Hydrogeologic Investigation at the Oak Island Site for the Central Florida Water Initiative

Polk County, Florida

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EXECUTIVE SUMMARY

The South Florida Water Management District (SFWMD or District) has been working cooperatively with the Southwest Florida Water Management District (SWFWMD), St. Johns River Water Management District (SJRWMD), Florida Department of Environmental Protection, Florida Department of Agriculture and Consumer Services, and local stakeholders over the last several years to evaluate the status of traditional water supplies and plan for the future of water supply in Central Florida. As part of this Central Florida Water Initiative (CFWI; https://www.cfwiwater.com/), the CFWI Data Monitoring and Investigations Team (DMIT) identified several areas lacking adequate monitoring and information on the hydraulic properties of the subsurface, particularly in the deeper portions of the Floridan aquifer system (FAS). Consequently, the DMIT developed a work plan for the construction and testing of new data collection sites to meet future data needs within the CFWI Planning Area.

The Oak Island site was selected for a number of reasons. First, existing well OSF-108 at Oak Island was cased to 67 feet below land surface (ft bls), had an open interval extending from 67 to 150 ft bls, and was not being monitored. OSF-108 was selected for deepening, which would allow the collection of lithologic and hydraulic information from deeper portions of the FAS. Second, this site fills a regional hydrostratigraphy data gap in the northwest part of the SFWMD in Osceola County that would help show how the stratigraphy changes near the SFWMD–SWFWMD boundary and would provide additional data about the productivity and water quality of the Lower Floridan aquifer (LFA). Third, two existing wells in the surficial aquifer system (SAS) and one existing well in the upper permeable zone of the Upper Floridan aquifer (UFA-upper) had been constructed at the Oak Island site, meaning that a more complete picture of the interactions between the SAS, UFA, Avon Park permeable zone (APPZ), and LFA could be developed with reduced cost. Fourth, the site is located on SFWMD property, so no time-consuming access agreements or land acquisitions were required.

This report documents one component of the DMIT work plan: the modification and deepening of existing well OSF-108 (now renamed OSF-108R) and all of the data obtained during the drilling and testing program for OSF-108R. The Oak Island site is located south of U.S. Route 192, off Funie Steed Road in Four Corners, Osceola County, Florida. Land surface elevation at the Oak Island site is 106.95 ft using the North American Vertical Datum of 1988 (NAVD88) or 107.81 ft using the National Geodetic Vertical Datum of 1929 (NGVD29).

Exploratory drilling at the Oak Island site reached a maximum depth of 2,020 ft bls. Work at this site included wireline coring, geophysical logging, hydraulic testing, optical borehole imaging (OBI), and water quality sampling. Data from these activities were used to identify hydrogeologic unit boundaries and evaluate variations in water quality and rock permeability with depth (**Table ES-1**).

The results of this investigation include the following:

- Hydrostratigraphic unit boundaries were established for the SAS, intermediate confining unit (ICU), UFA-upper, Ocala–Avon Park low-permeability zone (OCAPlpz), APPZ, middle confining units I and II (MCU_I and MCU_II), upper permeable zone of the Lower Floridan aquifer (LFA-upper), low-permeability glauconitic marker unit (GLAUClpu), and the top of the basal permeable zone of the Lower Floridan aquifer (LFA-basal) as shown in **Table ES-1**. These unit boundaries are based on data obtained from this investigation's continuous wireline coring and packer testing, geophysical and OBI logs, and groundwater chemistry. Data from the previous Oak Island hydrogeologic investigation (Anderson 2011) were incorporated into this report.

- The lithologic units encountered included undifferentiated Holocene, Pleistocene, and Pliocene sediments, the Hawthorn Group, the Ocala Limestone, the Avon Park Formation, and the Oldsmar Formation. The Suwannee Limestone was not encountered. The Hawthorn Group at the site is undifferentiated. The depth intervals for the encountered lithologic units are shown in **Table ES-2**.
- Two significant production zones referred to as Avon Park high-permeability zones 1 and 2 (APhpz-1 and APhpz-2) were identified within the APPZ between 370 and 430 ft bls and between 550 and 760 ft bls, respectively (**Table ES-3**). These two intervals yielded relatively higher packer test hydraulic conductivities than other portions of the APPZ.
- MCU_I and MCU_II of the middle confining unit were both present at the site. MCU_I is characterized by relatively lower packer test hydraulic conductivities as compared to the overlying APPZ. MCU_II is characterized by beds of evaporites and relatively lower packer test hydraulic conductivities as compared to the overlying MCU_I.
- Within the LFA-upper, three significant production zones (referred to as LF1, LF2, and LF3, respectively) were identified: 1,180 ft bls to 1,250 ft bls, 1,390 ft bls to 1,420 ft bls, and 1,480 ft bls to 1,510 ft bls (**Table ES-3**).
- The top of the LFA-basal was encountered at a depth of 1,900 ft bls (**Table ES-1**) and is characterized by relatively high hydraulic conductivities. The bottom of this unit was not encountered.
- Existing monitor well OSF-108 was deepened to 2,020 ft bls and converted to an APPZ monitoring well named OSF-108R with an open-hole interval from 343 to 723 ft bls (**Table ES-4**).

Table ES-1. Hydrostratigraphic units at the Oak Island site.

Hydrostratigraphic Unit		Unit Boundary	
		Top (ft bls)	Base (ft bls)
Surficial Aquifer System		0	45
Intermediate Confining Unit		45	70
Upper Floridan Aquifer	UFA-upper	70	185
	OCAPlpz	185	320
	APPZ	320	760
Middle Confining Unit	MCU_I	760	948
	MCU_II	948	1,160
Lower Floridan Aquifer	LFA-upper	1,160	1,510
	GLAUClpu	1,510	1,900
	LFA-basal	1,900	Not Encountered

APPZ = Avon Park permeable zone; ft bls = feet below land surface; GLAUClpu = low-permeability glauconitic marker unit; LFA-basal = basal permeable zone of the Lower Florida aquifer; LFA-upper = upper permeable zone of the Lower Floridan aquifer; MCU_I = middle confining unit I; MCU_II = middle confining unit II; OCAPlpz = Ocala–Avon Park low-permeability zone; UFA-upper = upper permeable zone of the Upper Floridan aquifer.

Table ES-2. Lithologic units at the Oak Island site.

Lithologic Unit	Unit Boundaries	
	Top (ft bls)	Bottom (ft bls)
Undifferentiated Holocene, Pleistocene, and Pliocene Sediments	0	45
Hawthorn Group	45	70
Ocala Limestone	70	157
Avon Park Formation	157	1,546
Oldsmar Formation	1,546	Not Encountered

ft bls = feet below land surface.

Table ES-3. Flow zones within the Avon Park permeable zone and the upper permeable zone of the Lower Floridan aquifer at the Oak Island site.

Flow Zone	Top (ft bls)	Bottom (ft bls)
APhpz-1	370	430
APhpz-2	550	760
LF1	1,180	1,250
LF2	1,390	1,420
LF3	1,480	1,510

APhpz-1 and APhpz-2 = Avon Park high-permeability flow zones; ft bls = feet below land surface; LF1, LF2, and LF3 = flow zones within the upper permeable zone of the LFA-upper.

Table ES-4. OSF-108R well construction summary.

Corehole Name	Well ID	Total Drilled Depth (ft bls)	Top of Open Interval (ft bls)	Bottom of Open Interval (ft bls)	Hydrostratigraphic Zone of Open Interval
OSF-108R	OSF-108R	2,020	343	723	APPZ

APPZ = Avon Park permeable zone; ft bls = feet below land surface.

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ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
µS/cm	microsiemens per centimeter
APhpz	Avon Park high-permeability zone
APPZ	Avon Park permeable zone
bls	below land surface
CBE	charge balance error
CFWI	Central Florida Water Initiative
cps	counts per second
CTD	conductivity, temperature, and depth
District	South Florida Water Management District
DMIT	Data Monitoring and Investigations Team
DTW	depth to water
ECFTX	East Central Florida Transient Expanded (model)
FAS	Floridan aquifer system
ft	foot or feet
GLAUClpu	low-permeability glauconitic marker unit
GMWL	global meteoric water line
gpm	gallons per minute
ICU	intermediate confining unit
LFA	Lower Floridan aquifer
LFA-basal	basal permeable zone of the Lower Floridan aquifer
LFA-upper	upper permeable zone of the Lower Floridan aquifer
MCU	middle confining unit
MCU_I	middle confining unit I
MCU_II	middle confining unit II
mg/L	milligrams per liter
NAVD88	North American Vertical Datum of 1988
NGVD29	National Geodetic Vertical Datum of 1929
OBI	optical borehole imaging
OCAPlpz	Ocala-Avon Park low-permeability zone
ohm-m	ohm meter
SAS	surficial aquifer system
SCADA	supervisory control and data acquisition

SFWMD	South Florida Water Management District
SJRWMD	St. Johns River Water Management District
SMCL	secondary maximum contaminant level
SWFWMD	Southwest Florida Water Management District
TDS	total dissolved solids
UFA	Upper Floridan aquifer
UFA-upper	upper permeable zone of the Upper Floridan aquifer
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VSMOW	Vienna standard mean ocean water
XRD	X-ray diffraction

INTRODUCTION

The South Florida Water Management District (SFWMD or District) has been working cooperatively with the Southwest Florida Water Management District (SWFWMD), St. Johns River Water Management District (SJRWMD), Florida Department of Environmental Protection, and local stakeholders evaluating the status of traditional water supplies and planning for the future of water supply in Central Florida. As part of this Central Florida Water Initiative (CFWI; https://www.cfwiwater.com/), the CFWI Data Monitoring and Investigations Team (DMIT) identified several areas lacking adequate groundwater monitoring. In addition, further characterization of the hydraulic properties of the deeper portions of the Floridan aquifer system (FAS) are needed. Consequently, the DMIT developed a work plan for the construction and testing of new wells to meet future hydrogeologic data collection needs within the CFWI Planning Area. This project is a component of that work plan. The work plan, *DMIT Hydrogeologic Annual Work Plan (FY2018-FY2025),* is available on the CFWI website at https://www.cfwiwater.com/data.html.

This report documents the exploratory drilling, testing, and well construction activities completed at the Oak Island site. The objectives of this project were to determine the depths of the major hydrogeologic units, evaluate the water quality and hydraulic properties of the hydrostratigraphic units of the FAS at the Oak Island site, and install a monitoring well within the Avon Park permeable zone (APPZ).

The Oak Island site is in northwestern Osceola County, Florida south of U.S. Route 192, north of Funie Steed Road in Four Corners (**Figure 1**). The Oak Island site was first investigated in 2005 as part of the Regional Floridan Aquifer Monitoring Program. As part of the design of the site, two surficial aquifer system (SAS) monitoring wells (OSS-101 and OSS-102) were installed in March 2005, along with an Upper Floridan aquifer (UFA) monitoring well (OSF-103). The site was instrumented with pressure transducers and telemetry connected to the SFWMD's supervisory control and data acquisition (SCADA) system and have been continuously monitored since February 2006. OSF-108 was installed by the SFWMD in 2009 as a UFA well. The well was originally cased to 67 feet below land surface (ft bls), near the top of the FAS, with an open interval from 67 ft bls to the total drilled depth of 150 ft bls. The Oak Island site was selected for four reasons. First, existing well OSF-108 at Oak Island was cased to 67 ft bls, had an open interval extending from 67 to 150 ft bls, and was not being monitored. OSF-108 was selected for deepening, which would allow the collection of lithologic and hydraulic information from deeper portions of the FAS. Second, this site fills a regional hydrostratigraphy data gap in the northwest part of the SFWMD in Osceola County that would help show how the stratigraphy changes near the SFWMD–SWFWMD boundary and would provide additional data about the productivity and water quality of the Lower Floridan aquifer (LFA). Third, two existing SAS wells and one existing well in the upper permeable zone of the UFA (UFA-upper) had been constructed at the Oak Island site, meaning that a more complete picture of the interactions between the SAS, UFA, APPZ, and LFA could be developed with reduced cost. Fourth, the site is located on SFWMD property, so no time-consuming access agreements or land acquisitions were required. Land surface elevation at the site is 106.95 ft using the North American Vertical Datum of 1988 (NAVD88) or 107.81 ft using the National Geodetic Vertical Datum of 1929 (NGVD29). The SFWMD survey report for the site is provided in **Appendix A**.

Project Objectives

The project objectives were divided into two categories: hydrogeologic data collection and groundwater monitoring as described below.

The hydrogeologic data collection objectives were to

1. evaluate the lithology, productivity, and water quality of the various producing zones of the FAS; and

2. identify hydrogeologic unit boundaries between the top of the APPZ and the top of the low-permeability glauconitic marker unit (GLAUClpu).

The groundwater monitoring objectives were to

1. deepen the existing OSF-108 corehole and convert the exploratory corehole to an APPZ monitoring well (OSF-108R);

2. collect and analyze groundwater samples; and

3. install a pressure transducer in OSF-108R that is connected to the District SCADA system for collection of continuous groundwater elevation data.

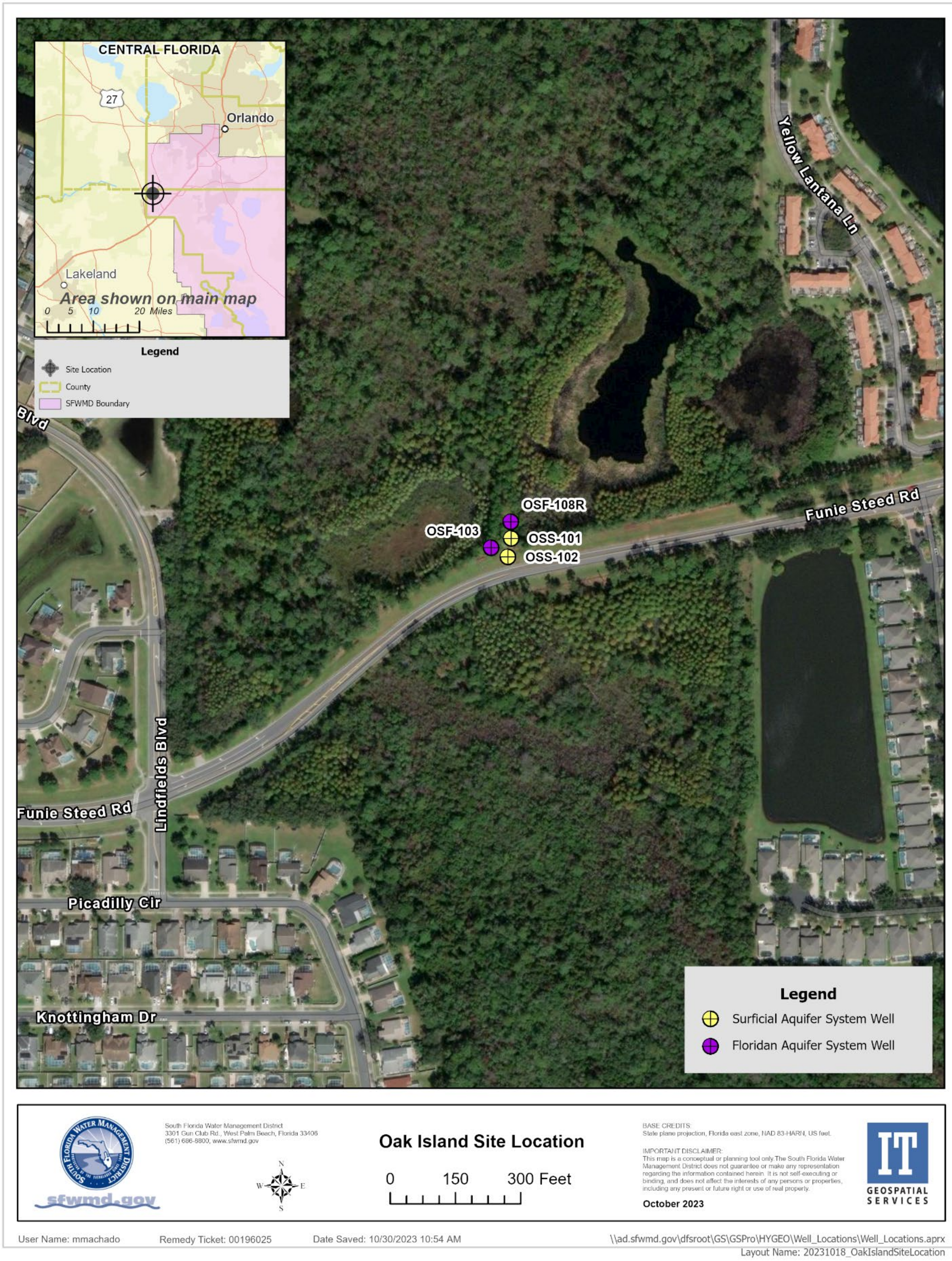

Figure 1. Oak Island site location.

EXPLORATORY CORING AND WELL CONSTRUCTION

The District contracted with Huss Drilling, Inc. for exploratory coring, packer testing, and monitor well construction services at the Oak Island site in September 2020 (CN#4600004288-WO3). In February 2021, Huss mobilized a Versa Drill 2000 drill rig to the site to start drilling the exploratory corehole for FAS well OSF-108R by deepening the existing OSF-108 well. OSF-108 was constructed in 2009 with a single, 16-inch-diameter steel casing with an open-hole interval from 67 to 150 ft bls. The 16-inch-diameter steel casing was not removed. Geophysical logging completed on January 2, 2020 indicated that 30 ft of material had accumulated in the OSF-108 borehole. From February 15 to February 19, 2021, a nominal 12-inch-diameter drill bit and reverse-air drilling methods were used to drill down to the original total depth of OSF-108 (150 ft bls). Next, the existing well was deepened to 335 ft bls using reverse-air drilling between February 22 and February 26, 2021. During this period of drilling, dredging was necessary between 321 and 325 ft bls to remove sand from the hole. Reverse-air drilling using a 12-inch-diameter drill bit continued to 365 ft bls, at which point the borehole was prepared for geophysical logging. On March 4, 2021, RM Baker completed caliper, natural gamma, resistivity, dual induction, spontaneous potential, temperature, fluid resistivity, flowmeter, and sonic porosity logging of the borehole.

These geophysical logs were used to identify the bottom of the intermediate confining unit (ICU) and to determine a suitable casing seat for an 8-inch-diameter black steel conductor casing intended to stabilize the unconsolidated ICU sediments and prevent these sediments from sloughing into the borehole during wireline coring through the FAS. The 8-inch-diameter black steel conductor casing was installed to a depth of 343 ft bls and grouted to land surface with an interval of gravel from 105 to 157 ft bls to prevent cement contamination of the Oak Island UFA-upper monitoring well OSF-103. After installation of the conductor casing, the borehole was advanced to a depth of 370 ft bls using an 8-inch-diameter drill bit to remove the cement plug at the bottom of the conductor casing. A 4-inch-diameter temporary casing was then installed to a depth of 370 ft bls in preparation for HQ wireline coring.

HQ wireline coring began at the Oak Island site on March 15, 2021 starting at a depth of 370 ft bls. Drilling mud was not used during the wireline coring. The HQ wireline coring produced 2.5-inch-diameter cores and an approximately 4-inch-diameter corehole. Single packer tests were conducted at 30-ft-depth intervals to obtain groundwater samples for laboratory analyses and to collect water level drawdown and recovery data used for the calculation of aquifer parameters. Before each packer test was started, the corehole was air lifted to remove sediment and drilling fluids from the corehole. A leak was identified in the packer bladder assembly prior to packer test 7, necessitating replacement of a bladder. During packer test 7, bubbles were heard in the corehole (indicative of a leaking packer bladder) during water level recovery. For this reason, the test was ended early. Both packer bladders, airline fittings, and CO_2 tank were replaced following packer test 7, and the packer bladder inflation pressure was decreased to prevent further issues.

HQ wireline coring continued until March 30, 2021, when the corehole had reached a depth of 730 ft bls. At this point, the 4-inch-diameter temporary casing was removed, and the 4-inch-diameter corehole was reamed to approximately 8 inches in diameter from 370 to 730 ft bls using reverse-air rotary drilling methods in preparation for installation of the 6-inch-diameter temporary casing. On April 8, 2021, the United States Geological Survey (USGS) completed optical borehole imaging (OBI) logging from 343 to 730 ft bls. The 6-inch-diameter temporary casing was then installed to 730 ft bls on April 9, 2021.

Following installation of the 6-inch temporary casing, HQ wireline coring continued from April 12 to July 9, 2021 when the corehole was advanced to a final depth of 2,022 ft bls. RM Baker completed geophysical logging in the 4-inch-diameter corehole from 730 to 2,022 ft bls. The geophysical logs included caliper, resistivity, natural gamma, dual induction, spontaneous potential, sonic travel time, and compensated sonic porosity logs.

From July 12 to August 27, 2021, the corehole was reamed to 6-inches in diameter using reverse-air rotary drilling methods in preparation for borehole video logging, OBI logging, and geophysical logging. RM Baker attempted to collect geophysical logs in the reamed borehole from 730 to 2,020 ft bls on September 8, 2021, but was only able to collect fluid logs due to a malfunction in the cable head. ABS Geophysical completed the logging (except for the dual-induction log) of the reamed borehole on September 14, 2021.

OSF-108R well construction activities began with the placement of gravel from 2,020 to 1,910 ft bls to fill voids. The corehole was tremie-grouted using cement-bentonite grout from 1,910 to 1,249 ft bls to provide a seal through the middle confining unit (MCU). Additional gravel was placed between 1,249 and 1,193 ft bls to fill voids. The corehole was then tremie-grouted using cement-bentonite grout from 1,193 to 723 ft bls. The as-built APPZ open interval extends from 343 to 723 ft bls. The base of the APPZ extends to a depth of 760 ft bls, but the sulfate and total dissolved solids (TDS) concentrations increased significantly in the packer test groundwater sample collected from a depth interval of 730 to 760 ft bls. The as-built APPZ monitoring interval prevents mixing of groundwater containing elevated TDS and sulfate concentrations identified near the base of the APPZ with overlying, higher-quality APPZ groundwater.

The monitored zone was designated OSF-108R. The as-built well completion diagram for OSF-108R is provided in **Figure 2**, and photographs of the competed wellhead are shown in **Figure 3**. The SFWMD survey report is provided in **Appendix A**. A summary of drilling and well construction activities is provided in **Appendix B**. The well completion report is provided in **Appendix C**.

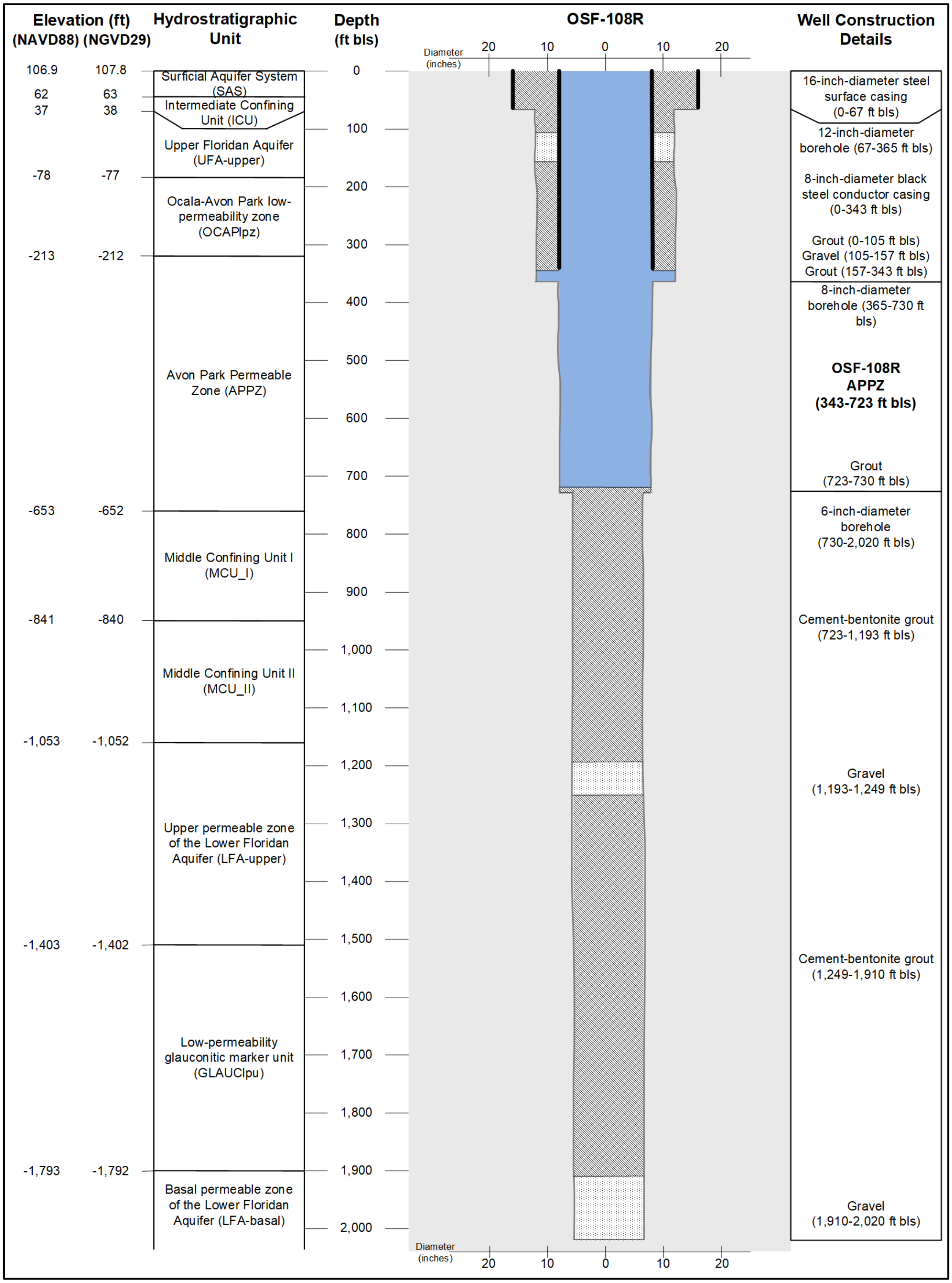

Figure 2. OSF-108R well completion diagram.

Figure 3. OSF-108R wellhead.

STRATIGRAPHIC FRAMEWORK

District hydrogeologists collected geologic formation samples (presented in **Appendix F**) during the drilling of OSF-108R and described the samples based on the dominant lithologic, textural, and porosity characteristics using the expanded Dunham classification for carbonate rocks (Embry and Klovan 1971). Collected samples included drill cuttings collected every 5 ft between 150 and 365 ft bls and wireline cores from 370 to 2,020 ft bls. Geophysical and OBI logs were completed and later used to characterize the hydrostratigraphy at OSF-108R. **Appendix D** contains the geophysical logs. **Appendix E** contains the complete OBI log. Lithology from ground surface to 150 ft bls comes from *Construction and Aquifer Testing of the Oak Island Site* (Anderson 2011), which details the construction of the original OSF-108 well. That report includes the lithologic record of the drill cuttings collected at 10 ft intervals to a depth of 150 ft bls. This current investigation uses the stratigraphy determined at OSF-108 (Anderson 2011) for the first 150 ft of lithology, but the original depth to the top of the Avon Park Formation (as described in Anderson 2011) is changed here from 130 to 157 ft bls and combines the historical lithologic descriptions with the descriptions of the core collected during the current investigation.

Table 1. Stratigraphy of the Oak Island site.

Stratigraphic Unit	Top Depth (ft bls)	Bottom Depth (ft bls)
Undifferentiated Holocene, Pleistocene, and Pliocene Sediments	0	45
Tamiami Formation	Not Present	
Hawthorn Group	45	70
Suwannee Limestone	Not Present	
Ocala Limestone	70	157
Avon Park Formation	157	1,546
Oldsmar Formation	1,546	Not encountered

ft bls = feet below land surface.

Holocene, Pleistocene, and Pliocene Series

Undifferentiated sediments of Holocene, Pleistocene, and Pliocene age extend from land surface to 45 ft bls at OSF-108R. These sediments consist of very light gray and yellowish gray, unconsolidated, fine-grained, moderately well sorted to well sorted quartz sand with varying amounts of shell fragments (Anderson 2011).

Miocene Series

Scott (1988) upgraded the Hawthorn Formation to group status in Florida. Regionally, the Hawthorn Group consists of two formations: the Peace River Formation and the Arcadia Formation. The Hawthorn Group at the site was not able to be subdivided into separate formations because it may have been reworked after deposition (Arthur et al. 2008). At OSF-108R, the Hawthorn Group is composed of very light gray, fine grained, clayey, quartz sand and olive gray silty clay from 45 to 70 ft bls (Anderson 2011). The gamma ray activity through this interval was elevated compared with the lithology above and below, with the gamma ray activity reaching a maximum activity of approximately 80 counts per second (cps) between depths of 65 and 68 ft bls.

Oligocene Series

Suwanee Limestone

The Suwanee Limestone was not encountered at the site.

Eocene Series

Ocala Limestone

The Upper Eocene Ocala Limestone was encountered between 70 and 157 ft bls. The Ocala Limestone at OSF-108R consists of moderately hard to friable, pale yellowish orange micritic limestone that transitions into a pale yellowish orange and dark yellowish orange friable calcarenite with shell fragments and coral fossils at 100 ft bls. The echinoid *Oligopygus wetherbyi*, an index fossil for the Ocala Limestone, was identified in the interval between 120 and 130 ft bls (Anderson 2011).

The Ocala Limestone was deposited on a warm, shallow, carbonate bank similar to the modern-day Bahamas (Miller 1986). This low-energy environment probably had low to moderate water circulation (Tucker and Wright 1990).

Avon Park Formation

The Avon Park Formation was encountered between 157 and 1,546 ft bls. The top of the Avon Park Formation was determined using index fossils and geophysical logs. The presence of conical foraminifera, including the index fossil *Fallotella cookei*, was first described at 157 ft bls. A spike in gamma ray activity is often associated with the top of the Avon Park Formation (Bryan et al. 2013), and this peak was seen in OSF-108R at a depth of 157 ft bls.

The lithology of the Avon Park Formation at OSF-108R is primarily composed of wackestone, packstone, mudstone, calcareous dolostone, and dolostone. Accessory minerals observed in the cores include anhydrite, gypsum, snowball quartz, chert, calcite, celestine, clay, glauconite, and limonite. Organic lamination and blebs were intermittent. Fossils found in the Avon Park Formation at the site include foraminifera, echinoids, bivalves, gastropods, and algae.

The color of the Avon Park Formation at OSF-108R varies between white (N9), very light gray (N8), light gray (N7), light olive gray (5Y 5/2), yellowish gray (5Y 7/2), very pale orange (10YR 8/2), grayish orange (10YR 7/4), pale yellowish brown (10YR 6/2), moderate yellowish brown (10YR 5/4), dark yellowish orange (10YR 6/6), dark yellowish brown (10YR 4/2), dusky yellowish brown (10YR 2/2), and black (N1), as detailed in **Appendix F**.

Abundant evaporites were observed between 948 and 1,160 ft bls. Anhydrite and gypsum are present as beds and vug infillings within the dolostone portions of the formation. The evaporites thoroughly reduce the permeability of the rock by occupying and essentially sealing the available pore space. The OBI images of this interval suggest that the permeability is higher than the permeability observed in the rock cores, likely due to the evaporites dissolving in the time interval between coring and completion of the OBI logging. During coring and testing activities, these evaporites interacted with relatively low-TDS groundwater for four months, allowing the evaporites to dissolve. This dissolution left behind voids, vugs, and a wispy "curtain" texture observed in OBI images of the borehole wall. **Figure 4** shows these curtain dissolution features, and **Figure 5** shows the empty voids where evaporites were identified in rock cores.

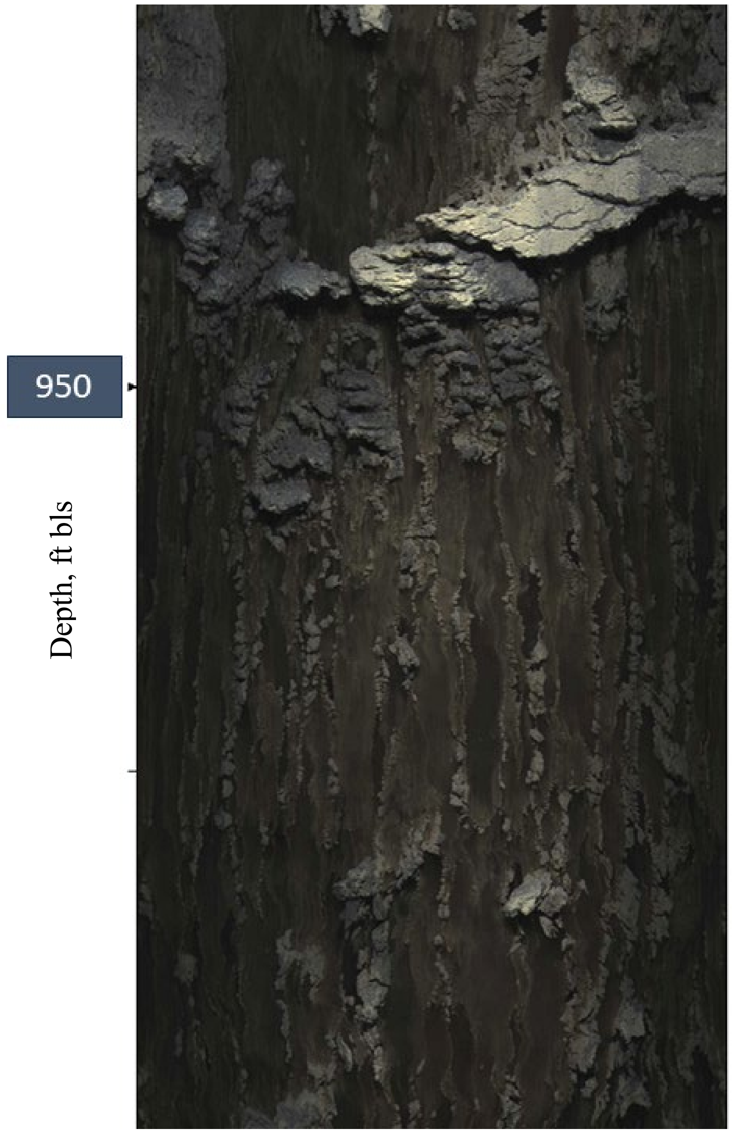

Figure 4. Curtain texture from 949 to 952 ft bls caused by rapid dissolution of evaporites following completion of coring.

Figure 5. OBI log from 979 to 980 ft bls showing large vugs and voids within fine-grained carbonate.

Chert is often encountered near the base of the Avon Park Formation in Central Florida (Duncan et al. 1994). In the OSF-108R corehole, chert was not encountered at the base of the Avon Park Formation. Chert was first observed in the OSF-108R core at 577 ft bls. Chert was also encountered in the intervals between 932 and 937 ft bls and from 1,143 to 1,150 ft bls, which are just above and below an interval of thickly bedded evaporites.

White quartz was first found as small balls (less than 4 millimeters in diameter) between 573 and 588 ft, at 763 ft bls, and at 1,307 ft bls. Abundant, relatively large, white quartz vug infillings were found from 1,487 to 1,545 ft bls. The white quartz was only found as vug infillings. White quartz has also been found in the SWFWMD during the construction of well ROMP 115, where the quartz was referred to as "snowball quartz" (Zydek 2020). This snowball quartz was also found in other CFWI wells, including POF-31 and POF-32 (Zumbro et al. 2024) and OSF-114 and OSF-115 (Zumbro et al. 2025). Zydek (2020) and other literature (Chowns and Elkins 1974) suggested that the white quartz is a pseudomorph of anhydrite. The vugs in which the white quartz was found appear to have been previously filled by anhydrite nodules. **Figure 6** is an example of the white quartz in a vug that appears to have previously been an anhydrite nodule due to the shape of the vug and the irregular texture of the surface. A sample of the snowball quartz collected from 763 ft bls at OSF-108R was analyzed using X-ray diffraction (XRD) and was composed predominantly of quartz with a trace amount (4% by weight) of anhydrite. These data are shown in the Core Analyses section of this report.

Figure 6. White quartz partially filling a vug in core sample from a depth of 1,536.5 ft bls.

Vug-filling crystalline calcite was encountered within several intervals of the Avon Park Formation at OSF-108R: 1,196 to 1,208 ft bls, 1,230 to 1,247 ft bls, and 1,487 to 1,540 ft bls. Because this calcite was found only within vugs, it suggests that the calcite crystals formed after the vugs formed.

Oldsmar Formation

The top of the Oldsmar Formation occurs at a depth 1,546 ft bls at OSF-108R, where the moderate yellowish brown dolostone of the Avon Park Formation with white vug-filling quartz transitions to pale yellowish brown and grayish orange wackestone and mudstone. The base of the Oldsmar Formation was not reached.

Evaporite nodules are present in the upper portion of the Oldsmar Formation from 1,546 to 1,610 ft bls. At OSF-108R, the Oldsmar Formation is composed of mudstone, wackestone, packstone, calcareous dolostone, and dolostone. Calcite is present in the recovered cores on fractured surfaces and within vugs as intermittent crystal growths. The Oldsmar Formation also contains organic laminations and layers, glauconite, and limonite. Fossils are sparse and consist of foraminifera and echinoids. The foraminifera *Pseudophragmina*, an index fossil for the Oldsmar Formation, was first noted at the site at a depth of 1,593 ft bls.

Glauconite was found between 1,430 and 1,473 ft bls in the Avon Park Formation and between 1,712 and 1,750 ft bls in the Oldsmar Formation at OSF-108R. Duncan et al. (1994) noted a distinct gamma ray signature associated with the presence of glauconite that often occurs near the bottom of the Avon Park Formation–Oldsmar Formation contact. This elevated gamma ray signature was recorded at OSF-108R from 1,580 to 1,630 ft bls with the highest gamma ray peaks recorded at 1,595 and 1,619 ft bls. This gamma ray signature correlated with organic layers observed in the recovered cores. A section of core with dark layering from a depth of 1,592.7 ft bls was analyzed using XRD, and the dark banding was found to be potassium feldspar. This is described further in the Core Analyses section of this report.

HYDROSTRATIGRAPHIC FRAMEWORK

The two aquifer systems intersected by OSF-108R are the SAS and FAS, with the FAS being the primary focus of this investigation. The FAS is subdivided into aquifers of moderate to high permeability where dissolution features and fractures are common, separated by zones of lower-permeability rock that offer varying degrees of confinement. The nomenclature assigned to these aquifers and confining units varies in the literature as well as between neighboring water management districts as shown in **Figure 7**.

	Miller (1986)	SWFWMD (Horstman 2011)	SJRWMD (Davis and Boniol 2011)	SFWMD (Reese and Richardson 2008)
Floridan Aquifer System	Upper Floridan Aquifer	Upper Floridan Aquifer: Suwanee Permeable Zone	Upper Floridan Aquifer: Upper Permeable Zone	Upper Floridan Aquifer
		Ocala Low-Permeability Zone	Ocala/Avon Park Low-Permeability Zone	Middle Confining/ Semi-Confining Unit 1
		Avon Park Permeable Zone	Avon Park Permeable Zone	Avon Park Permeable Zone
	Middle Confining Unit (I, II, or VI)	Middle Confining Unit (I, II, or VI)	Middle Confining Unit I	Middle Confining Unit 2
			Middle Confining Unit II	
	Lower Floridan Aquifer	Lower Floridan Aquifer (Below Middle Confining Unit I, II, or VI)	Lower Floridan Aquifer: Upper Permeable Zone	Lower Floridan Aquifer
			Confining Unit	
			Lower Permeable Zone	
			Boulder Zone	
			Fernandina Zone	
Sub-Floridan Confining Unit				

Figure 7. Comparison of FAS hydrostratigraphic unit names used by Miller (1986), the SFWMD, and the neighboring CFWI water management districts, SJRWMD and SWFWMD.

To remain consistent within the CFWI Planning Area, the cooperating water management districts agreed on a slightly modified hydrogeologic conceptualization (**Figure 8**) as the basis for development of the East Central Florida Transient Expanded (ECFTX) groundwater model, which is being used to evaluate groundwater availability in the region. As a component of the CFWI, this report follows the hydrostratigraphic names shown in **Figure 8** for the units intersected by the exploratory drilling at the Oak Island site. A representative hydrogeologic section, with hydrogeologic units conforming most closely to the Oak Island site, is presented in **Figure 8**.

