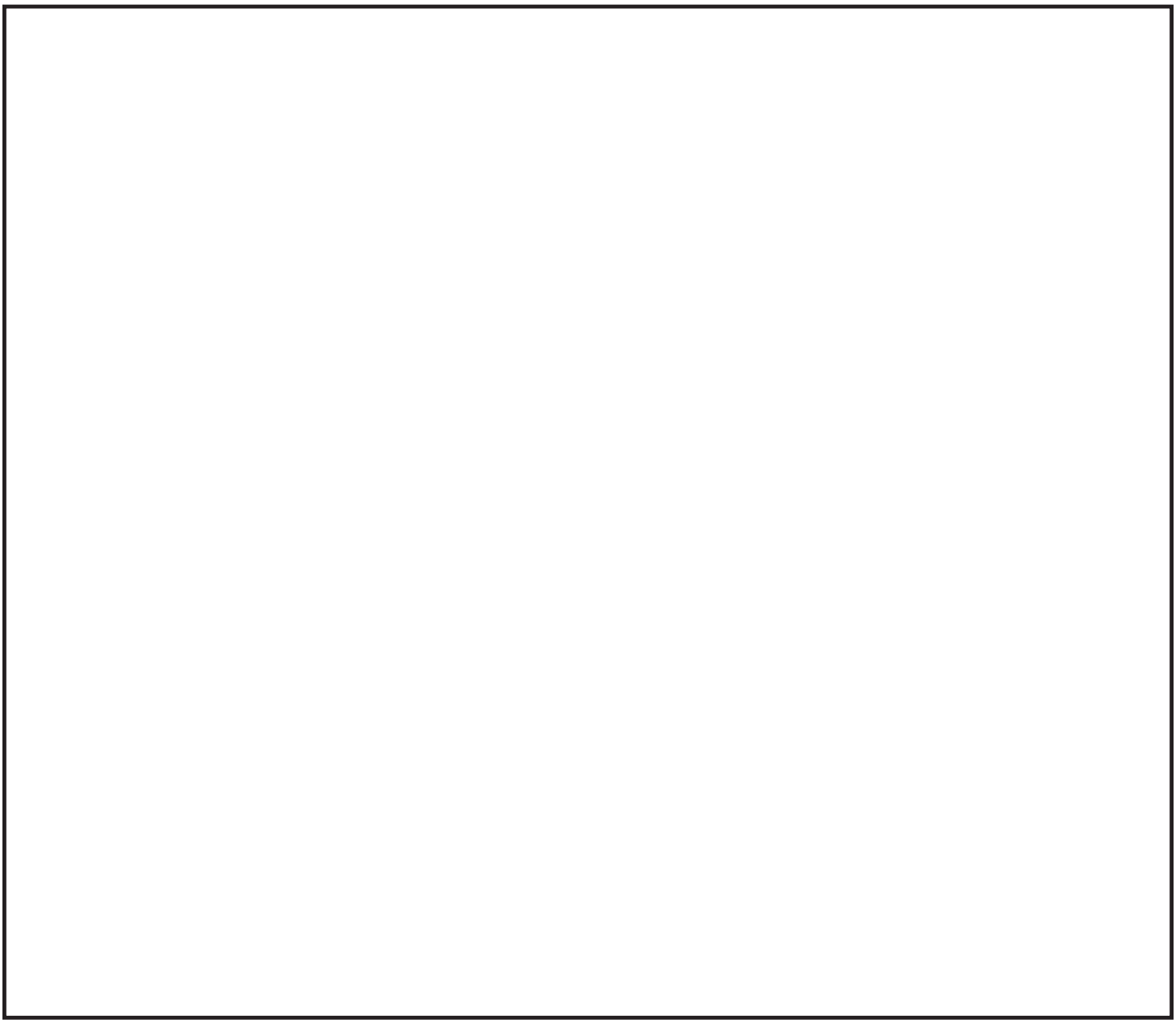
Southwest Florida
Water Management District

Well Construction at the Lake Amoret Well Site in Polk County, Florida

Southwest Florida Water Management District
Geohydrologic Data Section

Revised March 2019



Cover Photo: Permanent monitor wells at the Lake Amoret well site in Polk County, Florida. In order from left to right: SURF AQ MONITOR, U FLDN AQ MONITOR. Photograph by Julia Zydek

Well Construction at the Lake Amoret Well Site in Polk County, Florida

By Julia Zydek

Revised March 2018

Southwest Florida Water Management District
Geohydrologic Data Section

Southwest Florida Water Management District

Operations, Lands and Resource Monitoring Division
Ken Frink, P.E., Director

Data Collection Bureau
Sandie Will, P.G., Chief

Geohydrologic Data Section
M. Ted Gates, P.G., C.P.G., Manager

Southwest Florida Water Management District
2379 Broad Street
Brooksville, FL 34604-6899

For ordering information:

World Wide Web: http://www.watermatters.org/documents

Telephone: 1-800-423-1476

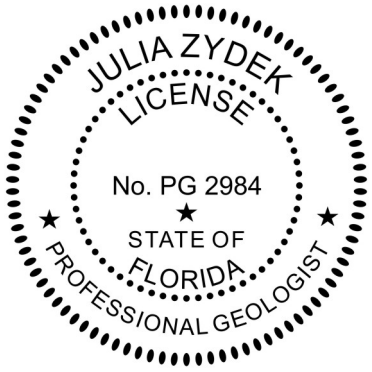
For more information on the Southwest Florida Water Management District and its mission to manage and protect water and related resources:

World Wide Web: http://www.watermatters.org

Telephone: 1-800-423-1476

Suggested citation:
Zydek, J.A., 2018, Well Cosntruction at the Lake Amoret Well Site in Polk County, FL: Southwest Florida Water Management District, 30 p.

The hydrogeologic evaluations and interpretations contained in *Well Construction at the Lake Amoret Well Site in Polk County, Florida* have been prepared by or approved by a licensed Professional Geologist in the State of Florida, in accordance with Chapter 492, Florida Statutes.



Julia A. Zydek
Professional Geologist
State of Florida License No. PG 2984
Date: 3/20/2019

Foreword

The Geohydrologic Data Section administers the Regional Observation and-Monitor-well Program (ROMP) at the Southwest Florida Water Management District (District). The ROMP was started in 1974 in response to the need for hydrogeologic information by the District. The focus of the ROMP is to quantify the flow characteristics and water quality of the groundwater systems that serve as the primary source of water supply within southwest Florida. The original design of the ROMP consisted of an inland 10-mile grid network composed of 104 well sites and a coastal transect network composed of 57 coastal monitor transects of two to three well sites each. The number of wells at a well site varies with specific regional needs; usually two to five permanent monitor wells are constructed at each site. The numbering system for both networks generally increases from south to north with ROMP-labeled wells representing the inland grid network and TR-labeled wells representing the coastal transect network.

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

M. Ted Gates

Manager

Contents

Figures

Tables

Conversion Factors and Datums

Multiply	By	To obtain
	Length	
inch (in)	2.54	centimeter (cm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
acre	0.004047	square kilometer (km^2)
square foot (ft^2)	0.09290	square meter (m^2)
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
gallon (gal)	3.785	liter (L)
gallon (gal)	0.003785	cubic meter (m^2)
cubic foot (ft^3)	0.02832	cubic meter (m^3)
	Flow Rate	
foot per day (ft/d)	0.3048	meters per day (m/d)
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
cubic foot per day (ft^3/d)	0.02832	cubic meter per day (m^3/d)
gallon per day (gal/d)	0.003785	cubic meter per day (m^3/d)

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

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

Abbreviations and Acronyms

bls	below land surface
CFWI	Central Florida Water Initiative
District	Southwest Florida Water Management District
fig.	figure
gpm	gallons per minute
gpm/ft	gallons per minute per foot
Huss	Huss Drilling, Incorporated
NAVD 88	North American Vertical Datum of 1988
PVC	polyvinyl chloride
ROMP	Regional Observation and Monitor-well Program
SID	site identification
WCP	well construction permit

Well Construction at the Lake Amoret Well Site in Polk County, Florida

By Julia Zydek

Introduction

Several well construction sites were planned to investigate lake and groundwater interactions for the adoption of minimum lake level protocols within the boundary of the Central Florida Water Initiative (CFWI) in Polk County, Florida. The sites are part of the Data, Monitoring, and Investigations Team five-year Work Plans that support CFWI activities. Seven sites will provide lithologic descriptions from land surface to the top of limestone and will provide two long-term monitor wells; one to monitor the surficial aquifer and the other to monitor the Upper Floridan aquifer. Groundwater level data collected from these wells will help assess the hydraulic connection between the lakes and the surficial aquifer and Upper Floridan aquifer in the east-central part of the Southwest Florida Water Management District (District). Data collected from the wells will be used to establish and reevaluate the minimum lake levels in accordance with Section 373.042, Florida Statutes. Additionally, these sites will guide in model calibration for the East-Central Florida Transient Groundwater Model and the District-Wide Regulation Model.

The sites targeted for investigation are Clinch Lake, Crystal Lake, Dinner Lake, Eagle Lake, Lake Amoret, Lake Aurora, Lake Bonnie, Lake Easy, Lake Eva, Lake Lee, Lake Lowery, Lake Mabel, Lake McLeod, Lake Starr, Lake Trout, Lake Venus, and North Lake Wales (fig. 1). This report details the well construction and hydrogeology of the Lake Amoret site.

