.895	644.7	0.167
2.067	6.886	646.7	0.164
2.233	6.875	648.7	0.161
2.41	6.866	650.7	0.161
2.598	6.852	652.7	0.158
2.796	6.84	654.7	0.158
3.006	6.829	656.7	0.158
3.229	6.814	658.7	0.158
3.465	6.803	660.7	0.156
3.714	6.788	662.7	0.153

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
3.979	6.774	664.7	0.156
4.259	6.757	666.7	0.153
4.556	6.722	668.7	0.153
4.871	6.719	670.7	0.15
5.204	6.702	672.7	0.15
5.557	6.682	674.7	0.15
5.931	6.659	676.7	0.147
6.327	6.633	678.7	0.147
6.746	6.596	680.7	0.144
7.19	6.573	682.7	0.144
7.661	6.55	684.7	0.141
8.159	6.536	686.7	0.141
8.687	6.507	688.7	0.141
9.247	6.475	690.7	0.127
9.839	6.446	692.7	0.127
10.47	6.406	694.7	0.127
11.13	6.372	696.7	0.124
11.84	6.331	698.7	0.124
12.58	6.291	700.7	0.121
13.37	6.254	702.7	0.121
14.21	6.208	704.7	0.121
15.09	6.153	706.7	0.121
16.03	6.122	708.7	0.118
17.03	6.067	710.7	0.118
18.08	6.027	712.7	0.115
19.2	5.981	714.7	0.112
20.38	5.946	716.7	0.112
21.63	5.909	718.7	0.112
22.96	5.866	720.7	0.112
24.36	5.828	722.7	0.112
25.85	5.762	724.7	0.11
27.43	5.713	726.7	0.11
29.1	5.584	728.7	0.11
30.87	5.535	730.7	0.107
32.74	5.469	732.7	0.107
34.73	5.357	734.7	0.104
36.73	5.297	736.7	0.104
38.73	5.185	738.7	0.104
40.73	5.13	740.7	0.104
42.73	5.075	742.7	0.092
44.73	4.972	744.7	0.092
46.73	4.923	746.7	0.087
48.73	4.866	748.7	0.087
50.73	4.823	750.7	0.087
52.73	4.699	752.7	0.084
54.73	4.644	754.7	0.084
56.73	4.593	756.7	0.084
58.73	4.492	758.7	0.084
60.73	4.446	760.7	0.081
62.73	4.397	762.7	0.084
64.73	4.34	764.7	0.081
66.73	4.236	766.7	0.081
68.73	4.211	768.7	0.081
70.73	4.15	770.7	0.081
72.73	4.107	772.7	0.078
74.73	4.001	774.7	0.075
76.73	3.978	776.7	0.075
78.73	3.943	778.7	0.075
80.73	3.895	780.7	0.075
82.73	3.843	782.7	0.075
84.73	3.748	784.7	0.072
86.73	3.725	786.7	0.072
88.73	3.682	788.7	0.072
90.73	3.642	790.7	0.072
92.73	3.544	792.7	0.069
94.73	3.515	794.7	0.069
96.73	3.475	796.7	0.069
98.73	3.444	798.7	0.069

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
100.7	3.412	800.7	0.067
102.7	3.309	802.7	0.067
104.7	3.288	804.7	0.067
106.7	3.254	806.7	0.067
108.7	3.222	808.7	0.064
110.7	3.191	810.7	0.064
112.7	3.102	812.7	0.064
114.7	3.07	814.7	0.061
116.7	3.047	816.7	0.061
118.7	3.013	818.7	0.061
120.7	2.99	820.7	0.061
122.7	2.909	822.7	0.058
124.7	2.872	824.7	0.055
126.7	2.829	826.7	0.055
128.7	2.814	828.7	0.055
130.7	2.777	830.7	0.055
132.7	2.754	832.7	0.052
134.7	2.743	834.7	0.052
136.7	2.645	836.7	0.052
138.7	2.634	838.7	0.052
140.7	2.596	840.7	0.052
142.7	2.576	842.7	0.049
144.7	2.527	844.7	0.049
146.7	2.513	846.7	0.049
148.7	2.487	848.7	0.049
150.7	2.395	850.7	0.049
152.7	2.387	852.7	0.049
154.7	2.372	854.7	0.046
156.7	2.343	856.7	0.046
158.7	2.332	858.7	0.049
160.7	2.309	860.7	0.046
162.7	2.269	862.7	0.049
164.7	2.234	864.7	0.046
166.7	2.226	866.7	0.046
168.7	2.154	868.7	0.046
170.7	2.134	870.7	0.046
172.7	2.108	872.7	0.046
174.7	2.102	874.7	0.046
176.7	2.076	876.7	0.046
178.7	2.062	878.7	0.046
180.7	2.036	880.7	0.046
182.7	2.007	882.7	0.044
184.7	1.993	884.7	0.044
186.7	1.887	886.7	0.044
188.7	1.884	888.7	0.044
190.7	1.878	890.7	0.044
192.7	1.852	892.7	0.044
194.7	1.841	894.7	0.044
196.7	1.815	896.7	0.044
198.7	1.815	898.7	0.044
200.7	1.801	900.7	0.044
202.7	1.786	902.7	0.044
204.7	1.76	904.7	0.046
206.7	1.749	906.7	0.044
208.7	1.72	908.7	0.044
210.7	1.709	910.7	0.044
212.7	1.597	912.7	0.044
214.7	1.603	914.7	0.044
216.7	1.588	916.7	0.046
218.7	1.479	918.7	0.041
220.7	1.551	920.7	0.041
222.7	1.539	922.7	0.041
224.7	1.525	924.7	0.041
226.7	1.519	926.7	0.044
228.7	1.505	928.7	0.044
230.7	1.479	930.7	0.044
232.7	1.47	932.7	0.044
234.7	1.459	934.7	0.044

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
236.7	1.453	936.7	0.041
238.7	1.433	938.7	0.041
240.7	1.419	940.7	0.041
242.7	1.41	942.7	0.041
244.7	1.404	944.7	0.041
246.7	1.407	946.7	0.044
248.7	1.307	948.7	0.044
250.7	1.301	950.7	0.044
252.7	1.295	952.7	0.044
254.7	1.278	954.7	0.044
256.7	1.269	956.7	0.044
258.7	1.258	958.7	0.026
260.7	1.246	960.7	0.026
262.7	1.244	962.7	0.029
264.7	1.221	964.7	0.026
266.7	1.209	966.7	0.029
268.7	1.206	968.7	0.029
270.7	1.201	970.7	0.026
272.7	1.189	972.7	0.026
274.7	1.172	974.7	0.029
276.7	1.166	976.7	0.026
278.7	1.16	978.7	0.026
280.7	1.155	980.7	0.029
282.7	1.132	982.7	0.029
284.7	1.126	984.7	0.029
286.7	1.117	986.7	0.032
288.7	1.109	988.7	0.032
290.7	1.023	990.7	0.032
292.7	1.025	992.7	0.029
294.7	1.02	994.7	0.032
296.7	1.005	996.7	0.029
298.7	1.	998.7	0.032
300.7	0.988	1000.7	0.032
302.7	0.979	1002.7	0.029
304.7	0.977	1004.7	0.032
306.7	0.974	1006.7	0.032
308.7	0.956	1008.7	0.035
310.7	0.954	1010.7	0.035
312.7	0.948	1012.7	0.035
314.7	0.939	1014.7	0.035
316.7	0.934	1016.7	0.035
318.7	0.925	1018.7	0.035
320.7	0.919	1020.7	0.038
322.7	0.911	1022.7	0.035
324.7	0.899	1024.7	0.035
326.7	0.89	1026.7	0.035
328.7	0.888	1028.7	0.035
330.7	0.882	1030.7	0.035
332.7	0.879	1032.7	0.035
334.7	0.859	1034.7	0.038
336.7	0.853	1036.7	0.038
338.7	0.847	1038.7	0.038
340.7	0.845	1040.7	0.038
342.7	0.839	1042.7	0.038
344.7	0.833	1044.7	0.038
346.7	0.738	1046.7	0.038
348.7	0.744	1048.7	0.038
350.7	0.741	1050.7	0.038
352.7	0.738	1052.7	0.038
354.7	0.735	1054.7	0.038
356.7	0.73	1056.7	0.038
358.7	0.727	1058.7	0.038
360.7	0.715	1060.7	0.038
362.7	0.71	1062.7	0.038
364.7	0.707	1064.7	0.038
366.7	0.704	1066.7	0.041
368.7	0.701	1068.7	0.041
370.7	0.692	1070.7	0.041

