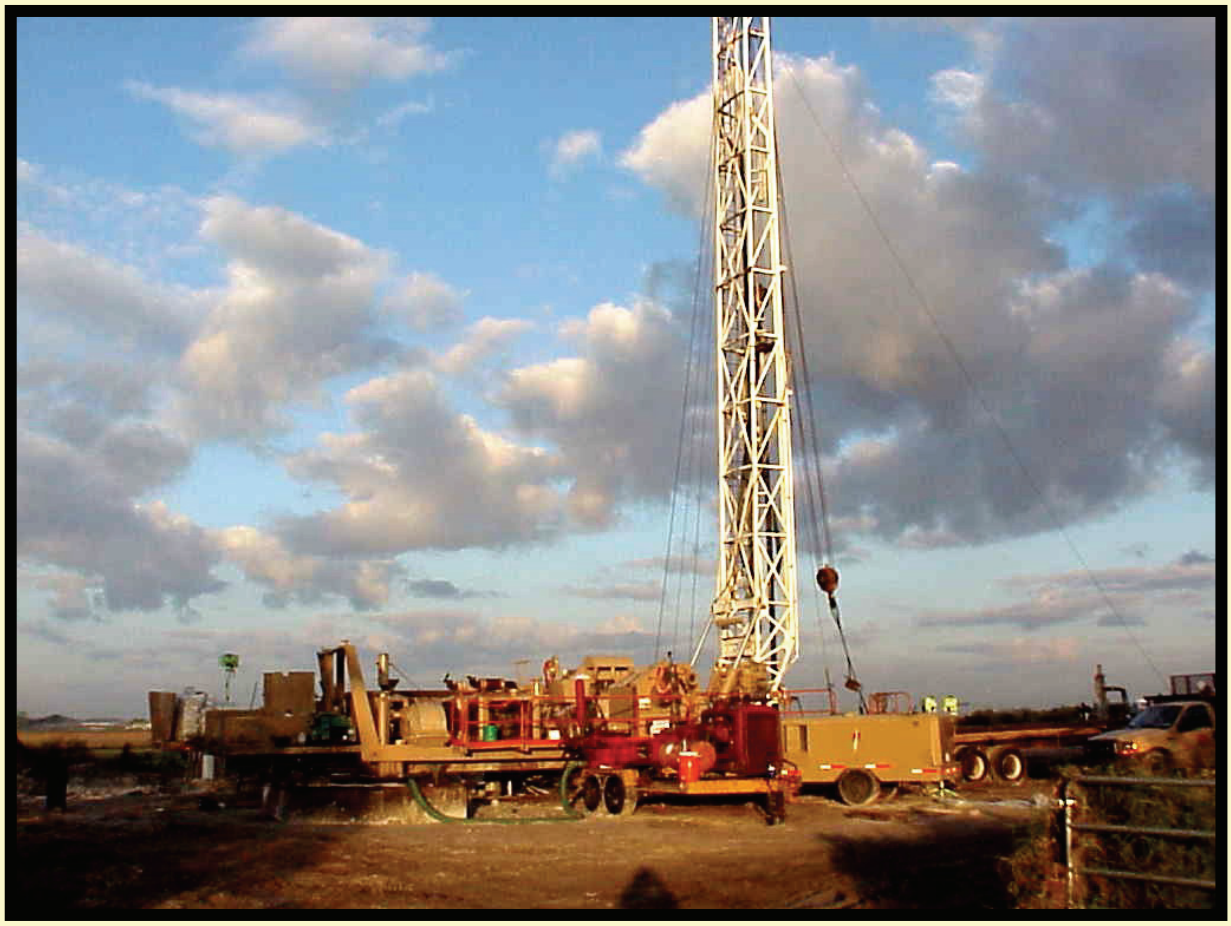
Southwest Florida
Water Management District

The Geology, Hydrology, and Water Quality of the ROMP 43 – Bee Branch Monitor-well Site Hardee County, Florida



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The geological evaluations and interpretations contained in this report, *The Geology, Hydrology, and Water Quality of the ROMP 43 – Bee Branch Monitor-well Site*, have been approved by a licensed Professional Geologist in the State of Florida, in accordance with Chapter 492, Florida Statutes.

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Date:_____

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1.0 INTRODUCTION

The Southwest Florida Water Management District's (District) Regional Observation and Monitor-well Program (ROMP) investigation at the ROMP 43 Bee Branch well site was designed to characterize the geology, hydrology, and water quality of the subsurface. The collected data was applied to the design and construction of a perpetual monitor-well site for continued tracking of water level and quality at this site. The ROMP 43 Bee Branch site is one of several well sites to be constructed as part of the southern Water Resources Assessment Project (WRAP).

The work consisted of three principal phases: a core drilling and testing phase, a monitor well construction and deep exploratory phase, and an aquifer performance testing (APT) phase. The core driliing and testing phase was conducted to gather lithologic, hydraulic, and water quality data to characterize the geology, hydrology, and water quality of the subsurface. Additional deep exploratory drilling and testing was conducted during the monitor well construction phase to the base of the Upper Floridan aquifer and into the middle confining unit II (Miller, 1986) to further characterize the system(s) present. APTs were conducted on the completed monitor wells to determine hydraulic parameters of identified aquifers.

The core drilling and testing began on January 29, 2002 and ended on June 11, 2002 at a depth of 1,120 feet below land surface (bls) with the District's Central Mining Equipment (CME) coring rig and monitor-well construction began on October 15, 2002 and ended on January 23, 2003 at a depth of 1,717 feet below land surface through a drilling contract with Diversified Drilling Corporation (DDC). Aquifer performance testing was conducted at various times from 2004 through 2006. The finished monitor-well site consists of five permanent water level and quality monitoring wells.

2.0 SITE LOCATION

The ROMP 43 well site is located on the property of Joseph Wright (V & W Farms) in rural northeast Hardee County approximately five miles west of the city of Avon Park on SR 64 (figure 1). The site can be found by taking Interstate 75 South to exit 45 (State Route 64) and proceeding East approximately 44 miles to Zolfo Springs. From Zolfo Springs, continue East on State Route 64 approximately 14.2 miles. Turn right onto Jersey Lane (dirt road) and go south approximately 0.38 miles to the site on the right hand side of the road.

The well site lies in the Southeast ¼ of the Northwest ¼ of Section 26, Township 33 South, and Range 27 East at 27 degrees, 35 minutes, and 00.6 seconds North latitude and 81degrees, 35 minutes, and 18.6 seconds West longitude. Land surface elevation at the well site is approximately 98 feet above the National Geodetic Vertical Datum of 1929 (NGVD). The well site is located in the Avon Park Quadrangle – 7.5 minute series published by the United States Geological Survey. The site consisted of a 178 by 250 feet temporary construction easement (SWF Parcel # 20-020-059B) and a 20 by 80 feet perpetual easement (SWF Parcel # 20-020-059).

The ROMP 43 well site is located in the northeast corner of the Desoto Plain physiographic province, a part of the Mid-Peninsular zone of the Florida peninsula. The Desoto Plain is a very flat, well-preserved relict submarine shoal, which covers southern and eastern Hardee County, and was probably formed under Pleistocene Wicomico sea level (White, 1970). The submarine origin is evidenced by a lack of linear features that would otherwise suggest shoreline processes. Most of Hardee County is generally level with moderately well drained to poorly drained soils. Surface drainage of the county would therefore be relatively poor if not for the wide network of branching

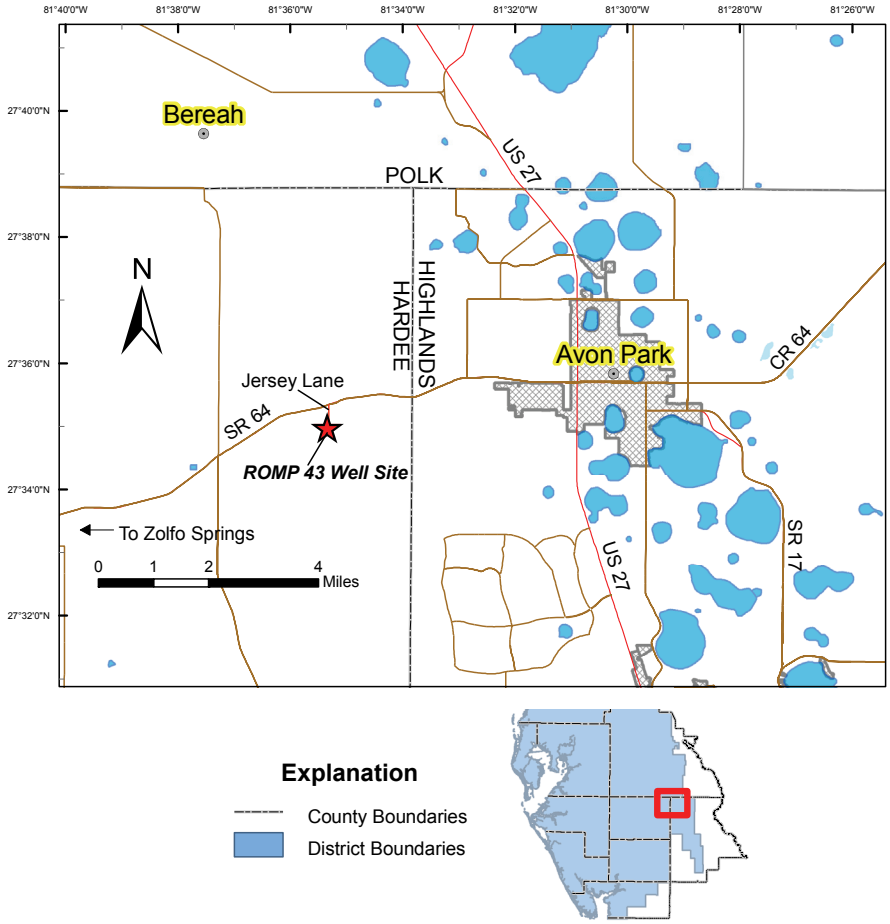

Figure 1. Location of the ROMP 43 monitor-well site in Hardee County, Florida.

tributaries that cover the Peace River drainage basin (Watson, 1988). Several marshes and shallow depressions tend to contain water during wet seasons only. Nearly all of Hardee County is contained within the Peace River hydrologic drainage basin covering approximately 1,800 square miles. Bee Branch refers to a southwest-flowing tributary of Charlie Creek that lies approximately 1.5 miles south-southeast of the site. The well site is located within the Bee Branch basin that drains surface water into Bee Branch where it flows southwest approximately 3.75 miles to Charlie Creek, a tributary of the Peace River. From Charlie Creek, water runs south-southwest approximately 15.5 miles where it joins the Peace River near the Hardee-Desoto border.

3.0 ACKNOWLEDGMENTS

Special appreciation is given to Joseph Wright, property owner of V & W Farms for granting of the necessary perpetual and temporary access easements to the District for all operations and construction of the ROMP 43 well site. Also, Bob Kerr and Tom Bailey of the Holly Hill Fruit Products Company in Hardee County for their logistical accommodations made to the District during operations. All of their cooperation is greatly appreciated.

4.0 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 core hole was advanced. Geophysical logging was conducted on the borehole providing additional hydrogeologic data. After well construction, APTs were conducted on each of the major aquifers or producing zones encountered at the site. A detailed description of all ROMP data collection methods can be found in appendix A.

5.0 WELL CONSTRUCTION

The ROMP 43 monitor-well site consists of five permanent water level and water quality monitoring wells installed on the perpetual easement labeled MW1 through MW5 (figure 2) as well as a shallow water supply well (WS) used only during coring operations. Also, four temporary observation wells (OB1 through OB4) installed on the temporary construction easement were utilized during APTs then subsequently plugged and abandoned since the conclusion of site work. Monitor and

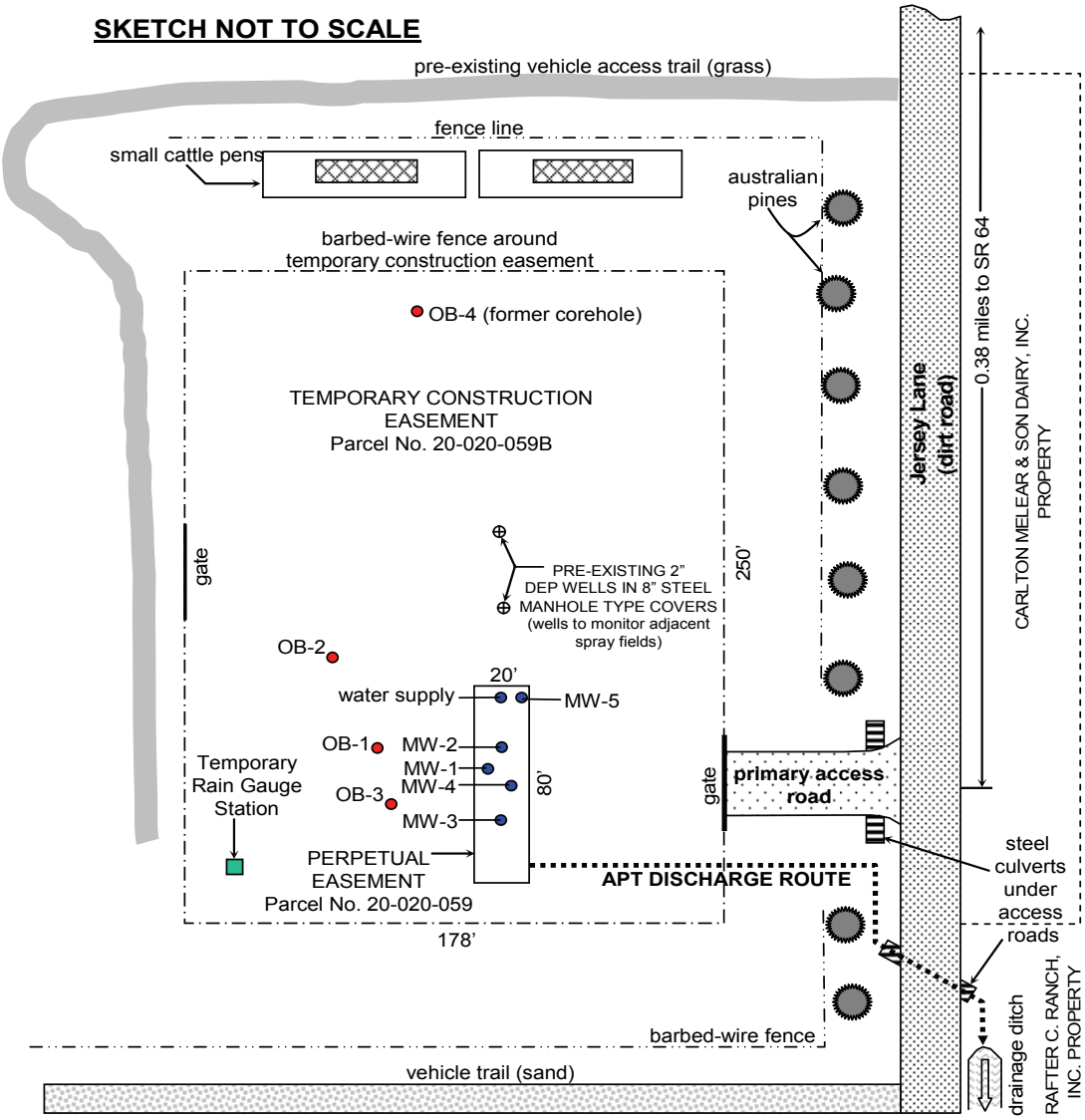

Figure 2. Site Diagram of ROMP 43 monitor-well site.

observation wells were specifically designed and located for the purpose of APTs and long-term water-level and water-quality monitoring of aquifers identified during the coring and testing phase.

General details of the well construction for all wells drilled, both temporary and permanent, are summarized in table 1. 'As-built' well construction diagrams for each well is located in appendix B. The surficial monitor wells were installed using hollow-stem augers while all other monitors were installed using rotary methods. Contracted drilling companies involved in well construction for this project include Universal Engineering Sciences (Universal), and Diversified Drilling Corporation (Diversified). Appendix C contains the daily drilling logs for monitor-well construction activities at the wellsite.

5.1 Surficial Aquifer Monitor (MW1)

Universal constructed the surficial aquifer monitor well on November 9, 2004 (appendix B.1). Prior to construction, Universal collected split-spoon samples from land surface to a depth of 12 feet below land surface (bls). The split-spoon hole was then drilled with 12-inch hollow-stem augers to 12 feet bls. Six-inch, schedule 40 PVC screen (0.020 slot) was installed from 2 feet bls to 12 feet bls and six-inch, schedule 40 PVC casing was installed from 2 feet bls to 3.5 feet above land surface (als). A filter pack of 6/20 silica sand was installed from 12 feet bls to 1 foot bls. One foot of bentonite was installed on top of the filter pack to land surface. A well cover and concrete pad was installed around the finished well. Well was later airlift-developed by District staff. Water level in the well was 4.65 feet bls on November 10, 2004.

5.2 Upper Arcadia Aquifer Monitor (MW2)

The Upper Arcadia aquifer monitor well was constructed by Diversified between October 16, 2002 and October 18, 2002 (appendix B.2). Diversified used an 18-inch nominal bit to drill to 118 feet bls using mud-rotary methods. Eight-inch schedule 40 PVC screen (0.020 slot) was installed from 52 feet bls to 116 feet bls and eight-inch

Table 1. Well construction specifications at the ROMP 43 wellsite
[ft, feet; bls, below land surface; ", inch; IAS, intermediate aquifer system; UFA,Upper Floridan aquifer]

Well Name	Well Description	Open Interval (ft bls)
MW1	6" Permanent Surficial Aquifer Monitor Well	2-12
MW2	8" Permanent Upper Arcadia Aquifer Monitor Well	52-116
MW3	8" Permanent Lower Arcadia Aquifer Monitor Well	196-233
MW4	6" Permanent Suwannee Permeable Zone Monitor Well	306-464
MW5	10" (0-100 ft bls) x 8" (100-719.5) Permanent Avon Park Permeable Zone Monitor Well	719.5-1210
WS	6" Water Supply Well	60-80
OB1	2" Temporary Surficial Aquifer Observation Well	2-12
OB2	2" Temporary Upper Arcadia Aquifer Observation Well	49.5-112.5
OB3	2" Temporary Lower Arcadia Aquifer Observation Well	201-232
OB4	6" and 2" Temporary Dual-Zone Suwannee/Avon Park Permeable Zone Observation Well	310-470 (6") and 725-1210 (2")

Note: Gray-highlighted wells have been plugged and abandoned

schedule 40 PVC casing was installed from 52 feet bls to 3 feet als. A filter pack of 6/20 silica sand was installed from 116 feet bls to 45 feet bls. Four feet of bentonite was poured on top of the filter pack and the remainder of the annulus to land surface was filled with cement. The well was then airlift-developed and a well cover and concrete pad were installed around the finished well.

5.3 Lower Arcadia Aquifer Monitor (MW3)

The Lower Arcadia aquifer monitor well was constructed by Diversified between October 21, 2002 and October 29, 2002 (appendix B.3). Diversified used a 19-inch nominal bit to drill to 118 feet bls using mud-rotary methods. 14-inch steel casing was installed to a depth of 115 feet bls and tremmie-grouted into place. Mud-rotary drilling was used to drill out the cement inside the casing (90 feet bls) to 118 feet bls with a 13-inch nominal bit, then advance the borehole to 199 feet bls. Eight-inch schedule 40 PVC casing was then installed to a depth of 196 feet bls and pressure grouted into place. Mud-rotary drilling was used to drill out the cement inside the casing (180 feet bls) to 199 feet bls with an 8-inch nominal bit, then advance the borehole to 233 feet bls. The borehole was then developed using reverse-air methods and a well cover and concrete pad were installed around the finished well.

5.4 Suwannee Permeable Zone Monitor (MW4)

The Suwannee permeable zone monitor well was constructed by Diversified between October 30, 2002 and November 21, 2002 (appendix B.4). Diversified used a 29-inch nominal bit to drill to 88 feet bls using mud-rotary methods. 24-inch steel casing was installed to a depth of 85 feet bls and pressure grouted into place. Mud-rotary drilling was used to drill out the cement inside the casing (71 feet bls) to 88 feet bls with a 19-inch nominal bit, then advance the borehole to 308 feet bls. 12-inch steel casing was installed to a depth of 306 feet bls and pressure grouted into place. Mud-rotary drilling was used to drill out the cement inside casing (278 feet bls) to 306 feet bls with a 12-inch nominal bit, then advance the borehole to 401 feet bls. At 401 feet bls, the drilling method was changed to reverse-air methods and the borehole advanced to 464 feet bls. The borehole was then developed using reverse-air methods. Water level was allowed to return to static equilibrium and measured at 20.4 feet bls (11/20/02). Water was then pumped from the well at approximately 106 gpm with roughly 9 feet of drawdown yielding a specific capacity of approximately 12 gpm/foot.

5.5 Avon Park Permeable Zone Monitor (MW5)

The Avon Park permeable zone monitor well was constructed by Diversified between December 6, 2002 and February 10, 2003 (appendix B.5). Diversified used a 31-inch nominal bit to drill to 83 feet bls using mud-rotary methods. 26-inch steel casing was installed to a depth of 80 feet bls and pressure grout into place. Mud-rotary drilling was used to drill out the cement inside the casing (68 feet bls) to 83 feet bls with a 25-inch nominal bit, then advance the borehole to 313 feet bls. 20-inch steel casing was installed to a depth of 310 feet bls and pressure grouted into place. Mud-rotary drilling was used to drill out the cement inside casing (285 feet bls) to 313 feet bls with a 12-inch nominal bit, then advance the borehole to 590 feet bls. At 590 feet bls, the drilling method was changed to reverse-air methods and the borehole advanced to 1,050 feet bls. At 1,050 feet bls, an 8-inch nominal bit was used to reverse-air drill the borehole to a total depth of 1,717 feet bls while collecting regular water samples, occasional packer tests, and a 17-foot core (4-inch diameter) from 1,657 to 1,674 feet bls. At this point, the borehole was back-plugged with cement up to 1,186 feet bls. The borehole was then reamed from 1,050 to 1,210 feet bls with a 12-inch nominal bit, developed using

reverse-air methods. A well cover and concrete pad were installed around the finished well.

6.0 GEOLOGY

The general geology in the vicinity of the well site consists of thick sequences of consolidated Tertiary-age carbonates overlain by unconsolidated, mostly Quaternary-age clastics. The geologic formations encountered at ROMP 43 in ascending order are the Avon Park Formation, the Ocala Limestone, the Suwannee Limestone, the Hawthorn Group including the Arcadia Formation with its Nocatee Member and the Peace River Formation, followed by undifferentiated surficial sands and clays which may contain reworked Cypresshead Formation material. The localized hydrostratigraphic sequence and thickness of geologic units at ROMP 43 is depicted in figure 3. The complete lithologic log for the corehole at this site is presented in appendix D. The textural terms used to characterize carbonate rocks are based on the classification system of Dunham (1962).

6.1 Avon Park Formation (Middle Eocene)

The Eocene age Avon Park Formation was the deepest geologic formation encountered during exploratory drilling at ROMP 43 and extends from 700 to more than 1,717 feet bls where deep exploratory, wireline coring ended. The lower 2/3 portion of the explored formation from 1,063 to 1,580 feet bls was generally comprised of yellowish-brown to grayish brown, well indurated, highly altered (90-100 percent) dolostone of moderate intergranular porosity. A zone of prevalent high fracture porosity occurs within hard, coarse-grained, sucrosic dolomite from 1,066 to 1,180 feet bls (only cuttings were recovered below 1,120 feet bls due to coring difficulties in fractured rock). Also, roughly 30 feet of highly porous packstone occurs just below the fractured dolomite from 1,180 to 1,210 feet bls. Unidentified echinoid, foraminifera, and some mollusk fossil molds and fragments were noted throughout the sequence, yet were unrecognizable due to damage caused by the dolomitization process. Below 1,580 to the total depth of 1,717 feet bls, interstitial gypsum and anhydrite fill intergranular and vugular pore space greatly decreasing overall porosity.

Roughly the upper 1/3 portion of the Avon Park Formation from 745 to 1,063 feet bls generally consists of yellowish-gray, poor to moderately indurated, low to moderate porosity wackestone to mudstone with occasional interbedded packstones and hard dolostone beds. Identified index fossils include echinoids (*Neolaganum dalli*) and benthic foraminifera (*Dictyoconus Americanus*). A large interval between 791 and 906 feet bls was predominantly mudstone of poor consolidation. The poor induration of the rock in this and other nearby intervals resulted in uncharacteristic frequent wash-out of the borehole wall as seen on the caliper log of the geophysical suite of appendix E.1. Electrical resistivity peaks on the same figure coincide with more consolidated and resistive packstone and dolostone beds of lesser wash-out. Gamma-ray response is more active and variable throughout this upper portion of the Avon Park due to interbedded and increasing interstial dolostone relative to the overlying Ocala Limestone which exhibits a much more subdued response.

The contact between the Avon Park Formation and the overlying Ocala Limestone would have been picked where the lithology changed from a predominanatly pale orange white or cream limestone at 710 feet bls to a mostly olive/yellow-gray dolostone. Instead, the formation top was raised to 700 feet to include a coarse-grained chalky limestone with interstitial clay and a numerous assemblage of echinoid (*Neolaganum dalli*) fossil molds. Selective dolomitization of the limestone matrix was apparent where partial faunal fragments within these molds remain as calcite. Also, the top of the formation

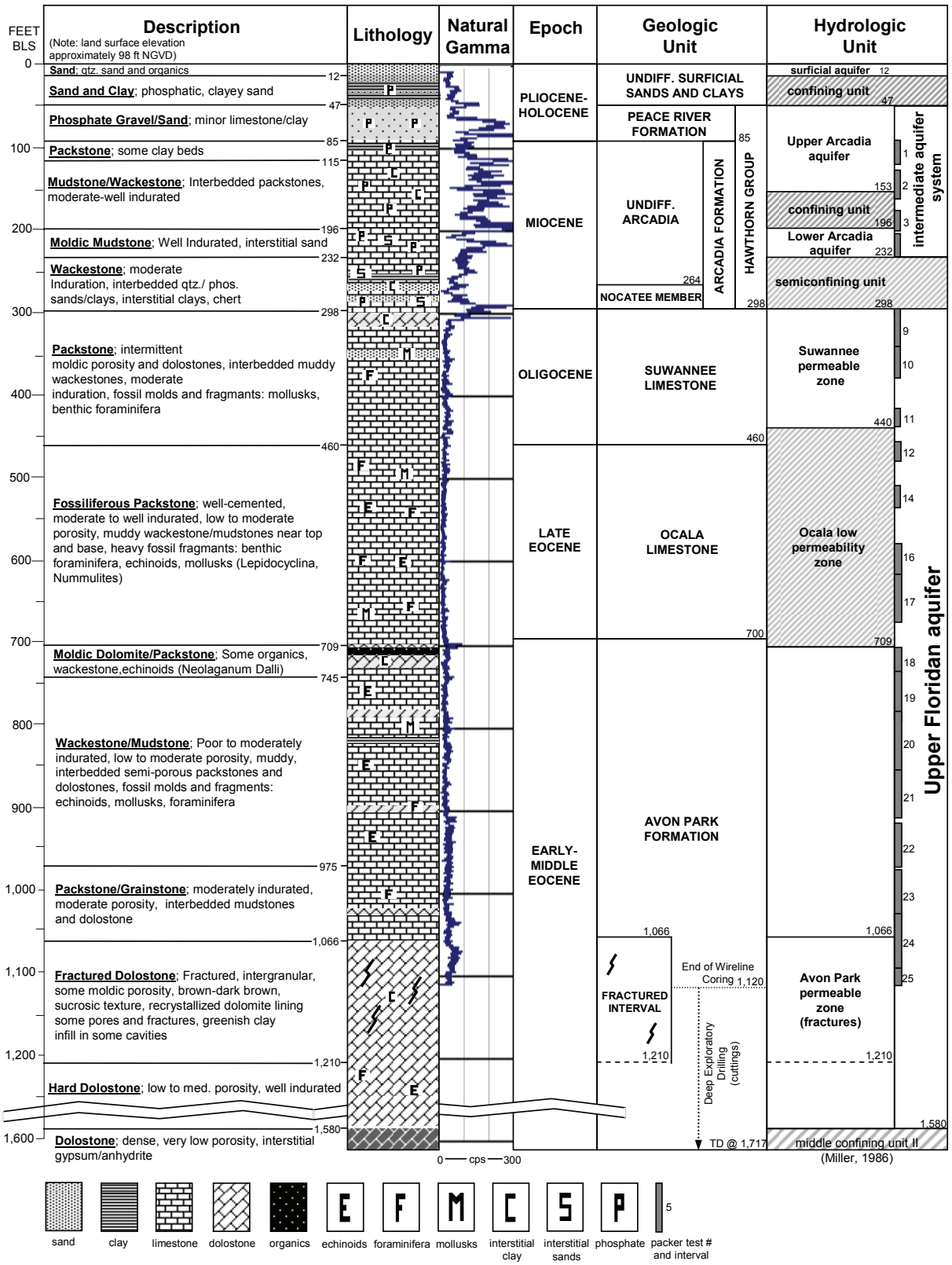

Figure 3. Stratigraphic column detailing the hydrogeologic setting at the ROMP 43 well site.

corresponds with a strong gamma kick (appendix E.1) in the gamma log that is probably associated with characteristic disseminated organic content although remains were not noted in the core description. Gamma-ray activity in the upper portions of the Avon Park Formation where dolomitization has occurred, can be indicative of remnant organic material that may be present, but not visible as a result of the dolomitization process (Arthur, 2007).

6.2 Ocala Limestone (Late Eocene)

The Eocene age Ocala Limestone overlies the Avon Park Formation and extends from 460 to 700 feet bls. The lower portion of the Ocala extends from 485 to 700 feet bls and grades from a poor to moderately indurated, yellowish-gray packstone near the top, to a moderately indurated wackestone of moderate to low intergranular and vugular porosity near the bottom. The entire interval is highly fossilferous including foraminifera (*Lepidocyclina*, *Nummulites, possible Operculinoides)*, echinoids, mollusks, gastropods, and some coral. The upper portion of the Ocala from 460 to 485 feet bls is a poorly indurated yellowish-gray to very pale orange mudstone to wackestone of low porosity with occasional fossil molds and fragments. Heavy washing-out of the corehole wall across the Ocala is evident in the caliper log (appendix E.1) reflecting the largely poor consolidation of the unit.

The contact between the Ocala Limestone and the overlying Suwannee Limestone occurs at 460 feet bls where a yellowish-gray to white packstone of moderate induration overlies a yellowish-gray to pale orange or cream, poorly-indurated wackestone to mudstone. Index fossils of the Ocala Limestone located just below the contact include foraminifera *Lepidocyclina* at 461 feet bls and *Gypsina globula* at 463 feet bls. The contact also coincides with a characteristic drop in gamma response that continues throughout the unit (appendix E.1). Electrical resistivity traces in appendix E.1 also reflect characteristically subdued activity.

6.3 Suwannee Limestone (Early Oligocene)

The Oligocene age Suwannee Limestone at ROMP 43 extends from 298 to 460 feet bls. The bottom of the unit from 399 to 460 feet bls is mainly comprised of yellowish-gray, moderate to poorly indurated wackestone of low intergranular porosity. The middle portion of the unit from 360 to 399 feet bls is mostly a yellowish-gray to bluish-gray, moderately indurated packstone of moderate to high intergranular porosity. The upper portion of the unit from 298 to 360 feet bls is characterized by yellowish-gray to very light gray, fossiliferous packstones and grainstones of highly variable induration and occasional small amounts of quartz sand. Porosity is also highly variable in this interval as a result of intermittent vugular, moldic, and fracture-type voids. Several large cavities were noted while drilling through a fractured dolostone bed that occurs near the top of the formation from 298 to 322 feet bls. Some euhedral calcite crystal growth was noted within fracture porosity.

The contact between the Suwannee Limestone and the overlying Hawthorn group is easily identified where highly phosphatic siliciclastics change to slightly quartz sandy, coarse grained limestone. A significant drop in gamma activity and a moderate drop in electrical resistivity (appendix E.2) occurs below 300 feet bls in conjunction with significant decreases in phosphatic and quartz sand content. Although no specific index fossils were identified, several large mollusks, coral fragments, and other characteristic fossil molds and fragments were especially prevalent in the upper portion of the Suwannee Limestone.

6.4 Hawthorn Group (Miocene - Pliocene)

The mostly Miocene age Hawthorn Group extends from 47 to 298 feet bls at ROMP

43. This group includes the Bone Valley Member of the Peace River Formation and the Arcadia Formation with its Nocatee Member. Much of the Hawthorn Group exhibits extremely active gamma response (appendix E.3). The response is weaker in the lower undifferentiated Arcadia Formation and upper Nocatee Member of the Hawthorn Group mainly due to a lack of phosphatic and clayey material relative to the rest of the Hawthorn. The following are general lithologic descriptions for these Hawthorn Group units as they were encountered at ROMP 43.

6.4.1 Arcadia Formation

At ROMP 43, the Arcadia Formation extends from 85 to 298 feet bls. The Early Miocene Arcadia Formation represents the lower, more carbonate section of the Hawthorn Group that disconformably underlies the Peace River Formation (Scott, 1988). Any part of the Arcadia Formation where the Tampa or Nocatee Members are not recognized is considered undifferentiated Arcadia Formation (Scott, 1988) which applies to the interval between 85 and 264 feet bls (figure 3). The lithology of the undifferentiated Arcadia at ROMP 43 consists primarily of yellowish-gray to gray, variably indurated, generally low-porosity wackestones and mudstones with variable amounts of phosphatic and quartz sand. Phosphate and quartz sands are typically in the ten percent range and increase towards the base of the unit. The top of the unit was chosen where very coarse-grained phosphate gravel beds of the overlying Peace River Formation (likely lag deposits) abruptly give way to moderately indurated, quartz and phosphate sandy wackestones of the undifferentiated Arcadia. Gamma response in the undifferentiated Arcadia Formation is extremely active primarily due to accessory granular phosphate (appendix E.3). The largest peaks, in the 400 to 500 counts per second range, coincide with increased response on the long, and short normal resisitivity logs, which in turn correspond to bedded phosphatic sand and gravel (appendix E.3).

6.4.1.1 Nocatee Member

The Nocatee Member of the Arcadia Formation at ROMP 43 extends from 264 to 298 feet bls. The lithology is highly variable and characterized by alternating beds of phosphate/quartz sand with calcareous clay, and phosphate/quartz sandy low alteration dolostones with calcareous clay cementation. Dolostones as well as sand and clay beds are moderately to well consolidated. The upper contact of the unit was marked where siliciclastics with interstitial calcareous clay begins to occur and dominate carbonate beds. Gamma response in the lower part of the Nocatee Member is similar to responses in the overlying undifferentiated Arcadia Formation (figure 3 and appendix E.3) corresponding to high concentrations of phosphatic sand from 294 to 298 feet bls. Lesser amounts of phosphatic sand were recorded in the upper part of the Nocatee Member resulting in subdued responses relative to above and below.

6.4.2 Peace River Formation

The Peace River Formation at ROMP 43 extends from 47 to 85 feet bls. The Middle Miocene-Early Pliocene age Peace River Formation of the Hawthorn Group is a predominantly siliciclastic unit that underlies the undifferentiated surficial sands and clays. The lithology is comprised mostly of dark gray to black, very coarse-grained, phosphate sand and gravel which may represent a phosphatic rubble zone or lag deposit that is known to occur near the base of the Peace River Formation (Arthur, 2007). The upper contact is obscured due to the leaching of phosphate leaving a zone of orange-brown, sandstone aggregate grains in the top portion of the unit. The thickness of the leached zone above the phosphate gravel beds is unclear due to the loose cementation of the sandstone clusters which allowed material to slip downhole into subsequent slit-spoon chamber samples. Gamma responses within the Peace River

Formation (appendix E.3) suggest the phosphatic gravel portion extends from roughly 60 to 85 feet bls whereas the leached portion extends from 47 to 60 feet bls. Gamma responses were similar to the underlying Arcadia Formation despite much higher phosphate concentrations. This is most likely because the corehole was lined with PVC casing from land surface to 87 feet bls at the time of the logging event causing muted tool responses. Electrical resistivity logs are not able to function in cased holes. The induction tool does function in PVC, but not steel-cased boreholes. Unfortunately, the corehole was lined with 20-inch steel casing to 310 feet bls at the time of the induction logging event.

6.5 Undifferentiated Surficial Sand and Clay (Pliocene – Holocene)

The uppermost geologic unit at ROMP 43 is the Pliocene–Holocene age undifferentiated surficial sand and clay deposits that extend from land surface to 47 feet bls. The deposits from land surface to 15 feet bls consist of yellowish-orange, very fine-to-fine grained quartz sand with organics. The first three feet are inundated with dark gray to black cattle manure (well site located on dairy cattle pasture). The rest of the unit from 15 to 47 feet bls is pale orange to yellowish-brown clayey, unconsolidated quartz sand with variable amounts of clay from 10 to 30 percent. Phosphatic sand content increases with depth from one to ten percent near the base of the unit. Gamma responses (appendix E.3) suggest that the phosphate increase near the base of the unit may represent a lesser phosphate lag deposit that is known to sometimes occur near the base of post-Hawthorn sediments (Arthur, 2007). A map presented in Arthur (2007) shows that the origin of the surficial deposits in this particular part of Northeast Hardee County is typically re-worked Cypresshead Formation (Late Pliocene). Lithologies encountered at ROMP 43 mostly agree with that typical of Cypresshead deposits with the exception of the presence of phosphatic sand that could have been introduced in the re-working process (By definition, the re-worked sediments no longer represent the age of the original formation but rather assume the time of final transport and re-deposition, placing the deposits within the undifferentiated surficial sand and clay).

7.0 HYDROLOGY

Based on results of exploratory coring and testing, four major hydrostratigraphic units were encountered and identified at the ROMP 43 Bee Branch well site. They include the unconfined surficial aquifer, the intermediate aquifer system (IAS), the Upper Floridan aquifer (UFA), and the middle confining unit II (MCUII) (Miller, 1986). The surficial, IAS, and most of the UFA contain potable water while the lower portion of the UFA and the MCU II do not. The UFA is the most productive and widely utilized aquifer in Hardee County as a source for potable and agricultural water supply (Wilson, 1977). The IAS is less productive but still often utilized.

Delineation of hydrostratigraphic units was based primarily on results of hydraulic testing conducted during the core-drilling phase. Twenty-five falling-head slug tests were conducted at various depths on discrete formation intervals. Three additional discrete interval slug tests (PT1X, PT2X, PT3X) were conducted during the deep exploratory drilling phase in a larger borehole with a traditional formation packer assembly. As a result, magnitudes of permeability estimates from these tests do not exactly correlate with results of the previous tests and were thereby evaluated as such. Details of individual packer-slug tests including hydraulic conductivity estimates, test initiation method, and analytical solution are presented in table 2. The hydraulic conductivity estimates for the slug tests are displayed graphically versus corehole depth in figure 4. The bottoms of the test intervals coincide with the depth of the corehole at the time of the test.

Table 2. Summary of packer-slug test hydraulic/hydrologic data collected at the ROMP 43 well site
[bls, below land surface; NGVD, National Geodetic Vertical Datum; gpm/ft, gallons per minute per foot of drawdown]

Test ID	Test Date	Packer Set Depth (feet bls)	Corehole Total Depth (feet bls)	Core Hole Static Water Level (feet bls)	Observed Displacement h_0 (feet)	Translated Displacement h_0[a] (feet)	Estimated Hydraulic Conductivity (feet/day)	Solution	Test Initiation Method
PT#1	2/5/2002	87	120	10.85	14.1	5.0	0.5	KGS (1994)	standpipe, no packer
PT#2	2/6/2002	125	160	10.75	18.7	4.9	3	KGS (1994)	standpipe
PT#3	2/12/2002	172	200	26.05	37.7	4.9	0.2	KGS (1994)	standpipe
PT#4	2/13/2002	181	240	20.55					standpipe
PT#5	2/14/2002	187	260	21.88					standpipe
PT#6	2/18/2002	201	260	25.86	31.4	5.3	1	KGS (1994)	standpipe
PT#7	2/19/2002	269	280	25.19	33.8	5.2	0.1	KGS (1994)	standpipe
PT#8	2/20/2002	269	300	25.46	33.2	5.4	0.5	KGS (1994)	standpipe
PT#9	2/21/2002	292	340	25.6	30.0	4.8	6	Butler (1998)	standpipe
PT#10	3/26/2002	340	380	32.36	38.4	5.3	3	Butler (1998)	standpipe
PT#11	3/27/2002	412	440	32.15	41.2	5.6	7	Butler (1998)	standpipe
PT#12	4/1/2002	455	480	33.01	40.4	5.4	0.3	KGS (1994)	standpipe
PT#14	4/8/2002	508	540	31.5	40.9	5.4	0.2	KGS (1994)	standpipe
PT#15	4/10/2002	548	620	32.94					standpipe
PT#16	4/11/2002	583	620	32.12	50.3	5.4	0.05	KGS (1994)	standpipe
PT#17	4/16/2002	620	680	32.65	40.2	5.1	0.1	KGS (1994)	standpipe
PT#18	4/22/2002	708	740	32.75	39.2	4.7	0.9	KGS (1994)	standpipe
PT#19	4/24/2002	739	800	33.66	41.7	4.1	0.2	KGS (1994)	standpipe
PT#20	5/7/2002	789	860	38.22	44.3	5.1	0.2	KGS (1994)	standpipe
PT#21	5/14/2002	860	920	40.73	47.6	5.0	0.5	KGS (1994)	standpipe
PT#22	5/16/2002	925	980	41.78	49.2	5.2	0.6	KGS (1994)	standpipe
PT#23	5/23/2002	982	1,040	37.7	47.6	5.0	0.7	KGS (1994)	standpipe
PT#24	6/5/2002	1,034	1,100	36.99	44.3	4.8	5	Butler (1998)	standpipe
PT#25	6/11/2002	1,100	1,120	34.43	39.8	5.5	11	Butler (1998)	standpipe
PT#1X	1/8/2003	1,092	1,195	16.1	12.1	1.95	9	Butler (1998)	standpipe
PT#2X	1/15/2003	1,557	1,596	15.79	23.5	23.5	3	Butler (1998)	standpipe
PT#3X	1/23/2003	1,674	1,717	25.75	27.6	27.6	0.05	KGS (1994)	standpipe

[a] modified initial displacement for translation method (Butler, 1997)

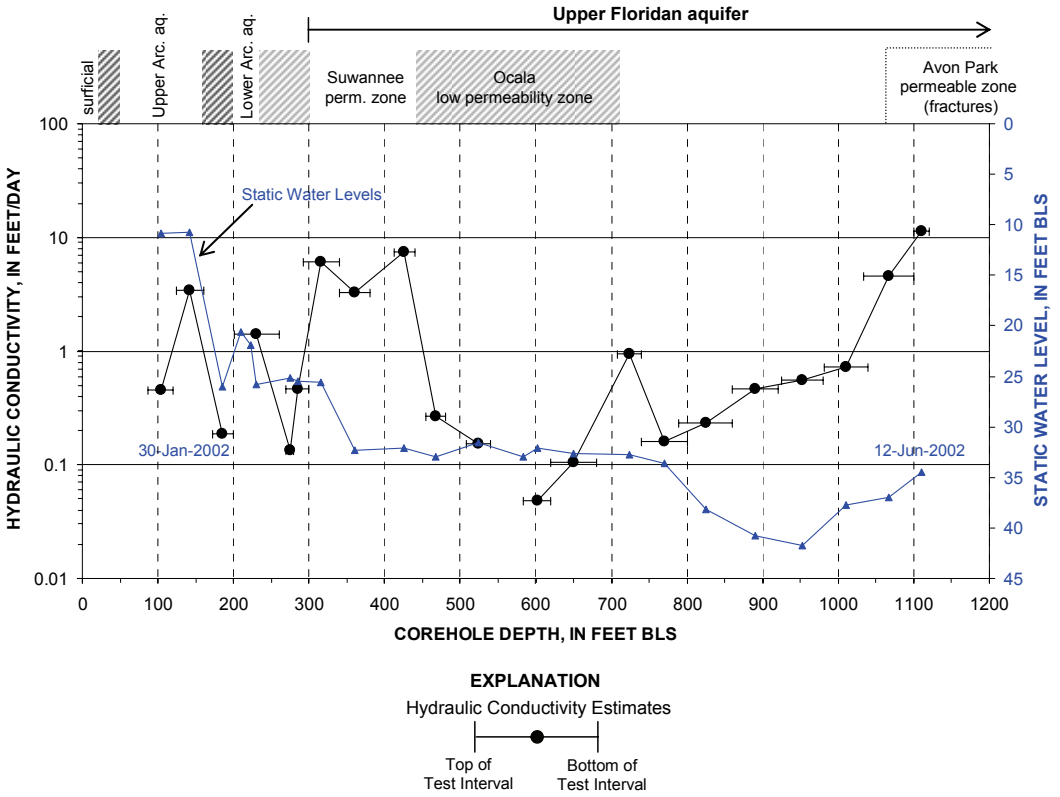

Figure 4. Estimates of hydraulic conductivity and corehole static water levels versus depth.

Certain unavoidable sources of error inherent to the method design and difficulty in performing slug tests inside a drill-stem and formation packer assembly were present during coring and testing operations at ROMP 43 and are identified in appendix A, Methods of the Regional Observation and Monitor-Well Program. The errors associated with the methodology used at ROMP 43 can cause significant underestimation of actual formation properties. Hydraulic conductivity estimates from these tests should therefore not be taken as representative of the actual unit properties but rather a relative guide as to permeable versus confining intervals. The last three tests in table 2 were performed during after the coring phase of work with a different packer testing assembly and borehole diameter which affects comparability with the rest of the tests. For this reason those tests were not plotted along with the other tests in figure 4.

Analytical curve-match analyses for all slug tests are presented in appendix F.

Static corehole water levels recorded for each packer-slug test interval are listed in table 2 and depicted in figure 4. It should be stressed that these water levels were not collected simultaneously but rather over time (Feb. 2002 – June 2002) which limits the data's comparability. Additionally, this data was collected during a fraction of a year and do not capture the full range of seasonal water-level fluctuations. However, they do provide a general indication of how the water levels in the core hole fluctuated with depth. Near-simultaneous recordings of static water levels from each of the major hydrostratigraphic units at ROMP 43 are presented in table 3. These levels were collected from monitor wells completed in each hydrostratigraphic unit.

Table 3. Water levels in the major hydrostratigraphic units at the ROMP 43 well site
[bls, below land surface; NGVD, National Geodetic Vertical Datum of 1929; IAS, intermediate aquifer system; UFA, Upper Floridan aquifer]

Hydrostratigraphic Unit	Monitor Well	Open Interval (feet bls)	Date	Water Level Elevation (feet NGVD)
surficial aquifer	MW1	2-12	1/3/06	93.21
Upper Arcadia aquifer (IAS)	MW2	52-116	1/3/06	90.46
Lower Arcadia aquifer (IAS)	MW3	196-233	1/3/06	78.22
Suwannee perm. zone (UFA)	MW4	306-464	1/3/06	78.73
Avon Park perm. zone (UFA)	MW5	719.5-1210	1/3/06	78.69
UFA (fully penetrating)	MW5	310-1210	3/15/04	77.58

A total of six APTs were conducted to ascertain approximations of hydraulic parameters for aquifers encountered at ROMP 43 including the surficial aquifer, two separate units within the IAS, two separate units within the UFA, and one composite test of the UFA. APTs were conducted by pumping permanent monitor wells and recording water-level changes at nearby observation wells open to the same and vertically adjacent aquifers. Further details of ROMP APT methodologies are included in appendix A. A summary of details and results from APTs are presented in table 4. The APT data acquisition sheets can be seen in appendix G. Analytical solutions and curve-match analyses for the APTs are presented in appendix H.

7.1 Surficial Aquifer

At the ROMP 43 well site, fine-grained sand and organic sediments exist from land surface to a depth of approximately 12 feet bls forming the surficial aquifer. Below this point, clay content increases from 10 to 30 percent, decreasing permeability and providing basal confinement to the surficial aquifer which continues to 47 feet bls. Static water levels are highest in the surficial aquifer (93.21 feet NGVD on 1/3/06, table 3), which tends to fluctuate temporally. A falling-head slug test was performed on the completed OB1 surficial observation well on 2/23/05 using a drop-in water slug initiation method. The hydraulic conductivity from this test was 1 foot/day that translates to a transmissivity of 12 feet^2/day.

The hydrograph for the surficial APT performed on 11/29/04 is presented in figure 5. Due to the small size of the aquifer as well as production capabilities, the pumping rate was maintained at a very low rate (roughly 0.29 gal/min for 66 hours) to avoid water cavitation of the pump and de-submergence of recording devices. Flow rate from the 1½-inch submersible pump required constant tweaking to maintain an acceptable steady rate as a result of efficiency loss as water levels declined creating more head for the pump to overcome. No effects of pumping in the surficial aquifer were observed in the underlying Upper Arcadia aquifer of the IAS. Maximum drawdown in the production well was 5 feet while there was 0.38 feet of drawdown in thsurficial observation well 21.8 feet away when pumping at a rate of approximately 0.3 gpm. It is possible that the pumped well went dry during roughly the last 10 hours of the test. Analysis of the recovery data however produced a reasonably plausible curve match with a transmissivity (T) of 16 feet^2/day and a horizontal hydraulic conductivity (K_h) of 1 foot/day. Specific Yield (S_y) was estimated to be 0.01. (table 4).

7.2 Intermediate Aquifer System

The IAS at ROMP 43 is 286 feet thick and extends from 47 to 298 feet bls. The system is comprised mainly of low to moderate permeability fine-grained limestones with phosphatic sands and clays that hydraulically separate the surficial aquifer from the UFA. Two aquifers occur within the IAS identified as the Upper and

Table 4. Results of aquifer performance testing at the ROMP 43 wellsite

[bls, below land surface; gpm, gallons per minute; NA, not applicable]

Aquifer Tested	Aquifer Thick. b (feet)	Overlying Confiner Thick. b' (feet)	Test Date	Pumped Open Interval (feet bls)	Pump Rate (gpm)	Distance to Pump. Well r (feet)	Analyzed Test Phase	Analytical Solution	Transmissivity T (feet2/day)	Horizontal Hydraulic Conductivity Kh (feet/day)	Storativity S (unitless)	Hydraulic Cond. of Confiner K' (feet/day)	Leakance K'/b' (day-1)
surficial	12	NA	11/29/04	2-12	0.3	21.8	recovery	Neuman (1974)	16	1	0.01	NA	NA
			02/23/05	2-12	NA	21.8	falling-head slug	Hvorslev (1951)	12	1	NA	NA	NA
Upper Arcadia	106	35	07/12/04	52-116	18	68	drawdown	Hantush-Jacob (1955)	658	6	0.0007	0.1	0.003
							recovery	Hantush-Jacob (1955)	936	9	0.0007	0.1	0.001
Lower Arcadia	36	43	07/06/04	196-233	18	36.5	drawdown	Hantush-Jacob (1955)	496	14	0.003	19	0.4
							recovery	Hantush-Jacob (1955)	292	8	0.002	22	0.5
Suwannee perm. zone	142	66	04/13/06	306-464	364	187	drawdown	Cooper-Jacob (1946)	13,550	95	0.00002	NA	NA
							recovery	Cooper-Jacob (1946)	12,630	89	0.00003	NA	NA
Avon Park perm. zone	871	NA	06/01/06	719.5-1210	1,277	155	drawdown	Cooper-Jacob (1946)	325,300	373	0.001	NA	NA
							recovery	Cooper-Jacob (1946)	352,700	405	0.001	NA	NA
composite UFA	1,282	66	06/22/04	310-1210	1,030	155	drawdown	Cooper-Jacob (1946)	436,100	340	0.001	NA	NA
							recovery	Cooper-Jacob (1946)	272,600	213	0.003	NA	NA

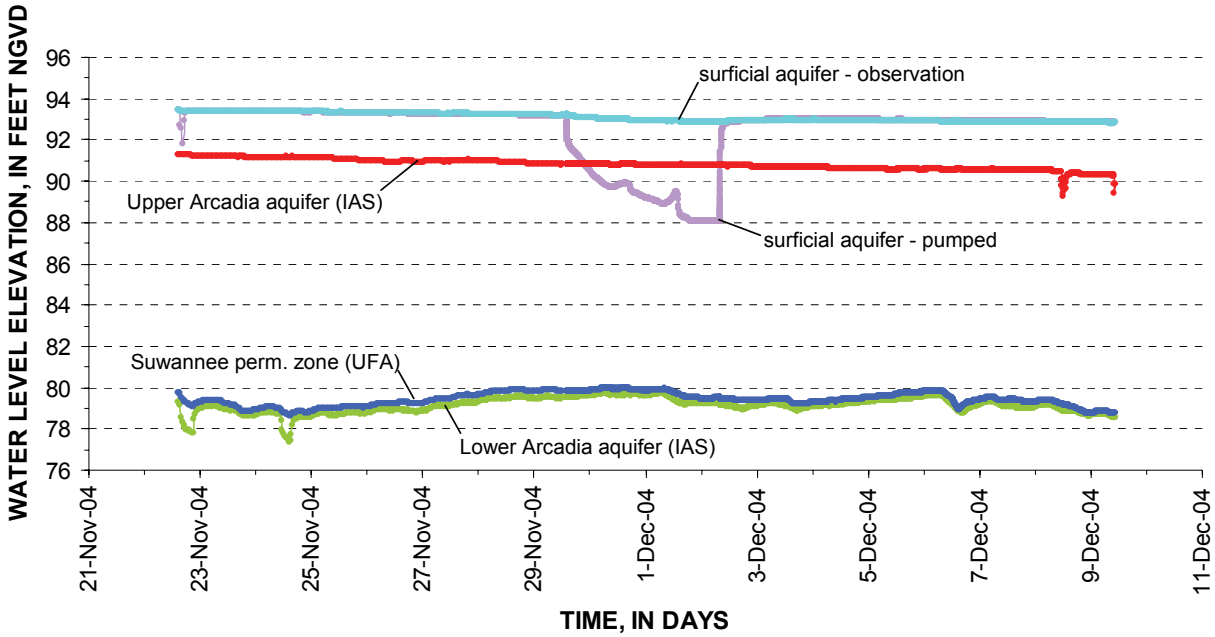

Figure 5. Surficial aquifer APT hydrograph.

Lower Arcadia aquifers. (figure 3). The Upper Arcadia aquifer is 106 feet thick and extends from 47 to 153 feet bls. The upper 38 feet of this aquifer is predominantly comprised of phosphatic sand and gravel with some unconsolidated interstitial clay. The lower 68 feet of this aquifer contains bedded permeable packstones and wackestones and appears to be the most productive part of this zone. Packer tests performed in both the upper and lower portions of the Upper Arcadia aquifer produced K values of 0.5 and 3 feet/day, respectively (figure 4, table 2). Static water levels within the Upper Arcadia aquifer were nearly three feet less than the surficial static water levels (table 3). Water levels in the water-supply well (WS) which partially penetrates this aquifer (open from 60 to 80 feet bls) continuously coincide with that of the fully penetrating Upper Arcadia aquifer monitor well (MW2).

The hydrograph for the Upper Arcadia aquifer APT performed on 7/12/04 is presented in figure 6. Maximum drawdown for this APT (pumping at a rate of approximately 18 gpm for 30 hours) was 9.65 feet in the production well and 1.66 feet in the observation well 68 feet away. Analysis of the drawdown and recovery data from the observation well produced plausible curve-matches with T values ranging from 658 to 936 feet^2/day and K_h values ranging from 6 to 9 feet/day (table 4). Adjacent aquifers showed little to no effects of pumping suggesting the Upper Arcadia aquifer is confined. The estimated storativity for the Upper Arcadia aquifer (0.0007) further supports this conclusion (table 4).

The Lower Arcadia aquifer of the IAS is 36 feet thick and extends from 196 to 232 feet bls. The Lower Arcadia is comprised mainly of well-indurated mudstone with some interstitial sand. The increased permeability of this aquifer is due to significant moldic porosity. A packer test of the Lower Arcadia aquifer produced a K value of 1 foot/day (figure 4, table 2). Static water levels within the Lower Arcadia were over 12 feet less than in the Upper Arcadia aquifer (table 3). Oddly, throughout the four years of working this site, static water levels in the Lower Arcadia aquifer were consistently very near yet always slightly lower than that of the underlying UFA (table 3) suggesting that

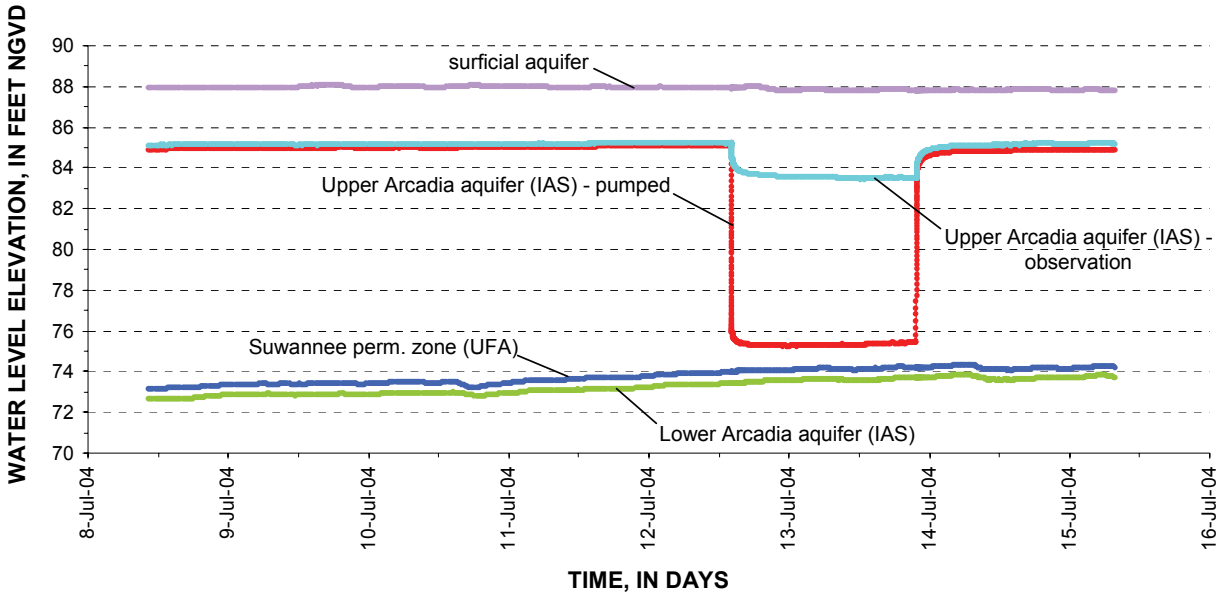

Figure 6. Upper Acadia aquifer APT hydrograph.

ground-water at least occasionally moves upward from the UFA to the IAS. The water level fluctuations in the Lower Arcadia aquifer appear to mostly mimic those of the UFA. Responses from nearby agricultural pumping are frequently visible in the Upper Floridan and Lower Arcadia monitor wells. Occasionally, responses are only seen in one of the two aquifers due to the fact that several nearby wells have open intervals that cross both aquifers to varying degrees.