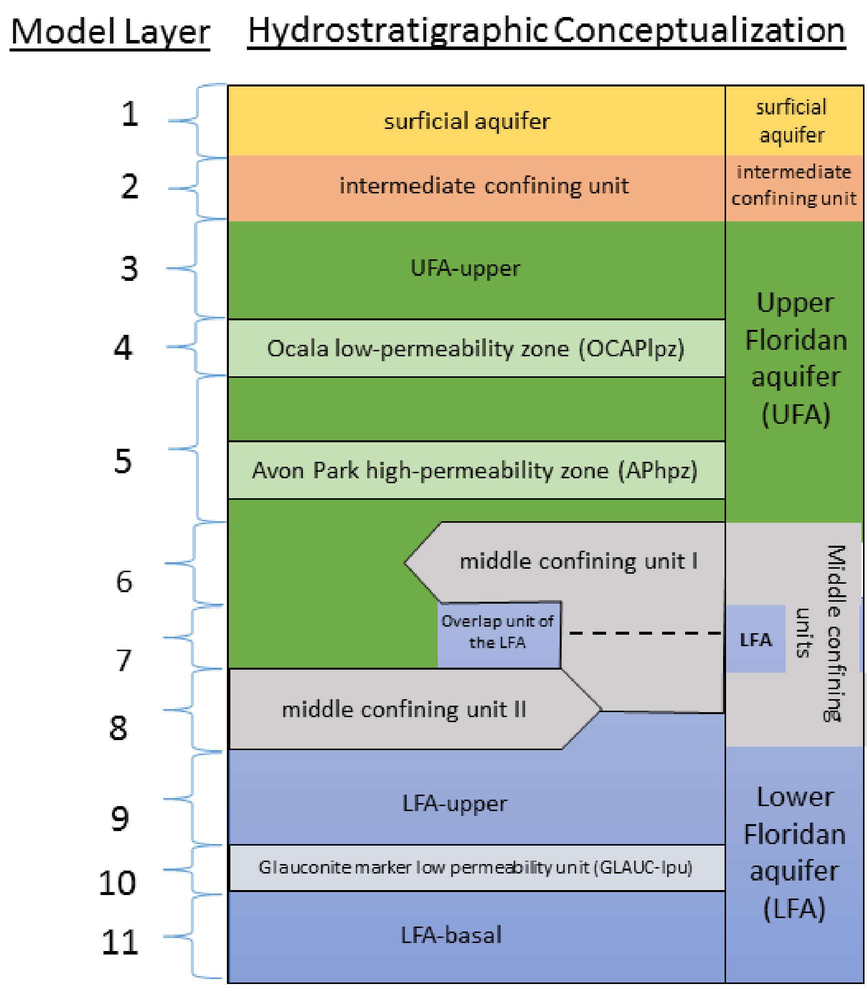

Figure 8. Groundwater model layer numbers, hydrostratigraphic conceptualization, and vertical discretization of the ECFTX model (CFWI Hydrologic Analysis Team 2020).

Surficial Aquifer System (0 to 45 ft bls)

The SAS at the site consists of unconsolidated, predominantly fine-grained quartz sand with varying amounts of silt, clay, shell, and heavy minerals. The top of the Hawthorn Group often is selected as the base of the SAS. The bottom of the SAS at the site was encountered at 45 ft bls based on the lithologic descriptions of well cuttings obtained from the construction of OSF-108 (Anderson 2011).

Intermediate Confining Unit (45 to 70 ft bls)

The ICU separates the SAS from the FAS and was encountered between depths of 45 and 70 ft bls at OSF-108. At the Oak Island site, the ICU is composed of fine-grained sand with clay and silty clay.

Floridan Aquifer System (250 to 2,020 ft bls)

The FAS consists of a series of Tertiary-age limestone and dolostone. At the site, the FAS includes permeable sedimentary strata of the Ocala Limestone, Avon Park Formation, and Oldsmar Formation. Regionally, the base of the FAS occurs in the Paleocene Cedar Keys Formation, which was not penetrated at the site.

The hydrogeologic units within the FAS were delineated based on the exploratory coring, drilling, and geophysical logging, as well as the hydraulic testing and water quality analyses from 55 packer tests completed during exploratory drilling at the site.

An estimate of hydraulic conductivity was calculated using Cooper-Jacob equation (see Hydraulic Parameters section). This equation is empirically derived and is based on the drawdowns corrected for head losses and the pumping rates from each packer test. **These hydraulic conductivities are intended to show relative changes in groundwater productivity as drilling progressed and are not intended to be used as absolute values representative of an entire formation.** Hydraulic conductivities obtained from aquifer testing are more representative of an entire aquifer than an individual packer test or set of packer tests, which only pumps from a small portion of a larger aquifer, for a short period of time at relatively low pumping rates, that likely do not significantly stress the aquifer as a whole. A complete description of the packer testing methods, data analyses, and results is provided later in this report.

Upper Floridan Aquifer

Regionally, the UFA typically occurs at the base of the Hawthorn Group, although it locally may include permeable units within the lower Arcadia Formation of the Hawthorn Group. The UFA at the Oak Island site includes the Ocala Limestone and portions of the Avon Park Formation. The UFA generally consists of several thin, highly permeable water-bearing zones interbedded with thicker, lower-permeability zones. The CFWI Hydrologic Analysis Team (2020) used three regionally mappable units to represent the vertical heterogeneity of the UFA: UFA-upper, Ocala–Avon Park low-permeability zone (OCAPlpz), and APPZ.

UFA-upper (70 to 185 ft bls)

The UFA-upper is the uppermost permeable zone of the FAS. At this site, the UFA-upper consists of poorly to moderately consolidated limestone and dolomitic limestone. A solutioned flow zone is often observed near the contact between the Hawthorn Group and Ocala Limestone but was not observed at OSF-108R. No OBI logs or packer tests were completed through this zone.

The UFA-upper is highly productive in the northern portion of the CFWI Planning Area, but previous investigations and reports have found that productivity tends to decline to the south (Richardson et al. 2020b). Reported transmissivities of the UFA-upper typically range from less than 10,000 to more than 100,000 ft^2/day in Central Florida (CFWI Hydrologic Analysis Team 2016). An aquifer performance test conducted at OSF-108 in 2009 resulted in an estimated transmissivity of 25,260 ft^2/day (Anderson 2011).

OCAPlpz (185 to 320 ft bls)

The OCAPlpz has lithology similar to the UFA-upper, characterized by interbedded limestone, dolostone, and dolomitic limestone, so it is generally distinguished from the UFA-upper by a reduction in secondary porosity. Although it is generally semiconfining, minor permeable zones can be found within the OCAPlpz (CFWI Hydrologic Analysis Team 2020). No packer tests were completed within the OCAPlpz at the Oak Island site.

APPZ (320 to 760 ft bls)

Reese and Richardson (2008) described the APPZ as a regionally mappable, high-permeability zone within the Avon Park Formation, characterized by relatively brittle dolostone or interbedded dolostone and dolomitic limestone with zones of secondary fracture permeability. Within the APPZ, cavernous or karstic, intergranular, and intercrystalline permeability may also be present. As mapped by Reese and Richardson (2008), the APPZ includes all the geologic materials from the base of the OCAPlpz to the top of middle confining unit I (MCU_I).

At the Oak Island site, the APPZ is composed predominantly of hard microcrystalline dolostone, interbedded with lesser amounts of dolomitic limestone, calcareous dolostone, wackestone, and mudstone and is characterized by very high formation resistivity and highly variable sonic porosity. The APPZ's upper boundary at the site was encountered at a depth of 320 ft bls where the rock transitioned from the soft, high porosity interbedded limestone, dolostone, and dolomitic limestone of the OCAPlpz to the harder, fractured dolostone of the APPZ. The caliper log showed that the borehole changed from a slightly washed out, enlarged, rounded hole to a nearly gauge hole once the APPZ was encountered. In addition, the long- and short-normal resistivity logs recorded increased resistivity in the APPZ in response to the denser, more indurated dolostone of the APPZ. Permeability and groundwater flow in the APPZ are primarily controlled by fractures, but between the fractured zones, intergranular porosity, pinpoint vugs, and bedding plane solution zones contribute to productivity.

APhpz-1 and Aphpz-2 (370 to 430 ft bls and 550 to 760 ft bls)

The CFWI Hydrologic Analysis Team (2016) adopted the term Avon Park high-permeability zone (APhpz) to differentiate the most productive fractured intervals from the relatively more confining, lower-productivity portions of the APPZ. The APPZ is equivalent to ECFTX model layer 5 (CFWI Hydrologic Analysis Team 2020), and the APhpz is a subset of that unit (**Figure 8**).

The APhpz at the site is composed of two discrete fractured zones from 370 to 430 ft bls (referred to here as "APhpz-1") and from 550 to 760 ft bls (referred to here as "APhpz-2"). The hydraulic conductivities calculated from the packer tests completed in these two zones were an average of approximately 23 ft/day in APhpz-1 (tests 1 and 2, from 370 to 430 ft bls) and an average of approximately 23 ft/day in APhpz-2 (tests 8 through 12, from 580 to 730 ft bls). Tests 7 and 13 were completed within APhpz-2. However, the packer was leaking during these tests, so the hydraulic conductivity values calculated from tests 7 and 13 are suspect (see Cooper-Jacob hydraulic conductivities calculated from the corrected drawdown data in the Hydraulic Parameters section and **Table 6**). These higher hydraulic conductivities have some degree of uncertainty associated with them due to the minimal amount of drawdown produced when testing high-permeability rock at a relatively low pumping rate in a small-diameter corehole. Examples of the APhpz-1 and APhpz-2 flow zones are shown in the OBI images in **Figure 9**.

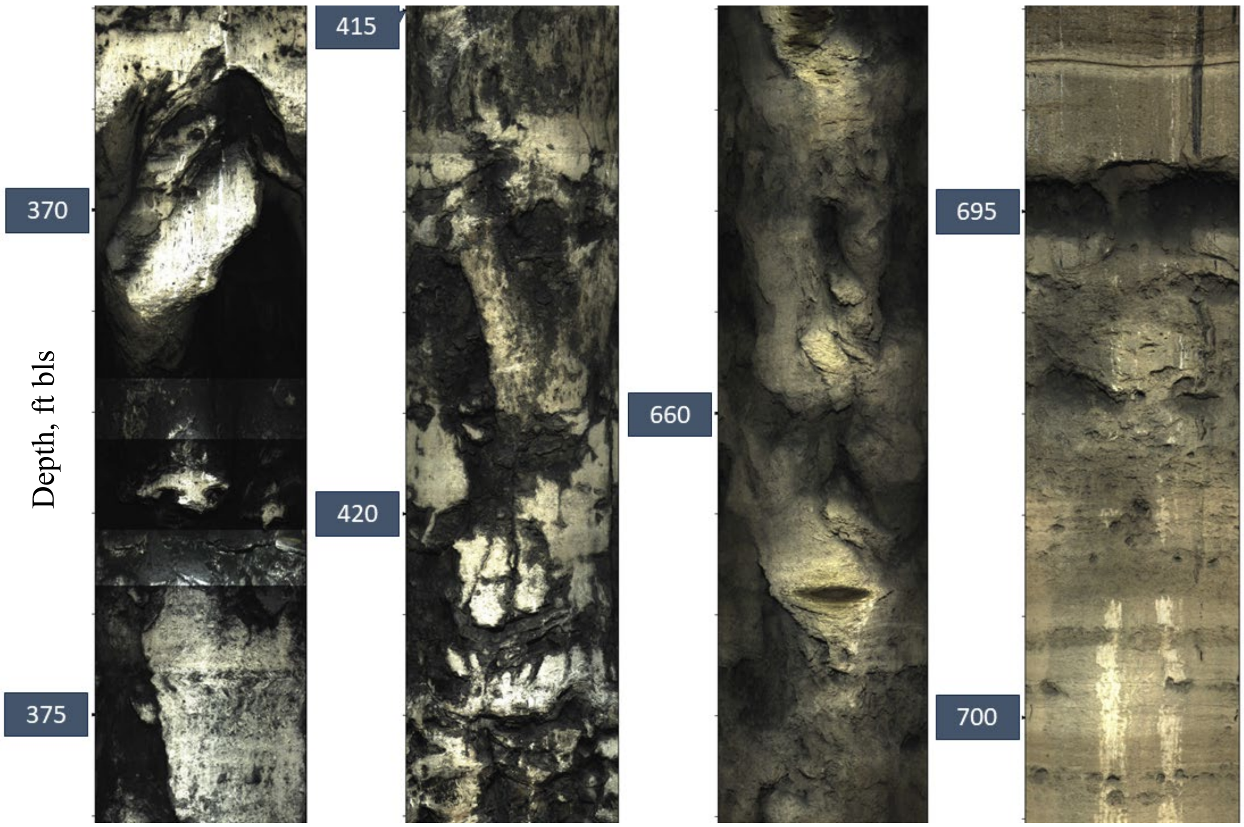

Figure 9. APhpz-1 and APhpz-2 flow zones as shown in the OSF-108R OBI log. From left to right, a large solution-enhanced fracture from 370 to 375 ft bls; a zone of fractured rock from 415 to 422 ft bls (both from APhpz-1); a large solution-enhanced zone from approximately 650 to 685 ft bls (658 to 663 shown in this figure); and, at 695 ft bls (both from APhpz-2), an open bedding plane solution feature.

Hydraulic conductivities calculated for the unfractured zones within the APPZ average approximately 5 ft/day, which is lower than the APhpz-1 and APhpz-2 hydraulic conductivities. The typical appearance of the lower-productivity, less-fractured zones of the APPZ is shown in **Figure 10**.

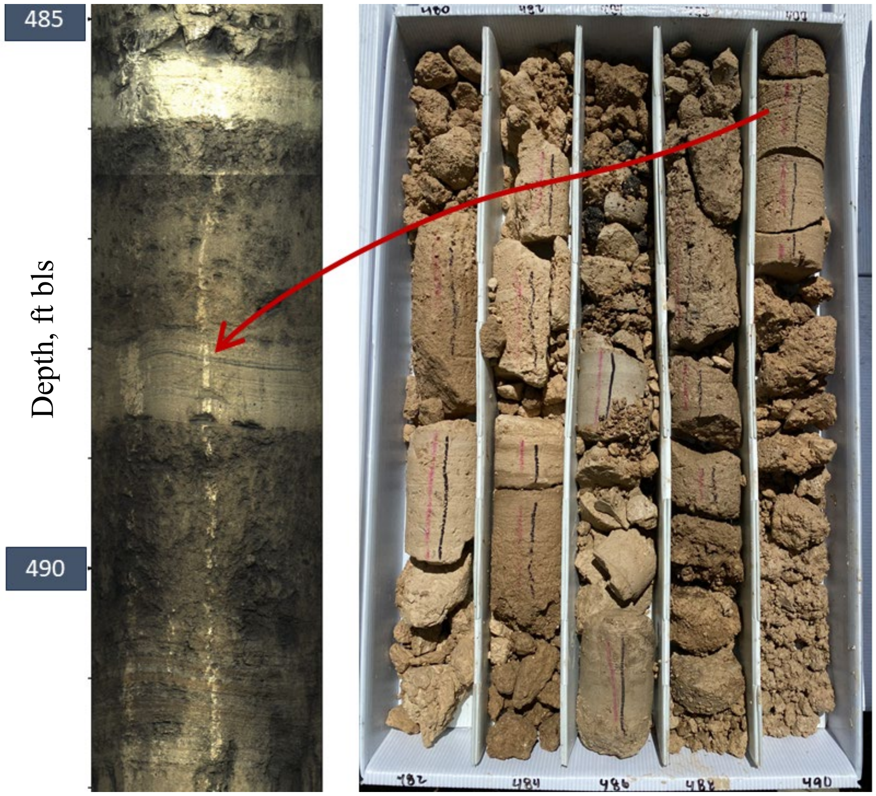

Figure 10. Typical appearance of relatively lower-hydraulic conductivity zones within the APPZ at OSF-108R. Note the vuggy texture above and below the finer-grained, laminated interval in the middle of the image. Depth interval for this image is 485 to 492 ft bls.

The degree of regional, lateral hydraulic connectivity between the fractured intervals within the APPZ in the CFWI region is a subject of interest and debate. Some CFWI exploratory coreholes have shown strong evidence for hydraulic connection between the APPZ's fractured intervals, while other data are more ambiguous. At the Oak Island site, the recovery water levels measured at the end of each packer test were similar in both APhpz-1 and APhpz-2. No groundwater samples were collected from APhpz-1 due to the high turbidity encountered in this zone. The groundwater chemistry of APhpz-2 at OSF-108R is classified as magnesium-bicarbonate, Frazee FW-II/FWIV/TWI water types (Frazee 1982), which is discussed further in the Water Quality and Inorganic Chemistry section of this report.

While the recovery water levels for APhpz-1 and APhpz-2 were similar, the degree of hydraulic connection between these permeable zones was unable to be determined. The similarities in recovery water levels may be the result of regional geologic hydraulic connections between these fracture zones or from nearby wells that are pumping from or open to both zones. Conversely, a hydraulic separation may exist that cannot be determined without the application of significant pumping stresses during an aquifer performance test. The low TDS concentrations in the APPZ groundwater samples from the Oak Island site (150 milligrams per liter [mg/L] to 782 mg/L, **Table 7**) suggests that there is likely little to no hydraulic connection between the APPZ and the underlying LFA, where much higher TDS concentrations were measured. Due to the large (approximately 30 ft) downward hydraulic gradient between the APPZ and the upper permeable zone of the Lower Floridan aquifer (LFA-upper), saline water from the LFA is unlikely to migrate upward under nonpumping conditions, even if the MCU is a poor (i.e., leaky) confining unit at the Oak Island site.

Middle Confining Unit

The MCU separates the UFA from the LFA. Miller (1986) first defined the MCU and subdivided it into eight regional units designated by Roman numerals I through VIII. The CFWI Hydrologic Analysis Team (2016) recognized two of these units (MCU_I and MCU_II) within the ECFTX model domain. MCU_I, the shallower unit, is generally composed of dolostone and micritic limestone and is the leakier of the two confining units. MCU_II is composed of hard, microcrystalline dolostone to dolomitic limestone, characterized by evaporite beds and evaporitic pore infillings, which greatly reduces the unit's permeability.

MCU_I is absent from the western portion of the ECFTX model domain, while MCU_II is absent from the eastern portion. Along the western reaches of the Kissimmee River Valley and Lake Wales Ridge, the two units overlap, greatly increasing the thickness of the MCU in that area. MCU_I and MCU_II were both encountered at the site and are described below.

MCU_I (760 to 948 ft bls)

MCU_I at the Oak Island site is composed almost entirely of dolostone, with chert nodules observed at a depth of approximately 937 ft bls. As compared to the APPZ, the rock comprising MCU_I is poorly indurated and a granular texture. MCU_I tends to have higher porosity than the APPZ but lacks significant fracturing or vuggy permeability. There was a gradual increase in TDS concentrations with depth through MCU_I from 1,663 mg/L at the top of the unit to 2,854 mg/L near the middle of the unit. Unfortunately, no groundwater samples were collected from the bottom part of MCU_I due to excessive drawdown causing the pump to be shut off within minutes of the start of packer tests 18 and 19 (from 880 to 940 ft bls). **Figure 11** shows the typical appearance of MCU_I.

Figure 11. Typical appearance of MCU_I at OSF-108R. Image on the left is from the OBI log. Photo on the right is the core recovered from 890 to 900 ft bls. A partially open bedding plane, granular texture, and vugs are visible on both photos.

Six packer tests (tests 14 through 19) were completed entirely within MCU_I at the Oak Island site, with a seventh packer test (test 20, from 940 to 970 ft bls) straddling the MCU_I–MCU_II boundary. The hydraulic conductivity (22 ft/day) calculated for test 14 (760 to 790 ft bls) was unusually high for MCU_I. The average hydraulic conductivity for tests 15, 16, and 17 was approximately 4 ft/day. During tests 18 and 19, the pump was shut down within minutes of the test start due to excessive drawdown. Therefore, steady-state drawdown had not been achieved, and no reliable hydraulic conductivity could be estimated from these tests.

The depth-to-water measurements collected at the end of each packer test recovery period were relatively shallow (ranging from 5.72 to 9.39 ft bls) and showed little variation from the top to the bottom of MCU_I, but the recovery depth-to-water measurements indicate that there is a slight downward hydraulic gradient through MCU_I.

MCU_II (948 to 1,160 ft bls)

MCU_II at the Oak Island site is composed almost entirely of evaporites and dolostone. At this site, MCU_II has lower in porosity than MCU_I. The only groundwater sample that was collected from this unit was collected from the bottom of MCU_II during packer test 27, which straddled the MCU_II–LFA-upper boundary. An example of the typical appearance of MCU_II is shown in **Figure 12**.

Figure 12. MCU_I to MCU_II transition at a depth of 948.5 ft bls as indicated by the red arrow. The OBI image on the left shows the interval from approximately 948 to 954 ft bls, and the photo on the right is of the core from 940 to 950 ft bls. The dolostone of MCU_I displays a typical vuggy texture (the four yellowish-brown core sample intervals on the left side of the core box). The evaporites of MCU_II display a lack of permeability (right most chamber of the core box with lighter colored, white and tan rock). The evaporites of MCU_II display substantial dissolution in the OBI imagery, which occurred rapidly between the end of reaming (July 30, 2021) and the OBI logging (August 31, 2021) when the rock was exposed to low TDS groundwater.

Six packer tests (tests 21 through 26) were completed entirely within MCU_II at the Oak Island site, with test 20 (940 to 970 ft bls) straddling the MCU_I–MCU_II boundary and test 27 (1,150 to 1,180 ft bls) straddling the MCU_II–LFA-upper boundary. However, during all tests within MCU_II, the pump was shut down within minutes due to excessive drawdown. Although no reliable estimate of hydraulic conductivity could be calculated from these tests, the understanding that MCU_II does not transmit water can be inferred.

The water levels at the end of test 20 were allowed to fully recover to 8.23 ft bls. The water levels were still rising at the end of recovery water level monitoring during packer tests 21 through 26, indicating that the tested zones had not fully recovered, so the recovery water levels were not considered representative for those two intervals. Packer test 27 straddled the MCU_II–LFA-upper boundary. Water levels fully recovered at the end of test 27 to a depth of 34.96 ft bls. There were no reliable recovery water levels from packer tests completed entirely within MCU_II; however, there was reliable recovery water level data from packer tests that straddled the upper and lower boundaries of MCU_I. The results of packer tests 20 and 27 indicate that there was a hydraulic head drop of 26.73 ft across MCU_II.

Lower Floridan Aquifer

The LFA consists of a sequence of permeable zones separated by lower-permeability units. Some permeable zones, including the Boulder Zone of South and east Central Florida, are regionally mappable (CFWI Hydrologic Analysis Team 2020). The LFA can be more than 1,000 ft thick within the CFWI area and includes highly productive zones and confining units with salinities ranging from fresh water to seawater. Discretizing the LFA into less hydraulically diverse subdivisions was one of the objectives of the ECFTX model (CFWI Hydrologic Analysis Team 2020).

For the ECFTX model, the LFA was subdivided into upper (LFA-upper) and basal (LFA-basal) permeable zones separated by the regionally mappable GLAUClpu (CFWI Hydrologic Assessment Team 2016). The exploratory corehole at the Oak Island site was terminated within the LFA-basal and provides needed information on the thicknesses, depths, and productivities of the LFA-upper, GLAUClpu, and the upper part of the LFA-basal. Reported transmissivities of the LFA range from more than 500,000 ft^2/day in metropolitan Orlando, to less than 500 ft^2/day in southwestern Polk County. This is potentially attributable to evaporitic infilling of pore spaces (CFWI Hydrologic Analysis Team 2020).

LFA-upper (1,160 to 1,510 ft bls)

The top of the LFA-upper was identified at 1,160 ft bls, coinciding with a change in packer test recovery water levels, an increase in groundwater productivity, and a notable change in lithology from dolostone containing abundant evaporite minerals and no observable porosity to dolostone containing calcite and organics with moderate pinpoint and vuggy porosity.

Packer test hydraulic conductivities increased between the MCU and the LFA-upper, from an average of approximately 4 ft/day for the reliable packer tests solely open to MCU_I (tests 15, 16, and 17) to an average of approximately 21 ft/day for reliable tests only open to the LFA-upper (tests 28, 29, 30, 31, 32, 34, 35, 36, 37, and 38). During test 33, the pump was shut down within minutes due to excessive drawdown. Similarly, all the packer tests in MCU_II were terminated early, and hydraulic conductivity was unable to be calculated for those tests. Therefore, the conclusion remains that the hydraulic conductivity within MCU_II is extremely low.

Productivity in the LFA-upper at the Oak Island site appears to come from multiple, discrete zones of fractured or vuggy rock interbedded with very low-permeability dolostone. Three significant productive zones were identified based on the packer test data and the OBI logging. For discussion purposes, these three productive zones are named and numbered sequentially from shallow to deep as LF1 (1,180 to

1,250 ft bls—with a large void noted at 1,195 ft bls), LF2 (1,390 to 1,420 ft bls), and LF3 (1,480 to 1,510 ft bls). These three zones had hydraulic conductivities ranging from approximately 13 to 65 ft/day, which were greater than the hydraulic conductivities of the intervening, relatively lower-productivity zones within the LFA-upper where hydraulic conductivities averaged approximately 6 ft/day.

Representative OBI images of the LF1 and LF3 flow zones are presented below in **Figure 13**. These images show the typical large, open vugs that are found in the LFA-upper.

Figure 13. OBI images of a portion of LF1 (left and center) and LF3 (right) in OSF-108R showing abundant large vugs and granular texture.

The TDS concentrations measured in LF1 were higher (ranging from 866 to 1,726 mg/L) than the TDS concentration measured in LF2 and LF3 and the remaining LFA-upper groundwater samples, which had TDS concentrations ranging from 350 to 510 mg/L. Groundwater samples from the LFA-upper are classified as Frazee water type TW-IW (Frazee 1982), indicating some degree of ionic heterogeneity between the high flow zones.

GLAUClpu (1,510 ft bls to 1,900 ft bls)

Following the ECFTX model mapping protocol (CFWI Hydrologic Analysis Team 2016), the base of the LFA-upper should coincide with the base of the last productive zone above the natural gamma log marker for the GLAUClpu. As described in the model documentation report for the ECFTX model (CFWI Hydrologic Analysis Team 2020), Duncan et al. (1994) first noted a distinctive gamma log signature from an interbedded series of wackestone and dolostone near the top of the Oldsmar Formation. They attributed that gamma signature to the presence of glauconite, clay, and collophane, and used this gamma ray log signature to correlate this marker unit through Brevard and Indian River counties. Duncan et al. (1994) referred to the gamma signature as the "glauconitic zone marker," and this name has remained, despite the marker being identifiable in numerous wells where no glauconite was observed. At Oak Island, glauconite was found between 1,430 and 1,473 ft bls in the Avon Park Formation and between 1,712 and 1,750 ft bls in the Oldsmar Formation. The distinctive gamma ray signature noted by Duncan et al. (1994) starts at 1,580 ft bls, and the largest gamma ray log peaks occur at 1,595 and 1,619 ft bls, correlating with organics described in the recovered cores.

Within the GLAUClpu, the packer test hydraulic conductivities averaged approximately 5 ft/day from tests 44, 45, 46, 47, and 51 (during tests 39, 40, 41, 42, 43, 48, and 50 the pump was shut down within minutes due to excessive drawdown). This is indicative of a relatively unproductive lithologic interval when compared to the packer tests completed in the overlying LFA-upper, which did not have excessive, rapid drawdowns even though they were performed at the same or higher pumping rate than the tests performed in the GLAUClpu.

The GLAUClpu at OSF-108R is composed predominantly of pale yellowish brown dolostone to a depth of approximately 1,546 ft bls, underlain by a sequence of dark yellowish brown, pale yellowish brown, pale yellowish orange, and grayish orange wackestone, interbedded with pale yellowish brown, dark yellowish brown, and grayish orange mudstone beds from 1,546 to 1,577 ft bls. These mudstone beds are underlain by interbedded clayey wackestone, dolostone, calcareous dolostone, mudstone, and packstone with similar colors to the rest of the GLAUClpu.

A representative OBI image of the GLAUClpu and a photo of the core are presented in **Figure 14**. These images show the lack of porosity within the GLAUClpu.

Figure 14. OBI image and photo of core from OSF-108R. OBI image depths are approximately 1,662 to 1,668 ft bls (left) and the cores shown here are from 1,660 (top left of the core box) to 1,670 ft bls (bottom right of the core box). These images show the lack of porosity within the GLAUClpu.

LFA-basal (1,900 to 2,020 ft bls)

The top of the LFA-basal was identified at 1,900 ft bls, coinciding with an increase in hydraulic conductivity, an increase in productivity, and a change to a dolostone-dominated lithology. Rock colors were predominantly pale yellowish brown, moderate yellowish brown, and very pale orange.

Packer test hydraulic conductivities increased between the GLAUClpu and the LFA-basal, from an average of approximately 5 ft/day throughout the GLAUClpu (tests 44, 45, 46, 47, 49, and 51) to an average of approximately 24 ft/day for tests in the LFA-basal (tests 52, 53, 54, and 55).

Representative OBI images of the LFA-basal are presented in **Figure 15**. These images show the typical large, open vugs that are found in the LFA-basal.

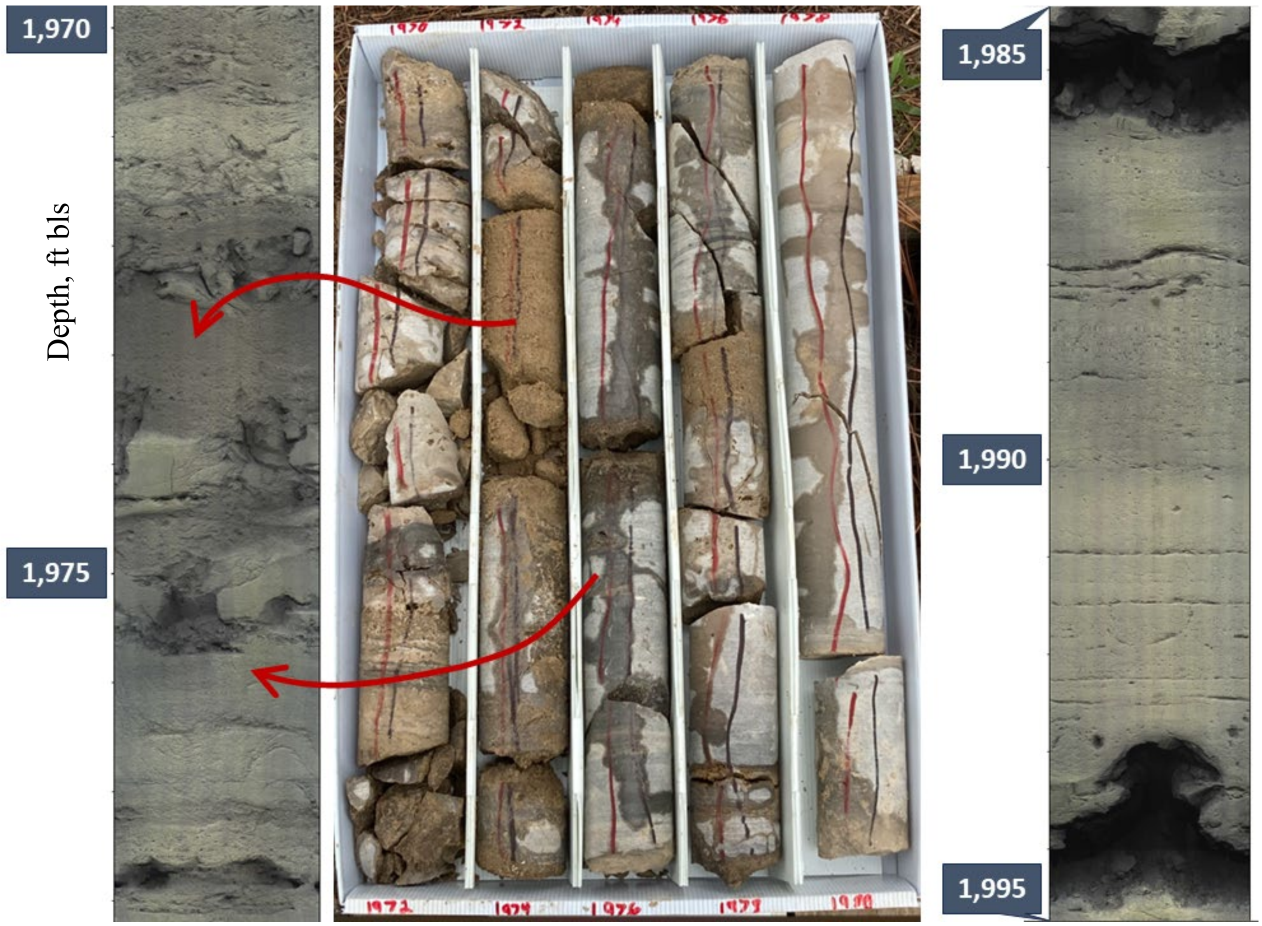

Figure 15. OBI images and photo of LFA-basal core from the OSF-108R corehole. Depth intervals are approximately 1,970 to 1,978 ft bls (image on the left) and 1,985 to 1,995 ft bls (image on the right). These images show abundant large vugs, some bedding plane dissolution, and granular texture.

SITE DATA

Packer Testing

Fifty-five single packer tests were completed within the continuously cored portions of exploratory corehole OSF-108R using a wireline packer assembly. The packer tests were conducted to obtain data for calculation of the hydraulic conductivity of each 30-ft-long packer test interval, to collect representative groundwater samples for laboratory analyses, and to collect recovery water levels that are representative of each tested interval.

Figure 16 illustrates the setup used for OSF-108R packer testing. After every 30 ft of coring was completed, the core casing was pulled up from the maximum cored depth to the base of the previous packer test interval. Each packer test interval was then developed using air-lifting methods for a minimum of 1 hour to remove rock debris and drilling fluids. After development was complete, the packer assembly was attached to a support cable and lowered into place. A submersible pump was attached to steel drop pipe and suspended inside the core casing, generally at a depth of 80 to 100 ft bls. The packer assembly was then inflated using compressed nitrogen gas. The water level in the packed-off test interval was allowed to stabilize for approximately 15 minutes before pumping started.

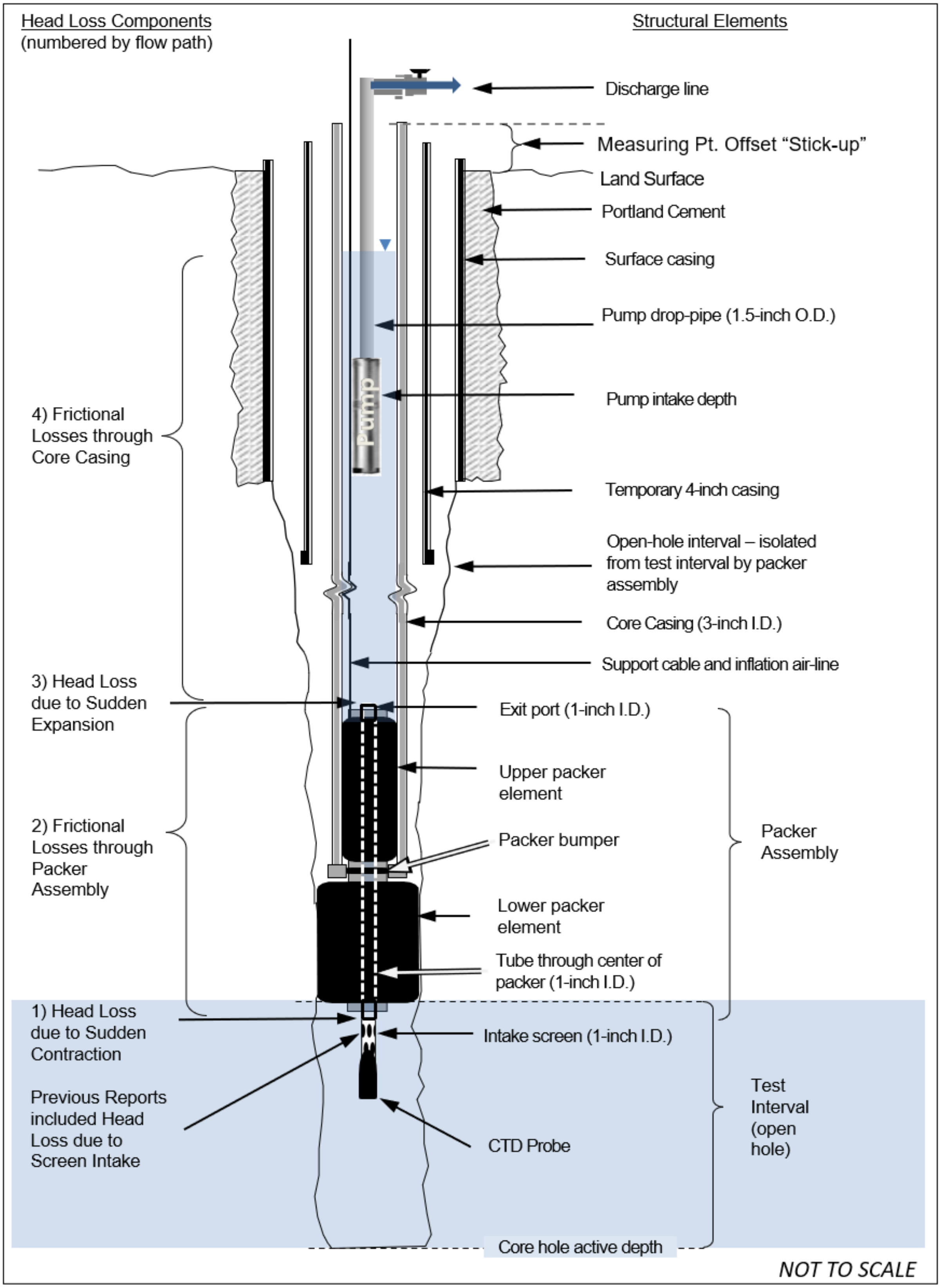

Figure 16. Head loss components, general schematic of the packer assembly, and test interval used during packer testing at OSF-108R.

The narrow (approximately 3-inch) inner diameter of the core casing did not provide sufficient space to accommodate installation of a pressure transducer to the drop pipe after the pump, drop-pipe, associated electrical wiring, and packer assembly support cabling were in place. Therefore, depth-to-water measurements were collected manually using an electronic depth-to-water indicator. Manual depth-to-water measurements were collected by the drill crew at 1-minute intervals for the first 5 minutes of both the drawdown and recovery portions of the test, and at 5-minute intervals thereafter. The packer assembly was configured so a conductivity, temperature, and depth (CTD) probe could be attached to the bottom of the intake screen below the packer (**Figure 16**). The standard procedure for each packer test was to pump three corehole volumes at the maximum producible rate, typically between 5 and 31 gallons per minute (gpm), while monitoring and recording field water quality parameters (i.e., temperature, pH, and specific conductance), followed by collection of a groundwater sample for laboratory analyses. The pump was then shut off, and water levels were monitored until they stabilized. For test intervals in which low-permeability rock did not allow removal of three corehole volumes of water, pumping continued until both the drawdown and water quality parameters had stabilized, or until water levels neared the pump intake. **Table 2** is a summary of all the packer tests completed during this investigation. Problems encountered during individual packer testing are noted next to specific test numbers in the table and described in detail below **Table 2**.

Table 2. OSF-108R packer test summary.

Packer Test #	Test Date	Test Interval (ft bls)		Pumping Rate (gpm)	Pumping Duration (hh:mm)	Recovery Depth to Water (ft bls)	Comments
		Top Depth	Bottom Depth				
1[a]	3/17/2021	370	400	30.00	1:20	5.14	Step test, no sample due to high turbidity
2	3/17/2021	400	430	30.00	1:10	5.22	No sample due to high turbidity
3	3/18/2021	430	460	30.00	0:45	5.26	
4	3/19/2021	460	490	30.00	0:45	4.74	
5	3/22/2021	490	520	29.00	10:45	5.08	
6	3/23/2021	520	550	17.50	1:15	4.79	
7[b]	3/24/2021	550	580	31.00	0:50	3.34	Packer airline leaking during recovery, recovery DTWs suspect
8	3/24/2021	580	610	31.00	0:45	4.89	
9	3/25/2021	610	640	31.00	0:50	5.30	
10	3/25/2021	640	670	31.00	1:00	5.03	
11	3/29/2021	670	700	30.00	1:00	4.97	
12	3/30/2021	700	730	30.00	1:05	5.31	
13[b]	4/12/2021	730	760	30.00	1:00	7.03	Packer airline leaking during recovery, but DTW measurement next day appeared to be correct
14	4/13/2021	760	790	30.00	1:00	5.72	
15	4/14/2021	790	820	28.50	1:05	6.62	
16	4/14/2021	820	850	28.00	1:05	7.03	
17	4/15/2021	850	880	16.20	1:35	7.01	
18[c]	4/16/2021	880	910	4.50	0:20	7.01	No sample, pumped dry
19[c,d]	4/19/2021	910	940	10.00	0:35	9.39	No sample, pumped dry
20[c]	4/21/2021	940	970	27.00	0:17	8.23	No sample, pumped dry

Table 2. Continued.