Acknowledgments

Special thanks to Huss Drilling, Incorporated (Huss), for their continued professionalism.

Site Location

The Lake Amoret well site is in central Polk County approximately six miles west of the District boundary (fig. 2). It is in the northeast quarter of the northeast quarter of Section 24, Township 30 South, and Range 7 East at latitude 27° 51′ 52.05″ north and longitude 81° 33′ 57.59″ west (fig. 2). The land surface elevation is approximately 117.1 feet above the North American Vertical Datum of 1988 (NAVD 88). The Lake Amoret well site is located on a permanent easement granted to the District by the Village of Highland Park. Figure 3 presents the layout for the Lake Amoret well site.

The Lake Amoret well site can be found by taking US Route 27 south toward Avon Park for 18 miles from Lake Wales. Turn east onto Hunt Brothers Road for 0.8 miles. At the traffic circle, take the first exit onto Florida Highway 17 South/South Scenic Highway and proceed for 0.8 miles. Turn east onto North Highland Park Drive and follow onto South Highland Park Drive. Follow the access road northwest to the site.

The Lake Amoret well site is in the Lake Wales Ridge physiographic region of west-central Florida, which extends south from Lake County into Highlands County (White, 1970). In Polk County, the Lake Wales Ridge is situated between the Polk Upland physiographic region 1.7 miles to the west and the Osceola Plain physiographic region 7.8 miles to the east. The Lake Wales Ridge is primarily made of sand ridges separated by valleys that trend north to south. These sand ridges are underlain by a karstic terrain (Yobbi, 1996). Approximately 200 lakes, ponds, swamps, and sinkholes occur along the Lake Wales Ridge and adjacent areas (Yobbi, 1996). The carbonate materials of the ridge were dissolved, collapsing into sinkholes and subsequently forming these lakes and ponds (Yobbi, 1996). The Lake Wales Ridge is an area of interest due to the hydrologic connection between surface water systems and groundwater systems via sinkholes and other features characterized by karstic terrain. The Lake Amoret well site is in the Peace River Drainage Basin.

Methods

Huss collected lithologic samples using a Failing 500 drill rig equipped for split-spoon sampling. Split-spoon sampling occurred between August 1, 2017 and August 3, 2017. The split-spoon sampler was advanced using a 140-pound hammer through 4.5-inch inside diameter hollow-stem augers, which acted as temporary casing and held the borehole open. Continuous lithologic samples were collected in two-foot intervals from land surface to 12 feet below land surface (bls).

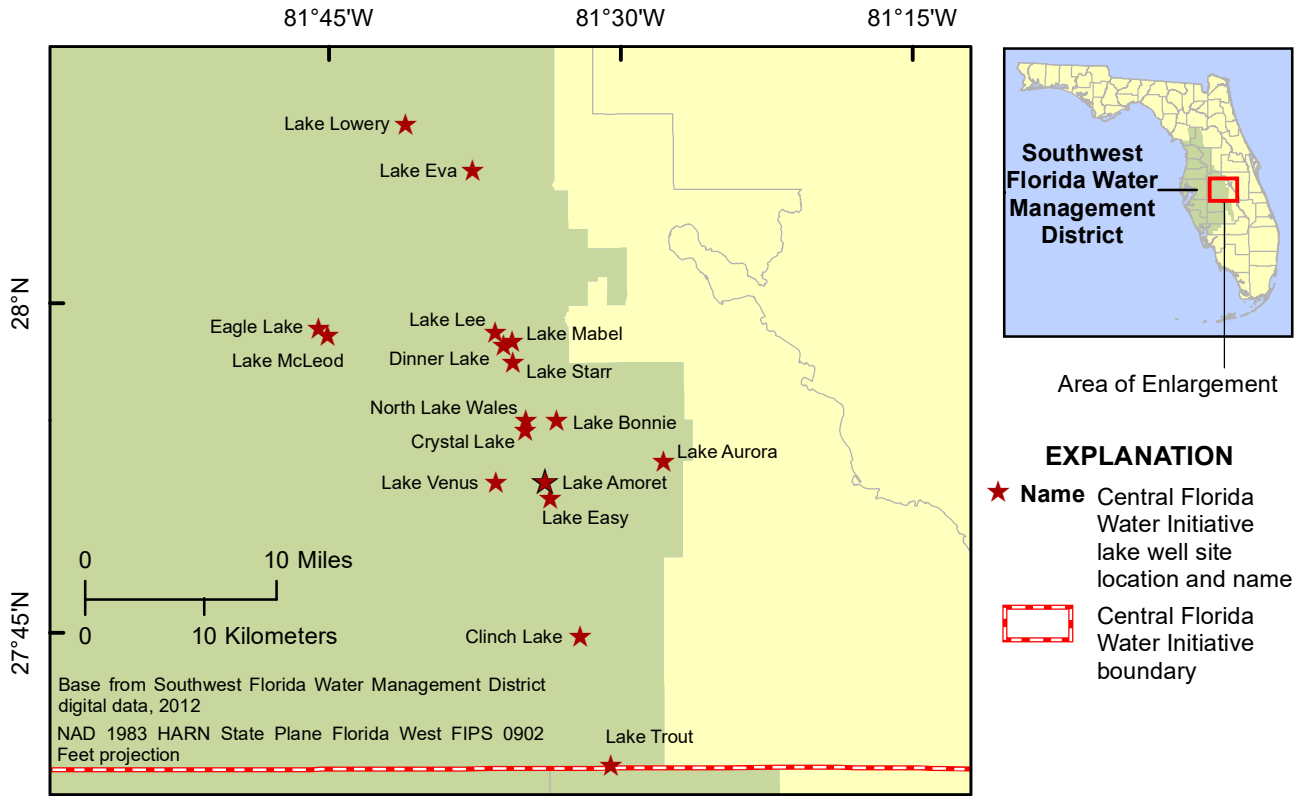


Figure 1. Central Florida Water Initiative well sites

Then, Huss collected samples in two-foot intervals for every five feet drilled. Split-spoon sampling was continued to refusal at 150 feet bls. Grab samples of drill cuttings were collected at five to 10-foot intervals to a depth of 300 feet bls during construction of the Upper Floridan aquifer monitor well. The samples were boxed, labeled, and described by the on-site geologist.