The hydrograph for the Lower Arcadia aquifer APT conducted on 7/6/2004 is presented in figure 7. Maximum drawdown for this APT was roughly 16 feet in the production well while there was roughly 0.5 feet of drawdown in the observation well 36.5 feet away while pumping at a rate of approximately 18 gpm for 30 hours. After regional corrections were made, analysis of the drawdown and recovery data from the observation well produced plausible curve-matches with T values ranging from 292 to 496 feet^2/day and K_h values ranging from 8 to 14 feet/day (table 4). It appears that the formation K is similar to that of the Upper Arcadia aquifer, but is less transmissive due to its smaller thickness. Although no observable effects of pumping the Lower Arcadia aquifer were seen in adjacent aquifers during the APT, curve-match analyses strongly suggest leaky water contribution during late times of the test. It is unclear whether this contribution originates from above or below due to its close hydraulic connection to the underlying UFA. Storativity values range from 0.002 to 0.003 (table 4). Values of leakance range from 0.4 to 0.5 day^{-1}, which is significantly high. Uncertainty is associated with the leakance values since the source of the contribution is unknown and the basic assumptions of the analysis method may be significantly violated.

The base of the IAS consists of fine-grained wackestone of moderate induration with increases in sand, clay, and phosphate content in the bottom half of the interval associated with the Nocatee Member of the Arcadia Formation (figure 3). The interval is 66 feet thick and extends from 232 to 298 feet bls. The interval is described as semi-confining due to the apparent hydraulic association between adjacent aquifers (IAS and UFA).

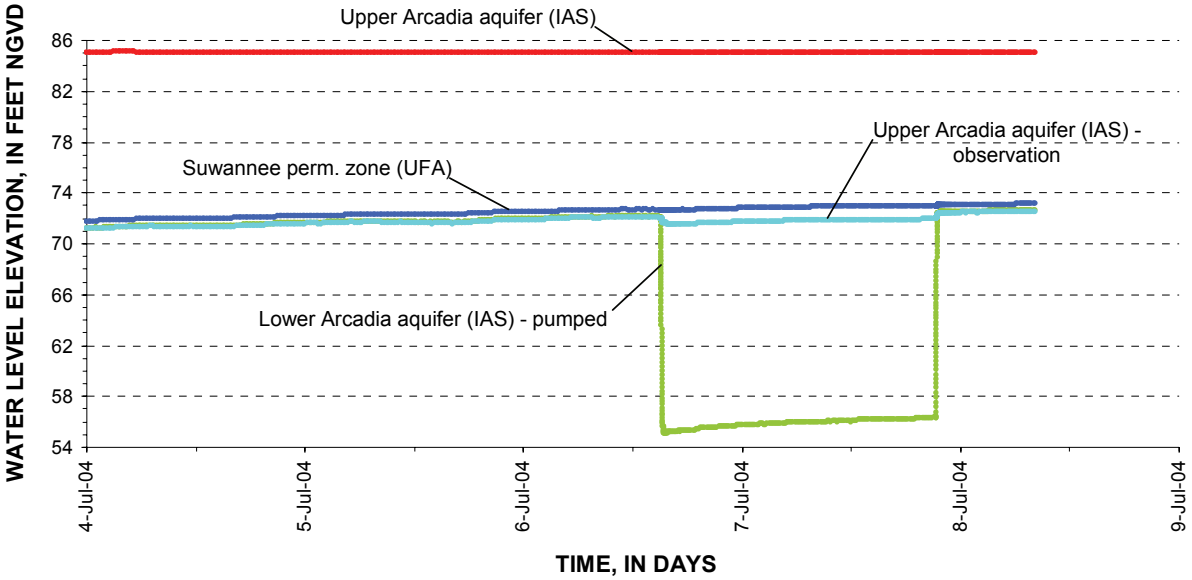

Figure 7. Lower Acadia aquifer APT hydrograph.

7.3 Upper Floridan Aquifer

At ROMP 43, the top of the UFA is coincident with the top of the Suwannee Limestone at 298 feet bls. The entire UFA is 1,282 feet thick and extends from 298 to 1,580 feet bls where the top of vertically persistent evaporites of the MCUII are encountered marking the base of the UFA. The UFA at ROMP 43 encompasses three main geologic units including from oldest to youngest: the Avon Park Formation, the Ocala Limestone, and the Suwannee Limestone. The fine-grained nature of the Ocala Limestone deposits commonly creates some hydraulic separation between the upper and lower portions of the UFA where more permeable zones of the UFA reside, namely the Suwannee and Avon Park permeable zones. As a result, the Ocala Limestone portion of the UFA is labeled hydrologically as a low-permeability zone of the UFA (figure 3). The Avon Park permeable zone is the most productive unit of the UFA and extends from 1,066 to 1,210 feet bls. Increased permeability in this zone is primarily the result of large fractures that occur within high porosity, sucrosic-textured dolomite from 1,066 to 1,180 feet bls followed by high porosity, coarse-grained packstone that occurs from 1,180 to 1,210 feet bls. Below 1,210 feet bls to the base of the UFA at 1,580 feet bls, the Avon Park Formation consists primarily of persistently well-indurated hard dolostone of low to moderate porosity (mostly ranging from 1 to 10 percent). Packer testing within the Suwannee permeable zone yielded a geometric mean of 5.3 feet/day for K_h while testing within the Avon Park permeable zone yielded a geometric mean of 7.2 feet/day. By comparison, packer testing of the non-fractured portion of the Avon Park Formation had a geometric mean of 0.43 feet/day whereas the Ocala semi-confining unit had a K_h geometric mean of 0.12 feet/day. As stated earlier, the errors associated with the packer testing methodology in a small corehole can cause significant underestimation of actual formation properties especially in intervals of higher permeability.

Water levels in the Suwannee portion of the UFA are consistently similar yet slightly less than monitored levels in the Avon Park portion of the UFA (table 3). The pattern of ground-water flow at ROMP 43 therefore

appears to have a consistent downward trend with the exception of slight upward movement from the UFA to the Lower Arcadia aquifer of the IAS. Although this pattern was observed during all drilling and testing phases at the wellsite, it is still not certain that this is the natural trend or in some way influenced by persistent agricultural pumping in the region that utilize these aquifers both individually and across multiple aquifers. Future long-term monitoring of the permanent monitor wells should create a better understanding of the interaction between these aquifers.

The hydrograph for the Suwannee permeable zone APT conducted on 4/13/2006 is presented in figure 8. Maximum drawdown for this APT was roughly 44 feet in the production well while there was roughly 4 feet of drawdown in the observation well 187 feet away (pumping at approximately 364 gpm for 45 hours). Analysis of the drawdown and recovery data from the observation well produced plausible curve-matches with T values ranging from 12,630 to 13,550 feet^2/day and K_h values ranging from 89 to 95 feet/day (table 4). Estimated storativity values were suspect, ranging from 0.00002 to 0.00003, which are quite low for a potentially leaky aquifer. Little to no effects of pumping in the UFA Suwannee permeable zone were observed in either the overlying IAS Lower Arcadia aquifer or the underlying UFA Avon Park permeable zone. Small, abrupt drawdowns and recoveries in the Lower Arcadia aquifer during this APT are attributed to light agricultural pumping on the surrounding farms.

The hydrograph for the Avon Park APT conducted on 6/1/2006 is presented in figure 9. Maximum drawdown for this APT was roughly 20 feet in the production well while there was roughly 0.4 feet of drawdown in the observation well 155 feet away (pumping at approximately 1,277 gpm for 66 hours). After regional corrections were made, analysis of the drawdown and recovery data from the observation well produced plausible curve-matches with T values ranging from 325,300 to 352700 feet^2/day and K_h values ranging from 373 to

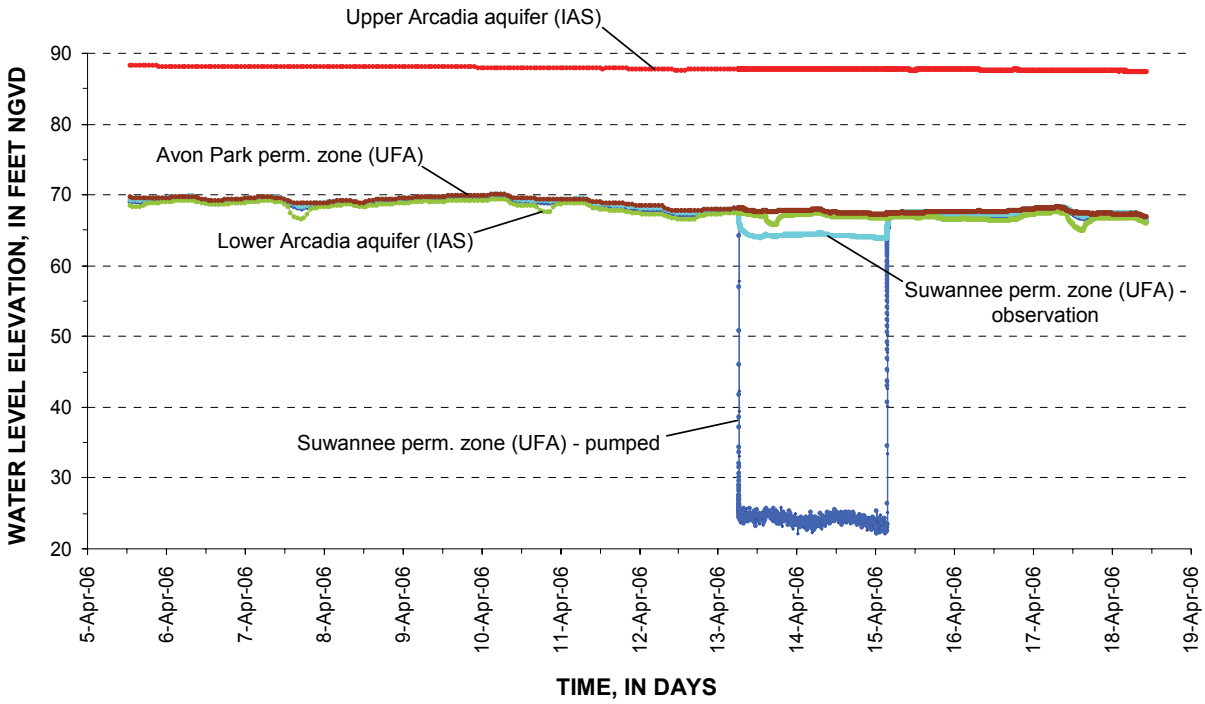

Figure 8. Suwannee permeable zone APT hydrograph.

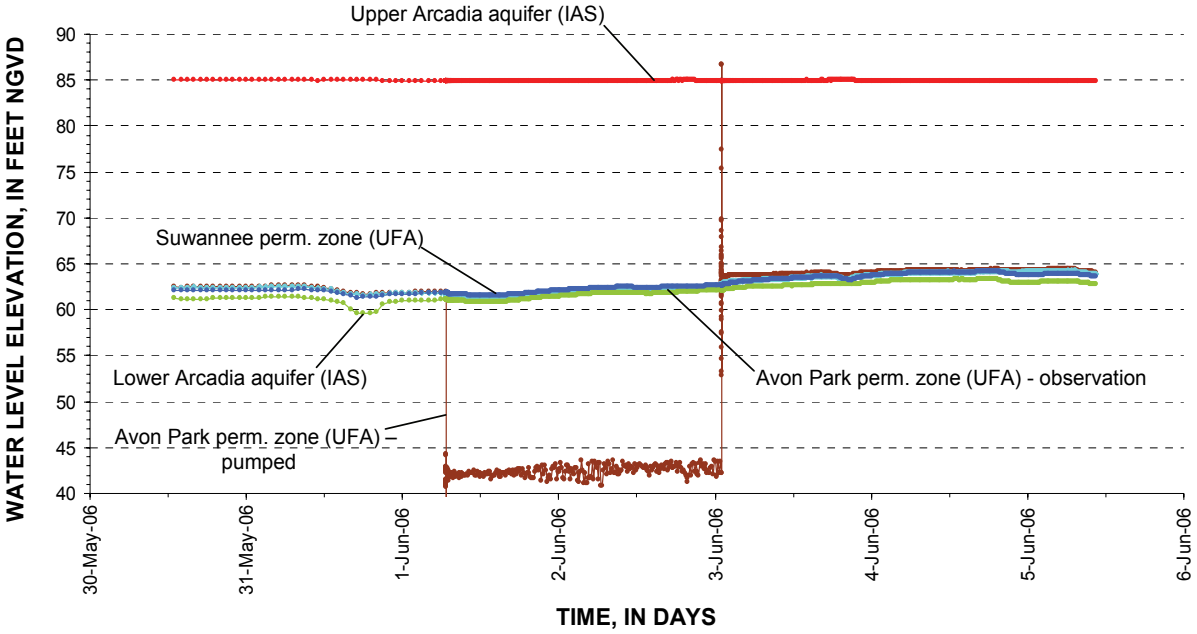

Figure 9. Avon Park permeable zone APT hydrograph.

405 feet/day (table 4). Estimated storativity for the interval is 0.001, which is plausible value for confined to semi-confined aquifers. Prior to lining of the Avon Park permeable zone monitor well in February of 2005, the well (MW5) was open from 310 to 1,210 feet bls making it a composite UFA monitor well encompassing both the Suwannee and Avon Park Permeable Zones as well as the Ocala low permeability zone. At this time an APT was performed on this well using the corehole as an observation well 155 feet away, which at the time was open across the exact same interval specifically to conduct a composite UFA APT.

The hydrograph for the 40-hour composite UFA APT conducted on 6/22/2004 is presented in figure 10. Maximum drawdown for this APT was roughly 2.5 feet in the production well while there was roughly 1.3 feet of drawdown in the observation well 155 feet away while pumping at approximately 1,030 gpm. Analysis of the drawdown and recovery data from the observation well produced plausible curve matches with T values ranging from 272,600 to 436,100 feet^2/day and K_h values ranging from 213 to 340 feet/day (table 4). The lower values of K_h for the composite UFA relative to the Avon Park permeable zone are the result of a larger aquifer thickness using the formula:

$$T = K_h * b$$

where b is the aquifer thickness. Estimated Storativity values range from 0.001 to 0.003, which is plausible for semi-confined aquifers.

It is apparent from the results presented in table 4 that the Avon Park permeable zone is the most productive portion of the UFA. Comparison of parameter averages suggests the Avon Park permeable zone makes up roughly 96% of the transmissivity of the composite UFA interval. In comparison, the Suwannee permeable zone makes up approximately 4% of the composite UFA transmissivity.

7.4 Middle Confining Unit II

The top of MCUII at ROMP 43 was encountered at 1,580 feet bls where vertically persistent evaporites infilling significantly low porosity dolostones were encountered using the definition of Miller (1986). The MCUII was penetrated 137 feet

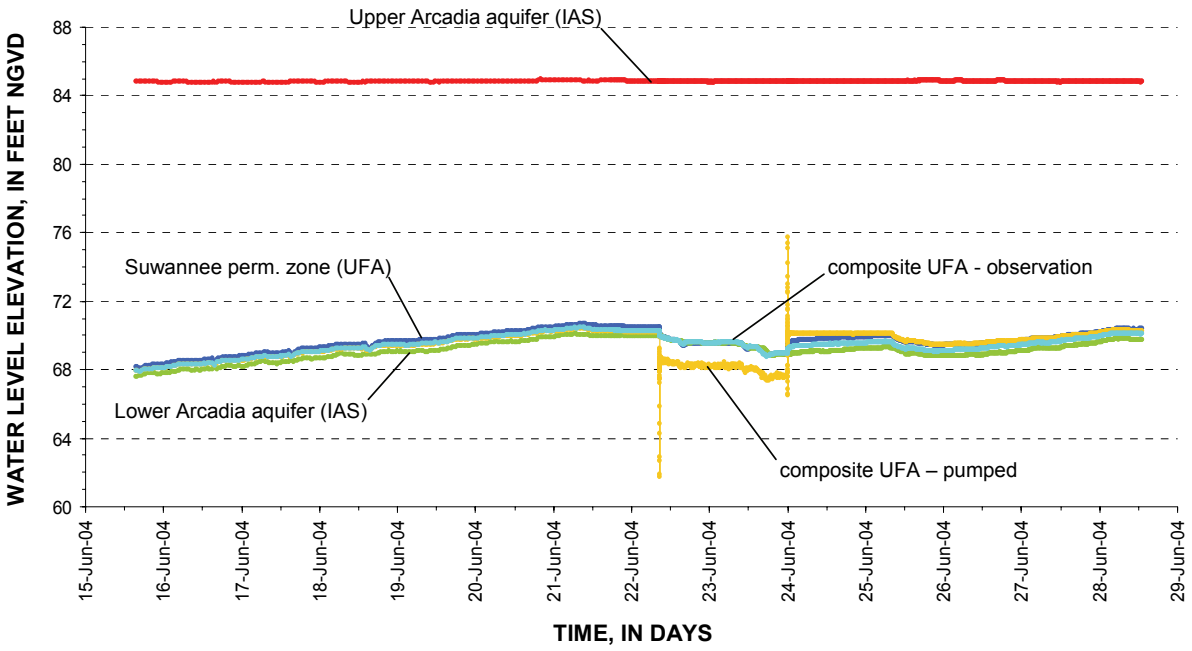

Figure 10. Composite UFA APT hydrograph.

to a total depth of 1,717 feet bls. A single packer test was conducted in the bottom of the hole from 1,674 to 1,717 feet bls yielding a value of K_h of 3 feet/day with a specific capacity of only 0.03 gpm/foot. The low production rate made it difficult to perform slug and water quality sampling of the well. The value of K_h may seem high relative to the other packer test results in table 2, but it is important to note that this slug test was performed with large conventional drilling rig (no longer coring at this stage of the project) with a larger packer assembly than that used from land surface to 1,210 feet bls. As a result, error associated with packer orifice restrictions and higher K formations were much less significant and the resulting K_h may be a better estimate of the true value. When drilling stopped at 1,717 feet bls, evaporitic infilling of the dense dolomite was steadily increasing suggesting that deeper tests in the MCUII would reveal further decreases in permeability.

8.0 GROUND-WATER QUALITY

The ground-water quality characterization is based on results of discrete-interval packer testing during exploratory core drilling at the ROMP 43 well site from 87 to 1,195 feet bls. Only one additional packer test sample was collected below this point from 1,557 to 1,596 feet bls during deep exploratory drilling in an interval that extends from near the base of the UFA to 16 feet below the top of the middle confining unit II. All samples were prepared and tested both in the field as well as sent to the District laboratory for analyses. The results of the field and laboratory tests as well as samples from each completed permanent monitor well can be seen in appendix I. Samples collected from land surface to a depth of 1,195 feet bls were well within potable drinking water standards (figure 11). The secondary drinking water standards for chloride, sulfate, and total dissolved solids (TDS) are 250 milligrams/Liter (mg/L), 250 mg/L, and 500 mg/L, respectively. The final packer test at the base of the UFA, however (1,557 to 1,596 feet bls), did not meet drinking water standards. The sulfate and TDS concentrations for this sample were 1,250 mg/L and 1,860 mg/L, respectively. With the data available, the extent of potable water at this site extends from land surface to somewhere between 1,195 and 1,557

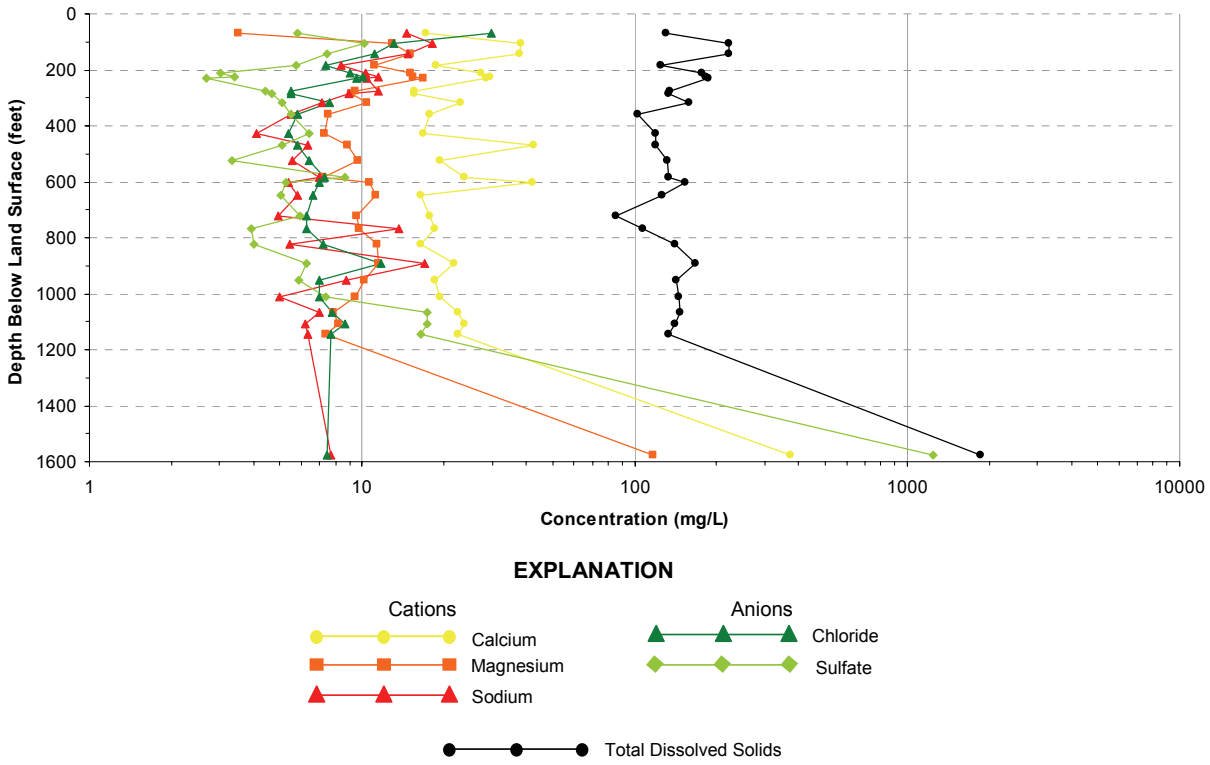

Figure 11. Water quality with depth below land surface. Data collected from 27 packer test sampling events conducted at the ROMP 43 well site. Depth represents the middle of the open interval at the time of collection.

feet bls. Geophysical induction logs run on the completed exploratory borehole suggest that the depth at which the deepest potable ground water occurs is approximately 1,440 feet bls (appendix E.4).

Equivalent weights and water types for each sample can be seen in table 5. The primary cations observed were typically mixed (no concentrations constitute more than half of the total cations) while the predominant anion throughout most of the corehole is bicarbonate. The water type throughout most of the potable thickness is mixed-cation bicarbonate, which is common for shallow limestone/dolostone aquifers. Select molar ratios were calculated (table 6) and plotted graphically (figure 12) to investigate the changes in water quality with depth. The first (evaporite) track is designed to identify fresh-water interaction with evaporites by looking at sulfate and calcium ratios. The second (dolomite) track is designed to identify fresh-water and dolomite interactions focusing on calcium-magnesium ratios. The third (brine) track is designed to locate changes in sodium and chloride ratios as effects of possible trapped connate brines. The most notable change in water quality occurs near the base of the UFA above the MCUII contact with increases in sulfate and calcium concentrations (figure 12) resulting from the influence of deeper-formation evaporites.

8.1 Surficial Aquifer

A surficial aquifer well was originally constructed in April of 2002 but was later plugged and abandoned due to drilling fluid interference during construction of nearby wells. The well was later replaced but no water quality data has been obtained from the new surficial monitor well.

Table 5: The equivalent weight, percent equivalent weight for select anions and cations, and the water type at the ROMP 43 well site.

[ID, identification; ft, feet; bls, below land surface; meq/L, milliequivalents per liter; %, percent]

Test ID	Test Interval (ft bls)	MAJOR CATIONS						MAJOR ANIONS						Water Type
		Ca^{2+}		Mg^{2+}		Na^{1+}		HCO_3^{1-}		Cl^{1-}		SO_4^{2-}		
		meq/L	%	meq/L	%	meq/L	%	meq/L	%	meq/L	%	meq/L	%	
PT 1	60-80	0.85	46.4%	0.29	15.7%	0.64	34.6%	0.70	42.1%	0.84	**50.5%**	0.12	7.3%	Mixed-Cation Chloride
PT 2	87-120	1.92	49.5%	1.07	27.5%	0.79	20.4%	2.56	**73.4%**	0.37	10.6%	0.21	6.1%	Mixed-Cation Bicarbonate
PT 3	125-160	1.88	48.8%	1.24	32.0%	0.64	16.7%	2.77	**80.0%**	0.31	9.0%	0.15	4.5%	Mixed-Cation Bicarbonate
PT 4	172-200	0.93	40.9%	0.92	40.2%	0.36	15.9%	1.66	**83.5%**	0.21	10.5%	0.12	6.0%	Mixed-Cation Bicarbonate
PT 5	181-240	1.36	43.2%	1.24	39.5%	0.45	14.3%	2.51	**88.8%**	0.25	9.0%	0.06	2.2%	Mixed-Cation Bicarbonate
PT 6	187-260	1.48	44.0%	1.27	37.9%	0.50	14.9%	2.46	**87.4%**	0.28	10.1%	0.07	2.5%	Mixed-Cation Bicarbonate
PT 7	201-260	1.42	42.6%	1.38	41.5%	0.45	13.6%	2.66	**89.1%**	0.27	9.1%	0.06	1.9%	Mixed-Cation Bicarbonate
PT 8	269-280	0.78	37.1%	0.78	37.1%	0.50	23.9%	1.60	**86.6%**	0.15	8.4%	0.09	5.0%	Mixed-Cation Bicarbonate
PT 9	269-300	0.77	39.7%	0.75	38.7%	0.39	19.8%	1.49	**85.5%**	0.16	8.9%	0.10	5.6%	Mixed-Cation Bicarbonate
PT 10	292-340	1.15	48.8%	0.86	36.3%	0.31	13.2%	1.85	**85.2%**	0.22	9.9%	0.11	4.9%	Mixed-Cation Bicarbonate
PT 11	340-380	0.88	49.6%	0.62	34.9%	0.24	13.4%	1.23	**81.6%**	0.16	10.9%	0.11	7.6%	Mixed-Cation Bicarbonate
PT 12	412-440	0.83	**50.8%**	0.60	36.6%	0.18	10.8%	1.13	**79.9%**	0.15	10.7%	0.13	9.4%	Calcium Bicarbonate
PT 13	455-480	2.14	**67.3%**	0.73	22.9%	0.28	8.7%	1.92	**87.6%**	0.16	7.5%	0.11	4.9%	Calcium Bicarbonate
PT 14	508-540	0.97	47.3%	0.80	38.9%	0.24	11.8%	1.40	**84.9%**	0.18	10.9%	0.07	4.2%	Mixed-Cation Bicarbonate
PT 15	548-620	1.19	**56.3%**	0.59	28.1%	0.30	14.4%	1.28	**76.9%**	0.21	12.3%	0.18	10.8%	Calcium Bicarbonate
PT 16	583-620	2.10	**64.7%**	0.87	26.9%	0.23	7.2%	2.08	**87.2%**	0.20	8.2%	0.11	4.6%	Calcium Bicarbonate
PT 17	620-680	0.82	40.0%	0.92	45.1%	0.25	12.4%	1.56	**84.3%**	0.19	10.1%	0.10	5.6%	Mixed-Cation Bicarbonate
PT 18	708-740	0.89	46.2%	0.78	40.6%	0.21	11.1%	1.29	**81.2%**	0.18	11.1%	0.12	7.8%	Mixed-Cation Bicarbonate
PT 19	739-800	0.93	39.0%	0.80	33.8%	0.60	25.1%	1.34	**83.9%**	0.18	11.0%	0.08	5.1%	Mixed-Cation Bicarbonate
PT 20	789-860	0.82	40.0%	0.94	45.9%	0.24	11.6%	1.63	**85.1%**	0.20	10.6%	0.08	4.4%	Mixed-Cation Bicarbonate
PT 21	860-920	1.09	37.9%	0.95	33.0%	0.74	25.6%	1.67	**78.4%**	0.33	15.5%	0.13	6.1%	Mixed-Cation Bicarbonate
PT 22	925-980	0.93	42.2%	0.84	38.1%	0.38	17.4%	1.57	**83.1%**	0.20	10.4%	0.12	6.5%	Mixed-Cation Bicarbonate
PT 23	982-1,040	0.96	48.1%	0.77	38.7%	0.22	10.8%	1.47	**80.8%**	0.20	10.8%	0.15	8.4%	Mixed-Cation Bicarbonate
PT 24	1,034-1,100	1.12	**53.5%**	0.65	30.9%	0.30	14.4%	1.24	**68.1%**	0.22	12.1%	0.36	19.8%	Calcium Bicarbonate
PT 25	1,100-1,120	1.18	**54.9%**	0.68	31.4%	0.27	12.5%	1.40	**69.8%**	0.25	12.2%	0.36	17.9%	Calcium Bicarbonate
PT 1X	1,092-1,195	1.13	**55.4%**	0.61	29.8%	0.27	13.4%	1.26	**69.3%**	0.22	11.9%	0.34	18.9%	Calcium Bicarbonate
PT 2X	1,557-1,596	18.56	**64.9%**	9.63	33.6%	0.33	1.2%	1.39	5.0%	0.21	0.8%	26.03	**94.2%**	Calcium Sulfate

Table 6: Select molar ratios for the water quality at the ROMP 43 well site.

[ID, identification; bls, below land surface]

Test ID	Test Interval (feet bls)	$Cl^{1+}:SO_4^{2-}$	$Ca^{2+}:HCO_3^{1-}$	$Ca^{2+}:Mg^{2+}$	$Cl^{1-}:HCO_3^{1-}$	$Na^{1+}:HCO_3^{1-}$	$NA^{1+}:Cl^{1-}$
PT 1	60-80	13.82	0.61	2.95	1.20	0.91	0.76
PT 2	87-120	3.46	0.38	1.80	0.14	0.31	2.15
PT 3	125-160	4.03	0.34	1.52	0.11	0.23	2.06
PT 4	172-200	3.49	0.28	1.02	0.13	0.22	1.74
PT 5	181-240	8.08	0.27	1.10	0.10	0.18	1.76
PT 6	187-260	8.02	0.30	1.16	0.12	0.20	1.76
PT 7	201-260	9.68	0.27	1.03	0.10	0.17	1.67
PT 8	269-280	3.35	0.24	1.00	0.10	0.31	3.24
PT 9	269-300	3.20	0.26	1.03	0.10	0.26	2.49
PT 10	292-340	4.05	0.31	1.35	0.12	0.17	1.45
PT 11	340-380	2.86	0.36	1.42	0.13	0.19	1.46
PT 12	412-440	2.27	0.37	1.39	0.13	0.16	1.17
PT 13	455-480	3.09	0.56	2.94	0.09	0.14	1.68
PT 14	508-540	5.19	0.35	1.22	0.13	0.17	1.34
PT 15	548-620	2.27	0.46	2.00	0.16	0.24	1.47
PT 16	583-620	3.59	0.50	2.41	0.09	0.11	1.20
PT 17	620-680	3.57	0.26	0.89	0.12	0.16	1.35
PT 18	708-740	2.85	0.34	1.14	0.14	0.17	1.22
PT 19	739-800	4.32	0.35	1.16	0.13	0.44	3.39
PT 20	789-860	4.83	0.25	0.87	0.12	0.14	1.17
PT 21	860-920	5.06	0.33	1.15	0.20	0.44	2.23
PT 22	925-980	3.22	0.30	1.11	0.13	0.24	1.95
PT 23	982-1,040	2.57	0.33	1.24	0.13	0.15	1.10
PT 24	1,034-1,100	1.22	0.45	1.73	0.18	0.24	1.38
PT 25	1,100-1,120	1.36	0.42	1.75	0.18	0.19	1.09
PT 1X	1,092-1,195	1.26	0.45	1.86	0.17	0.22	1.27
PT 2X	1,557-1,596	0.02	6.68	1.93	0.15	0.24	1.59

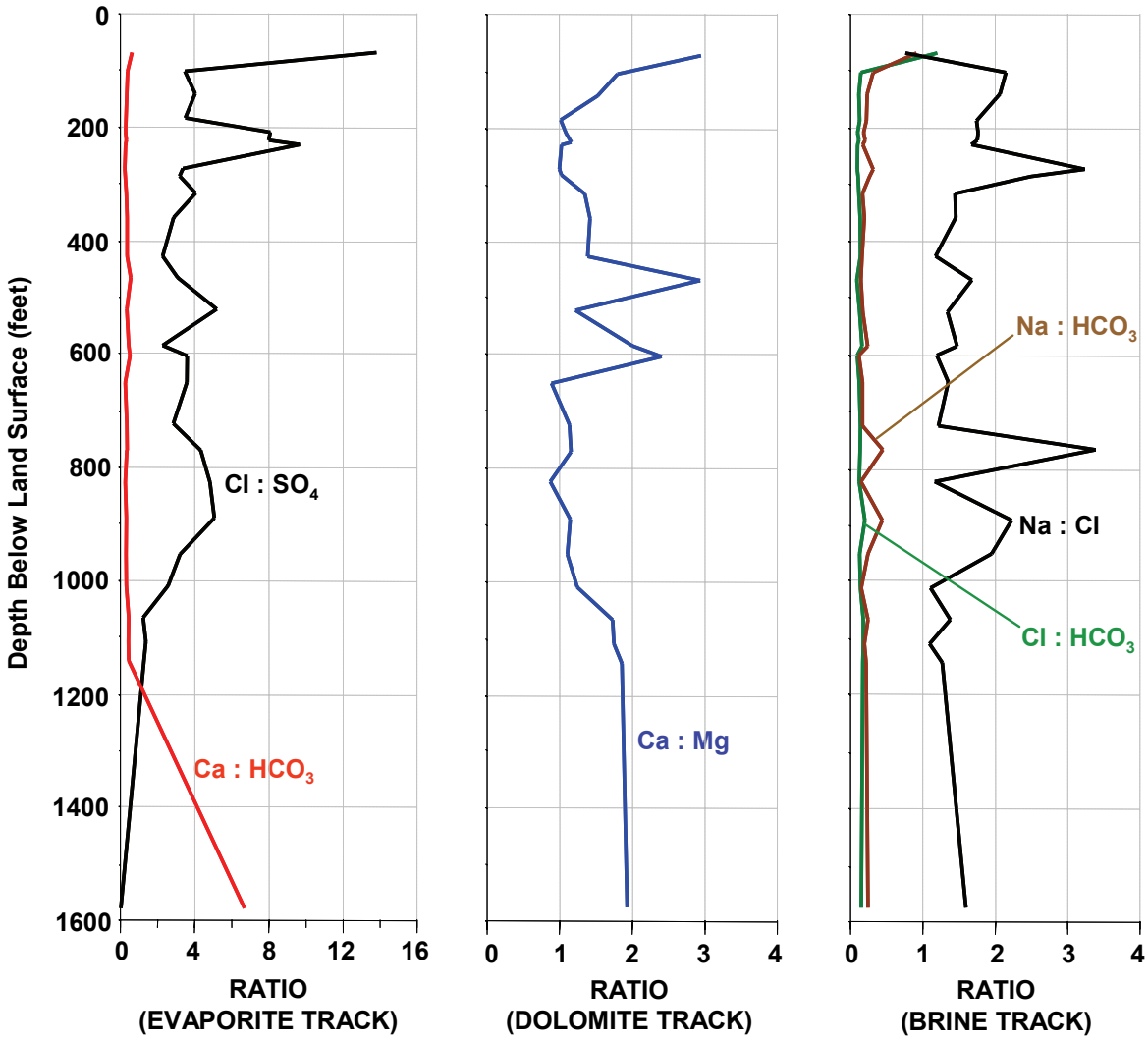

Figure 12. Select molar ratios with depth for water quality data at the ROMP 43 well site. Depth represents the middle of the open interval at the time of collection.

8.2 Intermediate Aquifer System

The IAS starts at a depth of 47 feet bls and extends to 232 feet bls. A total of four water quality samples were collected within this unit. The samples start at 60 feet and extend to 200 feet bls. A fifth sample from 181 to 240 feet bls straddles the contact between the IAS and the underlying confining unit. The laboratory results (appendix I.2) within the IAS indicate the ground water is very fresh and meets secondary potable drinking water standards. The highest value of total dissolved solids within the IAS was 223 mg/L. The water type throughout the IAS is mixed-cation bicarbonate with the exception of the uppermost sample from 60 to 80 feet bls where the water type was mixed-cation chloride (table 5). The reason for the increase in chloride is undetermined. An apparent increase in sodium occurs in the interval from roughly 250 to 300 feet bls (figure 12). This interval corresponds mostly with the Nocatee Member of the Arcadia Formation comprised of moderately indurated sands and chert with frequent interbedded low porosity clays and mudstones. Potentially, sodium-bearing clays such as montmorillanite, if present,

could provide a source for the increased sodium. This increase in sodium content is not however significant enough to affect the overall water type of the sample.

8.3 Upper Floridan Aquifer

The UFA begins at a depth of 298 feet bls and extends to 1,580 feet bls. A total of 18 water- quality samples were collected from 292 to 1,596 feet bls. The laboratory results (appendix I.2) show that the ground water from these samples is quite fresh and meets secondary drinking water standards to an approximated depth of 1,440 feet bls. The highest value of total dissolved solids measured within the potable portion of the UFA was 168 mg/L. Similar to the IAS, an apparent increase in sodium occurs in the interval from roughly 700 to 800 feet bls (figure 12). This interval corresponds with the uppermost portion of the Avon Park Formation comprised of moldic dolostone and packstone with interstitial clays and organics. If present, sodium-bearing clays such as montmorillanite could potentially provide a source for the increased sodium. As in the IAS, this increase in sodium content is also not significant enough to affect the overall water type of the sample.

The water type within the UFA to 1,195 feet bls is predominantly mixed-cation bicarbonate, which is common for shallow limestone/dolostone aquifers (table 5). Two exceptions were encountered in this interval, one occurs in the upper portion of the Ocala low permeability zone where calcium becomes the dominant cation changing the water type to calcium bicarbonate. This could be the effect of stagnant formation water within the Ocala Limestone comprised of lower porosity muddy wackestone to mudstone with no observed dolostones to contribute magnesium. This increase in calcium is illustrated in the dolomite track of molar ratios shown in figure 12. The other exception occurs in the fractured Avon Park permeable zone where calcium again becomes the dominant cation making the water type within the zone again calcium bicarbonate. The cause of this increase is unclear, especially since the lithology within this zone is predominantly dolostone which typically corresponds to decreases in calcium due to substitution by magnesium. The reason may be related to continuous flushing in a highly productive and frequently utilized production zone. Water quality sampling below the Avon Park permeable zone was discontinued for 362 feet where a final sample was collected at the contact between the UFA and MCUII (discussed in next section).

8.4 Middle Confining Unit II

The top of MCUII occurs at a depth of 1,580 feet bls and was penetrated 137 feet during drilling to a total drilling depth of 1,717 feet bls. Only one packer test was conducted within this unit in an interval that straddles the contact between the UFA and MCUII from 1,557 to 1,596 feet bls. The influence of interstitial evaporites associated with MCUII is evident in the water quality samples. The laboratory results (appendix I.2) show that total dissolved solids concentration jumps to 1,860 mg/L, which does not meet secondary drinking water standards. The primary ion contributing to the total dissolved solids is sulfate, followed by calcium and then to a lesser degree magnesium (figure 11). These increases in sulfate and calcium are a result of the evaporitic sediments contained in this unit, gypsum ($CaSO_4 * 2H_2O$) and anhydrite ($CaSO_4$).

The water type for this sample is calcium sulfate (table 5). The sulfate and calcium increases are evident in the molar ratios shown in figure 12 where the chloride:sulfate ratio drops significantly and the calcium:bicarbonate ratio rises sharply at the base of the borehole. The increase in magnesium is likely a result of contact with continuous Avon Park dolostone starting around 1,063 feet bls and extending to the total depth of the borehole.

The relative abundance of the major cations and anions for all the water samples can be seen graphically in figure 13 and is referred to as a Piper (1944) diagram. The group of plotted values in the anion trilinear and quadrilateral field parallels the carbonate plus bicarbonate (CO_3^{2-} + HCO_3^{1-}) axis. Values move in the direction of increasing sulfate as depth increases. This trend follows the freshwater/deepwater mixing trend line as described in Tihansky (2004). The final sample within the MCUII plots at the extreme deep-water end of the mixing line. It is expected that if sampling occurred within the sampling gap between the deepest UFA samples and the MCUII, the plotted samples would continue along the mixing line trend towards the extreme deep-water sample of the MCUII.

9.0 CONCLUSIONS

The ROMP 43 well site was constructed as a perpetual monitor-well site for continued

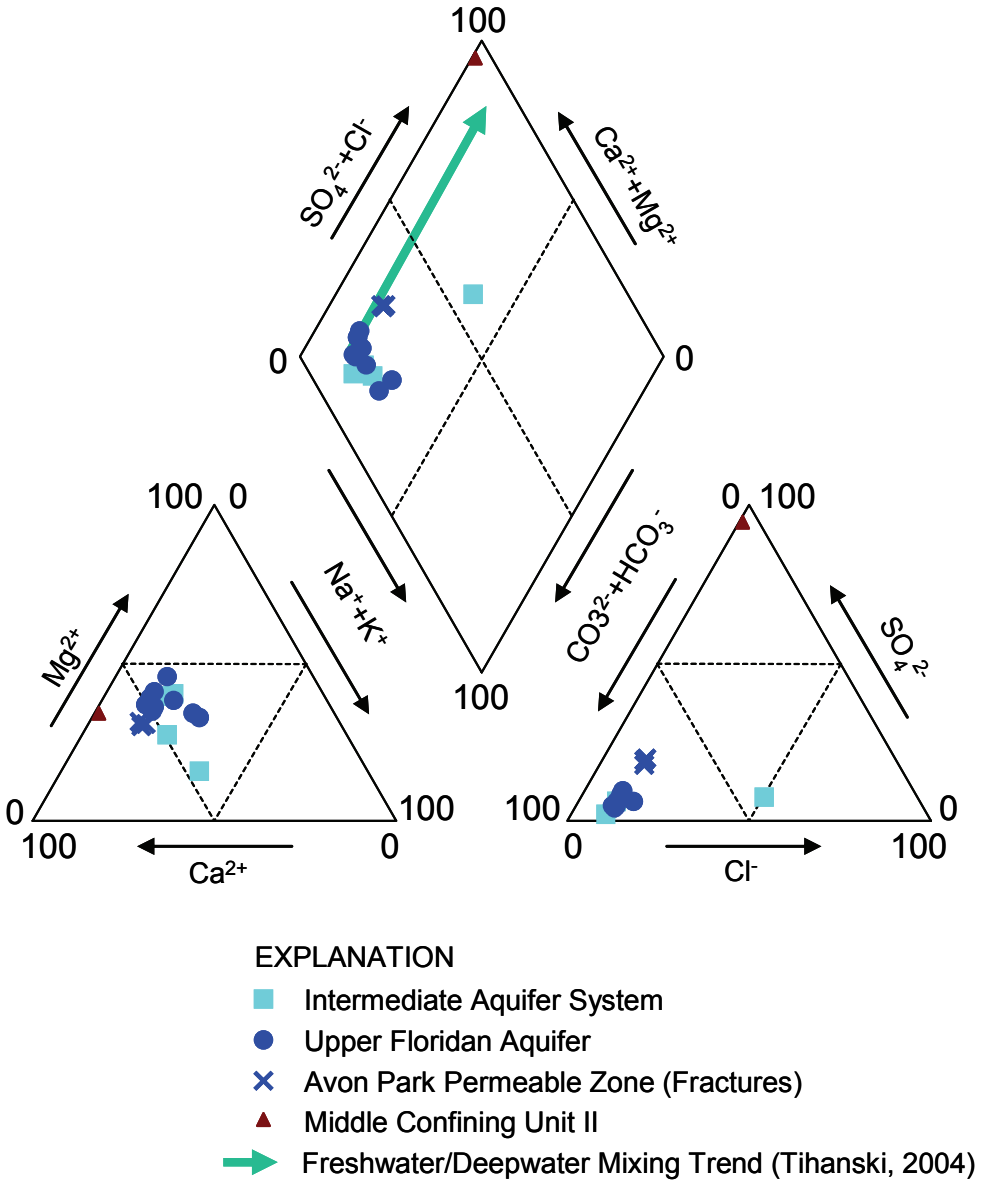

Figure 13. Piper diagram displaying the laboratory data from the 27 packer tests at the ROMP 43 well site.

tracking of water levels and water quality at this site. This was accomplished by characterizing the hydrogeology of the site through thorough coring and testing operations as a means to design suitable monitor wells for all identified aquifers. The hydrogeologic characterization at the ROMP 43 well site included core collection and description, water quality sampling, hydraulic testing, and geophysical logging. The total depth of exploration was 1,717 feet bls. The major geologic units encountered in ascending order were the Avon Park Formation, the Ocala Limestone, the Suwannee Limestone, the Hawthorn Group, and the undifferentiated surficial sands and clays. The hydrogeologic units encountered were the surficial aquifer, intermediate aquifer system, Upper Floridan aquifer, and the middle confining unit II.

The potable thickness of ground water at ROMP 43 extends from land surface to approximately 1,440 feet bls near the base of the UFA. Below this point, water quality no longer meets potable standards for sulfate and total dissolved solids. Hydraulic testing via packer-slug and aquifer performance testing shows that the UFA is by far the most productive unit encountered with an estimated transmissivity value of 274,000 $feet^2$/day. Aquifer performance testing of discrete production zones revealed that the fractured Avon Park permeable zone is the most productive portion of the UFA, apparently making up around 96% of the total transmissivity of the UFA. By comparison, the Suwannee permeable zone makes up closer to 4% of the total UFA transmissivity.

All permanent monitor wells at ROMP 43 were constructed after the coring and testing phase of the hydrogeologic investigation. The final well construction as-built diagrams for all wells can be seen in appendix B and results of water quality sampling from each completed well can be seen in appendix I.3. The Hydrologic Data Section of the District is currently monitoring water levels while the WQMP Section of the District is monitoring water quality.

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APPENDIX A

Methods of the Regional Observation and Monitor-Well Program

APPENDIX A. METHODS OF THE REGIONAL OPERVATION 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.

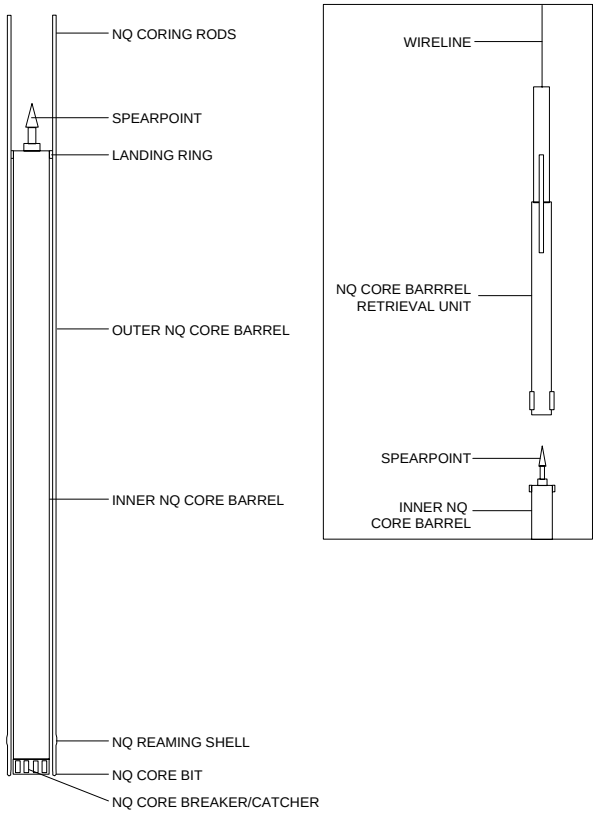

Figure 1. Longyear® NQ Wireline Coring Apparatus.

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). The District drilling crew utilized a punch shoe adapter on the bottom of the inner barrel along with an unconsolidated core catcher. The punch shoe extends the inner barrel beyond the bit allowing collection of the sample prior to disturbance by the bit or drilling fluid. A

variety of different bits are used during unconsolidated coring all of which typically are of the bottom-discharge style.

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 used 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.

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.

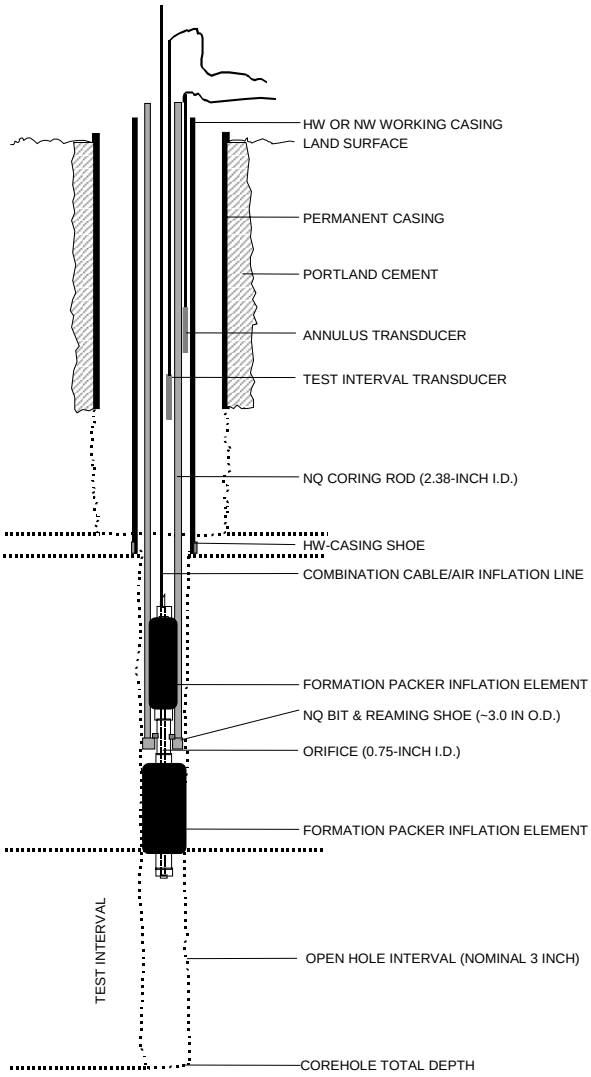

Figure 2. Formation (off-bottom) Packer Assembly Deployed in the Core Hole.

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 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 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 lowing or raising a physical slug into the NQ core initiating a falling or rising head slug test, respectively. 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 restriction is the use of initial displacements (slugs) of less than 2.0 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).

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.

AQUIFER PERFORMANCE TESTING

An APT is a controlled field experiment conducted to determine the hydraulic properties of water-bearing (aquifers) units (Stallman, 1976). APTs can be either single-well or multi-well and may partially or fully penetrate the aquifer. An APT involves pumping the aquifer at a known rate and monitoring the water-level response. The general procedure, applied by the District, for conducting an APT involves Design, Field Observation, and Data Analysis. Test design was based on geologic and hydraulic setting of the site, such as knowledge of the aquifer thickness, probable range in transmissivity and storage, the presence of uncontrolled boundaries (sources/sinks), and any practical limitations imposed by equipment. Field observations of the discharge and water levels were taken and recorded accurately to ensure a successful test. The District measures the discharge rate using both an impellor meter and circular orifice weir, and water levels using pressure transducers and an electric tape. All the recording devices are calibrated and traceable to the National Institute of Standards and Technology. The data analysis was achieved by first making estimates of drawdown observed during the test and then using analytical and numerical methods to estimate hydraulic properties of the aquifer and adjacent confining unts.

Single-Well Aquifer Test

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

Multi-Well Aquifer Test

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

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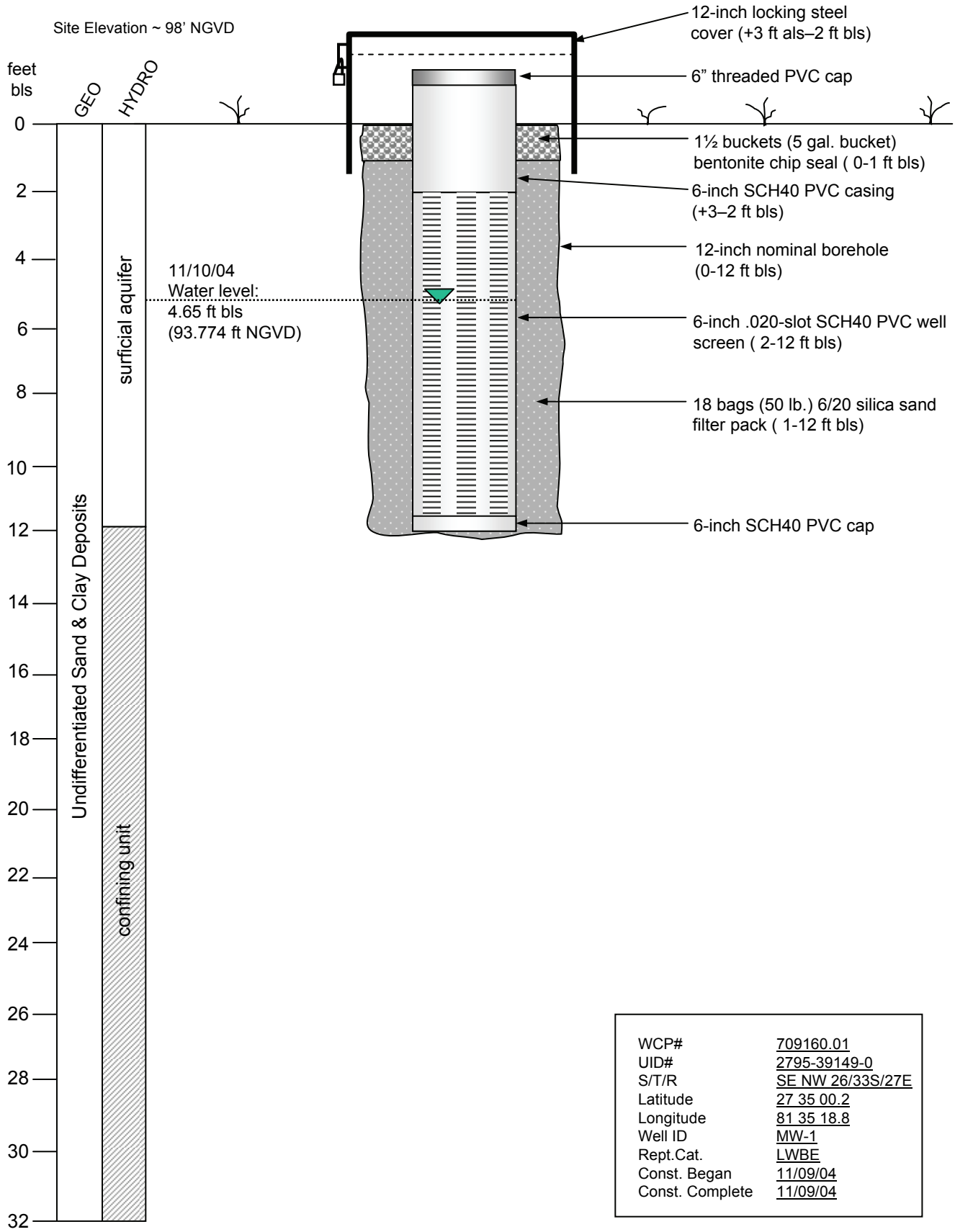
APPENDIX B

Well As-Built Diagrams

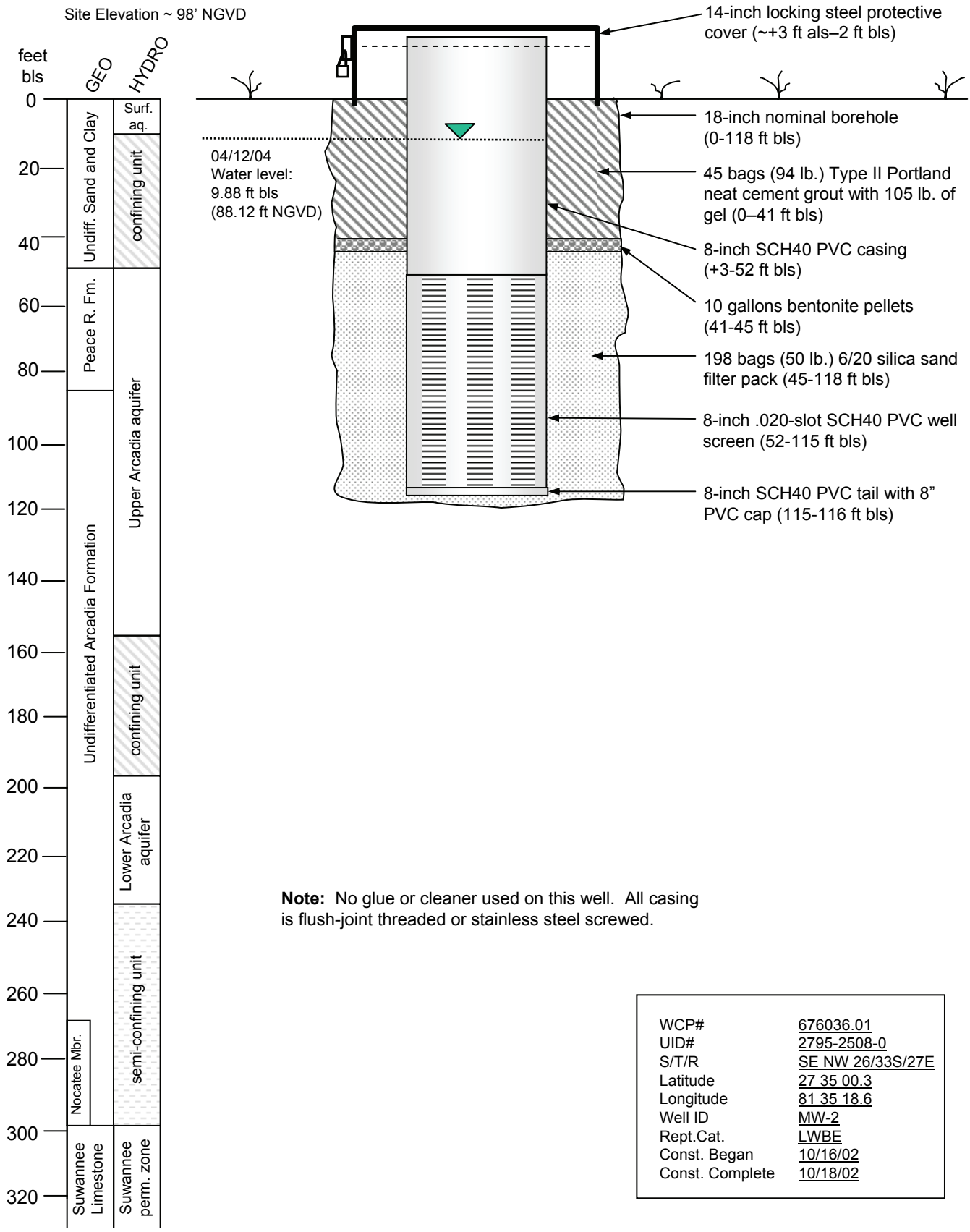


WCP#	709160.01
UID#	2795-39149-0
S/T/R	SE NW 26/33S/27E
Latitude	27 35 00.2
Longitude	81 35 18.8
Well ID	MW-1
Rept.Cat.	LWBE
Const. Began	11/09/04
Const. Complete	11/09/04

Note: No glue or cleaner used on this well. All casing is flush-joint threaded.