Packer Test #	Test Date	Test Interval (ft bls)		Pumping Rate (gpm)	Pumping Duration (hh:mm)	Recovery Depth to Water (ft bls)	Comments
		Top Depth	Bottom Depth				
21[c]	4/22/2021	970	1,000	12.00	0:01	9.64	No sample, pumped dry
22[c,e]	4/23/2021	1,000	1,030	26.00	0:01	19.45	No sample, pumped dry
23[c,d,e]	4/26/2021	1,030	1,060	20.00	0:01	37.22	No sample, pumped dry
24[c,e]	4/27/2021	1,060	1,090	6.80	0:05	42.80	No sample, pumped dry
25[c,d,e]	4/28/2021	1,090	1,120	5.00	0:20	71.22	No sample, pumped dry
26[c,d,e]	4/30/2021	1,120	1,150	6.00	0:05	66.05	No sample, pumped dry
27	5/3/2021	1,150	1,180	13.00	2:20	34.96	
28[f]	5/5/2021	1,180	1,210	30.00	1:30	31.32	
29[a,b]	5/10/2021	1,210	1,240	30.00	1:55	35.66	Unable to stress aquifer?
30[a,b]	5/12/2021	1,240	1,270	30.00	1:50	35.84	Unable to stress aquifer?
31	5/14/2021	1,270	1,300	27.00	1:40	35.53	
32	5/18/2021	1,300	1,330	27.00	2:09	35.35	
33[c]	5/20/2021	1,330	1,360	8.00	0:03	36.28	No sample, pumped dry
34	5/21/2021	1,360	1,390	27.00	2:00	35.78	
35	5/24/2021	1,390	1,420	28.00	1:35	35.86	
36	5/25/2021	1,420	1,450	24.00	1:35	36.00	
37	5/26/2021	1,450	1,480	27.00	1:35	36.24	
38	5/27/2021	1,480	1,510	28.00	1:35	37.54	
39[c,d]	6/1/2021	1,510	1,540	15.00	0:12	38.14	No sample, pumped dry
40[c,e]	6/2/2021	1,540	1,570	22.00	0:01	137.85	No sample, pumped dry
41[c,e]	6/3/2021	1,570	1,600	30.00	0:01	138.02	No sample, pumped dry
42[c]	6/7/2021	1,600	1,630	30.00	0:02	37.63	No sample, pumped dry
43[d]	6/8/2021	1,630	1,660	13.00	0:05	34.78	No sample due to high turbidity
44	6/11/2021	1,660	1,690	23.00	1:55	33.69	
45	6/14/2021	1,690	1,720	26.00	1:35	35.75	
46	6/16/2021	1,720	1,750	22.00	1:30	32.97	
47	6/17/2021	1,750	1,780	28.00	1:40	32.00	
48[b,c]	6/21/2021	1,780	1,810	10.00	0:05	13.71	No sample, pumped dry Packer airline leaking during recovery, recovery DTWs suspect
49[b,f]	6/23/2021	1,810	1,840	23.00	0:13	32.96	Packer seal broke during pumping, no recovery DTWs
50[c]	6/24/2021	1,840	1,870	13.30	0:05	33.00	No sample, pumped dry
51	6/25/2021	1,870	1,900	26.00	2:05	32.47	
52[a,f]	6/29/2021	1,900	1,930	28.00	2:15	31.20	
53[f]	6/30/2021	1,930	1,960	26.50	2:40	31.00	
54[a,f]	7/2/2021	1,960	1,990	28.50	1:50	30.46	
55[f]	7/8/2021	1,990	2,020	28.00	2:05	31.68	

DTW = depth to water; ft bls = feet below land surface; gpm = gallons per minute; hh:mm = hours: minutes.

[a] Drawdown calculated from CTD data was within the propagated margin of error (±0.67 ft).

[b] Packer leaking or other hydraulic issue.

[c] Pumping rate was too high for open interval; water level dropped to a point where pump had to be shut off.

[d] Water level meter likely malfunctioning.

[e] Recovery water levels had not stabilized.

[f] CTD probe issues.

The list below provides a summary of the equipment problems and testing limitations encountered during the packer testing program at OSF-108R.

- For tests 18, 19, 20, 21, 22, 23, 24, 25, 26, 33, 39, 40, 41, 42, 48, and 50, the tests were terminated early because the pumping rate was too high for the tested interval, resulting in the water level dropping to the pump intake. Since steady-state conditions had not been achieved, the calculated drawdowns from these tests were underestimated, and any hydraulic conductivities calculated from these tests were overestimated. This would be true using both manual depth-to-water measurements and the measurements obtained from the CTD probe.
- For tests 7, 13, and 48, the packer was leaking during recovery, resulting in unreliable recovery depth-to-water levels.
- For test 49, the packer seal broke during pumping, causing the test to be stopped, resulting in no recovery water levels.
- For tests 27 and 28, the water level meter was malfunctioning during the initial drawdown. The pumping rate was reduced, and the water level meter was likely reliable from that point until the end of water level recovery. Therefore, the recovery depth-to-water measurements for these tests were acceptable for evaluating the static water level of these two tested intervals.
- For tests 29 and 30, the aquifer could not be stressed due to the maximum pumping rate of the pump and high productivity of the zones.
- For tests 19, 23, 25, 26, 39, and 43, the water level meter was malfunctioning, at least during the pumping portions of some of the packer tests, resulting in questionable total drawdown calculations. Any calculated drawdowns from these tests were underestimated, and any hydraulic conductivities calculated from these tests were overestimated. This was true only for the manual depth-to-water measurements collected during tests 19, 23, 25, 26, 39, and 43. The recovery depth-to-water measurements appeared to be acceptable for evaluating the static water level of the tested interval (see Water Levels section). The water level meter appeared to start working correctly again after test 28, but then appeared to malfunction intermittently during tests 39 and 43. The water level meter had an electrical short, and a new water level meter was purchased and used during the final month of packer testing during packer tests 45 through 55.
- For tests 22, 23, 24, 25, 26, 40, and 41, water level recovery had not stabilized, and the water was still rising when it was decided to deflate the packer, remove the pump and packer assembly, and continue coring. Calculated drawdowns from these tests were underestimated, and any hydraulic conductivities calculated from these tests were overestimated. The recovery depth-to-water measurements for these tests are not representative of the static water levels of these tested intervals (see Water Levels section).

HYDRAULIC ANALYSIS

An Idronaut brand CTD probe was installed directly below the packer assembly within the open borehole test interval (**Figure 16**) so its measurements were not subject to the effects of well losses across the packer testing assembly. Because of its location in the borehole, the Idronaut CTD data were assumed in previous SFMWD reports (Richardson et al. 2020a,b, Coonts 2021) to be the best representation of the *in situ* drawdowns in the formation, unaffected by pipe losses. The Idronaut CTD probe uses a highly sensitive pressure sensor with an accuracy of 0.01% and a precision of up to 0.002% of its full pressure range. To operate across the complete depth of the FAS, a large pressure range is required. The Idronaut CTD probe contains a 100-bar (1,450.38 pounds per square inch) pressure transducer. Given the groundwater density encountered in the borehole, this equates to a rated accuracy of ±0.335 ft. The manual depth-to-water measurements, by contrast, have an expected accuracy of ±0.01 ft. The Idronaut CTD probe was installed and operated correctly in 89% of the packer tests. The manual depth-to-water readings, by contrast, were collected during every packer test. Unfortunately, the water level meter was malfunctioning for at least a portion of tests 19, 23, 25, 26, 27, 28, 39, and 43 as specified above. The water level meter was functioning correctly during 85% of the packer tests.

To estimate the horizontal hydraulic conductivity for all the packer tests, head loss components of the measured drawdown need to be accounted for, including those caused by friction as water travels through the packer assembly and core casing, and pressure losses due to a sudden expansion or contraction of water flowing into or out of the packer testing assembly. The four components of total head loss accounted for in the analyses are shown in **Figure 16** and listed below in order of the water's flow path through the packer testing assembly and borehole:

1. Head losses due to the sudden contraction of the system as pumped water travels from the open-hole test interval into the packer assembly (component 1 in **Figure 16**).

2. Frictional losses as the pumped water flows through the packer assembly (component 2 in **Figure 16**).

3. Head losses due to the sudden expansion of the system as pumped water exits the top of the narrow-diameter packer assembly and flows into the larger-diameter core casing (component 3 in **Figure 16**).

4. Frictional losses due to the pumped water flowing through the core casing (component 4 in **Figure 16**).

Previous CFWI-related reports by the District (see for example Richardson et al. 2020a,b, Coonts 2021) included frictional losses (components 2 and 4), and an estimate of head loss due to the intake screen (**Figure 16**) but did not include head losses due to sudden expansion or sudden contraction (components 1 and 3). The revised methodology presented and used here includes the head losses due to sudden expansion and contraction.

Total Head Loss Components

Head Losses Due to Sudden Contraction (1)

When water flows from a large-diameter pipe into an abruptly smaller-diameter pipe, there is an increase in velocity and a loss of energy due to turbulent eddies which form along the inside edge of the large-diameter pipe adjacent to where it meets the smaller-diameter pipe (**Figure 17**). In addition, an hourglass-shaped constriction of flow, called the *vena contracta,* forms within the smaller-diameter pipe. The *vena contracta*'s diameter is smaller than the diameter of the small-diameter pipe. The turbulent eddies and expansion after the *vena contracta* cause a loss of energy/head loss.

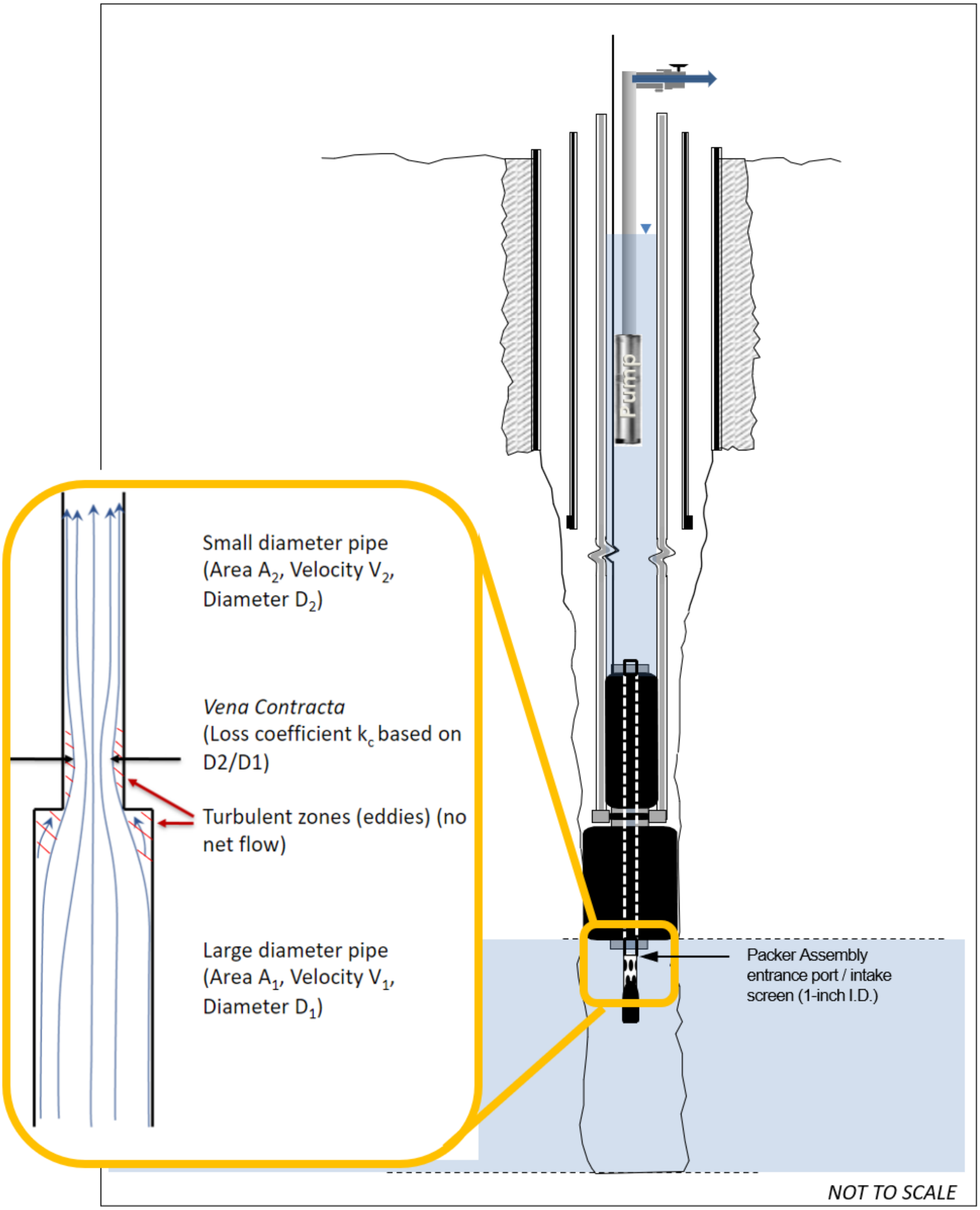

Figure 17. Sudden contraction.

The head loss equation for sudden contraction is (Finnemore and Franzini, 2002, p. 306, eq. 8.75):

$$h_{ft} = k_c * \frac{V_2^2}{2 \cdot g} \qquad \text{Equation (1)}$$

Where:

h_{ft} = head loss (ft of water)
k_c = loss coefficient for a sudden contraction (dimensionless) (taken as 0.39 for this packer assembly setup)
V_2 = flow velocity through smaller-diameter pipe (ft/sec)
g = gravitational acceleration (32.2 ft/s^2)

Frictional Losses Through Packer Assembly (2) and Core Casing (4)

There are multiple methods for calculating the head losses due to pipe friction, including those developed from theory (such as the Darcy-Weisbach equation, which is derived primarily from dimensional analysis), and empirical calculations based on observations (such as the Hazen-Williams equation). Although the Hazen-Williams equation is easier to calculate, in theory, it is only applicable to the flow of water through pipes with inside diameters greater than 2 inches with water velocities less than 10 ft per second (Finnemore and Franzini 2002, p. 299). Because of these pipe diameter and velocity restrictions, the Hazen-Williams equation is only applicable for calculation of the frictional losses through the core casing (**Table 3**). However, for comparison purposes, both the Hazen-Williams and the Darcy-Weisbach equations were used to calculate head losses through both the packer assembly and core casing.

Table 3. Pipe information for well loss calculations.

Pipe Section	Inner Diameter (inches)	Length (ft)	Roughness Coefficient[a]
Core Casing	3.1	Top of Test Interval – Depth to Water	130[b]
Packer Assembly	1.1	9.0	130[b]

[a] Hazen-Williams roughness coefficient listed in Finnemore and Franzini 2002, p. 299.
[b] A Hazen-Williams roughness coefficient of 140 was found to result in the closest match with the Darcy-Weisbach results.

The empirical Hazen-Williams equation (using Finnemore and Franzini 2002, p. 300, eq. 8.67 substituted into eq. 8.65) to calculate the pressure loss due to friction is as follows:

$$h_{ft} = \frac{4.727 * L * Q^{1.852}}{C_{HW}^{1.852} * D^{4.87}} \qquad \text{Equation (2)}$$

Where:

h_{ft} = head loss (ft of water)
L = pipe length (ft)
Q = discharge rate (ft^3/sec)
C_{HW} = Hazen-Williams roughness coefficient
D = inside pipe diameter (ft)

For comparison against the empirically derived (and theoretically limited) Hazen-Williams frictional head losses, the dimensional analysis-based Darcy-Weisbach equation (using Finnemore and Franzini 2002, p. 300, eq. 8.66 substituted into eq. 8.65) was used to calculate the frictional pressure loss:

$$h_{ft} = \frac{8 * f * L * Q^2}{\pi^2 * g * D^5} \quad \text{Equation (3)}$$

Where:

h_{ft} = head loss (ft of water)
f = Darcy friction factor (dimensionless)
L = pipe length (ft)
Q = discharge rate (ft^3/sec)
g = acceleration due to gravity (32.2 ft/sec^2)
D = inside pipe diameter (ft)

The Darcy-Weisbach equation uses a Darcy friction factor (f), calculated using the Swamee-Jain equation (Swamee and Jain 1976):

$$f = \frac{0.25}{[\log\left(\frac{\varepsilon}{3.7d} + \frac{5.74}{\boldsymbol{R}^{0.9}}\right)]^2} \quad \text{Equation (4)}$$

Where:

f = Darcy friction factor (dimensionless)
$\boldsymbol{R}$ = Reynolds number (dimensionless)
ε = absolute roughness (inches, taken as 0.006 inches for existing steel)
d = inside diameter of pipe (inches)

As shown in Equation 4, the Darcy friction factor depends on a Reynolds number ($\boldsymbol{R}$), calculated (Finnemore and Franzini 2002, p. 256, eq. 8.11) using the following:

$$\boldsymbol{R} = \frac{D * V}{\nu} \quad \text{Equation (5)}$$

Where:

$\boldsymbol{R}$ = Reynolds number (dimensionless)
D = pipe diameter (ft)
V = velocity (ft/sec)
ν = kinematic viscosity (taken as 0.00001 ft^2/sec for the specific conductivities measured during packer testing at this site)

A total of 55 packer tests were completed during the wireline coring of OSF-108R. The frictional losses through the packer assembly calculated using the empirical Hazen-Williams equation resulted in an average difference of approximately 22% when compared to the dimensional analysis-based Darcy-Weisbach equation. For the frictional losses through the core casing, the difference was approximately 3% (**Table 4**). These results confirm the limitations of the Hazen-Williams equations for the small inside diameter (1 inch) packer assembly discharge pipe. Therefore, this report uses the Darcy-Weisbach equation results for the frictional head losses.

Table 4. Comparison of Hazen-Williams and Darcy-Weisbach results from OSF-108R packer tests.

Packer Test	Discharge Rate (gpm)	Head Loss Across Packer Assembly (ft)			Head Loss Across Core Casing (ft)		
		Hazen-Williams	Darcy-Weisbach	% Difference	Hazen-Williams	Darcy-Weisbach	% Difference
1[a]	30.00	3.91	5.06	25.6	1.02	0.99	3.0
2	30.00	3.91	5.06	25.6	1.10	1.07	2.8
3	30.00	3.91	5.06	25.6	1.19	1.15	3.4
4	30.00	3.91	5.06	25.6	1.27	1.23	3.2
5	29.00	3.67	4.74	25.4	1.27	1.23	3.2
6	17.50	1.44	1.76	20.0	0.53	0.51	3.8
7[b]	31.00	4.15	5.40	26.2	1.62	1.57	3.1
8	31.00	4.15	5.40	26.2	1.71	1.66	3.0
9	31.00	4.15	5.40	26.2	1.80	1.74	3.4
10	31.00	4.15	5.40	26.2	1.89	1.83	3.2
11	30.00	3.91	5.06	25.6	1.86	1.80	3.3
12	30.00	3.91	5.06	25.6	1.94	1.89	2.6
13[b]	30.00	3.91	5.06	25.6	2.03	1.97	3.0
14	30.00	3.91	5.06	25.6	2.11	2.05	2.9
15	28.50	3.55	4.58	25.3	1.99	1.93	3.1
16	28.00	3.44	4.42	24.9	2.00	1.94	3.0
17	16.20	1.25	1.51	18.8	0.75	0.73	2.7
18[c]	4.50	0.12	0.13	8.0	0.07	0.08	13.3
19[c,d]	10.00	0.51	0.59	14.5	0.33	0.32	3.1
20[c]	27.00	3.21	4.11	24.6	2.15	2.08	3.3
21[c]	12.00	0.72	0.85	16.6	0.49	0.48	2.1
22[c,e]	26.00	3.00	3.82	24.0	2.13	2.06	3.3
23[c,d,e]	20.00	1.84	2.28	21.4	1.36	1.31	3.7
24[c,e]	6.80	0.25	0.28	11.3	0.19	0.19	0.0
25[c,d,e]	5.00	0.14	0.16	13.3	0.11	0.11	0.0
26[c,d,e]	6.00	0.20	0.22	9.5	0.16	0.16	0.0
27	13.00	0.83	0.99	17.6	0.68	0.66	3.0
28[f]	30.00	3.91	5.06	25.6	3.21	3.12	2.8
29[a,b]	30.00	3.91	5.06	25.6	3.28	3.18	3.1
30[a,b]	30.00	3.91	5.06	25.6	3.37	3.27	3.0
31	27.00	3.21	4.11	24.6	2.84	2.75	3.2
32	27.00	3.21	4.11	24.6	2.91	2.82	3.1
33[c]	8.00	0.34	0.39	13.7	0.31	0.31	0.0
34	27.00	3.21	4.11	24.6	3.04	2.95	3.0
35	28.00	3.44	4.42	24.9	3.33	3.23	3.0
36	24.00	2.58	3.26	23.3	2.56	2.47	3.6
37	27.00	3.21	4.11	24.6	3.25	3.15	3.1
38	28.00	3.44	4.42	24.9	3.55	3.44	3.1
39[c,d]	15.00	1.08	1.30	18.5	1.14	1.11	2.7
40[c,e]	22.00	2.20	2.75	22.2	2.36	2.28	3.4
41[c,e]	30.00	3.91	5.06	25.6	4.28	4.16	2.8
42[c]	30.00	3.91	5.06	25.6	4.37	4.24	3.0

Table 4. Continued.

Packer Test	Discharge Rate (gpm)	Head Loss Across Packer Assembly (ft)			Head Loss Across Core Casing (ft)		
		Hazen-Williams	Darcy-Weisbach	% Difference	Hazen-Williams	Darcy-Weisbach	% Difference
43[d]	13.00	0.83	0.99	17.6	0.95	0.92	3.2
44	23.00	2.39	3.00	22.6	2.78	2.68	3.7
45	26.00	3.00	3.82	24.0	3.55	3.44	3.1
46	22.00	2.20	2.75	22.2	2.65	2.57	3.1
47	28.00	3.44	4.42	24.9	4.22	4.09	3.1
48[b,c]	10.00	0.51	0.59	14.5	0.64	0.63	1.6
49[b]	23.00	2.39	3.00	22.6	3.04	2.94	3.3
50[c]	13.30	0.87	1.03	16.8	1.12	1.09	2.7
51	26.00	3.00	3.82	24.0	3.94	3.81	3.4
52[a,f]	28.00	3.44	4.42	24.9	4.59	4.45	3.1
53[f]	26.50	3.11	3.97	24.3	4.22	4.08	3.4
54[a,f]	28.50	3.55	4.58	25.3	4.90	4.75	3.1
55[f]	28.00	3.44	4.42	24.9	4.82	4.67	3.2
Average Percent Difference				22.3			3.0

ft = feet; gpm = gallons per minute.
[a] Drawdown calculated from CTD data was within the propagated margin of error (±0.67 ft).
[b] Packer leaking or other hydraulic issue.
[c] Pumping rate was too high for open interval; water level dropped to a point where pump had to be shut off.
[d] Water level meter likely malfunctioning.
[e] Recovery water levels had not stabilized.
[f] CTD probe issues.

Head Losses Due to Sudden Expansion (3)

When water is pumped from a small-diameter pipe into an abruptly larger-diameter pipe, turbulent eddies form at the sudden enlargement of the pipe (**Figure 18**). The formation of eddies at this enlargement causes a loss of energy in the form of heat, which is dispersed to the surroundings.

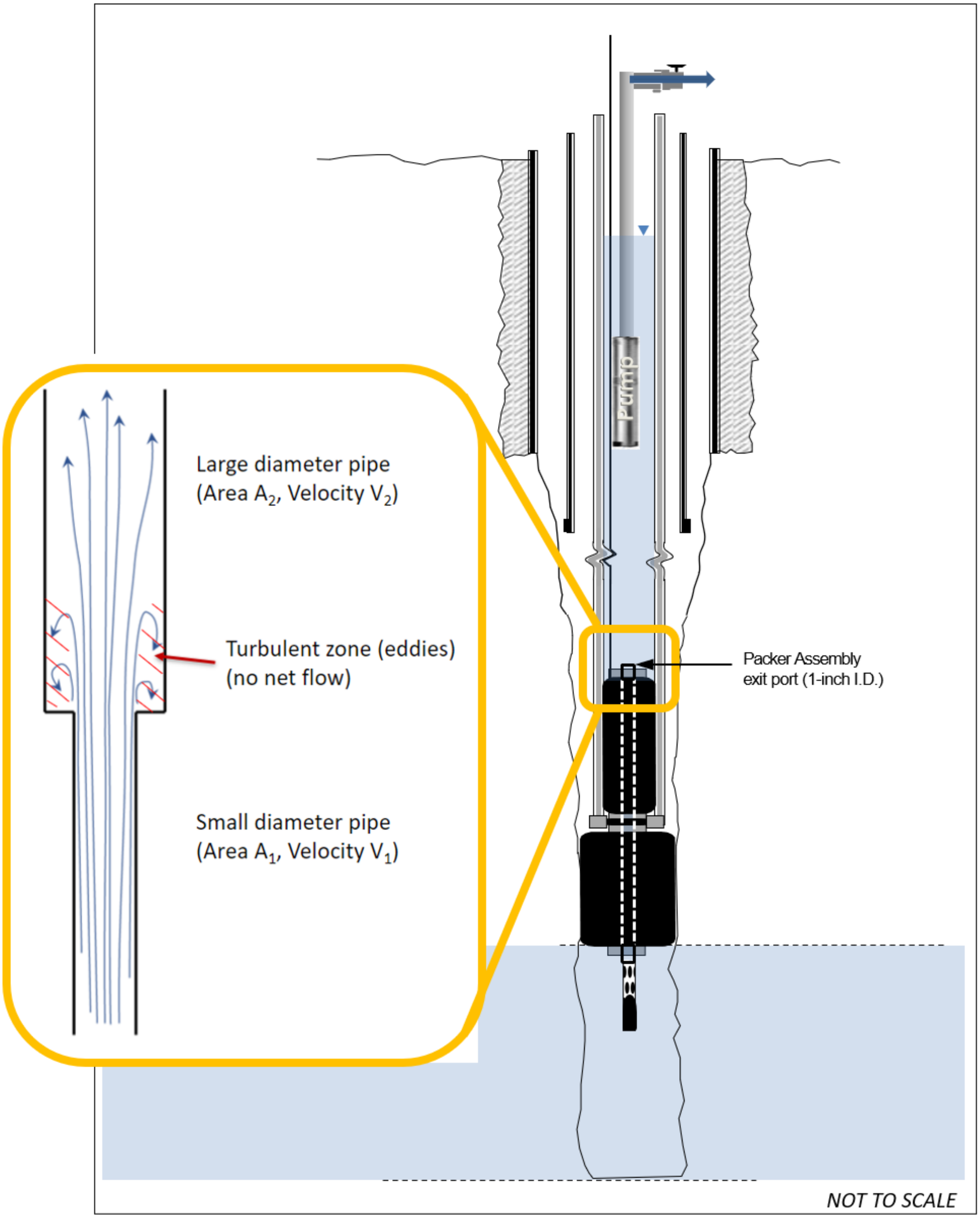

Figure 18. Sudden expansion.

The head loss equation for sudden expansion is (Finnemore and Franzini 2002, p. 309, eq. 8.76):

$$h_{ft} = \frac{(V_1 - V_2)^2}{2 * g} \qquad \text{Equation (6)}$$

Where:

h_{ft} = head loss (ft of water)
V_1 = flow velocity through smaller-diameter pipe (ft/s)
V_2 = flow velocity through larger-diameter pipe (ft/s)
g = gravitational acceleration (32.2 ft/s^2)

Head Losses Due to Screen Intake

Previous efforts by District hydrogeologists to quantify head losses from packer testing (Richardson et al. 2020 a,b, Coonts 2021) included a head loss factor for the intake screen located below the packer assembly (to which the Idronaut CTD probe was attached). A method to empirically estimate head losses due to the intake screen as a function of pumping rate was developed during the initial deployment of the intake screen and Idronaut CTD probe (Richardson et al. 2020a). The development of this method included a set of step tests, one with the intake screen installed and one without the intake screen, which were conducted on November 15, 2017, during packer testing at OSF-112. A third-order polynomial trend-line was fitted to the resultant head difference between the two tests versus the pumping rate. However, attempts to reproduce the results on December 15 and 16, 2021 and March 7 and 8, 2022, during packer testing at OSF-114 were unsuccessful. Because of this, the improvements to the packer test head loss calculations and analyses methods were made (including calculation of the head losses due to sudden expansion and sudden contraction), as described in this report. The previously used method to determine the head losses due to the screen intake is not utilized in this report.

Corrected Drawdown

For the Oak Island packer tests, the corrected drawdown was calculated as the raw drawdown minus the head loss components:

$$s_{corr} = s_{raw} - h_c - h_{pa} - h_e - h_{cc} \qquad \text{Equation (7)}$$

Where:

S_{corr} = corrected drawdown (ft)
S_{raw} = raw drawdown (ft)
h_c = head loss due to sudden contraction (ft)
h_{pa} = frictional losses through packer assembly (calculated using Darcy-Weisbach equation) (ft)
h_e = head loss due to sudden expansion (ft)
h_{cc} = frictional losses through core casing (calculated using Darcy-Weisbach equation) (ft)

Table 5 includes the head loss components used to calculate the corrected drawdown along with the drawdown calculated from the CTD data—which in theory should be more accurate given the position of the CTD probe below the packer assembly (**Figure 16**).

Table 5. OSF-108R packer testing drawdown summary.

Packer Test #	Discharge Rate (gpm)	Drawdown – Measured & Calculated from the Surface (ft)						Drawdown Calculated from CTD Probe (ft) (for comparison)	Relative Percent Difference of Drawdown
		Raw Drawdown Calculated from Manual Measurements	Head Loss Components				Corrected Drawdown (raw calculated head losses)		
			(1) Head Loss Due to Sudden Contraction	(2) Friction Loss Across Packer Assembly	(3) Head Loss Due to Sudden Expansion	(4) Friction Loss Across Core Casing			
1[a]	30.00	18.00	0.62	5.06	1.22	0.99	10.11	0.47	--
2	30.00	19.95	0.62	5.06	1.22	1.07	11.98	2.18	138.4
3	30.00	37.14	0.62	5.06	1.22	1.15	29.09	23.60	20.8
4	30.00	43.51	0.62	5.06	1.22	1.23	35.38	24.12	37.8
5	29.00	67.82	0.58	4.74	1.14	1.23	60.13	56.60	6.0
6	17.50	61.96	0.21	1.76	0.41	0.51	59.07	57.87	2.1
7[b]	31.00	19.78	0.66	5.40	1.30	1.57	10.85	3.00	113.4
8	31.00	22.94	0.66	5.40	1.30	1.66	13.92	5.52	86.4
9	31.00	28.23	0.66	5.40	1.30	1.74	19.13	12.46	42.2
10	31.00	14.83	0.66	5.40	1.30	1.83	5.64	1.21	129.5
11	30.00	17.60	0.62	5.06	1.22	1.80	8.90	1.41	145.4
12	30.00	47.16	0.62	5.06	1.22	1.89	38.37	34.53	10.5
13[b]	30.00	21.92	0.62	5.06	1.22	1.97	13.05	9.14	35.2
14	30.00	20.20	0.62	5.06	1.22	2.05	11.25	2.34	131.1
15	28.50	65.96	0.56	4.58	1.10	1.93	57.79	49.73	15.0
16	28.00	51.70	0.54	4.42	1.06	1.94	43.74	35.90	19.7
17	16.20	65.38	0.18	1.51	0.36	0.73	62.60	60.20	3.9
18[c]	4.50	50.50	0.01	0.13	0.03	0.08	50.25	49.50	1.5
19[c,d]	10.00	90.89	0.07	0.59	0.14	0.32	89.77	89.84	0.1
20[c]	27.00	91.84	0.50	4.11	0.99	2.08	84.16	90.38	7.1

Table 5. Continued.

Packer Test #	Discharge Rate (gpm)	Drawdown – Measured & Calculated from the Surface (ft)						Drawdown Calculated from CTD Probe (ft) (for comparison)	Relative Percent Difference of Drawdown
		Raw Drawdown Calculated from Manual Measurements	Head Loss Components				Corrected Drawdown (raw calculated head losses)		
			(1) Head Loss Due to Sudden Contraction	(2) Friction Loss Across Packer Assembly	(3) Head Loss Due to Sudden Expansion	(4) Friction Loss Across Core Casing			
21[c]	12.00	90.60	0.10	0.85	0.19	0.48	88.98	72.28	20.7
22[c,e]	26.00	80.76	0.47	3.82	0.92	2.06	73.49	71.86	2.2
23[c,d,e]	20.00	63.00	0.28	2.28	0.54	1.31	58.59	56.45	3.7
24[c,e]	6.80	57.32	0.03	0.28	0.06	0.19	56.76	52.32	8.1
25[c,d,e]	5.00	28.93	0.02	0.16	0.03	0.11	28.61	27.34	4.5
26[c,d,e]	6.00	34.22	0.02	0.22	0.05	0.16	33.77	7.91	124.1
27	13.00	26.48	0.12	0.99	0.23	0.66	24.48	25.75	5.1
28[f]	30.00	30.90	0.62	5.06	1.22	3.12	20.88	--	--
29[a,b]	30.00	14.12	0.62	5.06	1.22	3.18	4.04	-0.03	202.5
30[a,b]	30.00	14.22	0.62	5.06	1.22	3.27	4.05	0.03	197.0
31	27.00	47.58	0.50	4.11	0.99	2.75	39.23	31.87	20.7
32	27.00	36.15	0.50	4.11	0.99	2.82	27.73	22.35	21.5
33[c]	8.00	63.05	0.04	0.39	0.09	0.31	62.22	55.76	10.9
34	27.00	61.32	0.50	4.11	0.99	2.95	52.77	48.41	8.6
35	28.00	27.07	0.54	4.42	1.06	3.23	17.82	10.48	51.9
36	24.00	73.63	0.40	3.26	0.78	2.47	66.72	61.23	8.6
37	27.00	50.55	0.50	4.11	0.99	3.15	41.80	33.91	20.8
38	28.00	19.74	0.54	4.42	1.06	3.44	10.28	3.60	96.2
39[c,d]	15.00	82.80	0.16	1.30	0.30	1.11	79.93	79.63	0.4
40[c,e]	22.00	2.00	0.33	2.75	0.66	2.28	4.02	2.73	38.0

Table 5. Continued.

Packer Test #	Discharge Rate (gpm)	Drawdown – Measured & Calculated from the Surface (ft)						Drawdown Calculated from CTD Probe (ft) (for comparison)	Relative Percent Difference of Drawdown
		Raw Drawdown Calculated from Manual Measurements	Head Loss Components				Corrected Drawdown (raw calculated head losses)		
			(1) Head Loss Due to Sudden Contraction	(2) Friction Loss Across Packer Assembly	(3) Head Loss Due to Sudden Expansion	(4) Friction Loss Across Core Casing			
41[c,e]	30.00	2.00	0.62	5.06	1.22	4.16	9.06	3.19	96.0
42[c]	30.00	104.49	0.62	5.06	1.22	4.24	93.35	75.03	21.8
43[d]	13.00	107.20	0.12	0.99	0.23	0.92	104.94	104.48	0.4
44	23.00	67.36	0.37	3.00	0.72	2.68	60.59	58.20	4.0
45	26.00	52.80	0.47	3.82	0.92	3.44	44.15	43.28	2.0
46	22.00	66.92	0.33	2.75	0.66	2.57	60.61	50.04	19.1
47	28.00	36.15	0.54	4.42	1.06	4.09	26.04	17.87	37.2
48[b,c]	10.00	128.38	0.07	0.59	0.14	0.63	126.95	85.33	39.2
49[b,f]	23.00	58.17	0.37	3.00	0.72	2.94	51.14	--	--
50[c]	13.30	87.12	0.12	1.03	0.24	1.09	84.64	82.51	2.5
51	26.00	59.47	0.47	3.82	0.92	3.81	50.45	45.08	11.2
52[a,f]	28.00	20.28	0.54	4.42	1.06	4.45	9.81	1.10	159.7
53[f]	26.50	59.19	0.49	3.97	0.95	4.08	49.70	--	--
54[a,f]	28.50	17.47	0.56	4.58	1.10	4.75	6.48	0.04	197.8
55[f]	28.00	19.82	0.54	4.42	1.06	4.67	9.13	--	--

-- = no calculation due to equipment issues; ft = feet; gpm = gallons per minute.
[a] Drawdown calculated from CTD data was within the propagated margin of error (±0.67 ft).
[b] Packer leaking or other hydraulic issue.
[c] Pumping rate was too high for open interval; water level dropped to a point where pump had to be shut off.
[d] Water level meter likely malfunctioning.
[e] Recovery water levels had not stabilized.
[f] CTD probe issues.

Hydraulic Parameters

Calculated total drawdown for the 55 packer tests at the Oak Island site ranged from 4.02 to 126.95 ft, depending on the pumping rate and depth of the tested interval. The pumping rates varied from 4.5 gpm to 31 gpm. The packer tests were conducted at depths ranging from 370 to 2,020 ft bls.

As done in previous SFWMD reports, the hydraulic conductivity was calculated based on transmissivity, which was solved using the Cooper-Jacob method (converted to ft/day), divided by the thickness of the tested interval (Driscoll 1986, p. 219, eq. 9.6 rearranged):

$$K = \left(\frac{\left(\frac{Q}{s}\right) * 264 * \log\left(\frac{0.3 * T * t}{r^2 * S}\right)}{b} \right) \qquad \text{Equation (8)}$$

Where:

K = hydraulic conductivity (ft/day)
Q = pumping rate (gpm)
s = drawdown (ft)
T = transmissivity in the log function is assumed "typical" and equal 30,000 gallons per day/ft
t = duration of pumping (day)
S = storage coefficient of a confined aquifer, taken as 1 x 10^{-3}
r = radius of the tested interval (ft)
b = thickness of the tested interval (ft)

Results and Discussion

A summary of the raw drawdown, head loss corrected drawdown, and the hydraulic conductivity calculated from both the corrected drawdown and from the CTD probe data are presented for each packer test in **Table 6**. Hydraulic conductivity calculated using the head loss corrected drawdowns from the manual depth-to-water measurements and the Cooper-Jacob equation varied by two orders of magnitude at the Oak Island site, from approximately 1 to 9 ft/day in the MCU and GLAUClpu to 65 ft/day (tests 29 and 30) in the fractured dolostone of the LFA-upper. A plot of the resultant hydraulic conductivities and hydrostratigraphic units is presented in **Figure 20**. The problems encountered during the packer testing and the limitations of the packer testing hydraulic parameter calculations were discussed earlier in the Packer Testing section. Limitations of the packer testing hydraulic parameter calculations include the following:

- Tests which lasted less than 1 hour had not reached steady-state drawdown conditions; therefore, any calculations of hydraulic conductivity (calculated using CTD data or head loss corrected manual measurements) would be overestimated. At the Oak Island site, this included tests 18, 19, 20, 21, 22, 23, 24, 25, 26, 33, 39, 40, 41, 42, 48, and 52.
- Hydraulic conductivity could not be calculated (with any degree of certainty) from packer tests where the drawdown was within the CTD's propagated accuracy (±0.67 ft total). This included tests 1, 29, 30, 52, and 54. Therefore, only the hydraulic conductivity calculated from the corrected drawdown based on the head loss could be used for these tests.

The head loss components described in this section adhere to Bernoulli's theorem. Bernoulli's theorem essentially states that the total energy of a flowing fluid remains constant and is comprised of energy associated with the fluid pressure, the kinetic energy of the fluid and the potential energy component (elevation head).

The head form of the Bernoulli equation is defined as follows:

$$h = \frac{P_1}{\rho g} + \frac{v_1^2}{2g} + h_1 \qquad \text{Equation (9)}$$

Where:

h = total head (ft of water)
h_1 = pressure head (ft above some datum)
P = pressure (pounds per square inch)
V_1 = flow velocity (ft/s)
ρ = density (lb/ft^3)
g = gravitational acceleration (32.2 ft/s^2)

The first term ($\frac{P_1}{\rho g}$) in Equation 9 is the pressure component of head (pressure head). The second term ($\frac{v_1^2}{2g}$) is the kinetic energy component of head (velocity head). The third term (h_1) is the potential energy component of head (elevation head). Because the elevation change across the packer intake screen is minimal, this term can reasonably be ignored.

The CTD probe only measures pressure. The velocity head is not measured by the CTD probe. Therefore, data from the CTD probe can only account for the pressure head (term 1 in Equation 9). In previous investigations by SWFMD (Richardson et al. 2020a,b, Coonts 2021), pressure changes induced by pumping were understood to be equivalent to total head change (drawdown). For relatively unproductive zones, where the change in pressure is relatively large and the velocity head is relatively small, this is likely an acceptable assumption.

A pumping rate of 30 gpm equates to a velocity head of approximately 0.15 ft in a 4-inch-diameter corehole. For example, if there are two hypothetical packer tests that are both pumped at 30 gpm, the velocity head would be 0.15 ft for both packer tests. If the first packer test resulted in a drawdown of 1 ft, then the velocity head would be 0.15 ft, or 15% of the total drawdown. If the second hypothetical packer test resulted in a drawdown of 20 ft, then the velocity head would only be 0.8% of the total drawdown. Ignoring the velocity head for the hypothetical packer test with 20 ft of drawdown is less consequential to the final hydraulic conductivity calculation than if the velocity head were ignored for the packer test with a small total drawdown. This means there is a larger uncertainty in the small-drawdown packer tests because the velocity head is a larger component of the total head.

In addition, during this investigation, the CTD probe was installed within the turbulent zone that forms during pumping at the packer assembly intake screen (**Figure 16**). In general, higher packer test pumping rates result in larger amounts of turbulence than lower pumping rate tests. This turbulence results in a reduction in pressure as measured by the CTD probe.

High pumping rates (with relatively high velocity heads and high turbulence) in highly productivity zones (small pressure change) invalidate the assumption that CTD-measured pressure change data are the best representation of the *in situ* drawdowns in the formation unaffected by pipe losses.

The relationship between the CTD-measured pressure change based drawdown and the corrected drawdown (from the calculated head losses) indicates that the corrected drawdown is reasonable for those packer tests where the pumping rate was less than approximately 28 gpm and the corrected drawdown (from the calculated head losses) was more than 15 ft. However, for packer tests where the pumping rate was greater than or equal to 28 gpm and the corrected drawdown was more than 15 ft, the relationship falls apart. **Figure 19** is a plot of packer test pumping rates versus the drawdown relative percent difference values presented in **Table 5**. The orange symbols in **Figure 19** are those packer tests that had less than 15 ft of corrected drawdown and displayed a much higher relative percent difference between the drawdown measured by the CTD probe and the corrected drawdown values. This may indicate that the turbulence created when pumping at or above approximately 28 gpm is not all being accounted for by the head loss calculations. An alternative explanation is that the CTD probe is affected by the turbulent flow, and the drawdown calculated from the CTD-measured pressure change is not accounting for the velocity head. Therefore, the CTD data might not represent the best *in situ* drawdown at these higher pumping rates (at or above 28 gpm) in highly transmissive zones.