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
372.7	0.689	1072.7	0.041
374.7	0.672	1074.7	0.041
376.7	0.672	1076.7	0.038
378.7	0.669	1078.7	0.041
380.7	0.667	1080.7	0.035
382.7	0.661	1082.7	0.035
384.7	0.655	1084.7	0.035
386.7	0.655	1086.7	0.035
388.7	0.649	1088.7	0.035
390.7	0.649	1090.7	0.035
392.7	0.644	1092.7	0.038
394.7	0.635	1094.7	0.038
396.7	0.632	1096.7	0.038
398.7	0.629	1098.7	0.038
400.7	0.618	1100.7	0.038
402.7	0.612	1102.7	0.038
404.7	0.609	1104.7	0.038
406.7	0.609	1106.7	0.038
408.7	0.606	1108.7	0.038
410.7	0.603	1110.7	0.038
412.7	0.6	1112.7	0.038
414.7	0.598	1114.7	0.038
416.7	0.58	1116.7	0.038
418.7	0.578	1118.7	0.038
420.7	0.575	1120.7	0.041
422.7	0.572	1122.7	0.041
424.7	0.569	1124.7	0.041
426.7	0.566	1126.7	0.041
428.7	0.563	1128.7	0.041
430.7	0.56	1130.7	0.038
432.7	0.557	1132.7	0.041
434.7	0.555	1134.7	0.041
436.7	0.451	1136.7	0.038
438.7	0.466	1138.7	0.038
440.7	0.468	1140.7	0.038
442.7	0.466	1142.7	0.038
444.7	0.463	1144.7	0.041
446.7	0.463	1146.7	0.038
448.7	0.457	1148.7	0.038
450.7	0.457	1150.7	0.038
452.7	0.454	1152.7	0.038
454.7	0.454	1154.7	0.038
456.7	0.451	1156.7	0.038
458.7	0.448	1158.7	0.038
460.7	0.437	1160.7	0.038
462.7	0.434	1162.7	0.038
464.7	0.434	1164.7	0.038
466.7	0.431	1166.7	0.038
468.7	0.428	1168.7	0.038
470.7	0.425	1170.7	0.038
472.7	0.42	1172.7	0.038
474.7	0.42	1174.7	0.038
476.7	0.417	1176.7	0.038
478.7	0.417	1178.7	0.038
480.7	0.414	1180.7	0.038
482.7	0.411	1182.7	0.038
484.7	0.411	1184.7	0.035
486.7	0.408	1186.7	0.035
488.7	0.408	1188.7	0.035
490.7	0.402	1190.7	0.032
492.7	0.4	1192.7	0.035
494.7	0.4	1194.7	0.032
496.7	0.385	1196.7	0.032
498.7	0.382	1198.7	0.032
500.7	0.382	1200.7	0.032
502.7	0.382	1202.7	0.032
504.7	0.382	1204.7	0.029
506.7	0.377	1206.7	0.032

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
508.7	0.377	1208.7	0.029
510.7	0.371	1210.7	0.029
512.7	0.368	1212.7	0.029
514.7	0.368	1214.7	0.029
516.7	0.365	1216.7	0.029
518.7	0.365	1218.7	0.029
520.7	0.362	1220.7	0.029
522.7	0.359	1222.7	0.029
524.7	0.359	1224.7	0.029
526.7	0.356	1226.7	0.029
528.7	0.356	1228.7	0.029
530.7	0.351	1230.7	0.029
532.7	0.351	1232.7	0.029
534.7	0.348	1234.7	0.029
536.7	0.345	1236.7	0.029
538.7	0.339	1238.7	0.029
540.7	0.339	1240.7	0.029
542.7	0.336	1242.7	0.029
544.7	0.336	1244.7	0.029
546.7	0.333	1246.7	0.026
548.7	0.331	1248.7	0.026
550.7	0.331	1250.7	0.026
552.7	0.328	1252.7	0.026
554.7	0.325	1254.7	0.026
556.7	0.316	1256.7	0.026
558.7	0.311	1258.7	0.026
560.7	0.311	1260.7	0.026
562.7	0.308	1262.7	0.021
564.7	0.305	1264.7	0.021
566.7	0.302	1266.7	0.021
568.7	0.302	1268.7	0.023
570.7	0.299	1270.7	0.021
572.7	0.296	1272.7	0.021
574.7	0.296	1274.7	0.018
576.7	0.293	1276.7	0.018
578.7	0.293	1278.7	0.018
580.7	0.29	1280.7	0.023
582.7	0.288	1282.7	0.023
584.7	0.285	1284.7	0.021
586.7	0.285	1286.7	0.021
588.7	0.282	1288.7	0.021
590.7	0.279	1290.7	0.021
592.7	0.279	1292.7	0.021
594.7	0.276	1294.7	0.023
596.7	0.273	1296.7	0.018
598.7	0.273		

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

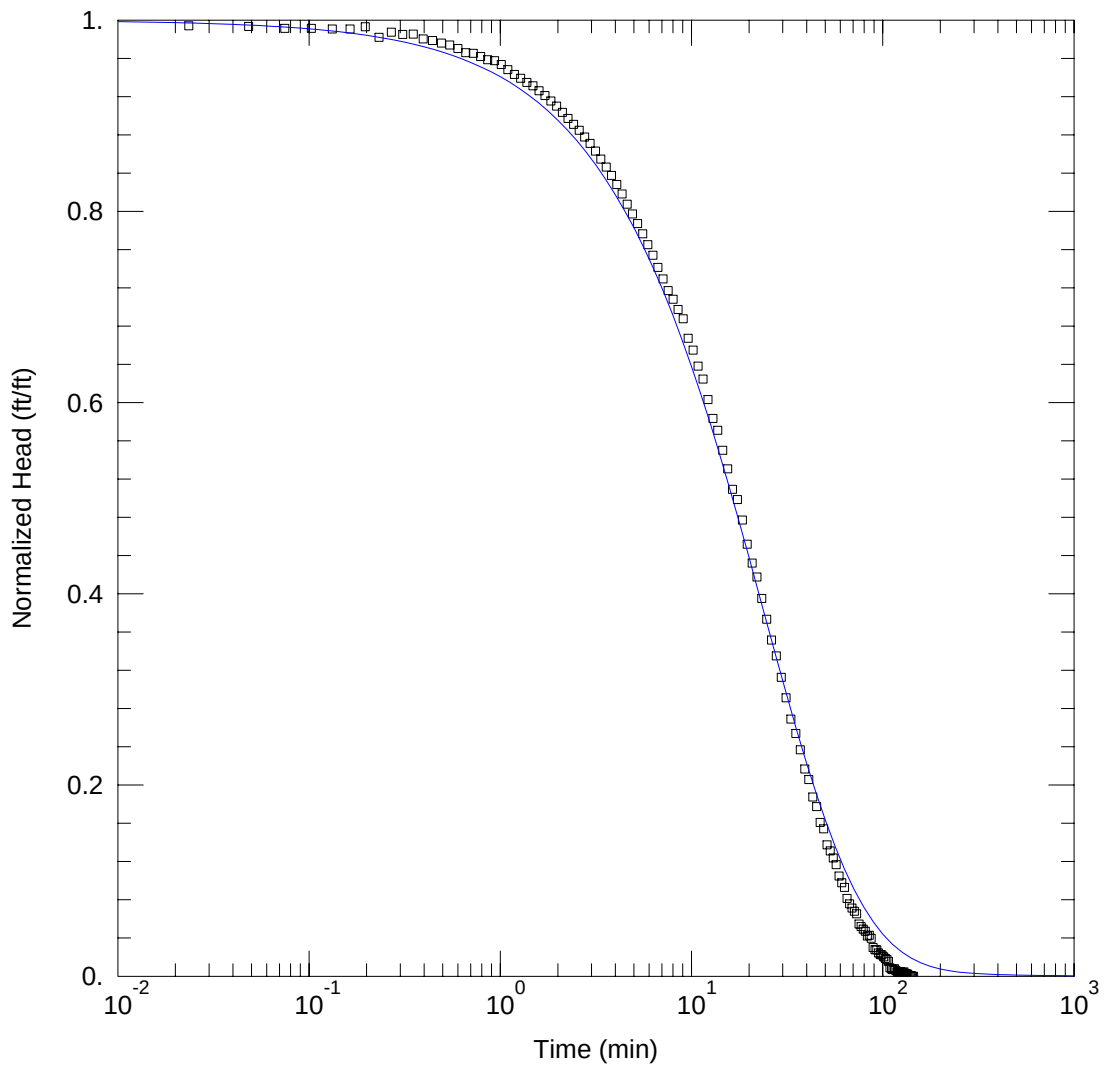
<u>Parameter</u>	<u>Estimate</u>	
Kr	0.003803	ft/day
Ss	2.342E-6	ft ⁻¹
Kz/Kr	1.	

K = 1.342E-6 cm/sec

NOTES

Specific Storage froze in the 10⁻⁶ range.
System solved to be isotropic.

Drop slug method was used.
A packer orifice restriction existed, no test
for head dependency was conducted.