ROMP 43 – Bee Branch

Appendix B.1 – Surficial Aquifer Monitor Well (MW-1)
"As Built" Diagram

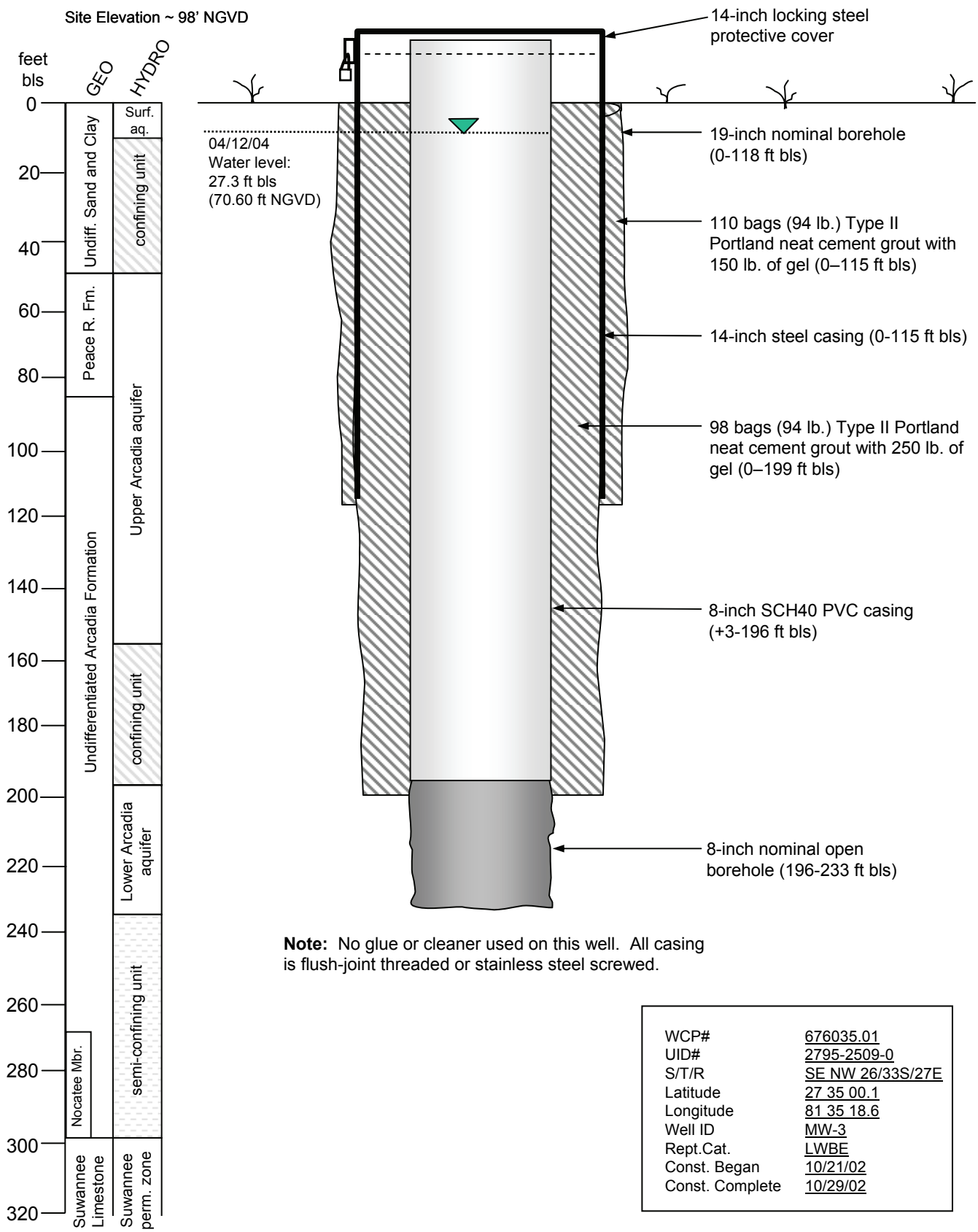


Note: No glue or cleaner used on this well. All casing is flush-joint threaded or stainless steel screwed.

WCP#	676036.01
UID#	2795-2508-0
S/T/R	SE NW 26/33S/27E
Latitude	27 35 00.3
Longitude	81 35 18.6
Well ID	MW-2
Rept.Cat.	LWBE
Const. Began	10/16/02
Const. Complete	10/18/02

ROMP 43 – Bee Branch

Appendix B.2 – Upper Arcadia Aquifer Monitor Well (MW2) "As Built" Diagram

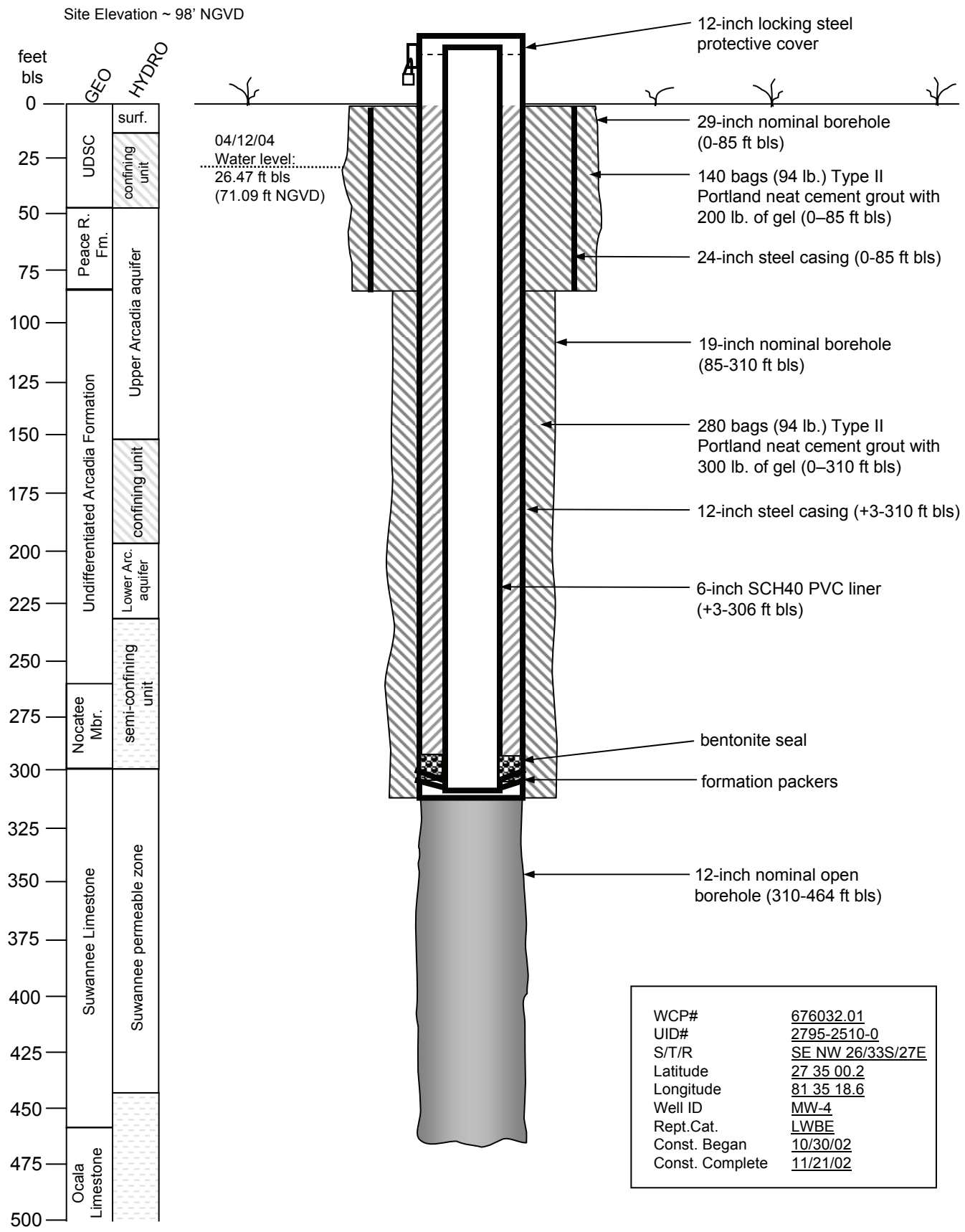


Note: No glue or cleaner used on this well. All casing is flush-joint threaded or stainless steel screwed.

WCP#	676035.01
UID#	2795-2509-0
S/T/R	SE NW 26/33S/27E
Latitude	27 35 00.1
Longitude	81 35 18.6
Well ID	MW-3
Rept.Cat.	LWBE
Const. Began	10/21/02
Const. Complete	10/29/02

ROMP 43 – Bee Branch

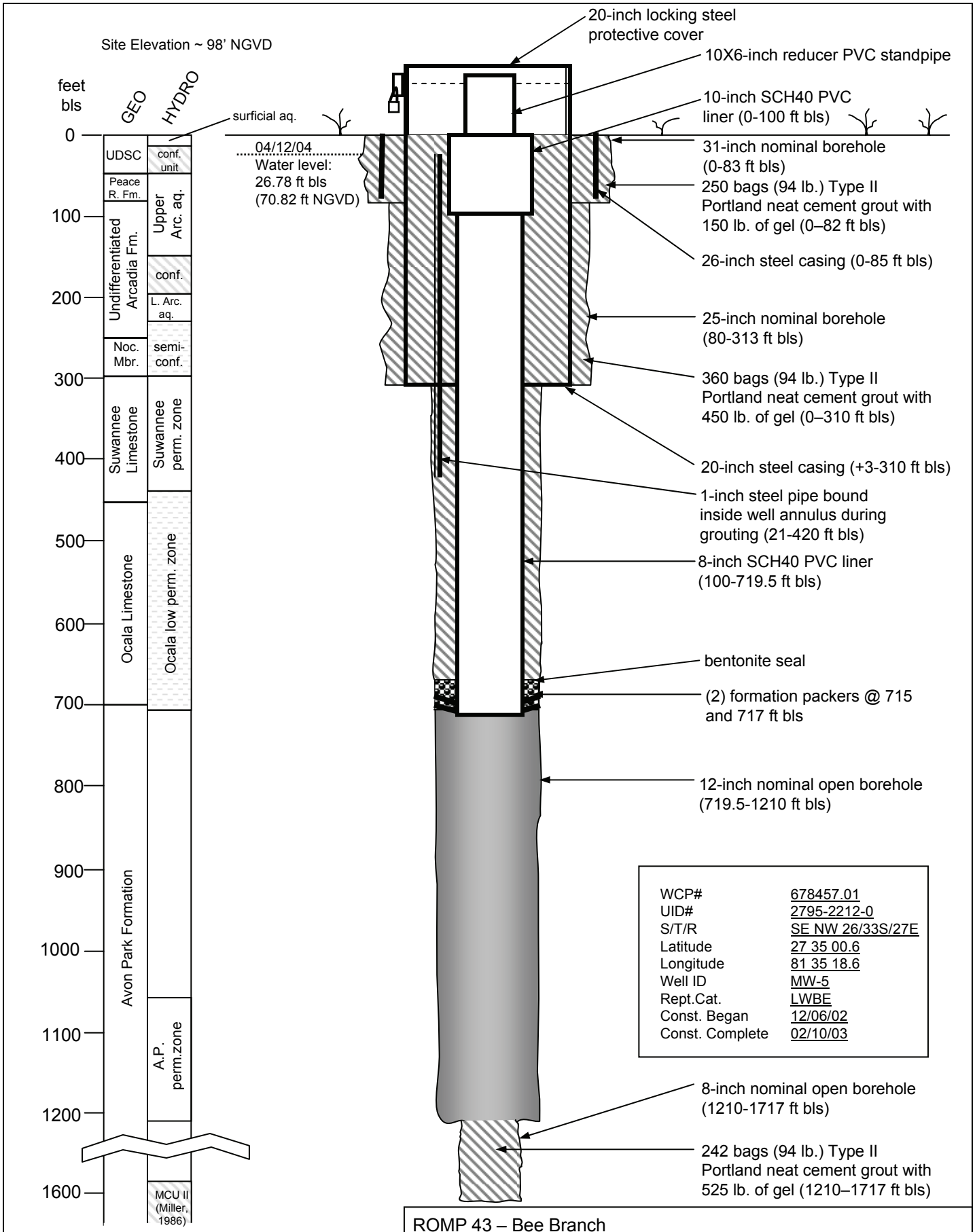
Appendix B.3 – Lower Arcadia Aquifer Monitor Well (MW3)
"As Built" Diagram



Note: No glue or cleaner used on this well. All casing is flush-joint threaded or stainless steel screwed.

ROMP 43 – Bee Branch

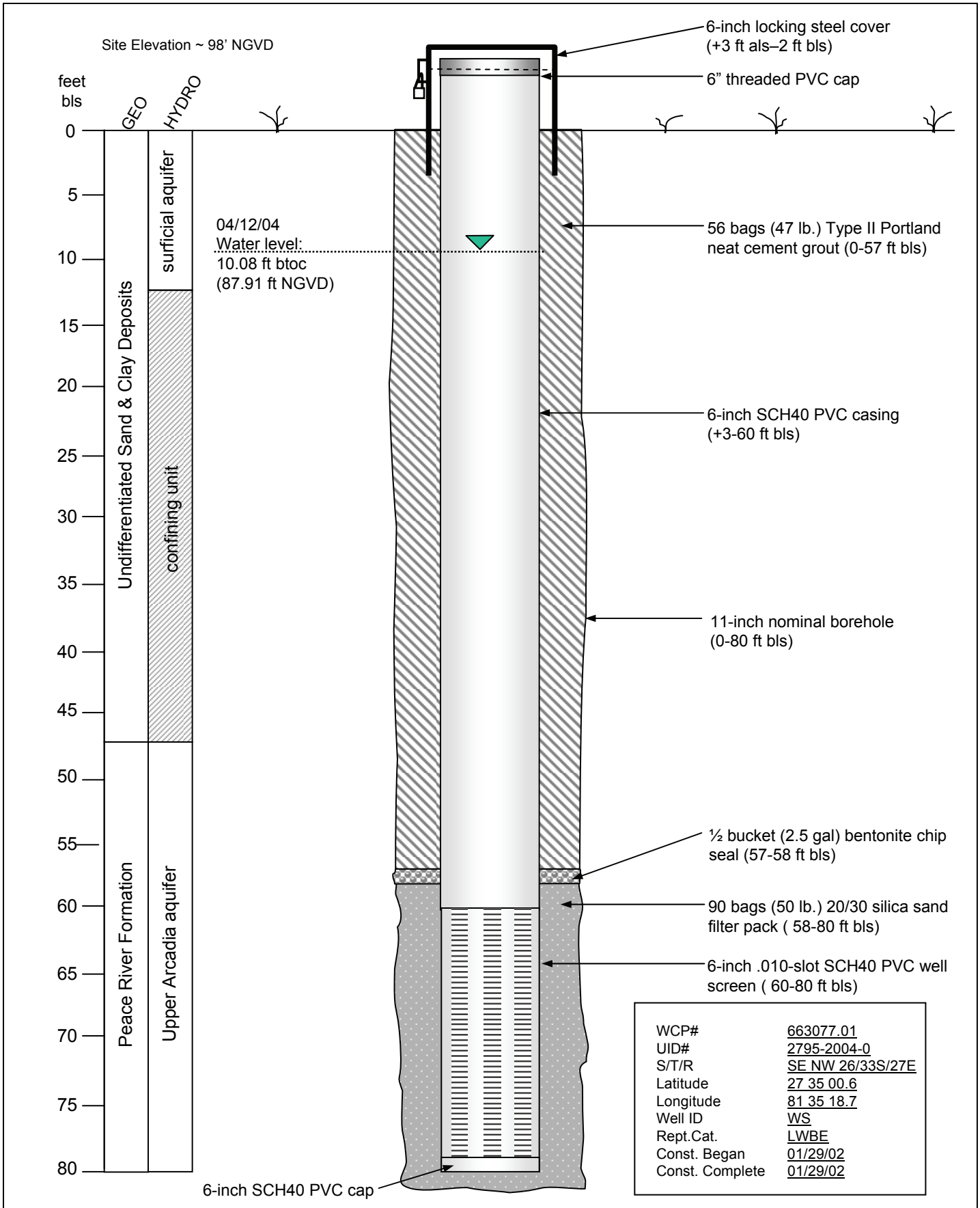
Appendix B.4 – Suwannee Permeable Zone Monitor Well (MW-4)
"As Built" Diagram



Note: No glue or cleaner used on this well. All casing is flush-joint threaded or stainless steel screwed.

ROMP 43 – Bee Branch

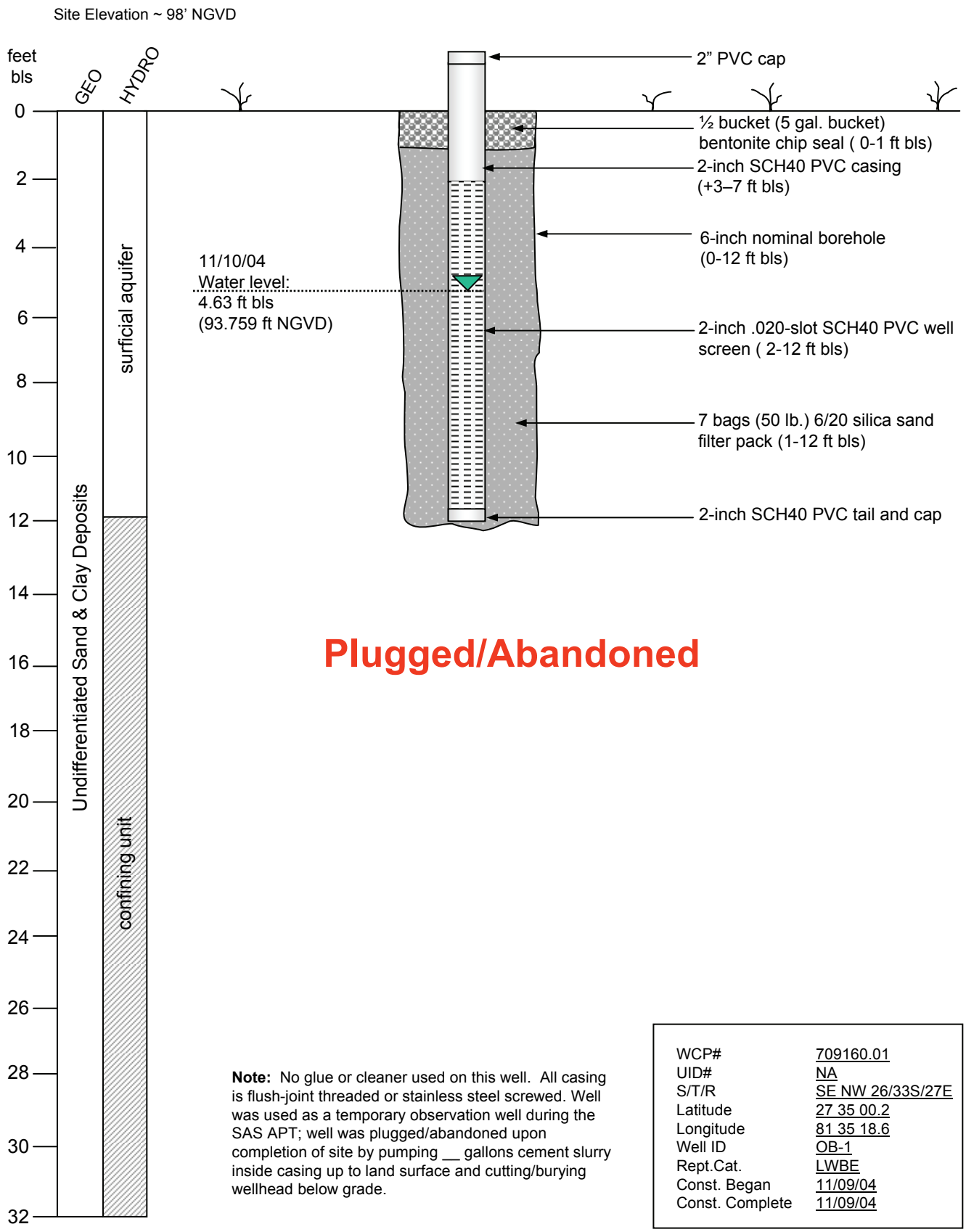
Appendix B.5 – Avon Park Permeable Zone Monitor Well (MW-5)
"As Built" Diagram



Note: No glue or cleaner used on this well. All casing is flush-joint threaded or stainless steel screwed. Well was used as temporary water supply during coring operations

ROMP 43 – Bee Branch

Appendix B.6 – Water Supply Well (WS)
"As Built" Diagram



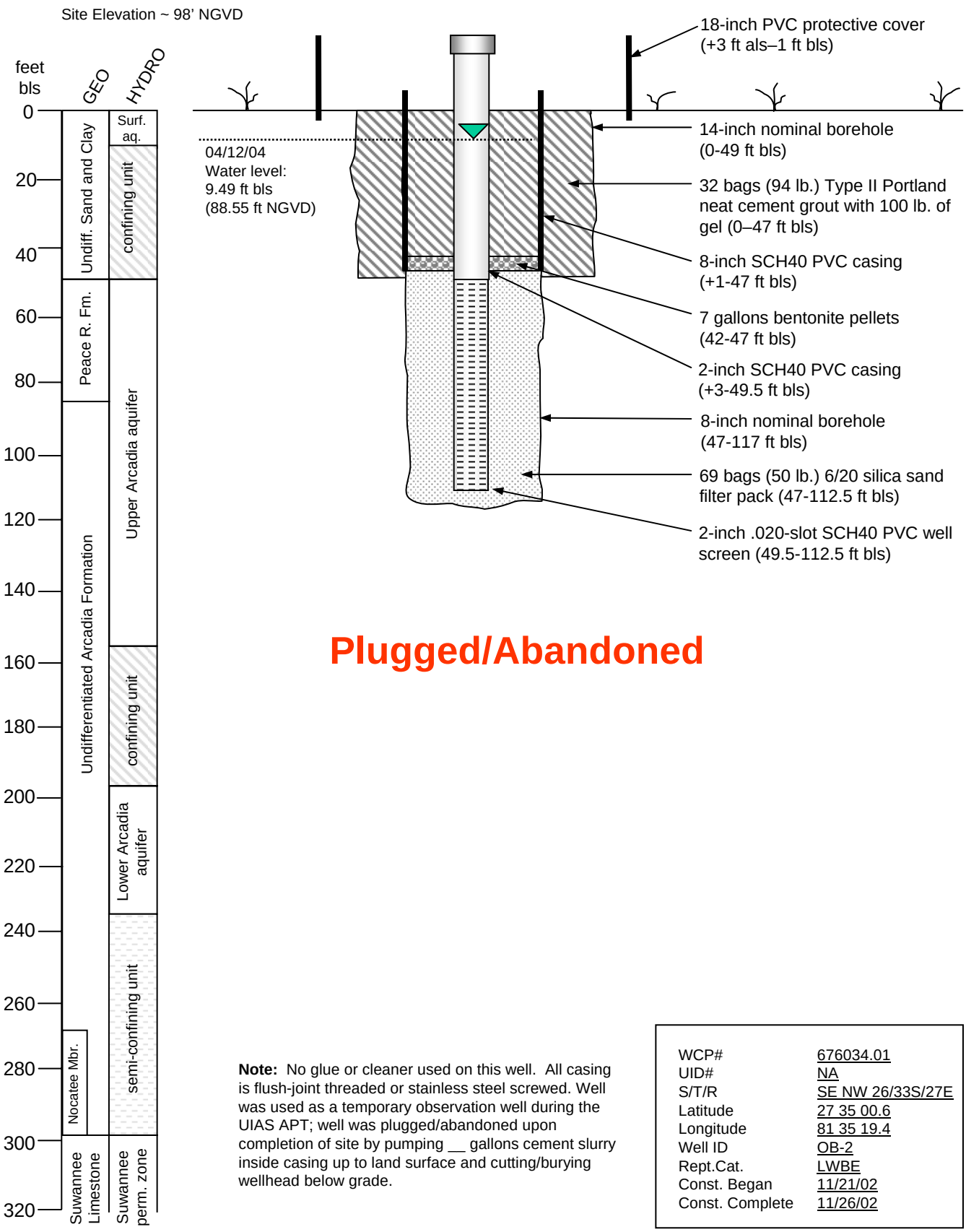
Plugged/Abandoned

Note: No glue or cleaner used on this well. All casing is flush-joint threaded or stainless steel screwed. Well was used as a temporary observation well during the SAS APT; well was plugged/abandoned upon completion of site by pumping __ gallons cement slurry inside casing up to land surface and cutting/burying wellhead below grade.

WCP#	709160.01
UID#	NA
S/T/R	SE NW 26/33S/27E
Latitude	27 35 00.2
Longitude	81 35 18.6
Well ID	OB-1
Rept.Cat.	LWBE
Const. Began	11/09/04
Const. Complete	11/09/04

ROMP 43 – Bee Branch

Appendix B.7 – Temporary Surficial Observation Well (OB-1)
"As Built" Diagram



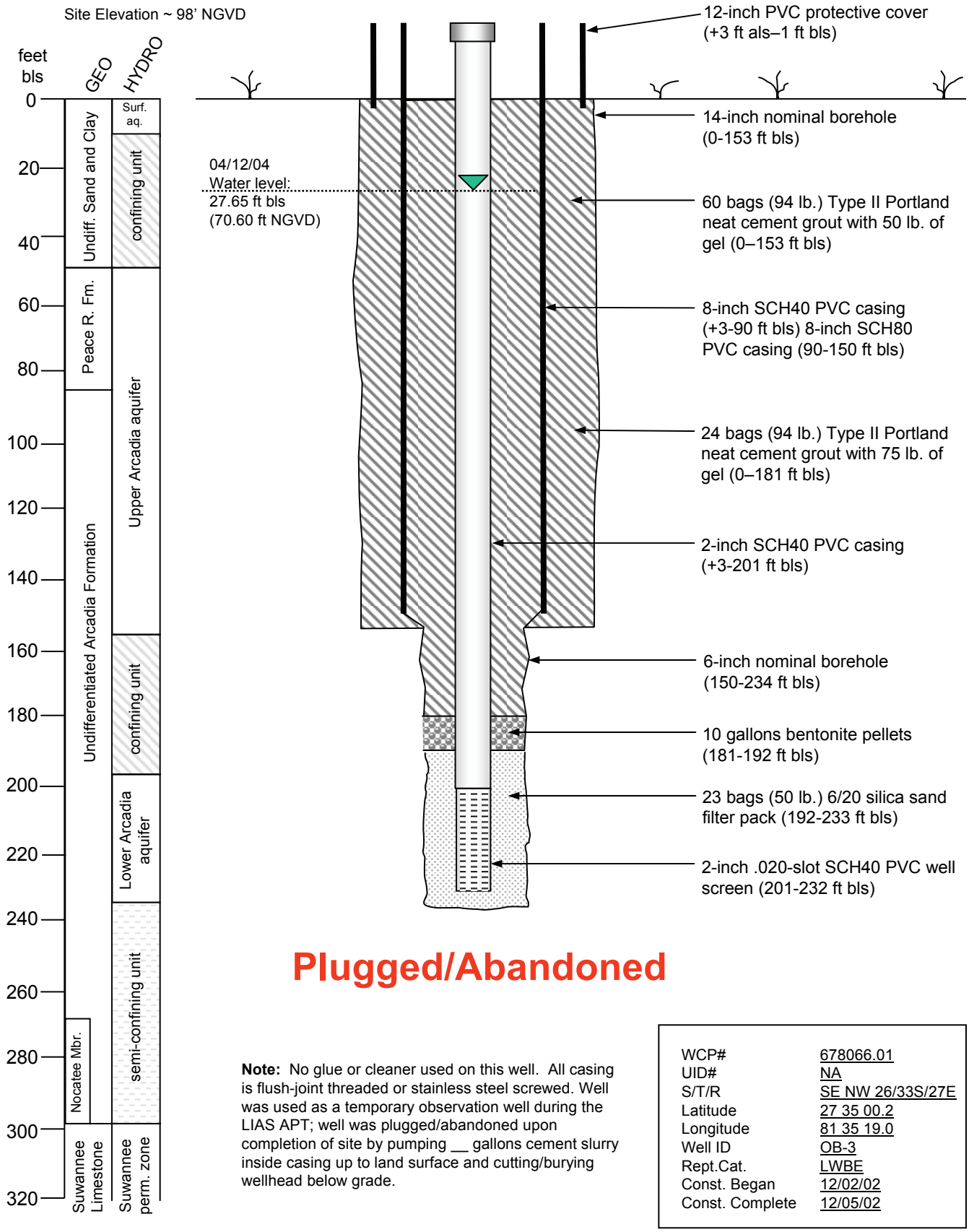
Plugged/Abandoned

Note: No glue or cleaner used on this well. All casing is flush-joint threaded or stainless steel screwed. Well was used as a temporary observation well during the UIAS APT; well was plugged/abandoned upon completion of site by pumping __ gallons cement slurry inside casing up to land surface and cutting/burying wellhead below grade.

WCP#	676034.01
UID#	NA
S/T/R	SE NW 26/33S/27E
Latitude	27 35 00.6
Longitude	81 35 19.4
Well ID	OB-2
Rept.Cat.	LWBE
Const. Began	11/21/02
Const. Complete	11/26/02

ROMP 43 – Bee Branch

Appendix B.8 – Temporary Upper Arcadia Aquifer Observation Well (OB-2) "As Built" Diagram



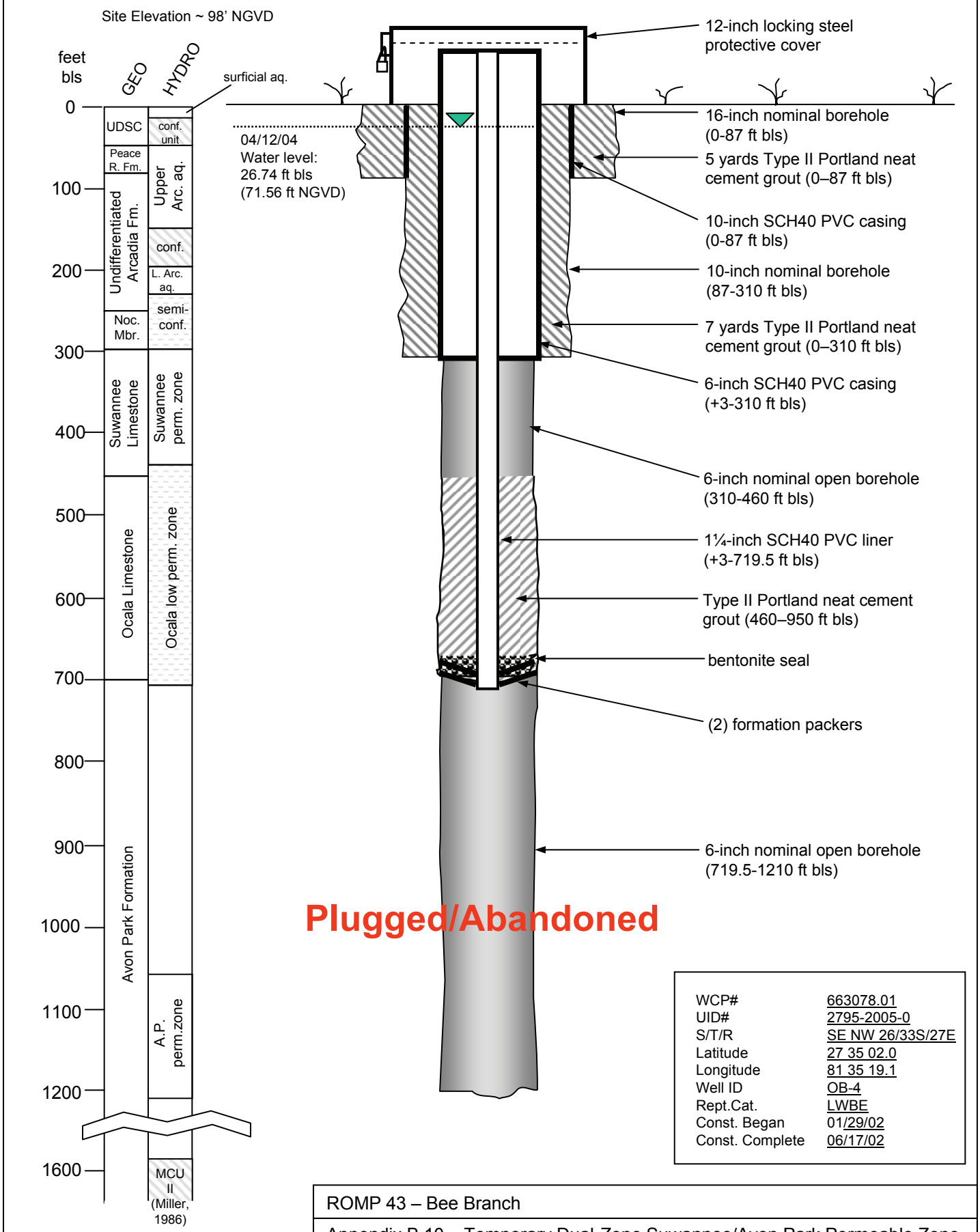
Plugged/Abandoned

Note: No glue or cleaner used on this well. All casing is flush-joint threaded or stainless steel screwed. Well was used as a temporary observation well during the LIAS APT; well was plugged/abandoned upon completion of site by pumping __ gallons cement slurry inside casing up to land surface and cutting/burying wellhead below grade.

WCP#	678066.01
UID#	NA
S/T/R	SE NW 26/33S/27E
Latitude	27 35 00.2
Longitude	81 35 19.0
Well ID	OB-3
Rept.Cat.	LWBE
Const. Began	12/02/02
Const. Complete	12/05/02

ROMP 43 – Bee Branch

Appendix B.9 – Temporary Lower Arcadia Aquifer Observation Well (OB-3) "As Built" Diagram



ROMP 43 – Bee Branch

Appendix B.10 – Temporary Dual-Zone Suwannee/Avon Park Permeable Zone Observation Well (OB-4, former corehole) "As Built" Diagram

APPENDIX C

Daily Well Construction Logs

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	NO. DAYS ON SITE
1	Jason L. Lloyd Johnson	10/14/02 Mon	10/14/02 Mon	1

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley Bobby & Troy C.	115'	~~0~~	~~0~~

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp #43	Bee Branch	Mw2	upper FAS perm. (pumped well)

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
		10 hrs	Mobilization of drilling equip. to Romp # 43

Total paid Time:	10 hrs	Non-Paid Time:	~~0~~	Accidents	~~0~~

District Represntative	Lloyd H Johnson Jr.	Contractor Representative	Charley Godwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	NO. DAYS ON SITE
2	Jason L Lloyd Johnson	Tue 10/15/02	Mon 10/14/02	2

RIG NO./NAME/ CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Troy C.	115'	0	0

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	MW 2 upper IAS Penn.

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS (Pumped Well)
6:30	12:30	6	setting up rig over well MW 2. set up deaander unit. off load supplies
12:30	1	1/2	lunch
1	6:30	5 1/2	con't setting up equip. dig pits. mix mud ish deaander.
		12 Total	

NPT

Total paid Time:	11 1/2 hr	Non-Paid Time:	1/2 hr.	Accidents:	0

District Representative	Lloyd H Johnson Jr.	Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	NO. DAYS ON SITE
3	Lloyd Johnson	10/16/02	10/14/02 (Mon)	3

RIG NO./NAME/ CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Tboy	115'	118'	118'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	MW2 upper IAS perm. (Pumped well)

MILITARY TIME LOG FROM:	TO:	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	9	2 1/2	Mix mud up. finish setup equip. + clean, glue & screw 8in PVC
9	5:00	8	start drilling w/ 17" Bit Kelly down, 35' BLS add 8 1/2 DC drilled to 63' BLS add 8 1/2 DC " " 93' BLS add DR drilled to 118' BLS
5:00	5:45	3/4	T.O.H w/ all DC's & DR's & Bit - fill up well & trench w/ mud
			Brown & tan sand 0' to 5' Tan clay 5' to 18' Phos. & Clay & sand 18' to 88' Lime stone 88' to 118'
		11 1/4	Total

Total paid Time:	11 1/4	Non-Paid Time:	0	Accidents:	0

District Representative	Lloyd H Johnson	Contractor Representative	Charley Godwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	NO. DAYS ON SITE
4	Jason L Lloyd Johnson	Thurs 10-17-02	Mon 10-14-02	4

RIG NO./NAME/ CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley H Bobby & Troy	115'	0	118'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME/#
Romp #43 Bee Branch	Well # MW 2 upper IAS

MILITARY TIME LOG: FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS: Perm (pumped well)
6:30	8	1½	Mix mud & condition mud. T. I. H w/ 17 in Bit
8	9:30	1½	T. I. H w/ 8 in sch 40 PVC 115' to 116' T sil w/ cap 52' to 115' 8 in PVC 20/1000 well screen. +8' ALS to 52' BLS standard PVC pipe. Then started flushing well w/ water.
9:30	12	2½	poured 20/30 sand 128-50 lb Bags. Then poured in 3500 lbs of 6-20 sand 70-50 lb bags Total of 198 Bags. Tag @ 50' BLS
12	2	2	Tag @ 45' BLS poured 10 gal pellets - Tag pellets at 41' BLS
2	3:30	1½	Mix & Pump 6-1 grout 30 Bags 94 lb cement (92.6 lb) gear 1½ Bag gel 7.5 lb. pumped down 1 in PVC. Then flushed & cleaned way Thing.
3:30	6	2½	Down time Replace 2 Hyd leaks on desander unit.
		11½ Total	

NPT

Total paid Time:	9	Non-Paid Time:	2½	Accidents:	0

District Representative	Lloyd H Johnson jr.	Contractor Representative	Charley Baldwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	NO. DAYS ON SITE
5	Lloyd Johnson	Fri 10-18-02	Mon 10/14/02	5

RIG NO./NAME/ CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley D. Bobby & Troy	232' BLS	0	0

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	MW2 & MW3 Lower

MILITARY TIME LOG: FROM:	TO:	ELAPSED TIME	DETAILS OF OPERATIONS: IAS Perm. (pumped well)
6:30	8	1½	Tag grout at 18' BLS well MW2 Mix & pump grout 15 Bags 94 lb cement. Then flushed & cleaned every thing
8	10:30	2½	Move steel casing & equipe.
10:30	4:30	6	Move rig & desander over to MW3 Lower IAS perm (pumped well)
4:30	6	1½	Air developed MW2 well. Then mixed 150 gal Base Phos. pull trimie
		11½ hrs Total	

Total paid Time:	11½	Non-Paid Time:	0	Accidents:	0

District Representative	Lloyd H Johnson	Contractor Representative	Charley Baldwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO:	SITE HYDROGEOLOGIST:	DATE:	DATE MOVED ON SITE:	NO. DAYS ON SITE:
6	Jason L	Mon 10-21-02	10/14/02	6

RIG NO./NAME/ CONTRACTOR:	CREW:	PROPOSED TOTAL DEPTH:	PROGRESS:	DEPTH:
DDC	Charley G Bobby & Troy	232'	65'	65'

ROMP SITE NAME/ NUMBER:	WELL TYPE/NAME:
Romp #43 Bee Branch	Well # MW3 Lower FAS

MILITARY TIME LOG: FROM:	TO:	ELAPSED TIME:	DETAILS OF OPERATIONS: Perm. pumped well
6:30	1	6 1/2	setting up - Prep 14" steel casing set up water truck
1	1:30	1/2	lunch
1:30	3	1 1/2	finish setting up equip, mix mud, fill up water truck
3	6:30	3 1/2	start drilling w/ 19" X 12" hole opener bit. Drilled 0' to 65' BLS. Fill trench w/ mud, shut down
		12 hrs	Total

NPT

Total paid Time:	11 1/2 hrs	Non-Paid Time:	1/2 hrs	Accidents:	-0-

District Representative:	Lloyd H Johnson Jr.	Contractor Representative:	Charley Godwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	NO. DAYS ON SITE
7	Jason L Lloyd Johnson	Tue 10-22-02	10-14-02	7

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Tsay	232'	118'	118'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME	
Romp #43 Bee Branch	MW 3	lower FAS Perm.

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS: Pumped well
6:30	9:15	2 3/4	Condition mud. T.I.H w/ 19"X12" Bit start drilling 65'BLS drilled 94'
9:15	11:45	2 1/2	add DR & drill 94' to 118'BLS
11:45	12:15	1/2	let mud circulate & condition mud
12:15	12:45	1/2	T.O.H w/ all DR's & DC's & bit
12:45	1:45	1	set up to run 14" steel casing. 115'BLS & +6'ALS w/ pressure header & wireline
1:45	2:30	3/4	set 66' steel Tinnie, then circulate well w/ mud.
2:30	3:15	3/4	circulate mud & wait on grout truck
3:15	4	3/4	5 1/2 cu yd 110 Bags 94 lb cement pumped down Tinnie. Then flushed w/ Chase water, then shut valve w/ 45 PSI at 4PM
4	5	1	flush & clean everything
5	6	1	stand by wait on grout to set to pull Tinnie. & clean out pit
6	6:30	1/2	pull pressure header off, pull Tinnie pipe. put header back on casing
		12 hrs	Total

Total paid Time:	12 hrs	Non-Paid Time:	0	Accidents:	0

District Representative	Lloyd H Johnson Jr.	Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO:	SITE HYDROGEOLOGIST:	DATE:	DATE MOVED ON SITE:	NO. DAYS ON SITE:
8	Jason L Lloyd Johnson	Wed 10-23-02 Mon	10-14-02	8

RIG NO./NAME/ CONTRACTOR:	CREW:	PROPOSED TOTAL DEPTH:	PROGRESS:	DEPTH:
D DC	Charley G. Bobby & Toby	232'	62'	180'

ROMP SITE NAME/ NUMBER:	WELL TYPE/NAME:
Romp #43 Bee Branch	Well MW-3 Lower FAS

MILITARY TIME LOG: FROM:	TO:	ELAPSED TIME:	DETAILS OF OPERATIONS: Perm. pumped well
6:30	9:30	3	Tag grout -3' BLS outside 14" steel. Tag grout inside 14" steel at 90' BLS. Cut heades off. T.I.H w/13" bit, pumped off heavy mud.
9:30	11:30	2	Reaming hole out, 90' to 118' BLS of grout. also cleaned, glued, & 2 S/S screws per couplings. 200.70' of 8 inch 40 PVC.
11:30	12:15	3/4	Drilled 118' to 124' BLS
12:15	6:30	6 1/4	Drilled 124' to 180' BLS
6:30	7:00	1/2	Trip up inside casing
		12 1/2	total hrs

Total paid Time:	12 1/2	Non-Paid Time:	0	Accidents:	0

District Representative:	Lloyd H Johnson Jr.	Contractor Representative:	Charley Baldwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO:	SITE HYDROGEOLOGIST:	DATE:	DATE MOVED ON SITE:	NO. DAYS ON SITE:
9	Jason L. Lloyd H Johnson	Thurs 10-24-02	Mon 10/14/02	9

RIG NO./NAME/ CONTRACTOR:	CREW:	PROPOSED TOTAL DEPTH:	PROGRESS:	DEPTH:
DDC	Charley G. Bobby & Tony	232'	19'	199'

ROMP SITE NAME/ NUMBER:	WELL TYPE/NAME:
Romp #43 Bee Branch	Well MW3 lower IAS Perm.

MILITARY TIME LOG: FROM:	TO:	ELAPSED TIME:	DETAILS OF OPERATIONS: Pumped well
6:30	7:30	1	T. I. H to 180' circulate mud & condition mud.
7:30	9	1 1/2	Drill 180' to 199' BLS
9	10	1	T.O.H w/ all DR's, DC's & 13" Bit. Then T. I. H w/ 8" sch 40 PVC set 196' BLS pit 166' steel tremie
10	11:15	1 1/4	Circulate mud through tremie & 8 in PVC casing.
11:15	11:45	1/2	2 1/2 yd truck 5 g Bags 94 lb. Cement, 150 gal mud 50 lb gel. pumped down tremie.
11:45	12:30	3/4	flush & clean every thing.
12:30	1:30	1	Move DC's, start cutting steel for lugs for steel casing
1:30	2	1/2	lunch
2	3	1	pull pressure header off, pull tremie Put pressure header back on. Top grout between 8 in PVC & 14 in steel at 105' BLS.
3	5:30	2 1/2	prep 24 in steel casing, move equip, pump off thick mud
		11 hrs	Total

NPT

Total paid Time:	10 1/2	Non-Paid Time:	1/2	Accidents:	0

District Representative:	Lloyd H Johnson Jr.	Contractor Representative:	Charley Godwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	NO. DAYS ON SITE
10	Lloyd H Johnson	Fri 10/25/02	Mon 10/14/02	10

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby + Troy	232'	0'	199'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME	
Romp #43 Bee Branch	MW3	lower IAS Perm.

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS: pumped well
7	10	3	set up to Mix + pump grout, pumped down 1 in PVC at 100' BLS. Mix 39 Bags 94 lbs cement. 2 Bags gel. 100 lb total gel. Then flush + clean every thing.
10	12:30	2 1/2	Work on Steel well cover
12:30	1	1/2	lunch
1	4	3	Work on well cover + air lift + develope well MW2 1 1/2 hrs.
		9 hrs	total

NPT

Total paid Time:	8 1/2 hrs	Non-Paid Time:	1/2 hr.	Accidents:	0

District Representative	Lloyd H Johnson Jr.	Contractor Representative	Charley Godwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	NO. DAYS ON SITE
11	Lloyd Johnson	Mon 10-28-02	10-14-02	11

RIG NO./NAME/ CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Phillip P.	232'	33'	232'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW3 lower FAS Perm.

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7:30	1	cut pressure header off 8 in PVC. T.I.H w/ 7 5/8 bit, Tag grout at 180' BLS inside 8 in PVC. grout outside at 1' BLS
7:30	8:30	1	ream grout from 180' to 199' BLS
8:30	12:15	3 3/4	drilled 199' to 213' BLS
12:15	2:15	2	drilled 213' to 233' BLS
2:15	3	3/4	T.O.H.T. drill rod change over to reverse air. started R/A to develope well.
3	4:15	1 1/4	Trip up in casing let well w/ direct air.
4:15	6	1 3/4	Trip in well clean out to bottom 232' BLS w/ Reverse air.
6	6:30	1/2	Trip up to 100' BLS
		12 Total hrs	

Total paid Time:	12 hrs	Non-Paid Time:	0	Accidents:	0

District Representative	Lloyd H Johnson Jr.	Contractor Representative	Charley Godwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
12	Jason L. Lloyd Johnson	Tue 10-29-02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby, Troy, Phillip	—	-0	-0

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp 43 Bee Branch	

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7:30	1	Cont T.O.H w/ DR's + bits
7:30	1	5 1/2	Rig down, move rig, move desander over to Well # 4
1/ NP-B	1:30	1/2	lunch
1:30	6	4 1/2	Rig up, weld header on 2 4in steel, weld protective covers + install on Well MW 3
		11 1/2 hrs Total	

Total paid Time:	11 hrs	Non-Paid Time:	1/2 hr.	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE (Mon / Wed)	DATE MOVED ON-SITE	UID#
13	Jason L Lloyd Johnson	10-30-02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby + Troy	1200'+	35'	35'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW 4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS upper Floridan Perm. Pumped Well
6:30	12	5 1/2	finish setting up, finish bridging + installing protective cover on Well DB 4
12	12:30	1/2	lunch
12:30	4:30	4	Mix mud in desander, make up 29" Bit to Drill 29" hole 0' to 35' BLS
4:30	6	1 1/2	Prep 12" steel casing
		11 1/2 hrs total	

Total paid Time:	11 hrs	Non-Paid Time:	1/2 hr	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Goodwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon 1 of 2

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
14	Jason L. Lloyd H Johnson	Thurs 10-31-02	10-14-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Troy	1200+	53'	88'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS upper Floridan, Perm (pumped well)
6:30	8	1½	T.I.H w/ 29" Bit drilled 35' to 63' BLS
8	8:30	½	Downtime Hyd hose on desander unit busted. installed another one, every thing OK
8:30	9:15	¾	drilled 63' to 88' BLS
9:15	10:15	1	Let mud circulate to clean well & condition mud.
10:15	11:45	1½	T.O.H w/ all DR's, DC's & 29" Bit. Must pull rotary table out to allow 29" Bit clear & also allow 24" steel casing. set 85' 24" steel BLS, Rym 66 ft steel Trimie & chain pressure header
11:45	12:30	¾	rig up to circulate mud through casing.
12:30	1:45	1¼	stand by wait on grout truck
1:45	2:30	¾	Typ 140 Bags 94 lb cement 500 gal mud 200 lbs gel. shut valve off 2:30 no PSI
2:30	3	½	flush & clean every thing

Total paid Time:	11 hrs	Non-Paid Time:	½ hr	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon 2 of 2

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
14	Jason L. Lloyd Johnson	Thurs 10-31-02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
		1200+	53'	88'

ROMP SITE NAME/ NUMBER	Romp #43	WELL TYPE/NAME	MW 4

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
3:30	4:30	1	move 12" steel casing over to finish prep
4:30	6	1 1/2	Pull trimie pipe & close well & prep casing
		11/2 hr Total	

Total paid Time:	11hr.	Non-Paid Time:	1/2	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE Fri	DATE MOVED ON-SITE	UID#
15	Jason L. Lloyd J.	11-1-02	10-14-02	

RIG NO./NAME CONTRACTOR	CREW Charley G.	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Bobby & Troy	1200'+	62'	150'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW 4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS upper Floridan Perm. (Pumped Well)
6:30	7:30	1	Tag grout outside 24" in steel at 7' BLS. cut off 24" header.
7:30	9	1 1/2	Brake down bit assembly 29" make up 19" bit & reset rotary table
9	9:30	1/2	weld on 12" steel pressure header. spot rod trailer behind rig.
9:30	10	1/2	T. I. H. Tag grout at 71' BLS.
10	11:15	1 1/4	pumped off thick mud. drill out grout, 71' ft to 88' BLS.
11:15	4:30	5 1/4	Drill 19" hole 85' to 150' BLS.
4:30	5	1/2	Trip up inside casing
		10 1/2 hrs total	

Total paid Time:	10 1/2	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
16	Jason L Lloyd Johnson	Mon 11-4-02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Troy	1200+	97'	247'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Upper Floridan Perm. (Pumped Well)
6:30	7:15	3/4	T. I. H, pumped off mud
7:15	5	9: 3/4	Drill 19" hole from 150' to 247' BLS
5	5:30	1/2	Trip up into casing
		11 hrs	Total

Total paid Time:	11 hrs.	Non-Paid Time:	-0-	Accidents	
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE Mon Tues	DATE MOVED ON-SITE	UID#
17	Jason L Lloyd H Johnson	11/5/02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy & Bobby	1200+	56'	303'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7:30	1	T. I. H pump off mud
7:30	1:00	5 1/2	Drilled 19" hole 247' to 303' BLS
1	2:30	1 1/2	Let circulate to clean & condition mud.
2:30	3	1/2	Trip up into casing
3	5	2	Air develope wells MW2 & MW3. Then pumped 150 gal Bora phos into each well.
		10 1/2	Hrs Total

Total paid Time:	10 1/2	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
18	Jason L. Lloyd H Johnson	Wed 11-6-02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G.	1200'+	0	306'

ROMP SITE NAME NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW #4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6	9:15	3 1/4	T. F. H Tag bottom at 306' BLS. Circulate mud & condition mud. T. O. H w/ all DR's & DC's & bit
9:15	12:30	3 1/4	set up start T. F. H w/ 12" steel casing. We had some how missed TO of Hole. should be 310' not 306' Called Jason L he said OK go w/ it. set 12" steel 306' BLS
12:30	3	2 1/2	Circulate mud wait on grout truck
NPT 3	3:30	1/2	lunch
3:30	5:30	2	Mix in each 7yd truck 400 gal mud 150 lbs gel. Total 280 Bags 94 lb cement 300 lbs gel 6-50lb Bags.
5:30	8	2 1/2	Flush & clean every thing & wait on grout to set. pull tremie pipe. Close in well
		13 1/2 hrs Total	

Total paid Time:	13	Non-Paid Time:	1/2	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
19	Jason L Lloyd H Johnson	Thurs 11/7/02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby + Troy	1200'+	-0	306'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW #4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	9:45	3 1/4	tag grout outside 12" steel 7' BLS. Tag inside 12" steel at 28.7' BLS. Cut pressure header off. weld cover on well.
9:45	8 PM	10 1/4	start rigging down & load up to mobilize to Romp 74X Davenport.
		13 1/2	hrs Total

Total paid Time:	13 1/2	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE Fri / Mon	DATE MOVED ON-SITE	UID#
20	Jason L Lloyd Johnson	11/8/02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy	1200'+	0	306'

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp #43 Bee Branch		MW 4	Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30 Changed to 6 AM per L Johnson	3	8½	Cont to Mobilize equip & some supplies to Romp 74X Davenport
	KS	9 8½ KS	hrs total

Total paid Time:	8½ 29 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE Mon	DATE MOVED ON-SITE	UID#
1	Ted Yates Lloyd Johnson	11/11/02	11/11/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy	407'	0	0

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp #74X Davenport			Core Hole

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	1	6 1/2	Rig up on core hole set 18" steel + 12" steel
NPT 1	1:30	1/2	lunch
4			
1:30	6	4 1/2	cont set up jig, setup desander + SWFWMD desander: mix mud, fill up every thing - prep 18" steel

Total paid Time:	11 hrs	Non-Paid Time:	1/2 hr.	Accidents	0
District Represntative	Lloyd Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
2	Ted Bates Lloyd Johnson	Tues 11/12/02	11/11/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy		154'	154'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #74 X Davenport	Core Hole

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
6	10:45	4 3/4	start drilling w/ 23" bit w/ 2" wings. Running Thee designder & SJRWMD's dedandes unit. drilled 0' to 154' BLS
10:45	11:45	1	let hole circulate to clean & to condition mud.
11:45	12:15	1/2	T.O.H w/ all DR's & DC's & bit must remove rotary table.
12:15	1:30	1 1/4	T.I.H w/ 12" steel casing & weld. set 150" BLS. Hole open all way. can rotate steel by hand.
1:30	2	1/2	set 127' steel tremie in casing.
2	2:15	1/4	get ready to mix & pump w/ Thee pumper truck.
2:15	2:45	1/2	start pumping grout. pumped 350 Bags 94 lb cement w/ 370 gal.
2:45	4:45	2	Wait on grout to set. Dig pit out. set roo trailer behind rig.