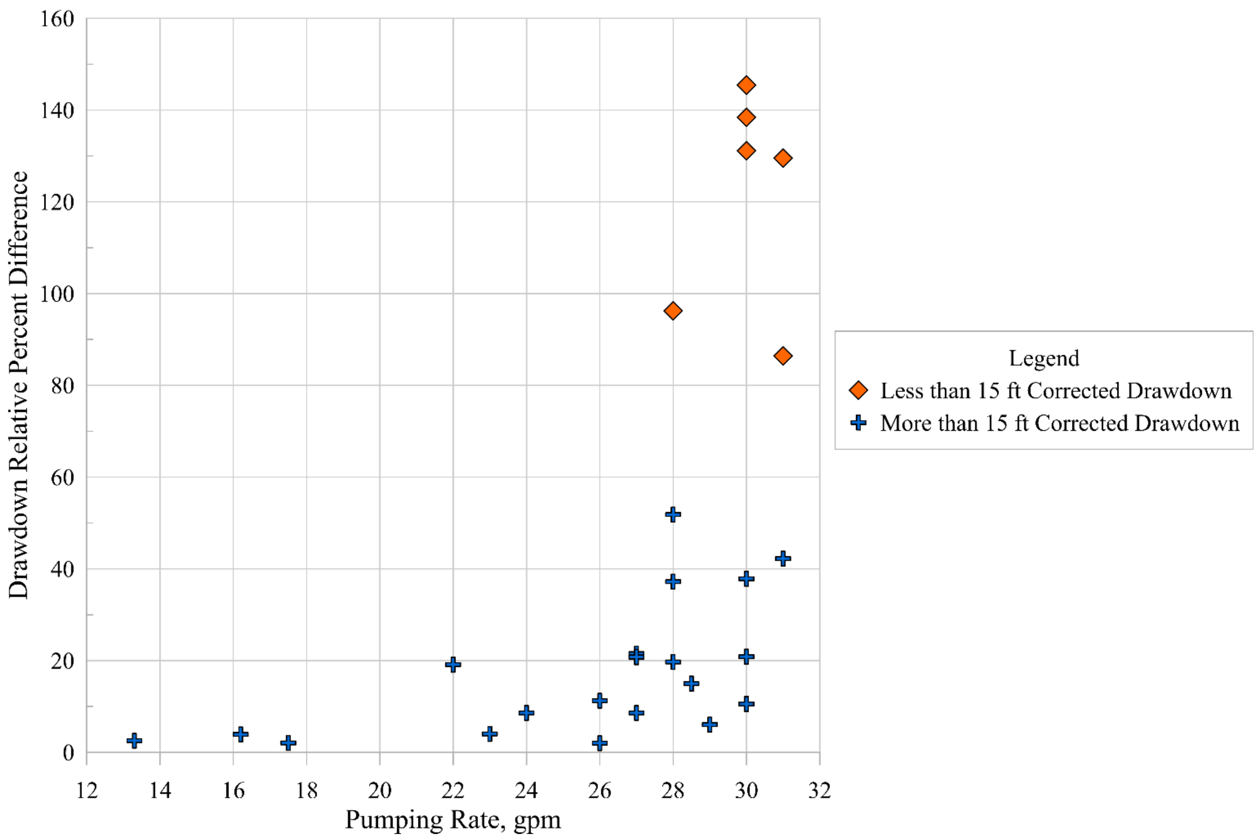

Figure 19. Packer test drawdown relative percent differences versus packer test pumping rates at OSF-108R.

Because of the turbulence-related issues with the CTD pressure measurements, and the fact that the CTD probe could not account for the velocity head, the hydraulic conductivities calculated using the head loss corrected drawdowns and the Cooper-Jacob method are considered the most representative packer test derived hydraulic conductivities. For completeness, the hydraulic conductivities calculated from both the CTD probe pressure data and the corrected manual drawdown data are presented in **Table 6**. **Figure 20** is a graphical representation of the packer test hydraulic conductivities calculated using the head loss corrected drawdown data.

Table 6. Summary of results from the hydraulic analyses of OSF-108R packer tests.

Packer Test #	Hydrostratigraphic Unit	Test Interval		Based on Manual Measurements			Based on CTD Probe Data	
		Top Depth (ft bls)	Bottom Depth (ft bls)	Raw Drawdown (ft)	Corrected Drawdown (ft)	K (ft/day)	Drawdown (ft)	K (ft/day)
1[a]	APPZ (320-760 ft bls)	370	400	18.00	10.11	25.32	0.47	--
2		400	430	19.95	11.98	21.20	2.18	116.50
3		430	460	37.14	29.09	8.50	23.60	10.47
4		460	490	43.51	35.38	6.99	24.12	10.25
5		490	520	67.82	60.13	4.63	56.60	4.22
6		520	550	61.96	59.07	2.52	57.87	3.57
7[b]		550	580	19.78	10.85	23.70*	3.00	85.70*
8		580	610	22.94	13.92	18.35	5.52	46.27
9		610	640	28.23	19.13	13.44	12.46	20.63
10		640	670	14.83	5.64	46.10	1.21	215.58
11		670	700	17.60	8.90	28.27	1.41	178.95
12		700	730	47.16	38.37	6.59	34.53	7.32
13[b]		730	760	21.92	13.05	19.28*	9.14	27.53*
14	MCU_I (760 - 948 ft bls)	760	790	20.20	11.25	22.36	2.34	107.52
15		790	820	65.96	57.79	4.16	49.73	4.83
16		820	850	51.70	43.74	5.39	35.90	6.57
17		850	880	65.38	62.60	2.23	60.20	2.32
18[c]		880	910	50.50	50.25	0.70*	49.50	0.71*
19[c,d]		910	940	90.89	89.77	0.90*	89.84	0.90*
20[c]	MCU_II (948 – 1,160 ft bls)	940	970	91.84	84.16	2.48*	90.38	2.31*
21[c]		970	1,000	90.60	88.98	0.85*	72.28	1.05*
22[c,e]		1,000	1,030	80.76	73.49	2.23*	71.86	2.28*
23[c,d,e]		1,030	1,060	63.00	58.59	2.15*	56.45	2.23*
24[c,e]		1,060	1,090	57.32	56.76	0.85*	52.32	0.92*
25[c,d,e]		1,090	1,120	28.93	28.61	1.37*	27.34	1.43*
26[c,d,e]		1,120	1,150	34.22	33.77	1.26*	7.91	5.40*
27[d]	LFA-upper (1,160 – 1,510 ft bls)	1,150	1,180	26.48	24.48	4.68*	25.75	4.45
28[d,f]		1,180	1,210	30.90	20.88	12.35*	--	--
29[a,b]		1,210	1,240	14.12	4.04	64.75	-0.03	--
30[a,b]		1,240	1,270	14.22	4.05	64.42	0.03	--
31		1,270	1,300	47.58	39.23	5.95	31.87	7.33
32		1,300	1,330	36.15	27.73	8.55	22.35	10.61
33[c]		1,330	1,360	63.05	62.22	0.88*	55.76	0.98*
34		1,360	1,390	61.32	52.77	4.47	48.41	4.87
35		1,390	1,420	27.07	17.82	13.55	10.48	23.03
36		1,420	1,450	73.63	66.72	3.10	61.23	3.38
37		1,450	1,480	50.55	41.80	5.57	33.91	6.86
38		1,480	1,510	19.74	10.28	23.48	3.60	67.05

Table 6. Continued.

Packer Test #	Hydrostratigraphic Unit	Test Interval		Based on Manual Measurements			Based on CTD Probe Data	
		Top Depth (ft bls)	Bottom Depth (ft bls)	Raw Drawdown (ft)	Corrected Drawdown (ft)	K (ft/day)	Drawdown (ft)	K (ft/day)
39[c,d]	GLAUClpu (1,510 – 1,900 ft bls)	1,510	1,540	82.80	79.93	1.42*	79.63	1.43*
40[c,e]		1,540	1,570	2.00	4.02	34.45*	2.73	50.63*
41[c,e]		1,570	1,600	2.00	9.06	20.84*	3.19	59.29*
42[c]		1,600	1,630	104.49	93.35	2.14*	75.03	2.66*
43[d]		1,630	1,660	107.20	104.94	1.04*	104.48	1.05*
44		1,660	1,690	67.36	60.59	3.31	58.20	3.45
45		1,690	1,720	52.80	44.15	5.08	43.28	5.18
46		1,720	1,750	66.92	60.61	3.12	50.04	3.78
47		1,750	1,780	36.15	26.04	9.30	17.87	13.55
48[b,c]		1,780	1,810	128.38	126.95	0.56*	85.33	0.83*
49[b,f]		1,810	1,840	58.17	51.14	3.42*	--	--
50[c]		1,840	1,870	87.12	84.64	1.12*	82.51	1.15*
51		1,870	1,900	59.47	50.45	4.52	45.08	5.05*
52[a,f]	LFA-basal (1,900 – 2,020 ft bls)	1,900	1,930	20.28	9.81	25.12	1.10	--
53[f]		1,930	1,960	59.19	49.70	4.74	--	--
54[a,f]		1,960	1,990	17.47	6.48	38.25	0.04	--
55[f]		1,990	2,020	19.82	9.13	26.87	--	--

-- = no calculation due to equipment issues; APPZ = Avon Park permeable zone; CTD = conductivity, temperature, and depth; ft = feet; ft bls = feet below land surface; GLAUClpu = low-permeability glauconitic marker unit; K = hydraulic conductivity; LFA-basal = basal permeable zone of the Lower Floridan aquifer; MCU_I = middle confining unit I; MCU_II = middle confining unit II.

[a] Drawdown calculated from CTD data was within the propagated margin of error (±0.67 ft).
[b] Packer leaking or other hydraulic issue.
[c] Pumping rate was too high for open interval; water level dropped to a point where pump had to be shut off.
[d] Water level meter likely malfunctioning.
[e] Recovery water levels had not stabilized.
[f] CTD probe issues.
* Values are not reliable.

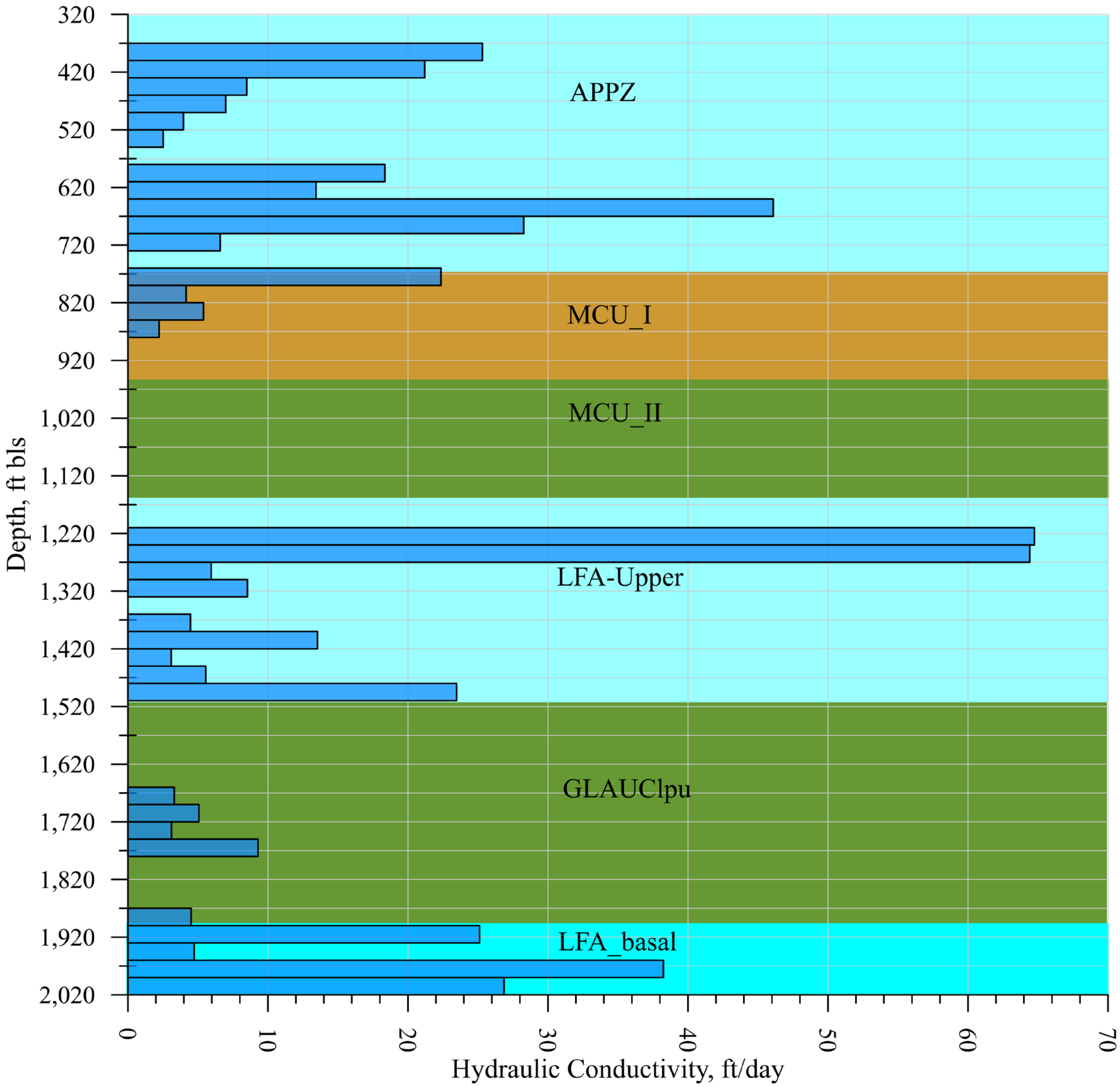

Figure 20. Packer test hydraulic conductivities calculated using head loss corrected manual measurements at OSF-108R.

WATER QUALITY AND INORGANIC CHEMISTRY

Of the 55 packer tests attempted during the coring of the OSF-108R corehole, 2 packer tests (tests 1 and 2) had turbidity too high to collect a water quality sample, and 18 packer tests (tests 18 through 26, 33, 39 through 43, and 48 through 50) yielded insufficient groundwater volumes for water quality sampling. This was primarily due to the low transmissivity of those intervals that caused rapid water level drawdown to the depth of the pump, forcing the drill crew to shut off the pump. A total of 35 packer test water quality samples were collected.

Field parameters (i.e., temperature, pH, and specific conductance) were measured using a calibrated Yellow Springs Instruments (YSI) EXO multiparameter sonde prior to collecting groundwater samples from each packer test interval. Each sample was collected by a District hydrogeologist in accordance with the project's Water Quality Monitoring Plan (SFWMD 2019). The groundwater samples were analyzed for major cations and anions, TDS, and total strontium by the District laboratory in West Palm Beach, Florida.

Additionally, groundwater samples were collected during packer testing for analyses of the stable isotopes of oxygen and hydrogen (^{18}O and ^{2}H) by the University of Arizona's Environmental Isotope Laboratory in Tucson, Arizona. The stable isotope analysis sample collected during packer test 44 (1,660 to 1,690 ft bls) was lost during or after sample shipment, so no results are presented for this sample. Complete water quality results from the testing program are available for download from the District's corporate environmental database, DBHYDRO Insights (https://apps.sfwmd.gov/dbhydroInsights/). Major ion chemistry and field parameters are provided in **Table 7**. A complete tabulation of all groundwater analytical results, including major ion chemistry, water quality field parameters, and charge balance errors (CBEs), is presented in **Appendix G**.

The United States Environmental Protection Agency (USEPA) has established National Secondary Drinking Water Regulations that set nonmandatory water quality standards for 15 contaminants. The USEPA does not enforce these "secondary maximum contaminant levels" (SMCLs). They were established as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the SMCL (USEPA 2024). The SMCL for TDS is 500 mg/L. Eleven of the groundwater samples collected exceeded the TDS SMCL, and nine groundwater samples exceeded the sulfate SMCL (250 mg/L) in (**Table 7**). Although the purpose of this study was to aid in hydrogeologic interpretation rather than economic feasibility, water quality results with parameter concentrations exceeding the secondary drinking water standards are shown in bold in **Table 7**.

Table 7. Major ion analytical results, total dissolved solids, and field parameters for OSF-108R packer test groundwater samples.

Sample Depth, ft bls	Packer Test #	Hydrostratigraphic Unit	Anions (mg/L)			Cations (mg/L)				Sr*	pH	Temp. (°C)	Specific Cond. (µS/cm)	TDS (mg/L)
			Cl	HCO_3	SO_4	Na	Mg	Ca	K					
430-460	3	APPZ (230-760 ft bls)	18	98.76	10.2	9.6	9.5	30.4	<1	<1	8.1	25.4	273	150
460-490	4		22	232.87	<1	22.2	15.6	54.5	1.6	1.59	7.5	25.2	431	244
490-520	5		23	246.28	<1	22.7	14.1	52.9	1.7	1.68	7.5	25.3	438	261
520-550	6		22	241.40	<1	21.2	14.6	57.3	1.8	<1	7.5	25.5	449	252
550-580	7		23	247.50	<1	21	12	54.8	1.9	<1	7.5	25.7	453	258
580-610	8		22	245.06	<1	20.3	14	59.7	1.9	1.10	7.5	25.8	467	262
610-640	9		23	247.50	<1	20.2	12.3	58.3	1.8	1.47	7.4	25.9	448	270
640-670	10		28	248.72	32.2	21.9	16.3	60.3	1.8	10.07	7.4	25.7	531	318
670-700	11		28	246.28	61.7	22.4	18.2	65.9	1.9	14.09	7.4	25.9	583	354
700-730	12		29	236.53	182	20.4	28.6	109	2	25.06	7.3	26.1	800	524
730-760	13		30	226.77	**351**	19.8	33.9	151	2.2	29.96	7.3	26.2	1,048	782
760-790	14	MCU_I (760-948 ft bls)	27	217.02	**956**	16.9	69.6	327	2.7	21.51	7.1	26.4	1,873	1,663
790-820	15		25	217.02	**1,535**	16.2	107	516	3.1	13.90	7	26.1	2,548	2,423
820-850	16		24	213.36	**1,711**	16.2	117	567.0	3.1	12.55	7	26.5	2,802	2,702
850-880	17		23	208.49	**1,837**	15.1	123	615	3.4	12.42	6.9	27	2,815	2,854
1,150-1,180	27	LFA-upper (1,160-1,510 ft bls)	12	169.47	**341**	8.7	33.3	135	1.7	3.12	7.5	27.1	882	651
1,180-1,210	28		23	204.83	**1,043**	14.6	71.6	365	2.4	15.90	7.3	26.7	1,895	1,726
1,210-1,240	29		14	185.32	**463**	9.5	40	172	1.8	6.43	7.4	26.7	1,131	866
1,240-1,270	30		27	223.12	**961**	16.5	69.8	330	2.6	20.83	7.2	26.3	1,851	1,624
1,270-1,300	31		11	164.59	243	8.7	29.1	133	1.7	2.67	7.4	26.8	753	510
1,300-1,330	32		11	168.25	231	8.9	31.4	97.6	1.7	2.63	7.4	26.9	731	493
1,360-1,390	34		12	160.94	212	9.5	36.9	79.8	1.6	2.46	7.5	27	701	485
1,390-1,420	35		11	171.91	157	8.3	31.1	81	1.6	2.17	7.6	27.2	586	400
1,420-1,450	36		9.6	167.03	122	7.2	21.3	68.8	1.4	1.96	7.5	27.3	540	350
1,450-1,480	37		9.6	168.25	148	7.2	23.6	75.5	1.5	2.08	7.5	27.1	578	385
1,480-1,510	38		9.4	164.59	196	7.3	27.4	92.9	1.6	1.98	7.6	27.1	684	470

Table 7. Continued.

Sample Depth, ft bls	Packer Test #	Hydrostratigraphic Unit	Anions (mg/L)			Cations (mg/L)				Sr*	pH	Temp. (°C)	Specific Cond. (µS/cm)	TDS (mg/L)
			Cl	HCO_3	SO_4	Na	Mg	Ca	K					
1,660-1,690	44	GLAUClpu (1,510-1,900 ft bls)	9.7	147.52	47.1	7	16.9	38.4	1.5	1.38	7.6	26.8	354	228
1,690-1,720	45		11	154.84	39.7	7.2	16.5	38.7	1.3	1.12	7.6	27	358	206
1,720-1,750	46		11	158.50	40.5	7.1	17.9	36.9	1.4	1.06	7.7	26.8	364	216
1,750-1,780	47		7.6	160.94	27.1	5.1	13.9	37.7	1	0.81	7.8	27.2	336	196
1,870-1,900	51		9.3	165.81	66.1	6.2	31.1	128	1.2	1.07	7.8	27	412	245
1,900-1,930	52	LFA-basal (1,900 -2,020 ft bls)	8.2	158.50	37.5	5.4	13.4	45.6	0.9	0.68	7.8	27.5	360	210
1,930-1,960	53		8.2	158.50	32.9	5.6	14	43.3	1.1	0.74	7.8	26.8	348	200
1,960-1,990	54		8.8	158.50	43.2	5.9	14	44.6	0.8	0.80	7.8	27.3	369	218
1,990-2,020	55		8.5	157.28	41.8	5.9	14.2	45.8	0.8	0.78	7.8	27.4	374	222

°C = degrees Celsius; µS/cm = microsiemens per centimeter; APPZ = Avon Park permeable zone; Ca = calcium; Cl = chloride; ft bls = feet below land surface; GLAUClpu = low-permeability glauconitic marker unit; HCO_3 = bicarbonate; K= potassium; LFA-basal = basal permeable zone of the Lower Floridan aquifer; LFA-upper = upper permeable zone of the Lower Floridan aquifer; MCU_I = middle confining unit I; Mg = magnesium; mg/L = milligrams per liter; Na = sodium; SO_4 = sulfate; Specific Cond. = specific conductance; Sr = strontium; Temp. = temperature; TDS = total dissolved solids.
Bolded results exceeded the USEPA SMCL for sulfate (250 mg/L).
* Most strontium concentrations exceeded the USEPA's 2014 proposed health reference level for strontium (1.5 mg/L).

On June 15, 2022, water quality samples were collected from the completed, open interval of OSF-108R. The major ion analytical results, TDS, and field parameters for the groundwater sample collected from the completed well are provided in **Table 8**. These water quality analytical results are similar to the water quality results from the packer tests completed across the same depth interval (tests 1 through 8).

Table 8. Major ion analytical results, total dissolved solids, and field parameters for completed well OSF-108R.

Sample Depth, ft bls	Well	Hydrostratigraphic Unit	Anions (mg/L)			Cations (mg/L)				Sr	pH	Temp (°C)	Specific Cond. (µS/cm)	TDS (mg/L)
			Cl	HCO_3	SO_4	Na	Mg	Ca	K					
370-600	OSF-108R	APPZ	26	214.58	30.7	20	14.5	54.1	1.8	7.52	7.5	25.1	477	284

°C = degrees Celsius; µS/cm = microsiemens per centimeter; APPZ = Avon Park permeable zone; Ca = calcium; Cl = chloride; ft bls = feet below land surface; HCO_3 = bicarbonate; K= potassium; Mg = magnesium; mg/L = milligrams per liter; Na = sodium; SO_4 = sulfate; Specific Cond. = specific conductance; Sr = strontium; Temp. = temperature; TDS = total dissolved solids.

CBE analysis is a method for determining the reliability of test results for major cations and anions. For an aqueous solution to be electrically neutral, the sum of the positive cations must equal the sum of the negative anions. The percent difference between the two totals provides an indication of potential laboratory error. The CBE for each water quality sample is included in **Appendix G**. While a CBE of less than 5% is desirable, a value of less than 10% is generally acceptable due to different variables associated with sample collection, preservation, and analysis. Marginally high CBEs were identified for the samples collected from packer test 3 (8.31%), 4 (6.50%), and 31 (8.09%). The sample test results from packer test 51 indicated significantly higher calcium and magnesium concentrations than the adjacent tests without a corresponding increase in anions resulting in a CBE of 36.09%. This high CBE could be a result of the preservative used in the sample collection process. The bottles used to collect samples for cations are field preserved using nitric acid until each sample reaches a pH less than 2. This low pH prevents precipitation but may also dissolve suspended formation particulate matter in the sample. The turbidity prior to collecting the water samples for packer test 51 was 39.3 USEPA’s 2014 proposed health reference level for strontium nephelometric turbidity units (NTUs), which is higher than the Florida Department of Environmental Protection groundwater sampling protocol of 20 NTU. The elevated turbidity in this sample may be due to very fine suspended formation particulates.

A profile of groundwater quality with depth is depicted in **Figure 21** along with the Frazee water types, hydrostratigraphic units, and packer test intervals. Colored bars show packer test hydraulic conductivities. Colored, numbered boxes give the packer test number and color of where the groundwater sample plots in **Figure 22**, and a column of the Frazee water types shown on **Figure 22**. Water quality data and hydraulic conductivity bars are plotted at the midpoint depth of each packer test.

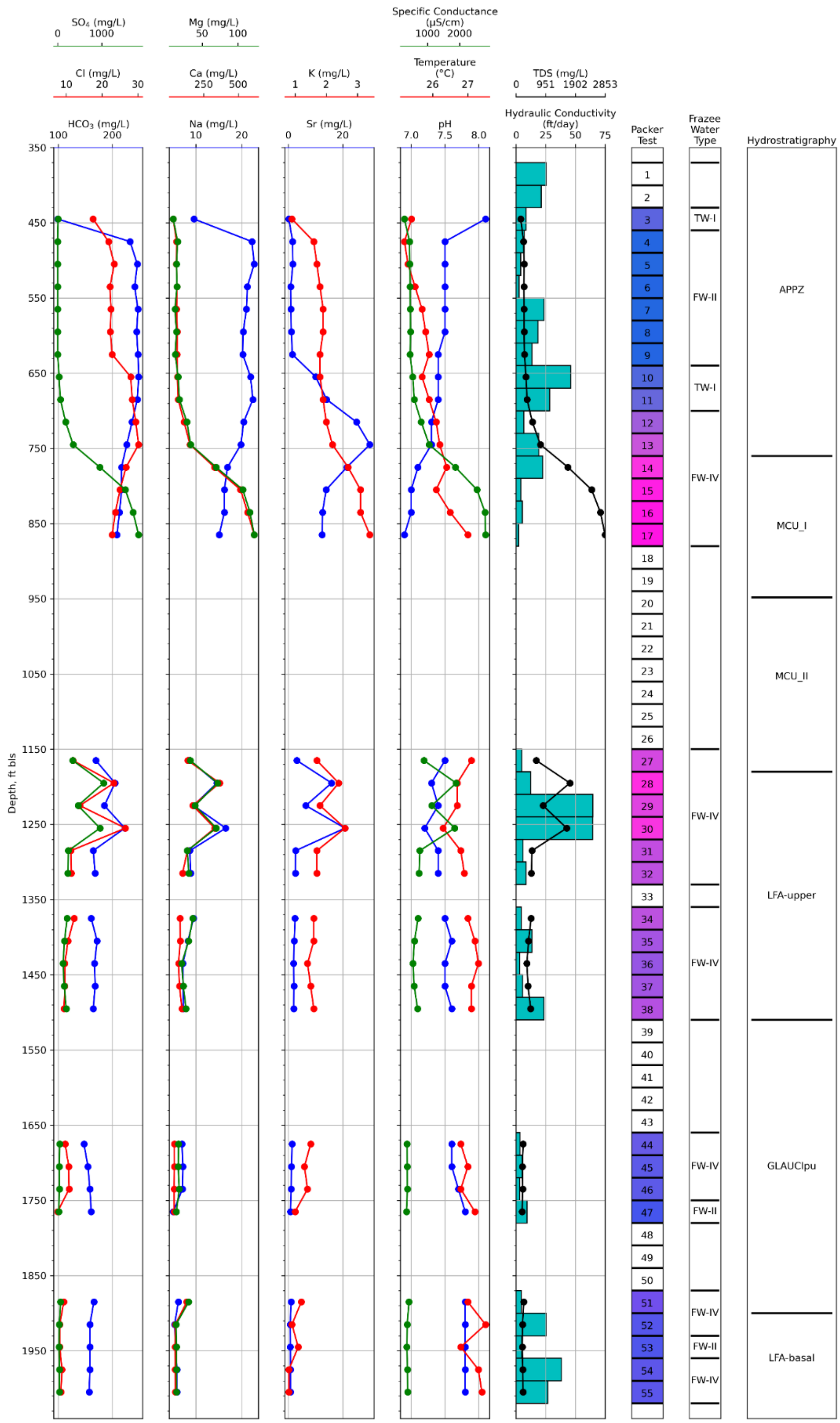

Figure 21. Groundwater quality profile from OSF-108R packer testing groundwater samples.

From 430 to 700 ft bls, within the APPZ and APhpz-2, the formation yielded fresh water with TDS concentrations that ranged from 150 to 354 mg/L. Bicarbonate was the dominant anion and calcium was the dominant cation. Although strontium levels marginally exceeded the USEPA's proposed health reference level of 1.5 mg/L between the depths of 460 and 520 ft bls, the results were low (0.2 to 1.7 mg/L) to a depth of 640 ft bls. Strontium levels then displayed a sharp increase in concentrations that peaked at a concentration of 30 mg/L at 745 ft bls, before decreasing.

Starting at a depth of approximately 730 ft bls, there was a shift in the ionic profiles characterized by an increase in TDS, sulfate, calcium, and magnesium and a decrease in bicarbonate, chloride, and sodium. From 730 to 880 ft bls, sulfate was the dominant anion, and calcium remained the dominant cation. Sulfate and TDS concentrations exceeded the SMCL through this interval. A lack of formation production during the packer tests conducted from 880 to 1,150 ft bls prevented the collection of representative groundwater samples through this interval.

From 1,150 to 1,300 ft bls, within the bottom of MCU_II and through the upper half of the LFA-upper, all of the ionic profiles, along with strontium, temperature, pH, and specific conductance profiles fluctuated. TDS values increased from 651 mg/L for the sample collected during packer test 27 (1,150 to 1,180 ft bls) to 1,726 mg/L for the sample collected during packer test 28 (1,180 to 1,210 ft bls). Although the water quality results fluctuated through this interval, sulfate remained the dominant anion, and calcium remained the dominant cation. This interval overlaps with the LFA-upper flow zone LF1. The remaining samples collected in the lower part of the LFA-upper, including the flow zones LF2 and LF3, showed less variation in concentrations than the set of samples collected in the top half of the LFA-upper and discussed earlier in this paragraph. The water quality data indicate that flow zone LF1 is relatively hydraulically isolated from LF2 and LF3, which likely caused the differences in water quality between LF1 and LF2/LF3. If flow existed between the zones, the water quality would be expected to be more similar between these three zones.

Between 1,360 and 2,020 ft bls, the groundwater samples are classified as fresh water with TDS less than 485 mg/L. Although calcium remained the dominant cation through this interval, the dominant anion changed from sulfate to bicarbonate somewhere between 1,510 and 1,660 ft bls. Because low-transmissivity rock prevented the collection of packer test groundwater samples from 1,510 to 1,660 ft bls, the exact depth of the transition in the dominant anion within this interval is unknown. Strontium levels steadily decreased from 2.5 mg/L during packer test 34 (1,150 to 1,180 ft bls) to 0.7 mg/L during packer test 55 (1,990 to 2,020 ft bls).

Frazee Water Types

A wide range of ions and elements can become dissolved in groundwater as a result of interaction with the atmosphere, soil, and rock over time and distance. Waters with very similar chemical composition are assumed to have similar histories, so diagnostic ion chemistry (i.e., hydrochemical facies) of a sample can identify its relative age, flow path, and the interactions it has had with the rocks making up the aquifer. At a single location, differences in hydrochemical facies between samples collected from different depths can be an indication of vertical hydraulic separation. Numerous hydrochemical facies classification schemes have been developed. The samples collected during packer testing in the OSF-108R pilot hole were evaluated using the geochemical pattern analysis method developed for the FAS by Frazee (1982). This method relates a groundwater sample's chemistry to recharge source, residence time, and saltwater intrusion. The Frazee water types are defined in **Table 9**. **Figure 22** presents a Piper diagram of the OSF-108R packer test samples with the Frazee water types overlain on the diagram. A color bar illustrating the Frazee water types with depth is provided in **Figure 21**.

Table 9. Frazee (1982) water types.

Abbreviation	Description	Characteristics
FW-I	Fresh Recharge Water Type I	Rapid infiltration through sands, high calcium bicarbonate ($CaHCO_3$).
FW-II	Fresh Recharge Water Type II	Infiltration through sands and clay lenses, $CaHCO_3$ with sodium (Na), sulfate (SO_4), and chloride (Cl). Marginal type II waters are beginning to transition toward FW-IV.
FW-III	Fresh Recharge Water Type III	Infiltration through clay-silt estuarine depositional environment, high sodium bicarbonate ($NaHCO_3$).
FW-IV	Fresh Formation Water Type IV	Fresh water, low calcium (Ca), magnesium (Mg), SO_4, and Cl. Vertical infiltration insignificant. Older form of FW-II or FW-III.
TW-I	Transitional Water Type I	Seawater begins to dominate source water; Cl begins to dominate bicarbonate (HCO_3) with increasing sodium chloride (NaCl) percentage.
TW-II	Transitional Water Type II	Transitional water with source water still dominant, HCO_3 – SO_4 mixing zone with increasing Cl.
TCW	Transitional Connate Water	Connate water dominates source water; SO_4 begins to dominate HCO_3 with increasing Cl.
TRSW	Transitional Seawater	Transitional water with seawater dominating source water.
CW	Connate Water	Highly mineralized fresh water with high total dissolved solids and calcium sulfate ($CaSO_4$) dominance. Presence of highly soluble minerals; hydrogen sulfide (H_2S) gas prevalent.
RSW*	Relict Seawater	Unflushed seawater with NaCl.

* Strongly NaCl-dominant waters may plot in this category even if the overall salinity is substantially less than seawater.

The continuous/gradational color scheme shown in the Piper diagram (**Figure 22**) allows for easy visualization of gradual changes in groundwater chemical composition with depth. This gradation is missed with the uncolored Piper diagram with the overlain Frazee water types, especially for Frazee water types that cover a large area on the central diamond of the Piper diagram. Frazee water types are useful for grouping samples that came from common source waters and underwent similar histories. The color gradient Piper diagram was developed using the diagrams and Python code of Peeters (2014) and Yang et al. (2022).

The ionic compositions of the packer test water samples collected from OSF-108R were categorized mostly as Fresh Recharge Water Types II and IV (FW-II and FW-IV) using the Frazee water type classification (**Figure 22**). When plotted with depth (**Figure 21**), the results display a rebounding trend from FW-II to FW-IV then back to FW-II.

The upper and middle portions of the APPZ are categorized as Fresh Recharge Water Type II. The freshwater types I and II are differentiated based on the relative rate of infiltration, with type II indicative of infiltration through sands and clay lenses. Toward the lower portion of the APPZ, the groundwater shifts to Transitional Water Type I (TW-I) marginal fresh water. At the bottom of the APPZ, the groundwater samples are characterized as Fresh Formation Water Type IV (FW-IV), which is characterized by insignificant vertical infiltration with the primary driver for chemical composition being mineral dissolution. FW-IV is also described as an older form of FW-II or FW-III (**Table 9**). All the packer test samples collected through the MCU and LFA-upper and the majority of GLAUClpu samples are categorized as FW-IV, while the APPZ samples are either FW-II or TW-1. While the Frazee water type FW-IV is described as being characterized by low concentrations of calcium (Ca), magnesium (Mg), sulfate (SO_4), and chloride (Cl), the groundwater samples from the MCU and LFA-upper are characterized by high concentrations of calcium and sulfate.

Although samples were not collected from many of the GLAUClpu packer tests, the samples that were collected from this unit show groundwater returning to the FW-II Frazee water type at the base of the GLAUClpu and hovering between FW-II and FW-IV through the LFA-basal.

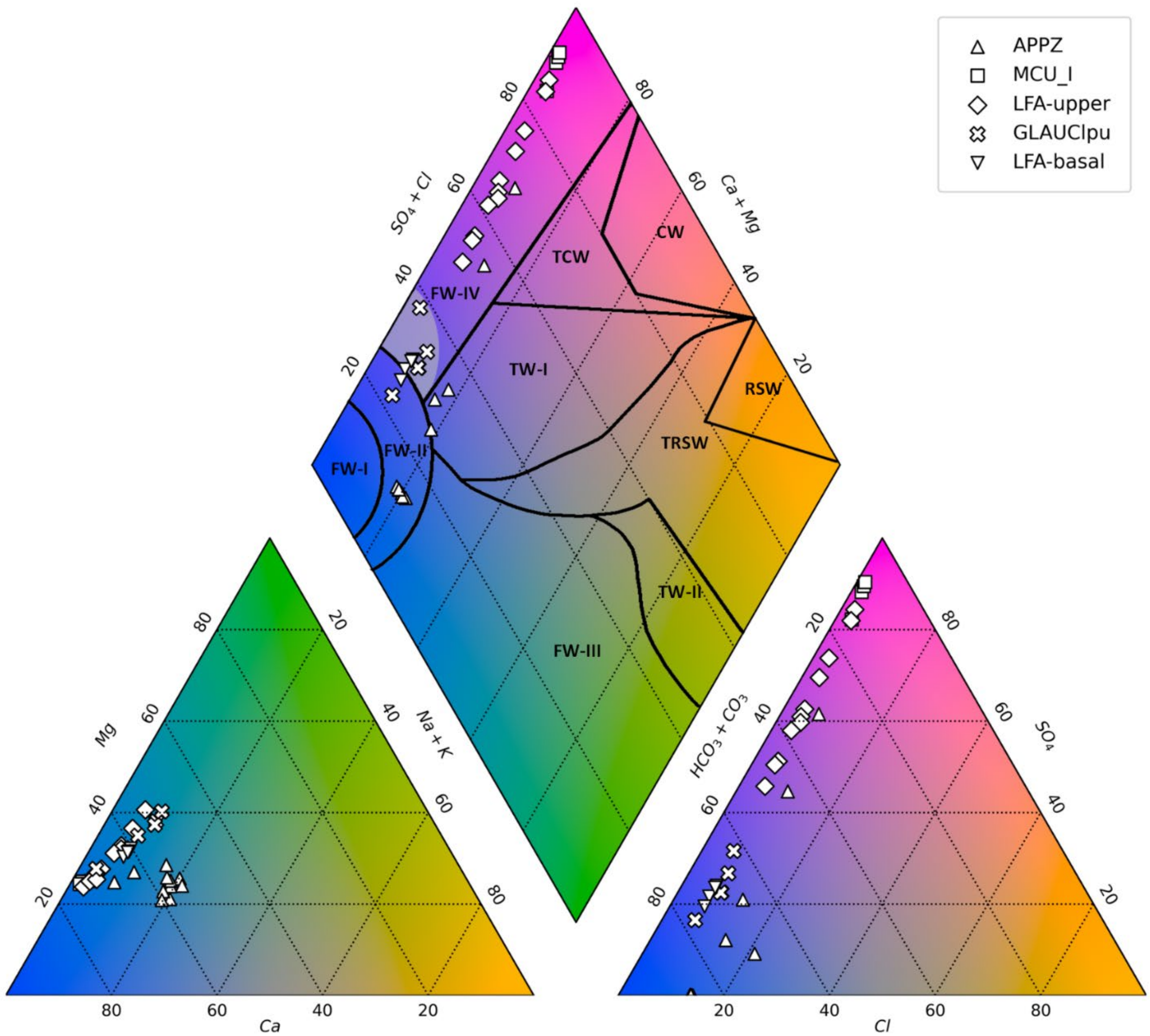

Figure 22. Piper diagram showing the variability in major ion compositions for packer test groundwater samples collected from the OSF-108R corehole, characterized by hydrostratigraphic unit.

Sulfate in Carbonate Systems

Sulfate in carbonate systems forms either from the dissolution of evaporite minerals, predominantly anhydrite ($CaSO_4$) or gypsum ($CaSO_4 \cdot H_2O$), or by carbonate neutralization of acidic waters (Hounslow 1995). Given that assumption, Hounslow (1995) offered the following rule-of-thumb indicators for source rocks for sulfate in groundwater:

$Ca^{2+} = SO_4^{2-}$ ➔ source rock likely evaporite minerals
$Ca^{2+} > SO_4^{2-}$ ➔ calcium input from some source other than evaporites (e.g., limestone or dolostone)
$Ca^{2+} < SO_4^{2-}$ ➔ pyrite oxidation or calcium removal by precipitation

It has been noted in several recent exploratory wells in the region, however, that the evaporite celestine ($SrSO_4$) is a more common component in the FAS than previously thought. If the only evaporites present are gypsum and anhydrite, then only calcium and sulfate need to be considered. Revising the Hounslow (1995) rule-of-thumb to include the consideration of strontium, the comparison of ($Ca^{2+} + Sr^{2+}$) versus SO_4^{2-} yields a more accurate result. Using this comparison, ($Ca^{2+} + Sr^{2+}$) is significantly higher than SO_4^{2-} from the packer test groundwater samples collected above 640 ft bls. Below 640 ft bls, ($Ca^{2+} + Sr^{2+}$) is mostly equivalent to SO_4^{2-}, indicating that evaporite mineral dissolution is the primary sulfate source. The ionic ratios for sulfate source rock evaluation are shown in **Figure 23**.