PT 19A (870-930)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 870-930
 Test Well: CH/Deep UFA
 Test Date: 10/16/2003

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (Ch/Deep UFA)

Initial Displacement: 8.61 ft
 Total Well Penetration Depth: 418. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 907. ft
 Screen Length: 60. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.02304 \text{ ft/day}$
 $K_z/K_r = 1.$

Solution Method: KGS Model
 $S_s = 1.415\text{E-}6 \text{ ft}^{-1}$

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT19a_systematic.aqt
Title: PT 19A (870-930)
Date: 06/03/06
Time: 13:14:34

PROJECT INFORMATION

Company: SWFWMD
Project: LWR 2
Location: 870-930
Test Date: 10/16/2003
Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: Ch/Deep UFA

X Location: 0. ft
Y Location: 0. ft

Initial Displacement: 8.61 ft
Static Water Column Height: 907. ft
Casing Radius: 0.099 ft
Well Radius: 0.125 ft
Well Skin Radius: 0.125 ft
Screen Length: 60. ft
Total Well Penetration Depth: 418. ft

No. of Observations: 134

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	8.605	18.43	4.109
0.0235	8.559	19.55	3.891
0.0483	8.553	20.73	3.721
0.0747	8.536	21.98	3.595
0.1027	8.536	23.31	3.402
0.1323	8.53	24.71	3.215
0.1637	8.53	26.2	3.028
0.1968	8.55	27.78	2.885
0.232	8.455	29.45	2.692
0.2693	8.501	31.22	2.508
0.3088	8.481	33.09	2.316
0.3507	8.484	35.08	2.186
0.395	8.441	37.08	2.04
0.442	8.426	39.08	1.867
0.4918	8.403	41.08	1.772
0.5445	8.386	43.08	1.614
0.6003	8.354	45.08	1.528
0.6595	8.317	47.08	1.385
0.7222	8.311	49.08	1.327
0.7885	8.282	51.08	1.183
0.8588	8.254	53.08	1.129
0.9333	8.245	55.08	1.066
1.012	8.21	57.08	1.005
1.096	8.164	59.08	0.902
1.185	8.121	61.08	0.842
1.278	8.087	63.08	0.801
1.378	8.049	65.08	0.701
1.483	8.018	67.08	0.652
1.595	7.974	69.08	0.615
1.713	7.931	71.08	0.586
1.838	7.882	73.08	0.563
1.97	7.836	75.08	0.471
2.111	7.779	77.08	0.448
2.26	7.724	79.08	0.425
2.417	7.672	81.08	0.405
2.584	7.618	83.08	0.362

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
2.761	7.557	85.08	0.37
2.948	7.5	87.08	0.342
3.147	7.431	89.08	0.258
3.357	7.359	91.08	0.238
3.579	7.287	93.08	0.238
3.815	7.212	95.08	0.21
4.065	7.129	97.08	0.195
4.33	7.045	99.08	0.192
4.61	6.953	101.1	0.175
4.907	6.864	103.1	0.161
5.221	6.778	105.1	0.152
5.555	6.686	107.1	0.135
5.907	6.588	109.1	0.075
6.281	6.493	111.1	0.066
6.677	6.384	113.1	0.06
7.096	6.28	115.1	0.069
7.541	6.174	117.1	0.054
8.011	6.096	119.1	0.037
8.51	6.004	121.1	0.04
9.038	5.921	123.1	0.037
9.597	5.745	125.1	0.037
10.19	5.639	127.1	0.031
10.82	5.495	129.1	0.04
11.48	5.377	131.1	0.023
12.19	5.193	133.1	0.02
12.93	5.023	135.1	0.02
13.72	4.917	137.1	0.008
14.56	4.736	139.1	0.003
15.45	4.569	141.1	0.003
16.38	4.385	143.1	0.
17.38	4.293	145.1	0.

SOLUTION

Slug Test
Aquifer Model: Confined
Solution Method: KGS Model

VISUAL ESTIMATION RESULTS

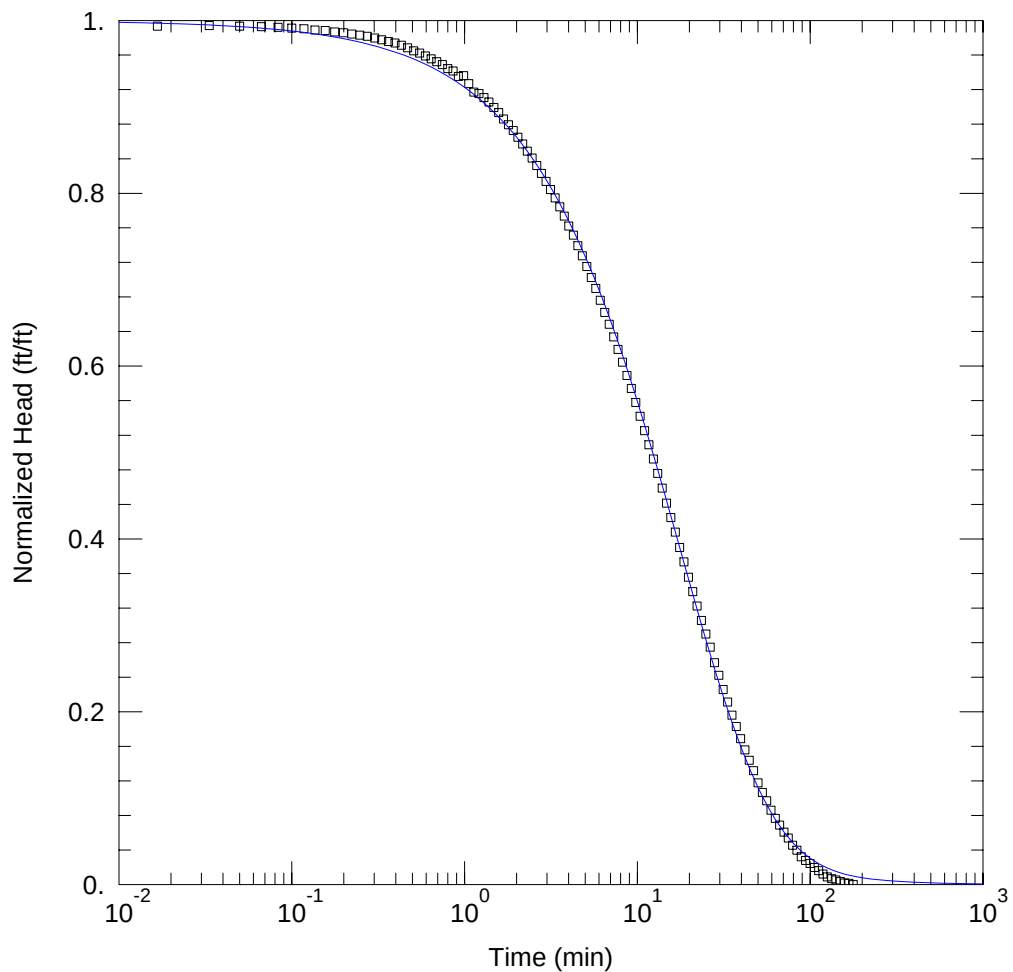
Estimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	0.02304	ft/day
Ss	1.415E-6	ft ⁻¹
Kz/Kr	1.	

K = 8.127E-6 cm/sec

NOTES

Specific Storage froze in the 10⁻⁶ range.
System solved to be isotropic.
Drop slug method was used.
A packer orifice restriction existed, no test
for head dependency was conducted.
Low K skin apparent.