Total paid Time:	11 1/2	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

2 of 2

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
2	~~Ted Yates~~ L104d Johnson	11/12/02	11/11/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy		154'	154'

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
	Romp 74X Dawnport		Core Hole

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
4:45	5:30	3/4	pull pressure head off 18" steel. pull steel trimie out & install pressure header back on & secure. Tryed to tag grout outside 18" steel & toged around 50'BLS
		11½	Total hrs

Total paid Time:	11½	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

Mon

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
3	Ted Yates Lloyd Johnson	Wed 11/13/02	11-11-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Troy			

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #74X Davenport	Core Hole

MILITARY TIME LOG FROM AM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	8:30	2	Move pumper truck. Tag grout at 47' BLS. Mix & pump 32 Bags 94 lb. Cement.
8:30	11:30	3	Move 12" steel & move grouter & Trimie
11:30	12:30	1	Mix & pump 32 Bags 94 lb. Cement. pull Trimie pipe & flush & clean grouter.
PM 12:30	PM 2:30	2	mix batch of mud, cut pressure header off 18" steel, set rotary table
2:30	3 PM	1/2	lunch
3 PM	6:00	3	Make up 17 in X 12 in Bit & adaptor. rig up DC's & T, I, H. Tag grout inside 18 in steel at 120' BLS. Mix more mud fill up every thing prep more 12 in steel.
6:30 - 6 PM 11 1/2 hrs - 1/2 lunch 11 hrs PD			
	PD	11 1/2 hrs Total	

Total paid Time:	11 hrs	Non-Paid Time:	1/2 hr	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley G Godwin

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6:30 / 6:00 PM Charley G., Bobby, Troy Day shift
6:30 PM / 12 mid Night Tom T. Walt., Troy Night shift

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
3	Lloyd Johnson / Nat Gates	Wed Mon 11-13-02	11/11/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Tom Toy / Troy + Walt			245'

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp #74 Davenport			Core Hole

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30 pm	8:30 pm	2	Con't, prep 12" steel casing & pressure header.
8:30 pm	10:30 pm	2	reaming out grout inside 18" steel reamed 120' to 154' BLS
10:30 pm	12 mid night	1 1/2	drilling new hole 154' to 210' BLS
12 mid night	2 AM	2	drilled 210' to 245' BLS 225ft Clay layers w/ lime stone stringers 228' lime stone w/ very hard stringers stoped 245' BLS
2 AM	3 AM	1	let well circulate to clean up & condition mud.
3 AM	5:30 AM	2 1/2	let well circulate
5:30 AM	6:30 AM	1	start T.O.H w/ DR's + DC's + Bit
		12 hrs	total

Total paid Time:	12 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charles Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
4	~~Ted Yates~~ Lloyd Johnson	Thurs 11/14/02	10/14/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley D. Tom. T & Bobby		91'	245'

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
	Romp #74X Davenport		Core Hole

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30 AM	1:30 PM	7	Finish T.O.H w/ DR's & Bit. start T. I. H w/ 12" steel casing. stopped around 185 'BLS. Tried several times will not move. Cut 50' off. weld pressure header on casing. Hooked up to circulate mud. Head up worked down. Weld 50 ft back on & pressure header on. Circulate casing to bottom 243' BLS. Circulate mud through steel trimie. 126' Pumper truck mixed and pumped 216 Bags 94 lb cement. shut pressure header off 1:30 PM 55 PSI flush & clean Every Thing Wait on grout to set. pull steel trimie, clean mud system.
1:30 PM	2 PM	1/2	
2 PM	5:30 PM	3 1/2	
		11 hrs	Total

Total paid Time:	11 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE (Mon / Fri)	DATE MOVED ON-SITE	UID#
5	~~Ted Gates~~ Lloyd Johnson	11-15-02	11-11-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G / Bobby + Troy	247'	2'	247

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp 74X Davenport	Core Hole

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	10	3 1/2	Tag grout outside 12" steel at 36' BLS. Mix + pump 24 Bags 94 lb cement. Cut pressure headed off 12" steel casing, clean + flush Grouter. T. I. H w/ 11 1/2 in bit 2 DC's Tag grout at 225' BLS.
10	11:30	1 1/2	Drilling out grout 225' to 245' BLS. Then drilled 245' to 247' BLS new hole. Let circulate to clean hole then flushed w/ clean water.
11:30	12:30	1	T. O. H w/ all DR's + DC's + bit.
12:30	3	2 1/2	Break down equip, prepare to mobilize back to Romp # 43. clean pit, SWFWMD desander unit. weld plate over well.
		8 1/2 hr Total	

Total paid Time:	8 1/2	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Rodney Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

LAST Day

REPORT NO.	SITE HYDROGEOLOGIST	DATE Mon	DATE MOVED ON-SITE	UID#
6	Ted Yates Lloyd Johnson	11/18/02	11/11/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby + Troy	245'	-0	247'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #74X Davenport	Core Hole

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS 18 in steel 0' to 150' BLS 12 in steel 0' to 243' BLS
6:30	12:30	6	Load up + start Mobilize equip back to Romp #43 site
12:30	1	1/2	Lunch
1	6:30	5 1/2	Con't Mobilize equip to Romp #43
		12 hrs Total	

NPT

Total paid Time:	11 1/2	Non-Paid Time:	1/2	Accidents	-0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley M Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

11/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
21	Joan L. Lloyd Johnson	Tue 11/19/02	Tue 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy	1200'+	0	306'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME/
Romp #43 Bee Branch	Wild MW4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	9:30	3	start setting up equip on well MW4 Exploratory.
9:30	10:30	1	Work on tractor (semi-truck)
10:30	3	4 1/2	set up rig. set up desander unit. dig out pits.
3	6:30	3 1/2	T. T. H w/ 11 1/2" bit. Tag grout at 278' BLS. Ream out grout 278' to 306' BLS.
		12 hrs Total	

Total paid Time:	11 hrs	Non-Paid Time:	1 hr	Accidents	0
District Represntative	L Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

11/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
22	Jason L Lloyd Johnson	Wed 11-20-02	Tue 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Lloyd Johnson	1200+'	158'	464' BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well #4 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Now Suwannee well pumped perm.
6:30	9	2 1/2	T.F.H to 306'. drilled w/ 11 1/2" bit 306' to 401' on mud.
9	10:30	1 1/2	change over from mud drilling to R/A drilling. flushed out all mud, R/A hole clean from 370" to 401" BLS.
10:30	11:15	3/4	R/A drill 401" to 432' BLS.
11:15	12:30	3/4	R/A drill 432' to 464' BLS & clean hole.
12:30	1:30	1	lunch
1:30	2:30	1	T.O.H w/ 5 DR's up into 12" steel casing at 280' BLS. used direct air to clean upper hole of mud. add DR's back on + R/A rods back to bottom 464' BLS. R/A hole on bottom, to clean out.
2:30	5	2 1/2	shut down let water level rebound. Water level -20.40' BLS.

NPT

Total paid Time:	11 hrs	Non-Paid Time:	1 hrs.	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Goodwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

11/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
22	Jason L Lloyd Johnson	Wed 11-20-02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Troy		158'	464'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW4 Exploratory

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
			has become Suwannee pumped well perm.
			drawdown water level -29.42' BLS. Draw down 9.02' ft. w/ 10.5.84 gpm. did 2 gpm test.
5	6.30	1½	T.O.H w/ all DR's & DC's & 11½" Bit.
		12 hrs Total	

Total paid Time:	11 hrs.	Non-Paid Time:	1 hr.	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

11/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
23	Jason L Lloyd Johnson	Thurs 11/21/02	11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Troy	115'	~~0~~	~~0~~

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well # OB2

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7	1/2	check water levels
7	12:30	5 1/2	rig down, move rig & desander unit over to well OB2.
12:30	1	1/2	lunch
1	6:30	5 1/2	set up rig & desander unit on well OB2 & make steel protective covers for MW, 4 wells. Mix Mud in desander unit.
		12 Total hrs	

NVF

Total paid Time:	11 1/2	Non-Paid Time:	1/2 hr.	Accidents	
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Goodwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
24	Jason L Lloyd Johnson	Fri 11/22/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Tony	115'	49'	49'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well #OB2 8" upper IAS

Temp OB

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7	1/2	Water levels
7	11	4	Condition mud. Drill 14" hole 0' to 49' BLS, Circulate & trip out.
11	11:45	3/4	Mix & pump 12 SX 94 lb cement w/ 3% gel. Then pull Tremie & flush. Set 47' BLS 8" sch* 40 PVC
11:45	2	2 1/4	air develope wells. Water supply, MW1, MW2 & MW3
2:00	3:30	1 1/2	Mix & pump 20 SX 94 lb cement w/ 3% gel. Then pull Tremie & flush & clean everything
3:30	5	1 1/2	lay & cut 2" PVC & clean & glue
		10 1/2	hr total

Total paid Time:	10 1/2	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
25	Jason L Lloyd Johnson	Mon 11/25/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Tom T. Bobby + Walt	115'	63½'	112.5' BLS

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp	#43 Bee Branch	Well # OB2	8" upper FAS

Temp. OB

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	9	2½	prep mud, set up bit. T, I, H w/ 7⅝ bit, tag grout at 25' BLS
9	10	1	start reaming out grout 25' to 49' BLS. Then drill 49" to 62' BLS
10	10:30	½	drill 62' to 93' BLS.
10:30	11:30	1	drill 92' to 117' BLS. Set well circulate clean. Then flush w/ clean water.
11:30	12:15	¾	T.O.H w/ all DR's & DC's & bit. set 2" sch #40 PVC. PVC won't go hole caved in.
12:15	1	¾	pulled all PVC out. Mix mud T, I, H & wash to bottom 117' BLS.
1	2:15	1¼	T, I, H w 2" sch 40 PVC set 112.5' to 49.5' 20 slot well screen +-49.5' to +3' BLS 2" std PVC last 2½' wouldn't go (Jason says OK)
2:15	6:00	3¾	start pouring sand 20/30

Total paid Time:	11½ hrs	Non-Paid Time:	0	Accidents	0
District Represntative	LHJ			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)
11/19/02 (2)

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
25	Jason L. Johnson	Mon 11/25/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Tom Toy Bobby & Walt	115'	63½'	112.5'

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp #43 Bee Branch		Well	OB2 8" upper IAS

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
			Temp OB
			poured in 65 Bags 50 lb. stoped several times to allow sand to settle & Tag sand. Tag at 47' BLS. set up to air develope well w/ 1" PVC. air developed well sand droped few ft. add 4 Bags Tag at 47" BLS Total 69 Bags 20/30 sand. add 1½ Buckets of pellets. Tag at 44" BLS.
		11½ hrs total	

Total paid Time:	11½ hrs	Non-Paid Time:	-0-	Accidents	-0-
District Represntative	LHJ			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
26	Lloyd J. Jason L	11/26/02 Tue	11/19/02 Tue	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Bobby + Walt Tom Toy	115'	-0	112.5'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well OB2 8" upper IAS

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Temp OB
6:30	7	1/2	Water levels
7	6	11	Tag pellets at 42' BLS Mix + pump 8 SX 94 lb cement trimie grout up 42' to surface.
			Rig down, move rig, move decander. set up on Well # OB3 lower IAS Temp OB
		★	No SWFWMD person on site Today
		11 1/2 hrs Total	

Total paid Time:	11 1/2	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd J.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
27	Jason L Lloyd Johnson	Wed 11/27/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Tom Joy Bobby & Walt	232'	-0	-0

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well OB3 lower IAS

Temp. OB

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	2	7½	Water level can't set up desander unit, clean site, dig pit.
		★	No SWFWMD person on site Today
		7½ hrs. Total	

Total paid Time:	7½	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd J.			Contractor Representative	Charley Sodevin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
		Thurs/Fri 11/28-29/02		

RIG NO./NAME CONTRACTOR	CREW None	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC			0	0

ROMP SITE NAME/ NUMBER	Romp #43 Bee Branch	WELL TYPE/NAME	

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
			Holiday
			Thurs 11-28-02
			Fri 11/29/02
			Thanksgiving
			No Crew or SWFWMD person on site both days

Total paid Time:	0	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
28	Jason L Lloyd Johnson	Mon 12-2-02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Troy	232'	147'	147'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well OB3 lower IAS

Temp OB

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7	1/2	Water level
7	9:30	2 1/2	Make up 8" PVC clean + glue + screw. Bottom 60' 8" PVC is sch# 80 PVC. Mix mud.
9:30	5:30	8	drill w/ 14" Bit on mud 0' to 147' BLS.
5:30	6	1/2	Trip up & fill trench w/ mud
		11 1/2 hrs Total	

Total paid Time:	11 1/2	Non-Paid Time:	-0-	Accidents	-0-
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
29	Jason L Lloyd Johnson	Tue 12/3/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby Troy	232'	6'	153'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well DB3 lower IAS

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Temp OB
6:30	7	1/2	Water levels
7	8:30	1 1/2	Trip in hole w/ 14" Bit drill on rock 147' to 153' BLS
8:30	9	1/2	Circulate mud clean hole.
9	11	2	T.O.H w/ all DR's + DC's + Bit
			T.I.H w/ 8" PVC 150' set BLS
			60' sch #80 PVC on bottom
			90' sch #40 PVC on top
			Bolt headers on. Mix mud for grout
			50 lb 1-Bag. Circulate casing
11	11:30	1/2	pump 3 yd 6 to 1 grout
			60 SX 94 lb cement.
11:30	12	1/2	flush + clean every thing
12	2	2	Wait on grout to set. Move DR's
			+ DC's.
2	2:30	1/2	lunch
2:30	3	1/2	pull trimie
3	5:30	2 1/2	Make up clean + glue 2" PVC + well screen.
			Move pallets of Mid-sand-cement.

NPT

Total paid Time:	10 1/2	Non-Paid Time:	1/2	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
30	Jason L Lloyd Johnson	Wed 12/4/02	Tue 11/29/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy	232'	80'	233'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well ~~OB~~ OB3 lower IAS

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Temp OB
6:30	7	1/2	Water levels
7	10	3	Cut heades off 8" PVC. T.I.H w/ 6 1/4 Bit + DC's + DR's tag grout at 132' BLS, Ream grout 132' to 153' BLS.
10	11:30	1 1/2	Drill 153' to 182' BLS
11:30	1:15	1 3/4	Drill 182' to 212' BLS
1:15	2:45	1 1/2	Drill 212' to 234' BLS
2:45	3:15	1/2	flush out well thin mud
3:15	3:45	1/2	T.O.H w/all DR's, DC's + Bit + lay out
3:45	4	1/4	T.I.H w/ 2" PVC. got to around 150' get stuck can't find hole.
4	5	1	cut 2" PVC + T.O.H w/all of it. Then T.I.H w/ 6 1/4 Bit + DC's + DR's touch nothing. T.O.H w/ Bit, DC's + DR's.
5	6:30	1 1/2	T.I.H w/ 2" sch 40 PVC 232' to 233' PVC Tail 201' to 232' 20/1000 Well screen

Total paid Time:	12	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
30	Jason L Lloyd Johnson	Wed 12/4/02		

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby + Troy	232'	80'	233'

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp #43 Bee Branch		Well	OB3 lower IAS

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Temp OB
			201' to +3' ALS std PVC pipe
			Then poured in 20/30 sand. Total
			23 SX 50 lb SX. Tag at 192' BLS.
			Then poured in 2-5 gal buckets
			Bentinite pellets, let sit over night.
		12 hrs	Total

Total paid Time:	12	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson II.			Contractor Representative	Charley Godwin

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①
11/19/02 ②

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
31	Jason L Lloyd Johnson	Thurs 12-5-02	Tue 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy	232'	-0	233'

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp	#43 Bee Branch	Well	OB3 lower IAS

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Temp OB
6:30	7	1/2	Water Supply Jag pellets at 181' BLS
7	9:30	2 1/2	started breaking down Rig and Trailer unit to move to next well. Tryed to find all 4 perm site corners. found NE & NW corners.
9:30	11:15	1 3/4	Mix & pump 24 SX of 94 lb cement. 0' to 181' BLS.
11:15	6	6 3/4	Cont rigging down & move to well MW-5 Exploratory / Avon Park Perm Pumped.
		11 1/2	Hrs Total

Total paid Time:	11 1/2 hr.	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
32	Jason L. Lloyd H Johnson	Fri. 12/6/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby & Troy	0	0	0

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7	1/2	Water levels
7	4:30	9 1/2	Con't rig up on new well. make up bit assembly. set up degander unit. Prep 26" casing, dig mud pit.
		10 hrs. Total	

Total paid Time:	10 hrs.	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
33	Jason L. Lloyd H Johnson	Mon 12-9-02	Tue 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby + Troy	1800'	83'	83'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well # MW5 Deep Exploratory / Avon Park Perm. pumped

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7	1/2	Water levels
7	9:45	2 3/4	Drilled 9' to 63' BLS w/ 31" Bit on mud.
9:45	10:45	1	Drill 63' to 83' BLS
10:45	11:45	1	Circulate well clean, condition mud.
11:45	2	2 1/4	T.O.H w/ DR's, DC's + bit. then T.I.H w/ 28" 3/8 Wall steel casing. set 80' BLS, used 63' steel Trimie. + Circulate mud.
2	3:30	1 1/2	Wait on grout mix mud for grout 2-6 yd 6 to 1 grout 240 SX 94 lb. Cement 150 lbs gel. Then flushed + clean everything.
3:30	4:30	1	Wait on grout to set
4:30	5:30	1	Downtime Rain
5:30	6		pull pressure head off, pull Trimie, put heads back on. secure for night
		11 1/2	Total hrs.

NPT

Total paid Time:	10 1/2	Non-Paid Time:	1 hr	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Goodwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
34	Jason L Lloyd Johnson	Tue 12-10-02	Tue 11-29-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy	1800	0	83'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp # 43 Bee Branch	Well Mw #5 Exploratory/Avon park perm pumped

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	7	½	Water levels, Tag grout outside 7' BLS
7	8	1	Mix + pump grout 10 SX 94 lb cement. Then flush + clean everything.
8	11	3	cut tars for 20" steel casing. Cut 26" header down to 20" header.
11	12	1	Downtime. Rain
12	2:30	2½	start pup 20" steel casing. weld on 20" header.
2:30	5:30	3	Break down bit assembly; make up 25" Bit. trip in hole w/ 25" bit. install PVC protective cover around OB2 + grout up protective covers on OB2 + OB3 wells. Mix + condition mude.
		11 hrs.	Total hrs.

Total paid Time:	10 hrs.	Non-Paid Time:	1 hr.	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
35	Jason L Lloyd Johnson	Wed 12/11/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby + Troy	1800'	-0	

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp # 43 Bee Branch	Well MW 5 Exploratory/Recon

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Park perm. pumped
6:30	7	1/2	water levels
7	11:30	4 1/2	clean up site some. air develope OB2 well 1 hr. cont prep 20" steel casing
11:30	12	1/2	lunch
12	6	6	finish prep 20" steel casing, set up pipe trailer, air develope core hole, water supply well, MW2, OB3, MW3 & MW4. 1 hr each except water supply well 10 min.
		11 1/2	hrs total

Total paid Time:	11 hrs	Non-Paid Time:	1/2 hr.	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
36	Lloyd Jason L Johnson	Thurs 12/12/02	Tue 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy	1800	55'	138'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	MW 5 Exploratory Aron

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Park perm pumped
6:30	7	1/2	water levels
7	5:30	10 1/2	T. F. H tag grout inside 26" steel at 68' BLS. start reaming grout 68' to 83' BLS. w/ 25" Bit. Drilled 83' to 138' BLS.
5:30	6	1/2	Trip up inside casing
		11 1/2 hrs Total	

Total paid Time:	11 1/2	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE Fri 12/13/02	DATE MOVED ON-SITE	UID#

RIG NO./NAME CONTRACTOR	CREW Charley G. Bobby & Troy	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH

ROMP SITE NAME/ NUMBER	Romp #43 Bee Branch	WELL TYPE/NAME	

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6:30	3	8 1/2	Down Time Maint. Service Equip on site
		✱	NO SWFWMD person on site Today

Total paid Time:	0	Non-Paid Time:	8 1/2 hrs	Accidents	0
District Represntative	T H J.			Contractor Representative	Charley T Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 D

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
37	Jason L. Lloyd Johnson	Mon 12-16-02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley H Bobby + Troy	1800'	77'	215' BLS

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp # 43	Bee Branch	MW # 5	Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
			Avon Park Pumped Perm.
6:30	7	1/2	Water levels
7	9:30	2 1/2	T. F. H start drilling 138' to 154' BLS
9:30	2	4 1/2	Drilled 154' to 185' BLS
2	6	4	Drilled 185' to 215' BLS
6	6:30	1/2	Trip up into casing
		12	Total hrs.

Total paid Time:	12 hrs.	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
38	Jason L Lloyd Johnson	Tues 12/17/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Troy	1808'+	61'	276'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park Perm pumped
6	6:30	1/2	Water truck
6:30	11:45	5 1/4	Trip in hole to bottom 215' BLS. Drilled 215' to 248' BLS.
11:45	1:30	1 3/4	Drilled 248' to 276' BLS.
1:30	2	1/2	change Hyd. line on deaerator unit.
2	3	1	Cont drilling to 276' BLS
3	3:30	1/2	changed fuel filters on rig.
3:30	7	3 1/2	Cont drilling to 276' BLS
7	7:30	1/2	Trip up into casing
		13 1/2	Total hrs.

Total paid Time:	12 1/2	Non-Paid Time:	1 hr.	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
39	Jason Li Lloyd Johnson	Wed 12/18/02	Tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby + Toby	1800'+	34'	313'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well Mat #5 Exploratory / Avon Park perm. pumped

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6	6:30	1/2	Water level
6:30	7:30	1	Trip in Hole to bottom 276' BLS. start drilling 276' to 279' BLS
7:30	11	3 1/2	drill 279' to 310' BLS
11	11:30	1/2	drill 310' to 313' BLS
11:30	12	1/2	circulate mud clean cuttings
12	1:30	1 1/2	T.O.H w/ all DR's + DC's up into casing.
1:30	4	2 1/2	prep everything for Tomorrow, + clean up site some
		10 hrs	Total

Total paid Time:	10 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/020 1 of 2

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
40	Jason L. Lloyd Johnson	Thurs 12-19-02	tue 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley D. Bobby & Troy	1800'+	-0	313'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME	
Romp #43 Bee Branch	MWS	Exploratory / Open

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Park perm. pumped
5:30	6	1/2	Water levels
6	8		Trip in well to bottom 313'BLS. Circulate mud & condition. T.O.H w/ all DR's & DC's & Bit assembly, lay out on pipe trailer
8	10:30	2 1/2	T.I.H w/ 20" steel. set & weld 310'BLS.
10:30	11:30	1	T.I.H w/ steel trimie & bolt down pressure head & circulate mud.
11:30	12	1/2	Circulate mud through steel casing.
12	12:30	1/2	lunch
12:30	3:30	3	Wait on grout trucks. Circulate mud 10 min every hour.
3:30	4:45	1 1/4	3 - 6 1/2 yd trucks on site, pumped 300 gal mud each truck. 3-50 lb SX gel. pumped 18 total yds 360 SX 94 lb Cement & 6-50 lb SX gel

Total paid Time:	15 1/2	Non-Paid Time:	1/2 hr.	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
40	Jason L Lloyd Johnson	Thurs 12/19/02	11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley H Bobby & Troy	1800'+	-0-	313' BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME	
Romp #43 Bee Branch	Well MW5	Exploratory / open

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS park Perm. pumped.
4:45	5	1/4	flush grouter & hoses & pumped chase water. shut valve off 5PM w/ 50 P.S.I.
5	6:30	1 1/2	flushed & cleaned every thing. pulled caps off Big Red & cleaned every thing
6:30	7	1/2	wait on grout to set
7	7:30	1/2	pull pressure head off. pull heads, pull steel trimie out. lift up casing, install heads back on.
		2 *	2 hrs for 2nd welder on site
		16 hrs	Total

Total paid Time:	15 1/2 hrs	Non-Paid Time:	1/2 hr	Accidents	-0-
District Represntative	Lloyd Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
41	Jason L. Lloyd Johnson	Fri 12/20/02	Tue ② 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Tom T. + Bobby	1800'+	0	310'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp # 43 Bee Branch	Well # MW5 Exploratory/Open

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Park perm pumped
6:30	7	1/2	Water levels
7	8:30	1 1/2	tag grout in annulus 1/2' BLS. cut 20" pressure head off. set rotary table.
8:30	9:30	1	break down bit assembly
9:30	11	1 1/2	Make up bit assembly, set up rod trailer, trip in well.
11	3	4	tag grout inside 20" steel at 285' BLS. pump off mud. Ream grout 285' to 310' BLS. pump off mud.
		8 1/2 hrs Total	

Total paid Time:	8 1/2	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
42	Jason L Lloyd Johnson	Mon 12/23/02	Tue (2) 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Tom Toy Walt + Troy	1800'	277'	590' BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6:30	7	1/2	Water levels
7	10:30	3 1/2	reamed hole 310' to 313' BLS drill 11 1/2" on mud 313' to 488'
10:30	12	1 1/2	drilled 488' to 430' BLS
12	2:15	2 1/4	drilled 430' to 490' BLS
2:15	3:15	1	drilled 490' to 520' BLS
3:15	5:30	2 1/4	drilled 520' to 590' BLS
5:30	6:30	1	Trip up into casing 300'. secure site.
		12 hrs.	total

Total paid Time:	12 hrs.	Non-Paid Time:	-0-	Accidents	-0-
District Represntative	LHJ			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE Tue 12-24-02	DATE MOVED ON-SITE	UID#

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
			Christmas Eve Holiday
			No Crew
			No SWFWMD person

Total paid Time:	0	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE Wed 12/25/02	DATE MOVED ON-SITE	UID#

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
			Christmas Day Holiday
			No Drill Crew
			No SWFWMD person

Total paid Time:	0	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
43	Jason L Lloyd Johnson	Thurs 12/26/02	11/19/02 Tue	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Tom Toy Walt + Troy	1800+'	30'	620'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park Pumped Rush.
6:30	7	1/2	Water level
7	11:30	4 1/2	sitting up for R/A drilling dig out pit
11:30	4:30	5	start R/A + cleaning hole. R/A every 30' as they add DR's
4:30	5:30	1	drill new hole 590' to 619.32'BLS
5:30	6	1/2	Trip up into casing, secure site.
		11 1/2 hrs. Total	

Total paid Time:	11 1/2 hrs.	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd Johnson Jr. Bernie			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
44	Jason L Lloyd Johnson	Fri 12/27/02	11/19/02 Tue	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Tom Toy Walt + Troy	1800'+	249'	869' BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well # MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6:30	7	1/2	Water levels
7	4:30	9 1/2	Drilled 11 1/2" hole 620' to 869' BLS
4:30	5:30	1	Trip up into casing. Secure site
		11 hrs total	

Total paid Time:	11 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	LHJ / Bernie			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
45	Jason L / Lloyd Johnson	Mon 12/30/02	Tue ② 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley D. / Troy & Bobbie	1800'+	46'	915' BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	well MW #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS: Avon Park perm. pumped
6:30	7	1/2	Water levels
7	3:30	8 1/2	T.F.H start R/A. hole mud & cuttings from upper hole settled over weekend. Rods plugged bad. Working to clean rods & hole. Having lots of problems. Finally T.O.H up to 300' clean out DR's then airlift hole. T.I.H & R/A till clean every 30'. Worked it to bottom 869' BLS
3:30	6:30	3	R/A drill 11 1/2" hole 869' to 915' BLS
		12 hrs	total

Total paid Time:	12 hrs.	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Dodwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
46	Jason L Lloyd Johnson	Tues 12-31-02	Tue. ② 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Troy + Bobby	1800'+	135'	1050'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels
6:30	8:30	2	R/A drill 11 1/2" hole 915' to 963'BLS
8:30	10:30	2	R/A drill 963' to 994'BLS
10:30	12:45	2 1/4	R/A drill 994' to 1024'BLS
12:45	3:30	2 3/4	R/A drill 1024' to 1050' BLS
3:30	5	1 1/2	T.O.H w/ all DR's secure site.
			Jason L on site all day
		11 hrs	Total

Total paid Time:	11 hrs.	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
		Wed 1-1-03		

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	

MILITARY TIME LOG		ELAPSED TIME	DETAILS OF OPERATIONS
FROM	TO		
			Holiday
			New Year's Day
			No Drill crews
			No SWFWMD persons

Total paid Time:	0	Non-Paid Time:	0	Accidents	0
District Represntative	A Lloyd Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
47	Jason L. Lloyd H Johnson	Thurs 1-2-03	Tue ② 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy & Bobby	1800+'	51'	1101'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well #MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park Perm. pumped
6	6:30	1/2	Water levels
6:30	10	3 1/2	T.O.H w/ DC's & 11 1/2" Bit. T.I.H w/ 5 5/8" Bit & small DC's & DRs. Tag Bottom 1050'BLS
10	10:45	3/4	R/A drilling w/ 7 5/8 Bit 1050' to 1063' BLS
10:45	3:45	5	R/A drilling 1063' to 1094'BLS
3:45	6	2 1/4	R/A drilling 1094' to 1101'BLS.
			Jason L on site all day
		12 hrs	Total

Total paid Time:	12 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Goldwire

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
48	Jason L LHJ	Fri 1-3-03	Tues (2) 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy + Bobby	1800'+	24'	1125'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW 5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm pumped
6	6:30	1/2	Water levels
6:30	3:30	9	R/A drill 7 5/8" hole 1101' to 1125' BLS.
3:30	4	1/2	Circulate & collect water sample.
			Jason L on site all day
			LHJ not on site at all
		10 hrs	Total

Total paid Time:	10 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	LHJ			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
4/9	Jason L Lloyd Johnson	Mon 1-6-03	11-19-02 (2)	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy + Bobby	1800'+	51'	1079'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
			Avon Park perms pumped
6	6:30	1/2	Water levels
6:30	11:15	4 3/4	R/A drill 7 5/8" hole 1125' to 1156'BLS
11:15	12:15	1	Circulate & take water sample
12:15	6	5 3/4	R/A drill 1156' to 1079'BLS
			Jason on site all day
		12hrs	total

Total paid Time:	12hrs	Non-Paid Time:	-0-	Accidents	-0-
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE ②	UID#
50	Jason L Lloyd H Johnson	Tues 1-7-03	Tues 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Troy + Bobby	1800+'	16'	1195'BLS

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp 43	Bee Branch	Well #	MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. Pumped
6	6:30	1/2	Water levels
6:30	10:45	4 1/4	R/A drill 1179' to 1187' BLS
10:45	11:15	1/2	circulate + water sample. Cond 165
11:45	3	3 3/4	R/A drill 1187' to 1195' BLS out of fractured zone
3	3:30	1/2	circulate + take water sample
3:30	6	2 1/2	T.O.H w/ all DR's, DC's + 7 5/8" worn out bottom bit.
			Jason L on site all day
		12 hrs	Total

Total paid Time:	12 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
51	Jason L Lloyd Johnson	Wed 1-8-03	Tues. 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy & Bobby	1800'+	-0	1195'BLS

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp #43 Bee Branch		Well	MW 5

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6	6:30	1/2	Water levels
6:30	9:30	3	Move DC's around & setup for logger.
9:30	11	1 1/2	run caliper log 1195' to 250'BLS
11	2:30	3 1/2	Make up & T.I.H w/ packer
2:30	3	1/2	pressure up packer & set at 1092'BLS
3	5:30	2 1/2	run slug test. run packer test & Collect water sample. cond 175
			Jason L on site all day Eric DeHaven on site

Total paid Time:	11 1/2	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
52	Jason L Lloyd Johnson	Thurs 1-9-03	Tues 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley H. Troy & Bobby	1800'+	56'	1251'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels
6:30	9	2 1/2	release pressure from packer. T.O.H. w/ all DR's & packer & inflate hose &
9	11:30	2 1/2	T.I.H w/ New 7 3/4" button bit. DC's & DR's to 1195' BLS.
11:30	2:30	3	R/A drill 1195' to 1219' BLS cond - 165
2:30	5	2 1/2	R/A drill 1219' to 1251' BLS
			Jason L on site
		11 hrs	Total

Total paid Time:	11 hrs	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/020

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
53	Jason & Lloyd H Johnson	1-10-03	11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G, Troy & Bobby	1800'+	94'	1345'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well mw #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6:00	6:30	1/2	Water levels
6:30	3:30	9	R/A drill 1251' to 1345'BLS
			Jason on site
			LHJ not on site
		9 1/2	hrs Total

Total paid Time:	9 1/2 hrs	Non-Paid Time:	-0-	Accidents	-0-
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Goldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE Sat	DATE MOVED ON-SITE	UID#
	Lloyd Johnson	1-11-03		

RIG NO./NAME CONTRACTOR	CREW Charley G	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC		1800'+	-0	1345'

ROMP SITE NAME/ NUMBER Romp #43		WELL TYPE/NAME	

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
7	3	8	Maint on Rig
			No SWFWMD person on site

NPT

Total paid Time:	-0	Non-Paid Time:	8hrs	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Goldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
54	Jason L. Lloyd Johnson	Mon 1-13-03	Tues 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy & Bobby	1800'+	174'	1519'BLS

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp	#43 Bee Branch	Well	MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels
6:30	10	3 1/2	R/A drill 7 7/8" hole 1345' to 1376'BLS cond—
10	12:15	2 1/4	R/A drill 1376' to 1408' BLS
12:15	1:45	1 1/2	R/A drill 1408' to 1439' BLS
1:45	3:15	1 1/2	R/A drill 1439' to 1471' BLS
3:15	5	1 3/4	R/A drill 1471' to 1502' BLS
5	6	1	R/A drill 1502' to 1519' BLS
			Jason on site all day
		12 hrs total	

Total paid Time:	12hrs.	Non-Paid Time:	-0-	Accidents	-0-
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

① 10/14/02

REPORT NO.	SITE HYDROGEOLOGIST Jason L.	DATE Tue	DATE MOVED ON-SITE Tues	UID#
55	Lloyd Johnson	1-14-03	11-19-02	

RIG NO./NAME CONTRACTOR	CREW Charley H	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Troy & Bobby	1800+'	76'	1595'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well Mw #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perms. pumped
6	6:30	1/2	Water levels
6:30	2:30	8	R/A drill 7 7/8" hole 1519' to 1595' BLS
2:30	4:30	2	T.O.H w/ all DR's + DC's + 7 7/8" Bit. ready to log tomorrow
4:30	5	1/2	rig up to air develope all wells
		11 hrs	Total

Total paid Time:	11 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson JR.			Contractor Representative	Charley P Sodwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

11/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
56	Jason L. Lloyd H Johnson	Wed 1-15-03	Tues 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Troy + Bobby	1800'+	0	1595'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp # 43 Bee Branch	Well MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water Levels
6:30	10:30		Air lift + develope all wells - log well w/ Caliper surface to 1595'BLS
10:30	2:15	3 3/4	T.I.H w/ packer + DR's.
2:15	3	3/4	set packer at 1557'BLS+ inflate
3	3:30	1/2	Run slug test
3:30	4	1/2	set up to run specific Capicity test
4	6	2	start pumping 10 gpm per min. pumped 2 Times Vol. 2000 cond. 2 hrs. 1800+ sulfate
6	7	1	Jason + I doing water test
			Jason on site all day
		12 hrs	Total

Total paid Time:	12 hrs.	Non-Paid Time:	-0-	Accidents	-0-
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
57	Jason L. Lloyd H Johnson	Thurs 1-16-03	Tues 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Troy & Bobby	1800+'	27'	1622'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park Perm. pumped
6	6:30	1/2	water level + pressure gauge
6:30	7	1/2	deflate packer
7	10	3	T.O.H w/all DR's + packer
10	1:45	3 3/4	T.I.H w/ 7 7/8" Bit + DC's + DR's. Bottom 1595' BLS
1:45	2:15	1/2	R/A develope hole to bottom 1595'
2:15	6	3 3/4	R/A drill 1195' to 1622' BLS + collect water sample
			Jason on site all day
			LHJ on site
		12hrs	Total

Total paid Time:	12hrs	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
58	Jason L Lloyd Johnson	Fri 1-17-03	Tues 11/19/02 ②	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Troy & Bobby	1800'+	35'	1657' BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well mw #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. - pumped
6	6:30	½	Water levels
6:30	11	4½	R/A drill 1622' to 1657' BLS
11	12:30	1½	R/A hole to clean out & get water sample
12:30	3	2½	T.O.H all DR's up to DC's
			Jason on site till noon NO LHJ
		9 hrs	Total

Total paid Time:	9 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	L Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
59	Jason L Lloyd J.	Mon 1-20-03	Tues 11-14-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DOC	Charley G. Troy & Bobby	1800'+	17'	1674'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well mw #5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park Perm. pumped
6	6:30	1/2	Water levels
6:30	9:30	3	T.O.H w/ DC's + bit. Then add thinset to screened wells.
9:30	10	1/2	Prepared core barrel for hole
10	1:15	3 1/4	T.I.H w/ core barrel
1:15	2	3/4	flush hole
			Core run 1657' to 1674 'BLS
			17' core run
2	5	3	T.O.H w/ all DR's + Core barrel
5	6	1	T.I.H w/ 7 5/8" Bit + DC's + DR's.
			Jason on site all day LHJ also.
		12 hrs	
		+3 hrs	rental of core barrel
		15 hrs	Total

Total paid Time:	15 hrs.	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE ③	UID#
60	Jason L Lloyd Johnson	1-21-03	11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy + Bobby	1800+	43'	TD' 1717'BLS

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp	#43 Bee Branch	Well MW-5	Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels
6:30	10	3 1/2	continue T.I.H w/ 7 7/8" bit
10	11:30	1 1/2	break down core barrel & retrieve core 16 1/2 ft out of 17' run. 1657' to 1674'BLS. clean + grease & put together
11:30	12	1/2	start up R/A work to 1657'BLS
12	1:15	1 1/4	ream out Core hole, 1657' to 1674'BLS. Then drill new hole 1674' to 1677'BLS.
1:15	3	1 3/4	R/A drill 1677' to 1697'BLS
3	6	3	R/A drill 1697' to 1717'BLS. + R/A to clean out hole. start T.O.H w/ all DR's
			Jason on site all day LHJ also
		12 hrs	total

Total paid Time:	12 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
61	Jason L Lloyd Johnson	Wed 1-22-03	Tues ② 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy + Bobby	1800'+	-0	TD 1717'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW-5 Exploratory/

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels
6:30	9	2 1/2	Con't T.O.H w/ all DR's, DC's + Bit
9	9:30	1/2	set up for logger
9:30	4	6	logging full sweep of logs. 1717'BLS to surface Caliper shows a problem at 1595' to 1600'BLS. Ran caliper in again Knock obstruction out of way.
4	6	2	Set up to T.I.H w/packer T.I.H to 900'BLS
		12 hrs	total

Total paid Time:	12 hrs	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)

REPORT NO.	SITE HYDROGEOLOGIST Jason L.	DATE Thurs.	DATE MOVED ON-SITE Tues (2)	UID#
62	Lloyd Johnson	1-23-03	11-19-02	

RIG NO./NAME CONTRACTOR	CREW Charley G	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH TD
DDC	Troy & Bobby	1717'	0	1717'BLS

ROMP SITE NAME/ NUMBER Romp #43 Bee Branch	WELL TYPE/NAME Well MW 5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm - pumped
6	6:30	1/2	Water levels
6:30	9	2 1/2	Con't T.F.H w/ packer set at 1674'BLS
9	9:30	1/2	inflate packer at 1674'BLS
9:30	1	3 1/2	run slug test. Tryed pumping for water sample. Only less than 1 gpm
1	3:30	2 1/2	release packer & reset at 1655'BLS. pumped again 2 gpm. release again
NPT 3:30	4	1/2	lunch
4	6	2	T.O.H w/ packer up to 1000'
			Jason on site all day also LHJ.
		12 hrs	

Total paid Time:	11 1/2	Non-Paid Time:	1/2 hr.	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
63	Jason L. Johnson	1-24-03	11/19/02 (2)	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy & Bobby	1717'	-0	TD 1717'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	well MW-5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels
6:30	9	2 1/2	finish T.D.H w/ packer
9	3	6	clean & strap Trimie & T.I.H to 1681' BLS
3	4	1	Hook up Big Red circulate through Trimie — Work on valve caps on pump, leaks under high pressure
			No SWFWMD person on site
		10 hrs	Total

Total paid Time:	10 hrs	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ① 1 of 2

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
64	Jason L Lloyd Johnson	Mon 1-27-03	Tues ② 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy + Bobby	1717'	0	TD 1717'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels
6:30	8	1 1/2	set up big red duplex pump + mix mud for grout.
8	10	2	Cutting steel casing, cleaning out desander unit
10	12	2	Grout truck on site 6 1/2 yds 130 SX 94 lb cement. 175 lb gel let mix for 5 min. Pumped 1/2 of grout + pulled up 200' trimie. pumped other 1/2 + pulled up to 800'
11	3	4	flushed + clean all trimie + flush + clean big red pump. pulled all valve caps also. Worked on steel casing.
3	4:30	1 1/2	T.I.H w/ trimie tag at 1414' BLS. set up to mix grout.

Total paid Time:		Non-Paid Time:		Accidents	
District Represntative				Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
64	Jason L Lloyd Johnson	Mon 1-27-03	Tues 11-19-03	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Troy & Bobby	1717'	0	1717' BLS

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp # 43		MW 5	

MILITARY TIME LOG FROM	MILITARY TIME LOG TO	ELAPSED TIME	DETAILS OF OPERATIONS
4:30	7	2 1/2	Mix & pump 64 SX 94 lb Cement w/ 200 lb Gel. Pump Chase water, pull Tremie. Flush & Clean every thing. Clean out Big Red pump
		13 hrs	Total

Total paid Time:	13 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
	Jason L	Tue	Tues (2)	
65	Lloyd Johnson	1-28-03	11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G.			
	Troy + Bobby	1717'	-0	1717'BLS

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW.5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels
6:30	7:15	3/4	T.I.H w/ Trimie, tag grout at 1326'BLS
7:15	10:30	3 1/4	Mix + pump grout. Mix 48 SX 94 lb cement. 150 lb gel. Pull trimie, flush + clean Trimie. Then flush + clean Big red pump.
10:30	1:30	3	poured 5 SX sand on top for tag. clean up around rig. clean up grouting equip. Dig out mud pit.
1:30	2	1/2	T.I.H w/ Trimie tag at 1186'BLS T.O.H w/ 100' Trimie pipe
NPT 2	2:30	1/2	lunch
2:30	6	3 1/2	completely tear down Big Red pump. pull all valve caps, Valves, Both end caps. Then reassemble.
		12 hrs	Total

Total paid Time:	11 1/2	Non-Paid Time:	1/2 hr.	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
66	Jason L Lloyd Johnson	Wed 1-29-03	Tues ② 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley D. Troy + Bobby	1717'	-0	TD 1717'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW 5 Exploratory/ Avon Park Perm. - pumped

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6	6:30	1/2	Water levels
6:30	8	1 1/2	T.O.H w/ all trimie, lay out + move to set up to T.I.H w/ DR's
8	10:30	2 1/2	T.I.H w/ 11 1/2" bit, DC's + DR's to 1050' BLS
10:30	11:15	3/4	Ream 7 7/8" Borehole from 1050' to 1058' BLS w/ 11 1/2" bit
11:15	1:30	2 1/4	R/A reamed 1058' to 1089' BLS
1:30	6	4 1/2	R/A reamed 1089' to 1118' BLS
		12 hrs	Total

Total paid Time:	12 hrs	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Goodwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/03 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE	UID#
67	Jason L. Lloyd H Johnson	Thurs 1-30-03	Tues ② 11-19-03	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Troy & Bobby	1717'	0	1717'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Waters levels
6:30	1:30	7	Ream R/A 1118' to 1153' 7 7/8" hole to 11 1/2" Hole
1:30	6	4 1/2	Ream hole R/A 1153' to 1170' BLS 7 7/8" to 11 1/2" hole
		12 hrs	Total

Total paid Time:	12 hrs.	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#
68	Jason L Lloyd Johnson	1-31-03	11-14-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Troy + Bobby	1717'	-0	1717'

ROMP SITE NAME/ NUMBER		WELL TYPE/NAME	
Romp	#43 Bee Branch	Well MW#5	Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. - Pumped
6	6:30	1/2	Water levels
6:30	3	8 1/2	R/A ream 1170' to 1210' BLS 7 7/8" hole to 11 1/2" hole
3	3:45	3/4	R/A well bore clean
3:45	4:30	3/4	T.O.H 300' DR's
		10 1/2	hrs Total

Total paid Time:	10 1/2	Non-Paid Time:	-0	Accidents	-0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID#

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC				

ROMP SITE NAME/ NUMBER	Romp #43 Bee Branch	WELL TYPE/NAME	

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
			Mon Feb-3-03
			thru
			Fri Feb-7-03
			No Contract time
			No Paid Time
			Crew off site

Total paid Time:	0	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/03 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE ②	UID#
69	Jason L Lloyd H Johnson	Mon 2-10-03	Tues 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley H Bobby + Kirk	1717'	-0	1717'

ROMP SITE NAME NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well MW 5 Exploratory

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Avon Park perm. pumped
6	6:30	1/2	Water levels (only 2 men
6:30	9:30	3	Finish T.O.H w/ all DR's, DC's + bit. lay out on pipe trailer.
9:30	10:30	1	start moving equip around site, so can move rig over to OB 5 well.
			* 10 AM 3rd man on site.
			Build cover over MW 5 well
10:30	11:30	1	Work on decander unit
11:30	1	1 1/2	move rig up on OB 1 well
1	5:30	4 1/2	set up rig, dig trench, make up PVC + Wellscreen, fill in pits
		11 1/2 hrs total	

NPT

Total paid Time:	10 1/2	Non-Paid Time:	1	Accidents	-0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Baldwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ONTO SITE	UID#
70	Jason L Lloyd J.	Tue 2-11-03	Tues ② 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby & Kirk	17'	17'	17'

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	Well OB1

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS Surficial Well OB1
6	6:30	1/2	Water levels,
6:30	10	3 1/2	drill 7 7/8" hole 20' set 2" sch #40 PVC 17' to 18' Tail 7' to 17' Wellscreen 20/1000 +3' ALS to 7' BLS std 2" PVC 6-20 sand 14 SX 50 lb 5' to 20' Holeplug 1 SX 50 lb. 2 1/2' to 5' Cement 2 SX 94 lb cement 2 1/2' to surface.
10	11:45	1 3/4	air lift & develope well MW 4 + water supply well for specific capacity test tomorrow.
11:45	1	1 1/4	install protective covers on OB1 well,
1	5:30	4 1/2	lower down rig dessick, move mud system, clean up site some. air develope OB1 well
		11 1/2 hrs total	

Total paid Time:	11 1/2	Non-Paid Time:	-0-	Accidents	-0-
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 (1)

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE (2)	UID#
71	Jason L Lloyd Johnson	Wed 2-12-03	Tues 11/19/02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G. Bobby + Kirk			

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6	6:30	1/2	Water levels
6:30	9	2 1/2	Load equip
9	10:30	1 1/2	Run specific Capacity test water supply well
			stop level - 15.90' BLS
			16.98 gal per min. start level - 7.03' BLS
			8.87' of draw down 8.87
			MW4 well stop level - 20.27' BLS
			start level - 7.68' BLS
			27.96 gal per min 12.59'
			12.59' of draw down
10:30	6	7 1/2	Load + mobilize equip to Romp #74 Davenport
		12 hrs	total

Total paid Time:	12 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson Jr.			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

10/14/02 ①

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON SITE ②	UID#
72	Jason L Lloyd Johnson	Thurs 2-13-03	Tues 11-19-02	

RIG NO./NAME CONTRACTOR	CREW	PROPOSED TOTAL DEPTH	PROGRESS	DEPTH
DDC	Charley G Bobby + Kirk	0	0	0

ROMP SITE NAME/ NUMBER	WELL TYPE/NAME
Romp #43 Bee Branch	

MILITARY TIME LOG FROM	TO	ELAPSED TIME	DETAILS OF OPERATIONS
6	6:30	1/2	Water levels
6:30	8:30	2	Finish loading supplies
8:30	10	1 1/2	Travel to Romp #74 w/ semi trailer + rig
10	5	7	Move rig over core hole & equip. off load trailers
		11 hrs	Total

Total paid Time:	11 hrs	Non-Paid Time:	0	Accidents	0
District Represntative	Lloyd H Johnson			Contractor Representative	Charley Godwin

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SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID #
1	JASON LAROCHE	11/9/04	11/9/04	NA

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS	DEPTH
METS TESS	Frank → UNIVERSAL Engineering (TESS)	12'		

ROMP SITE NUM/NAME	ROMP 43 - BEE BRANCH	WELL TYPE/NAME	Plugging/Replacement Wells: 6" Perm. Monitor (MW-1) 2" Temp Observation (OB-1)

TIME LOG FROM	TIME LOG TO	NOTES	DETAILS OF OPERATIONS
08:55			Arrive onsite, Frank (driller) and crew are onsite
			Spot well locations, set up for drilling 6" Surf. (MW-1)
9:30			Begin Split-spoon sampling - Advance @ 2ft
			intervals, box samples. Stop @ 12 ft b/s.
		0-1.5	Grayish orange, medium SAND and limestone shell (drilling pad)
		1.5-2	Dark brown-black, organic rich med. Qtz SAND
		2-3.5	Yellow-dk. brown, Fine SAND
		3.5-6	Grayish-orange, fine SAND some iron staining
		6-9	Grayish-white, fine SAND
	9:46	9-10	Yellowish-gray, CLAYEY SAND
	9:48	10-12	DK brown-gray, fine SAND and organics.
9:50			Start augering - 12" steel hollow-stem augers to 12' b/s
9:50	9:58	0-5	
9:58	10:11	5-10	
10:11	10:30	10-12	
			Lower casing/screen string inside augers
		0-2	6" casing (3.5' stick-up)
		2-12	6" screen (.020-slot)
			-Start backfilling filter pack (6/20 sand) while removing
			augers up to 1' b/s (18 bags total)
			-Add 1.5 (5 gal.) bucket bentonite pellets (up to L.S.)
	10:45		-Backfill to L.S. w/ natural fill (0-.5' b/s)
10:45	11:00		-Break down rig, move over to spot for OB-1
			set up

District Representative		Contractor Representative	

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IMAGED

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY DRILLING LOG-CORE REPORT

REPORT NO.	SITE HYDROGEOLOGIST	DATE	DATE MOVED ON-SITE	UID #
2	JASON LAROCHE	11/9/04	11/9/04	NA

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS	DEPTH
TESS	FRANK → UNIVERSAL ENGINEERING (TESS)	12'		

:METS

ROMP SITE NUM/NAME	ROMP 43 - BEE BRANCH	WELL TYPE/NAME	Plugging / Replacement wells 6" Perm. Monitor (MW-1) 2" Temp. Observ. (OB-1)

TIME LOG FROM	TIME LOG TO	NOTES	DETAILS OF OPERATIONS
11:05			Start augering 6" Hollow-stem augers to 12' bls
11:05	11:15	0-10	
11:15	11:18	10-12	Lower casing/screen string inside 6" augers
11:20		0-2	2" casing (3' stick-up)
		2-12	2" screen (.020-slot)
			- Backfill annulus (6/20 sand) while removing augers
			- filter pack up to 1' bls (7 bags total)
	11:34		- Add ½ (5 gal) bucket bentonite pellets (0-1')
11:34	11:55		- Break down rig move onto MW-1 (6/d) for plugging
			Note MW-1 17.5' Total depth btoc → 15.24' bls (15' original)
			OB-1 9.6' Total depth btoc → 7.5' bls (20' original)
11:56	12:00		Start mixing cement (Type I/II neat Portland Cement)
12:00			Grout 6" casing up to land surface
	12:08		Grout 2" casing to ~2' bls
			Clean up, leave site

District Representative	JASON LAROCHE	Contractor Representative	FRANK HARRINGTON

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IMAGED

APPENDIX D

ROMP 43 Corehole Lithology

LITHOLOGIC WELL LOG PRINTOUT SOURCE - FGS

WELL NUMBER: W-18325 COUNTY - HD18325
TOTAL DEPTH: 1717 FT. LOCATION: T.33S R.27E S.26 DA
SAMPLES - NONE LAT = 27D 35M 01S
LON = 81D 35M 19S
COMPLETION DATE: 03/21/01 ELEVATION: 98 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, TIME, ELECTRIC, FLUID CONDUCTIVITY, NATURAL GAMMA

OWNER/DRILLER:ROMP43 BEE BRANCH, SWFWMD, CORED BY G.DEGROOT 0-1120'BLS/DRILLED BY C.GODFREY 1120-1717'BLS.

WORKED BY:JASON LAROCHE, HYDROGEOLOGIST, SWFWMD, RESOURCE DATA SECTION. WORKED01/29/02-01/21/03. MUD-ROTARY (BAGGED CUTTINGS) 0-85'BLS, NQ CORE 85-1120'BLS, ADDITIONAL EXPLORATORY DRILLING (BAGGED CUTTINGS) 1120-1717'BLS. UNDIFFERENTIATED SAND AND CLAY (0-47'BLS) MAY CONTAIN REWORKED CYPRESSHEAD FM. DEPOSITS.

0.0	-	47.0	090UDSC	UNDIFFERENTIATED SAND AND CLAY
47.0	-	298.0	122HTRN	HAWTHORN GROUP
47.0	-	85.0	122PCRV	PEACE RIVER FM.
85.0	-	298.0	122ARCA	ARCADIA FM.
264.0	-	298.0	122NOCA	NOCATEE MEMBER OF ARCADIA FM.
298.0	-	460.0	123SWNN	SUWANNEE LIMESTONE
460.0	-	700.0	124OCAL	OCALA GROUP
700.0	-	1717.0	124AVPK	AVON PARK FM.

0 - 3 SAND; DARK GRAY TO BLACK
30% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE; UNCONSOLIDATED
ACCESSORY MINERALS: ORGANICS-20%
BLACK ORGANIC-RICH SAND AND CATTLE MANURE

3 - 7 SAND; LIGHT YELLOWISH ORANGE TO VERY LIGHT ORANGE
40% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE; UNCONSOLIDATED
ACCESSORY MINERALS: ORGANICS-01%

7 - 15 SAND; VERY LIGHT ORANGE TO GRAYISH BROWN
20% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
UNCONSOLIDATED
ACCESSORY MINERALS: CLAY-30%
POSSIBLE REWORKED CYPRESSHEAD FM.

15 - 28 SAND; VERY LIGHT ORANGE TO GRAYISH BROWN
30% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; UNCONSOLIDATED
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-01%
POSSIBLE REWORKED CYPRESSHEAD FM.

28 - 37 SAND; VERY LIGHT ORANGE TO GRAYISH BROWN
30% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; UNCONSOLIDATED
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-01%
POSSIBLE REWORKED CYPRESSHEAD FM.

37 - 47 SAND; YELLOWISH GRAY
30% POROSITY: INTERGRANULAR
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE
UNCONSOLIDATED
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC GRAVEL-10%
POSSIBLE REWORKED CYPRESSHEAD FM.