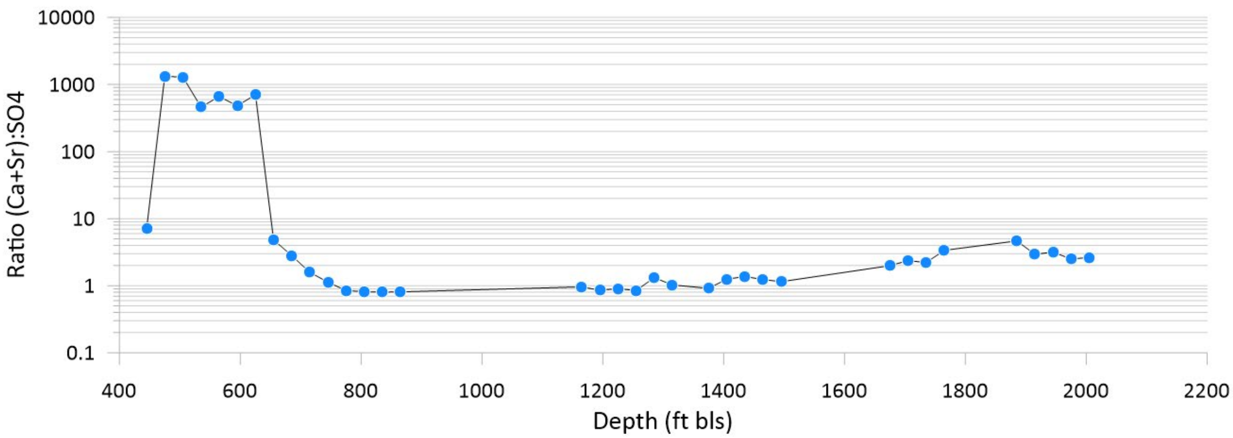

Figure 23. Ionic ratios for sulfate source rock evaluation at OSF-108R.

The saturation indices for the carbonate minerals calcite, aragonite, dolomite, and strontianite and the evaporite minerals anhydrite, gypsum, and celestite were calculated using PHREEQC, Version 3 (Parkhurst and Appelo 2013). The saturation index (SI) is the log of the ratio of ion activity product (IAP) and the solubility product constant (K_{sp}):

$$SI = \log\left(\frac{IAP}{K_{sp}}\right) \qquad \text{Equation (10)}$$

Where:

SI = saturation index (unitless)
IAP = ion activity product (unitless)
K_{sp} = solubility product constant (unitless)

IAP is calculated using the ionic concentrations of groundwater samples corrected for field temperature and the ionic strength of the solution (Parkhurst and Appelo 1999). K_{sp} is a constant based on thermodynamics for the dissolved mineral at equilibrium from reported laboratory measurements. Reported K_{sp} assumes a temperature of 25°C, so a correction was later applied to account for the field-measured groundwater temperatures (**Table 7**). The SI is a quantitative measure of the degree of saturation with respect to a specific mineral:

SI < 0 ➔ *Undersaturated* (more mineral can be dissolved into solution)
SI = 0 ➔ Sample is at *Equilibrium* with the mineral
SI > 0 ➔ *Supersaturated* (mineral has potential to precipitate out of solution)

Figure 24 shows the saturation indices for dolomite, strontianite, calcite, aragonite, celestine, gypsum, and anhydrite for groundwater samples collected during each packer test, listed from least soluble (on the left side of the diagram) to most soluble (on the right side of the diagram), relative to depth. Blue bars represent packer test groundwater samples that are undersaturated for a particular mineral, and the red bars represent packer test groundwater samples that are supersaturated.

Calcite and its polymorph, aragonite, are close to chemical equilibrium (within +/- 0.5 SI) across the entire explored depth. Dolomite exhibits a similar pattern but is slightly more saturated within the bottom of the GLAUClpu and the LFA-basal. Strontianite is significantly more undersaturated than the other carbonate minerals throughout the depth profile. All the evaporite minerals are undersaturated across the entire explored depth except for celestine, which exhibits oversaturated intervals that are close to equilibrium within the MCU and the upper portion of the LFA-upper. The evaporite minerals are significantly undersaturated within the APPZ. Through the base of the APPZ and MCU_I, the evaporite minerals get progressively closer toward reaching equilibrium. In the intervals where the evaporite minerals were present, no water quality samples could be collected because the transmissivity was too low to provide sufficient water for sampling.

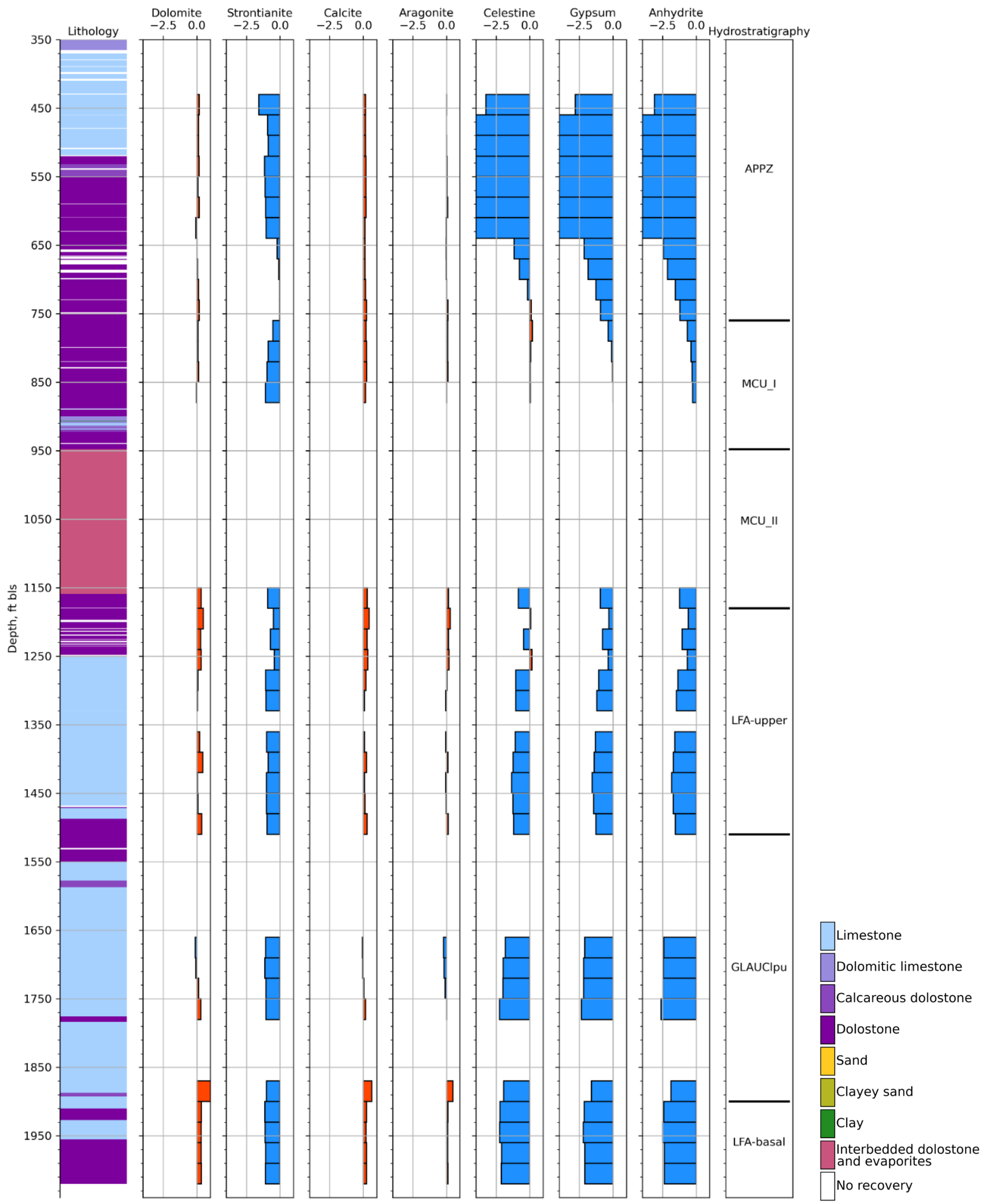

Figure 24. Calculated saturation indices (unitless) using PHREEQC for primary carbonate and sulfate minerals at OSF-108R.

STABLE ISOTOPES

Isotopes are atoms of the same element that have the same numbers of protons and electrons but different numbers of neutrons. The difference in the number of neutrons between the various isotopes of an element means that the various isotopes have similar charges but different masses. The stable isotopic compositions of low-mass (light) elements such as oxygen, hydrogen, carbon, nitrogen, and sulfur are normally reported as "delta" (δ) values in parts per thousand (denoted as ‰) enrichments or depletions relative to a standard of known composition. The symbol ‰ is spelled out in several different ways: permil, per mil, per mill, or per mille. The term "per mill" is the International Organization for Standardization term but is not yet widely used (Kendall and Caldwell 1998).

δ values (in ‰) are calculated by:

$$\delta = (R_{sample}/R_{standard} - 1)1{,}000 \qquad \text{Equation (11)}$$

where "R" is the ratio of the heavy to light isotope in the sample or standard. A positive δ value means that the sample contains more of the heavy isotope than the standard; a negative δ value means that the sample contains less of the heavy isotope than the standard (Kendall and Caldwell 1998). Various isotope standards are used for reporting isotopic compositions; the compositions of each of the standards have been defined as 0‰. Stable oxygen and hydrogen isotopic ratios are normally reported relative to the SMOW standard, "standard mean ocean water," (Craig 1961) or the virtually equivalent VSMOW (Vienna-SMOW) standard (Kendall and Caldwell 1998). There are several commonly used ways for making comparisons between δ values. According to Kendall and Caldwell (1998), the three ways shown below are preferred:

- higher versus lower values
- heavier versus lighter (the "heavier" material is the one with the higher value)
- more/less positive versus more/less negative (e.g., -10‰ is more positive than -20‰)

Two stable isotopes of hydrogen (^{1}H and ^{2}H) and three stable isotopes of oxygen (^{16}O, ^{17}O, and ^{18}O) are naturally occurring in water. Of these five stable isotopes, ^{1}H, ^{2}H, ^{16}O, and ^{18}O are abundant in nature and can be easily measured in a laboratory using mass spectrometry.

"The main processes that dictate the oxygen and hydrogen isotopic compositions of waters in a catchment are: (1) phase changes that affect the water above or near the ground surface (evaporation, condensation, melting), and (2) simple mixing at or below the ground surface" (Kendall and Caldwell 1998).

During phase changes, the ratio of heavy to light isotopes in the molecules in the two phases changes. During evaporation, the heavier isotopes (^{18}O and ^{2}H) are preferentially left behind and the lighter isotopes are concentrated in the water vapor. As water vapor condenses, the heavier water isotopes (^{18}O and ^{2}H) become enriched in the liquid phase, while the lighter isotopes (^{16}O and ^{1}H) concentrate in the vapor phase (Kendall and Caldwell 1998). This is because the atomic bonds between the heavier isotopes (such as ^{18}O) are stronger than the atomic bonds between lighter isotopes (such as ^{16}O), allowing the lighter isotopes to be preferentially evaporated over the heavier isotopes due to the lower amount of energy required to break those atomic bonds (Diamond 2022).

Stable isotope data from precipitation samples fall on a line referred to as a meteoric water line. This line is usually plotted with data from local, regional, or global precipitation samples, but can also include surface and groundwater samples (Diamond 2022). When the isotopic compositions of precipitation samples from all over the world are plotted relative to each other on $\delta^{18}O$ versus $\delta^{2}H$ plots, the data form a linear band that can be described by the below equation (Craig 1961) which is commonly referred to as the Global Meteoric Water Line (GMWL):

$$^{2}H = 8\ ^{18}O + 10 \qquad \text{Equation (12)}$$

When relatively more of the heavy isotope (e.g., ^{18}O) is present in the sample than the SMOW or VSMOW standard, then the δ value will be greater than zero, whereas samples relatively depleted in the heavy isotope will have negative δ values (Diamond 2022). The $\delta^{18}O$ and $\delta^{2}H$ values of the standard are equal to 0.

For this project, groundwater samples collected during the packer tests were submitted to the University of Arizona's Environmental Isotope Laboratory in Tucson, Arizona for analyses of stable isotopes of oxygen and hydrogen (^{18}O and ^{2}H). The results of these analyses (**Appendix G**) helped characterize the evaporative history of and possible mixing relationships between the source waters comprising the various FAS hydrostratigraphic units.

All but one of the Oak Island packer test groundwater samples plots below the GMWL, and all of the samples are depleted relative to VSMOW (**Figure 25**). Two of the APPZ samples lie on the GMWL, and two APPZ samples plot slightly above the GMWL. The APPZ sample collected during packer test 3 (from 430 to 460 ft bls, just below the base of APhpz-1) is not plotted in **Figure 25** because it was significantly more depleted relative to VSMOW than all the other samples, with isotopic values of -3.6 ‰ for $\delta^{18}O$, and -17.1 ‰ for $\delta^{2}H$ (**Appendix G**). No abnormalities were noted during the collection of this sample. In a USGS study that estimated groundwater inflow to Central Florida lakes using an isotope mass-balance approach, samples of precipitation were collected at Lake Starr, located in Polk County roughly 25 miles north of the Oak Island site (Sacks 2002). The volume-weighted-mean stable isotope values for samples collected for that investigation between January 1999 and January 2000 resulted in $\delta^{18}O$ of -3.78 ‰ and $\delta^{2}H$ of -17.9 ‰, which are quite close to the results from packer test 3 at OSF-108R.

Samples that plot relatively farther away from the GMWL may have experienced more evaporation prior to infiltration than those data that plot closer to the GMWL. This is because during evaporation, the heavier isotopes are preferentially left behind, and the lighter isotopes are concentrated in the water vapor. At the Oak Island site, samples from the LFA-upper, LFA-basal, and the GLAUClpu plot farthest away from the GMWL (**Figure 25**).

The samples from the GLAUClpu and the LFA-basal (and one sample from the APPZ) are most depleted in $\delta^{2}H$, and plot in a group that is separate from the rest of the data (**Figure 25**). The APPZ samples are the most depleted in $\delta^{18}O$. All but two of the LFA-upper samples plot in a second group, which is the least depleted relative to VSMOW. The two LFA-upper samples that are most depleted in $\delta^{18}O$ relative to the remaining APPZ samples plot among the MCU_I and APPZ samples. These two LFA-upper samples were collected near the top of the LFA-upper and may perhaps represent groundwater mixing between the LFA-upper and these two younger units. The remaining APPZ samples plot in a third group that is roughly parallel to and slightly depleted compared to the GMWL.

The range of stable water isotope ratios in the groundwater samples from the Oak Island site are as follows: $\delta^{18}O$ ranged from -3.6 to -0.8 ‰, and $\delta^{2}H$ ranged from -17.1 to -3.9 ‰. The stable water isotope results mostly clustered by hydrogeologic unit, indicating that the climatic conditions during recharge to each hydrostratigraphic unit were not identical.

Figure 25 shows that $\delta^{18}O$ and $\delta^{2}H$ become increasingly positive in the MCU_I and LFA-upper samples and are more enriched than the GLAUClpu and LFA-basal samples, possibly indicating that the MCU_I and LFA-upper samples underwent more evaporation than the water in the GLAUClpu and LFA-basal. The MCU_I, LFA-upper, and some of the APPZ samples appear to fall along one evaporative trend line, while the GLAUClpu and LFA-basal samples may fall along another evaporative trend line characterized by relatively more depleted $\delta^{2}H$ concentrations.

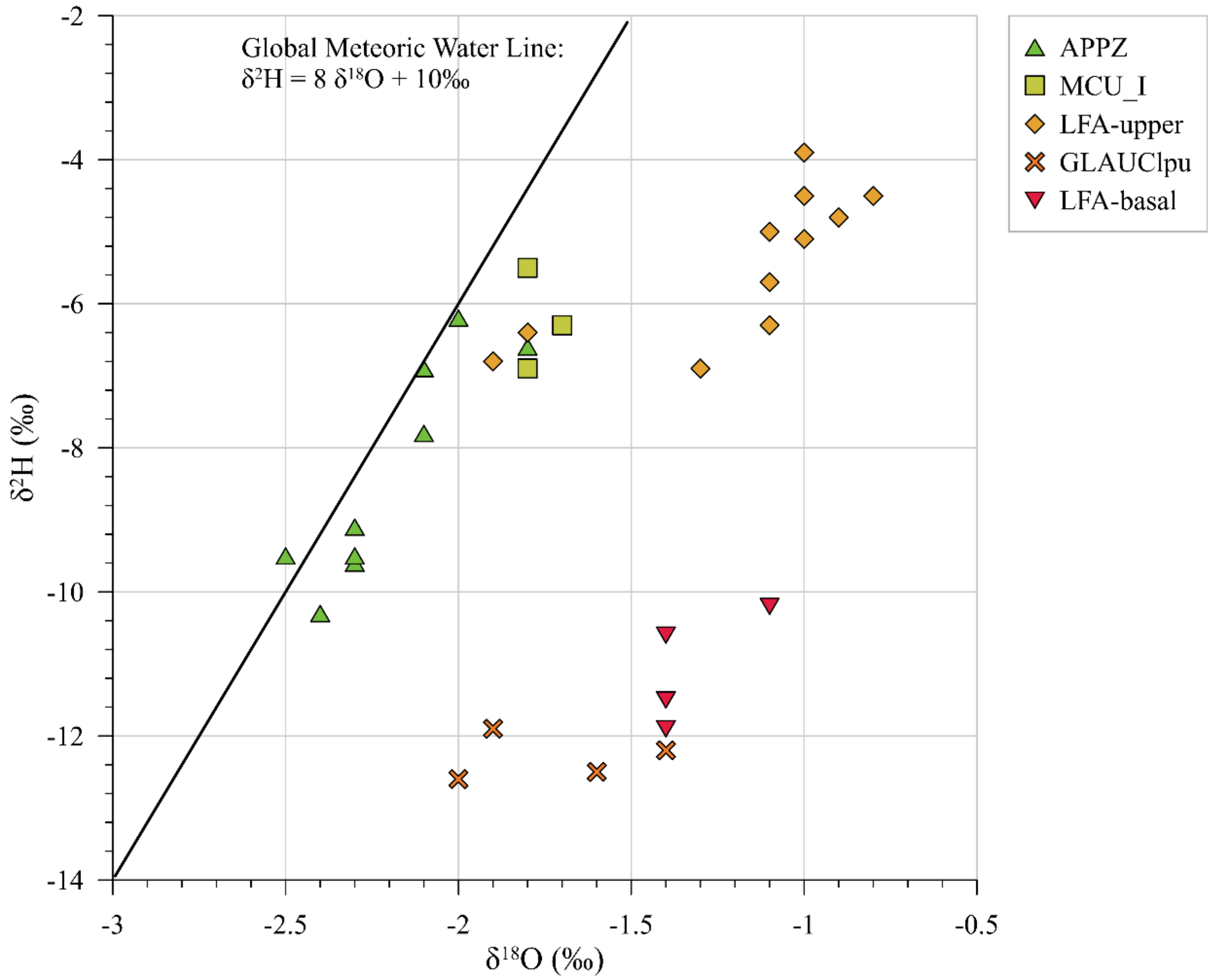

Figure 25. Stable isotopic ratios of ^{2}H and ^{18}O for OSF-108R packer test groundwater samples.

GEOPHYSICAL AND OPTICAL BOREHOLE IMAGING LOGGING

During the drilling of the OSF-108R, geophysical logging was completed by RMBaker, LLC and ABS, Inc. to provide a continuous record of the geophysical properties of the borehole rock and groundwater with depth. These data were used for casing seat depth selection, identification of potential production and confining zones, and identification and characterization of hydrostratigraphic units.

OBI logging was completed by the USGS. The OBI logs are a visual record that clearly shows the structural characteristics of the rock exposed along the borehole walls and were used in conjunction with lithologic data and geophysical log data to help determine hydrostratigraphic unit boundaries. These images can be used to provide information on the porosity, flow zones, confining zones, and structure that may not be as evident in the recovered core.

Table 10 summarizes the geophysical logs, OBI logs, and downhole video surveys collected during this investigation. The geophysical logs are provided in **Appendix D**, and the OBI log is provided in **Appendix E**. **Figure 26** presents key geophysical logs collected during this investigation.

Table 10. Geophysical logging inventory for the Oak Island site investigation.

Date	**OSF-108**	**OSF-108R**						
	Jan 2, 2020	Mar 4, 2021	Apr 8, 2021	Jul 9, 2021	Aug 30, 2021	Aug 31, 2021	Sep 8 and Sep 14, 2021	Sep 28, 2021
Run		1		2			3	4
Logging Company	RMBaker	RMBaker	USGS	RMBaker	RMBaker	USGS	ABS and RMBaker	RMBaker
Borehole Diameter (inches)	16	12	8	4	6	6	6	6
Logged Interval (ft bls)	65-120	65-366	343-730	730-2,022	0-2,020	0-2,020	730-2,020	340-713
Caliper	X	X		X			X	X
Natural Gamma	X	X		X			X	X
Single-Point Resistivity	X	X		X			X	X
Normal Resistivity		X		X			X	X
Dual Induction/ Spontaneous Potential	X	X		X				X
Sonic Porosity		X					X	X
Flowmeter	X	X					X	X
Temperature	X	X		X			X	X
Fluid Resistivity		X		X			X	X
Downhole Video					X			
Optical Borehole Imaging			X			X		

ft bls = feet below land surface; USGS = United States Geological Survey.

As previously discussed, OSF-108R was constructed by deepening existing well OSF-108. The existing well OSF-108 had previously been constructed with 16-inch-diameter steel casing set to a depth of approximately 67 ft bls and an open-hole interval extending from 67 to 150 ft bls. However, geophysical logging performed in January of 2020, prior to the start of OSF-108R drilling, showed that the total depth of OSF-108 was approximately 120 ft bls, indicating that about 30 ft of material had accumulated in the borehole. Deepening of OSF-108 began by advancing a nominal 12-inch-diameter borehole to approximately 365 ft bls. Geophysical logging run #1 (**Table 10**) was then performed on March 4, 2021, followed by the installation of 8-inch-diameter steel casing to a depth of approximately 343 ft bls. Once the 8-inch-diameter steel casing was installed and exploratory coring was performed, a nominal 8-inch borehole was advanced to approximately 730 ft bls, and the USGS performed OBI logging from 343 to 730 ft bls on April 8, 2021. Exploratory coring was then resumed to a total depth of 2,022 ft bls, and geophysical logging run #2 was performed in the 4-inch corehole on July 9, 2021. The corehole was then reamed to 2,022 ft bls using a nominal 6-inch-diameter drill bit, and another OBI log was completed along with a borehole video survey and geophysical logging run #3. The 6-inch-diameter corehole was then backfilled with a cement slurry, with gravel placed through washed-out intervals, to a depth of 723 ft bls. The final open-hole interval was then geophysically logged (run #4) on September 28, 2021, from 343 to approximately 715 ft bls.

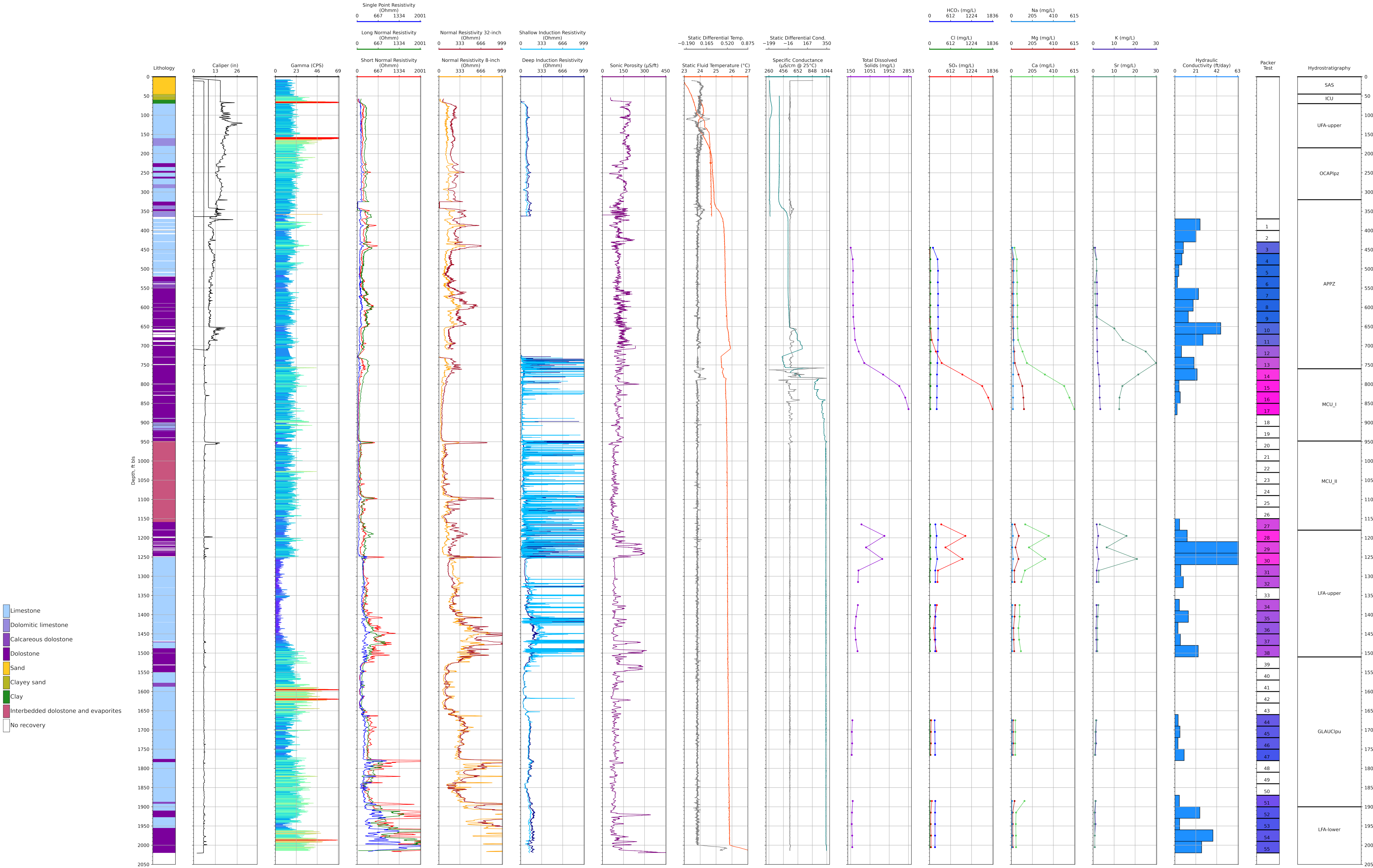

Figure 26. Geophysical logs, packer test hydraulic conductivities, groundwater ionic trends, and hydrostratigraphic units in the OSF-108/108R corehole at the Oak Island site.

The geophysical logs revealed little variation between the UFA-upper (70 to 185 ft bls) and the OCAPlpz (185 to 320 ft bls). The interval from 67 to 150 ft bls is the original open-hole interval for OSF-108. Except for elevated gamma ray activity from 65 to 68 ft bls (75 cps) and 155 to 165 ft bls (105 cps), the gamma log recorded low readings through the upper portion of the UFA and the OCAPlpz, rarely deviating from about 10 to 20 cps. From 70 to 130 ft bls, the caliper log recorded borehole diameters that varied between 13 and 29 inches, indicative of relatively soft or friable rock. Dual induction and resistivity logs recorded fairly consistent readings with the long-normal resistivity ranging from about 200 to 300 ohm-meter (ohm-m) and the deep induction resistivity ranging from 90-130 ohm-m. A steady decrease in spontaneous potential from 200 to 150 millivolts was recorded through this interval.

The water quality logs shown in **Figure 26** were performed under static conditions. The water quality log recorded static specific conductance with slightly elevated readings (300 µS/cm) just below the base of the 16-inch-diameter steel casing at 67 ft bls that decreased to 270 µS/cm at 110 ft bls. This change in water quality is associated with fluctuations in the sonic porosity log from 100 to 110 ft bls and a spike in the static differential temperature readings at 110 ft bls, indicating a potential water producing zone at this depth. From 650 to 713 ft bls, there was an increasing trend in the static specific conductance from 540 to 710 µS/cm. In the logging run from 730 to 2,020 ft bls, an increase in static specific conductance of about 700 µS/cm to 1,735 µS/cm was recorded from the base of the casing at 730 ft bls to a depth of 840 ft bls. Below this interval, the static specific conductance was consistent. Static water quality logs can be ineffective for determining all producing zones because the flow in the borehole can only come from a head gradient between zones open to the borehole. Because a borehole will often sit open between the completion of coring and the start of downhole flow logging, groundwater from various flow zones has time to stratify within the borehole. Movement of geophysical tools up and down the borehole during logging can disturb this stratified water column. With these caveats, the static water quality logs are limited in their ability to identifying flow zones that only flow under static conditions.

The transition from the OCAPlpz to the APPZ at 320 ft bls was identified based on an increase in the long-normal resistivity and the deep induction resistivity readings. A deflection in the static specific conductance log and a sharp increase in the borehole diameter from 14 inches to 20 inches was also recorded at the contact between these two units. Below this isolated peak in the caliper log, the borehole diameter decreased and remained smaller than 13 inches for the remainder of the corehole, except for minor hole enlargements at depths of about 960 ft bls and 1,200 ft bls.

Within the APPZ, the gamma log displayed low readings ranging between about 10 to 50 cps with minimal fluctuations. The intervals from 320 to 460 ft bls and 550 to 655 ft bls are characterized by higher long-normal resistivity readings indicative of well indurated rock. The overall increase in variability in the sonic log through these intervals suggests varying intervals of well indurated dolomitic limestone and fractured dolostone.

The caliper log recorded a gauge borehole through both MCU_I and MCU_II (from 760 to 1,160 ft bls), indicating well indurated material. The only increase in borehole diameter was recorded at the top of MCU_II between 948 and 955 ft bls, suggesting softer rock in this interval.

From 760 to 940 ft bls, resistivity was fairly low with the long-normal resistivity steadily decreasing from about 350 to 60 ohm-m. The upper portion of MCU_I is characterized by rapid cycling of the dual induction log readings (from zero to over 1,000 ohm-m) from 760 to 800 ft bls. Except for a few peaks between depths of 800 and 948 ft bls, the dual induction log showed little variation, rarely deviating from about 20 ohm-m. The geophysical signature at the boundary between MCU_I and MCU_II at 948 ft bls is characterized by a narrow peak on all the resistivity logs and is the top of a second section of rapidly cycling dual induction log readings (from zero to over 1,000 ohm-m) over an approximately 300-ft-long section. The lithology (**Appendix F**) changed from dolostone to interbedded dolostone and evaporites at 948 ft bls and extends to a depth of 1,159 ft bls; however, the upper section of rapid cycling dual induction readings occurred in relatively unfractured, moderate-to-well indurated, homogeneous dolostone, indicating that the rapid dual induction cycling pattern is independent of lithologic changes. TDS increased and became more variable within this interval, but chloride remained at relatively low concentrations. More investigation is needed to understand the source of this rapid cycling dual induction log pattern.

The LFA-upper at OSF-108R can be divided into several intervals based on the geophysical logs. The interval from 1,160 to 1,250 ft bls is composed primarily of dolostone and dolomitic limestone and was characterized by dual induction measurements that cycled rapidly between very high and low resistivity readings. This pattern is similar to what was recorded in the lower portion of the overlying MCU_II.

The following factors indicate a change in lithology: a significant, narrow spike in the resistivity logs, a sharp decrease in dual induction resistivity, an elimination of variability in the dual induction log measurements, a drop in gamma ray activity, and a sharp decrease in sonic porosity at 1,250 ft bls. The decrease in gamma ray activity remained low between 1,250 and 1,490 ft bls, indicative of a clean limestone free of dolomite, phosphatic sands, and clay. Although the logs for runs #2 and #3 were performed under static conditions, the geophysical signature suggests there may be a water-producing zone from 1,210 to 1,250 ft bls that is characterized by a significant increase in sonic porosity transit times. This interval of elevated sonic porosity corresponds with relatively high hydraulic conductivity values that were calculated from the results of packer tests 29 and 30 (**Table 6**).

The GLAUClpu geophysical marker at OSF-108R is characterized by an overall increase in the gamma ray activity, with two gamma ray peaks recorded at 1,595 and 1,620 ft bls. The dual induction log readings through GLAUClpu are consistent with only minor spikes occurring at 1,618 and 1,653 ft bls. Resistivity readings were low in the upper portion of this zone (from 1,510 to 1,780 ft bls) with long-normal resistivity ranging from about 140 to 300 ohm-m. There was a significant increase in resistivity at 1,780 ft bls with variable but generally elevated readings continuing through the lower portion of the GLAUClpu to a depth of 1,900 ft bls.

The geophysical signature of the LFA-lower (1,900 to 2,020 ft bls) is similar to the lower portion of the overlying GLAUClpu. Gamma ray activity varied from about 5 cps to a maximum of 55 cps at 1,987 ft bls. The dual induction measurements were low and consistent with only minor inflections. Resistivity readings were elevated and highly variable through this interval, suggestive of interbedded, well indurated dolostone, dolomitic limestone, and limestone. Elevated sonic porosity log transit times correlate with relatively elevated packer test hydraulic conductivities (tests 52, 54, and 55, **Figure 26**).

The water quality and flow logs conducted during logging run #4 (340 to 713 ft bls) were performed under static and dynamic conditions after the 8-inch-diameter steel casing had been installed to a depth of 343 ft bls. The well was pumped at 880 gpm while the flowmeter tool collected a downward, dynamic flow log. **Figure 27** shows the downhole specific conductance and caliper-adjusted flow rate for the dynamic conditions, the hydraulic conductivities calculated from packer tests, and the hydrostratigraphy. The interval of 343 to 446 ft bls contributed approximately 59% of the pumped flow. Within this interval are two significant water-producing zones at 370 and 390 ft bls, characterized by an increase in the down dynamic flow and deflections in the dynamic specific conductance toward relatively fresher, lower TDS water. The vertical trend of flow from 446 to 575 ft bls indicated that this interval did not contribute flow into or out of the formation rock. The interval from 575 to 648 ft bls is an interval of low flow, accounting for 14.2% of the pumped 880 gpm. The interval from 648 to 685 ft bls produced a higher flow contribution (26.7%) and is a more productive flow zone than the interval directly superjacent. The spike in the caliper adjusted dynamic flow rate log at 650 ft bls could be attributed to a spike in the caliper log and void visible in the OBI log at the same depth. The caliper log may not have adequately measured the diameter of the void. An underestimation of the borehole cross-sectional area consequently may have resulted in an overestimation of the flow for the void space. The change in water quality indicates that this is a flow zone, but the calculated flow rate for this interval may not truly be as high as calculated from the caliper log. From 685 to 710 ft bls, the down dynamic flow rate trace is vertical, indicating another unproductive interval.

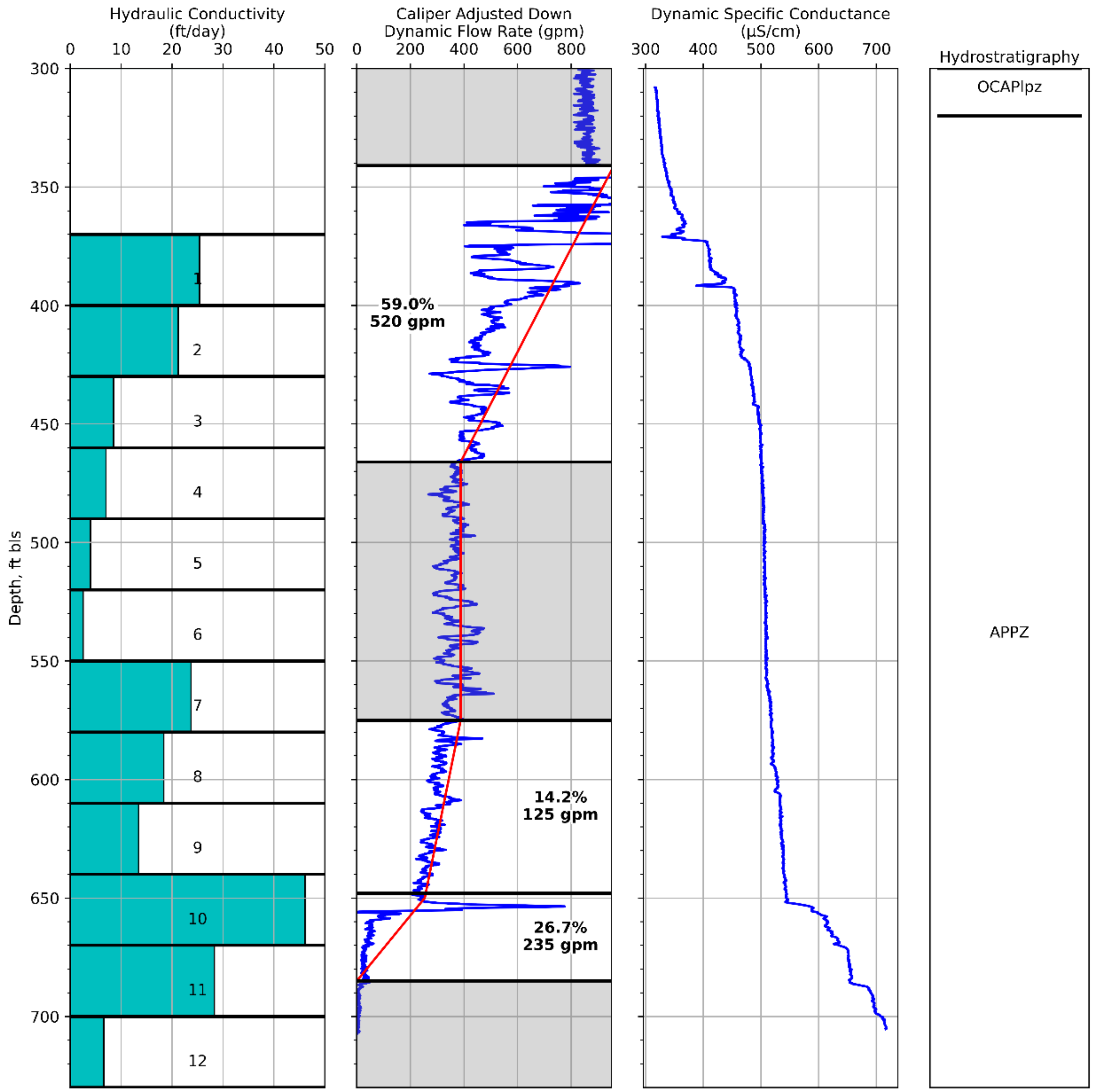

Figure 27. Caliper-adjusted down dynamic flow rate analysis and packer test hydraulic conductivities at OSF-108R.

CORE ANALYSES

Core Laboratories in Houston, Texas analyzed nine core samples using conventional plug analysis, five samples using XRD for bulk mineralogy, two samples using XRD for clay mineralogy, and one sample using thin-section petrography. These analyses assessed the heterogeneity and anisotropy of permeability and the composition of various small crystals, laminations, and bulk mineralogy in selected core samples. The conventional plug analysis determined horizontal and vertical permeability, porosity, and bulk density. Core Laboratories reported the permeability results in millidarcys. However, for the purpose of this report, these results have been converted to ft/day, which are the same units as the hydraulic conductivity values reported for the packer test data analyses. The core sample inventory and performed analyses are summarized in **Table 11**. The permeability data and rock classification from the petrographic analysis are summarized in **Table 12**, and the XRD data are summarized in **Table 13**. **Appendix H** contains the complete laboratory and petrographic reports.

Table 11. OSF-108R core sample inventory and laboratory core analyses.

Packer Test #	Approximate Sample Depth (ft bls)	Horizontal and Vertical Permeability and Porosity	Thin-Section Petrography	XRD	XRD with Clay	Comments
14	760.0	X				Sample from MCU_I.
14	763.0			X		Analyzed small white crystals that showed no response to UV light. Sample from MCU_I.
16	831.3	X				Sample from MCU_I.
16	839.3			X		Sample from MCU_I.
20	968.0	X		X		Sample from MCU_II.
21	977.2	X		X		XRD on small white crystals thought to be anhydrite. Sample from MCU_II.
21	998.9	X		X		XRD on small white crystals thought to be anhydrite. Sample from MCU_II.
31	1,282.0	X				Packstone from LFA-upper.
41	1,592.7		X		X	Analyzed dark-colored laminations. Sample depth corresponds with gamma spike on geophysical logs. Sample from GLAUClpu.
43	1,641.2	X				Sample from GLAUClpu.
43	1,647.4				X	Analyzed what appeared to be blue-gray clay rip-up clasts within GLAUClpu.
44	1,668.5	X				GLAUClpu; moderate pinpoint porosity sample.
46	1,728.2	X				GLAUClpu; low to moderate intergranular porosity sample.

ft bls = feet below land surface; GLAUClpu = low-permeability glauconitic marker unit; LFA-upper = upper permeable zone of the Lower Floridan aquifer; MCU_I = middle confining unit I; MCU_II = middle confining unit II; XRD = X-ray diffraction.

Table 12. OSF-108R permeability testing and thin section petrography results.