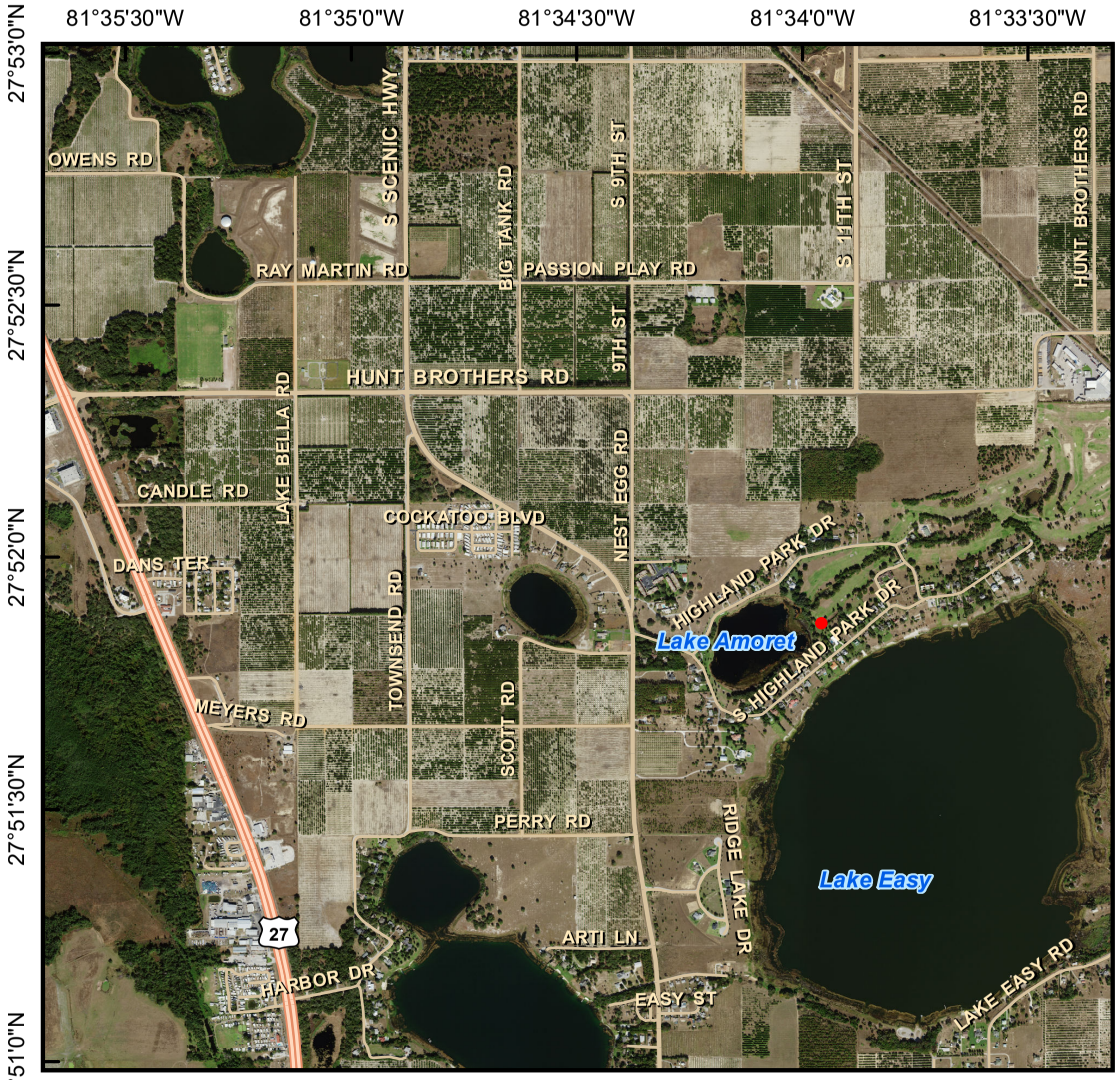
Well Construction

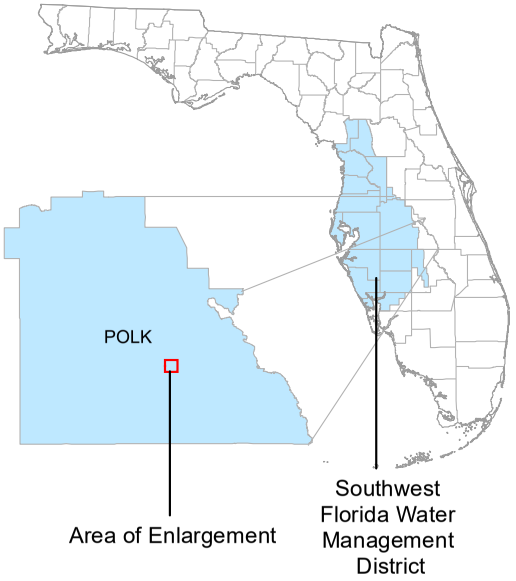
Monitor well construction at the Lake Amoret well site was completed by Huss and supervised by a District geologist. Permanent monitor wells were constructed for long-term water level monitoring. Two monitor wells were constructed, including one permanent surficial aquifer monitor well and one permanent Upper Floridan aquifer monitor well (fig. 3). Huss constructed the two wells between August 1, 2017, and August 18, 2017. The exploratory borehole was converted into the Upper Floridan aquifer monitor well after exploration was complete. Each well was developed by pumping at least three well volumes until the discharge water was free of sediment and clear, unless otherwise stated. The 4-inch polyvinyl chloride (PVC) casing for each well was raised to three feet above land surface. Sand was installed inside a lockable metal well cover around the casing. Concrete pads were installed around the finished wells. The groundwater level in each well was measured after well development using a Solinst electric water level meter. Each well has been surveyed, benchmarked, and equipped for daily water level monitoring.

Surficial Aquifer Monitor Well

The surficial aquifer monitor well (District site ID [SID] 891708) was installed between August 3, 2017, and August 7, 2017, using well construction permit (WCP) number 861793. The final well specifications can be found in table 1 and figure 4. The well is contained within the undifferentiated sand and clay sediments and will be used to monitor the groundwater level in the surficial aquifer.

Huss constructed the surficial aquifer monitor well using a Central Mining Equipment 75 drill rig equipped for hollow-stem auguring to drill an 8-inch hole from land surface to 85 feet bls. The hole was extended 5 feet beyond the design depth of the well to allow room for backfill. Next, 4-inch, schedule 40, threaded, PVC screen (0.010-inch slot) was installed between 10 and 80 feet bls. Then, 4-inch, schedule 40, threaded, PVC casing was installed from land surface to 10 feet bls. A 20-30 silica sand filter pack was installed from 8 to 80 feet bls, a 30-65 fine silica sand seal was installed from 7 to 8 feet bls, and cement grout was installed from land surface to 7 feet bls. The well was developed for approximately 90 minutes at 43 gallons per minute (gpm). The specific capac-





EXPLANATION

- Lake Amoret Monitor Well Site
  Section/Township/Range: S24/T30S/R7E
  Latitude: 27° 51' 52.05" N
  Longitude: 81° 33' 57.59" W

Directions

From Lake Wales, take US Route 27 south toward Avon Park for 18 miles. Turn east onto Hunt Brothers Rd for 0.8 miles. At the traffic circle, take the first exit onto Florida Highway 17 South/South Scenic Highway and proceed for 0.8 miles. Turn east onto North Highland Park Dr and follow onto South Highland Park Dr. Follow the access road northwest to the site.

Figure 2. Location of the Lake Amoret well site in Polk County, Florida

Figure 3. Layout of the Lake Amoret well site in Polk County, Florida

ity of the well was 4.36 gallons per minute per foot (gpm/ft). The surficial aquifer monitor well was subsequently used as the water supply well for the remainder of the coring and well construction operations.

Upper Floridan Aquifer Monitor Well

The Upper Floridan aquifer monitor well (District SID 891705) was installed between August 8, 2017, and August 18, 2017 under WCP number 861790. The final well specifications can be found in table 1 and figure 5. The well will be used to monitor the water levels in the Upper Floridan aquifer.

On August 8, 2017, Huss used the Failing 500 drill rig to widen the exploratory borehole to 17 inches in diameter, from land surface to 40 feet bls. Next, 12-inch, schedule 40, threaded, PVC casing was installed and grouted from 40 feet bls to land surface. The cement was left to harden overnight. On August 9, 2017, Huss drilled a nominal 12-inch open hole using the mud-rotary method from 40 to 140 feet bls. Next, 8-inch, schedule 40, threaded, PVC casing was installed and grouted from land surface to 140 feet bls. The cement was left to harden overnight.

On August 10, 2017, Huss drilled a nominal 8-inch open hole using the mud-rotary method from 140 to a total depth of 300 feet bls. The well was developed using the reverse-air pumping method for 55 minutes with the drilling rods at the bottom of the hole to remove the drilling fluid. On August 15, 2017, Huss installed 4-inch, schedule 40, threaded, PVC casing on two 4 x 8 formation packers from land surface to 200 feet bls. The two 4 x 8 formation packers were set on the 4-inch PVC casing approximately two feet apart, with one at 197 feet bls and the other at 199 feet bls. The formation packer at 197 feet bls was topped with pea gravel and bentonite to ensure an effective seal for the packer against the wall of the borehole. The 4-inch PVC casing was then grouted from 190 feet bls to land surface. The well was developed for approximately 30 minutes at 20 gpm. The specific capacity of the well was 2.9 gpm/ft and the approximate measurement of the drawdown was recorded at 6.84 feet.

Geology

The lithostratigraphy of the Lake Amoret well site is based on lithologic samples collected from split-spoon sampling from land surface to 150 feet bls and interpretation of drill cuttings collected during well construction from 150 to 300 feet bls. Descriptions of the samples can be found in table 2. The geologic units encountered at the well site include, in ascending order: the Ocala Limestone, the undifferentiated Arcadia Formation,the Peace River Formation, the Cypresshead Formation, and the undifferentiated sand and clay deposits. A stratigraphic column detailing the lithostratigraphy encountered at the well site is presented in figure 6.