47 - 64 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY
40% POROSITY: INTERGRANULAR
GRAIN SIZE: COARSE; RANGE: COARSE TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): PHOSPHATE CEMENT
ACCESSORY MINERALS: CLAY-05%, PHOSPHATIC SAND-03%
PHOSPHATIC GRAVEL-02%, QUARTZ SAND-50%
40 PERCENT ORANGE-BROWN CEMENTED QUARTZ/PHOSPHATE SANDSTONE
SANDSTONE CEMENTED BY LEACHED PHOSPHATE FROM ABOVE

64 - 67 PHOSPHATE; DARK GRAY TO BLACK
45% POROSITY: INTERGRANULAR; UNCONSOLIDATED
CEMENT TYPE(S): PHOSPHATE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-30%
PHOSPHATIC GRAVEL-10%, SHELL-01%
FOSSILS: SHARKS TEETH
30 PERCENT ORANGE-BROWN CEMENTED QUARTZ/PHOSPHATE SANDSTONE

67 - 72 PHOSPHATE; DARK GRAY TO BLACK
45% POROSITY: INTERGRANULAR; UNCONSOLIDATED
CEMENT TYPE(S): PHOSPHATE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-30%
PHOSPHATIC GRAVEL-10%, SHELL-01%
20 PERCENT ORANGE-BROWN CEMENTED QUARTZ/PHOSPHATE SANDSTONE

72 - 77 PHOSPHATE; DARK GRAY TO BLACK
45% POROSITY: INTERGRANULAR; UNCONSOLIDATED
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-02%
PHOSPHATIC SAND-30%, PHOSPHATIC GRAVEL-10%
20 PERCENT ORANGE-BROWN CEMENTED QUARTZ/PHOSPHATE SANDSTONE
2 PERCENT SHELL FRAGMENTS

77 - 85 PHOSPHATE; DARK GRAY TO BLACK
45% POROSITY: INTERGRANULAR; UNCONSOLIDATED
ACCESSORY MINERALS: QUARTZ SAND-20%, LIMESTONE-01%
PHOSPHATIC SAND-60%, PHOSPHATIC GRAVEL-20%
1 PERCENT ORANGE-BROWN CEMENTED QUARTZ/PHOSPHATE SANDSTONE
PLUS SHELL FRAGS. END OF BAGGED CUTTINGS, BEGIN WIRELINE
CORING

85 - 87 LIMESTONE; YELLOWISH GRAY
POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, DOLOMITE-05%
OTHER FEATURES: WEATHERED

87 - 88 CALCILUTITE; GRAYISH PURPLE TO YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, DOLOMITE-05%
OTHER FEATURES: WEATHERED
FOSSILS: FOSSIL MOLDS

88 - 91.5 CALCARENITE; VERY LIGHT GRAY TO YELLOWISH GRAY

10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: PHOSPHATIC SAND- %
OTHER FEATURES: CALCAREOUS
CALCAREOUS CLAY MATRIX WITH INTERBEDDED FINE LIMESTONE SAND

91.5- 92.5 CLAY; VERY LIGHT GRAY TO YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS, PLASTIC

92.5- 93 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND- %
OTHER FEATURES: CALCAREOUS

93 - 94 CALCARENITE; VERY LIGHT GRAY TO LIGHT GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%

94 - 95 CALCILUTITE; GRAYISH BROWN
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, CLAY-10%
OTHER FEATURES: VARIEGATED

95 - 97 CALCARENITE; YELLOWISH GRAY TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, QUARTZ SAND-01%
OTHER FEATURES: GRANULAR

97 - 104 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%
PHOSPHATIC GRAVEL-01%, QUARTZ SAND-01%
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS

104 - 105 CALCARENITE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY

GRAIN TYPE: BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-03%

105 - 106 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; POOR INDURATION
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS

106 - 110 CALCARENITE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%
PHOSPHATIC GRAVEL-01%, QUARTZ SAND-01%

110 - 112 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: COARSE TO GRANULE
POOR INDURATION
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
PHOSPHATIC GRAVEL-05%
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS

112 - 115 CALCARENITE; YELLOWISH GRAY TO LIGHT GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
PHOSPHATIC GRAVEL-08%, QUARTZ SAND-02%

115 - 128 WACKESTONE; MODERATE DARK GRAY TO DARK GREENISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%
PHOSPHATIC GRAVEL-10%, QUARTZ SAND-15%
OTHER FEATURES: CALCAREOUS
FOSSILS: CRUSTACEA, SHARKS TEETH

128 - 132 WACKESTONE; LIGHT GREENISH GRAY TO GREENISH GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%

PHOSPHATIC GRAVEL-02%
OTHER FEATURES: GRANULAR

132 - 133 MUDSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-0S%
OTHER FEATURES: CALCAREOUS

133 - 135 WACKESTONE; GREENISH GRAY TO LIGHT GREENISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-10%
OTHER FEATURES: CALCAREOUS

135 - 138 MUDSTONE; GREENISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-08%, QUARTZ SAND-01%
CHERT-01%
OTHER FEATURES: CALCAREOUS

138 - 141 MUDSTONE; YELLOWISH GRAY TO GREENISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-01%
CHERT-01%
OTHER FEATURES: CALCAREOUS

141 - 142.5 CALCILUTITE; YELLOWISH GRAY TO LIGHT GREENISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, DOLOMITE-20%
OTHER FEATURES: DOLOMITIC, CALCAREOUS

142.5- 144.5 WACKESTONE; LIGHT OLIVE GRAY TO GREENISH GRAY
03% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: NODULAR, MOTTLED
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CHERT-01%
LIMESTONE-03%, CALCITE-02%
OTHER FEATURES: CALCAREOUS

144.5- 145 CALCILUTITE; YELLOWISH GRAY TO LIGHT GREENISH GRAY

15% POROSITY: MOLDIC
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO LITHOGRAPHIC; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-03%
PHOSPHATIC GRAVEL-01%, QUARTZ SAND-01%, CALCITE-01%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS

145 - 146 MUDSTONE; YELLOWISH GRAY TO LIGHT GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-03%
OTHER FEATURES: CALCAREOUS

146 - 150 MUDSTONE; LIGHT OLIVE GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, QUARTZ SAND-02%
OTHER FEATURES: CALCAREOUS

150 - 153 CALCILUTITE; YELLOWISH GRAY
25% POROSITY: MOLDIC, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, QUARTZ SAND-01%
CALCITE-03%
OTHER FEATURES: FOSSILIFEROUS, LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS, CORAL

153 - 157 MUDSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-02%
OTHER FEATURES: CALCAREOUS

157 - 159 WACKESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, NODULAR, MOTTLED
ACCESSORY MINERALS: PHOSPHATIC SAND-20%
PHOSPHATIC GRAVEL-01%, QUARTZ SAND-01%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, CORAL
INTERBEDDED WHITE LIMEROCK NODES, POSSIBLE CORAL

159 - 160 WACKESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR, MOTTLED
ACCESSORY MINERALS: PHOSPHATIC SAND-30%
PHOSPHATIC GRAVEL-02%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
INTERBEDDED WHITE LIMEROCK NODES, POSSIBLY MOLLUSKS

160 - 163 WACKESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CALCITE-02%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS

163 - 165 WACKESTONE; LIGHT OLIVE GRAY TO MODERATE DARK GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-30%, QUARTZ SAND-01%
CALCITE-01%
OTHER FEATURES: CALCAREOUS

165 - 170 WACKESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
10% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: LITHOGRAPHIC TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: CALCAREOUS

170 - 175 WACKESTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-20%, QUARTZ SAND-05%

175 - 182 WACKESTONE; LIGHT OLIVE GRAY TO GREENISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-05%
INCREASED CLAY CONTENT 181-182'

182 - 187.5 MUDSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY, INTERGRANULAR

GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: PHOSPHATIC SAND-03%
OTHER FEATURES: CALCAREOUS

187.5- 190 WACKESTONE; LIGHT OLIVE GRAY TO GREENISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-25%, QUARTZ SAND-01%
PHOSPHATIC GRAVEL-03%
OTHER FEATURES: CALCAREOUS
INTERBEDDED PHOSPHATIC SAND/GRAVEL

190 - 195 WACKESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-20%, QUARTZ SAND-01%
PHOSPHATIC GRAVEL-05%
OTHER FEATURES: CALCAREOUS
FOSSILS: MOLLUSKS

195 - 196 WACKESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
10% POROSITY: LOW PERMEABILITY, MOLDIC
GRAIN TYPE: BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
PHOSPHATIC GRAVEL-01%
FOSSILS: FOSSIL FRAGMENTS

196 - 210 CALCILUTITE; YELLOWISH GRAY TO LIGHT GRAY
30% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
PIN POINT VUGS
GRAIN TYPE: BIOGENIC, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-02%, CALCITE-02%, QUARTZ SAND-05%
OTHER FEATURES: LOW RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS
INTERBEDDED QUARTZ/PHOSPHATIC SAND LENSES

210 - 210.5 LIMESTONE; WHITE TO YELLOWISH GRAY
10% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO LITHOGRAPHIC; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: PHOSPHATIC SAND-05%
PHOSPHATIC GRAVEL-02%

FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS
LARGE NODULAR PHOSPHATE GRANULES AND PEBBLES SOFT-WHITE
LIMESTONE

210.5- 211.5 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
25% POROSITY: MOLDIC, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, QUARTZ SAND-01%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS

211.5- 215 CALCILUTITE; YELLOWISH GRAY TO YELLOWISH GRAY
25% POROSITY: MOLDIC, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-02%, PHOSPHATIC SAND-10%
CALCITE-03%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS

215 - 220 CALCILUTITE; YELLOWISH GRAY TO VERY LIGHT GRAY
20% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, SKELTAL CAST
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: NODULAR, INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-02%, PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-01%, CALCITE-03%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS
RECRYSTALLIZED CALCITE IN FOSSIL-MOLD POROSITY

220 - 225 CALCILUTITE; YELLOWISH GRAY TO LIGHT BLUISH GRAY
20% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-01%, CALCITE-05%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS
RECRYSTALLIZED CALCITE IN FOSSIL-MOLD POROSITY

225 - 231 WACKESTONE; YELLOWISH GRAY TO LIGHT BLUISH GRAY
15% POROSITY: PIN POINT VUGS
GRAIN TYPE: BIOGENIC, SKELETAL, INTRACLASTS
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
GOOD INDURATION

CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-01%, QUARTZ SAND-15%, CALCITE-05%
OTHER FEATURES: LOW RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS

231 - 232 PACKSTONE; YELLOWISH GRAY TO MODERATE BLUISH GRAY
25% POROSITY: PIN POINT VUGS, MOLDIC
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, INTRACLASTS
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, QUARTZ SAND-20%
CALCITE-02%
OTHER FEATURES: LOW RECRYSTALLIZATION, FOSSILIFEROUS
SPECKLED, CALCAREOUS
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS

232 - 235 WACKESTONE; YELLOWISH GRAY TO LIGHT GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, INTRACLASTS
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO COARSE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-15%
OTHER FEATURES: CALCAREOUS, SPECKLED

235 - 239 WACKESTONE; YELLOWISH GRAY TO MODERATE LIGHT GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, INTRACLASTS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-00%, QUARTZ SAND-20%
OTHER FEATURES: CALCAREOUS

239 - 244 WACKESTONE; VERY LIGHT GRAY TO YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, INTRACLASTS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-01%, QUARTZ SAND-20%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS, CORAL

244 - 249 CALCARENITE; MODERATE LIGHT GRAY TO YELLOWISH GRAY
35% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: SKELETAL, INTRACLASTS, SKELTAL CAST
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, NODULAR
ACCESSORY MINERALS: PHOSPHATIC SAND-30%
PHOSPHATIC GRAVEL-01%, QUARTZ SAND-20%, CALCITE-10%
OTHER FEATURES: LOW RECRYSTALLIZATION, FOSSILIFEROUS

FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, FOSSIL FRAGMENTS
FOSSIL MOLDS, CORAL
ABUNDANT MOLLUSKS AND UNIDENTIFIABLE FORAMS

249 - 255 CALCILUTITE; LIGHT GRAY TO YELLOWISH GRAY
10% POROSITY: PIN POINT VUGS, MOLDIC
GRAIN TYPE: BIOGENIC, INTRACLASTS
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-01%, DOLOMITE-30%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS
REWORKED GRAY LIMESTONE NODULES, POSSIBLE RECRYSTALLIZED
DOLOMITE WITHIN MOLDIC SPACE

255 - 258 DOLOSTONE; LIGHT BLUISH GRAY TO MODERATE BLUISH GRAY
02% POROSITY: LOW PERMEABILITY, VUGULAR; 50-90% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-05%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
INTERBEDDED QUARTZ/PHOSPHATE SAND

258 - 262 DOLOSTONE; GRAYISH BROWN
10% POROSITY: MOLDIC; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-05%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS

262 - 265.5 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, INTRACLASTS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-05%
PHOSPHATIC GRAVEL-01%
INTERBEDDED HIGH PHOSPHATE/QUARTZ SAND LENSE 264-265'

265.5- 268 SAND; MODERATE GRAY TO MODERATE DARK GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO SUB-ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, MASSIVE
ACCESSORY MINERALS: PHOSPHATIC SAND-20%, QUARTZ SAND-20%
CLAY-10%
OTHER FEATURES: CALCAREOUS
CALCAREOUS CLAY MATRIX

268 - 270 DOLOSTONE; LIGHT OLIVE GRAY TO MODERATE LIGHT GRAY
05% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
0-10% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, QUARTZ SAND-10%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: GRANULAR

270 - 271 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
15% POROSITY: PIN POINT VUGS
GRAIN TYPE: BIOGENIC, INTRACLASTS
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, QUARTZ SAND-15%
PHOSPHATIC GRAVEL-05%
OTHER FEATURES: CALCAREOUS

271 - 277 SILT; MODERATE BLUISH GRAY TO MODERATE DARK GRAY
00% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, QUARTZ SAND-40%
CLAY-20%

277 - 279 CALCILUTITE; GREENISH GRAY TO LIGHT GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, INTRACLASTS
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-05%
OTHER FEATURES: CALCAREOUS
REWORKED GRAY LIMESTONE NODULES IN CALCILUTITE MATRIX

279 - 281 DOLOSTONE; LIGHT OLIVE GRAY TO MODERATE BLUISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC; 90-100% ALTERED
ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-05%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
INTERBEDDED UNCONSOLIDATED QUARTZ SAND

281 - 283 SAND; LIGHT OLIVE GRAY TO GREENISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
ROUNDNESS: SUB-ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-20%
DOLOMITE-10%, CALCILUTITE-20%
OTHER FEATURES: CALCAREOUS
QUARTZ/PHOSPHATE SAND IN CARBONATE CEMENT MATRIX

283 - 290 SILT; GREENISH GRAY TO DARK GREENISH GRAY
02% POROSITY: LOW PERMEABILITY; GOOD INDURATION

CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-05%

290 - 294.5 SILT; VERY LIGHT GRAY TO GREENISH GRAY
05% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-10%
PHOSPHATIC GRAVEL-01%, DOLOMITE-02%
OTHER FEATURES: LOW RECRYSTALLIZATION
PHOSPHATE AND REWORKED GRAY LIMESTONE GRAVEL-SIZE NODULES

294.5- 295 GRAINSTONE; VERY LIGHT GRAY TO LIGHT BLUISH GRAY
15% POROSITY: POSSIBLY HIGH PERMEABILITY, INTERGRANULAR
VUGULAR
GRAIN TYPE: BIOGENIC, INTRACLASTS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO GRAVEL
GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: NODULAR, MOTTLED
ACCESSORY MINERALS: PHOSPHATIC SAND-35%
PHOSPHATIC GRAVEL-05%, DOLOMITE-10%, QUARTZ SAND-02%
OTHER FEATURES: CALCAREOUS, FOSSILIFEROUS, SUCROSIC
FOSSILS: CORAL, MOLLUSKS, FOSSIL FRAGMENTS
LARGE CORAL INTRACLASTS AND REWORKED GRAY LIMESTONE

295 - 298 GRAINSTONE; GREENISH GRAY TO LIGHT GRAY
10% POROSITY: LOW PERMEABILITY, INTERGRANULAR
PIN POINT VUGS
GRAIN TYPE: BIOGENIC, INTRACLASTS
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-35%, QUARTZ SAND-10%
OTHER FEATURES: CALCAREOUS, FOSSILIFEROUS, SUCROSIC
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS
LARGE MOLLUSK BED 296-297'

298 - 298.2 LIMESTONE; WHITE TO VERY LIGHT GRAY
15% POROSITY: LOW PERMEABILITY, VUGULAR
GRAIN TYPE: BIOGENIC, INTRACLASTS
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, CHERT-02%
QUARTZ SAND-05%, CLAY-05%
OTHER FEATURES: CHALKY
FOSSILS: FOSSIL MOLDS

298.2- 322.5 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
30% POROSITY: POSSIBLY HIGH PERMEABILITY, MOLDIC, FRACTURE
0-10% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS
SEVERAL CORE ROD DROPS, POSSIBLE CLAY-FILLED DISSOLUTION

CAVITIES POOR CORE RECOVERY, INTERBEDDED CALCILUTITE LENSES
THIN, CALCITE-FILLED FRACTURES 310.0-310.1'

322.5- 331 CALCARENITE; YELLOWISH GRAY
35% POROSITY: POSSIBLY HIGH PERMEABILITY, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, SKELTAL CAST
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, QUARTZ SAND-01%
CALCITE-01%
OTHER FEATURES: LOW RECRYSTALLIZATION, GRANULAR
FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS

331 - 335 PACKSTONE; LIGHT OLIVE GRAY TO LIGHT GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, QUARTZ SAND-30%
OTHER FEATURES: CALCAREOUS
THIN, BANDED, LIGHT GRAY CLAY

335 - 341 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT GRAY
30% POROSITY: POSSIBLY HIGH PERMEABILITY, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELETAL, SKELTAL CAST
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED, INTERBEDDED
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, CALCITE-20%
OTHER FEATURES: LOW RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS, FOSSIL MOLDS
GREEN-GRAY NODULAR LIMESTONE AT 340.0' INTERBEDDED
CALCILUTITE

341 - 350 SAND; LIGHT GRAY TO YELLOWISH GRAY
15% POROSITY: LOW PERMEABILITY; UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
POORLY CONSOLIDATED CALCARENITE AND CALCAREOUS SAND

350 - 356.5 WACKESTONE; LIGHT GRAY TO LIGHT BLUISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, CALCARENITE-25%
OTHER FEATURES: CALCAREOUS

356.5- 358.5 CALCILUTITE; PINKISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-01%, PHOSPHATIC SAND-02%

358.5- 360 WACKESTONE; YELLOWISH GRAY TO LIGHT GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BANDED, LAMINATED
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS
THIN, BANDED GRAY CLAY AND SKELETAL CALCARENITE

360 - 367.5 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO VERY COARSE; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-0I%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS

367.5- 370 WACKESTONE; YELLOWISH GRAY TO LIGHT GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, BANDED
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

370 - 375 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: SKELETAL, BIOGENIC
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: LITHOGRAPHIC TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-30%
OTHER FEATURES: CALCAREOUS, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MOLLUSKS

375 - 377 CALCARENITE; YELLOWISH GRAY
25% POROSITY: POSSIBLY HIGH PERMEABILITY, INTERGRANULAR
GRAIN TYPE: BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
OTHER FEATURES: CALCAREOUS

377 - 380 PACKSTONE; YELLOWISH GRAY TO LIGHT BLUISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

380 - 384 CALCARENITE; YELLOWISH GRAY
25% POROSITY: POSSIBLY HIGH PERMEABILITY, INTERGRANULAR
GRAIN TYPE: BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

384 - 384.5 CALCILUTITE; YELLOWISH GRAY TO YELLOWISH GRAY
25% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO LITHOGRAPHIC; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-05%, PHOSPHATIC SAND-05%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
RECRYSTALLIZED CALCITE WITHIN MOLDIC POROSITY

384.5- 390 PACKSTONE; YELLOWISH GRAY TO LIGHT BLUISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO COARSE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%
OTHER FEATURES: CALCAREOUS

390 - 395 PACKSTONE; YELLOWISH GRAY
25% POROSITY: POSSIBLY HIGH PERMEABILITY, INTERGRANULAR
GRAIN TYPE: BIOGENIC; 25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

395 - 399 CALCILUTITE; YELLOWISH GRAY TO YELLOWISH GRAY
20% POROSITY: PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%, CALCITE-02%
OTHER FEATURES: LOW RECRYSTALLIZATION

399 - 401 WACKESTONE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS

401 - 405 WACKESTONE; YELLOWISH GRAY TO LIGHT GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED

OTHER FEATURES: CALCAREOUS
UNIDENTIFIABLE BROWN-TAN MINERAL, COARSE SAND SIZE, 1-2 PERCENT

405 - 407.5 WACKESTONE; YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

407.5- 412 PACKSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

412 - 415 CALCILUTITE; YELLOWISH GRAY
10% POROSITY: MOLDIC, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-02%, DOLOMITE-10%
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS

415 - 417 PACKSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%
OTHER FEATURES: CALCAREOUS

417 - 420 WACKESTONE; YELLOWISH GRAY TO LIGHT BLUISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

420 - 422 CALCILUTITE; YELLOWISH GRAY TO GRAYISH YELLOW
10% POROSITY: MOLDIC, PIN POINT VUGS
GRAIN TYPE: SKELETAL; 60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO GRAVEL; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, CALCITE-05%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS

422 - 425 WACKESTONE; YELLOWISH GRAY TO LIGHT BLUISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

425 - 435 MUDSTONE; YELLOWISH GRAY TO WHITE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

435 - 440 WACKESTONE; YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS

440 - 443 WACKESTONE; YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
PHOSPHATIC GRAVEL-02%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, SHARKS TEETH

443 - 444 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%
OTHER FEATURES: CALCAREOUS

444 - 460 CALCILUTITE; VERY LIGHT ORANGE TO GRAYISH BROWN
15% POROSITY: MOLDIC, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO LITHOGRAPHIC; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-01%, DOLOMITE-10%
OTHER FEATURES: DOLOMITIC, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA
ABUNDANT GASTROPODS AND MOLLUSKS, FORAM-GYPSINA GLOBULA AT
463' OCALA TOP AT 460', INTERBEDDED MUDDY WACKESTONE

SIMILAR TO 443-444' 1-2 PERCENT PHOSPHATE SAND WITHIN
WACKESTONE BEDS 444-450' FIRST OCCURENCE OF LEPIDOCYCLINA
AT 460.5'

460 - 463 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

463 - 465 MUDSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

465 - 467.5 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

467.5- 470 MUDSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

470 - 472.5 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
INTERBEDDED VERY-FINE GRAINED CALCARENITE-MODERATELY
INDURATED

472.5- 474.5 MUDSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

474.5- 480 CALCARENITE; YELLOWISH GRAY
10% POROSITY: PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA
LEPIDOCYCLINA, GASTROPODS

480 - 485 WACKESTONE; YELLOWISH GRAY
03% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO COARSE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

485 - 498 CALCARENITE; YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
GRAIN TYPE: BIOGENIC; 60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA, ECHINOID
LEPIDOCYCLINA

498 - 508 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: VUGULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA
LOTS OF MOLLUSKS, LEPIDOCYCLINA, POSSIBLE OPERCULINOIDES AT
501'

508 - 521 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
05% POROSITY: PIN POINT VUGS
GRAIN TYPE: BIOGENIC, SKELETAL
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO GRAVEL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA
ECHINOIDS, MOLLUSKS, LEPIDOCYCLINA

521 - 523.5 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
05% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA

523.5- 550.5 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO GRAVEL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA

LEPIDOCYCLINA, POSSIBLE LEPIDORBITOIDES AT 527.5'

550.5- 560 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
03% POROSITY: PIN POINT VUGS
GRAIN TYPE: BIOGENIC, SKELETAL
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO GRAVEL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA
LEPIDOCYCLINA, OPERCULINOIDES

560 - 573 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO GRAVEL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MOLLUSKS, CORAL
HEAVY LEPIDOCYCLINA

573 - 580 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS, COQUINA, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA
CONSISTENT,POSSIBLY REWORKED GRAY LIMESTONE SAND GRAVEL
573-686' 1-5 PERCENT, LEPIDOCYCLINA

580 - 604 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS, COQUINA, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID
LEPIDOCYCLINA

604 - 624 PACKSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS, COQUINA, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, MOLLUSKS
LEPIDOCYCLINA

624 - 627 WACKESTONE; YELLOWISH GRAY

01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%
OTHER FEATURES: CALCAREOUS
GREENISH CLAY/SILT IN MATRIX

627 - 632 WACKESTONE; YELLOWISH GRAY TO LIGHT GREENISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
LEPIDOCYCLINA

632 - 650 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-01%
OTHER FEATURES: CALCAREOUS, COQUINA, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BENTHIC FORAMINIFERA
PLANKTONIC FORAMINIFERA
THIN BEDS OF FOSSILIFEROUS PACKSTONE/WACKESTONE PACKED WITH
STACKED LEPIDOCYCLINA, NUMMULITES VANDERSTOKI

650 - 660 MUDSTONE; YELLOWISH GRAY
00% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS

660 - 671 WACKESTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
BENTHIC FORAMINIFERA, PLANKTONIC FORAMINIFERA
LEPIDOCYCLINA, NUMMULITES

671 - 680 MUDSTONE; YELLOWISH GRAY TO WHITE
00% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
LEPIDOCYCLINA

680 - 686 CALCILUTITE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
GRAIN TYPE: BIOGENIC; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BENTHIC FORAMINIFERA
LEPIDOCYCLINA, POSSIBLE LEPIDORBITOIDES

686 - 700 MUDSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
OTHER FEATURES: CALCAREOUS
INTERBEDDED, SOFT, CHALKY, VERY FINE-FINE CHALKY
CALCARENITE

700 - 710 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CALCITE-20%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, CALCAREOUS
FOSSILS: ECHINOID
NEOLAGANUM DALLI(ECHINOID), RECRYSTALLIZED CALCITE IN
FOSSIL MOLDS INTERBEDDED CHALKY CALCARENITE

710 - 716 DOLOSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY
35% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: HIGH RECRYSTALLIZATION, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID
DOLOMITIC, FOSSILIFEROUS WACKESTONE PACKED WITH CHALKY
WHITE ECHINOID MOLDS AND CASTS, NEOLAGANUM DALLI

716 - 719 DOLOSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY
35% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: FOSSIL MOLDS, ECHINOID

719 - 720 MUDSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
00% POROSITY: LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-05%, CALCITE-10%, CLAY-05%
OTHER FEATURES: CALCAREOUS, LOW RECRYSTALLIZATION
RECRYSTALLIZED CALCITE IN SMALL POKES AND MATRIX POSSIBLE
FINE GRAINED ORGANICS

720 - 724 MUDSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
00% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 97% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CALCARENITE-02%
OTHER FEATURES: CALCAREOUS

724 - 726 DOLOSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY
30% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: COQUINA, FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, ECHINOID

726 - 735 MUDSTONE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: CALCAREOUS

735 - 735.2 PACKSTONE; YELLOWISH GRAY
10% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO GRAVEL; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, FOSSILIFEROUS
COQUINA
FOSSILS: CORAL, MOLLUSKS

735.2- 738 WACKESTONE; YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

738 - 739 CALCARENITE; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: MOLLUSKS, ECHINOID, BENTHIC FORAMINIFERA
NEOLAGANUM DALLI

739 - 742 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
15% ALLOCHEMICAL CONSTITUENTS

GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-03%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
ECHINOID
RECRYSTALLIZED CALCITE IN FOSSIL-MOLD POROSITY, NEOLAGANUM
DALLI

742 - 745 DOLOSTONE; GRAYISH BROWN
15% POROSITY: MOLDIC, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-01%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: ECHINOID, MOLLUSKS, FOSSIL FRAGMENTS
FOSSIL MOLDS
NEOLAGANUM DALLI

745 - 751 CALCARENITE; YELLOWISH GRAY
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: ECHINOID, FOSSIL FRAGMENTS

751 - 774 WACKESTONE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
INTERBEDDED SOFT CALCARENITE, LOW-ALTERATION DOLOMITE
772.5-773.5', AND CALCILUTITE 774-774.5'

774 - 783 CALCARENITE; YELLOWISH GRAY
05% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: LITHOGRAPHIC TO GRANULE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-03%
FOSSILS: FOSSIL FRAGMENTS
POSSIBLE LOW-ALTERATION DOLOMITE 780-783'

783 - 788 WACKESTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: DOLOMITE-01%
OTHER FEATURES: CALCAREOUS
INTERBEDDED CALCILUTITE 785-786.5'

788 - 790 DOLOSTONE; GRAYISH BROWN

05% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS

790 - 791 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
20% POROSITY: PIN POINT VUGS, VUGULAR
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, ECHINOID
NEOLAGANUM DALLI

791 - 797 MUDSTONE; YELLOWISH GRAY TO WHITE
00% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 98% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO LITHOGRAPHIC; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: SILT-SIZE DOLOMITE- %
OTHER FEATURES: CALCAREOUS
CALCAREOUS CLAY WITH THIN BLACK ORGANIC LAMINAE

797 - 800 DOLOSTONE; YELLOWISH GRAY TO GRAYISH BROWN
01% POROSITY: LOW PERMEABILITY; 0-10% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-20%

800 - 802.5 WACKESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
03% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY COARSE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

802.5- 805 MUDSTONE; GRAYISH BROWN
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY COARSE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

805 - 810 WACKESTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY COARSE; RANGE: VERY COARSE TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
1 PERCENT REWORKED GRAY LIMESTONE FRAGMENTS 800-822.5'

810 - 822.5 WACKESTONE; YELLOWISH GRAY
03% POROSITY: LOW PERMEABILITY

GRAIN TYPE: BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: VERY COARSE TO COARSE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

822.5- 825 CLAY; YELLOWISH GRAY TO LIGHT OLIVE GRAY
01% POROSITY: LOW PERMEABILITY; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: ORGANICS-03%, CALCARENITE-05%
OTHER FEATURES: CALCAREOUS

825 - 829 WACKESTONE; VERY LIGHT ORANGE TO LIGHT GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

829 - 833 WACKESTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

833 - 834 MUDSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
00% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 98% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO LITHOGRAPHIC; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

834 - 836 CALCILUTITE; YELLOWISH GRAY TO LIGHT GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO LITHOGRAPHIC; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CLAY-10%
OTHER FEATURES: CALCAREOUS
THIN, GREENISH CLAY LAMINAE

836 - 838 WACKESTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX

838 - 840 CLAY; YELLOWISH GRAY
00% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

840 - 860 WACKESTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION

CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
FOSSILS: PLANKTONIC FORAMINIFERA
LOW DRILLING WATER PRESSURE USED TO HELP INCREASE CORE RECOVERY

860 - 870 CALCARENITE; VERY LIGHT ORANGE
05% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: MOLLUSKS, ECHINOID

870 - 882 CALCARENITE; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, PIN POINT VUGS
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: SKELETAL, BIOGENIC
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-10%, CALCITE-05%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
FOSSILS: ECHINOID, MOLLUSKS, BENTHIC FORAMINIFERA, CORAL CONES
DICTYOCONUS COOKEI/COSKINOLINA FLORIDANA SLIGHTLY MOLDIC
RECRYSTALLIZED CALCITE IN MOLDIC POROSITY

882 - 895 MUDSTONE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

895 - 896 WACKESTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
03% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO GRAVEL
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-05%
FOSSILS: BENTHIC FORAMINIFERA, CONES
THIN, BLACK ORGANIC LAMINAE

896 - 900 MUDSTONE; YELLOWISH GRAY
00% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CLAY-20%
THIN, LIGHT GRAY CLAY LAMINAE A

900 - 902 CALCARENITE; YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC
30% ALLOCHEMICAL CONSTITUENTS

GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-05%, CALCITE-02%
DOLOMITE-02%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, CONES
LAMINATED DOLOMITE NEAR TOP WITHIN INTERBEDDED CALCILUTITE
SCATTERED CONES THROUGHOUT, D.COOKEI/COSKINOLINA FLORIDANA

902 - 905 MUDSTONE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
CEMENT TYPE(S): PHOSPHATE CEMENT, CLAY MATRIX
OTHER FEATURES: CALCAREOUS

905 - 906.5 WACKESTONE; WHITE TO YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO FINE
CEMENT TYPE(S): PHOSPHATE CEMENT, CLAY MATRIX
OTHER FEATURES: CALCAREOUS

906.5- 913 DOLOSTONE; GRAYISH BROWN TO MODERATE BROWN
10% POROSITY: MOLDIC, PIN POINT VUGS; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-05%, ORGANICS-00%
OTHER FEATURES: LOW RECRYSTALLIZATION
THIN, ORGANIC LENSE AT 909'

913 - 916 CALCILUTITE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
THIN, ORGANIC CLAY LAMINAE

916 - 920 DOLOSTONE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
FOSSILS: ECHINOID
NEOLAGANUM DALLI, INTERBEDDED SOFT WHITE CALCARENITE
917-918' THIN BLACK ORGANIC LAMINAE 918-920'

920 - 925 WACKESTONE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS
BLACK ORGANIC GRAVEL/LAMINAE 920-921'

925 - 939.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: POSSIBLY HIGH PERMEABILITY, INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-03%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: ECHINOID, MOLLUSKS
NEOLAGANUM DALLI THROUGHOUT, GASTROPODS RECRYSTALLIZED
CALCITE IN MOLDIC POROSITY THIN ORGANIC LAMINAE, REWORKED
GRAY LIMESTONE FRAGMENTS

939.5- 940.5 DOLOSTONE; GRAYISH BROWN
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION

940.5- 947.5 WACKESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO VERY FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

947.5- 952.5 CALCARENITE; YELLOWISH GRAY
05% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: BIOGENIC; 20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: LITHOGRAPHIC TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

952.5- 955 MUDSTONE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 98% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO LITHOGRAPHIC; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

955 - 958 CALCILUTITE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CALCARENITE-05%, ORGANICS-05%

958 - 975 WACKESTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED

ACCESSORY MINERALS: ORGANICS-02%
OTHER FEATURES: CALCAREOUS
FOSSILS: MOLLUSKS
INTERBEDDED CALCAREOUS MUDSTONE/CLAY

975 - 980 CALCARENITE; YELLOWISH GRAY TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: LITHOGRAPHIC TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-01%
FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, ECHINOID
UNIDENTIFIABLE, WEATHERED ECHINOIDS

980 - 989 CALCARENITE; GRAYISH ORANGE
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: SKELETAL, BIOGENIC
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-03%
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION
FOSSILS: MOLLUSKS
REWORKED,GRAY LIMESTONE FRAGMENTS - 5 PERCENT CALCARENITE
GRAINS VERY WELL ROUNDED, LIKELY TRANSPORTED

989 - 990 CLAY; MODERATE GRAY TO VERY LIGHT GRAY
00% POROSITY: LOW PERMEABILITY; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
OTHER FEATURES: CALCAREOUS
DARK-LIGHT GRAY ALTERNATING CLAY LAMINAE

990 - 995 CALCARENITE; GRAYISH ORANGE TO GRAYISH BROWN
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: SKELETAL, BIOGENIC
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: MEDIUM TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-05%, CALCITE-03%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BENTHIC FORAMINIFERA
CONES
GRAVEL-SIZED,REWORKED GRAY LIMESTONE FRAGMENTS-8 PERCENT
SOME WELL ROUNDED CALCARENITE GRAINS SLIGHTLY DOLOMITIZED
DICTYOCONUS AMERICANUS

995 - 1005 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-20%, ORGANICS-00%
OTHER FEATURES: CALCAREOUS
FOSSILS: ECHINOID
THIN, ORGANIC LAMINAE AT 1000'

1005 - 1012 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: HEAVY MINERALS-02%
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CORAL
WEATHERED ECHINOIDS INTERBEDDED CALCILUTITE LEDGES

1012 - 1024 MUDSTONE; YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY
98% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC
RANGE: LITHOGRAPHIC TO LITHOGRAPHIC; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCARENITE-15%
OTHER FEATURES: CALCAREOUS
INTERBEDDED CALCILUTITE LENSES

1024 - 1026 CALCILUTITE; GRAYISH ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: CALCARENITE-20%, DOLOMITE-10%
OTHER FEATURES: PARTINGS
FOSSILS: FOSSIL FRAGMENTS
5 PERCENT REWORKED GRAY LIMESTONE FRAGMENTS

1026 - 1030 CALCARENITE; GRAYISH ORANGE TO GRAYISH BROWN
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: GRANULAR
HARD, BLACK, REWORKED DOLOMITE ZONE (BRECCIATED)
1028.5-1030.2'

1030 - 1034 CALCARENITE; GRAYISH BROWN TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC, INTRACLASTS
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: DOLOMITE-05%
OTHER FEATURES: DOLOMITIC
INTERBEDDED, BRECCIATED CALCILUTITE NODES REWORKED
LIMESTONE INTRACLASTS

1034 - 1037 DOLOSTONE; MODERATE BROWN TO VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: CALCARENITE-30%
ROUNDED, REWORKED CALCARENITE INTRACLASTS

1037 - 1037.5 CALCILUTITE; VERY LIGHT ORANGE
01% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
GRAIN TYPE: BIOGENIC; 80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: DOLOMITE-02%
FOSSILS: BENTHIC FORAMINIFERA
UNIDENTIFIED WEATHERED/DEFORMED FORAMS THIN DOLOMITE
LAMINAE, REWORKED GRAY LIMESTONE INTRACLASTS AT 1037' GRAY
BRECCIATED CALCILUTITE RUBBLE

1037.5- 1042 DOLOSTONE; MODERATE BROWN TO VERY LIGHT ORANGE
01% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: CALCARENITE-30%, ORGANICS-20%
INTERBEDDED,THIN BLACK-BROWN ORGANIC LENSE AT 1038'
ROUNDED, REWORKED CALCARENITE INTRACLASTS

1042 - 1045 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
02% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: LITHOGRAPHIC; RANGE: LITHOGRAPHIC TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
OTHER FEATURES: CALCAREOUS

1045 - 1060 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC; 45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-40%, ORGANICS-05%
DOLOMITE-10%
OTHER FEATURES: WEATHERED, DOLOMITIC
INTERBEDDED CALCAREOUS WACKESTONE THIN ORGANIC
LAMINAE,SHALE-LIKE ORGANIC BED AT 1055' THIN GRAY CLAY
LAMINAE, SCATTERED ORGANIC SAND GRAINS

1060 - 1064 CALCILUTITE; VERY LIGHT ORANGE TO GRAYISH ORANGE PINK
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED, INTERBEDDED, LAMINATED
BEDDED, NODULAR
ACCESSORY MINERALS: ORGANICS-15%, DOLOMITE-20%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
BRECCIATED LIMESTONE FRAGMENTS, SHALE-LIKE ORGANIC LENSES
SOME FRACTURE RECRYSTALLIZED DARK BROWN SUCROSIC DOLOMITE

NODES AND THIN LAMINAE

1064 - 1066 CALCILUTITE; YELLOWISH GRAY TO LIGHT GRAY
01% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

1066 - 1068 DOLOSTONE; DARK BROWN TO MODERATE BROWN
30% POROSITY: INTERGRANULAR, VUGULAR
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: FISSILE
ACCESSORY MINERALS: CALCILUTITE-05%, ORGANICS-40%
OTHER FEATURES: SUCROSIC, WEATHERED
HIGH RECRYSTALLIZATION
HIGH RECRYSTALLIZED SUCROSIC DOLOMITE IN PORE SPACE

1068 - 1073.5 DOLOSTONE; MODERATE BROWN TO GRAYISH BROWN
20% POROSITY: FRACTURE, POSSIBLY HIGH PERMEABILITY
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-03%, ORGANICS-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC
VERTICAL FRACTURING, HARD RECRYSTALLIZED DOLOMITE ALONG
FRACTURE WALLS AND CAVITIES

1073.5- 1074 DOLOSTONE; GRAYISH BROWN
00% POROSITY: LOW PERMEABILITY; 90-100% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-01%
GREEN-GRAY CLAY INFILL SOME CAVITIES

1074 - 1093 DOLOSTONE; MODERATE YELLOWISH BROWN TO MODERATE BROWN
30% POROSITY: FRACTURE, POSSIBLY HIGH PERMEABILITY
VUGULAR; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-05%, ORGANICS-05%
OTHER FEATURES: WEATHERED, MEDIUM RECRYSTALLIZATION
DARK-BROWN FRACTURES DOLOMITE, REWORKED FRAGMENTS OF
NODULAR CALCILUTITE, SUBHEDRAL-EUHEDRAL DOLOMITE CRYSTAL
GROWTH WITHIN FRACTURE/VUGULAR PORE SPACE, RUBBLE-ZONE
APPEARANCE, ORGANIC GRAVEL

1093 - 1120 DOLOSTONE; GRAYISH BROWN RED TO MODERATE BROWN
35% POROSITY: VUGULAR, FRACTURE
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; EUHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
SEDIMENTARY STRUCTURES: INTERBEDDED
OTHER FEATURES: SUCROSIC, GRANULAR
DARK RED-BROWN VUGULAR DOLOMITE, HIGH SUBHEDRAL DOLOMITE

CRYSTAL GROWTH WITHIN FRACTURE AND VUGULAR POROSITY
INTERBEDDED LENSES OF LIGHT BROWN, SUCROSIC, HIGHLY POROUS
DOLOMITIC SAND WEAKLY CEMENTED END OF WIRELINE CORING
BEGIN DEEP EXPLORATORY DRILLING-BAGGED CUTTINGS

1120 - 1130 DOLOSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
15% POROSITY: POSSIBLY HIGH PERMEABILITY, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ORGANICS-01%
OTHER FEATURES: LOW RECRYSTALLIZATION
SOME EVIDENCE OF FRACTURE

1130 - 1140 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
15% POROSITY: POSSIBLY HIGH PERMEABILITY, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: LOW RECRYSTALLIZATION

1140 - 1150 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
15% POROSITY: POSSIBLY HIGH PERMEABILITY, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: LOW RECRYSTALLIZATION

1150 - 1160 DOLOSTONE; LIGHT OLIVE GRAY TO DARK YELLOWISH BROWN
20% POROSITY: POSSIBLY HIGH PERMEABILITY, FRACTURE
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION

1160 - 1170 DOLOSTONE; GRAYISH BROWN
02% POROSITY: POSSIBLY HIGH PERMEABILITY, PIN POINT VUGS
90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: LOW RECRYSTALLIZATION

1170 - 1180 DOLOSTONE; BROWNISH GRAY TO GRAYISH BROWN
20% POROSITY: POSSIBLY HIGH PERMEABILITY, FRACTURE
PIN POINT VUGS; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA
LOTS OF CALCARENITE FRAGMENTS,POSSIBLY WASHED OUT FROM UP HOLE

1180 - 1190 CALCARENITE; VERY LIGHT ORANGE TO DARK GRAYISH YELLOW
15% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE
MODERATE INDURATION

CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-10%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, PLANKTONIC FORAMINIFERA
FOSSIL FRAGMENTS

1190 - 1200 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL
GRAIN SIZE: COARSE; RANGE: MEDIUM TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-15%, CALCITE-02%
OTHER FEATURES: FOSSILIFEROUS, LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
FOSSIL MOLDS
DOLOSTONE HARD, FROSTED, SOME CALCITE IN MOLDS

1200 - 1210 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: SHELL-0 %
OTHER FEATURES: FROSTED
FOSSILS: FOSSIL FRAGMENTS
DOLOSTONE PROBABLY FROM ABOVE

1210 - 1220 DOLOSTONE; GRAYISH BROWN
02% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-02%
HARD, LOW POROSITY, LOW PERMEABILITY DOLOSTONE

1220 - 1230 DOLOSTONE; MODERATE YELLOWISH BROWN
03% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-02%, ORGANICS-01%
POSSIBLE FINE BLACK ORGANICS

1230 - 1240 DOLOSTONE; MODERATE YELLOWISH BROWN
02% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-02%, ORGANICS-01%

1240 - 1250 DOLOSTONE; MODERATE YELLOWISH BROWN
02% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-10%

1250 - 1270 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL

50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-20%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

1270 - 1290 DOLOSTONE; GRAYISH BROWN TO MODERATE YELLOWISH BROWN
02% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-25%
FOSSILS: BENTHIC FORAMINIFERA
LIMESTONE FRACTION FOSSILIFEROUS CALCARENITE WITH FORAMS

1290 - 1300 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
05% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-20%
OTHER FEATURES: LOW RECRYSTALLIZATION
DARKER, MORE CRYSTALLINE DOLOSTONE

1300 - 1310 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-15%

1310 - 1320 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-10%

1320 - 1330 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH BROWN
05% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
INTERGRANULAR; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-10%
OTHER FEATURES: CRYSTALLINE, LOW RECRYSTALLIZATION
INCREASINGLY CRYSTALLINE IN VOIDS

1330 - 1340 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-10%

1340 - 1350 DOLOSTONE; GRAYISH ORANGE
20% POROSITY: VUGULAR, POSSIBLY HIGH PERMEABILITY

INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: CRYPTOCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-20%
OTHER FEATURES: CRYSTALLINE, LOW RECRYSTALLIZATION

1350 - 1360 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH ORANGE
10% POROSITY: PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-05%

1360 - 1370 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
15% POROSITY: PIN POINT VUGS, POSSIBLY HIGH PERMEABILITY
VUGULAR; 0-10% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-60%

1370 - 1380 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: PIN POINT VUGS; 0-10% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-50%, CALCITE-02%
OTHER FEATURES: LOW RECRYSTALLIZATION

1380 - 1390 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH ORANGE
10% POROSITY: PIN POINT VUGS; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-40%, CALCITE-02%
OTHER FEATURES: LOW RECRYSTALLIZATION

1390 - 1400 CALCARENITE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: LITHOGRAPHIC TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-20%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS

1400 - 1420 DOLOSTONE; GRAYISH BROWN
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-30%

1420 - 1430 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH ORANGE
05% POROSITY: PIN POINT VUGS, LOW PERMEABILITY
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE

RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-02%

1430 - 1440 DOLOSTONE; GRAYISH ORANGE
02% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: LIMESTONE-05%, ORGANICS-01%

1440 - 1450 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: FOSSIL MOLDS

1450 - 1460 CALCARENITE; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: LITHOGRAPHIC TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: DOLOMITE-10%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS

1460 - 1470 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: LITHOGRAPHIC TO VERY COARSE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-05%
FOSSILS: FOSSIL FRAGMENTS

1470 - 1490 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
HARD, LOW PERMEABLE DOLOSTONE

1490 - 1500 DOLOSTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-02%
FOSSILS: FOSSIL FRAGMENTS

1500 - 1525 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
01% POROSITY: LOW PERMEABILITY; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
UNIDENTIFIABLE WEATHERED FORAMS

1525 - 1530 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
02% POROSITY: LOW PERMEABILITY, MOLDIC; 10-50% ALTERED
ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO COARSE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
FOSSIL MOLDS
INTERBEDDED HARD DOLOSTONE AND CALCARENITE LENSES

1530 - 1540 DOLOSTONE; GRAYISH ORANGE TO MODERATE YELLOWISH BROWN
03% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-30%
OTHER FEATURES: LOW RECRYSTALLIZATION

1540 - 1550 DOLOSTONE; GRAYISH ORANGE TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-10%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: FOSSIL FRAGMENTS
CUTTINGS MOSTLY DOLOMITIZED FOSSIL FRAGMENTS HIGHLY
WEATHERED

1550 - 1560 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
05% POROSITY: LOW PERMEABILITY, INTERGRANULAR
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: ORGANICS-05%
THIN ORGANIC LAMINAE,PLATY FOSSIL FRAGMENTS/CUTTINGS

1560 - 1570 DOLOSTONE; GRAYISH ORANGE TO DARK YELLOWISH ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
FOSSILS: FOSSIL MOLDS, MOLLUSKS

1570 - 1580 DOLOSTONE; GRAYISH BROWN TO YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: LIMESTONE-20%, ORGANICS-05%
OTHER FEATURES: PLATY
FOSSILS: BENTHIC FORAMINIFERA

THIN ORGANIC LAMINAE, CUTTINGS ALL HAVE SIMILAR FOLIATION

1580 - 1590 DOLOSTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
05% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-01%, GYPSUM-01%
FOSSILS: BENTHIC FORAMINIFERA

1590 - 1600 DOLOSTONE; YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-03%, GYPSUM-02%
CRYSTALLINE GYPSUM/ANHYDRITE PARTIALLY FILLING VUGULAR PORE SPACE

1600 - 1610 DOLOSTONE; MODERATE YELLOWISH BROWN
05% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
INTERGRANULAR; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-02%, GYPSUM-01%
ORGANICS-01%

1610 - 1620 DOLOSTONE; MODERATE YELLOWISH BROWN
05% POROSITY: LOW PERMEABILITY, INTERGRANULAR
50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-20%, GYPSUM-02%
ORGANICS-01%
OTHER FEATURES: LOW RECRYSTALLIZATION
HARD LOW PERMEABILITY DOLOSTONE WITH INTERGRANULAR/VOID ANHYDRITE

1620 - 1630 DOLOSTONE; GRAYISH ORANGE TO YELLOWISH GRAY
02% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-10%, GYPSUM-01%
ORGANICS-02%
OTHER FEATURES: LOW RECRYSTALLIZATION

1630 - 1640 DOLOSTONE; DARK YELLOWISH BROWN TO MODERATE YELLOWISH BROWN
01% POROSITY: LOW PERMEABILITY; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-25%, CALCITE-05%
ORGANICS-03%
OTHER FEATURES: SUCROSIC

HARD CRYSTALLINE DOLOSTONE WITH GRAVEL/PEBBLE SIZE
ANHYDRITE

1640 - 1650 DOLOSTONE; MODERATE YELLOWISH BROWN TO DARK YELLOWISH ORANGE
01% POROSITY: LOW PERMEABILITY, INTERGRANULAR
90-100% ALTERED; EUHEDRAL
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): ANHYDRITE CEMENT, GYPSUM CEMENT
ACCESSORY MINERALS: ANHYDRITE-20%, GYPSUM-10%
OTHER FEATURES: SUCROSIC, GRANULAR
HARD SUCROSIC DOLOSTONE WITH INTERGRANULAR ANHYDRITE/GYPSUM
CEMENT

1650 - 1658 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
00% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: ORGANICS-03%, GYPSUM-02%
OTHER FEATURES: LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS
UNIDENTIFIABLE GYPSUM-REPLACED FOSSIL FRAGMENTS

1658 - 1663 CALCARENITE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, PIN POINT VUGS, VUGULAR
GRAIN TYPE: BIOGENIC, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: CALCITE-05%, GYPSUM-10%, ANHYDRITE-05%
ORGANICS-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
SAW-TOOTH CALCITE IN VUGULAR PORE SPACE GRANULAR-PEBBLE
SIZE ANHYDRITE

1663 - 1671 DOLOSTONE; MODERATE BROWN TO MODERATE BROWN
25% POROSITY: VUGULAR, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY; 90-100% ALTERED; EUHEDRAL
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT
ACCESSORY MINERALS: ORGANICS-05%, QUARTZ SAND-03%
GYPSUM-05%, ANHYDRITE-03%
OTHER FEATURES: SUCROSIC
FOSSILS: ECHINOID
GYPSUM-REPLACED FOSSIL FRAGMENTS

1671 - 1674 DOLOSTONE; MODERATE BROWN
05% POROSITY: PIN POINT VUGS; 90-100% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT
GYPSUM CEMENT
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: ORGANICS-05%, ANHYDRITE-40%
GYPSUM-05%
NODULAR AND POROSITY FILLING ANHYDRITE/GYPSUM

1674 - 1685 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
02% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, ANHYDRITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-30%, GYPSUM-02%
OTHER FEATURES: FROSTED

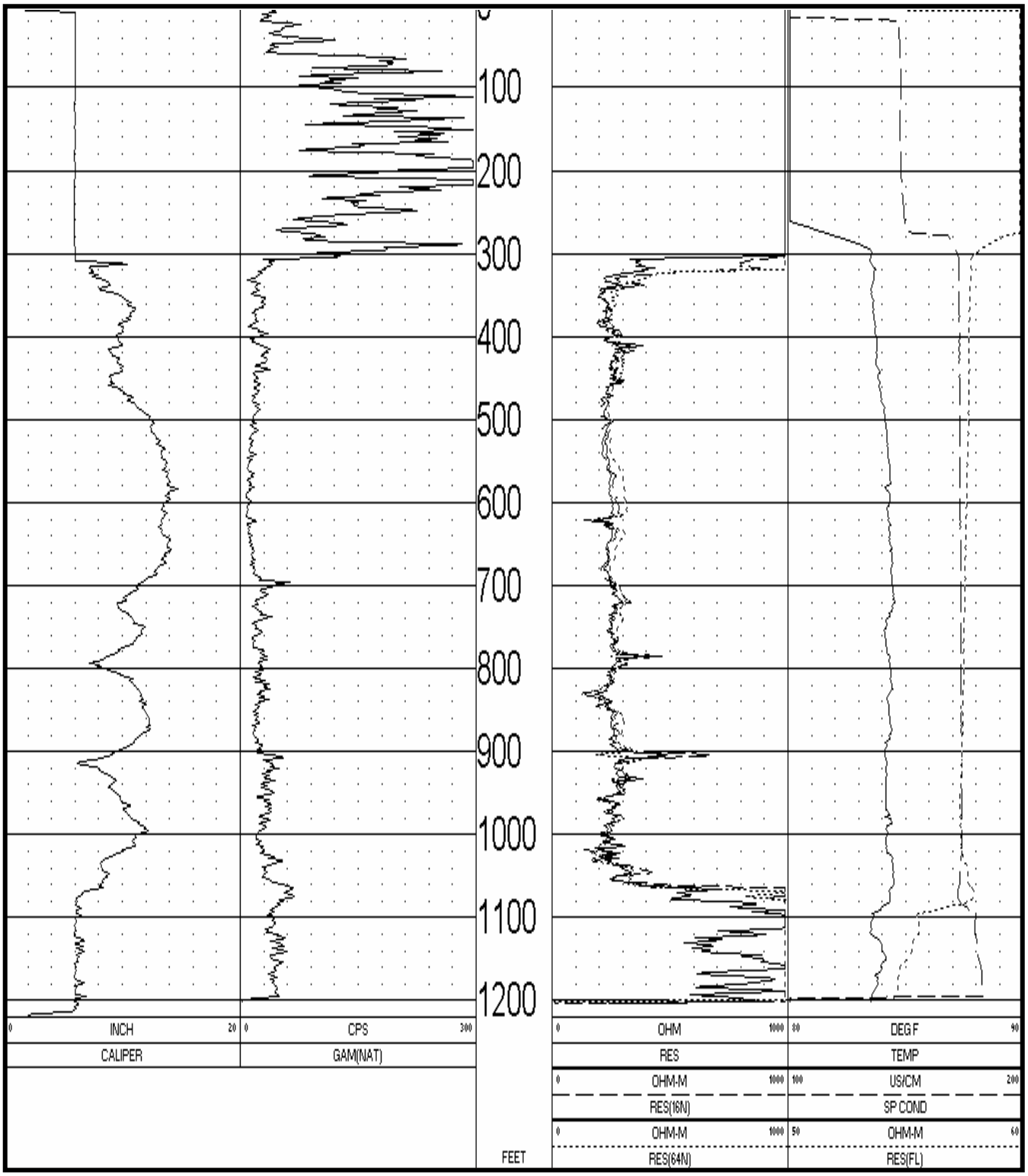
1685 - 1690 DOLOSTONE; GRAYISH ORANGE
01% POROSITY: LOW PERMEABILITY; 50-90% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): ANHYDRITE CEMENT, DOLOMITE CEMENT
ACCESSORY MINERALS: ANHYDRITE-50%, GYPSUM-02%
OTHER FEATURES: FROSTED
ANHYDRITE FROSTED DOLOSTONE WITH PEBBLE SIZED ANHYDRITE NODES

1690 - 1697 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH ORANGE
05% POROSITY: LOW PERMEABILITY
GRAIN TYPE: BIOGENIC; 50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: COARSE; RANGE: VERY FINE TO COARSE

APPENDIX E

Geophysical Log Suites

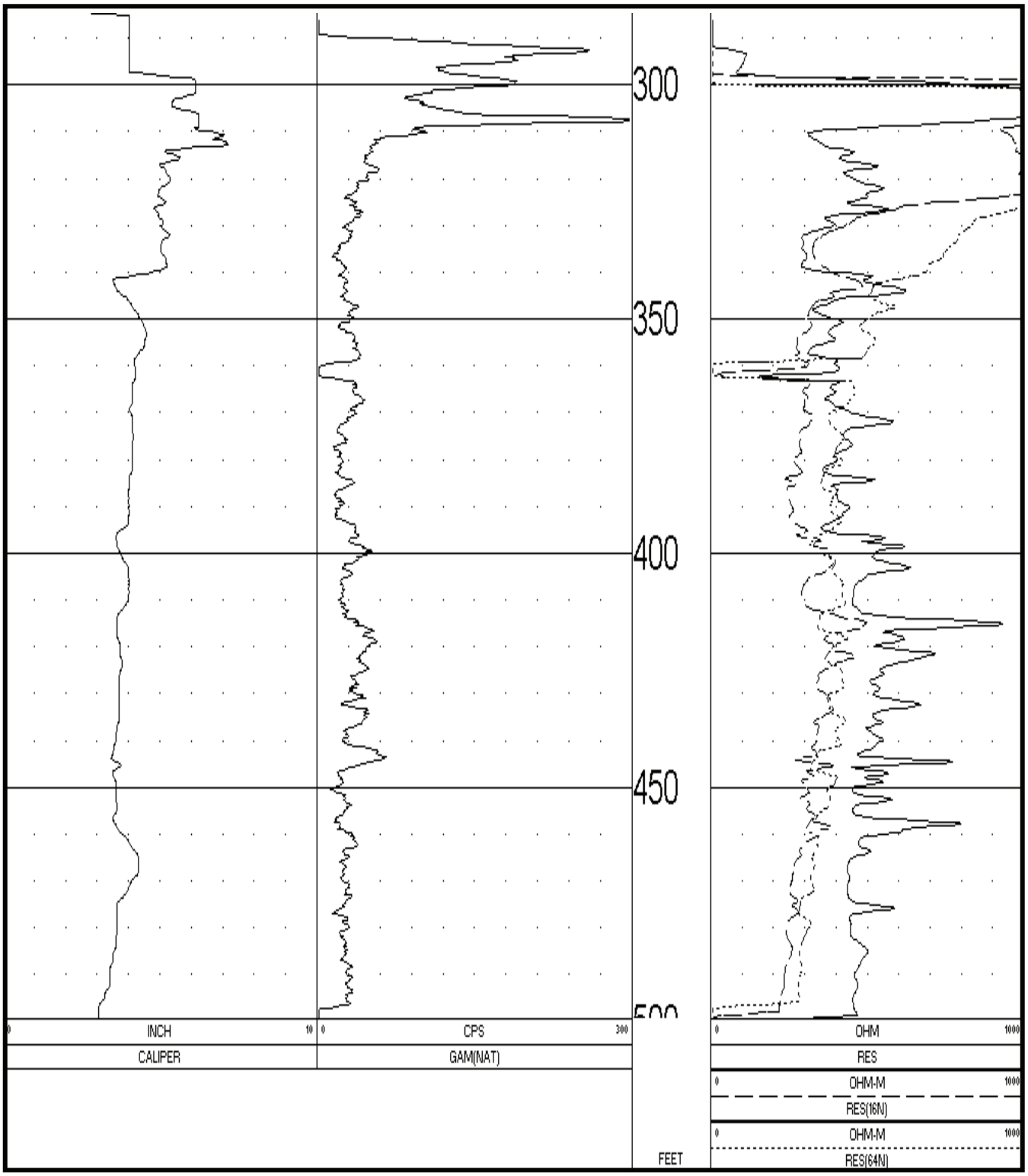
Suite:	CALIPER, MULTI-TOOL
Run:	02/16/05 - SWFWMD
Casing:	6” PVC (0-310 ft bls)
Open Hole:	6” nominal borehole (310-1218 ft bls)



ROMP 43 – Bee Branch

Appendix E.1: Geophysical Log Suite – CAL, MULTI
Corehole (logged: 0-1218 feet bls)

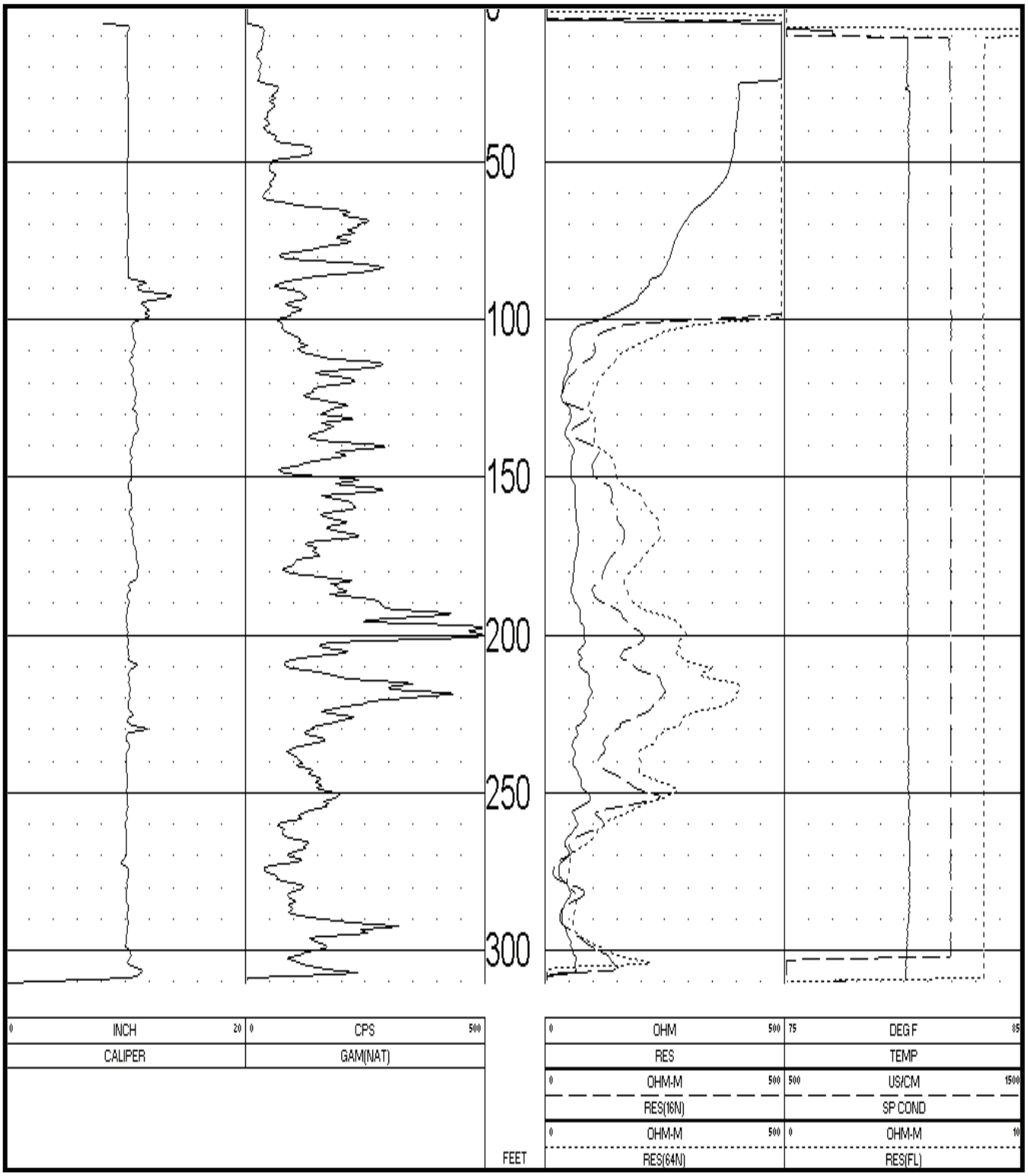
Suite:	CALIPER, MULTI-TOOL
Run:	04/03/02 - SWFWMD
Casing:	6” PVC (0-310 ft bls), 4” steel (0-296 ft bls)
Open Hole:	4” nominal borehole (310-340 ft bls)
	3” nominal corehole (340-500 ft bls)



ROMP 43 – Bee Branch

Appendix E.2: Geophysical Log Suite – CAL, MULTI
Corehole (logged: 284-500 feet bls)

Suite:	CALIPER, MULTI-TOOL
Run:	03/18/02 - SWFWMD
Casing:	10” PVC (0-87 ft bls)
Open Hole:	9 7/8” corehole (87-310 ft bls)