Packer Test #	Sample Depth (ft bls)	Hydrostratigraphic Unit	Direction	Porosity (%)	Dunham Classification from Petrography	Permeability (ft/day)		Grain Density (g/cm^3)	Data Qualifier
						Klinkenberg	Kair		
14	760.0	MCU_I	Horizontal	22.86	--	0.08	0.08	2.84	
14	760.0	MCU_I	Vertical	25.85	--	0.06	0.07	2.84	
16	831.3	MCU_I	Horizontal	47.94	--	--	2.70	2.84	a, b
16	831.3	MCU_I	Vertical	48.70	--	--	5.90	2.84	b
20	968.0	MCU_II	Horizontal	29.08	--	0.30	0.33	2.79	
20	968.0	MCU_II	Vertical	34.66	--	0.74	0.79	2.81	
21	977.2	MCU_II	Horizontal	22.66	--	0.02	0.03	2.78	a
21	977.2	MCU_II	Vertical	29.41	--	0	0.01	2.77	
21	998.9	MCU_II	Horizontal	47.88	--	0.41	0.46	2.82	
21	998.9	MCU_II	Vertical	49.20	--	0.03	0.04	2.80	
31	1,282.0	LFA-upper	Horizontal	29.43	--	3.11	3.34	2.70	c
31	1,282.0	LFA-upper	Vertical	29.99	--	2.73	2.90	2.70	c
41	1,592.7	GLAUClpu	--	--	wackestone/ packstone	--	--	--	
43	1,641.2	GLAUClpu	Horizontal	28.58	--	0	0	2.71	
43	1,641.2	GLAUClpu	Vertical	28.10	--	0	0	2.71	
44	1,668.5	GLAUClpu	Horizontal	34.84	--	9.96	10.43	2.71	c
44	1,668.5	GLAUClpu	Vertical	30.96	--	1.57	1.78	2.71	c
46	1,728.2	GLAUClpu	Horizontal	38.04	--	0.93	0.99	2.71	
46	1,728.2	GLAUClpu	Vertical	37.52	--	1.23	1.32	2.70	

-- = no calculation due to equipment issues; ft bls = feet below land surface; ft/day = feet per day; g/cm^3 = grams per cubic centimeter; GLAUClpu = low-permeability glauconitic marker unit; Kair = permeability to air; LFA-upper = upper permeable zone of the Lower Floridan aquifer; MCU_I = middle confining unit I; MCU_II = middle confining unit II.
a = Chipped sample. Permeability and/or porosity may be optimistic.
b = Encapsulated sample. Permeability measured using steady-state method.
c = Vuggy sample.
Lab report notes that samples with permeability greater than 0.1 millidarcy (mD) were measured using helium gas. Permeabilities less than 0.1 mD were measured using nitrogen gas.

Table 13. OSF-108R mineralogy determined by XRD analysis.

Packer Test #	Approx. Sample Depth (ft bls)	Whole Rock Mineralogy (Weight %)									Clay (Phyllosilicate) Mineralogy (Weight %)	
		Quartz	Gypsum	Anhydrite	K-Feldspar	Plagioclase	Calcite	Celestine	Dolomite and Iron-Dolomite	Total Clay	Illite/ Smectite*	Illite and Mica
14	763.0	87.7	0.0	4.0	0.0	0.0	0.0	0.0	8.3	0.0	--	--
16	839.3	0.7	0.0	0.0	0.0	0.0	0.0	31.8	67.5	0.0	--	--
20	968.0	0.3	26.5	0.0	0.0	0.0	0.0	0.0	73.2	0.0	--	--
21	977.2	0.4	24.5	0.0	0.0	0.0	0.0	0.0	75.2	0.0	--	--
21	998.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	99.7	0.0	--	--
41	1,592.7	9.9	0.0	0.0	27.9	0.0	52.8	0.0	0.0	9.5	6.7	2.8
43	1,647.4	0.3	0.0	0.0	0.0	0.0	99.7	0.0	0.0	0.0	0.0	0.0

ft bls = feet below land surface.
* = Mixed-layer Illite/Smectite contains 60-70% smectite layers.

As shown in **Table 12**, laboratory-measured porosities ranged from 22.66% to 49.20%, and permeabilities (Kair) ranged from 0.01 ft/day in MCU_II (977.20 ft bls sample) to 10.43 ft/day in the GLAUClpu (1,668.50 ft bls sample). Grain densities were consistent, ranging only from 2.70 to 2.84 grams per cubic centimeter (g/cm^3). The single petrographic sample from 1,592.70 ft bls was classified as a wackestone/packstone, matching the District's description of wackestone for this sample interval in the GLAUClpu.

The results of the XRD analyses indicate that four of the cores were composed of dolostone (sample depths 839.3, 968.0, 977.2, and 998.9 ft bls), with two of the samples (from 968.0 and 977.2 ft bls) containing 26.5 and 24.5 weight % gypsum, respectively (**Table 13**).

Spherical, milky white, void-filling crystals in the core sample collected from a depth of 763.0 ft bls (packer test 14 in MCU_I) were tested with XRD to determine their mineralogy. The XRD results (**Table 13**) indicate that these crystals are composed of nearly 90 weight % quartz (**Figure 28**).

A sample of euhedral to subhedral, clear, void-filling crystals was analyzed from a core collected at a depth of 839.3 ft bls (**Figures 29** and **30**). The XRD results (**Table 13**) indicate that these crystals are celestine in a dolomitic matrix, even though these crystals showed no response to UV light. In FAS coreholes in Florida, celestine has been observed as fine sand-sized grains, rather than as larger intact crystals (McCartan et al. 1988). Celestine was detected by XRD at OSF-113 at a depth of 1,030 ft bls (SFWMD 2020). Void-filling celestine crystals have also been observed at POF-31 and POF-32 at the Sumica site, and large crystals were observed in cores from the OSF-64R corehole.

A laminated core sample from a depth of 1,592.7 ft bls was tested for mineralogy and clay content using XRD and thin-section petrography to determine the compositions of the dark-colored laminations (**Figure 31**). The XRD results (**Table 13**) indicate that the laminations contain clay (10 weight %) composed of illite/smectite (6.7 weight %) and illite and mica (2.8 weight %) and that the overall rock mineralogy is calcite/carbonate. This sample also contains potassium feldspar (27.9 weight %) and quartz (9.9 weight %). The thin-section petrography revealed that the lighter-colored laminae are composed of authigenic feldspar in a micrite matrix. Authigenic feldspar can occur in carbonate sediments when silica activities are high. They can form in alkaline lake sediments that contain volcanogenic components or in association with brines in environments, including sabkhas, lagoons, or tidal flats (Sandler et al. 2004). The darker-colored laminae are composed of a clay and micrite. The sample also contains burrows, benthic foraminifera, and grains of glauconite and detrital quartz. The thin-section petrography report suggests that this rock was deposited in a low-energy environment, such as a lagoon.

The GLAUClpu sample from a depth of 1,647.4 ft bls was analyzed to determine if the dark bluish-gray portions of the sample (**Figure 32**), which have the appearance of rip-up clasts, were composed of clay or glauconitic material. The XRD results (**Table 13**) indicate that the material is composed almost entirely of calcite (99.7 weight %).

Figure 28. Photo of white, spherical, “snowball quartz” crystals (87.7% quartz) in core sample collected from a depth of 763.0 ft bls within MCU_I.

Figure 29. Photo of core from a depth interval of 839.3 to 839.8 ft bls. XRD test was completed on crystals (see **Figure 30**) at a depth of 839.3 ft bls.

Figure 30. Photo of celestine crystals from a depth of 839.3 ft bls that were analyzed using XRD.

Figure 31. Photo of dark-colored clay-bearing laminations in the core sample analyzed by XRD. Potassium feldspar was also detected in this sample at a depth of 1,592.7 ft bls using XRD.

Figure 32. Photo of glauconitic marker unit sample from a depth of 1,647.4 ft bls that was analyzed using XRD.

WATER LEVELS

At the end of each packer test, the depth to water in the drill pipe was measured using a water level meter once the water levels had stabilized. These recovery water levels reflect the static water levels within each tested interval. Changes in recovery water levels between packer tests can indicate changes in confinement and vertical gradients. Groundwater elevations calculated from recovery depth-to-water measurements collected at the end of each packer test are represented by the black time series in **Figure 33**. To compare these recovery water levels with local water levels in the FAS, the recovery water levels were converted to elevations (ft NGVD29) and compared to the groundwater elevations from the closest cluster of FAS monitoring wells. The closest FAS well cluster (OSF-100, OSF-99R, and OSF-98) is located at Intercession City (Site B), approximately 12 miles southeast of OSF-108R (**Figure 34**). Wells OSF-100, OSF-99R, and OSF-98 monitor the UFA-upper, APPZ, and LFA-upper, respectively. OSF-100 was not included in this analysis because no recovery water level data were collected in the UFA-upper at the Oak Island site. The groundwater elevations that were recorded in these monitor wells at the same time as the packer test recovery water levels were collected at the Oak Island site are plotted at the midpoint depth of each packer test in **Figure 33**. There were significant issues with recovery during packer testing (refer to the Packer Testing section of this report for more details). Due to these issues, 10 recovery water level measurements were eliminated from the data set. The hydrostratigraphic units at the Oak Island site are shown as vertical shaded bars in **Figure 33**. The OSF-108R APPZ open interval and the APPZ monitor well OSF-99R open interval are shown in green, and the Oak Island LFA-upper interval and the LFA-upper monitor well OSF-98 time series are shown in red in **Figure 33**.

APPZ packer test recovery groundwater elevations at OSF-108R (**Figure 33**) remained between approximately 102 and 103 ft NGVD29, with the lowest elevation (100.78 ft NGVD29) measured at the base of the APPZ at the end of packer test 13. The APPZ potentiometric surface at the Oak Island site is about 40 ft higher than in the nearby APPZ monitoring well OSF-99R. This large change in the APPZ potentiometric surface agrees with the regional UFA potentiometric surface, which has a regional high in Polk County that generally aligns with the Lakes Wales Ridge. The UFA potentiometric surface dips east beneath Osceola County.

The first recovery groundwater elevation measured within MCU_I (packer test 14) was approximately 1.3 ft higher than the elevation recorded in the last packer test within the overlying APPZ (test 13) and remained between 100.78 and 102.09 ft NGVD29 throughout MCU_I. Below the packer test 20 interval (940 to 970 ft bls), which included the MCU_I to MCU_II transition zone at 948 ft bls, the water level recovered to 99.58 ft NGVD29. Packer tests completed through MCU_II (tests 20 through 27, from 940 to 1,180 ft bls) showed a steep, downward gradient through MCU_II, with an overall drop in recovery groundwater elevations of 26.73 ft. This water level drop of 26.73 ft is large when compared with the nearby well FAS well cluster at Intercession City. The average difference between the groundwater elevations in OSF-99R (APPZ) and OSF-98 (LFA-upper) is 13.61 ft, about half of the water level change measured at the Oak Island site.

The recovery water level elevations within the LFA-upper were fairly constant, with only a slight downward trend in recovery water level elevations that steepened in the last LFA-upper packer test (test 38), reaching a low of 70.27 ft NGVD29.

Within the GLAUClpu, recovery groundwater level elevations showed some variability and a slight increasing trend in recovery groundwater elevations. Overall, the GLAUClpu recovery groundwater elevations were higher than in the LFA-upper. The recovery groundwater elevation measured after the last GLAUClpu packer test was 74.85 ft NGVD29, which was 4.58 ft higher than the last recovery groundwater elevation recorded in the LFA-upper. The recovery groundwater elevations increased by 1.27 ft between the last packer test in the GLAUClpu and the first test in the LFA-basal. Recovery groundwater elevations in the three LFA-basal packer tests varied by only 1.22 ft.

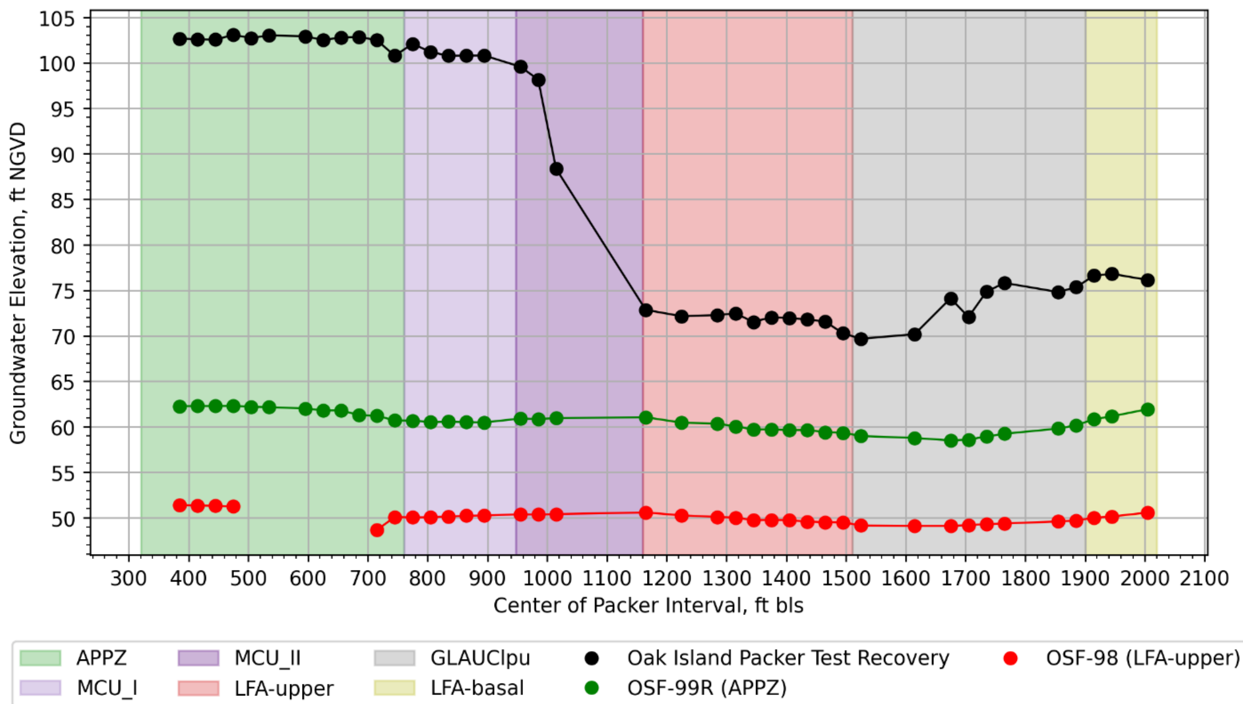

Figure 33. OSF-108R packer test recovery groundwater elevations compared to OSF-98 and OSF-99R (Intercession City) groundwater elevations collected during the same time period.

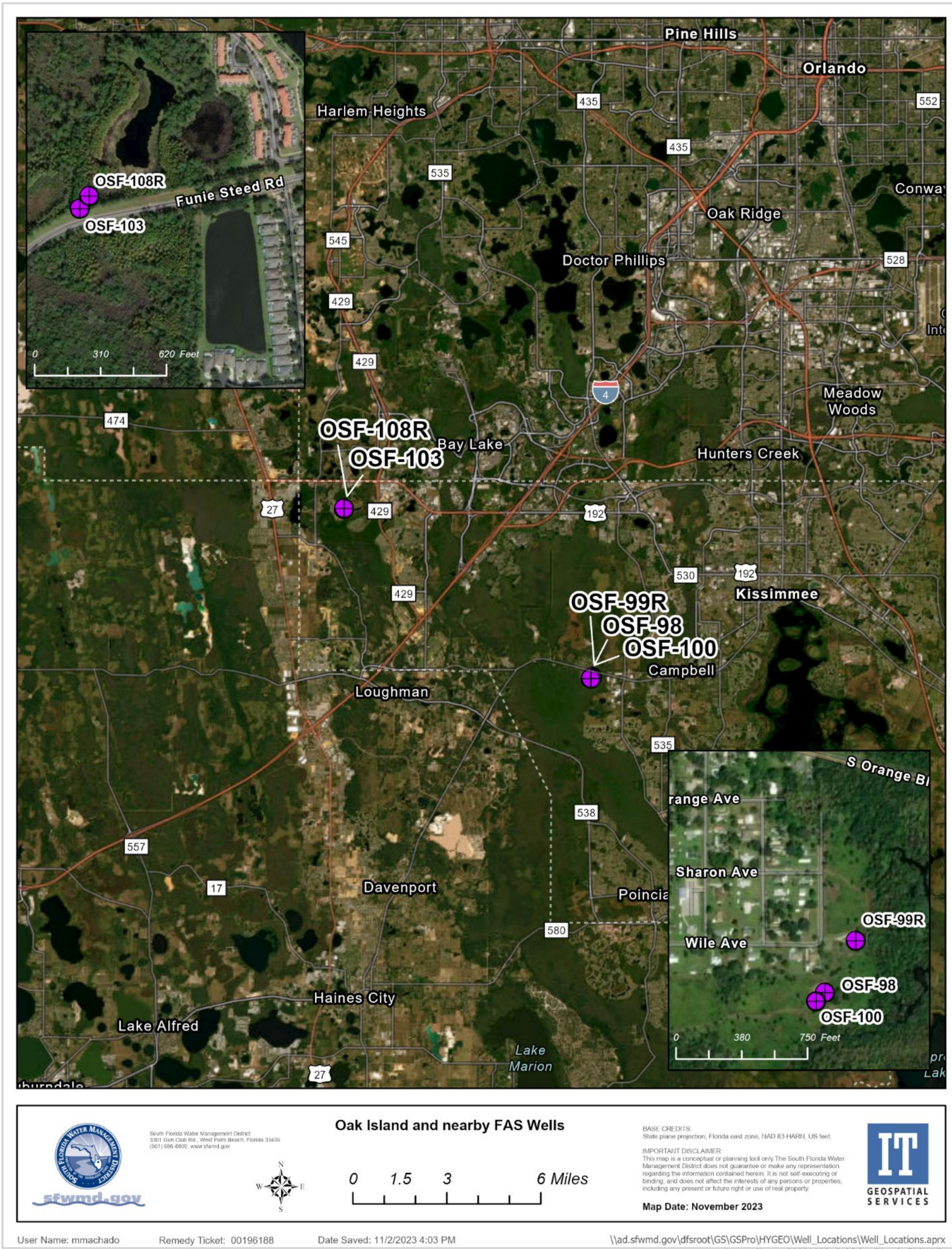

Figure 34. Locations of the Oak Island FAS wells OSF-108R and OSF-103, and nearby Intercession City FAS wells OSF-98, OSF-99R, and OSF-100.

After construction, a pressure transducer was installed in the new monitoring zone, programmed to collect groundwater elevations at 15-minute intervals, and connected to the District's SCADA system. **Figure 35** is a groundwater elevation time-series plot for the Oak Island APPZ well OSF-108R. **Figure 35** shows seasonal variations in groundwater elevations, with groundwater elevations slowly recharging through the end of the wet season to their highest elevations by the beginning of the wet season of each year (i.e., during October 2022 and October 2023), followed by declining groundwater elevations during the dry season. During the 2023 wet season, recharge to the APPZ was slow and resulted in an October 2023 groundwater elevation that was about 3 ft lower than in October 2022 at the start of the dry season.

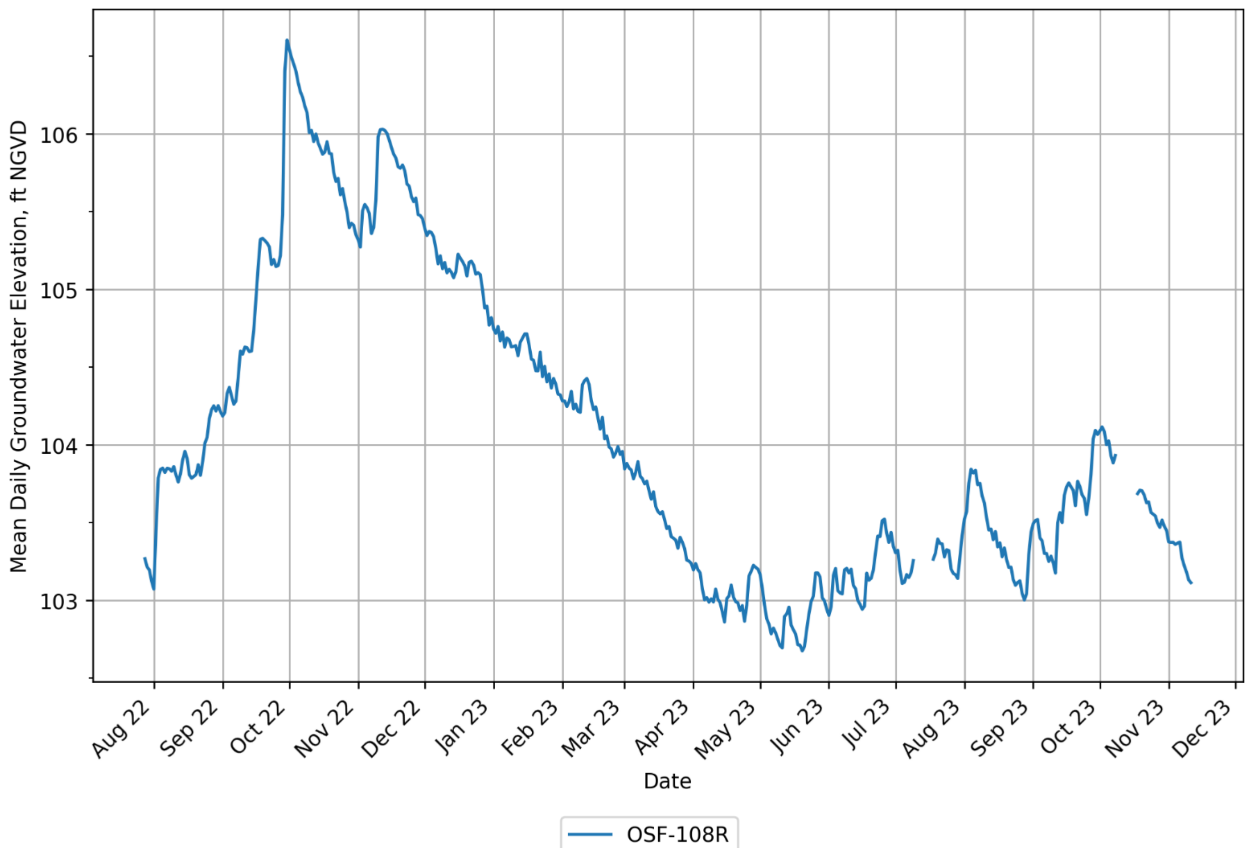

Figure 35. OSF-108R hydrograph.

CONCLUSIONS

The Oak Island site hydrogeologic investigation focused on characterizing the hydrostratigraphy, groundwater quality, and productivity of the APPZ, LFA-upper, and LFA-basal. The Oak Island site was selected because the site is near the SFWMD–SWFWMD boundary, so the transition in hydrostratigraphy of the FAS there could be clarified. Second, the site fills an FAS data gap in the northwest corner of Osceola County. Third, the site had two existing UFA-upper wells where existing, unmonitored Oak Island well OSF-108 could be deepened without losing continuity of UFA-upper monitoring data collected at Oak Island well OSF-103. Fourth, the site was owned by the SFWMD, so no time-consuming access agreements or land acquisitions were required. The existing Oak Island UFA monitor well OSF-108 was deepened and converted into an APPZ monitoring well (renamed OSF-108R) with an open-hole interval from 343 to 723 ft bls. The data from OSF-108R presented in this report supplements the data from the existing UFA monitoring well OSF-103 and SAS wells OSS-101 and OSS-102 at the Oak Island site and provides needed APPZ groundwater elevation and water quality data. Data from the previous Oak Island hydrogeologic investigation (Anderson 2011) were incorporated into this report.

The additional coring, testing, sampling, and groundwater analyses performed during this investigation at OSF-108R enabled District hydrogeologists to establish hydrostratigraphic unit boundaries for the SAS, ICU, UFA-upper, OCAPlpz, APPZ, MCU_I, MCU_II, LFA-upper, GLAUClpu, and the top of the LFA-basal, and identified the most productive intervals within these units. The lithologic and hydrostratigraphic unit boundaries are based on data obtained from this investigation's continuous wireline coring, packer testing, geophysical and OBI logs, and groundwater chemistry obtained from the laboratory analyses of groundwater samples collected during packer testing.

The geologic units encountered during this investigation include undifferentiated Holocene, Pleistocene, and Pliocene sediments, the Hawthorn Group, the Ocala Limestone, the Avon Park Formation, and the Oldsmar Formation. The Suwannee Limestone was not encountered. The base of the Oldsmar Formation was not encountered to the total depth drilled at OSF-108R (2,020 ft bls).

Two significant APPZ production zones (named APhpz-1 and APhpz-2) were identified at OSF-108R. These two zones were identified between depths of 370 and 430 ft bls and between 550 and 760 ft bls, respectively. APhpz-1 and APhpz-2 are relatively more fractured than the rest of the APPZ and have relatively higher packer test hydraulic conductivities than other portions of the APPZ where fractures and deformation are less prevalent. In the less productive intervals of the APPZ, groundwater flow is likely controlled by bedding plane dissolution features and vuggy porosity. APhpz-1 and APhpz-2 were included in the as-built open-hole interval for OSF-108R.

MCU_I and MCU_II were both present at OSF-108R. MCU_I is characterized by relatively lower packer test hydraulic conductivities compared to the overlying APPZ. MCU_II is characterized by beds of evaporites and relatively lower packer test hydraulic conductivities compared to MCU_I.

Three relatively productive groundwater flow zones named LF1, LF2, and LF3 were identified within the LFA-upper. LF1 extends from 1,180 to 1,250 ft bls, LF2 extends from 1,390 to 1,420 ft bls, and LF3 was encountered between 1,480 to 1,510 ft bls. Based on groundwater chemistry data collected during this investigation, LF1 appears to be at least partially hydraulically isolated from LF2 and LF3.

TDS measured during packer testing was predominantly below the USEPA SMCL of 500 mg/L. For packer tests 12 through 31 (700 to 1,300 ft bls), the TDS concentrations exceeded 500 mg/L, with the highest TDS concentration of 2,854 mg/L reported for the MCU_II packer test 24 groundwater sample.

For packer tests 13 through 30 (730 to 1,270 ft bls), the sulfate concentrations were higher than the USEPA SMCL of 250 mg/L. A lack of production during the packer tests conducted from 880 to 1,150 ft bls prevented the collection of representative groundwater samples through this interval.

From 1,150 to 1,300 ft bls, within the bottom of MCU_II and through the upper half of the LFA-upper, all the ionic profiles, along with strontium, temperature, pH, and specific conductance fluctuated. This interval overlaps with the LFA-upper flow zone LF1. The remaining groundwater samples collected from the lower part of the LFA-upper, including samples from LF2 and LF3, show less chemical variation than the groundwater samples collected from the top half of the LFA-upper. The water quality data indicate that LF1 is relatively hydraulically isolated from LF2 and LF3, which likely causes the differences in water quality between LF1 and LF2/LF3. If groundwater flows between these zones, the water quality of each zone would be expected to be similar.

All but one of the OSF-108R packer test groundwater samples analyzed for stable water isotopes plot below the GMWL, and all the samples are depleted relative to VSMOW. Samples that plot relatively farther away from the GMWL may have experienced more evaporation prior to infiltration than those data that plot closer to the GMWL. Samples from the LFA-upper, LFA-basal, and the GLAUClpu plot farthest away from the GMWL. The stable water isotopes mostly cluster by hydrogeologic unit, indicating that the climatic conditions during recharge were not identical. $\delta^{18}O$ and $\delta^{2}H$ become increasingly positive in the MCU_I and LFA-upper samples and are more enriched than the GLAUClpu and LFA-basal samples, possibly indicating that groundwater in MCU_I and LFA-upper underwent more evaporation than GLAUClpu and LFA-basal groundwater. The MCU_I, LFA-upper, and some of the APPZ groundwater samples appear to fall along one evaporative trend line, while the GLAUClpu and LFA-basal samples may fall along another evaporative trend line characterized by relatively more depleted $\delta^{2}H$ concentrations.

The packer test groundwater samples collected from OSF-108R were categorized mostly as Fresh Recharge Water Types II and IV (FW-II and FW-IV), with a minor amount of Transitional Water Type I (TW-I). When plotted by depth, the groundwater samples display a rebounding trend from FW-II to FW-IV then back to FW-II. Fresh Recharge Water Type II is indicative of infiltration through sands and clay lenses. Fresh Formation Water Type IV (FW-IV) is characterized by insignificant vertical infiltration with the primary driver for chemical composition being mineral dissolution. FW-IV is also described as an older form of FW-II or FW-III. TW-I has seawater beginning to dominate the source waters. All the packer test samples collected through the MCU and LFA-upper are FW-IV. The GLAUClpu and LFA-basal samples fall into the FW-IV or FW-II categories, while the APPZ samples are categorized as either FW-II or TW-1.

OSF-108R packer test recovery water levels show that vertical hydraulic gradients vary between FAS hydrostratigraphic units. The packer test recovery groundwater elevations remained relatively constant through the APPZ at an average elevation of approximately 103 ft NGVD29. As packer testing progressed through the underlying MCU_I, the recovery water levels dropped approximately 1.3 ft followed by a steep drop in recovery water levels of 26.73 ft through MCU_II, which indicates that there is a strong downward hydraulic gradient between the APPZ and LFA-upper. Through the LFA-upper, packer test recovery water levels remained relatively constant until the bottom of the LFA-upper, where the packer test recovery water levels dropped approximately 2 ft. Recovery water levels then rose approximately 6.5 ft through the lower portion of the GLAUClpu into the LFA-basal, producing a weak upward gradient from the LFA-basal and lower portion of the GLAUClpu into the LFA-upper.

The closest FAS wells to OSF-108R (OSF-98 and OSF-99R) were monitored during packer testing and showed similar seasonal water level trends as OSF-108R. The groundwater elevation within the APPZ at OSF-108R is about 40 ft higher than the groundwater elevation in nearby APPZ monitoring well OSF-99R. This large change in groundwater elevation matches the regional UFA potentiometric surface, which shows the highest groundwater elevations beneath the Lake Wales Ridge in Polk County (Florida Geological Survey 2023). From the Lake Wales Ridge, the UFA potentiometric surface dips east beneath Osceola County.

OSF-108R is telemetered into the District's SCADA system and is collecting groundwater elevations at 15-minute intervals. Groundwater elevation and water quality data can be accessed on the District's corporate environmental database, DBHYDRO Insights (https://apps.sfwmd.gov/dbhydroInsights/.

RECOMMENDATIONS

Aquifer performance tests (APTs) are recommended to characterize the productivity, leakance, and other aquifer properties of the UFA-upper and APPZ at the Oak Island site. Although the packer testing and data analyses performed for this project were rigorous, these data were collected from 30-ft-long intervals and provide only relative comparisons of the productivity and transmissivity between tested intervals. A more accurate characterization of the APPZ's hydraulic properties, particularly APhpz-1 and APhpz-2, and any possible hydraulic connections to units above and below could be achieved by performing constant-rate APTs and concurrent groundwater sampling or a single-well specific capacity test at OSF-108R. Each APT should be conducted at the highest sustainable pumping rate to adequately stress each aquifer so that accurate aquifer parameters can be calculated.

The collected data from existing UFA-upper well OSF-103 and newly installed APPZ well OSF-108R should be integrated into a regional synthesis of existing FAS wells. Based on this proposed regional synthesis, additional FAS drilling, well installation, and testing within the CFWI region will be considered as tasks to help further resolve differing hydrostratigraphic interpretations between neighboring water management districts to help refine the regional hydrostratigraphic framework, characterize and quantify the available FAS groundwater resources, and obtain additional data in areas where FAS hydrostratigraphic information is sparse or absent.

Because the flow zones within the APPZ are highly productive, their regional extent, relative productivities, thicknesses, and depths are important for water supply planning and groundwater modeling. As stated in the ECFTX groundwater model documentation report (CFWI Hydrologic Analysis Team 2020), there is debate over whether the contiguous fracture zone prevalent in the northern and western portions of the expanded model area is hydraulically connected to the thinner, bifurcated fracture zones that are more predominant in the south-central and southeast portions of the expanded model area. There are often large distances between control points in this region, making continuity difficult to establish. This is an area of uncertainty in the hydrogeology of the region that can be addressed by a regional data synthesis, incorporating data from all the FAS wells in the region. In addition, "There are large portions of the ECFTX model area where supporting discrete head and water-quality are not available to assess the hydraulic continuity of these discrete zones. Consequently, some hydrogeologists tend to lump the fracture zones into a single unit, while others split it and view the deeper fractured zone as part of the LFA" (CFWI Hydrologic Analysis Team 2020). Additional drilling and testing within the FAS, based on the results of a regional FAS synthesis report, could help further characterize the regional extent, thickness, and productivity of fractured intervals within the APPZ.

The CTD probe used during the OSF-108R packer testing was installed within the turbulent zone immediately below the packer assembly intake. This turbulence likely resulted in a pressure drop where the CTD probe was installed. If the CTD probe (or other pressure transducer) were installed farther from the packer assembly intake, then the pressure measurements collected by the probe or transducer would be less impacted by the turbulent flow, and more accurate drawdown estimates could be obtained. It is recommended to test this hypothesis during future packer testing programs by replacing the 1-ft-long intake screen/pipe used during this investigation with a 5-ft-long pipe, which is only screened across the uppermost foot of the pipe adjacent to the packer testing assembly inlet. Two pressure transducers would then be installed within the 5-ft-long inlet pipe. One pressure transducer would be installed inside the pipe immediately adjacent to the bottom of the screened interval as was done during this investigation. A second pressure transducer would also be installed inside and close to the bottom of the 5-ft-long pipe to isolate the lower transducer from the turbulent flow that occurs at the top of the 5-ft-long pipe and packer assembly inlet. Differences in the pressures measured by these two transducers are expected due to the turbulence induced near the packer assembly inlet and the lack of turbulence farther away from the inlet. It is anticipated that the lower transducer would provide more accurate pressure measurements than the upper pressure transducer. If this is the case, future packer testing programs will utilize this new configuration.

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APPENDICES

APPENDIX A:
SFWMD SURVEYOR'S REPORT
GROUNDWATER WELL OSF-108R

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

SURVEYOR'S REPORT

GROUND WATER WELL OSF-108R (GW Well #5)

Report Prepared by: Mike Horan Sr. PSM PMP
Date: 9/30/2022
Party Chief: Ned Strickland
Field Work Date: 7/2/2022
Survey and Mapping Section
Engineering Construction Bureau

OVERVIEW OF THE PROJECT

The purpose of this Survey is to establish a Reference Elevation at monitoring well site OSF-108 by establishing NGS third order elevations referenced to the North American Vertical Datum of 1988 (NAVD-88). An offset to the National Geodetic Vertical Datum of 1929 (NGVD-29) has been computed Corpscon software, version 6.0.1.

LOCATION OF PROJECT

Section 5, Township 25 South, Range 27 East, Osceola County Florida.

VERTICAL DATUM FOR THE PROJECT
Is the North American Vertical Datum of 1988 (NAVD88). To convert elevations to the National Geodetic Vertical Datum of 1929 (NGVD29), add 0.86 to the NAVD88 value. Elevations is the U.S. survey feet unless otherwise stated.

LEVELING METHODS

CONFIGURATION OF LEVEL RUNS

A brief description of the procedures used is as follows. Benchmark “OAKISL” was recovered in good condition. The mark is a South Florida Water Management District (SFWMD) aluminum disk set in concrete. Redundant checks were made to the Reference tags @ existing Groundwater Well 2 and Groundwater Well 3. Additionally, the elevation @ BM OAKISL was verified with RTK GPS connected to the Florida Department of Transportation (FDOT) Florida Permanent Reference Network (FPRN) The FPRN is an array of 100 or more continuously operating, dual frequency geodetic GPS sensors providing real time corrections.

LEVELING EQUIPMENT USED

Leveling was done using a Wild NA2 Automatic Level (Serial 215142).

HORIZONTAL LOCATIONS

INTRODUCTION

Horizontal positions and elevation redundancy checks were made with a Trimble R12i GPS receiver connected to the FDOT Network.

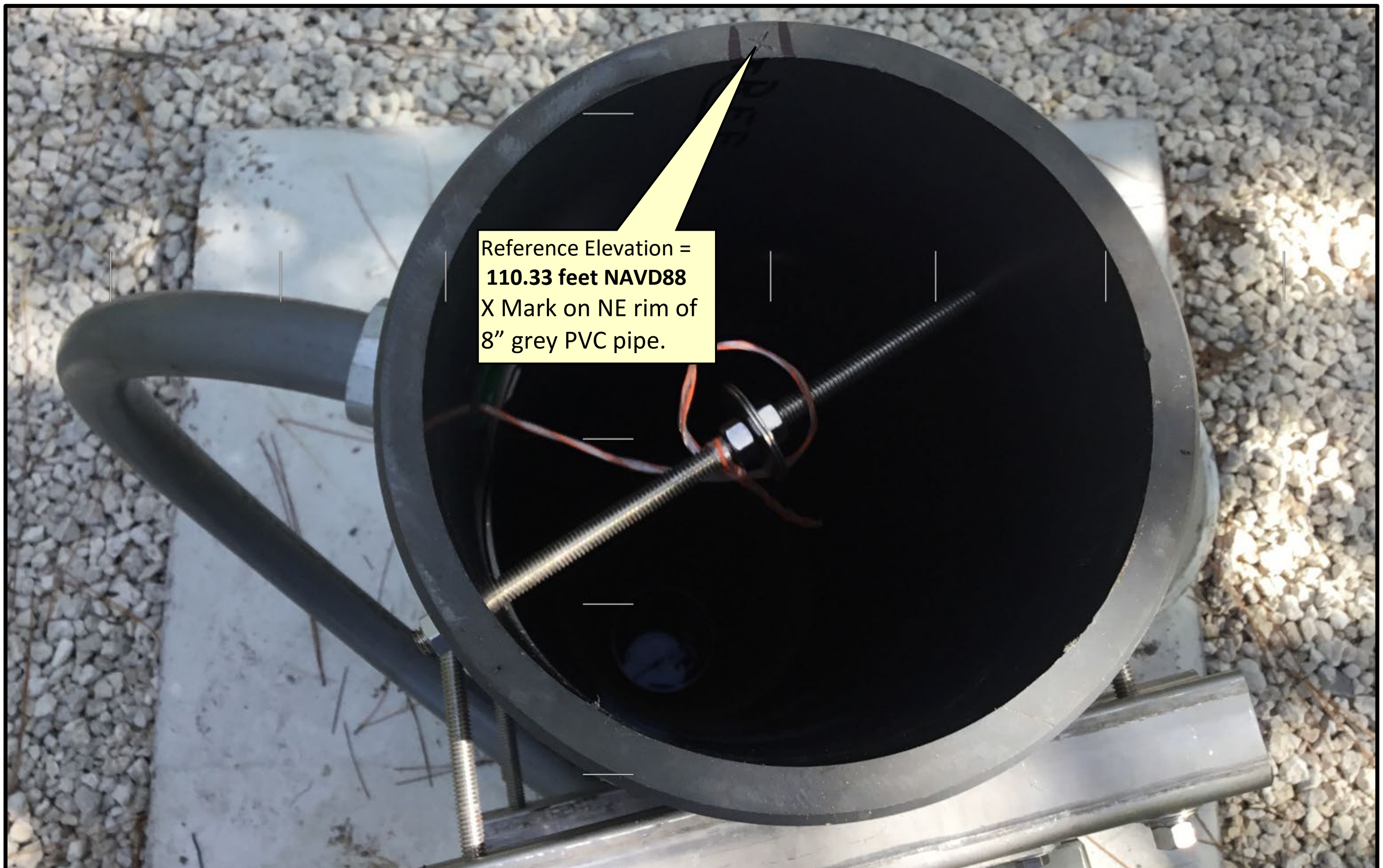
Description	Y, (Northing) Coordinates	X, (Easting) Coordinates	Latitude (DD MM SS.SS)	Longitude (DD MM SS.SS)
OAKISL 2007	1,454,667.143	452,341.855	28° 20' 02.367"	81° 38' 00.960"
OSF-108R (GW Well #5)	1,454,732.653	452,329.289	28° 20' 03.015"	81° 38' 01.105"

PROJECT RESULTS

The following tables list the elevations established for each existing or new mark, "to-reach" description for each mark and a photo of the mark. All elevations and coordinates are in US Survey Feet.