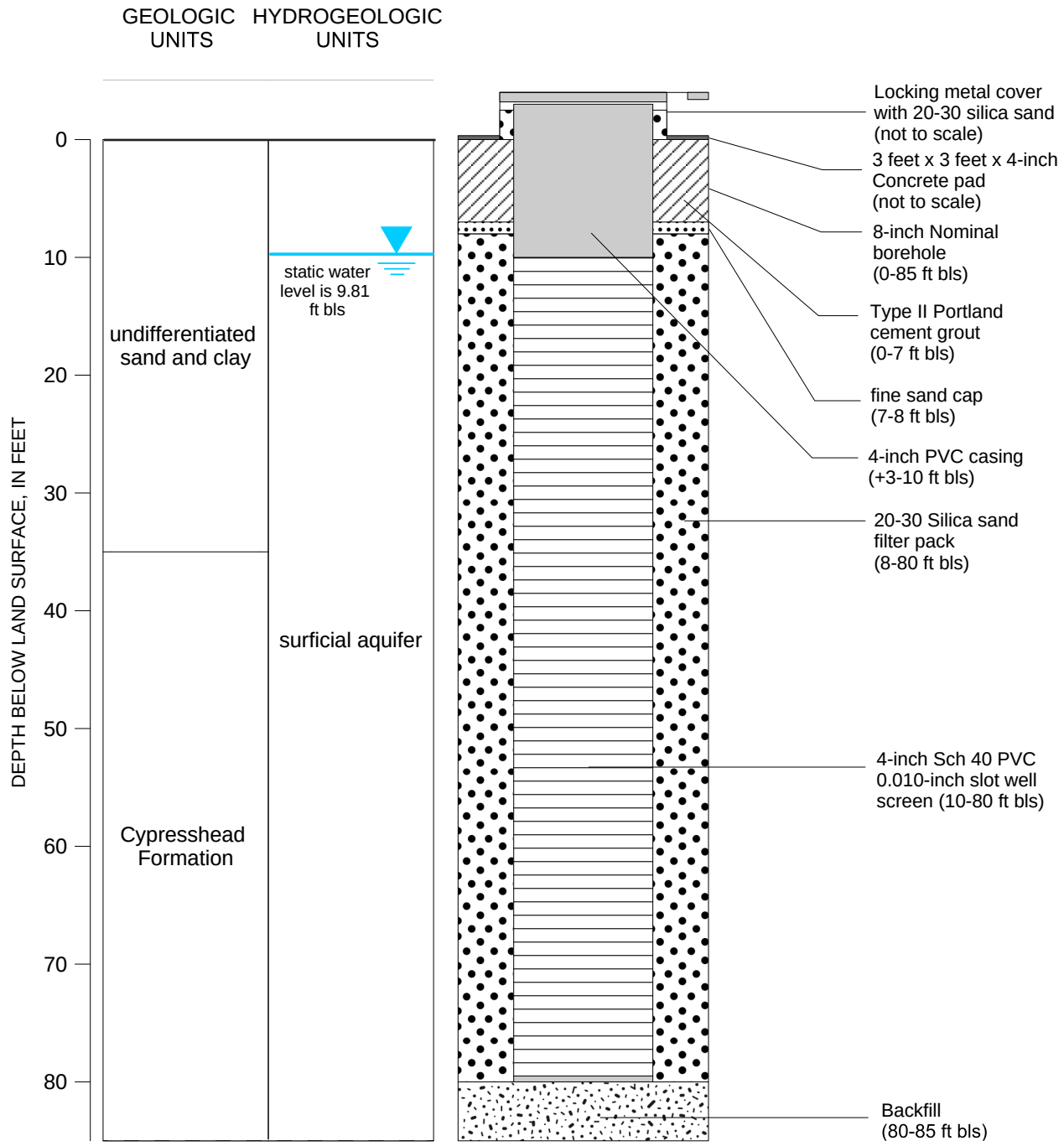
The late Eocene age Ocala Limestone extends from 218 feet bls to beyond the depth of exploration at the Lake Amoret well site. The top of the Ocala Limestone was picked at the top of the very first grab sample interval where the diagnostic benthic foraminifera, Lepidocyclina ocalana, was identified. At 218 feet bls, light gray fossiliferous limestone fragments, shell fragments, and clay are present. From 230 to 300 feet bls, trace phosphate is present with less clay. The fossil fragments become more abundant and more broken up with depth.

At the Lake Amoret well site, Miocene to Oligocene age undifferentiated Arcadia Formation is present from 150 to 218 feet bls. At 170 feet bls, white to very pale brown limestone with grayish brown sand was encountered. The grab sample collected at 170 feet bls contains pebble-sized phosphate grains and shell fragments. Huss noted loss of circulation while drilling the interval between 170 and 180 feet bls. The grab sample at 176 feet bls contains very pale brown to grayish brown limestone fragments with less blueish gray clay and fewer pebble-sized phosphate grains. The drilling log also indicates hard rock was present at this depth. From 190 to 200 feet bls, more blueish gray to light olive gray clay with

Table 1. Summary of well construction details at the Lake Amoret well site in Polk County, Florida

[SID, site identification; ft, feet; bls, below land surface; MM/DD/YYYY, month/day/year; WCP, well construction permit number; SURF, surficial; AQ, aquifer; PVC, polyvinyl chloride; Inc., Incorporated; U, Upper; FLDN, Floridan]

SID	Well Name	Open Interval (ft bls)	Casing Type	Constructed By	Start Date (MM/DD/YYYY)	Complete Date (MM/DD/YYYY)	Status	WCP No.(s)
891708	LAKE AMORET SURF AQ MONITOR	10 - 80	PVC Screen	Huss Drilling, Inc.	8/3/2017	8/7/2017	Active	861793
891705	LAKE AMORET U FLDN AQ MONITOR	200 - 300	PVC	Huss Drilling, Inc.	8/8/2017	8/18/2017	Active	861790



Well Name:	LAKE AMORET SURF AQ MONITOR
SID:	891708
WCP:	861793
S/T/R:	24/30S/07E
Latitude:	27° 51' 51.94"
Longitude:	81° 33' 57.65"
Reporting Category:	AMOR
Const. Began:	8/3/2017
Const. Complete:	8/7/2017

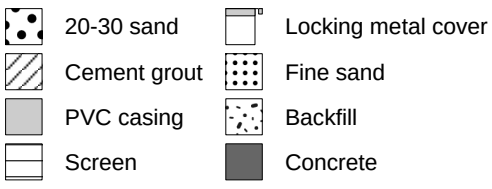
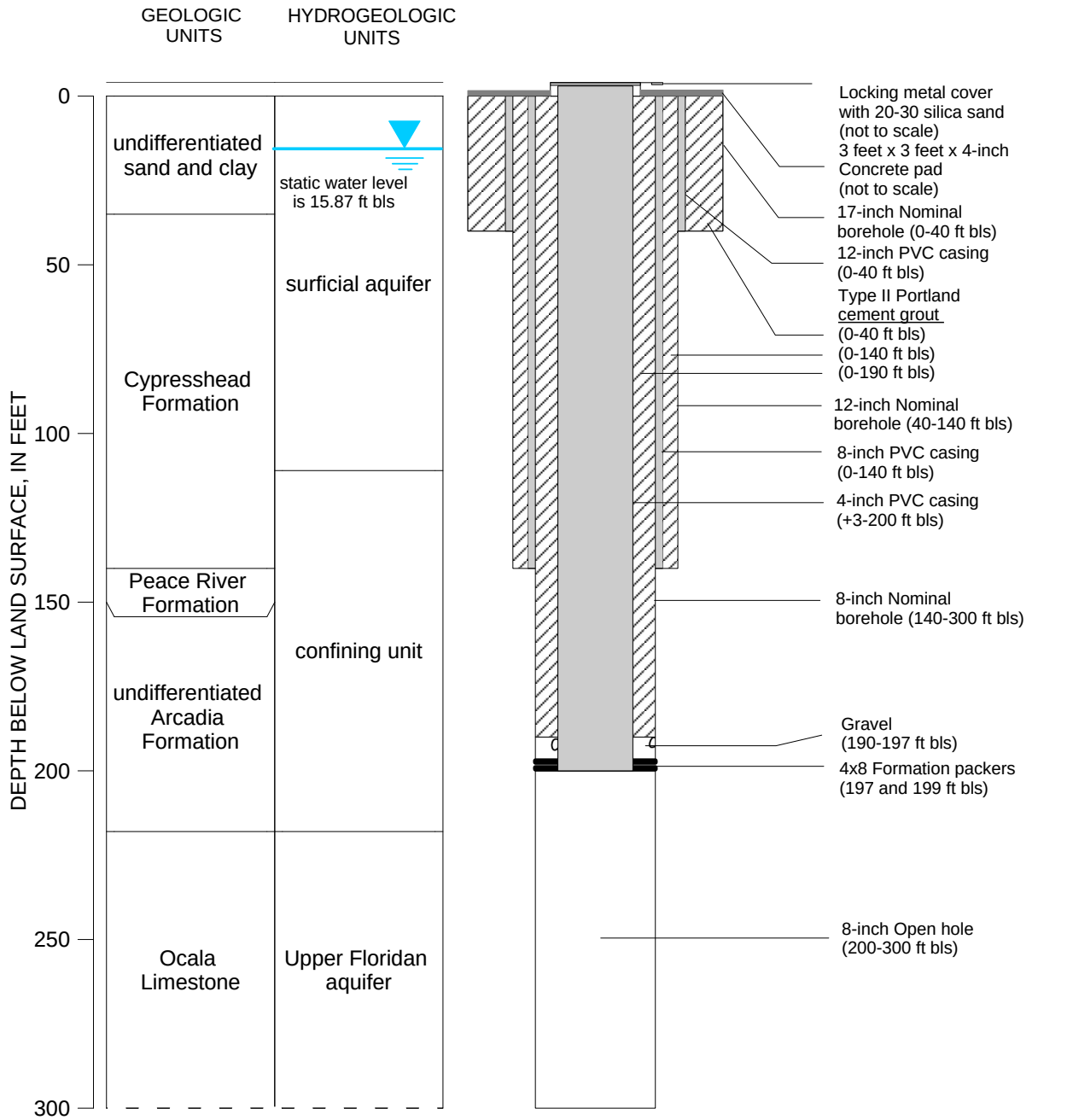


Figure 4. Well as-built diagram for the SURF AQ MONITOR at the Lake Amoret well site in Polk County, Florida.



Well Name:	LAKE AMORET U FLDN AQ MONITOR
SID:	891705
WCP:	861790
S/T/R:	24/30S/07E
Latitude:	27° 51' 52.05"
Longitude:	81° 33' 57.59"
Reporting Category:	AMOR
Const. Began:	8/8/2017
Const. Complete:	8/18/2017

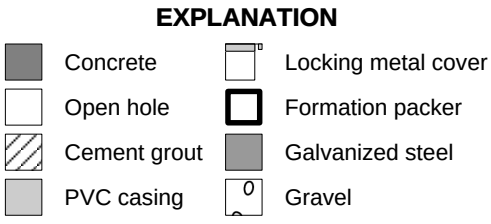


Figure 5. Well as-built diagram for the U FLDN AQ MONITOR at the Lake Amoret well site in Polk County, Florida.