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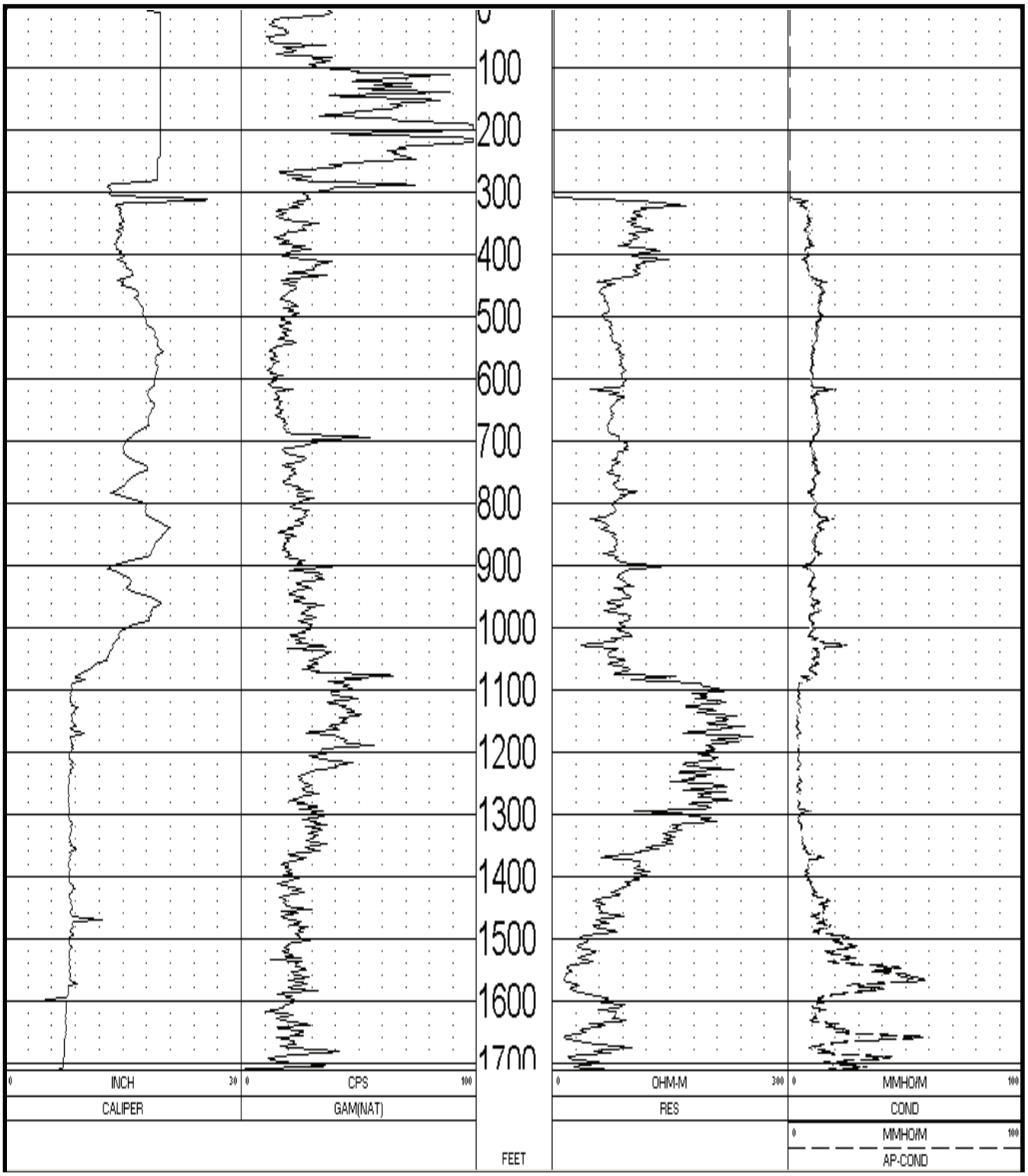
Appendix E.3: Geophysical Log Suite – CAL, MULTI
Corehole (logged: 0-310 feet bls)

Suite:	CALIPER, INDUCTION
Run:	01/15/03 - SWFWMD
Casing:	26” Steel (0-85 ft bls), 20” Steel (0-310 ft bls)
Open Hole:	12” nominal borehole (310-1050 ft bls)
	8” nominal borehole (1050-1713 ft bls)

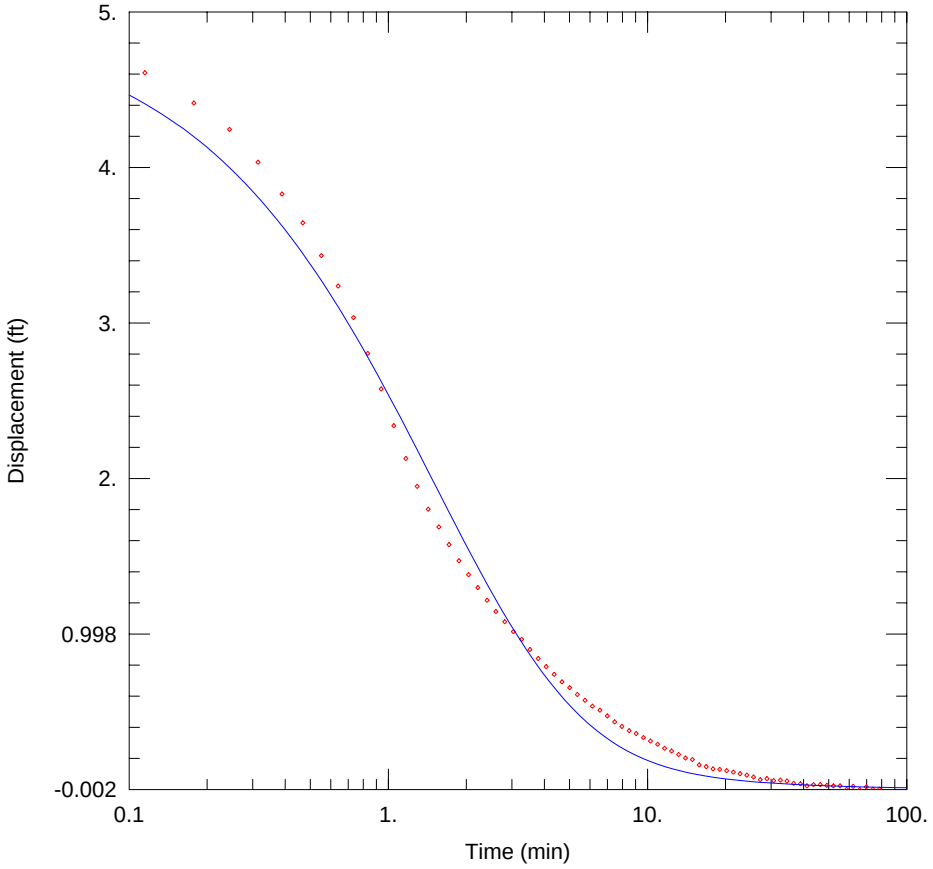


ROMP 43 – Bee Branch

Appendix E.4: Geophysical Log Suite – CAL, INDUCTION
MW5 (logged: 0-1713 feet bls)

APPENDIX F

Slug Test Analytical Solutions/Curve-Match Analyses



R43_PT1_87-120

Data Set: D:\romp_43\report\appendix E\r43_PT1_87-120.aqt
Date: 10/19/06 Time: 14:24:51

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 02/5/02

AQUIFER DATA

Saturated Thickness: 106. ft

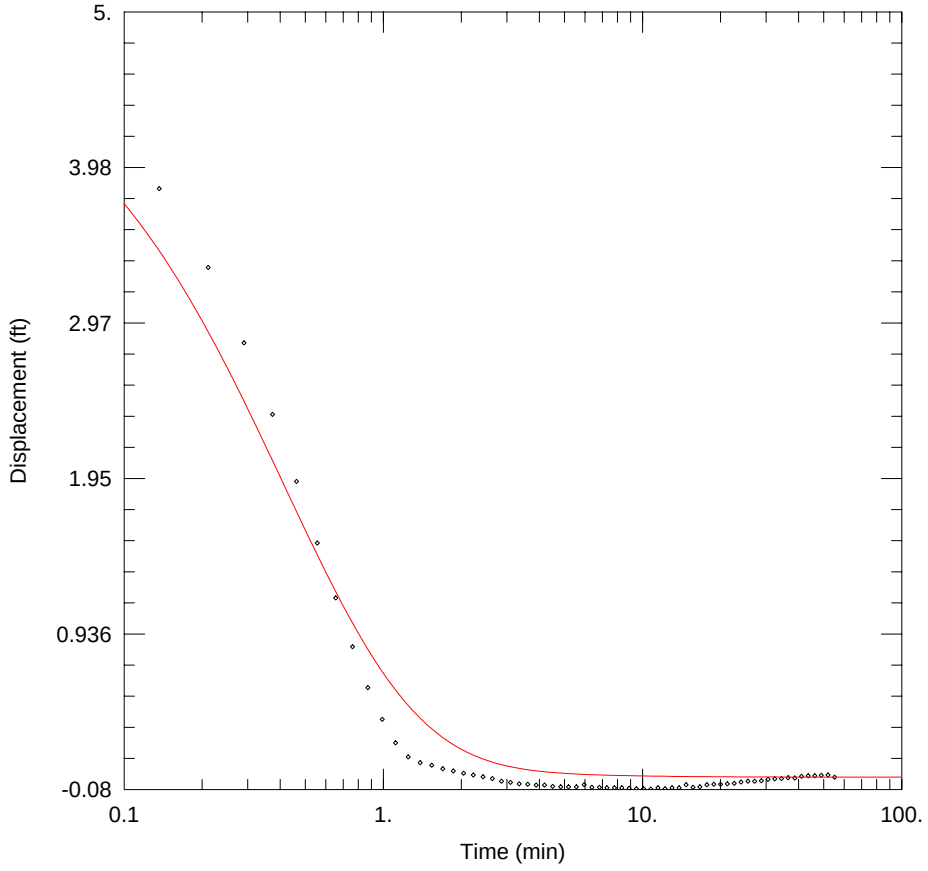
WELL DATA (Corehole)

Initial Displacement: 4.992 ft
Total Well Penetration Depth: 73. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 109.2 ft
Screen Length: 33. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.4534 ft/day
Kz/Kr = 0.1
Ss = 5.368E-5 ft^{-1}



R43_PT2_125-160

Data Set: D:\romp_43\report\appendix E\r43_PT2_125-160.aqt
Date: 10/19/06 Time: 14:25:16

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: Corehole
Test Date: 02/6/02

AQUIFER DATA

Saturated Thickness: 106. ft

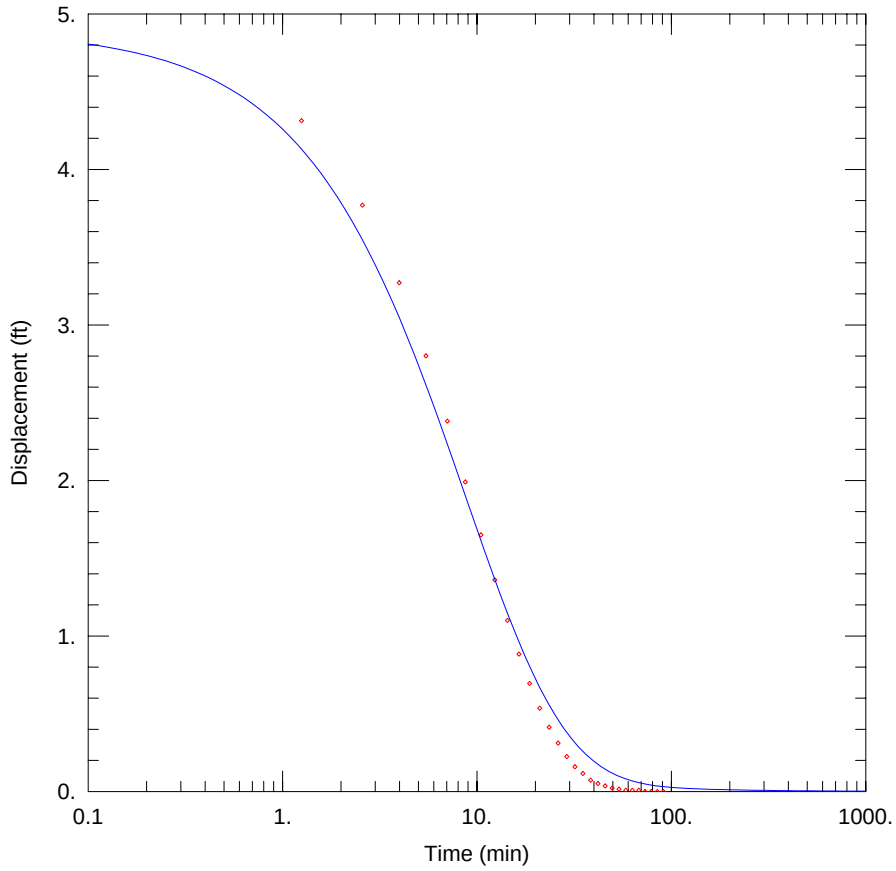
WELL DATA (corehole)

Initial Displacement: 4.921 ft
Total Well Penetration Depth: 113. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 149.3 ft
Screen Length: 35. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 3.443 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT3_172-200

Data Set: D:\romp_43\report\appendix E\r43_PT3_172-200.aqt
Date: 10/19/06 Time: 14:28:42

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 02/12/02

AQUIFER DATA

Saturated Thickness: 46. ft

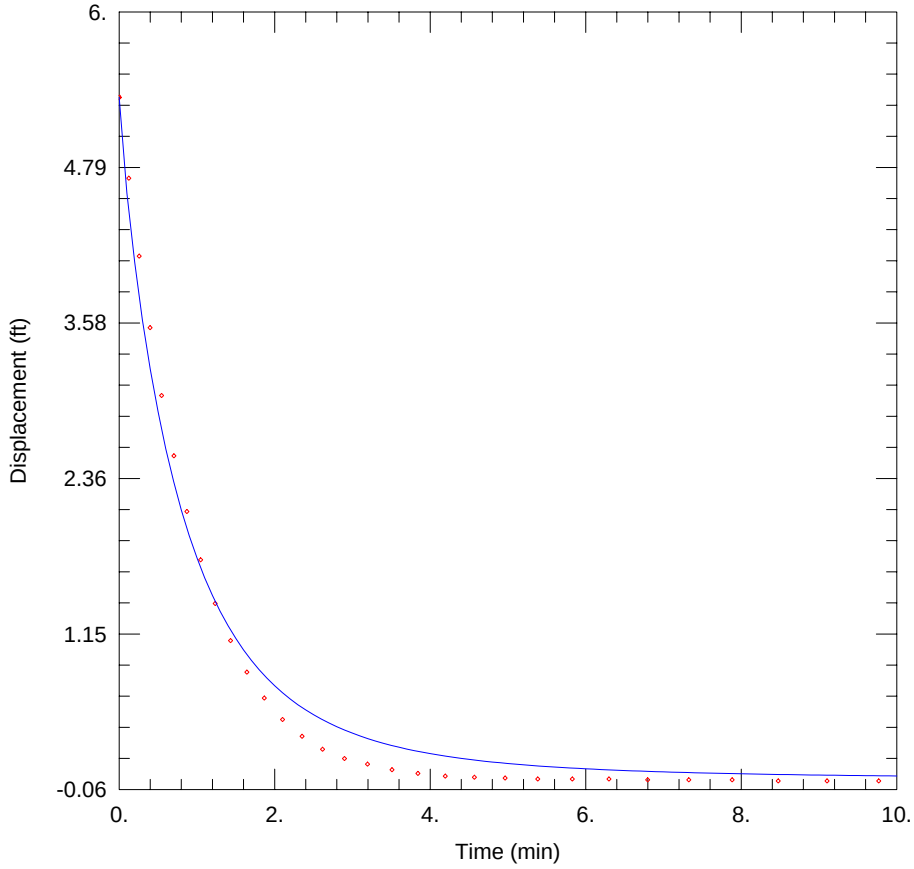
WELL DATA (corehole)

Initial Displacement: 4.899 ft
Total Well Penetration Depth: 50. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 173.9 ft
Screen Length: 28. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.1878 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT6_201-260

Data Set: D:\romp_43\report\appendix E\r43_PT6_201-260.aqt
Date: 10/19/06 Time: 14:29:30

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 02/18/02

AQUIFER DATA

Saturated Thickness: 36. ft

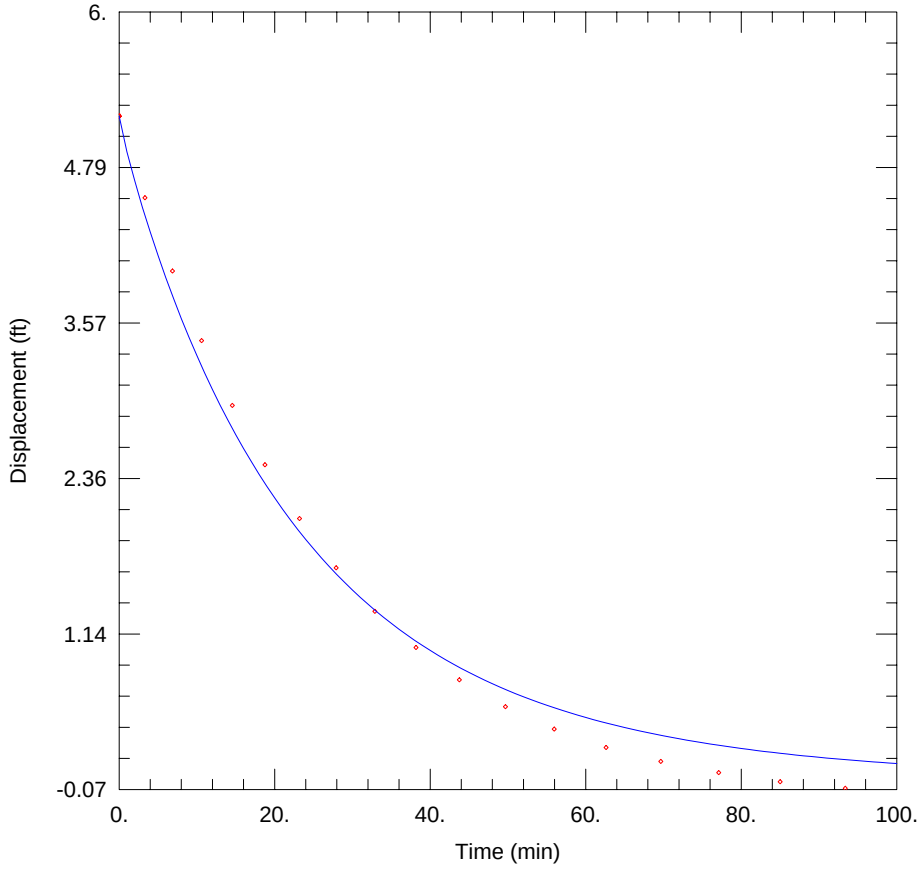
WELL DATA (corehole)

Initial Displacement: 5.334 ft
Total Well Penetration Depth: 64. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 234.1 ft
Screen Length: 59. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 1.421 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT7_269-280

Data Set: D:\romp_43\report\appendix E\r43_PT7_269-280.aqt
Date: 10/19/06 Time: 14:29:52

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 02/19/02

AQUIFER DATA

Saturated Thickness: 66. ft

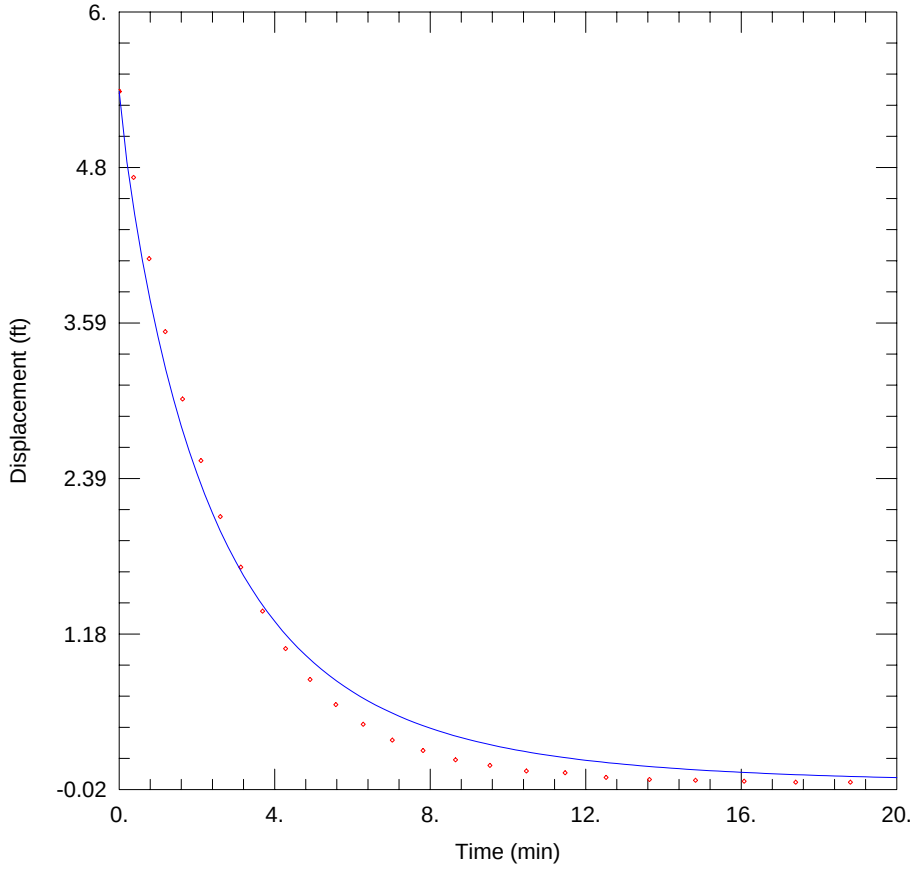
WELL DATA (corehole)

Initial Displacement: 5.186 ft
Total Well Penetration Depth: 48. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 254.8 ft
Screen Length: 11. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.1355 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT8_269-300

Data Set: D:\romp_43\report\appendix E\r43_PT8_269-300.aqt
Date: 10/19/06 Time: 14:30:16

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 02/20/02

AQUIFER DATA

Saturated Thickness: 68. ft

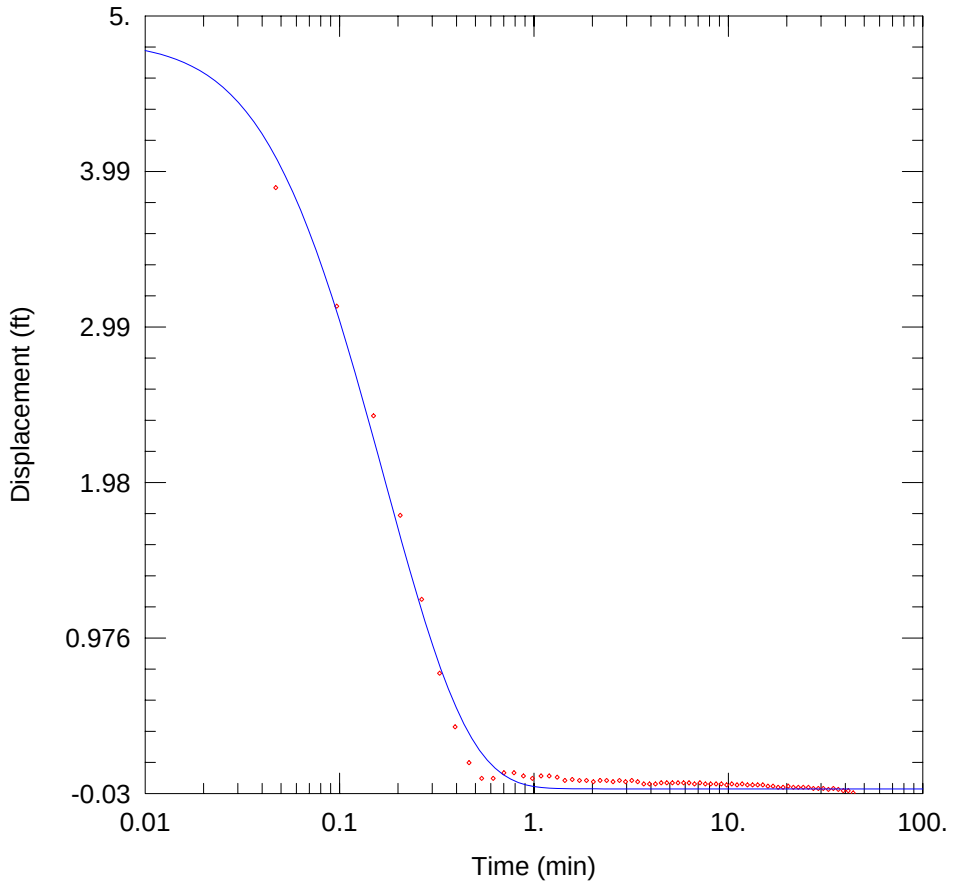
WELL DATA (corehole)

Initial Displacement: 5.384 ft
Total Well Penetration Depth: 68. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 274.5 ft
Screen Length: 31. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.4644 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT9_292-340

Data Set: D:\romp_43\report\appendix E\r43_PT9_292-340.aqt
Date: 10/19/06 Time: 14:19:20

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 02/21/2002

AQUIFER DATA

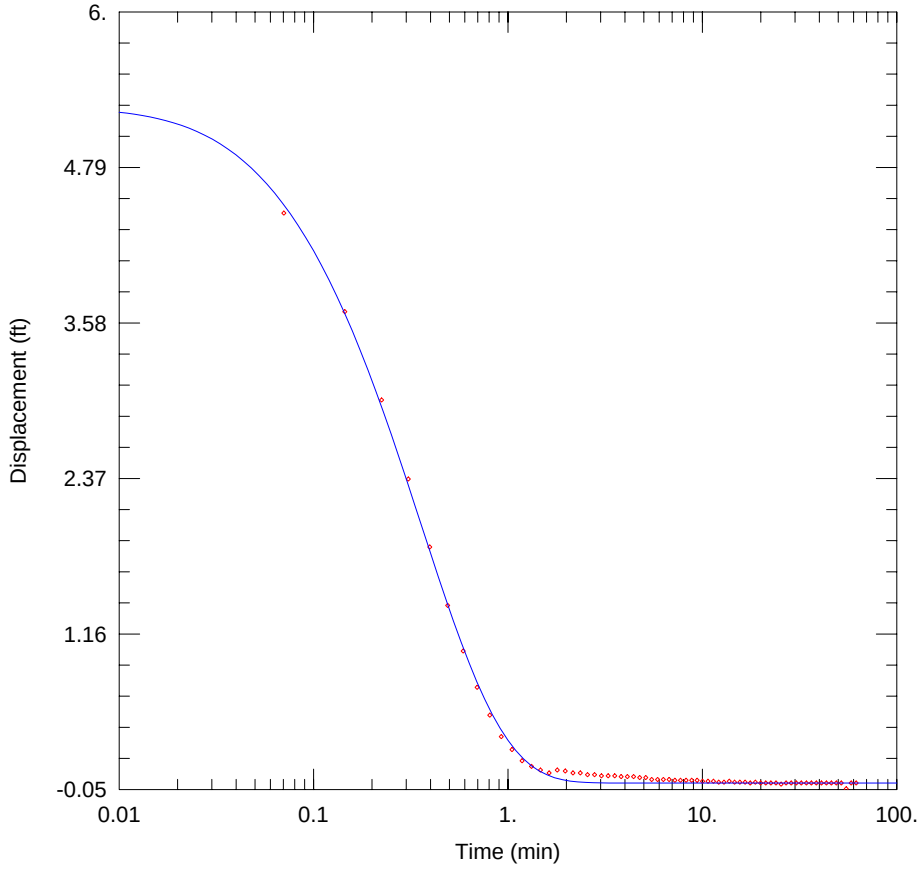
Saturated Thickness: 1282. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (corehole)

Initial Displacement: 4.837 ft
Total Well Penetration Depth: 48. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 314.4 ft
Screen Length: 48. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 6.106 ft/day
Le = 381. ft



R43_PT10_340-380

Data Set: D:\romp_43\report\appendix E\r43_PT10_340-380.aqt
Date: 10/19/06 Time: 14:20:20

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 03/26/02

AQUIFER DATA

Saturated Thickness: 1282. ft Anisotropy Ratio (Kz/Kr): 0.1

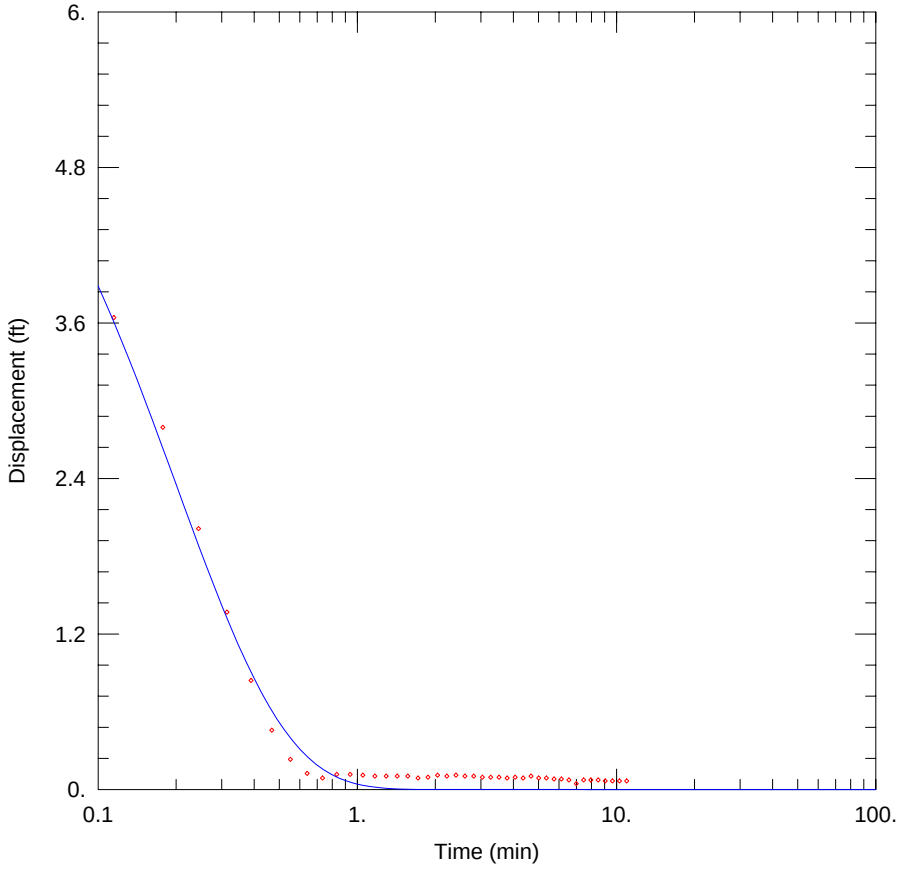
WELL DATA (corehole)

Initial Displacement: 5.26 ft
Total Well Penetration Depth: 82. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 347.6 ft
Screen Length: 40. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 3.309 ft/day
Le = 594.4 ft



R43_PT11_412-440

Data Set: D:\romp_43\report\appendix E\r43_PT11_412-440.aqt
Date: 10/19/06 Time: 14:20:55

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 03/27/02

AQUIFER DATA

Saturated Thickness: 1282. ft Anisotropy Ratio (Kz/Kr): 0.1

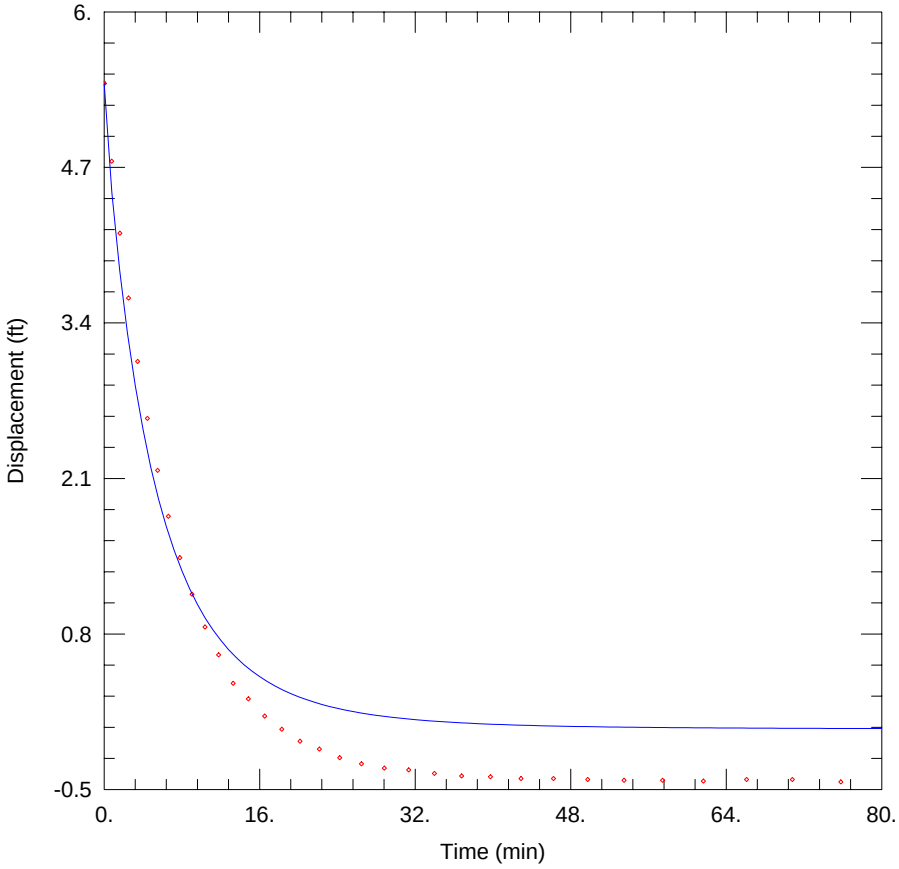
WELL DATA (corehole)

Initial Displacement: 5.638 ft
Total Well Penetration Depth: 142. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 407.9 ft
Screen Length: 28. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 7.494 ft/day
Le = 579.6 ft



R43_PT12_455-480

Data Set: D:\romp_43\report\appendix E\r43_PT12_455-480.aqt
Date: 10/19/06 Time: 14:21:25

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 04/01/02

AQUIFER DATA

Saturated Thickness: 1282. ft

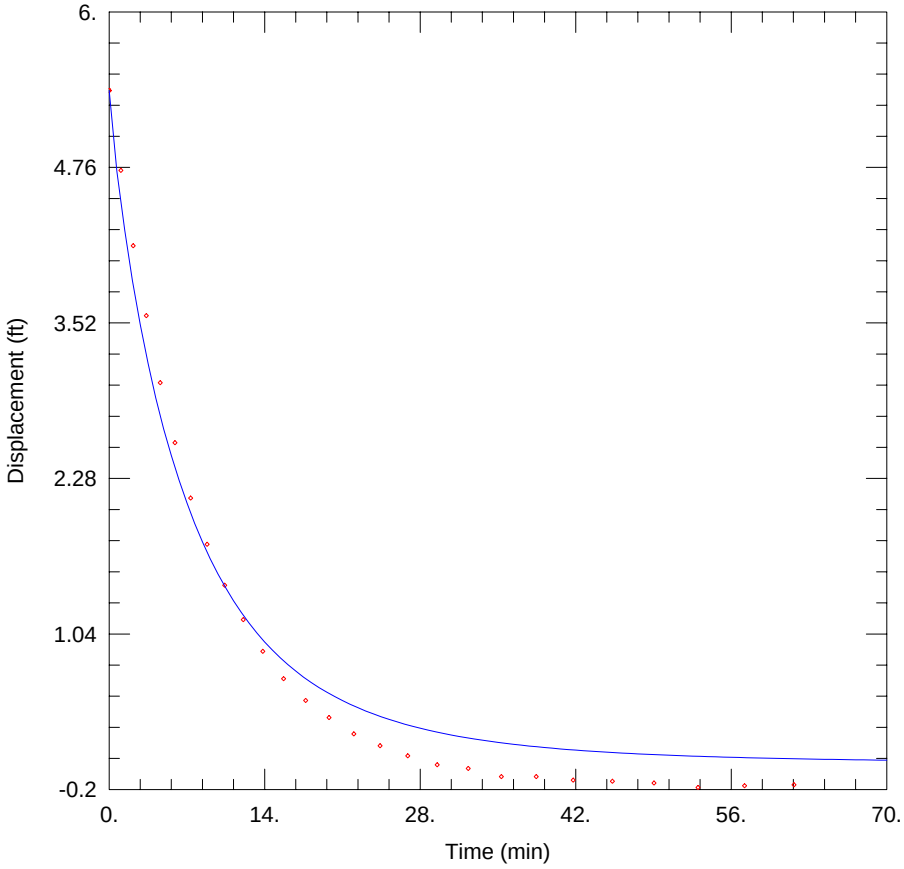
WELL DATA (corehole)

Initial Displacement: 5.402 ft
Total Well Penetration Depth: 182. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 447. ft
Screen Length: 25. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.2695 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT14_508-540

Data Set: D:\romp_43\report\appendix E\r43_PT14_508-540.aqt
Date: 10/19/06 Time: 14:21:54

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 04/08/02

AQUIFER DATA

Saturated Thickness: 1282. ft

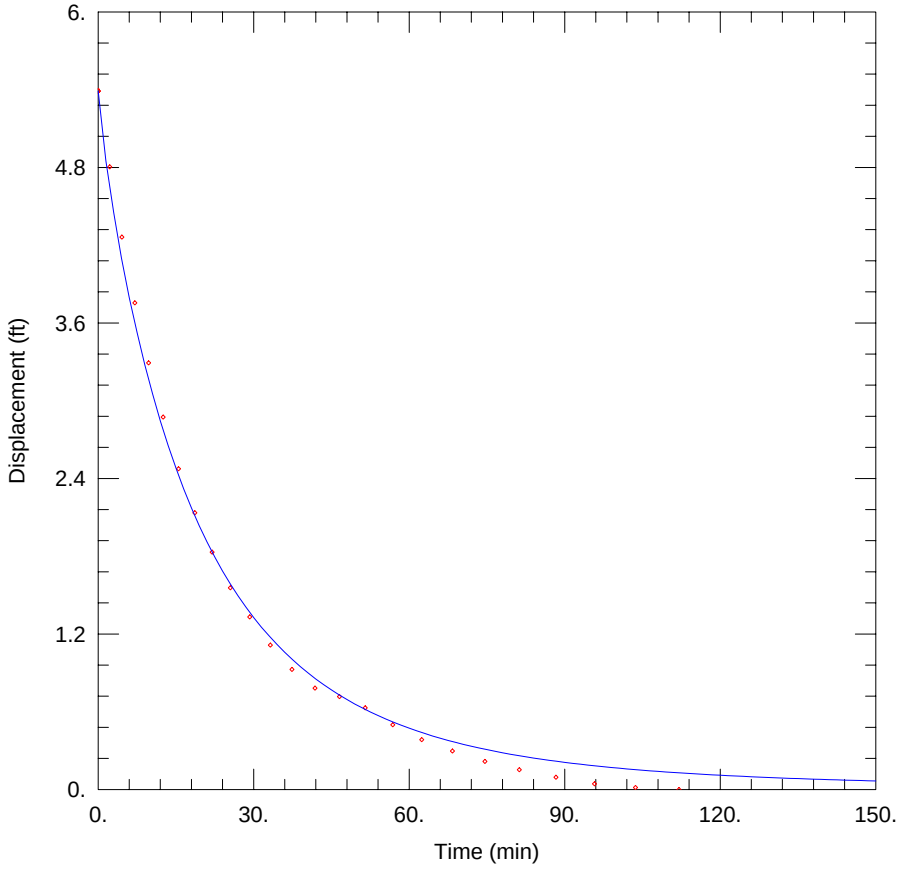
WELL DATA (corehole)

Initial Displacement: 5.373 ft
Total Well Penetration Depth: 242. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 508.5 ft
Screen Length: 32. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.1522 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT16_583-620

Data Set: D:\romp_43\report\appendix E\r43_PT16_583-620.aqt
Date: 10/19/06 Time: 14:22:24

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 04/11/02

AQUIFER DATA

Saturated Thickness: 1282. ft

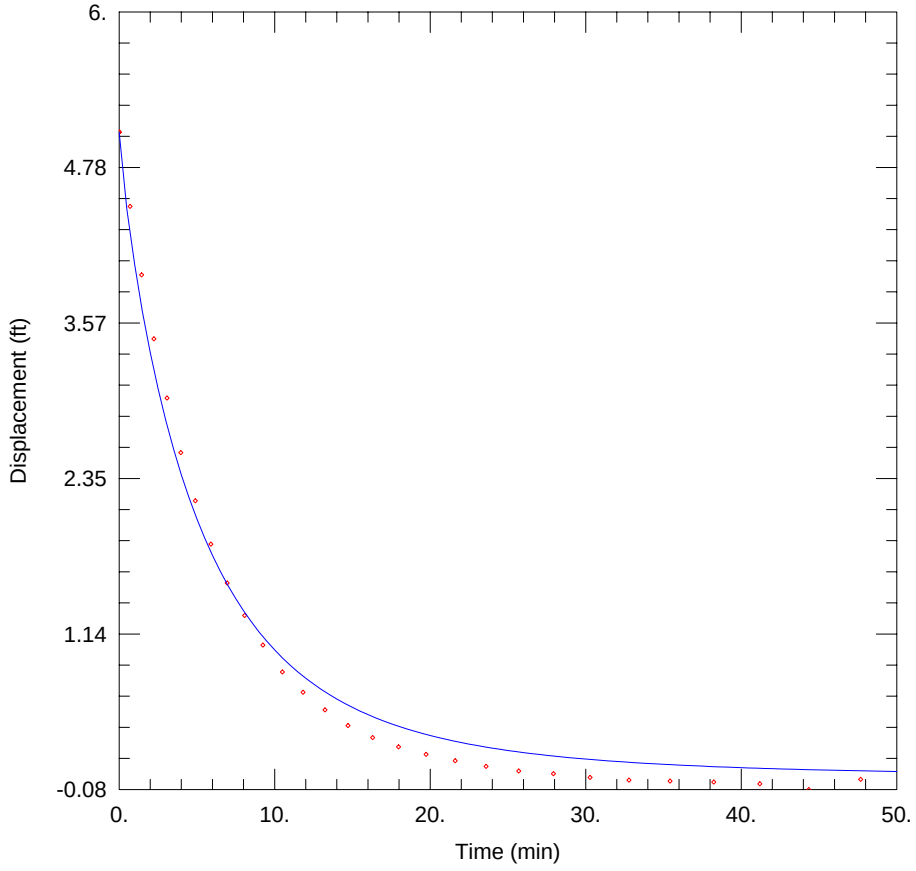
WELL DATA (corehole)

Initial Displacement: 5.39 ft
Total Well Penetration Depth: 322. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 577.9 ft
Screen Length: 37. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.04849 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT17_620-680

Data Set: D:\romp_43\report\appendix E\r43_PT17_620-680.aqt
Date: 10/19/06 Time: 14:22:58

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 04/16/02

AQUIFER DATA

Saturated Thickness: 1282. ft

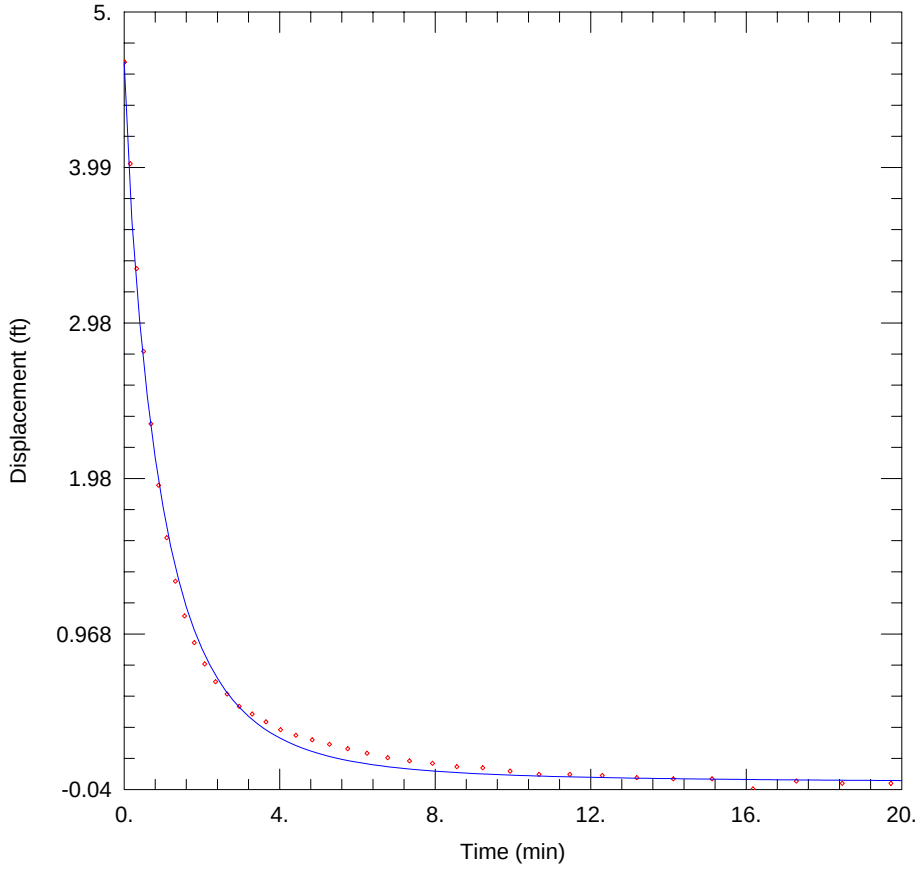
WELL DATA (corehole)

Initial Displacement: 5.058 ft
Total Well Penetration Depth: 382. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 647.4 ft
Screen Length: 60. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.1044 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT18_708-740

Data Set: D:\romp_43\report\appendix E\r43_PT18_708-740.aqt
Date: 10/19/06 Time: 14:23:28

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 04/22/02

AQUIFER DATA

Saturated Thickness: 1282. ft

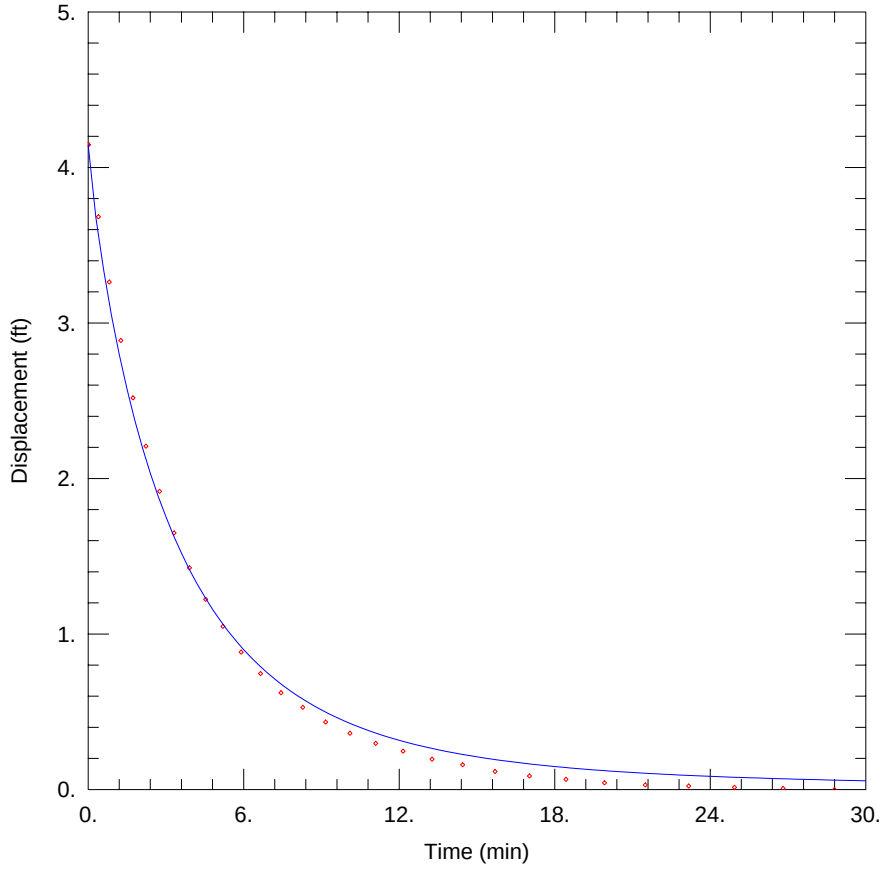
WELL DATA (corehole)

Initial Displacement: 4.674 ft
Total Well Penetration Depth: 442. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 707.3 ft
Screen Length: 32. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.9429 ft/day
Kz/Kr = 0.1
Ss = 7.421E-6 ft^{-1}



R43_PT19_739-800

Data Set: D:\romp_43\report\appendix E\r43_PT19_739-800.aqt
Date: 10/19/06 Time: 14:23:53

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 04/24/02

AQUIFER DATA

Saturated Thickness: 1282. ft

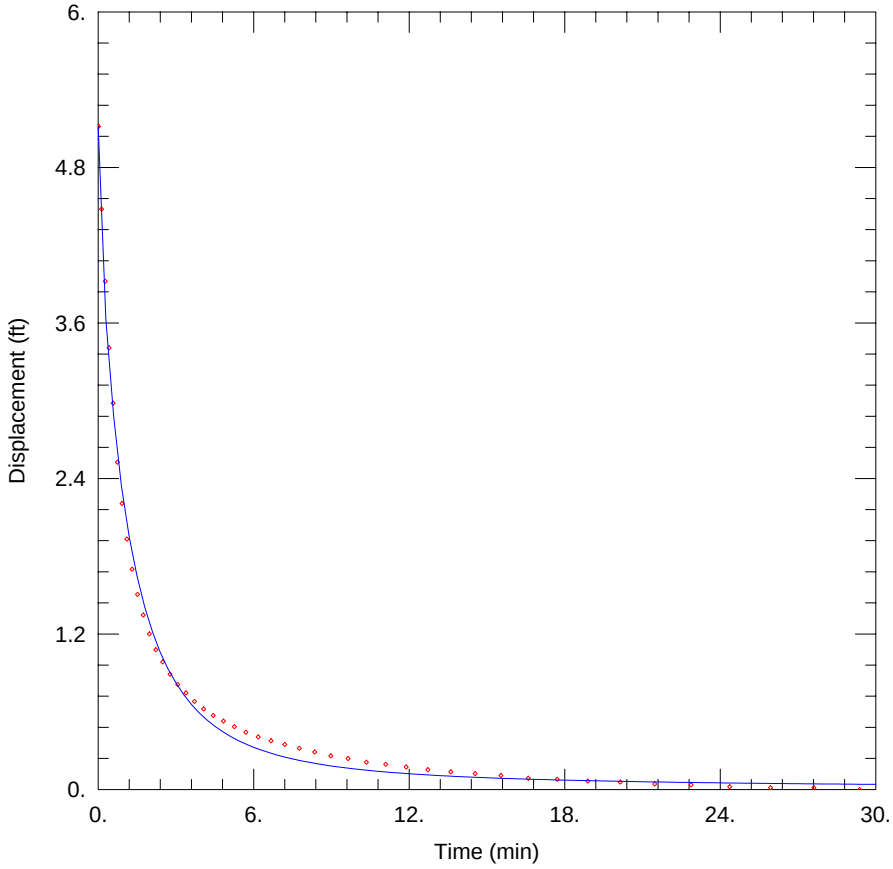
WELL DATA (corehole)

Initial Displacement: 4.146 ft
Total Well Penetration Depth: 502. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 766.3 ft
Screen Length: 61. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.1601 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT20_789-860

Data Set: D:\romp_43\report\appendix E\r43_PT20_789-860.aqt
Date: 10/19/06 Time: 14:25:43

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 05/07/02

AQUIFER DATA

Saturated Thickness: 1282. ft

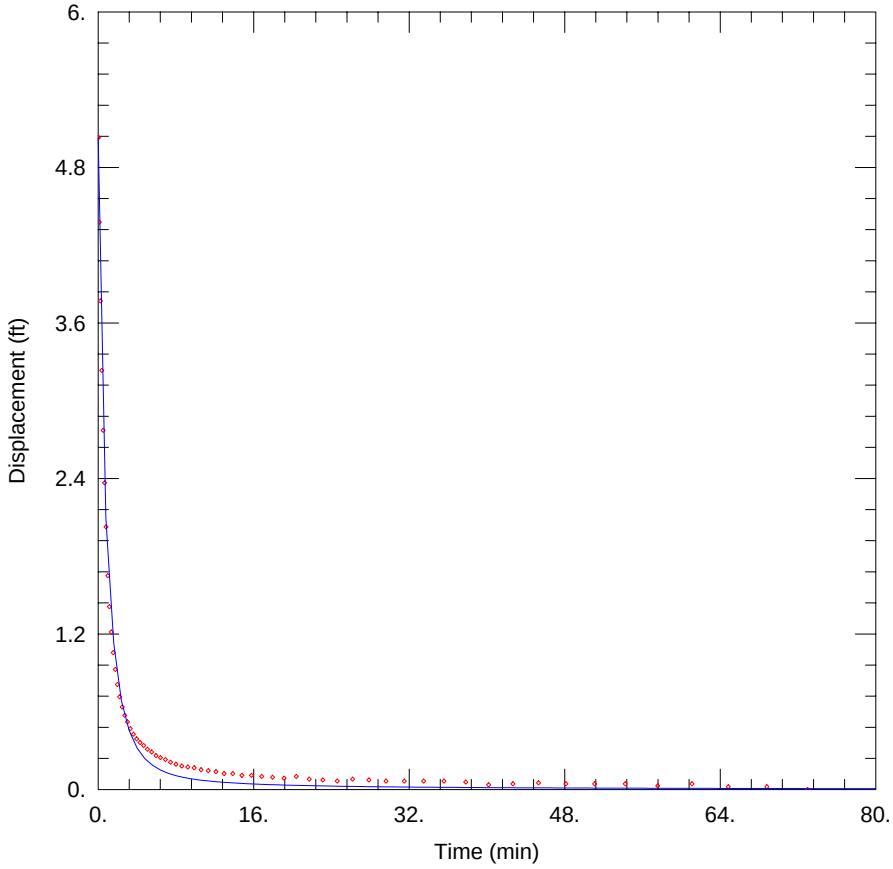
WELL DATA (corehole)

Initial Displacement: 5.115 ft
Total Well Penetration Depth: 562. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 821.8 ft
Screen Length: 71. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.2314 ft/day
Kz/Kr = 0.1
Ss = 6.881E-5 ft^{-1}



R43_PT21_860-920

Data Set: D:\romp_43\report\appendix E\r43_PT21_860-920.aqt
Date: 10/19/06 Time: 14:26:09

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 05/14/02

AQUIFER DATA

Saturated Thickness: 1282. ft

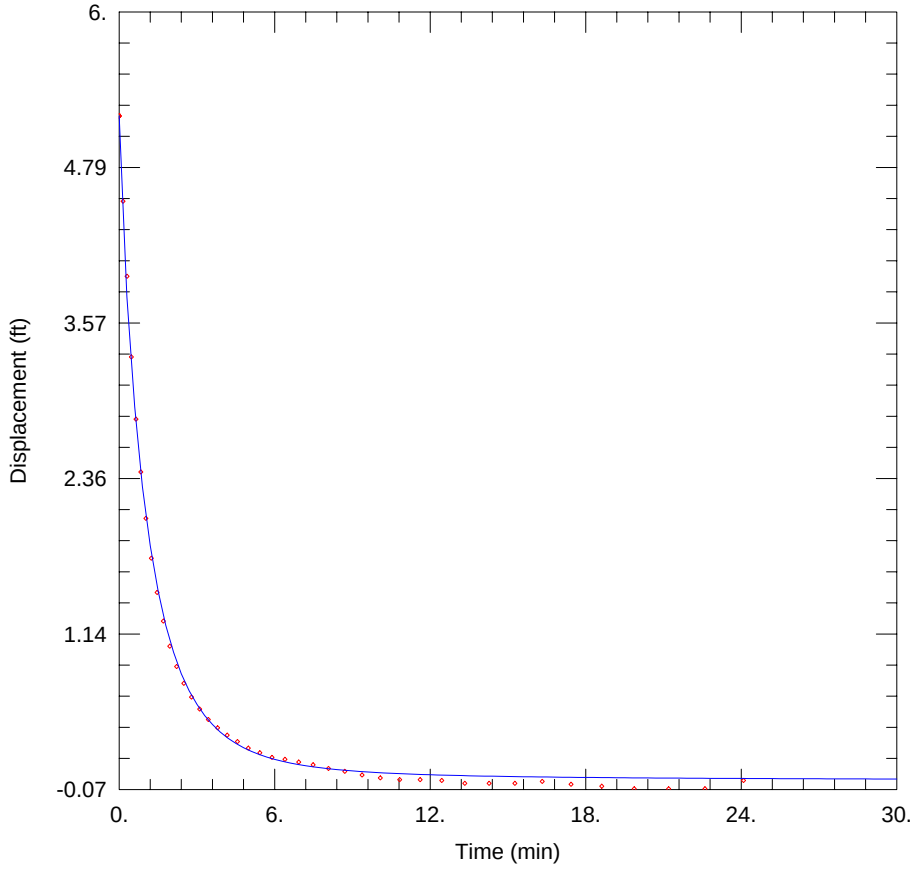
WELL DATA (corehole)

Initial Displacement: 5.029 ft
Total Well Penetration Depth: 622. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 879.3 ft
Screen Length: 60. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.4634 ft/day
Kz/Kr = 0.1
Ss = 1.915E-5 ft^{-1}



R43_PT22_925-980

Data Set: D:\romp_43\report\appendix E\r43_PT22_925-980.aqt
Date: 10/19/06 Time: 14:26:39