PT 21A (957-1,010)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 957-1,010
 Test Well: CH/Deep UFA
 Test Date: 10/27/2003

AQUIFER DATA

Saturated Thickness: 610. ft

WELL DATA (Ch/Deep UFA)

Initial Displacement: 8.6 ft
 Total Well Penetration Depth: 498. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 982. ft
 Screen Length: 53. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 0.03464$ ft/day
 $K_z/K_r = 0.166$

Solution Method: KGS Model
 $S_s = 2.116E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT21a_systematic.aqt

Title: PT 21A (957-1,010)

Date: 06/03/06

Time: 13:22:42

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2

Location: 957-1,010

Test Date: 10/27/2003

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 610. ft

Anisotropy Ratio (Kz/Kr): 0.166

SLUG TEST WELL DATA

Test Well: Ch/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 8.6 ft

Static Water Column Height: 982. ft

Casing Radius: 0.099 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 53. ft

Total Well Penetration Depth: 498. ft

No. of Observations: 118

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	8.564	6.107	5.815
0.0167	8.544	6.481	5.694
0.0333	8.55	6.877	5.576
0.05	8.544	7.296	5.45
0.0667	8.538	7.74	5.326
0.0833	8.532	8.211	5.199
0.1	8.524	8.709	5.067
0.1177	8.518	9.237	4.938
0.1363	8.506	9.797	4.797
0.1562	8.501	10.39	4.661
0.1772	8.486	11.02	4.518
0.1993	8.478	11.68	4.377
0.2228	8.466	12.39	4.236
0.2477	8.454	13.13	4.092
0.274	8.443	13.92	3.945
0.302	8.426	14.76	3.796
0.3317	8.408	15.64	3.652
0.363	8.391	16.58	3.508
0.3962	8.377	17.58	3.355
0.4313	8.354	18.63	3.212
0.4687	8.328	19.75	3.059
0.5082	8.299	20.93	2.915
0.55	8.276	22.18	2.772
0.5943	8.247	23.51	2.628
0.6413	8.218	24.91	2.493
0.6912	8.19	26.4	2.363
0.7438	8.161	27.98	2.208
0.7997	8.121	29.65	2.082
0.8588	8.098	31.42	1.941
0.9215	8.043	33.29	1.817
0.9878	8.051	35.28	1.685
1.058	7.971	37.38	1.573

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
1.133	7.887	39.6	1.452
1.212	7.873	41.96	1.34
1.295	7.833	44.46	1.236
1.384	7.789	47.11	1.133
1.478	7.735	49.91	1.012
1.577	7.683	52.88	0.917
1.682	7.62	56.03	0.834
1.794	7.562	59.36	0.739
1.912	7.505	62.89	0.659
2.037	7.438	66.63	0.592
2.17	7.372	70.59	0.521
2.31	7.3	74.78	0.463
2.459	7.231	79.23	0.391
2.616	7.156	83.93	0.342
2.783	7.079	88.92	0.276
2.96	6.998	94.2	0.239
3.148	6.917	99.79	0.21
3.346	6.834	105.7	0.17
3.556	6.745	112.	0.138
3.779	6.653	118.6	0.104
4.015	6.555	125.7	0.075
4.264	6.463	133.1	0.058
4.529	6.359	141.	0.046
4.809	6.258	149.4	0.029
5.106	6.152	158.3	0.015
5.421	6.042	167.7	0.012
5.754	5.933	177.6	0.

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	0.03464	ft/day
Ss	2.116E-6	ft ⁻¹
Kz/Kr	0.166	

K = 1.222E-5 cm/sec

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	<u>Std. Error</u>	<u>Approx. C.I.</u>	<u>t-Ratio</u>	
Kr	0.03464	0.0002219	+/- 0.0004396	156.1	ft/day
Ss	2.116E-6	not estimated			ft ⁻¹
Kz/Kr	0.166	0.07063	+/- 0.1399	2.35	

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 1.222E-5 cm/sec

Parameter Correlations

	Kr	Kz/Kr
Kr	1.00	-0.82
Kz/Kr	-0.82	1.00

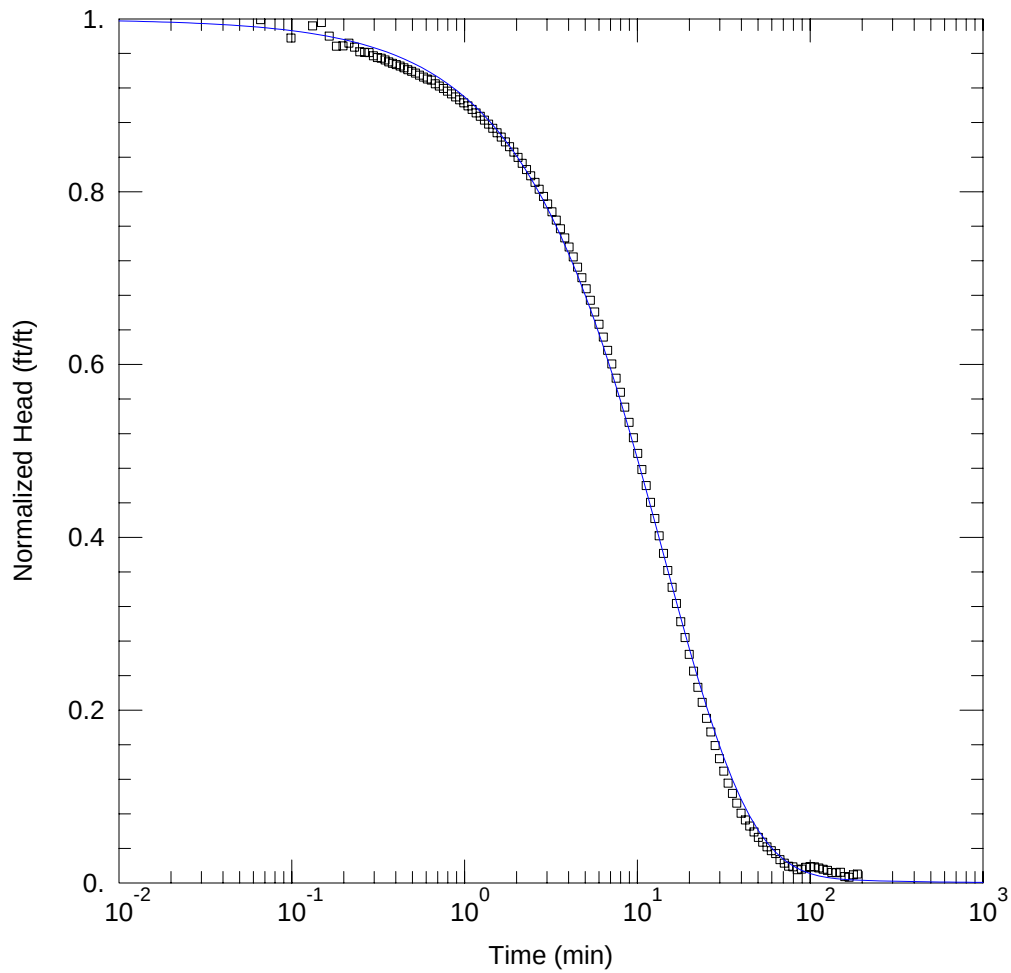
Residual Statistics

for weighted residuals

Sum of Squares 0.3979 ft²
Variance 0.00343 ft²
Std. Deviation 0.05857 ft
Mean 0.007859 ft
No. of Residuals. 118
No. of Estimates. 2

NOTES

Specific Storage froze in the 10⁻⁶ range.
System solved to be anisotropic.
Ten foot slug of water inserted into the well.



PT 23A (1,070-1,130)

PROJECT INFORMATION

Company: SWFWMD

AQUIFER DATA

Saturated Thickness: 70. ft

WELL DATA (LWR1_ch)

Initial Displacement: 14.6 ft

Total Well Penetration Depth: 1131.5 ft

Casing Radius: 0.1 ft

Static Water Column Height: 1193.5 ft

Screen Length: 40. ft

Well Radius: 0.13 ft

SOLUTION

Aquifer Model: Confined

Kr = 0.09398 ft/day

Kz/Kr = 1.

Solution Method: KGS Model

Ss = 3.012E-6 ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT23_systematic.aqt
 Title: PT 23A (1,070-1,130)
 Date: 06/05/06
 Time: 18:30:44

PROJECT INFORMATION

Company: SWFWMD

AQUIFER DATA

Saturated Thickness: 70. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: LWR1_ch

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 14.6 ft
 Static Water Column Height: 1193.5 ft
 Casing Radius: 0.1 ft
 Well Radius: 0.13 ft
 Well Skin Radius: 0.13 ft
 Screen Length: 40. ft
 Total Well Penetration Depth: 1131.5 ft

No. of Observations: 130

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.066	14.59	4.776	10.23
0.0825	15.52	5.056	10.04
0.099	14.28	5.353	9.846
0.1155	14.69	5.667	9.647
0.132	14.48	6.	9.439
0.1485	14.54	6.353	9.223
0.165	14.31	6.727	8.998
0.1815	14.14	7.123	8.77
0.198	14.15	7.543	8.53
0.2145	14.19	7.987	8.29
0.231	14.12	8.457	8.039
0.2475	14.04	8.956	7.782
0.264	14.04	9.484	7.522
0.2805	14.03	10.04	7.257
0.297	13.98	10.64	6.985
0.3135	13.95	11.26	6.714
0.33	13.94	11.93	6.431
0.3467	13.91	12.63	6.159
0.3643	13.87	13.38	5.865
0.383	13.85	14.17	5.567
0.4028	13.83	15.01	5.278
0.4238	13.81	15.89	4.995
0.446	13.77	16.83	4.721
0.4695	13.74	17.83	4.414
0.4943	13.72	18.88	4.146
0.5207	13.68	19.99	3.862
0.5487	13.65	21.18	3.579
0.5783	13.62	22.43	3.305
0.6097	13.59	23.76	3.05
0.6428	13.57	25.16	2.781
0.678	13.51	26.65	2.55
0.7153	13.47	28.23	2.322
0.7548	13.42	29.9	2.099
0.7967	13.38	31.66	1.888