Description	***Reference Elevation (NAVD88)***
Monitor Well OSF-108R (GW Well #5) Reference Mark:	110.33 feet
Monitoring Well GW2:	110.74 feet
Monitoring Well GW3	110.69 feet
Site Benchmark "OAKISL 2007"	108.241 feet
Northeast Ground Elevation:	106.92 feet
Southeast Ground Elevation:	106.92 feet
Southwest Ground Elevation:	106.92 feet
Northwest Ground Elevation:	107.02 feet
Northeast Concrete Pad Elevation:	107.33 feet
Southeast Concrete Pad Elevation:	107.32 feet
Southwest Concrete Pad Elevation:	107.36 feet
Northwest Concrete Pad Elevation:	107.36 feet

OAKISL WELL REFERENCE POINT LOCATION PICTURE



OAKISL GW WELL 5 Brass Tag	OAKISL Overall site
	

SITE BENCHMARK "OAKISL 2007" DATA

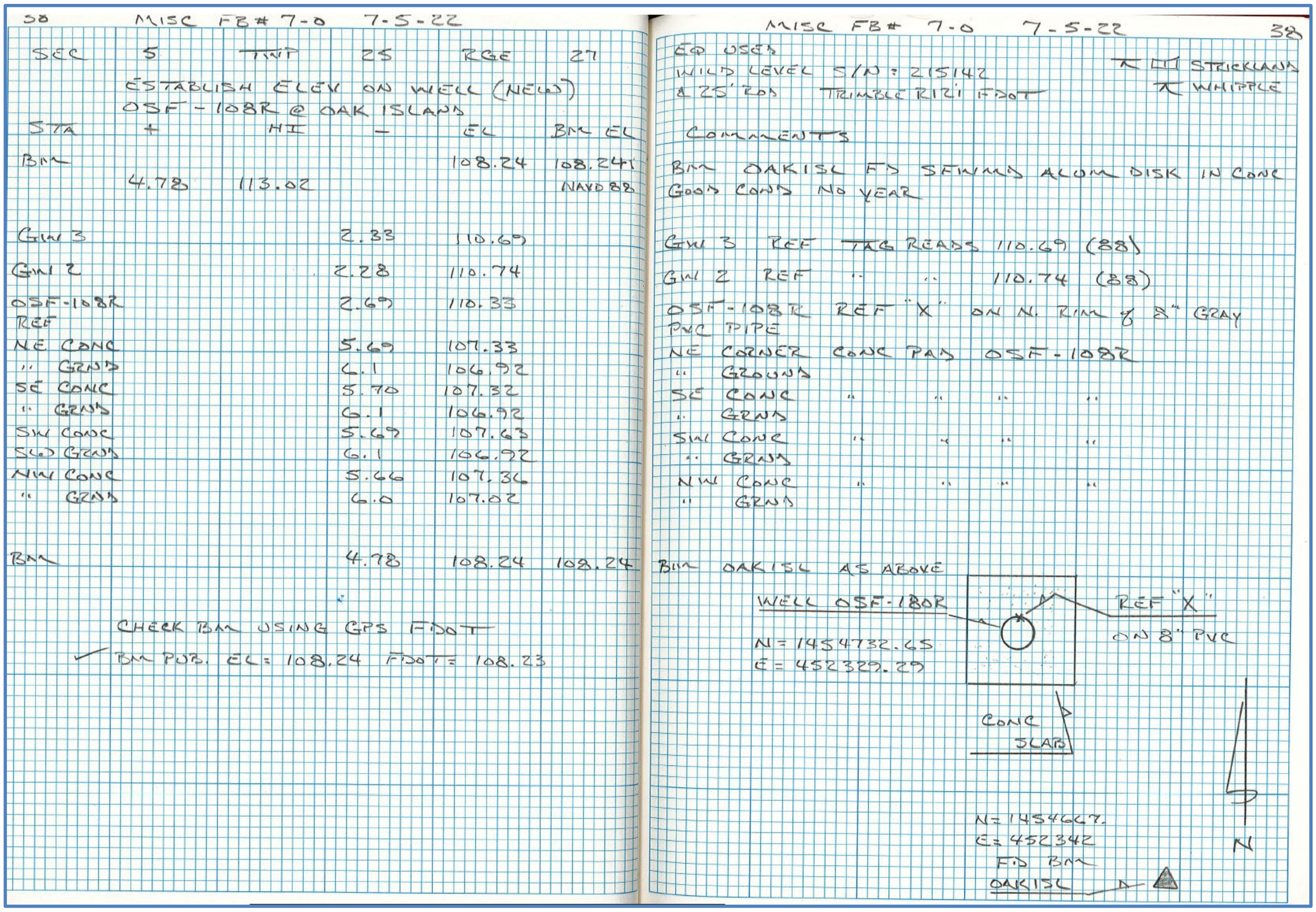
BENCHMARK PICTURE (Up-close)

BM Elevation: **108.241 feet** *(NAVD88)*

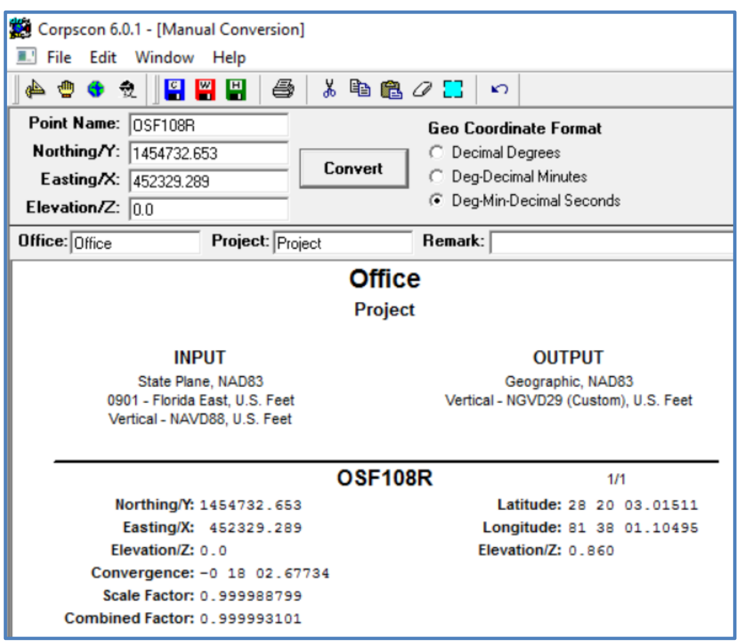
TO REACH: In Osceola County, From the intersection of I-4 & US192, go west on US 192 for 5.2 miles to Lindfields Blvd. Turn left on Lindfields Blvd and proceed south to Funie Steed Rd. Go east on Funie Steed Rd. for approximately 1000 feet to the BM on the North side of the road. BM is +/- 8' South of chain link fence, +/- 40' East of a well, and is marked by a carsonite survey signpost. The BM is a SFWMD aluminum disc on an 8" diameter & 40" deep concrete monument incased by a PVC pipe.

BENCHMARK LOCATION PICTURE

SURVEY FIELD NOTES



CORPSCON 6.0.1 CONVERSION



SITE BENCHMARK

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Rev. 4/01

COUNTY OSCEOLA	**PROJECT** VDUP- Reference Elevation Audit Project # 1	**DESIGNATION** OAKISL
SECTION 5	**TOWNSHIP** 25	**RANGE** 27

GEOGRAPHIC INDEX OF QUAD 28081-C6

Established by WOOLPERT	**NAME OF QUADRANGLE** Lake Louisa SW
SURVEYOR JOHN CESTNICK **DATE** 9 / 12 / 2007	**FIELD BOOK** W0104-40 **PAGE**

HORIZONTAL DATUM: 1983 **ZONE** E

VERTICAL DATUM: NGVD 1929 NAVD 1988

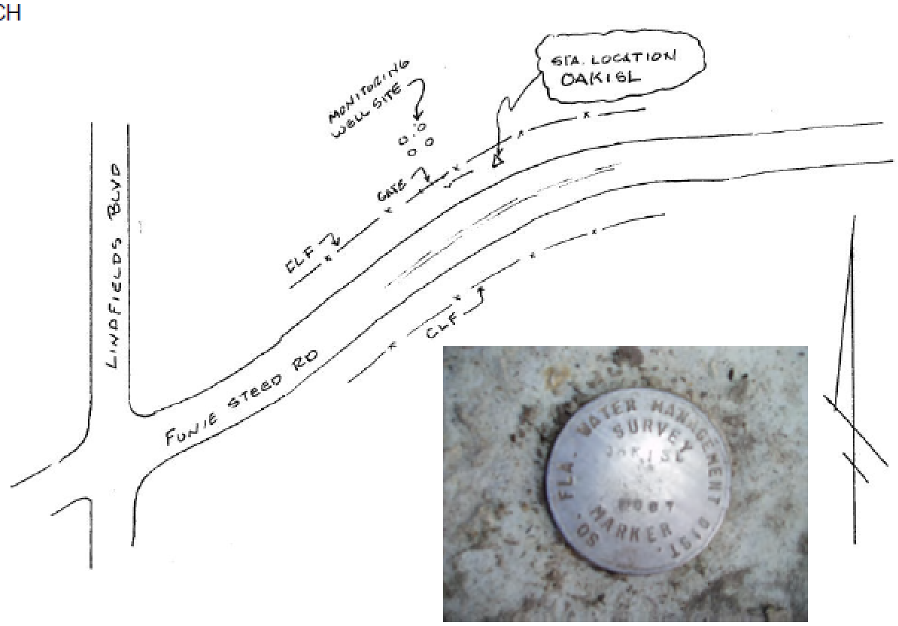
CONTROL ACCURACY: **HORIZONTAL** GPS RTD **VERTICAL** 3

STATE PLANE COORDINATES	**X** 452311	**Y** 1454680	**EL. NGVD 29** 109.10 **NAVD 88** 108.24
LATITUDE 28º 20' 02.5"		LONGITUDE 81º 38' 01.3"	108.241

DESCRIPTION

To Reach:
From the intersection of I4 & US192, go west on US192 for 5.2 miles to Lindfields Blvd. Turn left on Lindfields Blvd and proceed south to Funie Steed Rd. Go east on Funie Steed Rd. for approximately 1000 feet to the BM is on the north side of the road. BM is +/- 8' S of chain link fence, +/- 40' east of well, and is marked by a carsonite survey sign post. The BM is a SFWMD aluminum disc on an 8" diameter & 40" deep concrete monument incased by a PVC pipe.

SKETCH



Party Chief: Ned Strickland
Field Book: MISC. Field Book #7-O Page 38
Site Benchmark: “OAKISL 2007” Elevation: 108.241 (NAVD88)
Date of Survey: July 5th, 2022
Offset: = 0.86 Add this value to NAVD88 to obtain NGVD29 values

SURVEYOR’S CERTIFICATION

I hereby certify that as a duly registered Florida Professional Surveyor and Mapper, I have prepared this Report for the South Florida Water Management District with the information as outlined. This report is not complete without the referenced information being available during an examination of said Report. I further certify that the precision achieved, and the care taken in collecting the data to formulate this report are adequate for the purpose of the assignment and that the standards set forth in Chapter 5J-17.050 through 5J-17.052 of the Florida Administrative Code have been met.

____

Michael K Horan Sr PSM PMP
Professional Surveyor and Mapper
State of Florida Certificate No. 5494

APPENDIX B:
SUMMARY OF DRILLING, TESTING, AND WELL CONSTRUCTION ACTIVITIES

Table B-1. Summary of drilling, testing, and well construction activities.

Start Date	End Date	Activity	Site Geologist
2-15-21	2-19-21	Huss mobilization to site with Versadrill rig. Set-up over OSF-108 and drilled down to original as-built depth (150 ft bls).	--
2-22-21	2-26-21	Reverse-air drilling from 150 to 335 ft bls. Dredged beach sand from 321 to 325 ft bls. Drilling cut short for the week due to an air compressor breakdown at a depth of 335 ft bls.	K. Esterson
3-1-21	3-5-21	Reverse-air drilling from 335 to 365 ft bls. Prepared borehole for logging. RM Baker performed geophysical logging and downhole video of 12-inch diameter borehole. Final casing seat depth selected (343 ft bls). 30 cubic ft of gravel placed in preparation for casing installation.	E. Richardson
3-8-21	3-11-21	Depth to top of gravel measured at 345 ft bls. Added additional gravel to 344 ft bls, then added sand to 341 ft bls. 3 bags of bentonite pellets were placed on top of the sand. Installed 343 ft of 8-inch diameter steel casing and grouted to the casing to land surface.	H. Saini
3-15-21	3-19-21	Cleared cement plug from borehole with using an 8-inch diameter drill bit and drill to 370 ft bls. Installed 4-inch diameter temporary casing to 370 ft bls. Cored from 370 to 500 ft bls. Completed packer tests 1 through 4.	S. Coonts / A. Bouchier
3-22-21	3-26-21	Cored from 500 to 700 ft bls. Completed packer tests 5 through 10 (from 490 to 670 ft bls). Continued to note fizzy water in discharge. Identified a packer bladder leak and replaced damaged bladder prior to packer test 7. During packer test 7 bubbling was heard in the corehole during water level recovery. Replaced both packer bladders, airline fittings, and CO_2 tank after test 7.	K. Smith
3-29-21	3-30-21	Cored from 700 to 730 ft bls. Completed packer tests 11 and 12.	S. Coonts
3-31-21		Removed temporary 4-inch diameter casing and reamed 4-inch diameter corehole from 370 ft bls to 730 ft bls to 8 inches in diameter in preparation for installation of temporary 6-inch diameter casing.	--
4-8-21	4-8-21	Developed borehole in preparation for OBI logging. Drillers were on standby while USGS completed OBI logging from 343 to 730 ft bls.	H. Saini
4-12-21	4-16-21	Cored from 730 to 910 ft bls and completed packer tests 13 through 18.	E. Richardson
4-19-21	4-23-21	Cored from 910 to 1,040 ft bls and completed packer tests 19 through 22.	A. Bouchier
4-26-21	4-30-21	Cored from 1,040 to 1,160 ft bls and completed packer tests 23 through 26.	K. Smith
5-3-21	5-7-21	Cored from 1,160 to 1,240 ft bls and completed packer tests 27 through 28.	S. Coonts
5-10-21	5-14-21	Cored from 1,240 to 1,300 ft bls and completed packer tests 29 through 31.	E. Richardson
5-17-21	5-21-21	Cored from 1,300 to 1,390 ft bls and completed packer tests 32 through 34.	H. Saini
5-24-21	5-28-21	Cored from 1,390 to 1,530 ft bls and completed packer tests 35 through 38.	A. Bouchier
5-31-21	5-31-21	No site activities due to Veteran's Day holiday.	--
6-1-21	6-4-21	Cored from 1,530 to 1,620 ft bls and completed packer tests 39 to 41.	H. Saini / J. Zumbro

Table B-1. Continued.

Start Date	End Date	Activity	Site Geologist
6-7-21	6-11-21	Cored from 1,620 to 1,690 ft bls and completed packer tests 42 to 44.	S. Coonts
6-11-21	6-18-21	Cored from 1,690 to 1,810 ft bls and completed packer tests 45 through 47.	A. Bouchier
6-21-21	6-25-21	Cored from 1,810 to 1,900 ft bls and completed packer tests 48 through 51.	E. Richardson
6-28-21	7-2-21	Cored from 1,900 to 1,990 ft bls and completed packer tests 52 through 54.	H. Saini
7-6-21	7-9-21	Cored from 1,990 to 2,020 ft bls and conducted packer test 55. Geophysical logging by RM Baker between 730 and 2,022.3 ft bls	J. Zumbro
7-12-21	7-30-21	Reamed 810 ft of borehole to 6 inches diameter.	--
8-2-21	8-27-21	Reamed 480 ft of borehole to 6 inches diameter.	--
8-30-21	8-30-21	RM Baker completed borehole video log.	K. Esterson
8-31-21		USGS completed OBI logging.	--
9-8-21		RM Baker completed geophysical logging of reamed borehole from 730 to 2,020 ft bls. The cable head broke during induction logging and could not be repaired. Only borehole fluid logs were collected.	E. Richardson
9-14-21		ABS Geophysical completed geophysical logging from 730 to 2,020 ft bls in the reamed borehole. The dual induction tool was not available.	A. Bouchier
9-15-21		Borehole backfilled to 723 ft bls.	--

APPENDIX C:
WELL COMPLETION REPORT

49-WP-2227739

STATE OF FLORIDA PERMIT APPLICATION TO CONSTRUCT, REPAIR, MODIFY, OR ABANDON A WELL

☐ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
☒ Delegated Authority (If Applicable) Osceola

PLEASE FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

The water well contractor is responsible for completing this form and forwarding the permit application to the appropriate delegated authority where applicable.

Permit No.
Florida Unique ID
Permit Stipulations Required (See Attached)
62-524 Quad No. ____ Delineation No. ____
CUP/WUP Application No. ____
ABOVE THIS LINE - FOR OFFICIAL USE ONLY

1. Osceola Co. 1 Courthouse Sq. Ste 3100 Kissimmee, Fl. 34741
*Owner, Legal Name If Corporation *Address *City *State *ZIP Telephone Number

2. Funie Steed Rd. Kissimmee, Fl. 34747
*Well Location - Address, Road Name or Number, City

3. 052527000000800000
*Parcel ID No. ☒ (PIN) or ☐ Alternate Key — Lot — Block — Unit

4. 5 — 25 — 27 — Osceola — Subdivision — Check if 62-524: ☐ Yes ☐ No
*Section or Land Grant *Township *Range *County

5. Stephanie Stallsmith — 9342 — 352-567-9500 — stephanie@hossdrilling.com
*Water Well Contractor *License Number *Telephone Number E-mail Address

6. 35920 State Road 52 — Dade City — Fl. — 33525
*Water Well Contractor's Address City State ZIP

7. *Type of Work: ☐ Construction ☐ Repair ☒ Modification ☐ Abandonment ____ *Reason for Repair, Modification, or Abandonment

8. *Number of Proposed Wells 1

9. *Specify Intended Use(s) of Well(s):
☐ Domestic ☐ Landscape Irrigation ☐ Agricultural Irrigation ☐ Site Investigations
☐ Bottled Water Supply ☐ Recreation Area Irrigation ☐ Livestock ☒ Monitoring
☐ Public Water Supply (Limited Use/DOH) ☐ Nursery Irrigation ☐ Test
☐ Public Water Supply (Community or Non-Community/DEP) ☐ Commercial/Industrial ☐ Earth-Coupled Geothermal
☐ Class I Injection ☐ Golf Course Irrigation ☐ HVAC Supply ☐ HVAC Return

Class V Injection: ☐ Recharge ☐ Commercial/Industrial Disposal ☐ Aquifer Storage and Recovery ☐ Drainage
Remediation: ☐ Recovery ☐ Air Sparge ☐ Other (Describe)
☐ Other (Describe)

Date Stamp
Official Use Only

10. *Distance from Septic System if ≤ 200 ft. ____ 11. Facility Description Vacant 12. Estimated Start Date 2/25/21

13. *Estimated Well Depth 600 ft. *Estimated Casing Depth ____ ft. Primary Casing Diameter ____ in. Open Hole: From ____ To ____ ft.

14. Estimated Screen Interval: From ____ To ____ ft.

15. *Primary Casing Material: ☒ Black Steel ☐ Galvanized ☐ PVC ☐ Stainless Steel ☐ Not Cased ☐ Other ____

16. Secondary Casing: ☐ Telescope Casing ☐ Liner ☒ Surface Casing Diameter 16 in.

17. Secondary Casing Material: ☐ Black Steel ☐ Galvanized ☐ PVC ☐ Stainless Steel ☐ Other ____

18. *Method of Construction, Repair, or Abandonment: ☐ Auger ☐ Cable Tool Jetted ☒ Rotary ☐ Sonic
☐ Combination (Two or More Methods) ☐ Hand Driven (Well Point, Sand Point) ☐ Hydraulic Point (Direct Push)
☐ Horizontal Drilling ☐ Plugged by Approved Method ☐ Other (Describe) ____

19. Proposed Grouting Interval for the Primary, Secondary, and Additional Casing:
From 0 To 370 Seal Material (☐ Bentonite ☒ Neat Cement ☐ Other ____)
From ____ To ____ Seal Material (☐ Bentonite ☐ Neat Cement ☐ Other ____)
From ____ To ____ Seal Material (☐ Bentonite ☐ Neat Cement ☐ Other ____)
From ____ To ____ Seal Material (☐ Bentonite ☐ Neat Cement ☐ Other ____)

20. Indicate total number of existing wells on site 1 List number of existing unused wells on site 0

21. *Is this well or any existing well or water withdrawal on the owner's contiguous property covered under a Consumptive/Water Use Permit (CUP/WUP) or CUP/WUP Application? Yes (No) If yes, complete the following: CUP/WUP No. ____ District Well ID No. ____

22. Latitude ____ Longitude ____

23. Data Obtained From: ☐ GPS ☐ Map ☐ Survey Datum: ____ NAD 27 ____ NAD 83 ____ WGS 84

I hereby certify that I will comply with the applicable rules of Title 40, Florida Administrative Code, and that a water use permit or artificial recharge permit, if needed, has been or will be obtained prior to commencement of well construction. I further certify that all information provided in this application is accurate and that I will obtain necessary approval from other federal, state, or local governments, if applicable. I agree to provide a well completion report to the District within 30 days after completion of the construction, repair, modification, or abandonment authorized by this permit or the permit expires, whichever occurs first.

I certify that I am the owner of the property, that the information provided is accurate, and that I am aware of my responsibilities under Chapter 373, Florida Statutes, to maintain or properly abandon this well; or, I certify that I am the agent for the owner, that the information provided is accurate, and that I have informed the owner of their responsibilities as stated above. Owner consents to allowing personnel of the WMD or Delegated Authority access to the well site during the construction, repair, modification, or abandonment authorized by this permit.

[signature] 9342 [signature] 2/3/21
*Signature of Contractor *License No. *Signature of Owner or Agent *Date

Approval Granted By [signature] Issue Date 2-3-21 Expiration Date 8-3-21 Hydrologist Approval ____ Initials
Fee Received $ 25 Receipt No. C/C Check No. ____

THIS PERMIT IS NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OR REPRESENTATIVE OF THE WMD OR DELEGATED AUTHORITY. THE PERMIT SHALL BE AVAILABLE AT THE WELL SITE DURING ALL CONSTRUCTION, REPAIR, MODIFICATION, OR ABANDONMENT ACTIVITIES.

DEP Form: 62-532.900(1) Incorporated in 62-532.400(1), F.A.C. Effective Date: October 7, 2010 Page 1 of 2

STATE OF FLORIDA WELL COMPLETION REPORT

☐ Southwest
☐ Northwest
☐ St. Johns River
☐ South Florida
☐ Suwannee River
☐ DEP
☒ Delegated Authority (If Applicable) Osceola

PLEASE, FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Fields Where Applicable)

Date Stamp

Official Use Only

1.*Permit Number 49-WP-2827739 *CUP/WUP Number ____ *DID Number ____ 62-524 Delineation No. ____

2.*Number of permitted wells constructed, repaired, or abandoned 1 *Number of permitted wells not constructed, repaired, or abandoned 0

3.*Owner's Name Osceola Co. 4.*Completion Date 10/1/21 5. Florida Unique ID ____

6. Tunie Steed Rd. Kissimmee, Fl. 34747
*Well Location - Address, Road Name or Number, City, ZIP

7. *County Osceola *Section 5 Land Grant ____ *Township 25 *Range 27

8. Latitude ____ Longitude ____

9. Data Obtained From: ___GPS ___Map ___Survey Datum: ___NAD 27 ___NAD 83 ___WGS 84

10.*Type of Work: ___Construction ___Repair X Modification ___Abandonment

11.*Specify Intended Use(s) of Well(s):
___Domestic ___Landscape Irrigation ___Agricultural Irrigation ___Site Investigation
___Bottled Water Supply ___Recreation Area Irrigation ___Livestock X Monitoring
___Public Water Supply (Limited Use/DOH) ___Nursery Irrigation ___Test
___Public Water Supply (Community or Non-Community/DEP) ___Commercial/Industrial ___Earth-Coupled Geothermal
___Class I Injection ___Golf Course Irrigation ___HVAC Supply ___HVAC Return
Class V Injection: ___Recharge ___Commercial/Industrial Disposal ___Aquifer Storage and Recovery ___Drainage
Remediation: ___Recovery ___Air Sparge ___Other (Describe) ____
___Other (Describe) ____

12.*Drill Method: ___Auger ___Cable Tool X Rotary ___Combination (Two or More Methods) ___Jetted ___Sonic ___Horizontal Drilling ___Hydraulic Point (Direct Push) ___Other ____

13.*Measured Static Water Level ____ ft. Measured Pumping Water Level ____ ft. After ____ Hours at ____ GPM

14.*Measuring Point (Describe) ____ Which is ____ ft. ___Above ___Below Land Surface *Flowing: ___Yes ___No

15.*Casing Material: ___Black Steel ___Galvanized ___PVC ___Stainless Steel ___Not Cased ___Other ____

16.*Total Well Depth 723 ft. Cased Depth 346.7 ft. *Open Hole: From 346.7 To 723 ft. *Screen: From ____ To ____ ft. Slot Size ____

17.*Abandonment: ___Other (Explain) ____

From	To	No. of Bags	Seal Material (Check One)
___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___

18.*Surface Casing Diameter and Depth: Existing

Dia	From	To	No. of Bags	Seal Material (Check One)
16 in.	0 ft.	70 ft.	~	___Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___

19.*Primary Casing Diameter and Depth:

Dia	From	To	No. of Bags	Seal Material (Check One)
8 in.	0 ft.	346.7 ft.	281	X Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___

20.*Liner Casing Diameter and Depth:

Dia	From	To	No. of Bags	Seal Material (Check One)
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___

21.*Telescope Casing Diameter and Depth:

Dia	From	To	No. of Bags	Seal Material (Check One)
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___
___in.	___ft.	___ft.	___	___Neat Cement ___Bentonite ___Other ___

22. Pump Type (If Known):
___Centrifugal ___Jet ___Submersible ___Turbine
Horsepower ____ Pump Capacity (GPM) ____
Pump Depth ____ ft. Intake Depth ____ ft.

23. Chemical Analysis (When Required):
Iron ____ ppm Sulfate ____ ppm Chloride ____ ppm
___Laboratory Test ___Field Test Kit

24. Water Well Contractor:
*Contractor Name Stephanie Stallsmith *License Number 9342 E-mail Address stephanie@hussdrilling.com
*Contractor's Signature [signature] *Driller's Name (Print or Type) Kevin Heffuse
(I certify that the information provided in this report is accurate and true.)

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
2379 BROAD STREET, BROOKSVILLE, FL 34604-6899
PHONE: (352) 796-7211 or (800) 423-1476
WWW.SWFWMD.STATE.FL.US

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
4049 REID STREET, PALATKA, FL 32178-1429
PHONE: (386) 329-4500
WWW.SJRWMD.COM

NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
152 WATER MANAGEMENT DR., HAVANA, FL 32333-4712
(U.S. Highway 90, 10 miles west of Tallahassee)
PHONE: (850) 539-5999
WWW.NWFWMD.STATE.FL.US

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
P.O. BOX 24680
3301 GUN CLUB ROAD
WEST PALM BEACH, FL 33416-4680
PHONE: (561) 686-8800
WWW.SFWMD.GOV

SUWANNEE RIVER WATER MANAGEMENT DISTRICT
9225 CR 49
LIVE OAK, FL 32060
PHONE: (386) 362-1001 or (800) 226-1066 (Florida only)
WWW.MYSUWANNEERIVER.COM

***DRILL CUTTINGS LOG** (Examine cuttings every 20 ft. or at formation changes. Note cavities and depth to producing zone. Grain Size: F=Fine, M=Medium, and C=Coarse)

Please See Attached

From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From______ ft. To______ ft. Color______ Grain Size (F, M, C)______ Material______
From__ ft. To ___ft. Color______ Grain Size (F, M, C)______ Material______

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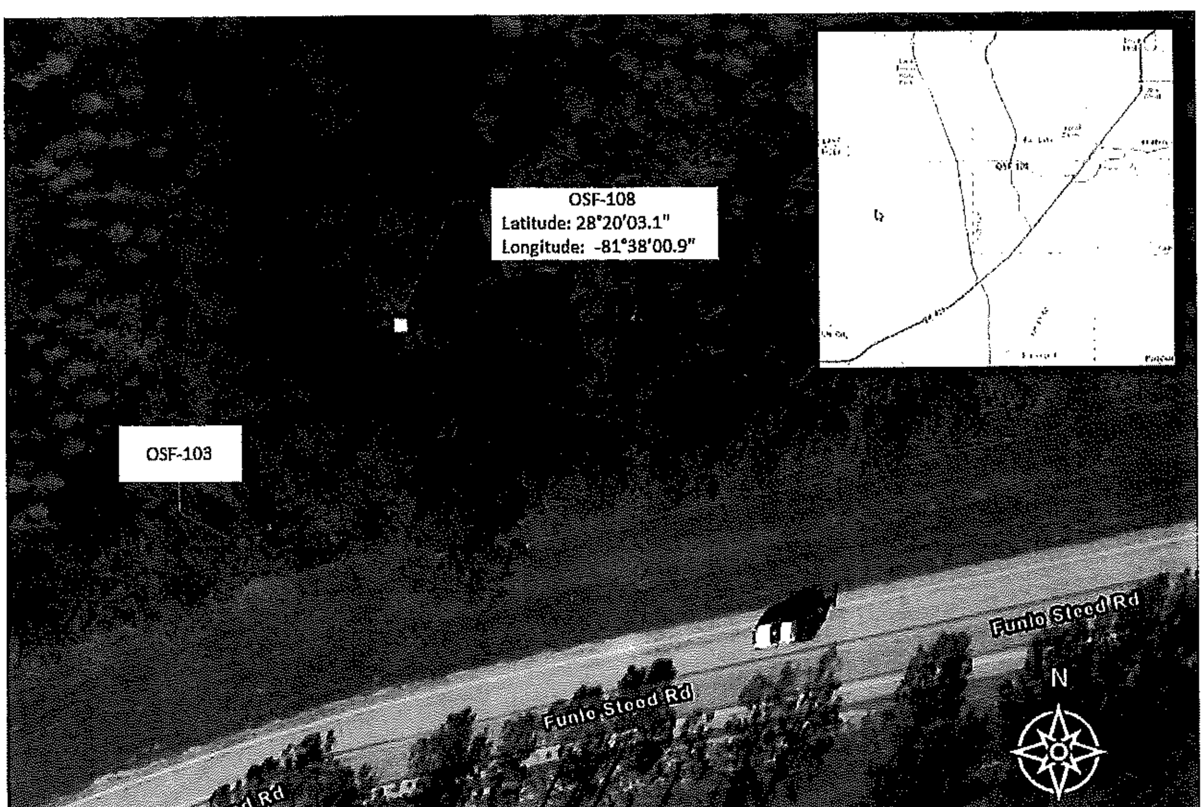

Figure 3. Oak Island Drill-Site Location

Well	Depth Min	Depth Max	Description/Comments	Rock Type	Porosity percent	Porosity Type1	Induration	Other Feature	Fossil type	Color1	Access Min Type1	Access Min Pct1
OSF-108	150	155	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	155	160	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	160	170	DOLOMITIC-LIMESTONE; GRAYISH ORANGE : 10YR 7/4; ECHINOIDS, CONES	DOLOMITIC-LIMESTONE					ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108	170	175	DOLOMITIC-LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ECHINOIDS, CONES	DOLOMITIC-LIMESTONE					ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	175	180	DOLOMITIC-LIMESTONE; GRAYISH ORANGE : 10YR 7/4; ECHINOIDS, CONES	DOLOMITIC-LIMESTONE					ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108	180	185	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	185	210	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	210	215	LIMESTONE; VERY PALE ORANGE : 10YR 8/2	LIMESTONE						VERY PALE ORANGE : 10YR 8/2		
OSF-108	215	225	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	225	235	DOLOSTONE; 30% LIMESTONE; DARK YELLOWISH BROWN : 10YR 4/2; ECHINOIDS, CONES, FORAMINIFERA	DOLOSTONE					ECHINOIDS	DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108	235	240	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA	LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	240	245	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FORAMINIFERA	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	245	250	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; ECHINOIDS	DOLOSTONE					ECHINOIDS	DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108	250	255	LIMESTONE; 10% SHELL FRAGMENTS; YELLOWISH GRAY : 5Y 7/2; FORAMINIFERA, CONES	LIMESTONE					FORAMINIFERA	YELLOWISH GRAY : 5Y 7/2		
OSF-108	255	260	LIMESTONE; 30% SHELL FRAGMENTS; PALE YELLOWISH BROWN : 10YR 6/2	LIMESTONE						PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	260	265	DOLOSTONE; 40% LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; CONES	DOLOSTONE					CONES	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	265	270	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	270	275	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA	LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	275	280	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA, CONES	LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	280	285	DOLOMITIC-LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ECHINOIDS	DOLOMITIC-LIMESTONE					ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	285	290	DOLOMITIC-LIMESTONE; YELLOWISH GRAY : 5Y 7/2; ECHINOIDS, FORAMINIFERA, CONES	DOLOMITIC-LIMESTONE					ECHINOIDS	YELLOWISH GRAY : 5Y 7/2		
OSF-108	290	300	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA, CONES	LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	300	315	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	315	320	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; CONES	LIMESTONE					CONES	VERY PALE ORANGE : 10YR 8/2		
OSF-108	320	325	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES; 20% WHITE QUARTZ SAND; TRACE PHOSPHATE	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	1
OSF-108	325	330	DOLOSTONE; 40% LIMESTONE; VERY PALE ORANGE : 10YR 8/2; CONES; 2% QUARTZ SAND; 2% PHOSPHATE	DOLOSTONE					CONES	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	2
OSF-108	330	335	DOLOSTONE; 30% LIMESTONE; VERY PALE ORANGE : 10YR 8/2, CONES; ECHINOIDS; 1% PHOSPHATE; 10% OF LIMESTONE HAS IRON STAINING	DOLOSTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	1
OSF-108	335	345	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA, CONES	DOLOMITIC-LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	345	350	DOLOSTONE; 30% DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2, CONES; ECHINOIDS; 1% PHOSPHATE; 1% QUARTZ SAND	DOLOSTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108	350	355	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FORAMINIFERA; 20% OF GRAINS HAVE IRON STAINING; 2% BLACK ORGANICS	DOLOMITIC-LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2	ORGANICS	2
OSF-108	355	360	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FORAMINIFERA; TRACE PHOSPHATES	DOLOMITIC-LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	1
OSF-108	360	365	DOLOMITIC-LIMESTONE; 10% DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA; CONES; TRACE PHOSPHATES	DOLOMITIC-LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	1
OSF-108	365	370	NO SAMPLE									
OSF-108	370	371.1	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108	371.1	377.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION; FORAMINIFERA; BIVALVES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	377.6	378.8	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	378.8	380	NO RECOVERY									
OSF-108	380	382	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION; BIVALVES, GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108	382	384.2	LIMESTONE-PACKSTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; FORAMINIFERA; MILIOLIDS	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	384.2	385.3	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108	385.3	387.3	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE VUGGY POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	387.3	389	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE VUGGY POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	389	390	NO RECOVERY									
OSF-108	390	391.5	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108	391.6	393	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE MOLDIC AND VUGGY POROSITY; GOOD INDURATION; ECHINOIDS; BIVALVES, GASTROPODS, MILIOLID, NEOLAGNUM	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD		ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	393	396	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108	396	397.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108	397.2	400	NO RECOVERY									
OSF-108	400	401.3	LIMESTONE-PACKSTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; FORAMINIFERA; GASTROPODS	LIMESTONE-PACKSTONE	30	INTERGRANULAR	POOR		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	401.3	402	LIMESTONE-PACKSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION; FORAMINIFERA	LIMESTONE-PACKSTONE	10	INTERGRANULAR	POOR		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	402	405.2	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION; FORAMINIFERA	LIMESTONE-PACKSTONE	20	INTERGRANULAR	POOR		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108	405.2	407	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; FORAMINIFERA	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108	407	410	NO RECOVERY									
OSF-108	410	415.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; FORAMINIFERA; BIVALVES AND GASTROPODS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108	415.2	415.6	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; FORAMINIFERA; BIVALVES AND GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR		FORAMINIFERA	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	415.9	416	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; FORAMINIFERA; BIVALVES AND GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108	416	418.9	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4		
OSF-108	418.9	421.4	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108	421.4	423	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108	423	424.1	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	424.1	425.4	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	425.4	427.1	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108	427.1	428.7	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-MUDSTONE	20	INTERGRANULAR	GOOD		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2		
OSF-108	428.7	430	NO RECOVERY									
OSF-108	430	431.5	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	431.5	435.6	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW VUGGY AND INTERGRANULAR POROSITY; POOR INDURATION; SOME FRACTURES	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			PALE YELLOWISH BROWN : 10YR 6/2	CELESTINE	
OSF-108	435.6	438.2	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108	438.2	438.7	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	FRACTURED	MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4		
OSF-108	438.7	439.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108	439.2	440	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108	440	441.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108	441.5	442.6	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108	442.6	443.4	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108	443.4	444	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR AND VUGGY POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		

OSF-108	444	445.1	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	445.1	446.4	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4	
OSF-108	446.4	446.8	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	446.8	447.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	447.5	448	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	448	448.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	
OSF-108	448.6	449.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	
OSF-108	449.5	450	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; MOLLUSKS-BIVALVES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2	
OSF-108	450	450.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	450.7	451.3	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	451.3	454	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2	
OSF-108	454	454.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2	
OSF-108	454.6	455	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	
OSF-108	455	455.8	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION; FRACTURED	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR	FRACTURED		GRAYISH ORANGE : 10YR 7/4	
OSF-108	455.8	458	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4	
OSF-108	458	459.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; MOLLUSKS-BIVALVES; GASTROPODS, SOME FRACTURES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2	
OSF-108	459.5	460	NO RECOVERY								
OSF-108	460	461.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	461.7	463.9	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	463.9	466	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	466	467	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	467	468	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4	
OSF-108	468	470	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; POOR INDURATION; SOME FRACTURES	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4	
OSF-108	470	473.4	LIMESTONE-WACKESTONE; DARK YELLOWISH ORANGE : 10YR 6/6; HIGH INTERGRANULAR POROSITY; POOR INDURATION; FRACTURED	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR	FRACTURED		DARK YELLOWISH ORANGE : 10YR 6/6	
OSF-108	473.4	476	LIMESTONE-WACKESTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			DARK YELLOWISH ORANGE : 10YR 6/6	
OSF-108	476	476.7	LIMESTONE-WACKESTONE; DARK YELLOWISH ORANGE : 10YR 6/6; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			DARK YELLOWISH ORANGE : 10YR 6/6	
OSF-108	476.7	478.8	LIMESTONE-MUDSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	POOR			DARK YELLOWISH ORANGE : 10YR 6/6	
OSF-108	478.8	480	NO RECOVERY								
OSF-108	480	481.2	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			DARK YELLOWISH BROWN : 10YR 4/2	
OSF-108	481.2	482	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	
OSF-108	482	482.9	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	482.9	483.6	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			DARK YELLOWISH BROWN : 10YR 4/2	
OSF-108	483.6	484.9	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			DARK YELLOWISH BROWN : 10YR 4/2	CHERT
OSF-108	484.9	486	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	486	490	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			DARK YELLOWISH BROWN : 10YR 4/2	
OSF-108	490	491.1	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4	
OSF-108	491.1	492	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			DARK YELLOWISH BROWN : 10YR 4/2	
OSF-108	492	492.6	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	492.6	495	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4	
OSF-108	495	496.3	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	496.3	498	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD		MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4	
OSF-108	498	500	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4	
OSF-108	500	501.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4	
OSF-108	501.5	504.3	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	504.3	508	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; POOR INDURATION; LAMINATED	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS
OSF-108	508	510	NO RECOVERY								
OSF-108	510	511.7	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2	
OSF-108	511.7	512.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	512.5	514	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	514	516	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4	
OSF-108	516	517	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	30	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4	
OSF-108	517	518.5	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-MUDSTONE	20	INTERGRANULAR	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4	
OSF-108	518.5	520	NO RECOVERY								
OSF-108	520	521.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; FRACTURED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	FRACTURED		VERY PALE ORANGE : 10YR 8/2	ORGANICS
OSF-108	521.8	523.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS
OSF-108	523.2	526.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	526.2	527.9	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	POOR	FRACTURED		VERY PALE ORANGE : 10YR 8/2	
OSF-108	527.9	528.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS
OSF-108	528.8	529.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	529.7	531.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	531.5	532	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	532	534	CALCAREOUS DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	CALCAREOUS DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	
OSF-108	534	535.2	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; FRACTURED; ORGANICS	CALCAREOUS DOLOSTONE	0	NO OBSERVABLE	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS
OSF-108	535.2	536.3	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	536.3	538	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	0	NO OBSERVABLE	POOR			PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	538	540	NO RECOVERY								
OSF-108	540	543	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	543	545.1	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE PINPOINT POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	0	NO OBSERVABLE	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	545.1	547.1	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2	
OSF-108	547.1	550.4	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; ORGANICS	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS
OSF-108	550.4	552.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	552.2	554.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	554.2	558	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	