Table 2. Lithologic description of the split-spoon and grab samples collected at the Lake Amoret well site in Polk County, Florida

[Depth is in feet below land surface; percentages are observed estimates]

Depth	Description
	undifferentiated sand and clay
0 - 3	very fine quartz sand, black organics coating grains, subangular grained
2 - 32	quartz sand, yellowish brown, very fine, subangular, moist, very wet at approximately 21 feet below land surface
	Cypresshead Formation
35 - 37	quartz sand, white, very fine, driller's note: sandy clay at 38 feet below land surface while drilling down to next spoon interval
40 - 42	quartz clayey sand, white lens, very fine
50 - 77	quartz sand, very pale brown, very fine
80 - 82	clayey quartz sand, white, very fine grained, organics, 60 percent sand, 40 percent clay
85 - 90	clayey quartz sand, very fine to medium grained, organics, 80 percent sand, 20 percent clay, 80 percent recovery
90 - 111	as above, medium-grained, 80 to 90 percent sand, 10 to 20 percent clay
111 - 113	quartz sandy clay, white, very fine to fine grained, trace phosphate, driller's note: rods fell in about a foot
115 - 135	quartz sandy clay with iron staining, pink, very fine grained
135 - 137	clayey sand with iron staining and trace phosphate, dark brown
	Peace River Formation
140 - 142	clayey sand, very dark greenish gray, trace phosphate (1 percent), trace limestone, Arcadia Formation
145 - 147	as above, very fine grained quartz, very fine grained phosphate (10 percent)
147 - 150	white limestone chips with medium grained phosphatic sand and shell fragments.
	undifferentiated Arcadia Formation
150 - 160	light gray limestone with pebble-sized phosphate, as above
165	light gray limestone, as above
170	very pale brown to white limestone with grayish brown clayey sand, pebble-sized phosphate grains and shell fragments, driller's note: partial loss of circulation
176 - 180	as above, more yellowish to tannish limestone fragments, less bluish clay, less pebble-sized phosphate, more shell fragments, driller's note: drilling through hard rock
180 - 185	as above, more light gray limestone fragments, fine-grained phosphate, fossil and shell fragments. Possible *Amphistegina lessoni*
185 - 190	light gray clayey limestone fragments, phosphate pebbles, fine-grained phosphate and quartz, shell fragments
190 - 200	bluish gray to light olive gray clay with limestone fragments, trace quartz, phosphate, and fossils
200	light olive gray clay, limestone and fossil fragments, trace quartz and phosphate
205	yellow to grayish brown limestone, some pebble-sized phosphate, no apparent shell fragments, driller's note: white clay
208	light yellowish brown limestone, fewer phosphate pebbles
	Ocala Limestone
218	light gray limestone fragments, shell fragments, and mud, very fossiliferous, no phosphate, *Lepidocycline ocalana*
230 - 300	as above, some trace phosphate, less mud, fossil fragments become more abundant and broken up with depth

fossil fragments, trace quartz, and phosphate is present. White clay is present at 205 feet bls. Yellowish tan to light yellowish brown limestone with few phosphate pebbles is present from 208 to 218 feet bls.

The Miocene age Peace River Formation is present from 140 to 150 feet bls. The top of the Formation was chosen at the first instance of very dark greenish gray, clayey sand, with approximately one percent trace phosphate and trace limestone. At 145 feet bls, the phosphate increases to approximately 10 percent and is fine-grained. White, shelly limestone chips were encountered at 147 feet bls.

The Cypresshead Formation is present at the Lake Amoret well site from 35 to 140 feet bls. The top of the Formation was chosen based on the presence of iron-stained, very fine grained, quartz sandy clay, that is orange in contrast to the primarily white sand samples in the overlying undifferentiated sand and clay sediments. At 38 feet bls, variable supplemental clay (less than 20 percent) is present in the sand, and the clayey sand then grades to a very pale brown, very fine grained quartz sand to a depth of 80 feet bls. The sample at 80 feet bls suggests a clayey sand bed with higher clay content than the rest of the samples in this unit (30 to 40 percent). From 85 to 111 feet bls, white, very fine grained, clayey quartz sand with organics is present. The Cypresshead Formation extends to a depth of 140 feet bls where dark brown, iron-strained, clayey sand with trace phosphate is present.

At the Lake Amoret well site, the Pliocene to Holocene age undifferentiated sand and clay unit is present from land surface to 35 feet bls. The interval from land surface to 3 feet bls consists of very fine grained quartz, subangular sand with black organics. From 3 to approximately 35 feet bls, the lithology consists of white, very fine grained quartz sand. The sediments were wet at 21 feet bls.

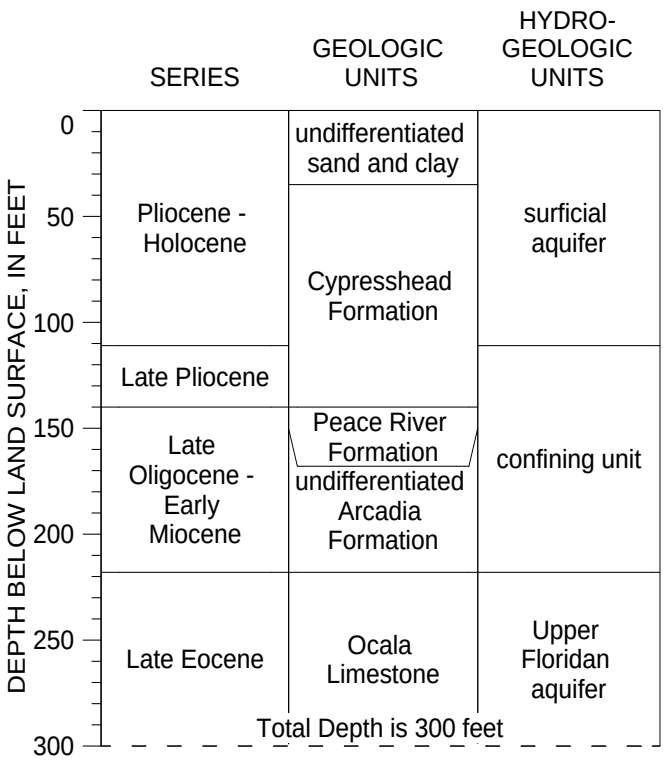


Figure 6. Stratigraphic column detailing the hydrogeologic setting at the Lake Amoret well site in Polk County, Florida.

Hydrogeology

The characterization presented below is based on the lithology encountered during split-spoon sampling, the grab samples collected during well construction, and the groundwater levels in the wells. Two aquifers were identified at the Lake Amoret well site: the surficial aquifer and the Upper Floridan aquifer. A confining unit separates the two aquifers (fig. 6).

The surficial aquifer is the shallowest hydrologic unit present at the Lake Amoret well site. It extends from land surface to 111 feet bls and is unconfined. The aquifer is contained within the undifferentiated sand and clay unit and the Cypresshead Formation. On August 17, 2017, the groundwater level in the surficial aquifer monitor well was measured at 9.81 feet bls (107.29 feet NAVD 88).

A confining unit is located between 111 and 218 feet bls in the low-permeability clays of the Cypresshead Formation, the Peace River Formation, and mixed clays and limestones of the undifferentiated Arcadia Formation. The confining unit separates the surficial aquifer from the underlying Upper Floridan aquifer.

The portion of the Upper Floridan aquifer encountered during well construction extends from 218 feet to beyond the depth of exploration and is contained within the Ocala Limestone. The top of the unit is coincident with the top of the Ocala Limestone. The bottom of the unit was not reached during well construction. On August 17, 2017, the groundwater level in the Upper Floridan aquifer monitor well was measured at 15.87 feet bls (101.23 feet NAVD 88).

Summary

Two monitor wells were constructed at the Lake Amoret well site in Polk County, Florida during August 2017. The wells were constructed as part of the CFWI to monitor groundwater levels in the surficial and Upper Floridan aquifers near Lake Amoret. The casing and total depth of the surficial aquifer monitor well are 10 and 80 feet bls, respectively. The casing and total depth of the Upper Floridan aquifer monitor well are 200 and 300 feet bls, respectively. The groundwater levels in the two wells differed by 6.06 feet on August 17, 2017. Both wells are secured with lockable metal well covers and equipped for long-term groundwater level monitoring.

The hydrogeology of the well site was determined from split-spoon samples that were collected prior to well construction and grab samples that were collected during well

construction of the Upper Floridan aquifer monitor well. The geologic units encountered at the site are: Ocala Limestone from 218 feet bls to beyond the total depth of exploration at 300 feet bls, undifferentiated Arcadia Formation from 150 to 218 feet bls, Peace River Formation from 140 to 150 feet bls, Cypresshead Formation from 35 to 140 feet bls, and the undifferentiated sand and clay deposits from land surface to 35 feet bls. The hydrogeologic units encountered at the site are: the surficial aquifer from land surface to 111 feet bls, a confining unit from 111 to 218 feet bls, and the Upper Floridan aquifer from 218 feet bls to beyond the total depth of exploration of 300 feet bls.

References

White, W.A., 1970, The Geomorphology of the Florida Peninsula: Florida Geological Survey Geological Bulletin No. 51, 164 p.

Yobbi, D.K., 1996, Analysis and Simulation of Ground-Water Flow in Lake Wales Ridge and Adjacent Areas of Central Florida: U.S. Geological Survey Water-Resources Investigations Report 94-4254, 82 p.