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.841	13.33	33.54	1.686
0.888	13.28	35.52	1.512
0.9378	13.23	37.62	1.348
0.9905	13.18	39.85	1.177
1.046	13.13	42.21	1.064
1.105	13.07	44.71	0.96
1.168	13.01	47.36	0.862
1.234	12.95	50.16	0.769
1.305	12.89	53.13	0.688
1.379	12.82	56.27	0.61
1.458	12.75	59.61	0.544
1.542	12.68	63.14	0.497
1.631	12.6	66.87	0.393
1.724	12.52	70.83	0.333
1.824	12.44	75.03	0.283
1.929	12.35	79.47	0.272
2.041	12.26	84.18	0.223
2.159	12.16	89.17	0.234
2.284	12.05	94.45	0.263
2.416	11.95	100.	0.275
2.557	11.84	106.	0.272
2.706	11.72	112.2	0.254
2.863	11.6	118.9	0.231
3.03	11.47	125.9	0.211
3.207	11.34	133.4	0.176
3.394	11.2	141.3	0.171
3.592	11.05	149.7	0.179
3.803	10.9	158.5	0.107
4.025	10.75	167.9	0.095
4.261	10.58	177.9	0.136
4.511	10.41	187.9	0.15

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	
Kr	0.09398	ft/day
Ss	3.012E-6	ft ⁻¹
Kz/Kr	1.	

K = 3.315E-5 cm/sec

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
Kr	0.09398	0.00118	+/- 0.002336	79.63	ft/day
Ss	3.012E-6	not estimated			ft ⁻¹
Kz/Kr	1.	0.3191	+/- 0.6315	3.134	

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 3.315E-5 cm/sec

Parameter Correlations

	Kr	Kz/Kr
Kr	1.00	-0.90
Kz/Kr	-0.90	1.00

Residual Statistics

for weighted residuals

Sum of Squares 3.205 ft²
Variance 0.02504 ft²
Std. Deviation 0.1582 ft
Mean -0.01355 ft
No. of Residuals. 130
No. of Estimates. 2

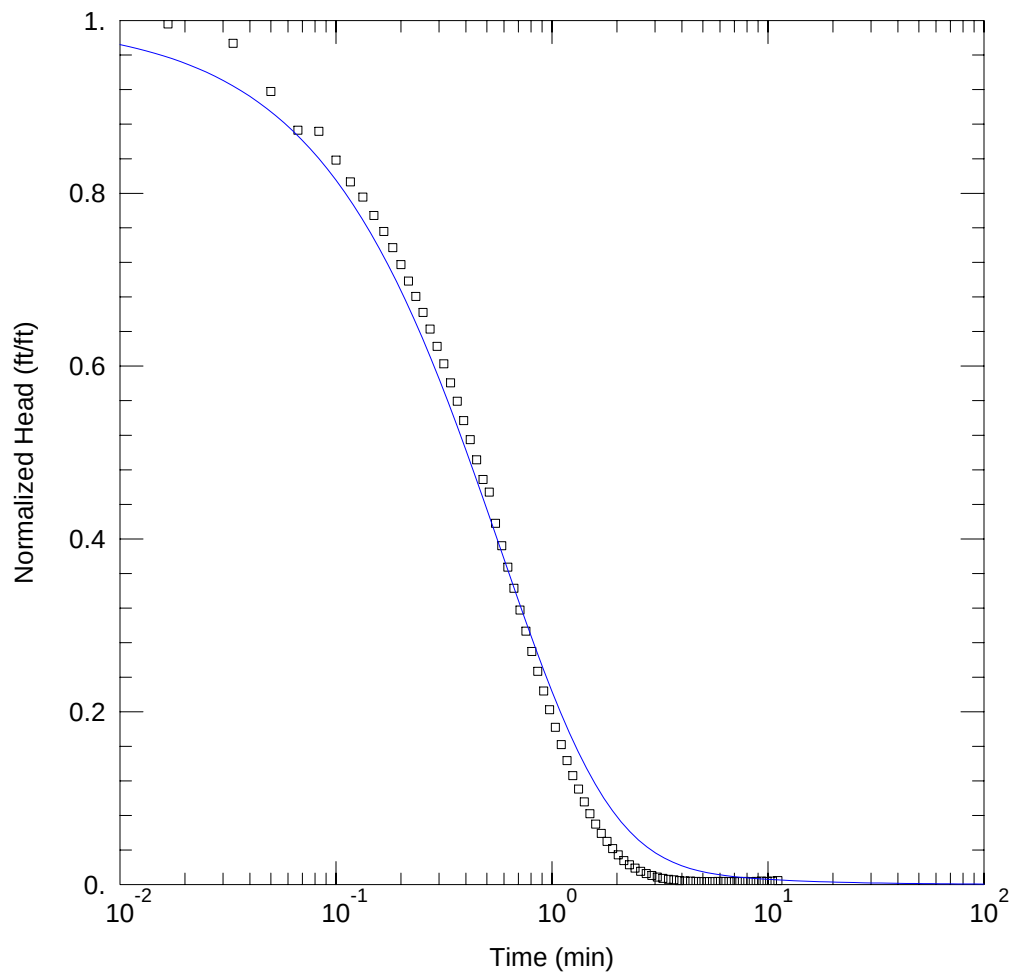
NOTES

Specific Storage froze in the 10⁻⁶ range.

System solved to be isotrophic.

Displaced water in well with 20 feet of airline below the measuring point (land).

Observed 14.6 feet of drawdown.



PT 24A (1,120-1,150)

PROJECT INFORMATION

Company: SWFWMD
 Project: LWR 2
 Location: 1120-1150
 Test Well: CH/Deep UFA
 Test Date: 11/7/2003

AQUIFER DATA

Saturated Thickness: 35.5 ft

WELL DATA (CH/Deep UFA)

Initial Displacement: 10. ft
 Total Well Penetration Depth: 30. ft
 Casing Radius: 0.099 ft

Static Water Column Height: 1150. ft
 Screen Length: 30. ft
 Well Radius: 0.125 ft

SOLUTION

Aquifer Model: Confined
 $K_r = 1.926$ ft/day
 $K_z/K_r = 0.7254$

Solution Method: KGS Model
 $S_s = 2.413E-6$ ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT24a_systematic.aqt

Title: PT 24A (1,120-1,150)

Date: 06/05/06

Time: 18:33:21

PROJECT INFORMATION

Company: SWFWMD

Project: LWR 2

Location: 1120-1150

Test Date: 11/7/2003

Test Well: CH/Deep UFA

AQUIFER DATA

Saturated Thickness: 35.5 ft

Anisotropy Ratio (Kz/Kr): 0.7254

SLUG TEST WELL DATA

Test Well: CH/Deep UFA

X Location: 0. ft

Y Location: 0. ft

Initial Displacement: 10. ft

Static Water Column Height: 1150. ft

Casing Radius: 0.099 ft

Well Radius: 0.125 ft

Well Skin Radius: 0.125 ft

Screen Length: 30. ft

Total Well Penetration Depth: 30. ft

No. of Observations: 77

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	10.04	1.249	1.26
0.0167	9.961	1.328	1.104
0.0334	9.736	1.412	0.957
0.05	9.178	1.5	0.819
0.0667	8.731	1.594	0.7
0.0834	8.717	1.694	0.591
0.1	8.385	1.799	0.499
0.1167	8.133	1.911	0.415
0.1334	7.957	2.029	0.343
0.15	7.744	2.154	0.277
0.1667	7.559	2.286	0.228
0.1834	7.371	2.427	0.19
0.2	7.175	2.576	0.153
0.2167	6.985	2.733	0.127
0.2344	6.806	2.9	0.104
0.253	6.621	3.077	0.086
0.2729	6.428	3.264	0.072
0.2939	6.229	3.462	0.061
0.316	6.027	3.673	0.055
0.3395	5.807	3.895	0.046
0.3644	5.594	4.131	0.04
0.3907	5.369	4.381	0.04
0.4187	5.15	4.646	0.037
0.4484	4.916	4.926	0.035
0.4797	4.688	5.223	0.035
0.5129	4.541	5.537	0.035
0.548	4.18	5.87	0.037
0.5854	3.921	6.223	0.037
0.6249	3.673	6.597	0.035
0.6667	3.428	6.993	0.035
0.711	3.177	7.412	0.035
0.758	2.932	7.857	0.037

<u>Time (min)</u>	<u>Displacement (ft)</u>	<u>Time (min)</u>	<u>Displacement (ft)</u>
0.8079	2.698	8.328	0.035
0.8605	2.467	8.826	0.037
0.9164	2.24	9.354	0.04
0.9755	2.023	9.913	0.037
1.038	1.819	10.51	0.04
1.105	1.62	11.13	0.046
1.175	1.435		