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 05/16/02

AQUIFER DATA

Saturated Thickness: 1282. ft

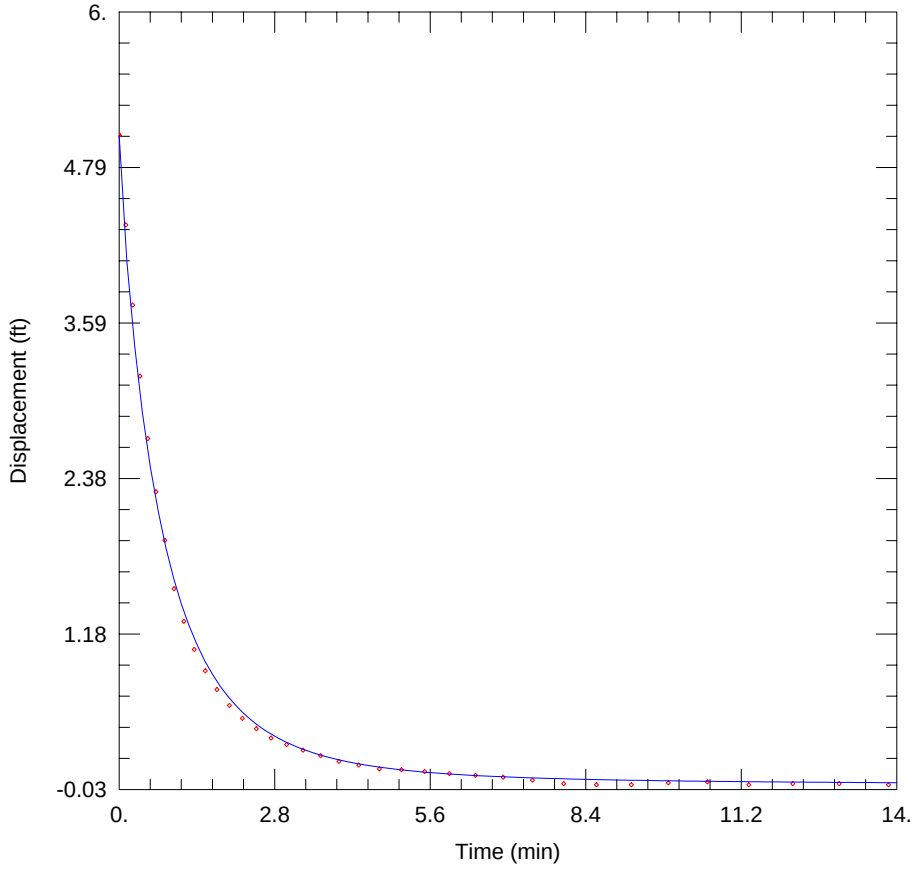
WELL DATA (corehole)

Initial Displacement: 5.187 ft
Total Well Penetration Depth: 682. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 938.2 ft
Screen Length: 55. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.5599 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT23_982-1040

Data Set: D:\romp_43\report\appendix E\r43_PT23_982-1040.aqt
Date: 10/19/06 Time: 14:27:04

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 05/23/02

AQUIFER DATA

Saturated Thickness: 1282. ft

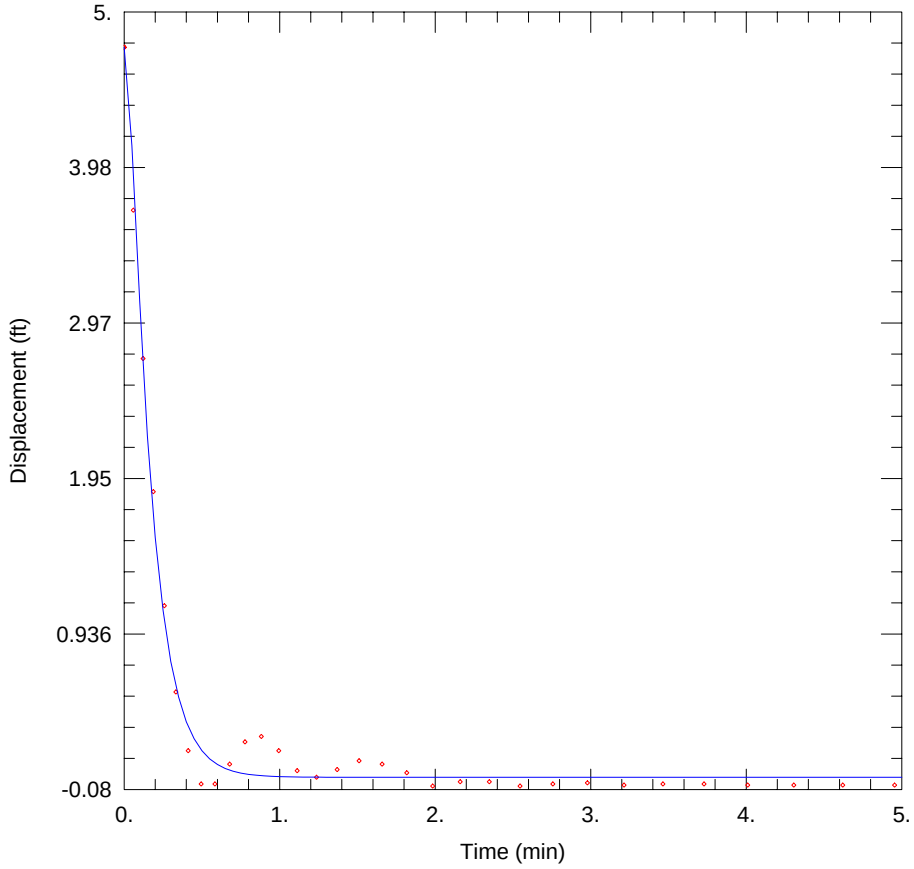
WELL DATA (corehole)

Initial Displacement: 5.043 ft
Total Well Penetration Depth: 742. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 1002.3 ft
Screen Length: 58. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.7234 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}



R43_PT24_1034-1100

Data Set: D:\romp_43\report\appendix E\r43_PT24_1034-1100.aqt
Date: 10/19/06 Time: 14:27:27

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 06/05/02

AQUIFER DATA

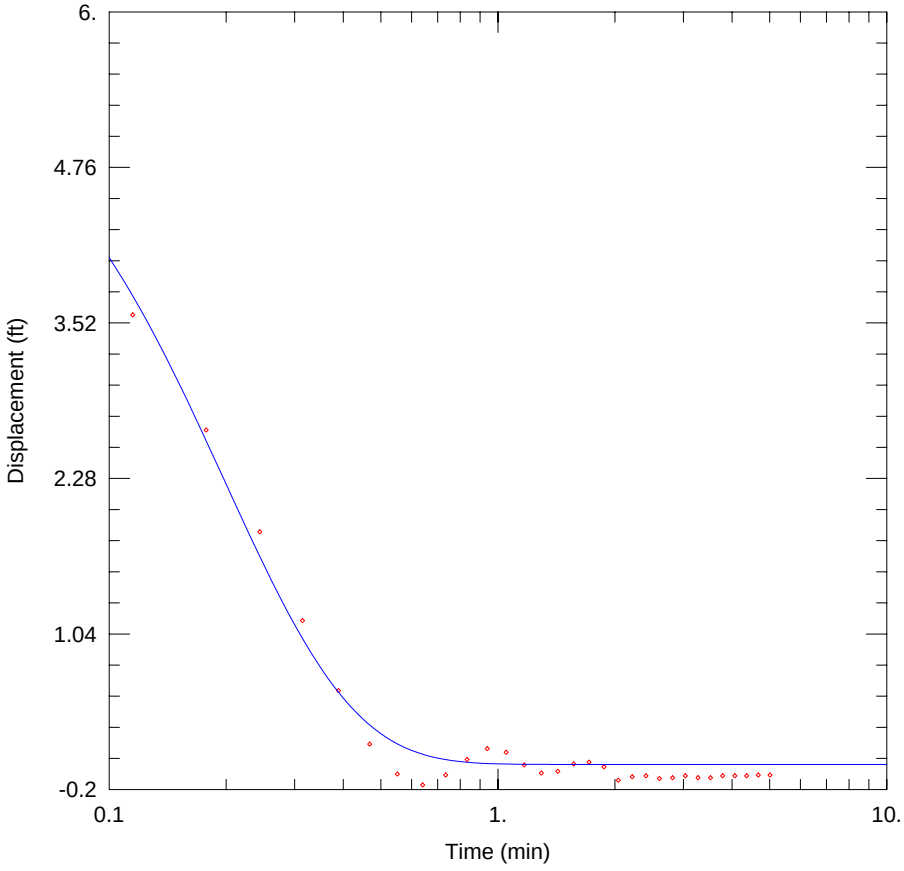
Saturated Thickness: 1282. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (corehole)

Initial Displacement: 4.768 ft
Total Well Penetration Depth: 802. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 1063. ft
Screen Length: 66. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 4.612 ft/day
Le = 660.7 ft



R43_PT25_1100-1120

Data Set: D:\romp_43\report\appendix E\r43_PT25_1100-1120.aqt
Date: 10/19/06 Time: 14:27:47

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: corehole
Test Date: 06/11/02

AQUIFER DATA

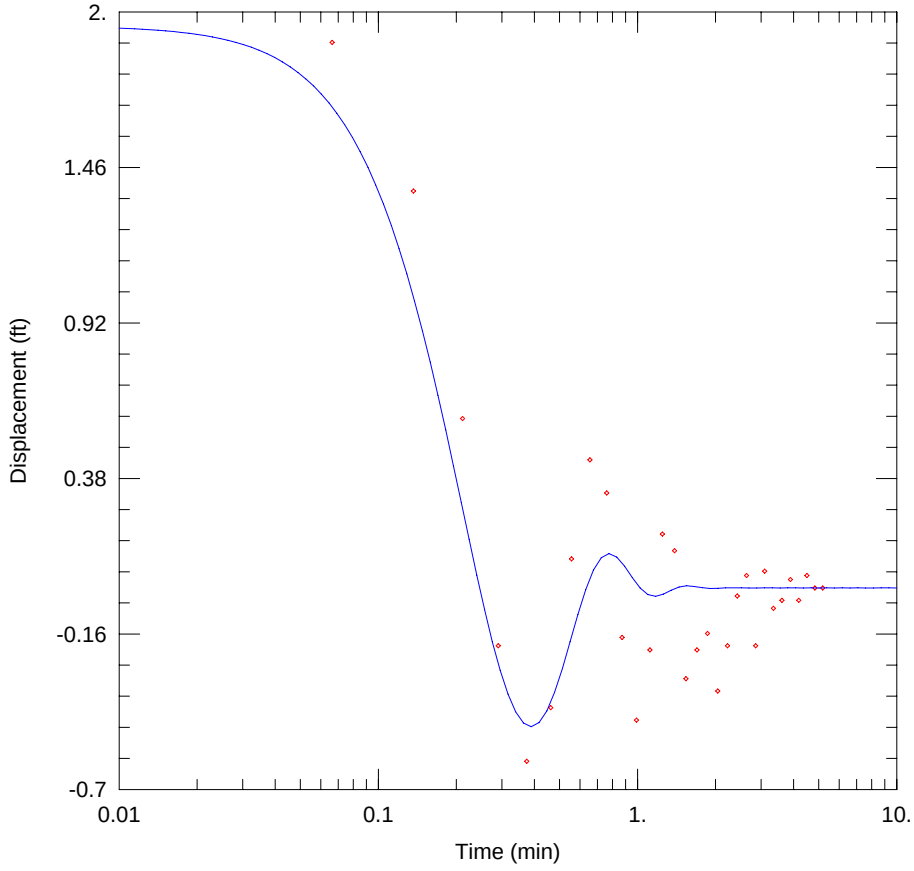
Saturated Thickness: 1282. ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (corehole)

Initial Displacement: 5.527 ft
Total Well Penetration Depth: 822. ft
Casing Radius: 0.09917 ft
Static Water Column Height: 1085.6 ft
Screen Length: 20. ft
Well Radius: 0.1263 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler
K = 11.27 ft/day
Le = 1107.8 ft



R43_PT1X_1092-1195

Data Set: D:\romp_43\packer tests\r43_PT1X_1092-1195.aqt
Date: 02/27/07 Time: 15:44:36

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: MW5
Test Date: 01/08/03

AQUIFER DATA

Saturated Thickness: 1282. ft Anisotropy Ratio (Kz/Kr): 0.1

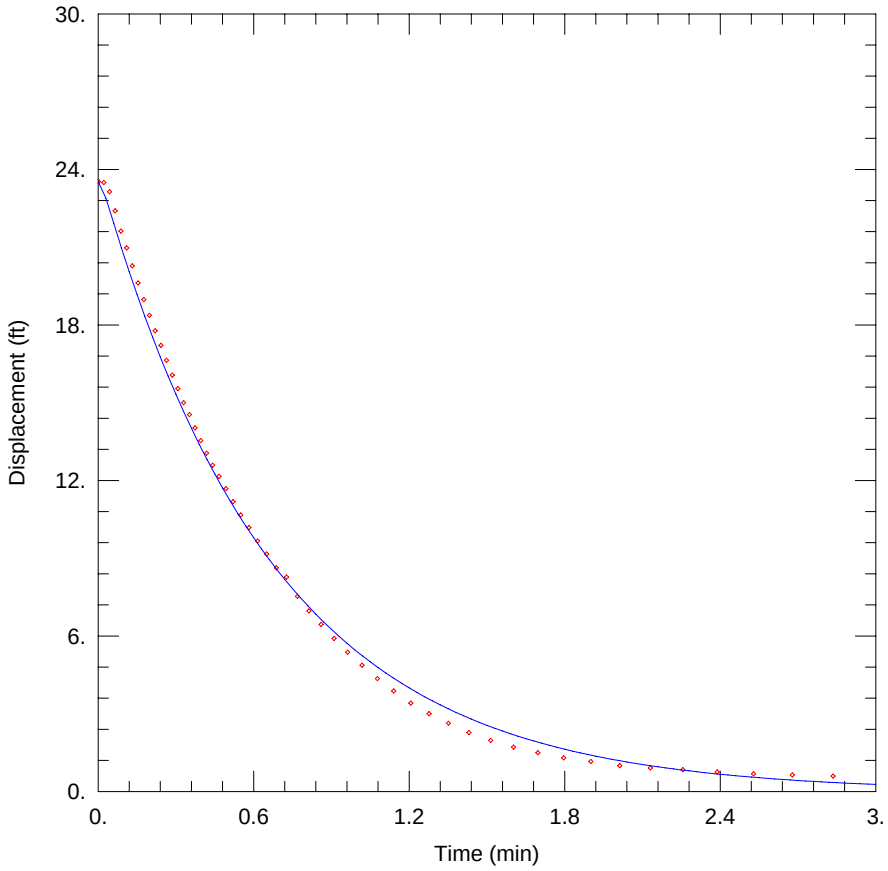
WELL DATA (MW5)

Initial Displacement: 1.951 ft
Total Well Penetration Depth: 897. ft
Casing Radius: 0.125 ft
Static Water Column Height: 1179.2 ft
Screen Length: 103. ft
Well Radius: 0.3177 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 8.591 ft/day
Le = 1476.1 ft



R43_PT2X_1557-1596

Data Set: D:\romp_43\packer tests\r43_PT2X_1557-1596.aqt
Date: 02/27/07 Time: 16:32:49

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: MW5
Test Date: 01/15/03

AQUIFER DATA

Saturated Thickness: 1282. ft Anisotropy Ratio (Kz/Kr): 0.1

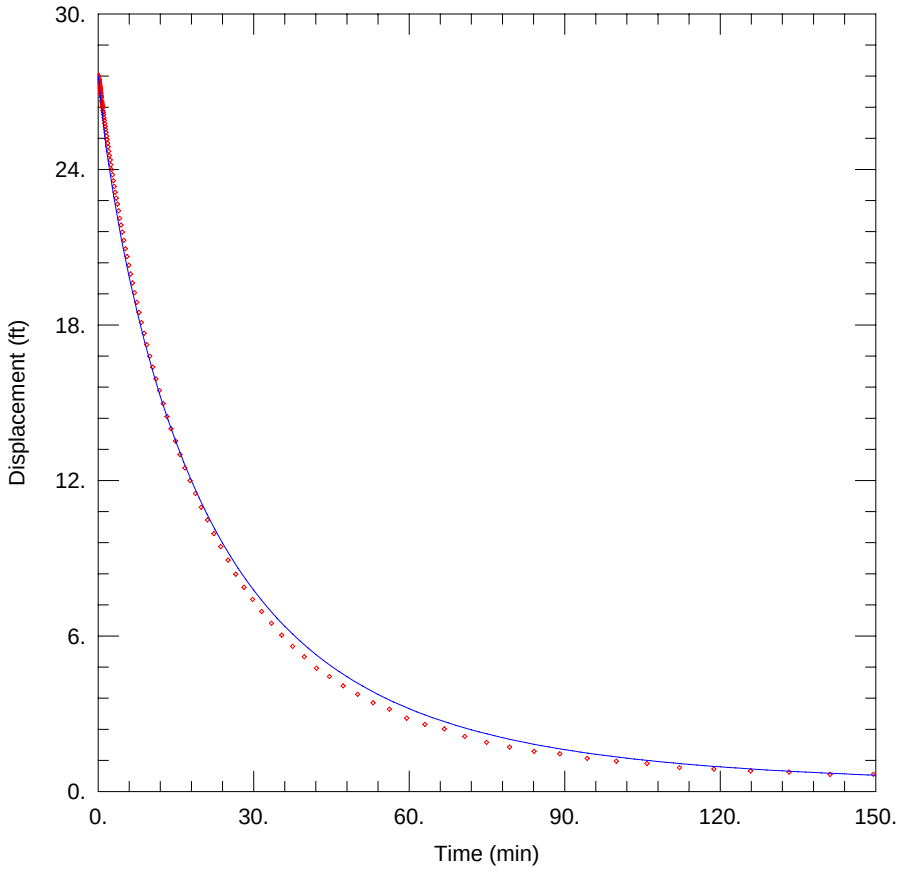
WELL DATA (MW5)

Initial Displacement: 23.53 ft
Total Well Penetration Depth: 1298. ft
Casing Radius: 0.125 ft
Static Water Column Height: 1580.2 ft
Screen Length: 39. ft
Well Radius: 0.3177 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Butler

K = 2.835 ft/day
Le = 1000. ft



R43_PT3X_1674-1717

Data Set: D:\romp_43\packer tests\r43_PT3X_1674-1717.aqt
Date: 02/27/07 Time: 16:42:56

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Test Well: MW5
Test Date: 01/23/03

AQUIFER DATA

Saturated Thickness: 137. ft

WELL DATA (MW5)

Initial Displacement: 27.63 ft
Total Well Penetration Depth: 137. ft
Casing Radius: 0.125 ft
Static Water Column Height: 1691.3 ft
Screen Length: 43. ft
Well Radius: 0.3177 ft

SOLUTION

Aquifer Model: Confined
Solution Method: KGS Model

Kr = 0.05142 ft/day
Kz/Kr = 0.1
Ss = 1.8E-6 ft^{-1}

APPENDIX G

Aquifer Performance Test Data Acquisition Sheets

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

surficial APT

General Information:

Site Name: ROMP 43 - Bee Branch
Date: 11/29/2004
Reporting Code: LWBE
Performed by: Jason LaRoche
County: Hardee
S/T/R: 26/33/27
Pumped Well: 6" perm. surficial monitor (MW1)
Pumped Zone OB(s): 2" temp. surficial observation (OB1)
Pump Type: 1.5" Ready-flow submersible
Test Rate/Duration: 0.29 gpm/66 hour
Non-Pumped Zone OB(s):
Pump Set Depth: 14.86 feet btoc

Setup Information:

Datalogger:
Time Synchronized:
Datalogger SN:
Time Datum:

Test Name	Logging Schedule (log-lin)	Display Mode (TOC Sur)	Level Reference at start	Time Interval (min)	Test Phase	Start Time/Date (XX/XX/XXXX XX:XX)	Stop Time/Date (XX/XX/XXXX XX:XX)	Comments
2								
3								
4								
5								

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		MW1a	MW1b	OB1a	OB1b	MW2	MW3	MW4		
Riser ht.	***als ft***									
TOC elev	***elev ft***	101.24	101.424	101.389	101.389	100.899	100.799	101.149		<- Elev Ref. _____
static W/L	***btoc ft***	8.00	8.00	7.96	7.96	9.65	21.49	21.40		<- Date _____
static W/L	***elev ft***	93.424	93.424	93.429	93.429	91.249	79.309	79.749		TOC elev - static WL(btoc)
XD Rating	***psi***	15	20	10	15	20	20	20		
Serial No.		6325	6900	7036	6292	6813	6483	6477		
Reading in Air	***ft***									
XD depth	***btoc ft***	13.5	13.5	14.5	13.5	40	50	50		
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***	5.50	5.50	6.54	5.54	30.35	28.51	28.60		WL tape value of submergence
XD subm.	***XD read ft***	5.44	5.48	6.51	5.51	30.10	28.30	28.41		XD value of submergence
XD Diff.	***ft***	0.06	0.02	0.03	0.03	0.25	0.21	0.19		$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer (g x 1000)	Notes
		MW1a	MW1b	OB1a	OB1b	MW2	MW3	MW4			
Units	---------->	subm.	subm.	subm.	subm.	subm.	subm.	subm.			
BKGD	START:11/22/04 - 14:30:00										
11/22/04	14:32	5.44	5.48	6.51	5.51	30.1	28.26	28.41			
Trial run pump to determine best discharge rate (BKGD running)											
start pump @15:01:00 ~.7gpm, backed off to 0.23 gpm@ 15:12:00											
11/22/04	15:45	4.85	5.02	6.48	5.49	30.12	27.72	28.27			
back-off to 0.5gpm @ 16:258:00											
11/22/04	16:40	3.84	4.22	6.45	5.46	30.12	27.2	28.09			
11/29/04	11:52	5.16	5.18	6.27	5.26	29.65	28.44	28.5	<--static WL subm.		

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

surficial APT

General Information: *page 2 of 2*

Site Name: ROMP 43 - Bee Branch Date: 11/29/04

Reporting Code: LWBE Performed by: Jason LaRoche

County: Hardee S/T/R: 26/33/27

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	MW1a	MW1b	OB1a	OB1b	MW2	MW3	MW4		(g x 1000)	
11/29/04	~11::35	8.26	8.26	8.22	8.22	10.1	21.39	21.31	<--taped reads (btoc)		
11/29/04		5.24	5.24	6.28	5.28	29.9	28.61	28.69	<--static WL actual subm.		
BKGD	STOP:11/29/04 - 12:31:16								Ready-flow		
DRAWDOWN START:11/29/04 - 14:11:57									gpm	Hz	
Discharge point ~200 feet west of pumped well MW1 in cow pasture											
Note: had to start pump @~200-220 Hz to prime -->back down immediately to 80.5 Hz											
11/29/04	14:28	4.09	4.43	6.26	5.25	29.67	28.39	28.53	0.5	80.5	
11/29/04	15:33	3.61	4.03	6.22	5.22	29.68	28.38	28.55	0.45	80.5	
11/29/04	16:21	3.49	3.91	6.21	5.2	29.68	28.42	28.54	0.44	80.4	
11/30/04	8:20	1.66	2.08	6.07	5.06	29.65	28.59	28.64	0.34	80.4	
11/30/04	10:20	1.64	2.06	6.06	5.05	29.64	28.51	28.63	0.33	80.5	
11/30/04	11:35	1.67	2.09	6.05	5.05	29.64	28.5	28.62	0.33	80.5	
11/30/04	13:40	1.78	2.19	6.05	5.04	29.65	28.51	28.64	0.33	80.5	
11/30/04	14:56	1.82	2.23	6.05	5.04	29.67	28.48	28.65	0.33	80.5	
Note: Increased pump to 80.8 Hz @ ~ 17:30											
11/30/04	17:56	1.52	1.94	6.03	5.02	29.67	28.53	28.61	0.33	80.8	
12/01/04	8:10	0.83	1.22	5.97	4.97	29.63	28.56	28.62	0.29	80.8	
12/01/04	9:47	0.91	1.21	5.96	4.95	29.63	28.48	28.58	0.28	80.8	
12/01/04	12:31	1.3	1.39	5.97	4.96	29.62	28.24	28.45	0.27	80.8	
Note: increased pump to 81.2 Hz @~13:05									0.29	81.2	
Note: increased pump to 81.6 Hz @~13:30									0.29	81.6	
Note: increased pump to 85.2 Hz @~14:05									0.35	85.2	
12/01/04	14:38	0.36	0.77	5.96	4.96	29.64	28.11	28.35	0.31	85.1	
12/01/04	15:54	0.18	0.62	5.96	4.95	29.65	28.09	28.29	0.28	85	
12/01/04	15:10	0.22	0.57	5.95	4.95	29.65	28.07	28.28	0.28	85.2	
12/01/04	16:20	0.23	0.56	5.95	4.95	29.64	28.08	28.27	0.28	85.2	
12/01/04	16:49	0.2	0.56	5.95	4.95	29.64	28.07	28.26	0.29	85.1	
12/01/04	17:13	0.18	0.56	5.95	4.95	29.64	28.04	28.25	0.29	85	
12/02/04	7:38	-0.02-dry	0.24	5.9	4.9	29.61	28.08	28.19	0.27	85.3	
DRAWDOWN STOP:12/2/04 - 8:8:41											
RECOVERY - pump off @ 8:08 --> START: 12/2/04 - 8:8:41 (stepped into recovery from HERMIT)											
12/02/04	8:13	0.74	0.5	5.9	4.9	29.6	28.1	28.17			
12/09/04	10:28	4.79	4.82	5.89	4.88	28.64	27.4	27.45			
RECOVERY STOP:12/9/04 - 10:29:57											

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Upper Arcadia APT

General Information:

Site Name: ROMP 43 - Bee Branch
Date: 7/8/2004
Reporting Code: LWBE
Performed by: Jason LaRoche
County: Hardee
S/T/R: 26/33/27
Pumped Well: 8" perm. IAS zone 2 monitor (MW2)
Pumped Zone OB(s): 2" temp. IAS zone 2 observation (OB2)
Pump Type: 4" Grundfos submersible
Test Rate/Duration: 18 gpm/32 hour
Non-Pumped Zone OB(s):
Pump Set Depth: 80 feet btoc

Setup Information:

Datalogger:
Time Synchronized:
Datalogger SN:
Time Datum:

Test Name	Logging Schedule (log-lin)	Display Mode (TOC Sur)	Level Reference at start	Time Interval (min)	Test Phase	Start Time/Date (XX/XX/XXXX XX:XX)	Stop Time/Date (XX/XX/XXXX XX:XX)	Comments
2								
3								
4								
5								

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		OB2a	OB2b	MW4	MW3	OB1	MW2a	MW2b		
Riser ht.	***als ft***									
TOC elev	***elev ft***	100.229	100.229	101.149	100.799	99.849	100.899	100.899		<- Elev Ref. _____
static W/L	***btoc ft***	15.14	15.14	28	28.18	11.95	16.01	16.01		<- Date _____
static W/L	***elev ft***	85.09	85.09	73.15	72.62	87.9	84.89	84.89		TOC elev - static WL(btoc)
XD Rating	***psi***	20	20	15	10	10	20	20		
Serial No.		6483	6477	6292	7036	7039	6900	6813		
Reading in Air	***ft***									
XD depth	***btoc ft***	50	50	60	50	16	50	50		
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***	34.86	34.86	32	21.82	4.05	33.99	33.99		WL tape value of submergence
XD subm.	***XD read ft***	34.64	34.66	31.93	21.86	3.98	33.66	33.65		XD value of submergence
XD Diff.	***ft***	0.22	0.20	0.07	-0.04	0.07	0.33	0.34		$Subm._{WL\ tape} - Subm._{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer (g x 1000)	Notes
		OB2a	OB2b	MW4	MW3	OB1	MW2a	MW2b			
Units	---------->	subm.	subm.	subm.	subm.	subm.	subm.	subm.			
BKGD	START:7/8/04 - 10:30:00										
7/8/04	10:35	34.64	34.65	31.93	21.87	3.97	33.67	33.65			
7/12/04	13:55	34.69	34.74	32.73	22.63	3.98	33.82	33.81			
BKGD STOP:7/12/04 - 14:09:58											
DRAWDOWN START:7/12/04 - 14:09:58										GPM	
7/12/04	14:18	34.06	34.1	32.74	22.63	3.99	24.74	24.69		19.23	
7/12/04	15:01	33.5	33.57	32.77	22.68	4.02	24.27	24.27		18.3	
7/13/04	8:22	33.02	33.08	32.87	22.84	3.86	24.05	24.04		18.3	

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Upper Arcadia APT

General Information:

Site Name: ROMP 43 - Bee Branch Date: 7/8/04

Reporting Code: LWBE Performed by: Jason LaRoche

County: Hardee S/T/R: 26/33/27

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	OB2a	OB2b	MW4	MW3	OB1	MW2a	MW2b		(g x 1000)	
7/13/04	13:26	33.00	33.05	32.86	22.8	3.88	24.1	24.09		17.65	
7/13/04	15:30	33.01	33.07	32.88	22.84	3.91	24.11	24.12		18.3	
7/13/04	21:32	33.02	33.08	32.97	22.97	3.89	24.17	24.16		18.3	
DRAWDOWN STOP: 7/13/04 - 21:51:40											
RECOVERY START: 7/13/04 - 21:51:40											
7/14/04	8:46	34.63	34.68	32.93	22.96	3.9	33.58	33.57			
7/15/04	7:47	34.66	34.72	32.98	22.96	3.87	33.77	33.75			
RECOVERY STOP: 7/15/04 - 07:51:06											

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Lower Arcadia APT

General Information:

Site Name: ROMP 43 - Bee Branch
Date: 7/6/2004
Reporting Code: LWBE
Performed by: Jason LaRoche
County: Hardee
S/T/R: 26/33/27
Pumped Well: 8" perm. IAS zone 3 monitor (MW3)
Pumped Zone OB(s): 2" temp. IAS zone 3 observation (OB3)
Pump Type: 4" Grundfos submersible
Test Rate/Duration: 18 gpm/41 hour
Non-Pumped Zone OB(s):
Pump Set Depth: 80 feet btoc

Setup Information:

Datalogger:
Time Synchronized:
Datalogger SN:
Time Datum:

Test Name	Logging Schedule (log-lin)	Display Mode (TOC Sur)	Level Reference at start	Time Interval (min)	Test Phase	Start Time/Date (XX/XX/XXXX XX:XX)	Stop Time/Date (XX/XX/XXXX XX:XX)	Comments
2								
3								
4								
5								

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		OB3a	OB3b	MW4	MW5	MW2	MW3a	MW3b		
Riser ht.	***als ft***									
TOC elev	***elev ft***	100.599	100.599	101.149	98.829	100.899	100.799	100.799		<- Elev Ref. _____
static W/L	***btoc ft***	30.13	30.13	29.99	27.69	15.88	30.26	30.26		<- Date _____
static W/L	***elev ft***	70.47	70.47	71.16	71.14	85.02	70.54	70.54		TOC elev - static WL(btoc)
XD Rating	***psi***	20	20	15	10	10	20	20		
Serial No.		6483	6477	6292	7036	7039	6900	6813		
Reading in Air	***ft***									
XD depth	***btoc ft***	55	65	60	50	30	65	65		
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***	24.87	34.87	30.01	22.31	14.12	34.74	34.74		WL tape value of submergence
XD subm.	***XD read ft***	24.68	34.65	29.95	22.34	13.91	34.48	34.56		XD value of submergence
XD Diff.	***ft***	0.19	0.22	0.06	-0.03	0.21	0.26	0.18		$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer (g x 1000)	Notes
		OB3a	OB3b	MW4	MW5	MW2	MW3a	MW3b			
Units	---------->	subm.	subm.	subm.	subm.	subm.	subm.	subm.			
BKGD	START:6/30/04 - 14:00:00										
6/30/04	14:02	24.69	34.63	29.96	22.34	13.9	34.49	34.57			
7/6/04	14:00	26.38	36.23	31.46	23.65	13.89	36.12	36.15			
Note:MW2 remained ~constant throughout BKGD, double-checked static WL with taped readings at MW2 and OB2-->OK											
BKGD STOP:7/6/04 - 14:38:27											
BKGD2 START:7/6/04 - 14:49:34											
7/6/2004	15:02	26.35	36.18	31.46	23.63	13.89	36.09	36.11			
BKGD2 STOP:7/6/04 - 15:09:54											

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Lower Arcadia APT

General Information:

Site Name: ROMP 43 - Bee Branch Date: 7/6/04

Reporting Code: LWBE Performed by: Jason LaRoche

County: Hardee S/T/R: 26/33/27

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	OB3a	OB3b	MW4	MW5	MW2	MW3a	MW3b		(g x 1000)	
DRAWDOWN START: 7/6/04 - 15:09:54								25-gallon drum--->		GPM	
7/6/04	15:20	26.04	35.88	31.46	23.63	13.91	19.85	19.85		20.0	
7/6/04	17::38	25.86	35.72	31.47	23.65	13.93	19.28	19.31		18.3	
Note: Doppler flow-meter not working -->GPM readings with 25 gal drum only											
7/7/04	7:00	26.24	36.08	31.68	23.87	13.95	20	20.02		18.3	
7/7/04	12:40	26.21	36.05	31.71	23.93	13.94	20.14	20.15		18.3	
7/7/04	16:40	26.2	36.05	31.72	23.96	13.97	20.2	20.22		18.3	
7/7/04	21:10	26.34	36.18	31.78	24.03	13.97	20.34	20.38		18.3	
DRAWDOWN STOP: 7/7/04 - 21:22:43											
RECOVERY START: 7/7/04 - 21:22:43											
7/8/04	7:50	26.86	36.71	31.91	24.05	13.95	36.61	36.63			
RECOVERY STOP: 7/8/04 - 08:14:29											

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Suwannee APT

General Information:

Site Name: ROMP 43 - Bee Branch
Date: 4/13/2006
Reporting Code: LWBE
Performed by: Jason LaRoche
County: Hardee
S/T/R: 26/33/27
Pumped Well: 12" perm. Suwannee monitor (MW4)
Pumped Zone OB(s): 6" temp. Suwannee observation (OB4)
Pump Type: 6" Lineshaft Turbine
Test Rate/Duration: ~385 gpm/48 hours
Non-Pumped Zone OB(s):
Pump Set Depth: 110 feet bls

Setup Information:

Datalogger: Larry
Time Synchronized: 04/05/06 11:53:00
Datalogger SN: 45241
Time Datum:

Test Name	Logging Schedule (log-lin)	Display Mode (TOC Sur)	Level Reference at start	Time Interval (min)	Test Phase	Start Time/Date (XX/XX/XXXX XX:XX)	Stop Time/Date (XX/XX/XXXX XX:XX)	Comments
[1] r43_suwapt_Lin1	Linear	TOC	0	60	BKGD	4/5/2006 13:00	4/13/2006 6:27	
[2] r43_suwapt_Log1	Log	TOC	0	10	DD	4/13/2006 6:27	4/15/2006 3:39	
[3] r43_suwapt_Log2	Log	TOC	0	10	REC	4/15/2006 3:39	4/18/2006 10:28	
[4] r43_suwapt_Log3	Log	TOC	0	10				
[5] r43_suwapt_Log4	Log	TOC	0	10				

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		MW4a	MW4b	OB4a	OB4b	MW3	MW5	MW2	6" meter	
Riser ht.	***als ft***									
TOC elev	***elev ft***	98.92	98.92	101.13	101.13	100.729	101.669	100.829		<- Elev Ref. _____
static W/L	***btoc ft***	28.15	28.15	30.3	30.3	30.54	30.53	12.31		<- Date _____
static W/L	***elev ft***	70.77	70.77	70.83	70.83	70.19	71.14	88.52		TOC elev - static WL(btoc)
XD Rating	***psi***	50	50	20	20	20	20	15		
Serial No.		6128	6856	5608	6900	6483	6493	5907		
Reading in Air	***ft***									
XD depth	***btoc ft***	95	95	60	60	50	50	30		
XD elev	***elev ft***	3.92	3.92	41.13	41.13	50.729	51.669	70.829		TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***	66.85	66.85	29.7	29.7	19.46	19.47	17.70		WL tape value of submergence
XD subm.	***XD read ft***	66.39	66.46	29.49	29.53	19.17	19.37	17.52		XD value of submergence
XD Diff.	***ft***	0.46	0.39	0.21	0.17	0.29	0.10	0.18		$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
		MW4a	MW4b	OB4a	OB4b	MW3	MW5	MW2	6" meter	(g x 1000)	
Units	---------->	subm.	subm.	subm.	subm.	subm.	subm.	subm.			
4/5/06	12:21	64.95	65.03	28.05	28.08	17.64	17.91	17.39	NR		
4/5/06	12:55	64.97	65.04	28.06	28.09	17.61	17.92	17.38	NR		
BKGD START 4/5/06 13:00											
4/5/06	13:01	64.97	65.05	28.06	28.09	17.61	17.92	17.38	-2.89		
4/12/06	11:01	63.25	63.31	26.35	26.39	15.93	16.12	16.82	-4.39		
4/13/06	5:46	63.82	63.88	26.89	26.91	16.71	16.36	16.87	-9.81		
4/13/06	5:50	30.76	30.76	32.94	32.94	33.06	33.58	12.96		<--taped WL's (btoc)	
4/13/06	@ ~6:28 (Nextel) 1700 rpms									6110	

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Suwannee APT

General Information: *page 2 of 4*

Site Name: ROMP 43 - Bee Branch Date: 4/13/06

Reporting Code: LWBE Performed by: Jason LaRoche

County: Hardee S/T/R: 26/33/27

Datalogger:		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	MW4a	MW4b	OB4a	OB4b	MW3	MW5	MW2	6" meter	(g x 1000)	
DRAWDOWN START - r43_suwapt_log1											rpm's
4/13/06	6:33	20.46	21.21	24.59	24.6	16.77	16.37	16.9	374.3		1708
4/13/06	6:42	21.78	21.05	24.24	24.26	16.76	16.36	16.91	371	6117	1706
4/13/06	6:52	20.86	21.39	24.06	24.08	16.75	16.36	16.91	370.6	6121	1707
4/13/06	7:11	20.05	20.77	23.87	23.89	16.73	16.35	16.91	364	6128	1703
4/13/06	8:29	20.49	20	23.37	23.38	16.59	16.16	16.88	362.1	6156	1700
4/13/06	9:17	20.28	20.65	23.17	23.2	16.51	16.1	16.88	361.7	6173	1699
4/13/06	--> increased rpm's to 1699 (was dropped to 1694)@ ~10:00										
4/13/06	10:02	20.67	21.11	23.07	23.08	16.45	16.05	16.87	361.5	6190	1699
4/13/06	--> increased rpm's to 1700 (was dropped to 1697)@ ~10:45										
4/13/06	10:53	21.39	19.49	22.98	22.99	16.93	15.99	16.87	364.1	6205	1700
4/13/06	12:44	19.58	21.24	22.85	22.86	16.23	15.9	16.86	364.2	6248	1698
4/13/06	13:35	21	21.1	22.86	22.88	16.2	15.98	16.85	363.6	6267	1697
4/13/06	16:06	20.27	21.36	23	23	15.1	15.92	16.88	361.3	6321	1692
4/13/06	18:33	20.15	20.28	23.05	23.07	15.9	15.99	16.91	363.6	6374	1697
4/13/06	23:11	19.45	19.46	23.15	23.16	16.38	16.00	16.87	363.1	6476	1707
4/14/06	2:32	20.05	18.91	23.19	23.2	16.46	16.07	16.87	363.5	6549	1710
4/14/06	9:17	21.14	20.83	23.19	23.21	16.33	15.85	16.87	359.8	6699	1697
4/14/06	--> increased rpm's to 1700 @ ~9:20										
4/14/06	11:35	19.59	20.05	23.05	23.07	16.15	15.83	16.85	361.9		1696
4/14/06	18:13	20.29	20.07	22.94	22.95	16.06	15.7	16.86	364.5	6892	1699
4/14/06	23:00	18.91	18.92	22.81	22.83	16.01	15.59	16.84	361.9	6996	1709
4/15/06	2:30	19.94	19.68	22.78	22.8	16.02	15.59	16.85	363	7075	1713
4/15/06	3:31	19.04	19.99	22.78	22.8	16.04	15.62	16.85	364.6	7096	1715
4/15/06	-->stopped pumping @ 3:36 (laptop time)										
	-->totalizer final read = 7098										
RECOVERY - r43_suwapt_Log2											
4/15/06	3:45	62.1	62.17	25.14	25.16	15.98	15.64	16.82	-9.35	7098	
4/15/06	4:03	62.65	62.7	25.64	25.66	16.01	15.66	16.8	-9.8		
4/15/06	10:25	62.24	62.32	25.34	25.38	15.32	15.23	16.59			
4/18/06	-->stopped datalogger @ ~ 10:28										
	-->also extracted orifice data (MOE)										

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Suwannee APT

General Information:

Site Name:	ROMP 43 - Bee Branch	Date:	4/13/2006
Reporting Code:	LWBE	Performed by:	Jason LaRoche
County:	Hardee	S/T/R:	26/33/27
Pumped Well:	12" perm. Suwannee monitor (MW4)	Pumped Zone OB(s):	6" temp. Suwannee observation
Pump Type:	6" Lineshaft Turbine		(OB4)
Test Rate/Duration:	~385 gpm/48 hours	Non-Pumped Zone OB(s):	
Pump Set Depth:	110 feet bls		

Setup Information:

Datalogger:	Moe	Time Synchronized:	04/05/06 12:39:00
Datalogger SN:	45077	Time Datum:	

Test Name	Logging Schedule (log-lin)	Display Mode (TOC Sur)	Level Reference at start	Time Interval (min)	Test Phase	Start Time/Date (XX/XX/XXXX XX:XX)	Stop Time/Date (XX/XX/XXXX XX:XX)	Comments
[1] r43_suwapt_ORF1	Linear	TOC	0	10	DD	4/13/2006 6:14	4/15/2006 3:56	
[2] r43_suwapt_ORF2	Linear	TOC	0	10				
[3] r43_suwapt_ORF3	Linear	TOC	0	10				

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		Orifice								
Riser ht.	***als ft***									
TOC elev	***elev ft***									<- Elev Ref. _____
static W/L	***btoc ft***									<- Date _____
static W/L	***elev ft***									TOC elev - static WL(btoc)
XD Rating	***psi***	15								
Serial No.		6534								
Reading in Air	***ft***	0.022								
XD depth	***btoc ft***									
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***									WL tape value of submergence
XD subm.	***XD read ft***									XD value of submergence
XD Diff.	***ft***									$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer (g x 1000)	Notes
		Orifice	Orifice	<--read from tube							
Units	---------->	subm.	inches							GPM (orifice table)	
4/13/06	--> start MOE prior to pumping (manual start) @6:15 (Nextel)										
4/13/06	7:06	1.29	16							390	
4/13/06	11:20	1.27	15.5								
4/13/06	--> grabbed WQ sample from discharge and measured parameters with YSI 600XLM (WQMP 13) @ 14:40										
	--> Cond. = 169, pH = 8.07, Temp. = 25.16										
	--> filtered sample and put on ice -->delivered to Tampa service office for lab pickup 4/17										
4/13/06	16:22	1.26	15.5								

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Suwannee APT

General Information: *page 4 of 4*

Site Name: ROMP 43 - Bee Branch Date: 4/13/06

Reporting Code: LWBE Performed by: Jason LaRoche

County: Hardee S/T/R: 26/33/27

Datalogger: Moe		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	Orifice	Orifice							(g x 1000)	
		subm.	inches							GPM (orifice table)	
4/13/06	23:31		16.0							390	
4/14/06	2:45		16.0							390	
4/14/06	11:34	1.27	15.5								
4/14/06	18:25	1.26	15.5								
4/14/06	23:13		16.0								
4/15/06	3:16		16.0								
4/15/06	-->stopped pumping @ 3:36 (laptop)										
	-->stopped datalogger MOE										

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Avon Park APT

General Information:

Site Name: ROMP 43 - Bee Branch
Date: 6/1/2006
Reporting Code: LWBE
Performed by: Jason LaRoche
County: Hardee
S/T/R: 26/33/27
Pumped Well: 10" perm. Avon Park monitor (MW5)
Pumped Zone OB(s): 2" temp. Avon Park observation
Pump Type: 6" Lineshaft Turbine
Dual-zone observation (OB4)
Test Rate/Duration: ~1260 gpm/48 hours
Non-Pumped Zone OB(s):
Pump Set Depth: 90 feet bls

Setup Information:

Datalogger: Larry
Time Synchronized: 05/30/06 12:36:00
Datalogger SN: 45241
Time Datum: laptop - SWF11231 -JJL

Test Name	Logging Schedule (log-lin)	Display Mode (TOC Sur)	Level Reference at start	Time Interval (min)	Test Phase	Start Time/Date (XX/XX/XXXX XX:XX)	Stop Time/Date (XX/XX/XXXX XX:XX)	Comments
[1] r43_apapt_Lin1	Linear	TOC	0	60	BKGD	5/30/2006 13:00	6/1/06 6:43;02	
[2] r43_apapt_Log1	Log	TOC	0	10	DD	6/1/2006 6:43	6/3/2006 0:59	
[3] r43_apapt_Log2	Log	TOC	0	10	REC	6/3/2006 0:59	6/5/2006 10:36	
[4] r43_apapt_Log3	Log	TOC	0	10				
[5] r43_apapt_Log4	Log	TOC	0	10				

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		MW5a	MW5b	OB4a	OB4b	MW3	MW4	MW2	6" meter	
Riser ht.	***als ft***									
TOC elev	***elev ft***	99.42	99.42	101.37	101.37	100.729	101.079	100.829		<- Elev Ref. _____
static W/L	***btoc ft***	36.88	36.88	38.87	38.87	39.29	38.86	15.67		<- Date _____
static W/L	***elev ft***	62.54	62.54	62.50	62.50	61.44	62.22	85.16		TOC elev - static WL(btoc)
XD Rating	***psi***	50	20	20	20	20	20	15		
Serial No.		6128	6473	5608	6900	6483	6493	5907		
Reading in Air	***ft***									
XD depth	***btoc ft***	70	60	60	60	50	50	30		
XD elev	***elev ft***	29.42	39.42	41.37	41.37	50.73	51.08	70.83		TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***	33.12	23.12	21.13	21.13	10.71	11.14	14.33		WL tape value of submergence
XD subm.	***XD read ft***	32.83	23.1	21.03	21.02	10.56	11.11	14.22		XD value of submergence
XD Diff.	***ft***	0.29	0.02	0.1	0.11	0.15	0.03	0.11		$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
		MW5a	MW5b	OB4a	OB4b	MW3	MW4	MW2	6" meter	(g x 1000)	
Units	---------->	subm.	subm.	subm.	subm.	subm.	subm.	subm.			
BKGD - r43_apapt_Lin1											
5/30/06	12:39	32.79	23.05	20.99	20.96	10.58	11.09	14.18		7289	
5/30/06	-->Scheduled start BKGD @ 13:00 (1 hour readings)										
6/1/06	6:31	32.26	22.44	20.45	20.44	10.34	10.7	14.08	-6.883		
DRAWDOWN - r43_apapt_Log1											
6/1/06	-->start pumping @ ~6:44 (laptop)										
6/1/06	6:49	13.09	3.42	20.18	20.17	10.35	10.71	14.08	1262.3		
6/1/06	6:55	13.04	2.85	20.14	20.12	10.34	10.7	14.08	1275		

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Avon Park APT

General Information:

Site Name: ROMP 43 - Bee Branch Date: 6/1/06

Reporting Code: LWBE Performed by: Jason LaRoche

County: Hardee S/T/R: 26/33/27

Datalogger: Larrry		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	MW5a	MW5b	OB4a	OB4b	MW3	MW4	MW2	6" meter	(g x 1000)	*rpm's*
6/1/06	7:02	13.51	3.1	20.1	20.09	10.33	10.68	14.07	1280.4	7312	
6/1/06	7:18									7332	1840
6/1/06	7:33	11.88	2.44	20.07	20.05	10.3	10.64	14.07	1275.1		
6/1/06	7:51	12.22	2.8	20.06	20.04	10.28	10.61	14.07	1279		
6/1/06	9:18	11.9	2.25	20.04	20.03	10.21	10.56	14.05	1276.4	7485	1832
6/1/06	13:23	12.76	2.87	20.01	10.13	10.51	14.06	1272.5	7795	7795	1832
--->Rain @ ~ 13:45 to 14:00											
6/1/06	16:46	11.41	2.38	20.13	20.11	10.21	10.57	14.07	1274.2	8049	1835
6/1/06	18:19	13.54	2.84	20.24	20.23	10.35	10.65	14.08	1270	8166	1830
6/1/06	20:46	11.59	2.72	20.42	20.4	10.57	10.83	14.08	1278.9	8346	1836
6/1/06	22:59	11.98	2.61	20.52	20.51	10.69	10.96	14.08	1280.9	8514	1837
6/2/06	2:27	11.97	3.69	20.69	20.67	10.87	11.13	14.08	1285.7	8777	1838
6/2/06	6:36	13.42	2.98	20.83	20.82	11.09	11.29	14.08	1292.6	9103	1861
6/2/06	9:07	12.86	2.96	20.9	20.87	11.1	11.38	14.07	1279	9290	1836
-->Collect WQ sample @ 11:22 from discharge orifice - Totalizer reads 9461000 gal											
-->Cond. = 217, Temp. = 28.04, pH = 8.34											
-->2.172e+6 gal pumped =~438.6 well volumes (1 well volume = 4952.1 gal)											
6/2/06	14:36	13.33	3.8	20.87	20.89	11.05	11.27	14.11	1273.3	9704	1830
6/2/06	17:29	13.68	3.71	20.95	20.95	11.16	11.44	14.13	1278.2	9920	1833
6/2/06	19:27	12.01	3.2	20.92	20.92	11.24	11.46	14.14	1298.1	10064	1857
6/2/06	20:47	13.37	2.71	20.95	20.93	11.27	11.47	14.13	1286.1	10165	1843
6/2/06	22:46	13.69	2.98	21.03	21.02	11.33	11.52	14.11	1286	10317	1843
6/2/06	0:45	13.99	2.65	21.14	21.12	11.39	11.6	14.1	1290.2	10473	1849
6/3/06	-->stopped pumping @ ~1:01, extracted data (Larry)										
RECOVERY						Totalizer final read = 10489					
6/3/06	8:40	34.2	24.4	21.96	21.95	11.81	12.21	14.11	OFF		
-->Extract final DD data sets to laptop (Larry, Moe)											
6/5/06	10:32	34.49	24.69	22.57	22.55	12.07	12.57	14.05			
-->stopped recovery test @ 10:36:47											
-->extracted final recovery data set (Larry)											

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Avon Park APT

General Information:

Site Name: ROMP 43 - Bee Branch
Date: 6/1/2006
Reporting Code: LWBE
Performed by: Jason LaRoche
County: Hardee
S/T/R: 26/33/27
Pumped Well: 10" perm. Avon Park monitor (MW5)
Pumped Zone OB(s): 2" temp. Avon Park observation
Pump Type: 6" Lineshaft Turbine
Dual-zone observation (OB4)
Test Rate/Duration: ~1260 gpm/48 hours
Non-Pumped Zone OB(s):
Pump Set Depth: 90 feet bls

Setup Information:

Datalogger: Moe
Time Synchronized: 05/30/06 12:44:00
Datalogger SN: 45077
Time Datum: laptop - SWF11231 -JJL

Test Name	Logging Schedule (log-lin)	Display Mode (TOC Sur)	Level Reference at start	Time Interval (min)	Test Phase	Start Time/Date (XX/XX/XXXX XX:XX)	Stop Time/Date (XX/XX/XXXX XX:XX)	Comments
[1] r43_apapt_ORF1	Linear	TOC	0	60	DD/REC	6/1/2006 0:00		
[2] r43_apapt_ORF2	Linear	TOC	0	10				
[3] r43_apapt_ORF3	Linear	TOC	0	10				

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		Orifice								
Riser ht.	***als ft***									
TOC elev	***elev ft***									<- Elev Ref. _____
static W/L	***btoc ft***									<- Date _____
static W/L	***elev ft***									TOC elev - static WL(btoc)
XD Rating	***psi***	20								
Serial No.		6813								
Reading in Air	***ft***	0.005								
XD depth	***btoc ft***									
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***									WL tape value of submergence
XD subm.	***XD read ft***	0.005	<--6:15 (Nextel)							XD value of submergence
XD Diff.	***ft***									$Subm._{WL\ tape}$ - $Subm._{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer (g x 1000)	Notes
		Orifice	Orifice	anometer tube							
		subm.	inches								
6/1/06	6:15	0.005									
6/1/06	-->start MOE prior to pumping (manual start) @ ~6:20 (Nextel)									GPM <--orifice table	
6/1/06	6:55		67.5							1270	
6/1/06	7:22	5.796	68.25								
6/1/06	9:45	5.62	68.0								
6/1/06	13:31	5.684	68.5								
6/2/06	2:48		69.0								
6/2/06	14:44	5.645	68.5	-->stopped pumping @ ~1:01AM, stopped datalogger (MOE) @ 6/3/06 8:20:59							

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Avon Park APT

General Information:

Site Name: ROMP 43 - Bee Branch Date: 6/1/06

Reporting Code: LWBE Performed by: Jason LaRoche

County: Hardee S/T/R: 26/33/27

Datalogger: Moe		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	MW5a	MW5b	OB4a	OB4b	MW3	MW4	MW2	6" meter	(g x 1000)	*rpm's*
6/1/06	7:02	13.51	3.1	20.1	20.09	10.33	10.68	14.07	1280.4	7312	
6/1/06	7:18									7332	1840
6/1/06	7:33	11.88	2.44	20.07	20.05	10.3	10.64	14.07	1275.1		
6/1/06	7:51	12.22	2.8	20.06	20.04	10.28	10.61	14.07	1279		
6/1/06	9:18	11.9	2.25	20.04	20.03	10.21	10.56	14.05	1276.4	7485	1832
6/1/06	13:23	12.76	2.87	20.01	10.13	10.51	14.06	1272.5	7795	7795	1832
--->Rain @ ~ 13:45 to 14:00											
6/1/06	16:46	11.41	2.38	20.13	20.11	10.21	10.57	14.07	1274.2	8049	1835
6/1/06	18:19	13.54	2.84	20.24	20.23	10.35	10.65	14.08	1270	8166	1830
6/1/06	20:46	11.59	2.72	20.42	20.4	10.57	10.83	14.08	1278.9	8346	1836
6/1/06	22:59	11.98	2.61	20.52	20.51	10.69	10.96	14.08	1280.9	8514	1837
6/2/06	2:27	11.97	3.69	20.69	20.67	10.87	11.13	14.08	1285.7	8777	1838
6/2/06	6:36	13.42	2.98	20.83	20.82	11.09	11.29	14.08	1292.6	9103	1861
6/2/06	9:07	12.86	2.96	20.9	20.87	11.1	11.38	14.07	1279	9290	1836
-->Collect WQ sample @ 11:22 from discharge orifice - Totalizer reads 9461000 gal											
-->Cond. = 217, Temp. = 28.04, pH = 8.34											
-->2.172e+6 gal pumped =~438.6 well volumes (1 well volume = 4952.1 gal)											
6/2/06	14:36	13.33	3.8	20.87	20.89	11.05	11.27	14.11	1273.3	9704	1830
6/2/06	17:29	13.68	3.71	20.95	20.95	11.16	11.44	14.13	1278.2	9920	1833
6/2/06	19:27	12.01	3.2	20.92	20.92	11.24	11.46	14.14	1298.1	10064	1857
6/2/06	20:47	13.37	2.71	20.95	20.93	11.27	11.47	14.13	1286.1	10165	1843
6/2/06	22:46	13.69	2.98	21.03	21.02	11.33	11.52	14.11	1286	10317	1843
6/2/06	0:45	13.99	2.65	21.14	21.12	11.39	11.6	14.1	1290.2	10473	1849
6/3/06	-->stopped pumping @ ~1:01, extracted data (Larry)										
RECOVERY						Totalizer final read = 10489					
6/3/06	8:40	34.2	24.4	21.96	21.95	11.81	12.21	14.11	OFF		
-->Extract final DD data sets to laptop (Larry, Moe)											
6/5/06	10:32	34.49	24.69	22.57	22.55	12.07	12.57	14.05			
-->stopped recovery test @ 10:36:47											
-->extracted final recovery data set (Larry)											

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Composite UFA APT

General Information:

Site Name:	ROMP 43 - Bee Branch	Date:	6/22/2004
Reporting Code:	LWBE	Performed by:	Jason LaRoche
County:	Hardee	S/T/R:	26/33/27
Pumped Well:	10"Avon Park monitor (MW5) pre-liner	Pumped Zone OB(s):	6" temp. Avon Park observation
Pump Type:	6" Lineshaft Turbine		dual-zone observation (OB4) pre-liner
Test Rate/Duration:	~1030 gpm/40 hours	Non-Pumped Zone OB(s):	
Pump Set Depth:	78 feet bls		

Setup Information:

Datalogger:	Larry	Time Synchronized:	
Datalogger SN:	45241	Time Datum:	

Test Name	Logging Schedule (log-lin)	Display Mode (TOC Sur)	Level Reference at start	Time Interval (min)	Test Phase	Start Time/Date (XX/XX/XXXX XX:XX)	Stop Time/Date (XX/XX/XXXX XX:XX)	Comments
[1] r43_compUFAapt_Lin1	Linear	TOC	0	60	BKGD	6/15/2004 15:30	6/21/2004 16:55	
[2] r43_compUFAapt_Lin2	Linear	TOC	0	60	BKGD2	6/21/2004 17:15	6/22/2004 8:34	
[3] r43_compUFAapt_Log1	Log	TOC	0	10	DD	6/22/2004 8:34	6/24/2004 0:14	
[4] r43_compUFAapt_Log2	Log	TOC	0	10	REC	6/24/04 0:14	6/28/2004 13:14	
[5] r43_compUFAapt_Log3	Log	TOC	0	10				

		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	
Well		MW5a	OB4a	MW4	MW3	MW2	MW5b	OB4b		
Riser ht.	***als ft***									
TOC elev	***elev ft***	98.829	101.179	101.149	100.799	100.899	98.829	101.179		<- Elev Ref. _____
static W/L	***btoc ft***	30.89	32.60	33.02	33.27	15.9	30.89	32.60		<- Date _____
static W/L	***elev ft***	67.94	68.58	68.13	67.53	85.00	67.94	68.58		TOC elev - static WL(btoc)
XD Rating	***psi***	20	20	15	10	10	20	20		
Serial No.		6483	6477	6292	7036	7039	6900	6813		
Reading in Air	***ft***									
XD depth	***btoc ft***	55	65	60	50	30	55	65		
XD elev	***elev ft***									TOC elev - XD depth(btoc)
XD subm.	***wl tape ft***	24.11	32.40	26.98	16.73	14.1	24.11	32.40		WL tape value of submergence
XD subm.	***XD read ft***	23.95	32.22	27	16.77	13.91	24.10	Not yet connected		XD value of submergence
XD Diff.	***ft***	0.16	0.18	-0.02	-0.04	0.19	0.01			Subm.$_{WL\ tape}$ - Subm.$_{XD}$

Date	Time	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer (g x 1000)	Notes
		MW5a	OB4a	MW4	MW3	MW2	MW5b	OB4b			
Units	---------->	subm.	subm.	subm.	subm.	subm.	subm.	subm.			
BKGD - r43_compUFAapt_Lin1											
6/15/04	15:32	23.8	32.22	27.02	16.78	13.91	24.11	NA			
6/21/04	14:13	26.78	34.65	29.43	19.18	13.98	26.43	34.67			
-->changed out channel 1 XD (was 15 psi SN 6325) now 20psi 6483											
BKGD2 - r43_compUFAapt_Lin2											
6/21/04	17:16	26.65	34.61	29.4	19.14	14.00	26.42	34.66			
6/21/04	7:30	26.41	34.76	29.37	19.16	14.15	26.41	34.76	<--taped subm. readings prior to test		
6/21/04	8:05	27.01	34.54	29.33	19.16	13.93	26.36	34.58	<--channel 1 suspect - use ch. 6		