Appendix A. Scanned daily drilling logs taken during well construction at the Lake Amoret well site in Polk County, Florida

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
SPLIT SPOON LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
1	J. Zydek, J. LaRocke	8/1/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Roy, Mike, Dylan	100'	67	67

ROMP SITE NUM-NAME	Lake Amoret	WELL NAME/ID	exploratory SS hole

TIME LOG FROM	TIME LOG TO	DEPTH	Quik-Sel (50lb) ~~1111~~ DESCRIPTION		Blow Counts 0-6"	6-12"	12-18"	18-24"
09:00			- JZ + JL onsite, searching for 4 corners					
			of P.E. w/ metal detector (stakes removed		0-6"	6-12"	12-18"	18-24"
			by mowing crews)	4-6	4	4	4	4
09:00			- Huss onsite, setting up equip on SS	6-8				
			hole, water truck	8-10				
0948			- Drillers leave to fill up water truck	10-12	3	4	5	
1019			- Drillers return, raise mast of CME	12-14				
1034			- start hand augering	14-16				
1038		0+7	- Fine sand + organics	15-17 ~~16-18~~	4	5	7	8
	1050	2-4	- Fine sand	18-20				
1123			- set up for split spooning	20-22	4	7	9	6
	1125		- start split-spoon @ 4'6" bls	22-24				
	1127	4+6	- As above, moist	24-26				
			- Set up tub, mix gel	25' ~~26-28~~	9	8	9	9
1147			drill down to 10' w/ 4" bit, spoon	28-30				
			10'-12' bls	30-32	6	10	9	12
		10-12	- as above	32-34				
1158			- drill down to 15', spoon 15-17	35' ~~34-36~~	7	8	9	12
		15-17		36-38				
1202			- drill down to 20', spoon 20-22	38-40				
		20-22	- wet @ ~21' bls	40-42	9	11	13	14
1211			- drill to 25', spoon 25-27'	42-44				
		25-27	- as above	45' ~~44-46~~	9	15	13	17
1221			- drill to 30, spoon 30-32, mixed gel	46-48				
		30-32	- as above	48-50				
1232			- drill to 35, spoon 35-37	50-52	8	10	17	20
		35-37	- white sand, ~~drillers note: sandy clay @ 38'~~	52-54				
1241			- drill to 40, spoon 40-42	53' ~~54-56~~	10	13	18	19
		40-42	- white clayey sand	56-58				
1302			- drill to 45, spoon 45-47	58-60				

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

GEOHYDROLOGIC DATA SECTION

DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
1	J. Zydek, J. LaRocke	8/1/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
HuSS	Roy, Mike, Dylan	100'	67	67

ROMP SITE NUM-NAME	Lake Amoret	WELL NAME/ID	exploratory SS hole

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS		Blow Counts 0-6"	6-12"	12-18"	18-24"
1332			Drill to 50', Spoon 50-52'					
		50-52	Tan Fine sand					
1352			Drill to 55', Spoon 55-57'	60-62	15	25	30	31
		55-57	as above	62-64				
1415			Shovel Sandy drill mud into wheel	64-66	17	27	22	23
			barrow, mix gel	66-68				
1425			Drill to 60, Spoon 60-62	68-70				
		60-62	as above	70-72				
1445	1450		Drill to 65, Spoon 65-67	72-74				
		65-67	as above, wait for dump truck for Sand	74-76				
1530			J. LaRocke leaves site	76-78				
1545			Sand truck still on hour out, no more Sand	78-80				
1600			SJ leaves site	80-82				
				82-84				
				84-86				
				86-88				
				88-90				

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
SPLIT SPOON LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
2	J. Fydeek, J. LaRoche	8/2/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
HSS	Roy, Mike, Dylan	200	46	113

ROMP SITE NUM-NAME		WELL NAME/ID	
	Lake Amoret		Exploratory SS hole (UFA monitor)

TIME LOG FROM	TIME LOG TO	DEPTH	DESCRIPTION		Blow Counts 0-6"	6-12"	12-18"	18-24"
~1700			- Drillers onsite, desand drill mud					
1745			- hydro onsite					
1817		67	- add 10' rod to drill string, drill to	~~4-6~~ 70-72	7	9	10	7
			70', spoon 70-72	~~6-8~~ 75-77	17	30	27	16
0841		70-72	- as above	~~8-10~~ 80-82	3	7	4	5
0845			- Drill to 75', spoon 75-77	~~10-12~~ 85-87	4	7	8	8
		75-77	- as above	~~12-14~~ 90-92	10	15	15	17
0907			- JL onsite	~~14-16~~ 95-97	9	17	12	14
0911			- Drill to 80', spoon 80-82	~~16-18~~ 100-102	4	5	9	6
		80-82	- Clayey quartz sand	~~18-20~~ 105-107	3	4	5	9
0936			- Drill to 85', spoon 85-87	~~20-22~~ 110-112	8	9	15	14
		85-87	clayey qtz sand; 80% recovery	~~22-24~~ 115-117	3	4	9	10
1004			- Drill to 90, spoon 90-92	24-26				
		90-92	as above, med grained	26-28				
1020			- RJ & Eddie onsite to fix jack on	28-30				
			desander trailer; discuss using facility	30-32				
			SOP for well construction. Tony calling	32-34				
			Ted to make sure surf well	34-36				
			design won't change due to changed	36-38				
			depths	38-40				
1053			- Drill to 95, spoon 95-97	40-42				
		95-97	as above med grained	42-44				
1123			Drill to 100, spoon 100-102 mix gel	44-46				
		100-102	- as above	46-48				
1200	1215		- lunch	48-50				
1224			- Drill to 105', spoon 105-107	50-52				
		105-107		52-54				
1254			- Drill to 110', spoon 110-112	54-56				
		111-113	-	56-58				
1313			- Drillers note → rods fell in about a foot; spoon → 111-113	58-60				

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
2	J. Zydek, J. LaRoche	8/2/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Roy, Mike, Dylan	200	50	117

ROMP SITE NUM-NAME	Lake Amoret	WELL NAME/ID	Exploratory SS hole (UFA monitor)

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS		Blow Counts 0-6"	6-12"	12-18"	18-24"
1335			Drill to 115, secure rig for storm					
1340	1445	115-117	rain storm					
1445			trip rods to spoon, spoon 115-117	60-62				
		115-117	Silty sandy clay w/ iron staining	62-64				
1520			Drill to 120', J. LaRoche leaves site	64-66				
			trip out drill rods, Configure 10' string of	66-68				
			5" HQ (or HW)	68-70				
1600			JZ leaves site	70-72				
				72-74				
				74-76				
				76-78				
				78-80				
				80-82				
				82-84				
				84-86				
				86-88				
				88-90				

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
3	J. Zydek, J. LaRoche	8/3/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Roy, Mike, Dylan	200	50	150

ROMP SITE NUM-NAME		WELL NAME/ID	
	Lake Amoret		exploratory SS hole (UFA monitor)

TIME LOG FROM	TO	DEPTH	DETAILS OF OPERATIONS		Blow Counts 0-6"	6-12"	12-18"	18-2[illegible]
~0700		120	- drillers onsite, spoon 120-122					
		120-122	- as above		0-6"	6-12"	12-18"	18-2[illegible]
0750			- Hydro onsite	125-127	9	10	15	17
0805			- Drill to 125', spoon 125-127	130-132	3	6	8	12
		125-127	- as above	135-137	6	8	12	23
0846			- Drill to 130', spoon 130-132	140-142	23	40	50	[illegible]
		130-132	as above	145-147	20	37	50	
0925			- Drill to 135', spoon 135-137	150-152	50 for 4"			
		135-137	- Clayey sand w/ iron staining & trace phosphate	155-157				
1003			- Drill to 140', spoon 140-142	160-162				
		140-142	- Clayey sand, dark greenish gray, trace phosphate & [illegible]	165-167				
1048			- Drill to 145', spoon 145-147	170-172				
		145-147	- as above, phosphate @ 10%	175-177				
1130			- Drill to 150', [illegible]	180-182				
			↳ Catch sample 147-150 = Limestone chips	185-187				
			+ phosphatic sand	190-192				
1219			- Hit refusal @ ~150'	195-197				
1230	1300		- Lunch					
			- Locate PE corners again + choose spot					
			for SA well (2 options) w/ Huss					
1310			- Trip out SS rods, lower mast + move					
			rig onto SA spot					
1410			- Post hole dig starter hole for surficial					
			monitor / mix drill mud					
1443			- Mike takes water truck to refill					
1504			- start drilling surf well, mix more gel					
			- drillers began drilling to 55' bls.					
			using 10" bit → report progress to					
			Jason as method is not per scope,					
			Jason reports to Ted. [illegible]					

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
3	J. Zydek, J. LaRoche	4/3/17	3/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Roy, Mike, Dylan	200	50	150

ROMP SITE NUM-NAME	Lake Annett	WELL NAME/ID	exploratory SS hole (UFA monitor) / surf aq. monitor

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
1650			- Talk to Ben Huss who says to tell Roy to abort. Roy & Ben discuss bringing augers out Monday and augur out 10 inch borehole, which will remove drill mud. Roy & crew will need to spend Friday switching out rigs. TO resume installing surf well Monday
	1730		- JZ leaves site