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

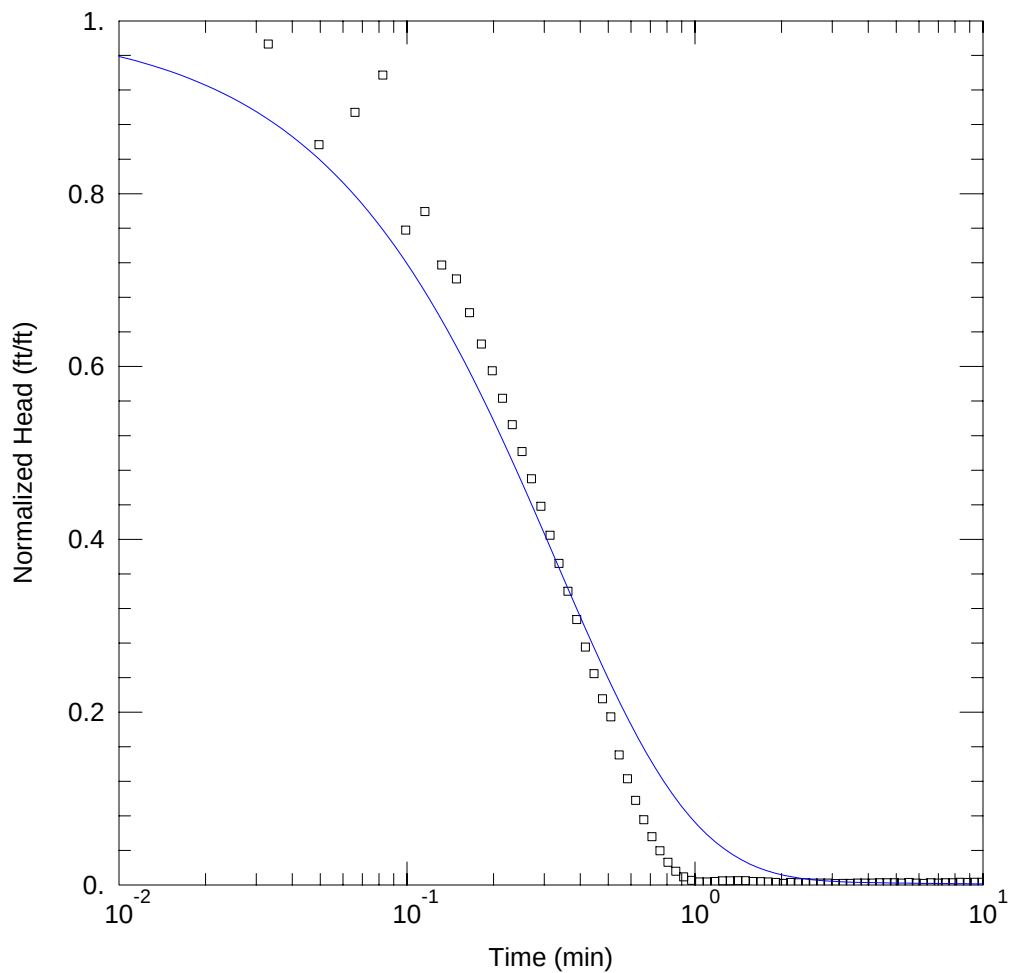
VISUAL ESTIMATION RESULTSEstimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
Kr	1.926	ft/day
Ss	2.413E-6	ft ⁻¹
Kz/Kr	0.7254	

K = 0.0006795 cm/sec

NOTES

Specific Storage froze in the 10⁻⁶ range.
 System solved to be nearly anisotropic.
 Ten foot slug of water inserted into the well.
 Low K skin observed.



PT 25A (1,170-1,190)

PROJECT INFORMATION

Company: SWFWMD

AQUIFER DATA

Saturated Thickness: 70. ft

WELL DATA (LWR2_ch)

Initial Displacement: 9.24 ft
 Total Well Penetration Depth: 1187. ft
 Casing Radius: 0.1 ft

Static Water Column Height: 1187. ft
 Screen Length: 20. ft
 Well Radius: 0.13 ft

SOLUTION

Aquifer Model: Confined

Solution Method: KGS Model

Kr = 5. ft/day
 Kz/Kr = 1.

Ss = 1.883E-6 ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT25_systematic.aqt
 Title: PT 25A (1,170-1,190)
 Date: 06/05/06
 Time: 18:35:59

PROJECT INFORMATION

Company: SWFWMD

AQUIFER DATA

Saturated Thickness: 70. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: LWR2_ch

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 9.24 ft
 Static Water Column Height: 1187. ft
 Casing Radius: 0.1 ft
 Well Radius: 0.13 ft
 Well Skin Radius: 0.13 ft
 Screen Length: 20. ft
 Total Well Penetration Depth: 1187. ft

No. of Observations: 75

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	9.241	1.173	0.037
0.0165	9.258	1.247	0.043
0.033	8.992	1.326	0.043
0.0495	7.916	1.41	0.046
0.066	8.262	1.498	0.046
0.0825	8.66	1.592	0.037
0.099	7.002	1.692	0.035
0.1155	7.201	1.797	0.032
0.132	6.629	1.909	0.026
0.1485	6.48	2.027	0.017
0.165	6.119	2.152	0.026
0.1815	5.784	2.284	0.023
0.198	5.499	2.425	0.023
0.2147	5.205	2.574	0.02
0.2323	4.922	2.731	0.02
0.251	4.634	2.898	0.02
0.2708	4.343	3.075	0.014
0.2918	4.049	3.262	0.017
0.314	3.74	3.461	0.017
0.3375	3.438	3.671	0.02
0.3623	3.141	3.893	0.02
0.3887	2.838	4.129	0.02
0.4167	2.544	4.379	0.023
0.4463	2.259	4.644	0.023
0.4777	1.991	4.924	0.023
0.5108	1.798	5.221	0.02
0.546	1.391	5.535	0.026
0.5833	1.135	5.869	0.02
0.6228	0.905	6.221	0.017
0.6647	0.697	6.595	0.023
0.709	0.516	6.991	0.02
0.756	0.366	7.41	0.023
0.8058	0.242	7.855	0.023
0.8585	0.147	8.325	0.029

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.9143	0.086	8.824	0.026
0.9735	0.049	9.352	0.029
1.036	0.032	9.911	0.029
1.103	0.032		

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	
Kr	5.	ft/day
Ss	1.883E-6	ft ⁻¹
Kz/Kr	1.	

K = 0.001764 cm/sec

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
Kr	5.	0.8775	+/- 1.749	5.698	ft/day
Ss	1.883E-6	not estimated			ft ⁻¹
Kz/Kr	1.	2.723	+/- 5.426	0.3673	

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 0.001764 cm/sec

Parameter Correlations

	Kr	Kz/Kr
Kr	1.00	-0.99
Kz/Kr	-0.99	1.00

Residual Statistics

for weighted residuals

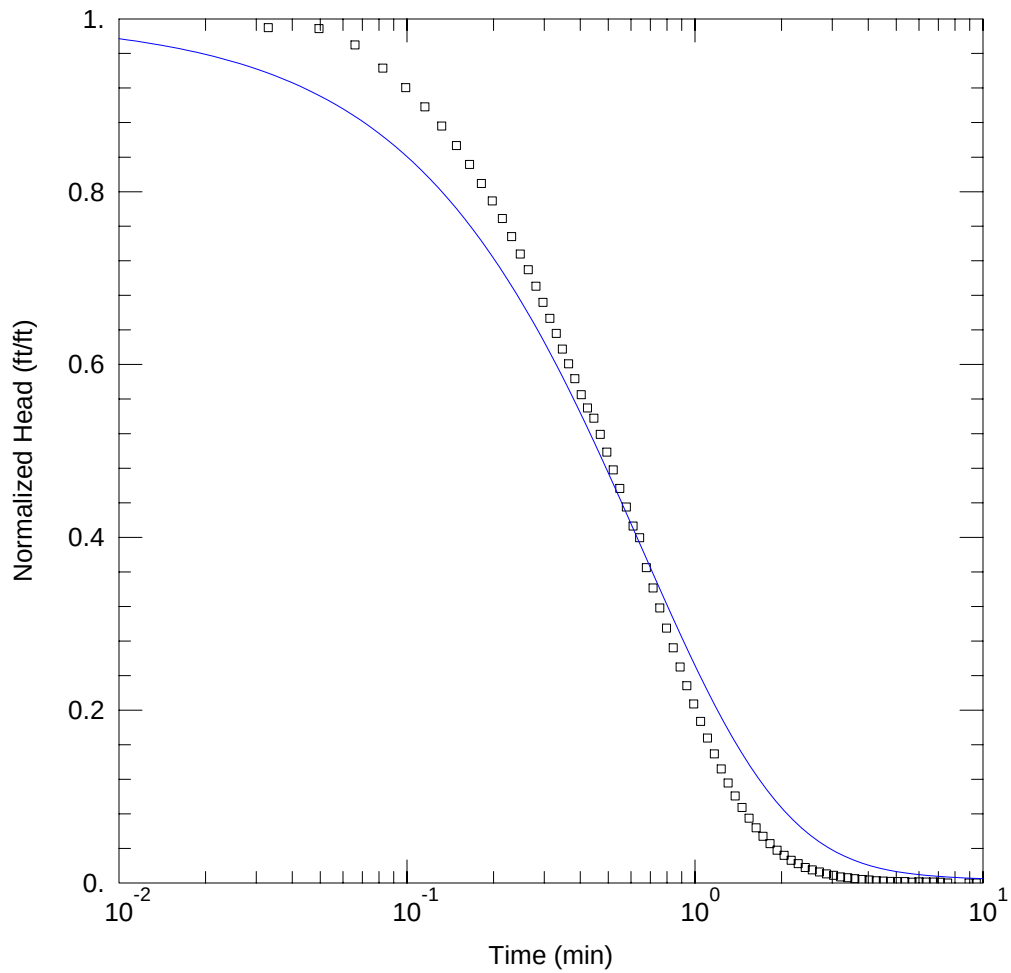
Sum of Squares 14.7 ft²
Variance 0.2014 ft²
Std. Deviation 0.4488 ft
Mean -0.02434 ft
No. of Residuals. 75
No. of Estimates. 2