AQUIFER PERFORMANCE TEST - DATA ACQUISITION SHEET

Composite UFA APT

General Information:

Site Name: ROMP 43 - Bee Branch Date: 6/22/04

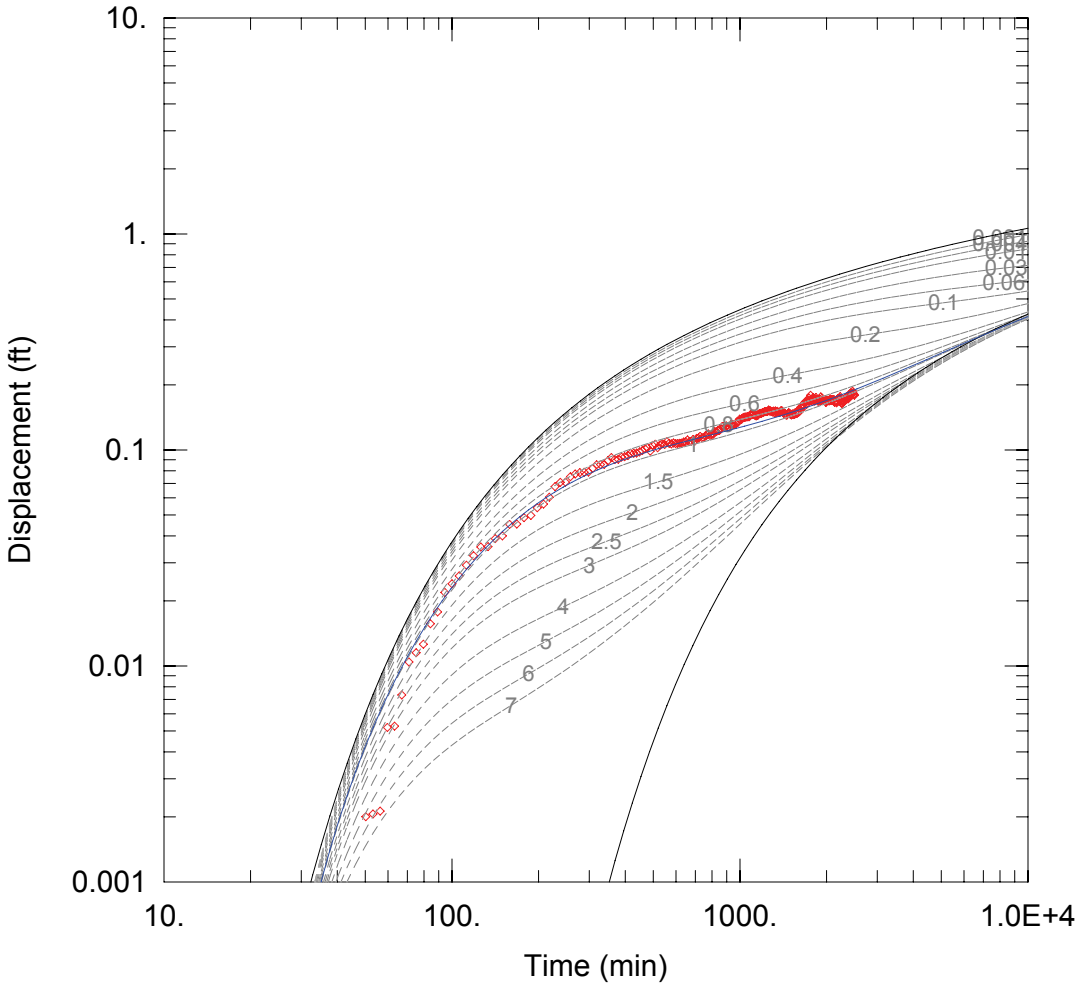
Reporting Code: LWBE Performed by: Jason LaRoche

County: Hardee S/T/R: 26/33/27

Datalogger: Larrry		CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	Totalizer	Notes
Date	Time	MW5a	OB4a	MW4	MW3	MW2	MW5b	OB4b		(g x 1000)	*rpm's*
DRAWDOWN											
-->crank-up engine to ~1605 rpm-->start logger-->engage									flowmeter	manom.	Totalizer
--> Totalizer reads 15220620 gal prior to start									gpm	in/gpm	gal
6/22/04	8:40	25.05	34.32	28.9	19.17	13.93	24.43	34.36	1050	38/980	15227000
6/22/04	9:00	25.12	34.26	28.87	19.16	13.93	24.73	34.3	1020	39/990	15239000
6/22/04	10:00	24.92	34.17	28.75	19.08	13.93	24.52	34.22	1030	40/1000	15317000
6/22/04	11:30	24.51	34.08	28.65	18.96	13.92	24.71	34.12	1030	42/1020	15400000
-->taped reading @ 12:08 MW% (pumped well) 30.36 ft btoc = 24.64ft actual subm.											
6/22/04	13:00	24.43	34	28.58	18.89	13.91	24.56	34.04	1030	41/1010	15491000
6/22/04	15:25	24.38	33.77	28.33	18.83	13.92	24.45	33.82	1040	41/1010	15630000
6/22/04	16:25	24.28	33.81	28.23	18.77	13.95	24.35	33.87	1020	41/1010	15705000
6/22/04	18:00	24.7	33.88	28.38	18.76	13.93	24.57	33.93	1020	42/1020	15797000
6/22/04	23:00	--> Travis pump check							1030	42/1020	16100000
6/23/04	7:20	25.2	33.87	28.37	18.75	13.91	24.38	33.92	1030	41/1010	
6/23/04	10:38	24.39	33.7	28.23	18.63	13.9	24.22	33.75	1040	42/1020	16835000
6/23/04	12:15	24.17	33.63	28.07	18.47	13.9	24.14	33.68	1030	42/1020	16944000
6/23/04	13:05	24.03	33.69	28.15	18.46	13.9	24.11	33.75	1030	42/1020	16987000
6/23/04	15:00	24.02	33.54	28.11	18.48	13.91	24.12	33.6	1030	42/1020	17108000
6/23/04	17:00	23.99	33.16	27.85	18.43	13.93	23.77	33.22	1030	42/1020	17230000
6/23/04	21:30	24.69	33.26	27.77	18.08	13.93	23.81	33.31	1030	42/1020	17504000
6/24/04	0:05	24.78	33.25	27.76	18.1	13.9	23.83	33.3	1030	42/1020	
-->start recovery test on logger, shut down pump @~12:12PM, download, leave site											
RECOVERY											
6/28/04	13:12	26.14	34.42	29.23	18.96	13.91	26.46	34.47			
Notes:											
-Discharge distance from MW5 = ~755 feet											
-Pump from Citrus groves across street (Jersey Lane) kick-off daily @ 3:30 PM (est. from BKGD)											
and continues roughly 90 min before shutting down -->appears to be a shallow UFA (Suwannee) well											
based on responses from different monitored zones during test											
-Pump did not run on 3 days (Fri., Sat., and Sun.) prior to test --> probably rained											

APPENDIX H

Aquifer Performance Test Analytical Solutions/Curve-Match Analyses



R43_SURFICIAL_REC_OB1_CORRECTED

Data Set: D:\romp_43\pump tests\analyses\r43_surf_rec_ob1_neu_corrected_2.aqt
Date: 09/10/07 Time: 15:43:40

PROJECT INFORMATION

Company: SWFWMD
Client: Resource Data
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 6" Perm. Surf. (MW-1)
Test Date: 11/29/2004

AQUIFER DATA

Saturated Thickness: 7. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW-1	0	0

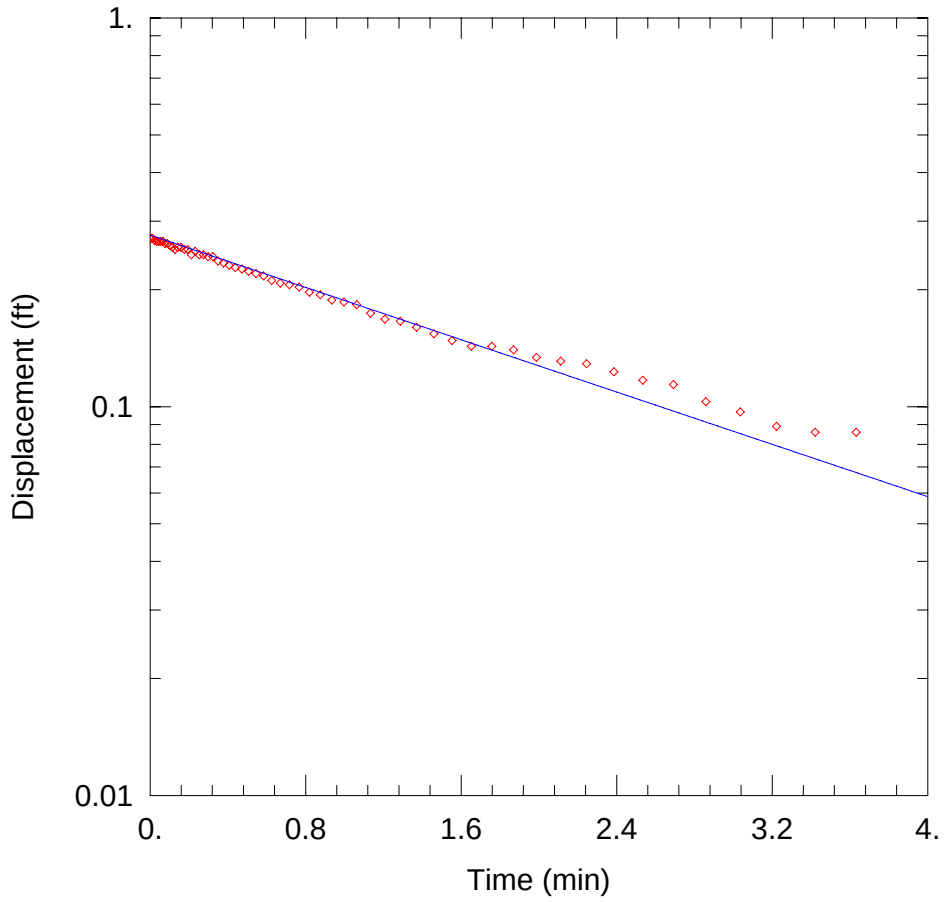
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB-1	21.8	0

SOLUTION

Aquifer Model: Unconfined
Solution Method: Neuman

T = 15.77 ft^2/day
S = 0.01209
Sy = 0.1313
ß = 0.9216



R43_SURFICIAL_SLUG_OB1B

Data Set: D:\romp_43\pump tests\analyses\r43_surf_slugob1_B_hvorslev.aqt
Date: 01/30/07 Time: 17:33:55

PROJECT INFORMATION

Company: SWFWMD
Client: Resource Data
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 2" Temp. Surf. (OB-1)
Test Date: 2/23/2005

AQUIFER DATA

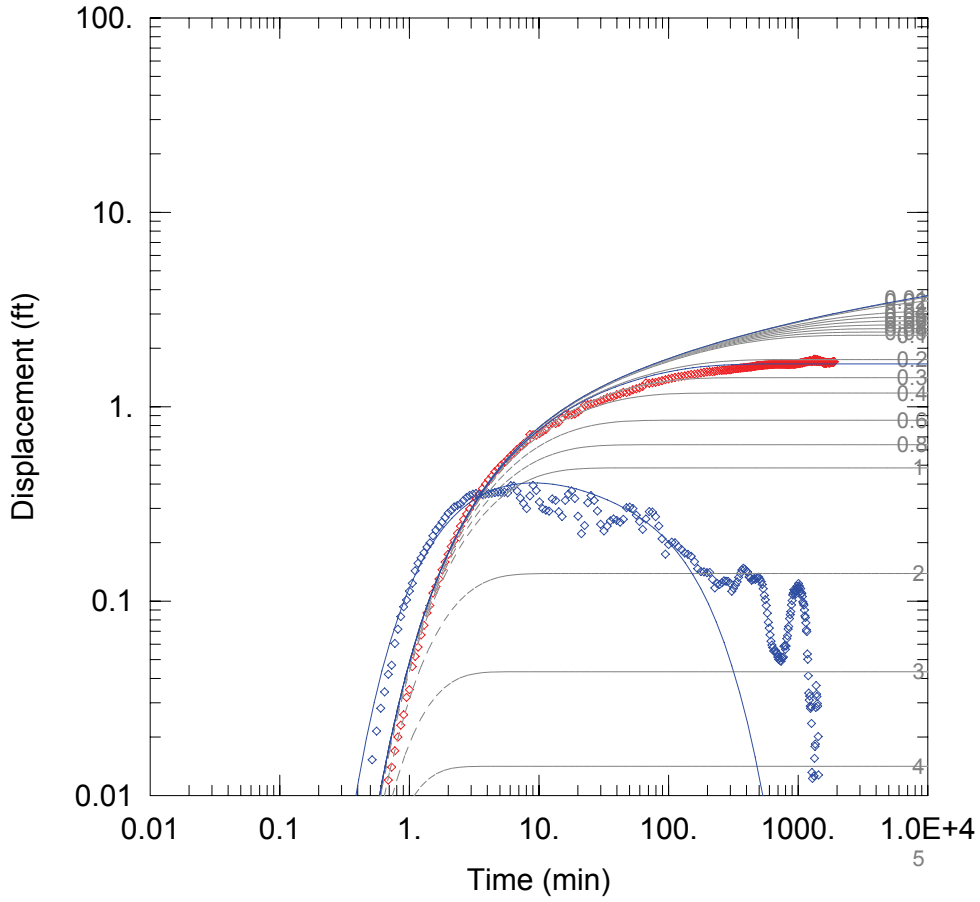
Saturated Thickness: 3.48 ft
Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (OB1)

Initial Displacement: 0.271 ft
Total Well Penetration Depth: 10. ft
Casing Radius: 0.0833 ft
Static Water Column Height: 3.48 ft
Screen Length: 10. ft
Well Radius: 0.25 ft
Gravel Pack Porosity: 0.

SOLUTION

Aquifer Model: Unconfined
Solution Method: Hvorslev
K = 1.025 ft/day
y0 = 0.2763 ft



R43_UPPERARC_DD_OB2

Data Set: D:\romp_43\pump tests\analyses\r43_upperARC_dd_ob2.aqt
Date: 03/06/07 Time: 14:55:48

PROJECT INFORMATION

Company: SWFWMD
Client: Resource Data Section
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 8" Perm. LIAS (MW2)
Test Date: 07/12/2004

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW-2	0	0

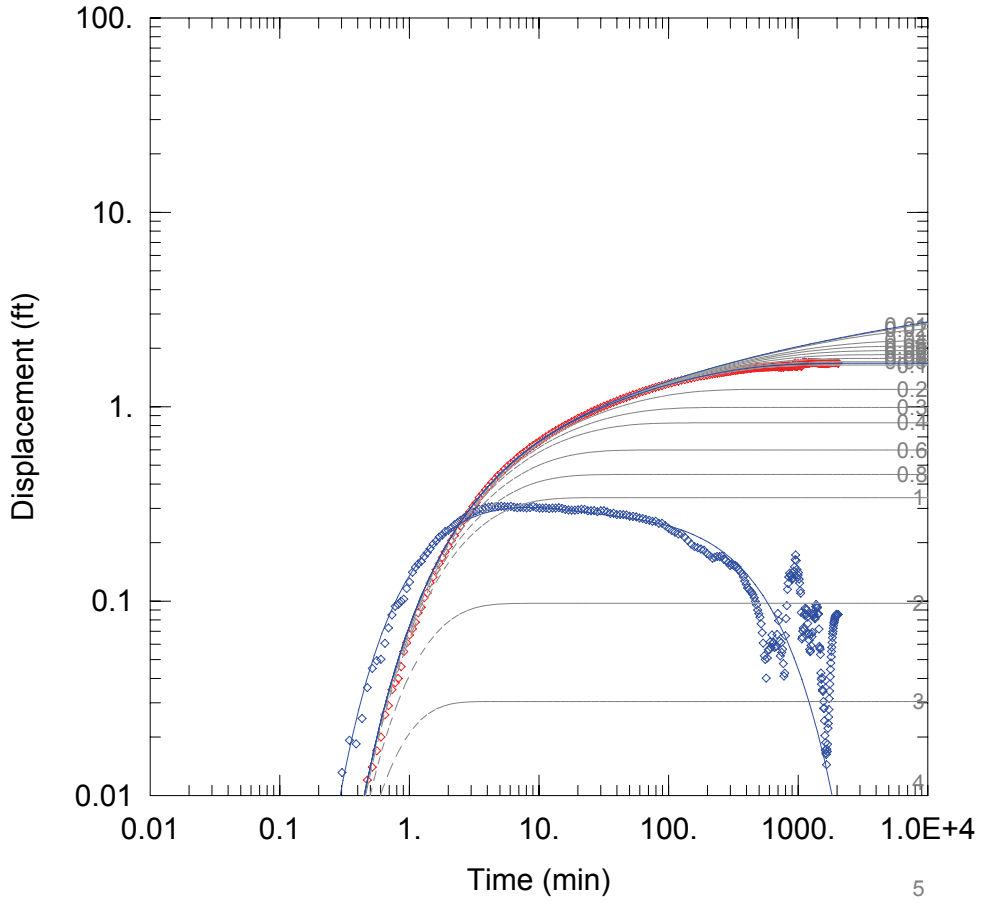
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB-2	68	0

SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

T = 657.7 ft^2/day
S = 0.0006678
r/B = 0.2223
Kz/Kr = 0.1
b = 106. ft



R43_UPPERARC_REC_OB2

Data Set: D:\romp_43\pump tests\analyses\r43_upperARC_rec_ob2.aqt
Date: 03/06/07 Time: 14:48:56

PROJECT INFORMATION

Company: SWFWMD
Client: Resource Data Section
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 8" Perm. LIAS (MW2)
Test Date: 07/12/2004

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW2	0	0

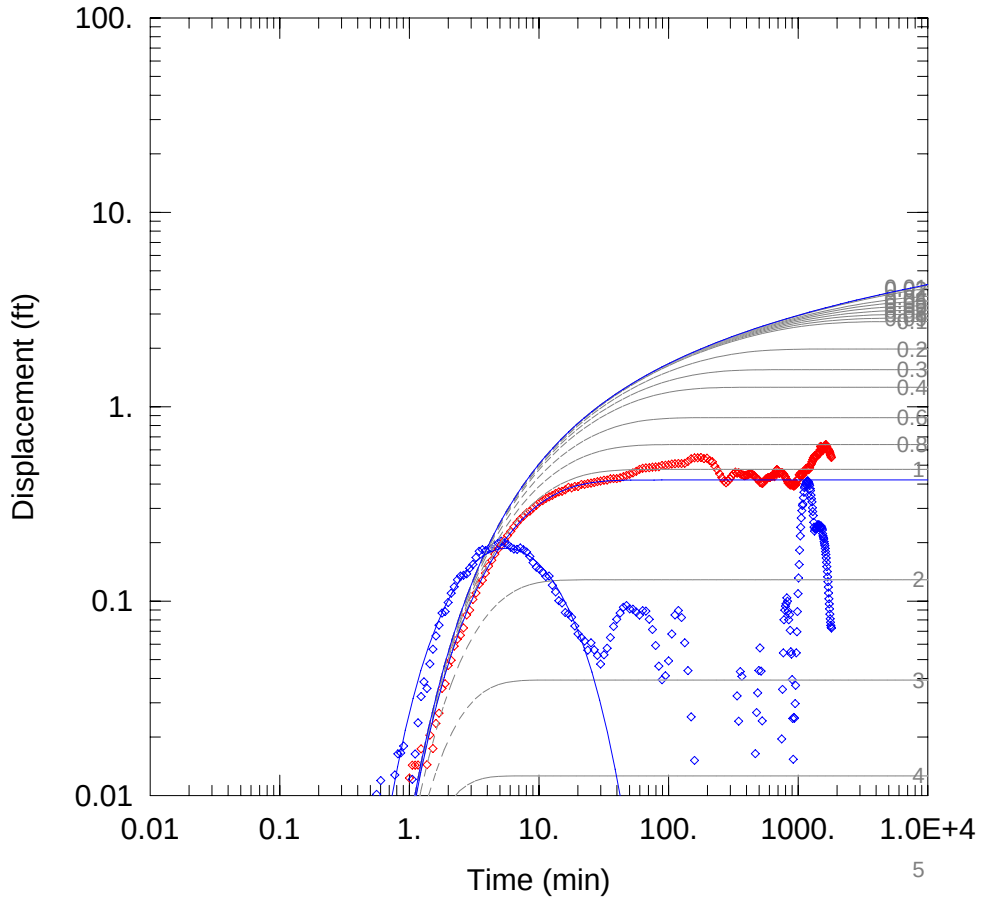
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB2	68	0

SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

T = 935.7 ft^2/day
S = 0.0006552
r/B = 0.09466
Kz/Kr = 0.1
b = 106. ft



R43_LOWERARC_DD_OB3_CORRECTED

Data Set: D:\romp_43\pump tests\analyses\r43_lowerARC_dd_ob3_corrected.aqt
Date: 01/31/07 Time: 09:56:20

PROJECT INFORMATION

Company: SWFWMD
Client: Resource Data Section
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 8" Perm. LIAS (MW3)
Test Date: 07/06/2004

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW-3	0	0

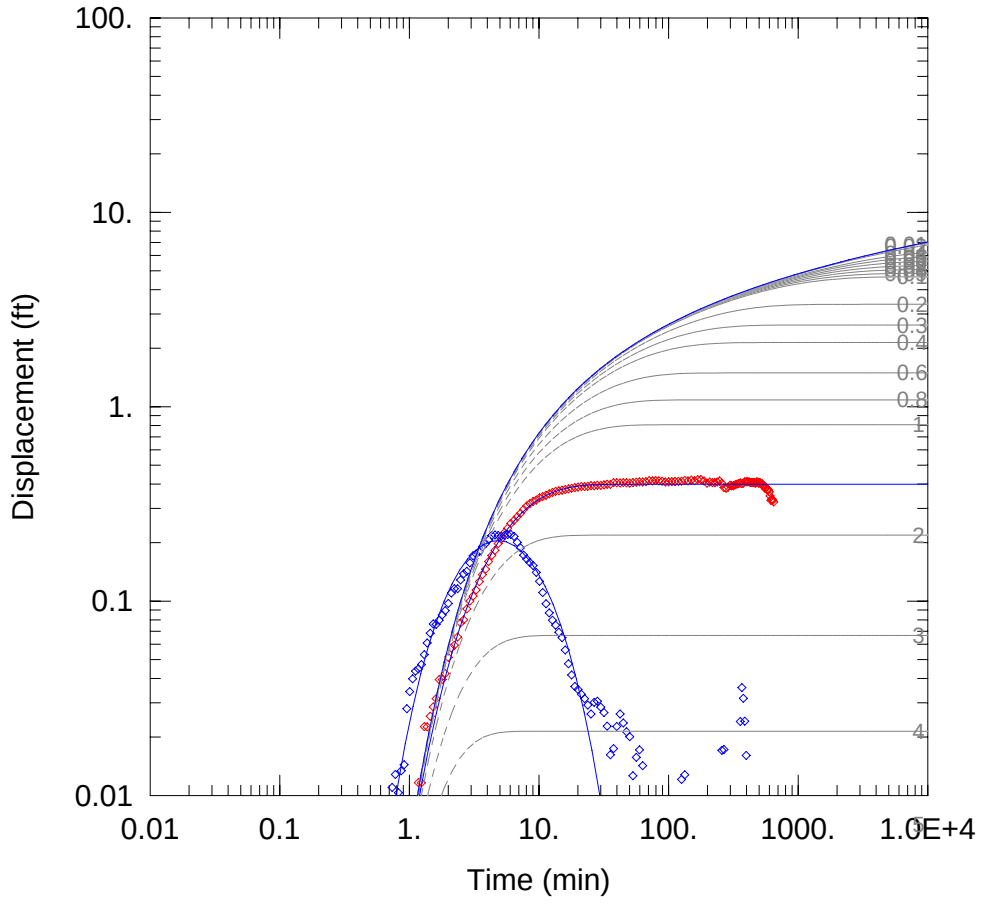
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB-3	36.5	0

SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

T = 496.1 ft^2/day
S = 0.003144
r/B = 1.089
Kz/Kr = 0.1
b = 36. ft



R43_LOWERARC_REC_OB3_CORRECTED

Data Set: D:\romp_43\pump tests\analyses\r43_lowerARC_rec_ob3_corrected.aqt
Date: 01/30/07 Time: 17:26:42

PROJECT INFORMATION

Company: SWFWMD
Client: Resource Data Section
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 8" Perm. LIAS (MW-3)
Test Date: 07/06/2004

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW3	0	0

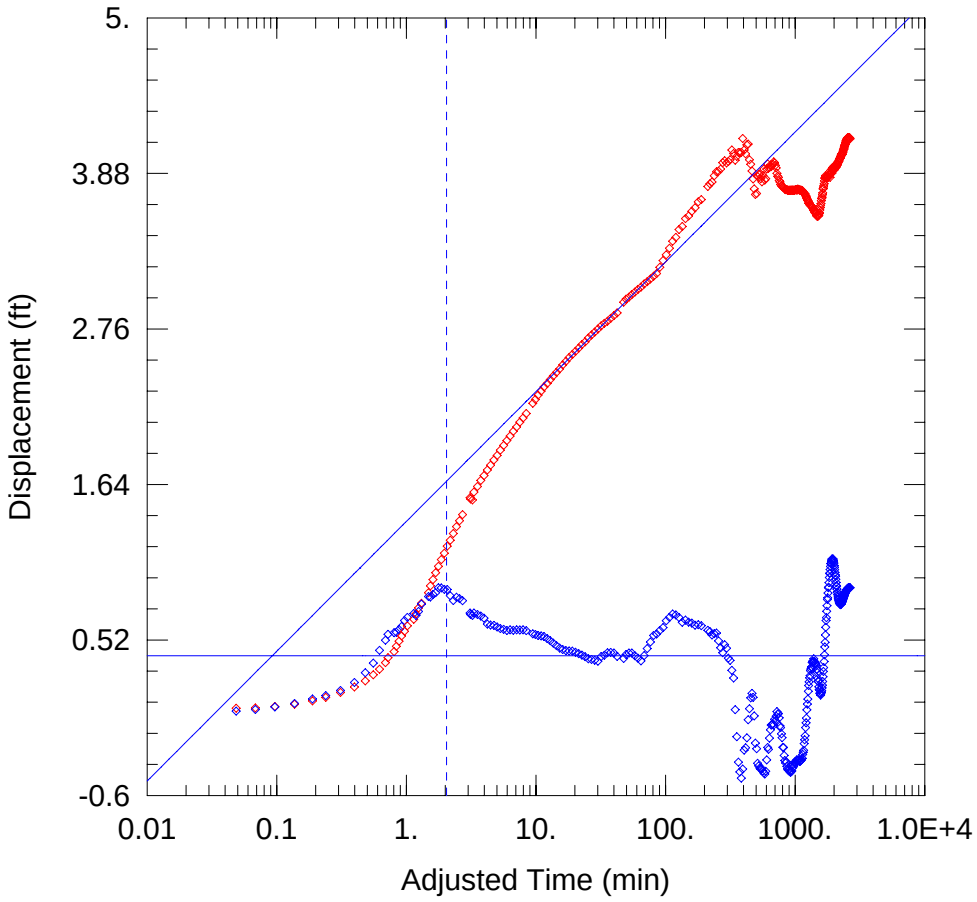
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB3	36.5	0

SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

T = 292.2 ft^2/day
S = 0.002237
r/B = 1.521
Kz/Kr = 0.1
b = 36. ft



R43_SUWPZ_DD_OB4B

Data Set: D:\romp_43\pump tests\analyses\r43_SUWpz_dd_ob4b.aqt
Date: 01/31/07 Time: 09:57:37

PROJECT INFORMATION

Company: SWFWMD
Client: ROMP Section - RC&D
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 12" Perm. SUW (MW4)
Test Date: 04/13/2006

AQUIFER DATA

Saturated Thickness: 142. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW4	0	0

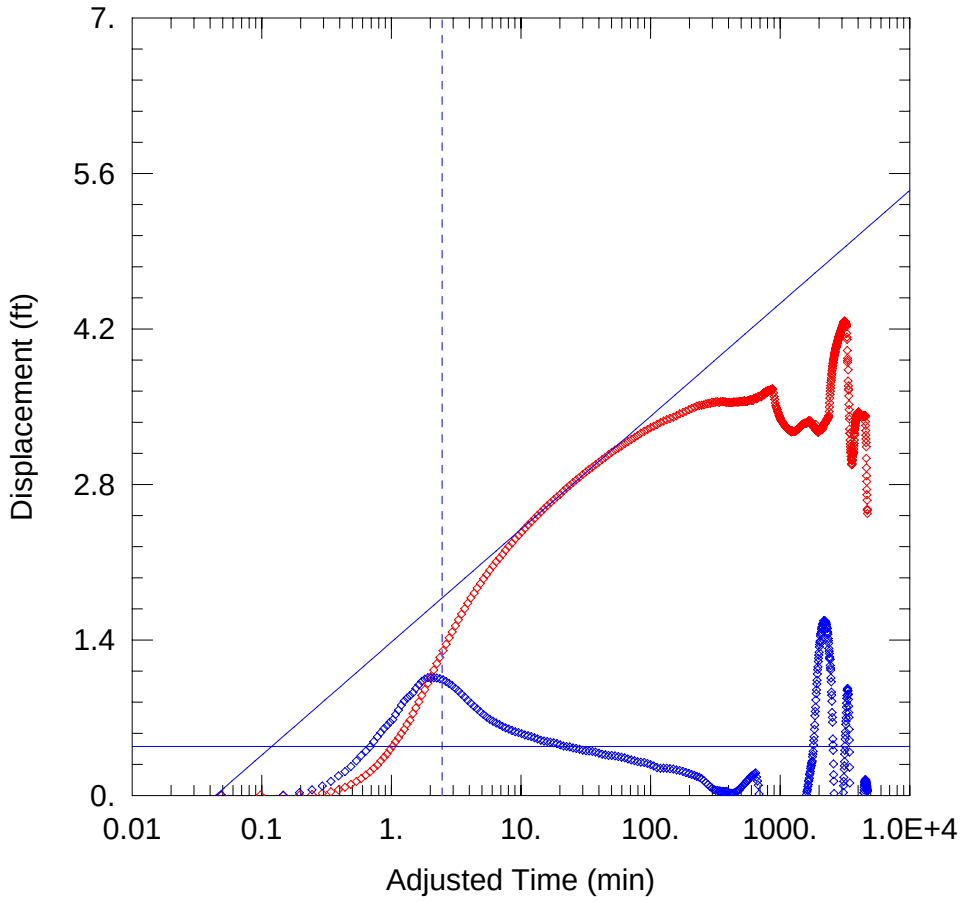
Observation Wells

Well Name	X (ft)	Y (ft)
OB4b-SUW	187	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 1.355E+4 ft^2/day S = 2.051E-5



R43_SUWPZ_REC_OB4B

Data Set: D:\romp_43\pump tests\analyses\r43_SUWpz_rec_ob4b.aqt
Date: 01/31/07 Time: 09:57:03

PROJECT INFORMATION

Company: SWFWMD
Client: ROMP Section - RC&D
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 12" Perm. SUW (MW4)
Test Date: 04/13/2006

AQUIFER DATA

Saturated Thickness: 142. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW4	0	0

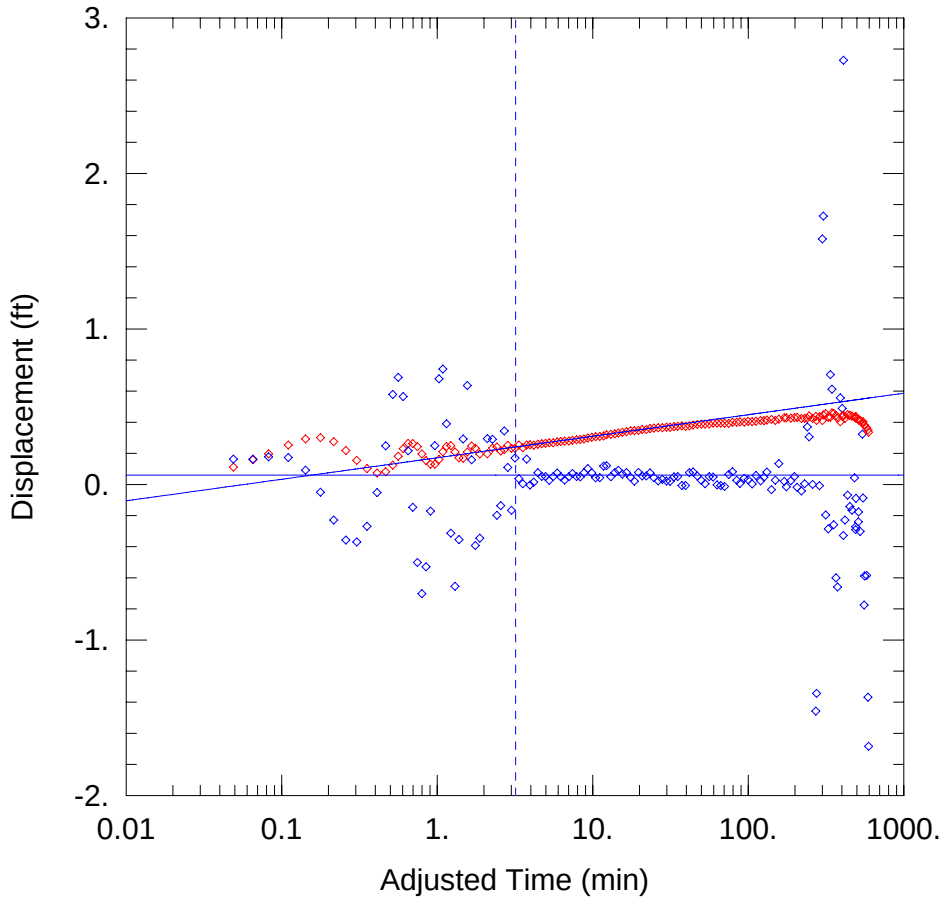
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB4b-SUW	187	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 1.263E+4 ft^2/day S = 2.473E-5



R43_APPZ_DD_OB4A

Data Set: D:\romp_43\pump tests\analyses\r43_APpz_dd_ob4a.aqt
Date: 01/31/07 Time: 10:34:28

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 10" Perm. AP Monitor (MW5)
Test Date: 6/1/06

AQUIFER DATA

Saturated Thickness: 1282. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW5-AP	0	0

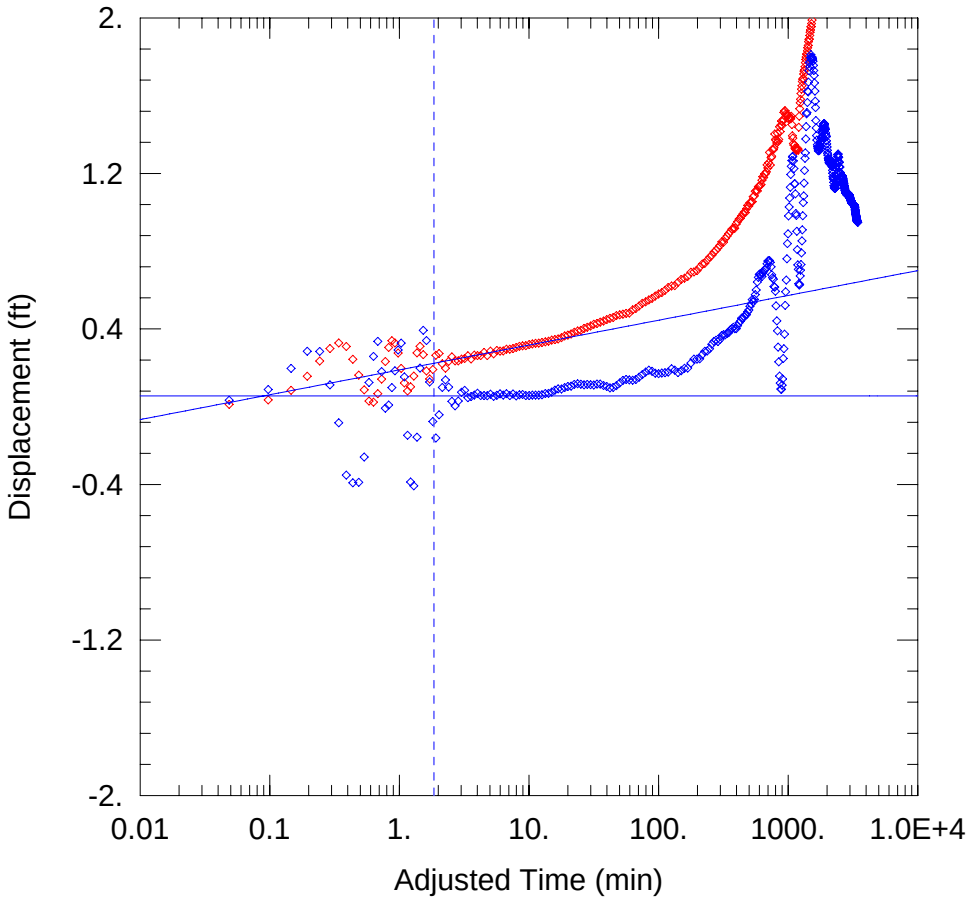
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB4a-AP	155	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 3.253E+5 ft^2/day S = 0.001214



R43_APPZ_REC_OB4A_CORRECTED

Data Set: D:\romp_43\pump tests\analyses\r43_APpz_rec_ob4a_corrected.aqt
Date: 01/31/07 Time: 10:35:33

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 10" Perm. AP Monitor (MW5)
Test Date: 6/1/06

AQUIFER DATA

Saturated Thickness: 871. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW5-AP	0	0

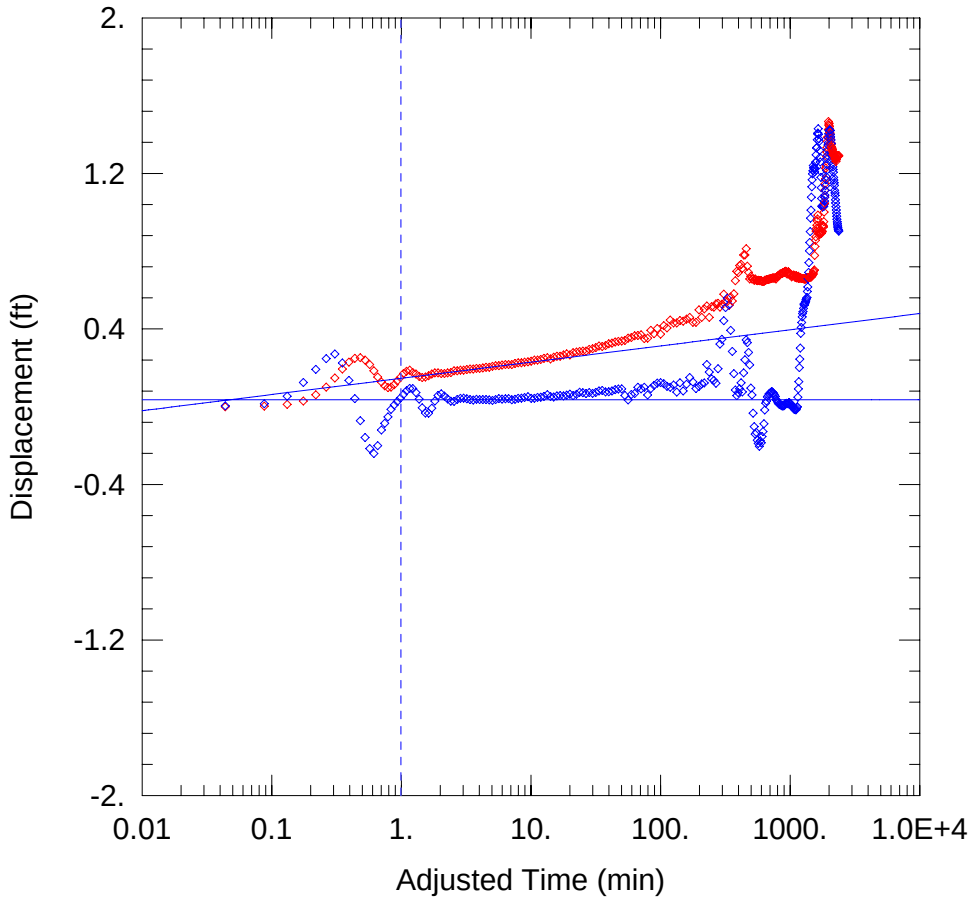
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB4a-AP	155	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 3.527E+5 ft^2/day S = 0.0007537



R43_COMPUFA_DD_OB4A

Data Set: D:\romp_43\pump tests\analyses\r43_compUFA_dd_ob4a.aqt
Date: 01/31/07 Time: 10:52:24

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 20" Perm. Composite UFA (MW-5)
Test Date: 06/22/2004

AQUIFER DATA

Saturated Thickness: 1282. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW5-CompUFA	0	0

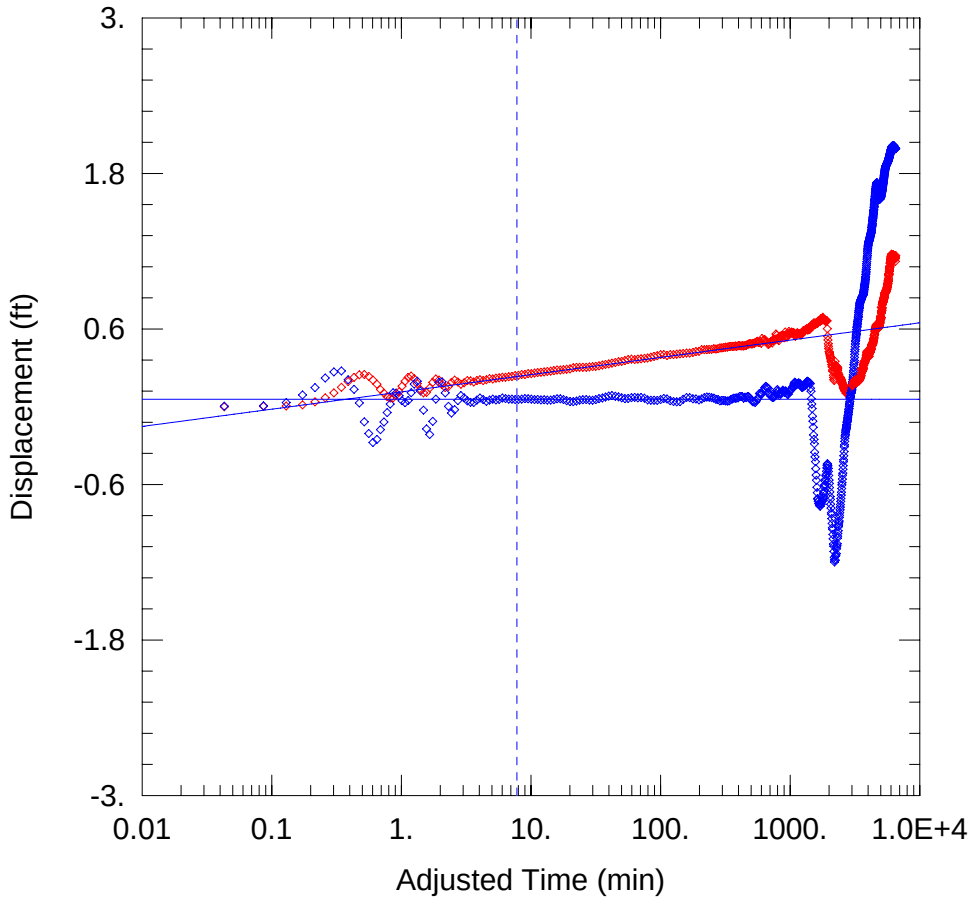
Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB4a-composite	155	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 4.361E+5 ft^2/day S = 0.0005008



R43_COMPUFA_REC_OB4A

Data Set: D:\romp_43\pump tests\analyses\r43_compUFA_rec_ob4a.aqt
Date: 01/31/07 Time: 10:53:47

PROJECT INFORMATION

Company: SWFWMD
Project: ROMP 43 - Bee Branch
Location: Hardee County, FL
Test Well: 20" Perm. Composite UFA (MW-5)
Test Date: 06/22/2004

AQUIFER DATA

Saturated Thickness: 1282. ft Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
MW5-CompUFA	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
◇ OB4a-composite	155	0

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Jacob

T = 2.726E+5 ft^2/day S = 0.002461

APPENDIX I

Results of Field and Laboratory Water Quality Data

Appendix I.1. Results of field water-quality analyses at ROMP 43 wellsite during coring operations.

[bls, below land surface; °C, degrees Celcius; SU, standard units; umhos/cm, micromhos per centimenter; mg/L, milligrams per liter]

Monitor Well UID #	Date	Time	Open Interval (feet bls)	Temp. (oC)	pH (SU)	Specific Cond. (umhos/cm)	MAJOR ANIONS Cl1- (mg/L)	MAJOR ANIONS SO42- (mg/L)	Sample Collection Method/Remarks
2795-2004-0 (WS)	02/05/02	11:35	60-80	19.1	6.12	180	40	<<50	Water Supply Well - sampled with 4", 0.5HP submersible pump prior to PT#1
2795-2005-0 (CH-1)	02/05/02	12:15	87-120	21.5	7.77	360	20	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#1 (no packer needed, 4" HW set @ 87')
2795-2005-0 (CH-1)	02/06/02	14:15	125-160	22.5	7.7	342	50	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#2 (inflatable packer element set @ 125')
2795-2005-0 (CH-1)	02/12/02	9:05	172-200	21.5	6.45	226	20	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#3 (inflatable packer element set @ 172')
2795-2005-0 (CH-1)	02/13/02	12:25	181-240	22.1	6.8	303	20	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#4 (inflatable packer element set @ 181')
2795-2005-0 (CH-1)	02/14/02	11:15	187-260	20.7	6.5	310	20	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#5 (inflatable packer element set @ 187')
2795-2005-0 (CH-1)	02/18/02	16:55	201-260	22	6.65	320	NM	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#6 (inflatable packer element set @ 201')
2795-2005-0 (CH-1)	02/19/02	17:05	269-280	23.1	6.62	185	NM	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#7 (inflatable packer element set @ 269')
2795-2005-0 (CH-1)	02/20/02	11:30	269-300	23.8	6.19	170.4	NM	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#8 (inflatable packer element set @ 269')
2795-2005-0 (CH-1)	02/21/02	13:57	292-340	26.2	6.28	225	NM	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#9 (inflatable packer element set @ 292')
2795-2005-0 (CH-1)	03/26/02	11:20	340-380	24.1	6.7	185.3	15	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#10 (inflatable packer element set @ 340')
2795-2005-0 (CH-1)	03/27/02	15:10	412-440	24.5	7.51	152.8	10	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#11 (inflatable packer element set @ 412')
2795-2005-0 (CH-1)	04/01/02	12:45	455-480	25.7	7.42	162.3	15	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#12 (inflatable packer element set @ 455')
2795-2005-0 (CH-1)	04/08/02	13:35	508-540	25.6	7.27	170.5	10	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#14 (inflatable packer element set @ 508')
2795-2005-0 (CH-1)	04/10/02	11:45	548-620	24.1	7.07	173.5	10	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#15 (inflatable packer element set @ 548')
2795-2005-0 (CH-1)	04/11/02	14:10	583-620	24.7	7.41	187.5	15	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#16 (inflatable packer element set @ 583')
2795-2005-0 (CH-1)	04/17/02	9:10	620-680	24.5	7.18	179	10	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#17 (inflatable packer element set @ 620')
2795-2005-0 (CH-1)	04/22/02	15:45	708-740	27.2	7.23	160.6	15	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#18 (inflatable packer element set @ 708')
2795-2005-0 (CH-1)	04/24/02	16:20	739-800	24.7	7.19	171.2	10	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#19 (inflatable packer element set @ 739')
2795-2005-0 (CH-1)	05/07/02	14:45	789-860	25.4	7.27	182.5	10	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#20 (inflatable packer element set @ 789')
2795-2005-0 (CH-1)	05/14/02	10:50	860-920	25.6	6.95	246	20	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#21 (inflatable packer element set @ 860')
2795-2005-0 (CH-1)	05/16/02	13:30	925-980	25.5	6.74	186.5	10	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#22 (inflatable packer element set @ 925')
2795-2005-0 (CH-1)	05/23/02	10:25	982-1040	25.6	7.61	190.1	10	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#23 (inflatable packer element set @ 982')
2795-2005-0 (CH-1)	06/05/02	15:25	1034-1100	26.6	7.07	191.6	20	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#24 (inflatable packer element set @ 1034')
2795-2005-0 (CH-1)	06/11/02	15:25	1100-1120	24.6	7.06	223	20	<<50	Off-bottom, stainless steel, check-valve bailer prior to PT#25 (inflatable packer element set @ 1100')
2795-2212-0 (MW-5)	01/08/03	17:00	1092-1195	22.7	7.58	175.6	15	<<50	Packer test PT#1X, reverse-air discharge sample (inflatable packer element set @ 1092')
2795-2212-0 (MW-5)	01/15/03	18:00	1557-1596	21.5	6.93	1970	20	>1800	Packer test PT#2X, reverse-air discharge sample (inflatable packer element set @ 1557')

Appendix I.2. Results of laboratory water-quality analyses at ROMP 43 wellsite during coring operations.

[bls, below land surface; °C, degrees Celcius; SU, standard units; umhos/cm, micromhos per centimenter; mg/L, milligrams per liter; NM, not measured]

Monitor Well UID #	Date	Time	Open Interval (feet bls)	pH (SU)	Specific Cond. (umhos/cm)	MAJOR ANIONS Cl1- (mg/L)	MAJOR ANIONS SO42- (mg/L)	MAJOR CATIONS Ca2+ (mg/L)	Mg2+ (mg/L)	Na+ (mg/L)	K+ (mg/L)	Fe2+ (mg/L)	Sr2+ (mg/L)	Si as SiO2 (mg/L)	Total Dissolved Solids (mg/L)	Total Alkalinity CaCO3 (mg/L)	Sample Collection Method/Remarks
2795-2004-0 (WS)	2/5/2002	11:35	60-80	6.05	214	29.69	5.82	17.1	3.52	14.65	2.43	260	<.1	13.9	131	NM	Water Supply Well - sampled with 4", 0.5HP submersible pump prior to PT#1
2795-2005-0 (CH-1)	2/5/2002	12:15	87-120	8.57	337	13.08	10.23	38.5	12.96	18.2	4.06	140	0.17	19.5	223	166.3	Off-bottom, stainless steel, check-valve bailer prior to PT#1 (no packer needed, 4" HW set @ 87')
2795-2005-0 (CH-1)	2/6/2002	14:15	125-160	8.47	341	11.06	7.43	37.7	15.02	14.8	3.77	30	0.14	19.7	222	175.8	Off-bottom, stainless steel, check-valve bailer prior to PT#2 (inflatable packer element set @ 125')
2795-2005-0 (CH-1)	2/12/2002	9:05	172-200	7.32	252	7.39	5.73	18.7	11.16	8.36	2.59	60	3.39	14.2	125	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#3 (inflatable packer element set @ 172')
2795-2005-0 (CH-1)	2/13/2002	12:25	181-240	7.05	318	9.01	3.02	27.2	15.07	10.3	3.74	30	1.21	17.6	177	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#4 (inflatable packer element set @ 181')
2795-2005-0 (CH-1)	2/14/2002	11:15	187-260	7.51	339	10.06	3.40	29.6	15.43	11.45	4.17	250	1.28	18.2	183	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#5 (inflatable packer element set @ 187')
2795-2005-0 (CH-1)	2/18/2002	16:55	201-260	7.61	320	9.57	2.68	28.4	16.79	10.37	2.94	130	2.54	18.5	186	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#6 (inflatable packer element set @ 201')
2795-2005-0 (CH-1)	2/19/2002	17:05	269-280	7.44	209	5.48	4.43	15.6	9.44	11.51	1.51	<25	2.73	13.1	135	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#7 (inflatable packer element set @ 269')
2795-2005-0 (CH-1)	2/20/2002	11:30	269-300	7.56	197	5.51	4.66	15.5	9.17	8.9	1.38	<25	2.51	12.6	133	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#8 (inflatable packer element set @ 269')
2795-2005-0 (CH-1)	2/21/2002	13:57	292-340	7.85	237	7.64	5.11	23.1	10.4	7.16	1.6	<25	2.08	14.3	158	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#9 (inflatable packer element set @ 292')
2795-2005-0 (CH-1)	3/26/2002	11:20	340-380	7.57	176	5.79	5.48	17.7	7.56	5.47	1.45	<30	2.07	12.3	103	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#10 (inflatable packer element set @ 340')
2795-2005-0 (CH-1)	3/27/2002	15:10	412-440	7.69	166	5.36	6.40	16.7	7.29	4.08	1.12	120	2.1	13.4	119	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#11 (inflatable packer element set @ 412')
2795-2005-0 (CH-1)	4/1/2002	12:45	455-480	7.66	182	5.82	5.11	42.8	8.83	6.33	1.47	670	2	11.8	120	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#12 (inflatable packer element set @ 455')
2795-2005-0 (CH-1)	4/8/2002	13:35	508-540	7.77	190	6.36	3.32	19.4	9.67	5.54	1.61	400	1.87	12.1	132	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#14 (inflatable packer element set @ 508')
2795-2005-0 (CH-1)	4/10/2002	11:45	548-620	7.67	195	7.30	8.70	23.8	7.2	6.97	1.01	190	1.91	11.3	134	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#15 (inflatable packer element set @ 548')
2795-2005-0 (CH-1)	4/11/2002	14:10	583-620	7.80	207	6.94	5.24	42.1	10.6	5.38	1.6	350	1.67	12.0	153	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#16 (inflatable packer element set @ 583')
2795-2005-0 (CH-1)	4/17/2002	9:10	620-680	8.09	217	6.62	5.02	16.4	11.2	5.81	2.02	70	1.68	13.5	126	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#17 (inflatable packer element set @ 620')
2795-2005-0 (CH-1)	4/22/2002	15:45	708-740	7.50	182	6.23	5.92	17.8	9.5	4.92	1.55	30	1.92	13.5	85	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#18 (inflatable packer element set @ 708')
2795-2005-0 (CH-1)	4/24/2002	16:20	739-800	7.56	187	6.24	3.91	18.6	9.76	13.7	2.01	60	1.57	13.0	107	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#19 (inflatable packer element set @ 739')
2795-2005-0 (CH-1)	5/7/2002	14:45	789-860	7.33	224	7.18	4.03	16.4	11.4	5.44	2.03	70	1.6	12.7	141	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#20 (inflatable packer element set @ 789')
2795-2005-0 (CH-1)	5/14/2002	10:50	860-920	7.71	279	11.70	6.27	21.8	11.5	16.9	3.97	130	1.59	12.5	168	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#21 (inflatable packer element set @ 860')
2795-2005-0 (CH-1)	5/16/2002	13:30	925-980	7.63	219	6.94	5.84	18.6	10.2	8.78	2.01	50	2.35	13.0	142	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#22 (inflatable packer element set @ 925')
2795-2005-0 (CH-1)	5/23/2002	10:25	982-1040	7.72	220	6.97	7.34	19.3	9.41	4.99	1.85	40	3.59	12.7	146	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#23 (inflatable packer element set @ 982')
2795-2005-0 (CH-1)	6/5/2002	15:25	1034-1100	7.59	210	7.78	17.30	22.5	7.89	6.96	0.98	<30	3.39	11.4	147	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#24 (inflatable packer element set @ 1034')

Appendix I.2. Results of laboratory water-quality analyses at ROMP 43 wellsite during coring operations.

[bls, below land surface; °C, degrees Celcius; SU, standard units; umhos/cm, micromhos per centimenter; mg/L, milligrams per liter; NM, not measured]

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)	Sample Collection Method/Remarks
						Cl1- (mg/L)	SO42- (mg/L)	Ca2+ (mg/L)	Mg2+ (mg/L)	Na+ (mg/L)	K+ (mg/L)	Fe2+ (mg/L)	Sr2+ (mg/L)				
2795-2005-0 (CH-1)	6/11/2002	15:25	1100-1120	7.78	233	8.70	17.30	23.7	8.22	6.17	1.02	50	3.53	12.4	140	NM	Off-bottom, stainless steel, check-valve bailer prior to PT#25 (inflatable packer element set @ 1100')
2795-2212-0 (MW-5)	1/8/2003	17:00	1092-1195	8.27	202	7.65	16.50	22.6	7.37	6.29	1.13	<30	3.89	12.7	133	NM	Packer test PT#1X, reverse-air discharge sample (inflatable packer element set @ 1092')
2795-2212-0 (MW-5)	1/15/2003	18:00	1557-1596	8.03	2090	7.43	1250.00	372.0	117	7.68	3.61	190	14.8	16.0	1860	NM	Packer test PT#2X, reverse-air discharge sample (inflatable packer element set @ 1557')

Appendix I.3 Results of laboratory water-quality analyses at ROMP 43 wellsite from completed wells

[bls, below land surface; °C, degrees Celcius; SU, standard units; umhos/cm, micromhos per centimenter; mg/L, milligrams per liter]

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)	Sample Collection Method/Remarks
						Cl1- (mg/L)	SO42- (mg/L)	Ca2+ (mg/L)	Mg2+ (mg/L)	Na+ (mg/L)	K+ (mg/L)	Fe2+ (mg/L)	Sr2+ (mg/L)				
2795-39149-0 (MW-1)	NA	NA	2-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No sample, well was dry at time of sampling
2795-2508-0 (MW-2)	4/13/2007	10:30	52-116	7.22	509	48.80	52.50	45.6	17.7	31.3	2.37	1.73	<0.25	15.4	301	130.8	Grab sample after purging three well volumes with submersible pump
2795-2509-0 (MW-3)	4/13/2007	12:00	196-233	8.41	184	6.10	6.80	14.8	9.19	7.42	1.83	<0.0125	3.23	11.5	104	79.2	Grab sample after purging three well volumes with submersible pump
2795-2510-0 (MW-4)	4/13/2006	14:40	306-464	8.21	170	5.41	6.91	17.7	7.91	4.53	1.09	2.45	2.51	12.1	121	70.65	Grab sample from discharge orifice during Suwannee Producing Zone APT
2795-2212-0 (MW-5)	6/2/2006	11:22	719.5-1210	8.94	253	7.82	20.14	23.1	8.37	4.39	0.86	0	4.27	13.3	130	95.58	Grab sample from discharge orifice during Avon Park Producing Zone APT