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
4	J. Zydek, J. LaRoche	8/7/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Nick, Devin, Alex, Roy, Mike	80'	85	85

ROMP SITE NUM-NAME		WELL NAME/ID	
	Lake Amoret		Surf aq monitor

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
			CME 75
~0830			- Drillers onsite, set up rig, auger 20'
0920			- Hydro onsite, auger ~~4~~ ~~||||~~ ||
0942			- JL onsite, Mike onsite w/water & Roy onsite w/ dump truck
1033			- Shovel drill mud into tank (Roy leaves to get more water)
1044			- add 5-foot auger stem to string and auger down to 85'
			shovel remainder of drill mud into dump truck
1101			- Run down ~~||||~~ |||½ 10' strings of tremie (1.5" pvc) jet
			water to flush out inside of augers
1110			- water flowing out is clear. Pump & bale muddy
			water off permanent casement
1112			- start running down screen: ~~||||~~ / / 10' PVC sections
			add 10' blank, add 5' blank
1122			- pour 20/30 sand in annular space while pulling augers
			bags of sand: ||| , remove 5 tremie & 5' auger
11:25			- Roy refills water tank
1135			- setting @ 80', have to wait for more water
			so sand doesn't bridge augers
1145			- Roy back w/ water, jet ||| bags of sand
			flushing w/ fresh water to keep sand from bridging
			- Remove 5' auger, pour ||| bags sand, remove 5' tremie
			& 5' auger
			- pour ||| bags sand. remove 10' tremie, add 5' tremie,
			remove 5' auger
			- pour ~~||||~~ bags sand, remove 5' tremie & 5' auger
			- pour |||| bags sand, remove 10' tremie, add 5' tremie, remove 5' auger
			- pour |||| bags sand, remove 5' auger, 5' tremie
			- pour ||| bags sand, remove 5' auger, 5' tremie
			- pour |||| bags sand, remove 5' tremie & 5' auger
			- pour |||| bags sand, remove 5' tremie & 5' auger
			- pour ||| bags sand, remove 5' tremie & 5' auger

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
4	J. Zydek, J. LaRoche	8/7/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
[illegible]	Nick, Devin, Alex, Ray, Mike	85'	85	85'

ROMP SITE NUM-NAME		WELL NAME/ID	
	Lake Annie		Surf aq monitor

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
			pour 1111 bags sand, remove 5' tremie & 5' auger
			pour 111 bags sand, remove 5' tremie & 5' auger
			pour 111 bags sand, remove 5' tremie 5' auger
12:49			pour 1 bag 30/65 sand, remove 10' auger (2' above
			screen & slot junction)
1300			lower mast of CME 75, clean equipment / site w/ surf H2O
1327			Start developing well
1332			Break down equipment, ~~[illegible]~~ take [illegible] to [illegible] Lake to
1415			pick up Failing
1415			Check gpm of surf well → 7 seconds to fill 5 gal bucket
			↳ 43 gpm. Water is yellow color
1605			Return w/ Failing, stop developing surf, remove centrifugal
			& hose
			↳ position Failing over exploratory UFA well, repair leak?
1557			power steering hose breaks, spend rest of PM repairing
			J7 [illegible] side

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
5	J. Zyder	8/8/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Nick, Mike, Devin, Roy	300	40	40

ROMP SITE NUM-NAME	Lake Amoret	WELL NAME/ID	U FLOW AQ MONITOR (12-inch casing)

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
			Failing mil count: IIII grout: IIII IIII II
0820			- Hydro drillers onsite. Set up to install 12-inch pvc casing to 90' bls.
0830			- get water level from surf well → 9.5' bls
0910			- Raise fishing mast, set up to remove core rods from UFA
0934			exploratory well
0944			- use split spoon hammer to pull core rods out of hole.
			Begin tripping out rods: IIII IIII II
			↳ clay stuck to bottom 5' of 12th rod
1025			- Mudhog bit to drill rod, post hole dig around hole
1030			- Start drilling 17-inch borehole ~5'. Set up mud tank
			Set up centrifugal pump in surf well. mix mud: 1 bag
1142			- Circulate mud through & out hole, conditioning
1145			- Drill 20'
1217			- stop drilling, added 20' string of drillrod to bit
1230	1300		- Drill 20'
1309	1418		- drillers leave to dump mud
1420			- Circulate mud through hole
1443			- trip rods, change bits
1453	1505		- lower 12" pvc down hole. Assemble 40' tremie
	1505		40' 12-inch (2 20' strings)
1526			- mix grout #bags of grout: IIII IIII
1529			- measure drawdown in surf → 19.35' bls (a)
			~ 43 gpm sp cap → 19.35' - 9.5' = 9.85' dd
			43 gpm / 9.85' = 4.36 gpm/ft.
1535			- get grout sample
1540			- tremie grout 12"
1545			- Nick leaves site
1555			- mix more grout → # bags: 11, tremie down hole
1615			- Hydro leaves site

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
6	J. Zydek	8/9/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Ray, Mike, Devin	300	140	140

ROMP SITE NUM-NAME		WELL NAME/ID	
	Lake Annoret		U FLDN AQ MONITOR

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS (Bags gel: ||| ; Bags grout: HHT |||| HHT HHT ||) Failing
~700		0-40	- Drillers onsite, prep for drilling out 13", start drilling
0840			- Hydro onsite, drillers drilled at 40' w/ 3" Mud
			tank leaking, use gel to create seal
0917		60	- Drill 20', circulate mud/mix gel
0941	1000	80	- Drill 20', circulate mud/mix gel
1002	1036	100'	- Add 20' drill rod, drill 20', circulate mud/mix gel
1039			- Drillers take [illegible] to Crooked Lake. Hydro follows
			behind to see project at Crooked Lake/Sprout Hill site
1215		120'	- Hydro back onsite, drillers onsite drilling 20'
1239		140'	- Add 20' drill rod, drill 20', circulate mud
1325			- Call golf course & inquire about shutting down
			sprinkler next to site
1346			- trip out drill rods: HHT | 20' sections pipe
1404			- Set up rig to trip in 8" casing, set up tremie
1420			- Start lowering 7 20' 8" PVC casing
1512			- use cat head to lower remaining 3' of 8-inch casing
			- Set up trough & start mixing grout (cont above) (8 bags)
1540			- collect grout sample
1545			- tremie grout 8-inch, mix more grout (6 bags)
1620			- mix more grout (8 bags), tremie down hole (5' bls)
1700			- Hydro leaves site, drillers secure site

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
SPLIT SPOON LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
7	J. Zyllek, J. LaRocka	8/10/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Nick, Roy, Mike, Devin	~300'	80	200

ROMP SITE NUM-NAME	Lake Amoret	WELL NAME/ID	U FLDN Aq MONITOR

TIME LOG FROM	TIME LOG TO	DEPTH	get: 11 DESCRIPTION		Run times Blow Counts 0-6"	6-12"	12-18"	18-24"
~0700			Drillers onsite, set up to drill out 8"					
0900			Install Stabilizer					
0900			Hydro onsite, drillers tripping in	4-6	120	100	40	
0949		120-140	Start drilling, 8-inch bit, repair hydraulic	6-8	140	160	50	
			line (JL onsite)	8-10	160	180	145	
1030	1120	140-160	Start drilling circulating mud positive	10-12	180	200		
			to 150' → clear river limestone fragments	12-14				
			(Cuttings grab sample w/drilling mud)	14-16				
			Grab sample @ 160' - ARCA Fm?	16-18				
1120		160	Circulating on bottom	18-20				
1135			Add rod	20-22				
1145		160-	Start drilling on mud	22-24				
1155			Nick & Devin leave to dump load truck	24-26				
1210		165	Grab sample @ 165' - ARCA Fm.	26-28				
1235		170	Grab sample @ 170' - ARCA Fm	28-30				
			↳ Driller notes loss of partial circ.	30-32				
1252			Nick & Devin back onsite	32-34				
1325		176'	Grab sample → Mac yellowish/tannish	34-36				
			limestone fragments, less blue/gray clay	36-38				
			less pebble-sized phosphate	38-40				
1345			Drillers note → drilling through hard rock	40-42				
1405		181	Grab sample → as above	42-44				
1410			Stop drilling, circulate on bottom	44-46				
1430			JL leaves site	46-48				
1440			add rod, start drilling on mud	48-50				
	1510		Stop drilling, circulate on bottom	50-52				
1520			start drilling	52-54				
1531		185	Grab sample, gray	54-56				
1550		190	Grab sample, gray/blue clay,	56-58				
			Circulate on bottom, clean	58-60				

JL leaves to get sand-drill bags for cutting samples

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
SPLIT SPOON LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
7	J. Rydek, J. LaRoche	8/10/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Nick, Roy, Mike, Dein	~300'		200'

ROMP SITE NUM-NAME		WELL NAME/ID	
Lake Amoret		U FLDN AQ MONITOR	

TIME LOG FROM	TIME LOG TO	DEPTH	DESCRIPTION		Blow Counts 0-6"	6-12"	12-18"	18-24"
1608			rain stops, resume drilling					
1620			Nick leaves site, more rain					
1700		200'	[illegible] more Hawthorn clay	4-6				
			JZ leaves site	6-8				
				8-10				
				10-12				
				12-14				
				14-16				
				16-18				
				18-20				
				20-22				
				22-24				
				24-26				
				26-28				
				28-30				
				30-32				
				32-34				
				34-36				
				36-38				
				38-40				
				40-42				
				42-44				
				44-46				
				46-48				
				48-50				
				50-52				
				52-54				
				54-56				
				56-58				
				58-60				