NOTESSpecific Storage froze in the 10⁻⁶ range.

System solved to be isotropic.

Ten foot slug of water inserted into the well.

Low K skin observed.



PT 26A (1,226-1,250)

PROJECT INFORMATION

Company: SWFWMD

AQUIFER DATA

Saturated Thickness: 42. ft

WELL DATA (LWR2_ch)

Initial Displacement: 11.8 ft
 Total Well Penetration Depth: 1250. ft
 Casing Radius: 0.1 ft

Static Water Column Height: 1250. ft
 Screen Length: 24. ft
 Well Radius: 0.13 ft

SOLUTION

Aquifer Model: Confined

Solution Method: KGS Model

Kr = 2.015 ft/day
 Kz/Kr = 1.

Ss = 2.074E-6 ft⁻¹

Data Set: D:\Jerry\Projects\Withlacochee_TR\LWR 2\Hydro data\Aqtesolv\LWR2_PT26_systematic.aqt
 Title: PT 26A (1,226-1,250)
 Date: 06/05/06
 Time: 18:39:08

PROJECT INFORMATION

Company: SWFWMD

AQUIFER DATA

Saturated Thickness: 42. ft
 Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: LWR2_ch

X Location: 0. ft
 Y Location: 0. ft

Initial Displacement: 11.8 ft
 Static Water Column Height: 1250. ft
 Casing Radius: 0.1 ft
 Well Radius: 0.13 ft
 Well Skin Radius: 0.13 ft
 Screen Length: 24. ft
 Total Well Penetration Depth: 1250. ft

No. of Observations: 82

Observation Data			
Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.	11.79	0.9905	2.445
0.0165	11.94	1.046	2.206
0.033	11.68	1.105	1.978
0.0495	11.67	1.168	1.762
0.066	11.45	1.234	1.557
0.0825	11.13	1.305	1.364
0.099	10.86	1.379	1.188
0.1155	10.6	1.458	1.03
0.132	10.34	1.542	0.883
0.1485	10.07	1.631	0.753
0.165	9.813	1.724	0.637
0.1815	9.553	1.824	0.537
0.198	9.314	1.929	0.447
0.2145	9.074	2.041	0.378
0.231	8.828	2.159	0.309
0.2475	8.589	2.284	0.263
0.264	8.375	2.416	0.211
0.2805	8.15	2.557	0.179
0.297	7.928	2.706	0.15
0.3135	7.711	2.863	0.124
0.33	7.506	3.03	0.104
0.3467	7.29	3.207	0.081
0.3643	7.09	3.394	0.07
0.383	6.886	3.592	0.058
0.4028	6.669	3.803	0.047
0.4238	6.487	4.025	0.041
0.446	6.346	4.261	0.029
0.4695	6.126	4.511	0.026
0.4943	5.884	4.776	0.021
0.5207	5.642	5.056	0.018
0.5487	5.388	5.353	0.018
0.5783	5.134	5.667	0.009
0.6097	4.874	6.	0.015
0.6428	4.715	6.353	0.012

Time (min)	Displacement (ft)	Time (min)	Displacement (ft)
0.678	4.306	6.727	0.012
0.7153	4.029	7.123	0.009
0.7548	3.755	7.543	0.
0.7967	3.481	7.987	-0.005
0.841	3.212	8.457	-0.005
0.888	2.95	8.956	0.
0.9378	2.693	9.484	0.

SOLUTION

Slug Test

Aquifer Model: Confined

Solution Method: KGS Model

VISUAL ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	
Kr	2.015	ft/day
Ss	2.074E-6	ft ⁻¹
Kz/Kr	1.	

K = 0.0007107 cm/sec

AUTOMATIC ESTIMATION RESULTSEstimated Parameters

Parameter	Estimate	Std. Error	Approx. C.I.	t-Ratio	
Kr	2.015	0.7319	+/- 1.457	2.752	ft/day
Ss	2.074E-6	not estimated			ft ⁻¹
Kz/Kr	1.	7.945	+/- 15.81	0.1259	

C.I. is approximate 95% confidence interval for parameter

t-ratio = estimate/std. error

No estimation window

K = 0.0007107 cm/sec

Parameter Correlations

	Kr	Kz/Kr
Kr	1.00	-1.00
Kz/Kr	-1.00	1.00

Residual Statistics

for weighted residuals

Sum of Squares 21.3 ft²
 Variance 0.2662 ft²
 Std. Deviation 0.5159 ft
 Mean -0.001913 ft
 No. of Residuals. 82
 No. of Estimates. 2

NOTESSpecific Storage froze in the 10⁻⁶ range.

System solved to be isotropic.

Standpipe used to insert water.

Low K skin observed in the data.

APPENDIX F

Field (F.1) and Laboratory (F.2) Water Quality Data

Appendix F.1. Results of Field Water Quality Analyses at the Withlacoochee Transect WR6B Well site.

[bls, below land surface; °C, degrees Celcius; SU, standard units; umhos/cm, micromhos per centimeter; mg/L, milligrams per liter; ft, feet; WSW, water supply well; UID, universal identification; >, greater than; Temp., temperature]