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
8	J. Tyder	8/11/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Nick, Roy, Mike, Devin	300	19	213

ROMP SITE NUM-NAME	Lake Amoret	WELL NAME/ID	UFLDN AGENHANMER

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS		Blow Counts 0-6"	6-12"	12-18"	18-24"
~0700			+ Drillers onsite, repair Kelly cable					
0915			+ Hydro onsite, drillers still repairing rig					
1109			+ Drillers raise mast, repairs to	60-62				
			Kelly cable complete 200-220	62-64	112			
1116			+ Add rod	64-66				
1122		200-220	+ start drilling	66-68				
1200		205	+ grab sample → Arcadia Fm	68-70				
			↳ driller's note → white clay	70-72				
	1243		+ stop drilling, pipe leak	72-74				
1252			+ Repair leak. Resume drilling	74-76				
1301		208'	+ Grab sample → yellow/tan LS	76-78				
1346		213'	+ Grab sample → as above	78-80				
			↳ mud pump repairs, secure site	80-82				
1400			+ Hydro leaves site	82-84				
				84-86				
				86-88				
				88-90				

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

GEOHYDROLOGIC DATA SECTION

DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
9	J. Zydek, J. LaRoche	8/14/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Ray, Mike, Dan	~300'	60	300

ROMP SITE NUM-NAME	Lake Amoret	WELL NAME/ID	UFLDN AQ MONITOR

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS		Blow Counts 0-6"	6-12"	12-18"	18-24"
~0930			- Drillers onsite					
0910			- Hydro onsite, drillers mixing gel					
0930		220-240	- start drilling	60-62				
0937			- J. LaRoche onsite	62-64				
0942		230'	- Grab sample, logs @ 230'	64-66				
			LS identical to 218', Ocala LS	66-68				
			↳ confirmed logs @ 219' grab sample	68-70				
0954			- Add rod	70-72				
1000		240-260	- Start drilling	72-74				
1004		240	- Grab sample, as above	74-76				
1010		250	- Grab sample, as above	76-78				
			↳ conference call w/Ted, Sandie, Chris,	78-80				
			Tim, Jason, & myself re: logging	80-82				
1029			- add rod	82-84				
1034			- Start drilling	84-86				
1049		260	- Grab sample, as above	86-88				
~1055	~1100	280-290	- Grab sample, as above	88-90				
1100			- add rod					
1107			- Start drilling					
1116		290	- Grab sample, as above					
1130		300'	- Grab sample, as above, TD stop drilling					
			Plan to flush out cuttings from hole,					
			trip out rods through casing, pick up					
			pea gravel for packers, pick up 1000 gallon					
			grout drum. Tim Lohner to visit site					
			in PM					
1200			- break down Rotasonic & other equipment					
	1225	1225	trip out rods					
1230			- Drillers leave to get other equipment					
1250			- J LaRoche leaves site					

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

GEOHYDROLOGIC DATA SECTION

DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
9	J. Zydek, J. LaRoche	8/14/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Hus	Roy, Mike, Dan	~300'	80'	30?'

ROMP SITE NUM-NAME		WELL NAME/ID	
ROMP SITE NUM-NAME	Lake Amoret	WELL NAME/ID	UFLAN AQ Monitor

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
1337			- Drillers onsite (Roy & Dan, Mike @ Crooked Lake)
1412			- Tim Lohner onsite → discuss plan for tomorrow
1425			- T. Lohner leaves site
1430			- Drillers leave to get gravel & grout, Hydro
			leaves site

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

GEOHYDROLOGIC DATA SECTION

DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
10	J. Tyder	8/15/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Ray, Mike, Dan	300	—	—

ROMP SITE NUM-NAME		WELL NAME/ID	4" casing UFLDN Aq Monitor
	Lake Annette		

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
0700			- Drillers onsite, top rods
0915			- Robert & Tim onsite, set up for logging
0935			- Hydro onsite
1020			- Run multi tool. Gamma Kickseat @ ~200'. Possible casing point.
1100			- Run Caliper tool. Caliper good @ ~200' now ll.
1130			- Robert & Tim leave. Discuss w/ Ted where to install 4-inch based on caliper & gamma logs. Decide on 200'. Ted to do calculations on grouting 4-inch w/ out collapsing casing. Ray plans to set gravel on top of top filter, top w/ hole plug & top w/ 8 sacks of grout & let cure. At ~ 1700, Ray & crew will come back and top w/ more grout. Ted will discuss w/ Dan grouting scenario for turnaround.
1200			- Drillers set up packer configuration
1209			- Start lowering 4-inch casing with 20' strings:
	1248		HH HH
1301	1309		- Assemble/lower tremie down hole: HH II
1314			- Pour gravel to seat top packer, #bags: 11, tremie came up ~2'.
1320	1327		- pour in hole plug, 1 bag
1355			- pull out tremie: 0 IIII
1407			- start mixing grout, 8 bags
1427			- Collect grout sample, start tremie grouting 4-inch
	1432		- stop grouting, flush w/ water, disassemble tremie pipe. III 20' sections. Drillers clean up equipment
1500			- Hydro leaves site

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GEOHYDROLOGIC DATA SECTION
DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROGEOLOGIST	DATE	DATE ON-SITE	SID #
	J. LaRoche J. Zydek	8/16/17		

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS	DEPTH
Hess Dr.	Roy...	300'	0'	300'

SITE NUM-NAME	Lake Amoret	WELL NAME/ID	UFA monitor

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
0855			- JL onsite, Roy tagged cement in annulus @ 145' this morning. Tremmied 2 more batches of cement today (20 bags total) and now @ land surface (~9:00 AM)
0900			- Crew cleaning up, plan is to let cement cure 4-5 hrs. before developing well
			- Crew leaves for Crooked Lake site to pick up core rods for reverse-air development
			Julie GPS, cement pad, develop, SCap

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

GEOHYDROLOGIC DATA SECTION

DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROLOGIST	DATE	DATE ON-SITE	SID
11 (cont'd)	J. Zydek	8/16/17	8/1/17	

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS SS/AUG	DEPTH SS/AUG
Huss	Roy, Mike, Dan	300'		

ROMP SITE NUM-NAME		WELL NAME/ID	
	Lake Amolet		U FLDN AQ MONITOR 4-inch grouting

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
1320			- Hydro onsite, Drillers already onsite w/
			J. LaRocka this morning to add grout.
			(at grout circ. (JL leaves around 1000 while
			grout cures). Drillers back onsite to
			finish grouting & to develop well. JZ to
			perform GPS mission & spec capacity testing
			of UFA
1336			- grab WL of UFA → 19.85' btoc, 3-inch casing
			~4' above land surface, so WL ≈ 15.85' bls
			Start cleaning out hole
1418			- GPS SWF & UFA wells

District Representative		Contractor Representative	

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

GEOHYDROLOGIC DATA SECTION

DAILY CORING/DRILLING LOG

REPORT #	SITE HYDROGEOLOGIST	DATE	DATE ON-SITE	SID #
	Jason LaRoche	8/17/2017		

CONTRACTOR	CREW	PROPOSED T.D.	PROGRESS	DEPTH '
Huss Drilling	Roy...		0'	300'

SITE NUM-NAME	Lake Amoret	WELL NAME/ID	UFA monitor

TIME LOG FROM	TIME LOG TO	DEPTH	DETAILS OF OPERATIONS
0900			- Geologist onsite.
			* UFA monitor:
			- tag cement inside 8" PVC (outside 4" PVC) @ 3.55' b/s
			- Risers: 8" PVC ≅ 1.1' a/s, 4" PVC ≅ 1.7' a/s
	0915	→	- Static W/L = 17.57' bmp (MP = top of 4" PVC) = 715.87' b/s
			* SA monitor:
			- Riser 4" PVC ≅ 0.2' a/s
	0920	→	- Static W/L = 10.01' bmp (MP = top of 4" PVC) = 709.81' b/s
0925			- Drillers arrive, put 2" drop pipe ed of SA well (~30')
			- set 2" PVC drop pipe in UFA well - Prep for S.Cap test
0938			- Start pumping, waiting for prime
0940			- Discharge starts, leaking air in pipe, stop + fix leak
1000			- Restart pumping, wait for discharge to level out
10:05			- WL reading @ 24' bmp
1007			- WL = 24.41' bmp ⇒ 6.84' dd
			50 gal / 2 min 31 sec = 50 gal / 2.52 min = 19.84 gpm
			⇒ Specific Capacity = 2.9 gpm/ft dd
1015			- Discuss plan for rest of day w/ Roy
			• Clean up mats, load equip, move rig + smooth out wheel ruts; Then transport back to shop
			• Return tomorrow around 7-8:00 AM, will install 3x3x4" concrete pads, extend risers (3'), and lockable alum. covers (Prob. 1/2 day)
			• Tim F. will cover
			↳ Bring back 75 gal tank
			↳ Bring locks? 2040 (?)
1030			- Geologist leaves for day

District Representative		Contractor Representative	

Southwest Florida
Water Management District