Monitor Well UID #	Date	Time	Open Interval (feet bls)	Temp. (°C)	pH (SU)	Specific Cond. (umhos/cm)	MAJOR ANIONS		Sample Collection Method/Remarks
							Cl ¹⁻	SO ₄ ²⁻	
							(mg/L)	(mg/L)	
2951-2374-0 (WSW)	10/06/06	10:10	50-80	22.5	8.93	247			Submersible pump was used to purge 3 well volumes and collect the sample
2916-2291-0 (corehole)	07/28/03	13:30	130-200	26.5	7.5	342			Packer Test #1 (130-200 ft bls). Off-bottom packer, air-lift sample - sample - sent to lab
2916-2291-0 (corehole)	07/29/03	0:01	165-200	25.8	7.5	349			Packer Test #2 (165-200 ft bls). Off-bottom packer, air-lift sample - sent to lab
2916-2291-0 (corehole)	08/19/03	16:00	290-310	23.6	7.58	372			Packer Test #4 (290-310 ft bls). Off-bottom packer, air-lift sample - sample - sent to lab
2916-2291-0 (corehole)	08/26/03	16:00	326-365	29.6	7.75	625			Packer Test #6 (326-365 ft bls). Off-bottom packer, air-lift sample - sent to lab
2916-2291-0 (corehole)	09/03/03	14:15	392-425	24.7	7.42	1842			Packer Test #7 (392-425 ft bls). Off-bottom packer, air-lift sample - sample - sent to lab
2916-2291-0 (corehole)	09/04/03	16:45	457-485	27.2	7.94	3490			Packer Test #8 (457-485 ft bls). Off-bottom packer, air-lift sample - sent to lab
2916-2291-0 (corehole)	09/06/03	16:45	506-520	26.8	7.94	3570			Packer Test #9 (506-520 ft bls). Off-bottom packer, air-lift sample - sample - sent to lab
2916-2291-0 (corehole)	09/10/03	14:10	514-530	29.6	8.09	4240	260	>1700	Packer Test #10 (514-530 ft bls). Off-bottom packer, air-lift sample - sent to lab
2916-2291-0 (corehole)	09/13/03	12:00	549-570	26.5	8.51	4840	500	2000	Packer Test #11 (549-570 ft bls). Off-bottom packer, air-lift sample - sample - sent to lab
2916-2291-0 (corehole)	09/15/03	16:00	586-610	26.2	8.4	5020	400	2000	Packer Test #12 (586-610 ft bls). Off-bottom packer, air-lift sample - sent to lab
2916-2291-0 (corehole)	09/18/03	12:20	631-650	26.4	7.15	5820	580	3400	Packer Test #13 (631-650 ft bls). Off-bottom packer, air-lift sample - sample - pump shut off overnite restarted in the AM - sent to lab
2916-2291-0 (corehole)	09/23/03	16:20	663-690	24.8	7.18	5010	440	3400	Packer Test #14 (663-690 ft bls). Off-bottom packer, air-lift sample - sent to lab
2916-2291-0 (corehole)	09/27/03	14:00	701-730	25.5	7.43	5910	1000	1000	Packer Test #15 (701-730 ft bls). Off-bottom packer, air-lift sample - sample - sent to lab
2916-2291-0 (corehole)	10/01/03	16:30	733-770	23.9	7.65	5650	580	3400	Packer Test #16 (733-770 ft bls). Off-bottom packer, air-lift sample - sent to lab
2916-2291-0 (corehole)	10/10/03	9:00	808-870	22.8	7.13	2440	100	2100	Packer Test #18 (808-870 ft bls). Off-bottom packer, air-lift sample - sample - sent to lab - INSUFFICIENT PURGE! DATA ISN'T GOOD!
2916-2291-0 (corehole)	10/17/03	11:30	870-930	24	7.5	3400	180	3400	Packer Test #19 (870-930 ft bls). Off-bottom packer, nested-bailer sample - sent to lab
2916-2291-0 (corehole)	10/25/03	13:30	957-1010	27.2	6.7	4220	220	2500	Packer Test #20&21 (957-1010 ft bls). Off-bottom packer, nested-bailer sample - sent to lab
2916-2291-0 (corehole)	11/07/03	16:30	1120-1150	26.5	7.25	4060	100	2500	Packer Test #24 (1120-1150 ft bls). Off-bottom packer, nested-bailer sample - sent to lab
2916-2291-0 (corehole)	11/11/03	11:00	1170-1190	27.2	7.6	4030	80	2750	Packer Test #25 (1170-1190 ft bls). Off-bottom packer, nested-bailer sample - sent to lab
2916-2291-0 (corehole)	11/13/03	15:50	1226-1250	26.1	7.68	3410	50	3400	Packer Test #26 (1226-1250 ft bls). Off-bottom packer, air-lift sample - sent to lab
2916-2291-0 (corehole)	11/15/03	10:00	1250-1290	26.9	7.62	3520	60	2625	Packer Test #27 (1250-1290 ft bls). Off-bottom packer, nested-bailer sample - sent to lab

Appendix F.2. Results of Laboratory Water Quality Analyses at the Withlacoochee Transect WR6B Well site.

[bls, below land surface; °C, degrees Celcius; SU, standard units; umhos/cm, micromhos per centimeter; mg/L, milligrams per liter; ft, feet; WSW, water supply well; UID, universal identification; <, less than]

Monitor Well UID #	Date	Time	Open Interval (feet bls)	pH (SU)	Specific Cond. (umhos/cm)	MAJOR ANIONS		MAJOR CATIONS						Si as SiO2 (mg/L)	Total Dissolved Solids (mg/L)	Total Alkalinity CaCO3 (mg/L)
						Cl ¹⁻ (mg/L)	SO ₄ 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)			
2951-2374-0 (WSW)	10/6/2006	10:10	50-80	8.37	183	4.50	6.50	51.9	1.18	3.51	0.57	<12.5	<.25	7.3	99	80.8
2916-2291-0 (corehole)	7/25/2003	13:15	80-130	8.09	275	6.05	6.44	48.6	3.93	6.61	0.98	<12.5	<.25	7.5	186	128.0
2916-2291-0 (corehole)	7/28/2003	13:30	130-200	7.99	344	7.41	1.61	64.8	4.74	4.52	0.74	<12.5	<.25	8.3	215	174.0
2916-2291-0 (corehole)	7/29/2003	0:01	165-200	8.05	372	7.50	1.15	69.4	5.89	4.73	0.78	<12.5	<.25	8.8	234	189.00
2916-2291-0 (corehole)	8/19/2003	16:00	290-310	7.91	375	7.54	16.10	65.2	3.74	15.3	0.57	<12.5	<.25	8.6	227	176.00
2916-2291-0 (corehole)	8/26/2003	16:00	326-365	8.13	638	12.90	150.00	106.0	17.1	11.4	1.06	48.6	1.51	10.2	434	181.00
2916-2291-0 (corehole)	9/3/2003	14:15	392-425	7.88	1976	53.50	1000.00	334.0	82.6	55.6	4.85	320	7.06	13.6	1740	171.00
2916-2291-0 (corehole)	9/4/2003	16:45	457-485	8.07	3680	169.00	2200.00	579.0	193	174	11.6	459	11.5	15.9	3620	185.00
2916-2291-0 (corehole)	9/6/2003	16:45	506-520	8.06	3860	196.00	2100.00	561.0	200	216	14	980	11.1	16.4	3670	195.00
2916-2291-0 (corehole)	9/10/2003	14:10	514-530	8.18	4140	232.00	2350.00	590.0	218	252	16.2	37.4	10.9	13.6	3930	196.00
2916-2291-0 (corehole)	9/13/2003	12:00	549-570	8.11	4820	360.00	2540.00	607.0	229	375	26.2	819	10.6	15.4	4440	225.00
2916-2291-0 (corehole)	9/15/2003	16:00	586-610	8.19	4970	378.00	2520.00	605.0	224	411	29.2	1677	10.4	14.9	4510	227.00
2916-2291-0 (corehole)	9/18/2003	12:20	631-650	7.41	5820	531.00	2740.00	618.0	233	600	42.1	2830	10.5	15.3	5050	226.00
2916-2291-0 (corehole)	9/23/2003	16:20	663-690	7.43	4980	432.00	2400.00	555.0	189	489	33.9	6510	9.06	13.9	4340	205.00
2916-2291-0 (corehole)	9/27/2003	14:00	701-730	7.69	5930	562.00	2810.00	608.0	238	596	45.5	1480	10.1	16.9	5190	228.00
2916-2291-0 (corehole)	10/1/2003	16:30	733-770	7.78	5550	524.00	2570.00	603.0	219	550	41.3	3470	9.78	15.4	4810	231.00
2916-2291-0 (corehole)	10/17/2003	11:30	870-930	7.57	3370	132.00	1780.00	508.0	118	215	24.3	2360	9.12	12.5	3070	149.00
2916-2291-0 (corehole)	10/25/2003	13:30	957-1010	7.31	4320	165.00	2440.00	534.0	172	348	39.2	3830	8.33	8.3	3870	136.00
2916-2291-0 (corehole)	11/7/2003	16:30	1120-1150	7.74	4140	54.40	2780.00	583.0	378	61.7	16.1	96	13.1	19.8	4230	185.00

Appendix F.2. Results of Laboratory Water Quality Analyses at the Withlacoochee Transect WR6B Well site.

[bls, below land surface; °C, degrees Celcius; SU, standard units; umhos/cm, micromhos per centimeter; mg/L, milligrams per liter; ft, feet; WSW, water supply well; UID, universal identification; <, less than]

Monitor Well UID #	Date	Time	Open Interval (feet bls)	pH (SU)	Specific Cond. (umhos/cm)	MAJOR ANIONS		MAJOR CATIONS						Si	Total	Total
						Cl ¹⁻	SO ₄ ²⁻	Ca ²⁺	Mg ²⁺	Na ⁺	K ⁺	Fe ²⁺	Sr ²⁺	as SiO2	Dissolved Solids	Alkalinity CaCO3
						(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
2916-2291-0 (corehole)	11/11/2003	11:00	1170-1190	7.71	3740	52.30	2780.00	572.0	383	56.9	14.8	110	13.5	19.8	4261	185.00
2916-2291-0 (corehole)	11/13/2003	15:50	1226-1250	7.77	3540	23.10	2360.00	613.0	275	19.4	4.45	633	10.6	15.4	3540	102.00
2916-2291-0 (corehole)	11/15/2003	10:00	1250-1290	7.66	3650	28.50	2460.00	580.0	287	23.5	5.45	502	11.1	16.9	3710	112.00

APPENDIX G

Geophysical Logs for the Corehole/Deep Upper Floridan Aquifer Well

Appendix G. Geophysical logs for the corehole/deep Upper Floridan aquifer well. The logs were run on November 17, 2003 using tools 9074 (caliper) and 8044 (multi). The casing depth at the time of logging was 326 feet below land surface. The log is in 1 inch to 100 feet scale, with linear scales.