OSF-108	566	566.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT, VUGGY, AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	566.8	567.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	567.7	569.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	569.5	571.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS
OSF-108	571.5	572.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, VUGGY, AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		GRAYISH ORANGE : 10YR 7/4	
OSF-108	572.8	574.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; QUARTZITE	DOLOSTONE	20	PIN POINT - VUGS	POOR		GRAYISH ORANGE : 10YR 7/4	QUARTZITE
OSF-108	574.2	576	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR		GRAYISH ORANGE : 10YR 7/4	
OSF-108	576	577	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	577	578.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED; CHERT	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	PALE YELLOWISH BROWN : 10YR 6/2	CHERT
OSF-108	578.8	580	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED	PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	580	581.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS
OSF-108	581.8	583	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	583	584.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	584.9	586	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	586	588	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; QUARTZITE	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZITE
OSF-108	588	589.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	589.6	590	NO RECOVERY							
OSF-108	590	591.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	591.6	592.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED	PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	592.7	594	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	594	595.2	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	GOOD	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	595.2	597.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	597.9	602	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	602	603.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	603.1	604	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	604	606.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	30	PIN POINT - VUGS	GOOD		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	606.3	608.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD		GRAYISH ORANGE : 10YR 7/4	
OSF-108	608.2	608.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR		GRAYISH ORANGE : 10YR 7/4	
OSF-108	608.9	609.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	609.5	610	NO RECOVERY							
OSF-108	610	611.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR		GRAYISH ORANGE : 10YR 7/4	
OSF-108	611.8	613.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	GRAYISH ORANGE : 10YR 7/4	
OSF-108	613.7	614.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; FRACTURED; ORGANICS; LAMINATED	DOLOSTONE	10	PIN POINT - VUGS	POOR	FRACTURED	VERY PALE ORANGE : 10YR 8/2	ORGANICS
OSF-108	614.2	616.3	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	GRAYISH ORANGE : 10YR 7/4	
OSF-108	616.3	620	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR		GRAYISH ORANGE : 10YR 7/4	
OSF-108	620	623.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		GRAYISH ORANGE : 10YR 7/4	
OSF-108	623.2	623.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED	GRAYISH ORANGE : 10YR 7/4	ORGANICS
OSF-108	623.8	626.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	626.4	626.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR		VERY PALE ORANGE : 10YR 8/2	
OSF-108	626.8	628.2	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	628.2	629.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	629.3	630	NO RECOVERY							
OSF-108	630	631.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	631.7	632.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED	VERY PALE ORANGE : 10YR 8/2	ORGANICS
OSF-108	632.1	634.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	634.7	636	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	636	637	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	GOOD	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	637	640.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	640.3	641.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED	VERY PALE ORANGE : 10YR 8/2	ORGANICS
OSF-108	641.1	644.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	644.8	645.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	POOR	LAMINATED	MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS
OSF-108	645.6	646	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	646	648.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	648.4	650.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	650.5	652	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	652	653.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	653.8	654.1	CALCAREOUS DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	MODERATE		GRAYISH ORANGE : 10YR 7/4	
OSF-108	654.1	655	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	655	656	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		GRAYISH ORANGE : 10YR 7/4	
OSF-108	656	656.5	CALCAREOUS DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	MODERATE		GRAYISH ORANGE : 10YR 7/4	
OSF-108	656.5	660	NO RECOVERY							
OSF-108	660	661	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR		MODERATE YELLOWISH BROWN : 10YR 5/4	

OSF-108	661	662.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	662.1	663.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	663.8	665.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	665.1	666	NO RECOVERY							
OSF-108	666	666.4	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS
OSF-108	666.4	670	NO RECOVERY							
OSF-108	670	671.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; FRACTURED; ORGANICS; LAMINATED	DOLOSTONE	20	PIN POINT - VUGS	POOR	FRACTURED	GRAYISH ORANGE : 10YR 7/4	ORGANICS
OSF-108	671.1	678	NO RECOVERY							
OSF-108	678	680	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	POOR	FRACTURED	VERY PALE ORANGE : 10YR 8/2	
OSF-108	680	681.4	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE		VERY PALE ORANGE : 10YR 8/2	
OSF-108	681.4	682.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		GRAYISH ORANGE : 10YR 7/4	
OSF-108	682.9	686	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	LAMINATED	GRAYISH ORANGE : 10YR 7/4	ORGANICS
OSF-108	686	690	NO RECOVERY							
OSF-108	690	690.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE		VERY PALE ORANGE : 10YR 8/2	
OSF-108	690.8	696	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	696	696.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED	GRAYISH ORANGE : 10YR 7/4	
OSF-108	696.7	697.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	697.5	698.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	698.2	700	NO RECOVERY							
OSF-108	700	701.7	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR		VERY PALE ORANGE : 10YR 8/2	
OSF-108	701.7	703	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR		GRAYISH ORANGE : 10YR 7/4	
OSF-108	703	705.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR		GRAYISH ORANGE : 10YR 7/4	
OSF-108	705.2	705.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION; LAMINATED; ORGANICS; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	POOR	LAMINATED	GRAYISH ORANGE : 10YR 7/4	ORGANICS
OSF-108	705.8	707	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	707	707.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR		MODERATE YELLOWISH BROWN : 10YR 5/4	
OSF-108	707.6	710	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; POOR INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	POOR	FRACTURED	GRAYISH ORANGE : 10YR 7/4	
OSF-108	710	711.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED	PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	711.8	712.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED	GRAYISH ORANGE : 10YR 7/4	ORGANICS
OSF-108	712.1	716.4	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		DARK YELLOWISH ORANGE : 10YR 6/6	
OSF-108	716.4	717.4	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR		DARK YELLOWISH ORANGE : 10YR 6/6	
OSF-108	717.4	717.6	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED	GRAYISH ORANGE : 10YR 7/4	ORGANICS
OSF-108	717.6	720.1	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE		DARK YELLOWISH ORANGE : 10YR 6/6	
OSF-108	720.1	721.1	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED	PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	721.1	721.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	721.7	722.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE		PALE YELLOWISH BROWN : 10YR 6/2	
OSF-108	722.2	723	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE		MODERATE YELLOWISH BROWN : 10YR 5/4	

APPENDIX D:
GEOPHYSICAL LOGS

RMBAKER
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WELL OSF-108R
UWI OSF-108R

PROFESSIONAL LICENSES
Geologist PG2186
Licensed Geology Business

HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
FLOWMETER
WATER QUALITY
SONIC
VIDEO

PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

DATE	04 Mar 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	35
TYPE LOG	**CALIPER**	TROLLING DIRECTION	UP
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	365		
DEPTH-LOGGER	366.45		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

BOREHOLE RECORD				CASING RECORD			
RUN NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65

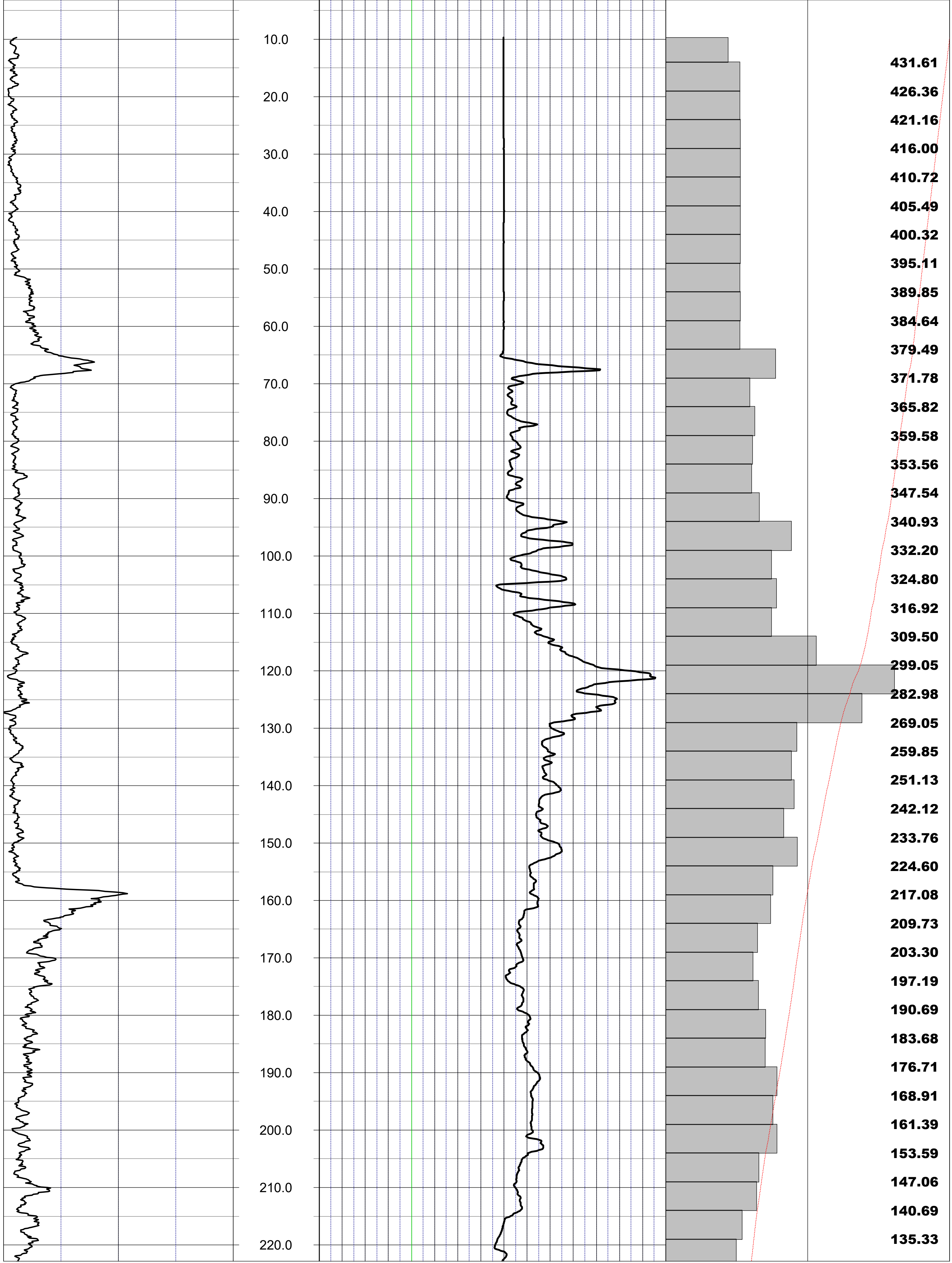
LOG CODES

3-arm caliper	**CAL**	long normal resistivity	**RLN**	deep induction conductivity	**IDC**
natural gamma (CPS)	**GAMM**	8 inch resistivity	**R8**	shallow induction conductivity	**ISC**
spontaneous potential	**ESP**	32 inch resistivity	**R32**	sonic interval velocity	**DT**
single point resistance	**RES**	deep induction resistivity	**ILD**	sonic porosity (RHG method)	**SPHI**
short normal resistivity	**RSN**	shallow induction resistivity	**ILM**	repeat designation	**R**

PROJECT NOTES:
-Calculated annular volumes are based on casing OD of 8-inches set to 344 feet.

GAMM	Depth	CAL	Total Ann. Volume
0 CPS 200	1in:20ft	0 IN 30	0 cu.ft 435.93
		ANNULAR OD	Cumulated Ann. Volume (cu.ft)
		0 IN 30	
			Interval Ann. Volume
			0 cu.ft 20

0.0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200.0
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220.0
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426.36
421.16
416.00
410.72
405.49
400.32
395.11
389.85
384.64
379.49
371.78
365.82
359.58
353.56
347.54
340.93
332.20
324.80
316.92
309.50
299.05
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269.05
259.85
251.13
242.12
233.76
224.60
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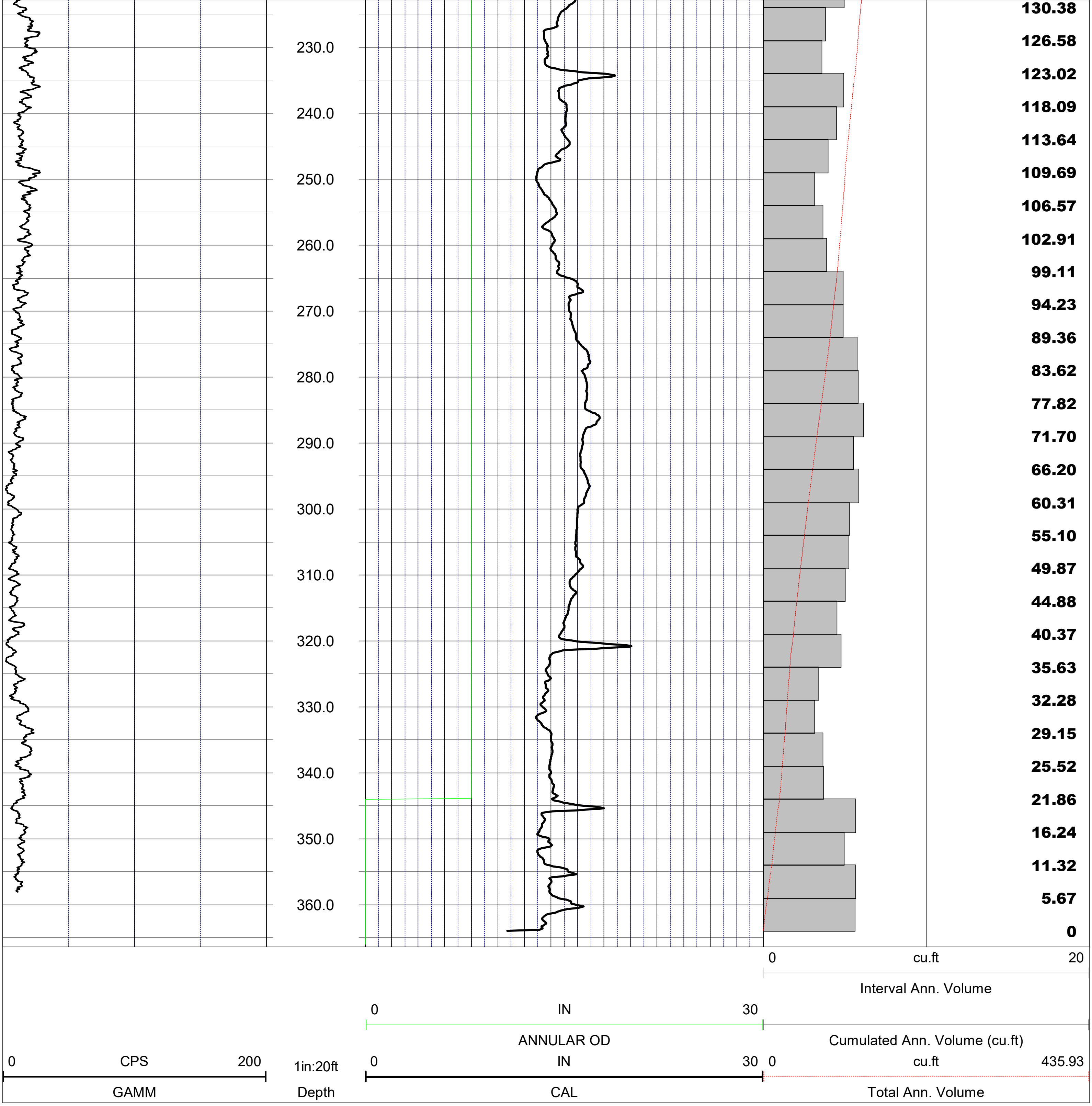

NOTES:

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The geophysical well logs show subsurface conditions as they existed at the dates and locations shown, and it is not warranted that they are representative of subsurface conditions at other locations and times.

If, at any time, different subsurface conditions from those observed are determined to be present, we must be advised and allowed to review and revise our observations if necessary.

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END OF LOG

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WELL OSF-108R
UWI OSF-108R

PROFESSIONAL LICENSES
Geologist PG2186
Licensed Geology Business

HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
FLOWMETER
WATER QUALITY
SONIC
VIDEO

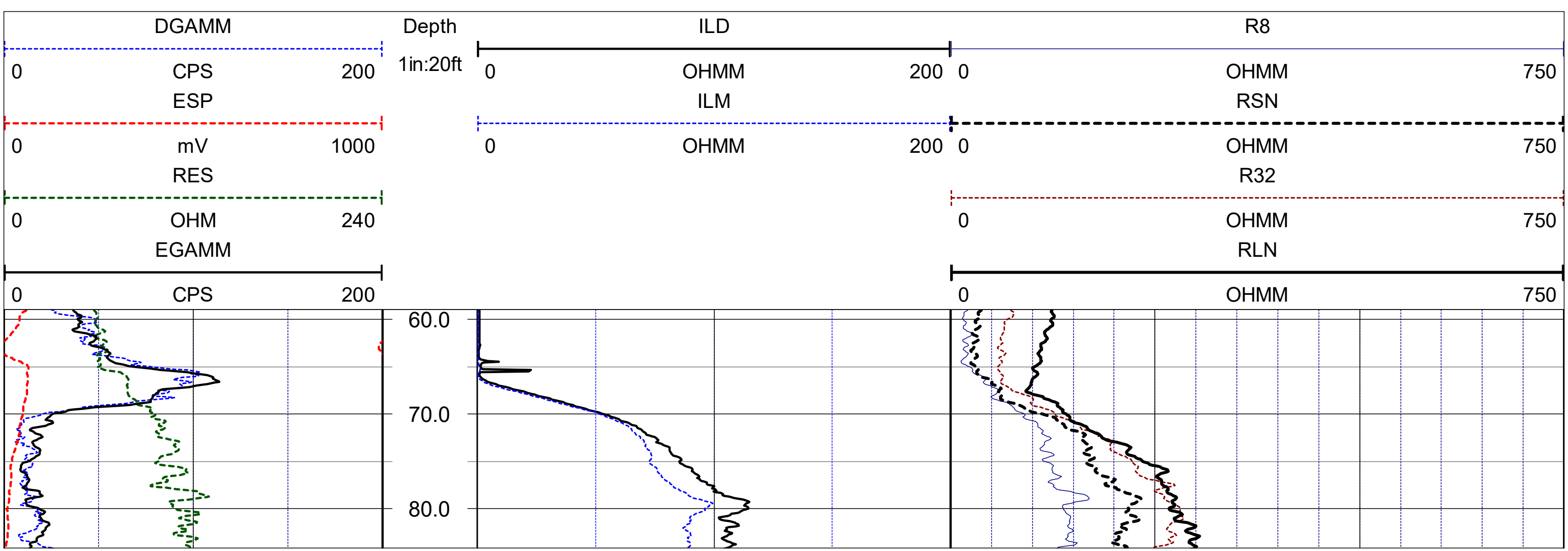
PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

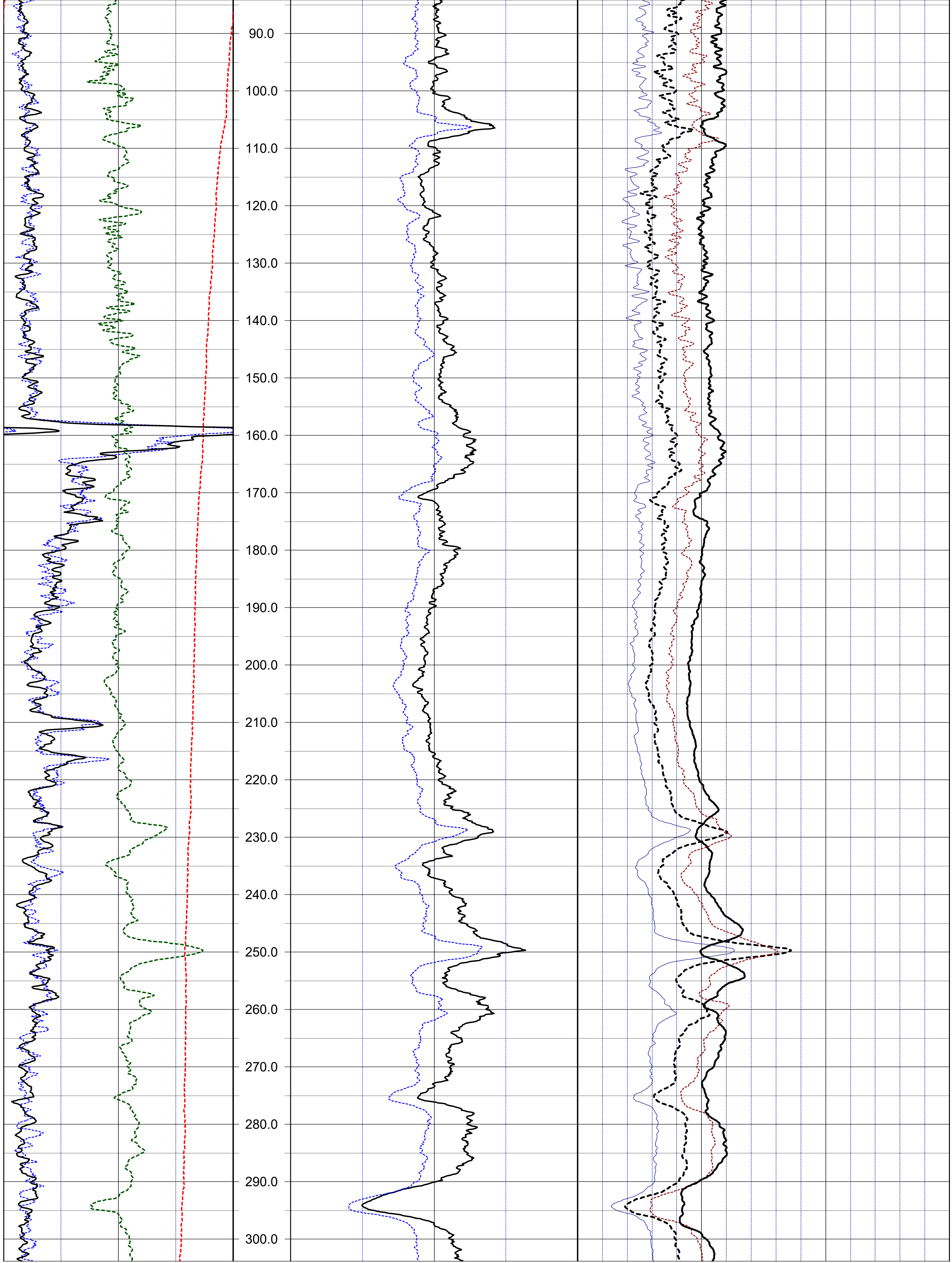
DATE	04 Mar 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	30
TYPE LOG	ELECTRIC+DUIN	TROLLING DIRECTION	UP
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	365		
DEPTH-LOGGER	366.45		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

BOREHOLE RECORD				CASING RECORD			
RUN NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65

LOG CODES

3-arm caliper	**CAL**	long normal resistivity	**RLN**	deep induction conductivity	**IDC**
natural gamma (CPS)	**GAMM**	8 inch resistivity	**R8**	shallow induction conductivity	**ISC**
spontaneous potential	**ESP**	32 inch resistivity	**R32**	sonic interval velocity	**DT**
single point resistance	**RES**	deep induction resistivity	**ILD**	sonic porosity (RHG method)	**SPHI**
short normal resistivity	**RSN**	shallow induction resistivity	**ILM**	repeat designation	**R**

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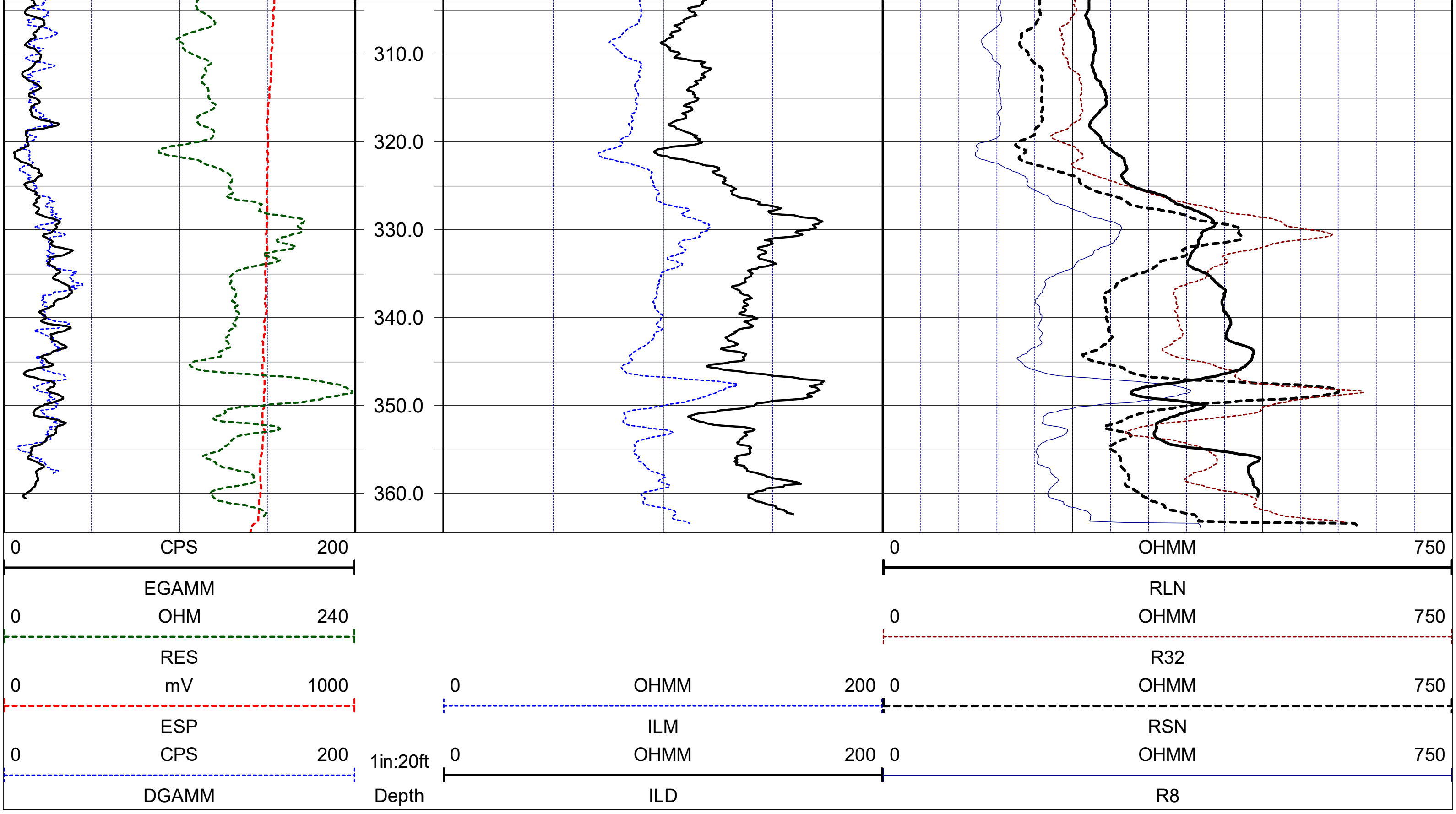

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WELL OSF-108R
UWI OSF-108R

PROFESSIONAL LICENSES
Geologist PG2186
Licensed Geology Business

HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
FLOWMETER
WATER QUALITY
SONIC
VIDEO

PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

DATE	04 Mar 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	30
TYPE LOG	**FLOWMETER**	TROLLING DIRECTION	BOTH
DEPTH-DRILLER	365	PUMPING RATE (GPM)	N/A
DEPTH-LOGGER	366.45		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

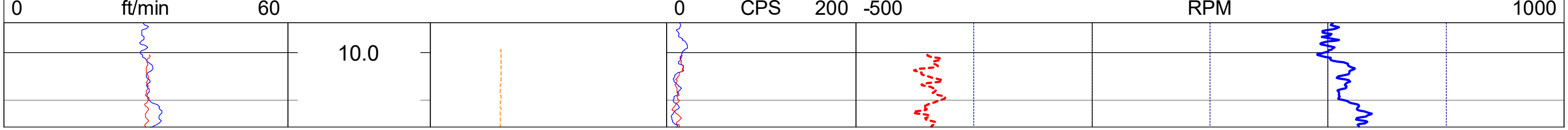
BOREHOLE RECORD				CASING RECORD			
RUN NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65

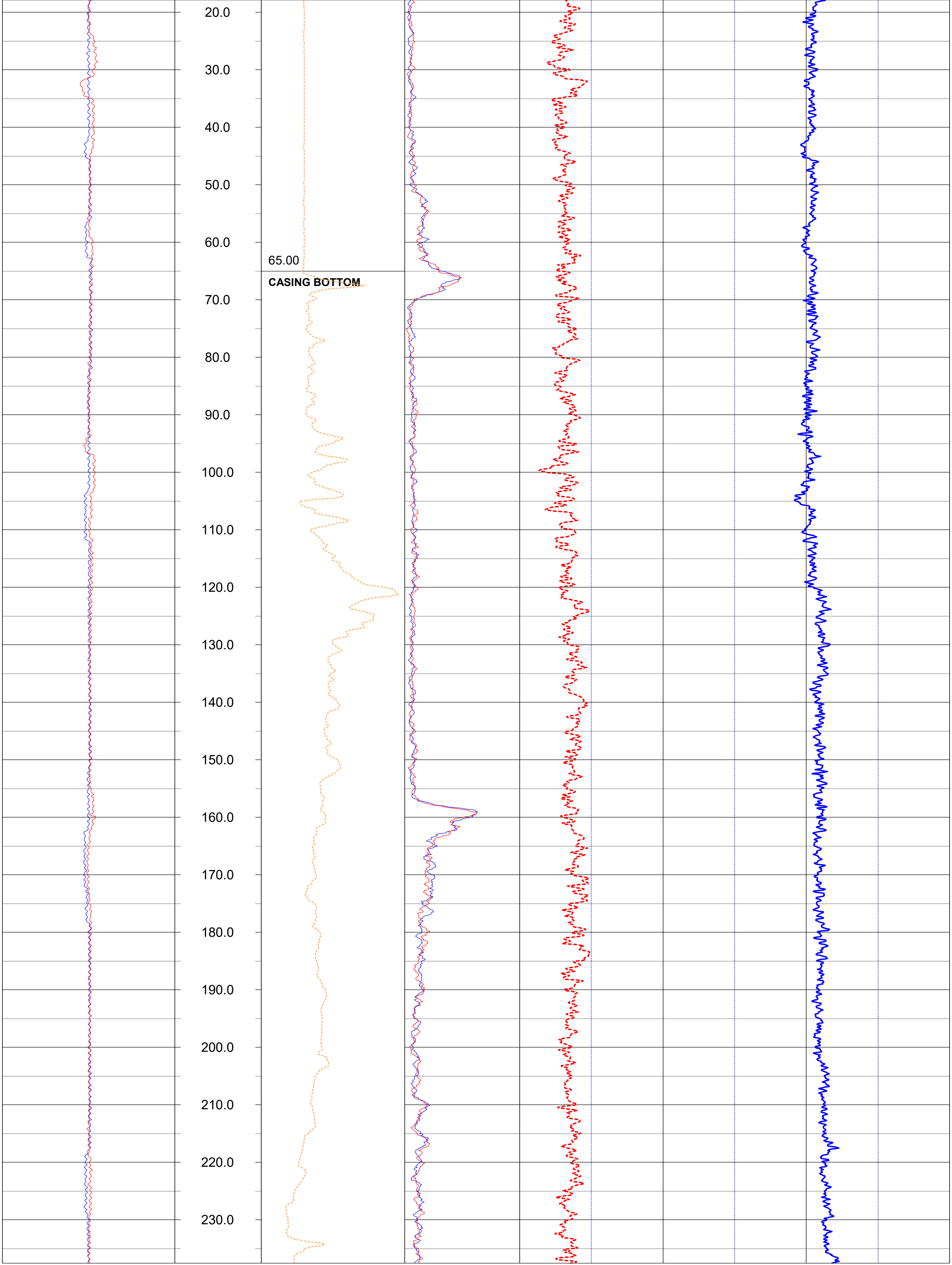
PROJECT NOTES:
-The spinner rate curves deflect to the positive direction with increasing flow from the well.
-The spinner rate curves are not corrected for borehole diameter.
-Formational flow was detected below 120 feet, upward from the bottom.

FLOWMETER LOG CODES

down static spinner rate	**FSD**	down static line speed	**LSSD**	natural gamma (w/annot.)	**GAMM**
up static spinner rate	**UTS**	up static line speed	**LSSU**	caliper	**CAL**
down dynamic spinner rate	**DYND**	down dynamic line speed	**LSDD**	repeat designation	**R**
up dynamic spinner rate	**DYNU**	up dynamic line speed	**LSDU**	percent flow	**PFLO**
static station spinner rate	**FSU**	dynamic station spinner rate	**FSP**	GPM flow	**GPMFLO**

LSSD	Depth	CAL	DS GAMM	FSD
0 ft/min 60	1in:20ft	10 IN 30	0 CPS 200	-500 RPM 1000
LSSU		COMMENTS	US GAMM	UTS
0 ft/min 60			0 CPS 200	-500 RPM 1000

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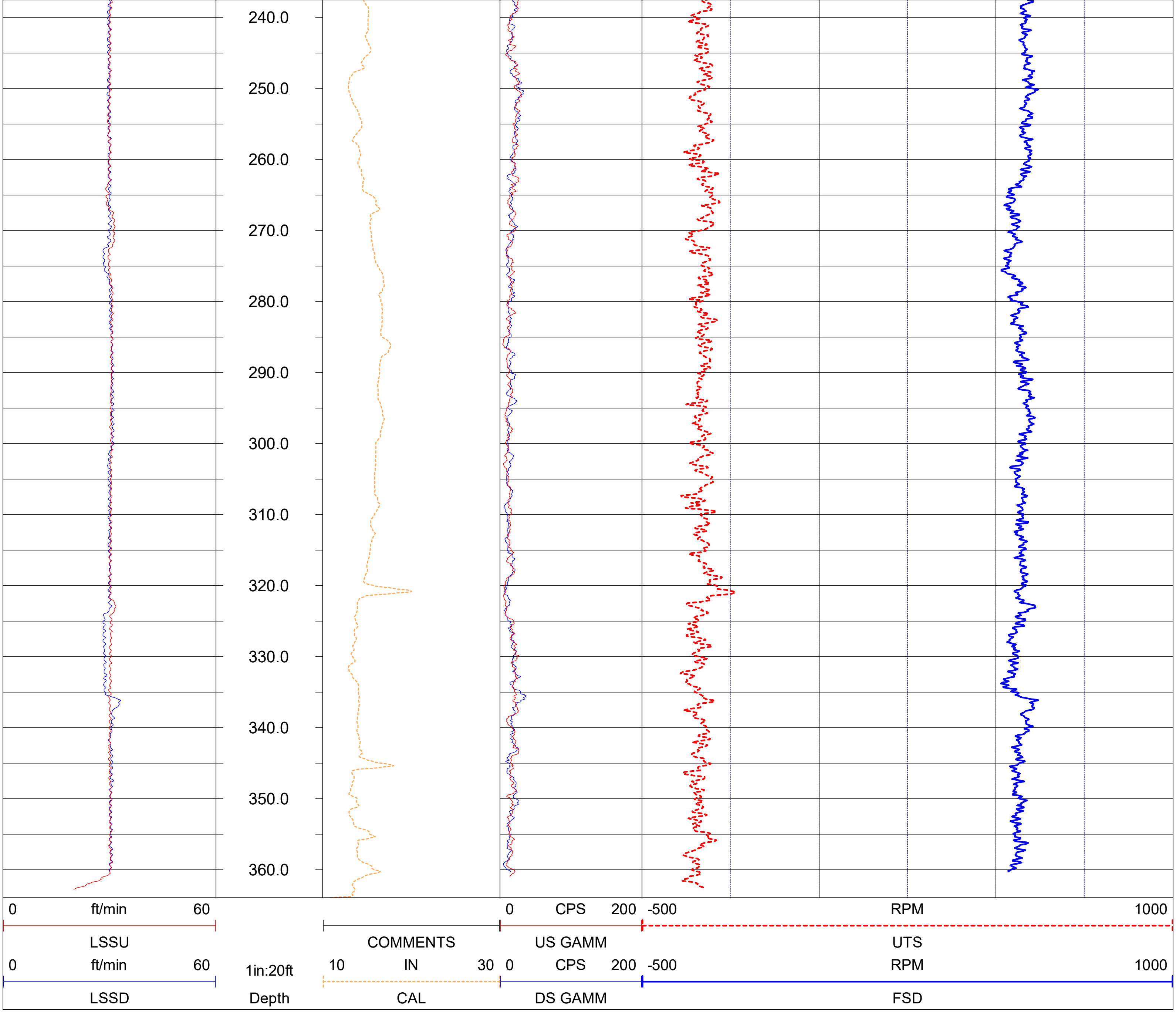

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END OF LOG

RMBAKER
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WELL OSF-108R
UWI OSF-108R

PROFESSIONAL LICENSES
Geologist PG2186
Licensed Geology Business

HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
FLOWMETER
WATER QUALITY
SONIC
VIDEO

PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

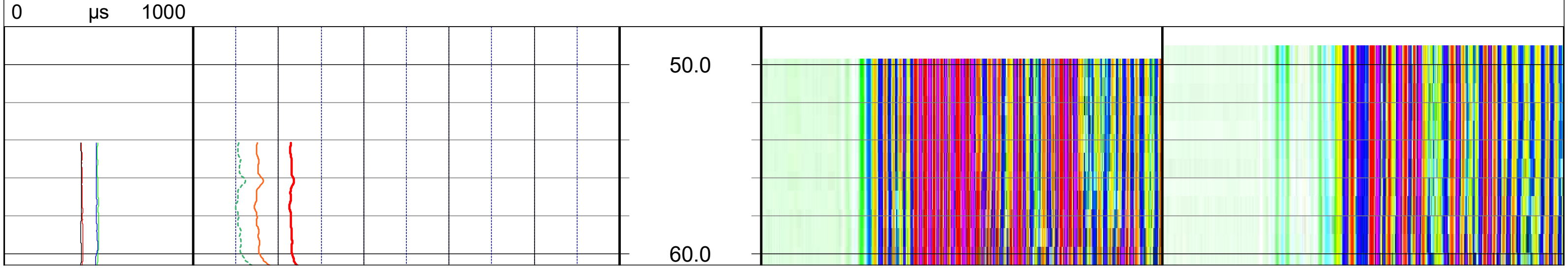
DATE	04 Mar 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	13
TYPE LOG	**SONIC**	TROLLING DIRECTION	UP
DEPTH-DRILLER	365	PUMPING RATE (GPM)	N/A
DEPTH-LOGGER	366.45		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

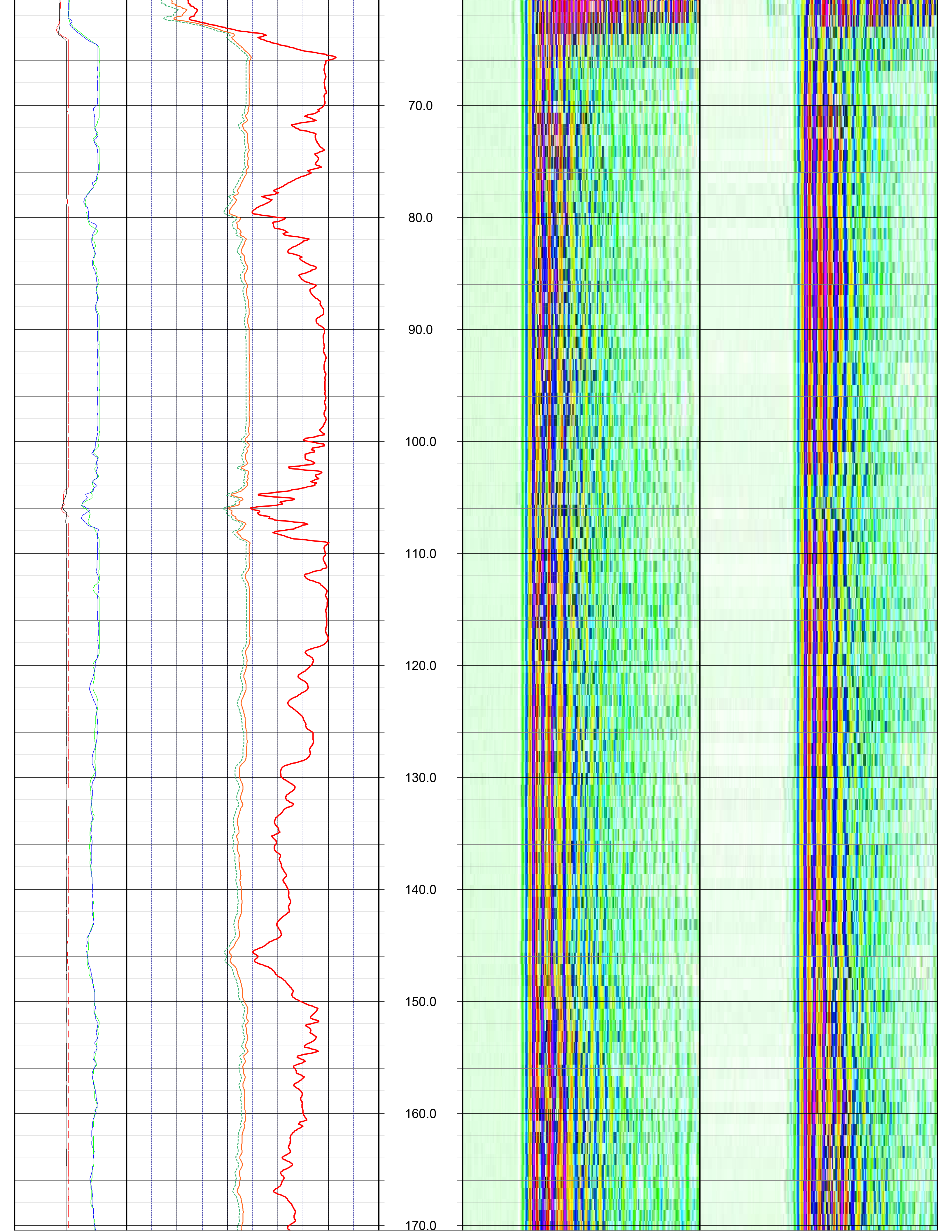
RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65

LOG CODES

3-arm caliper	**CAL**	long normal resistivity	**RLN**	deep induction conductivity	**IDC**
natural gamma (CPS)	**GAMM**	8 inch resistivity	**R8**	shallow induction conductivity	**ISC**
spontaneous potential	**ESP**	32 inch resistivity	**R32**	sonic interval velocity	**DT**
single point resistance	**RES**	deep induction resistivity	**ILD**	sonic porosity (RHG method)	**SPHI**
short normal resistivity	**RSN**	shallow induction resistivity	**ILM**	repeat designation	**R**

TA	DT	Depth	RX-3	RX-5
0 μs 1000	0 μs/ft 250	1in:10ft	0 1916	0 1916
TB	SPHI - 47.5			
0 μs 1000	0 POR 1			
TC	SPHI - 43.5			
0 μs 1000	0 POR 1			
TD				
0 μs 1000				

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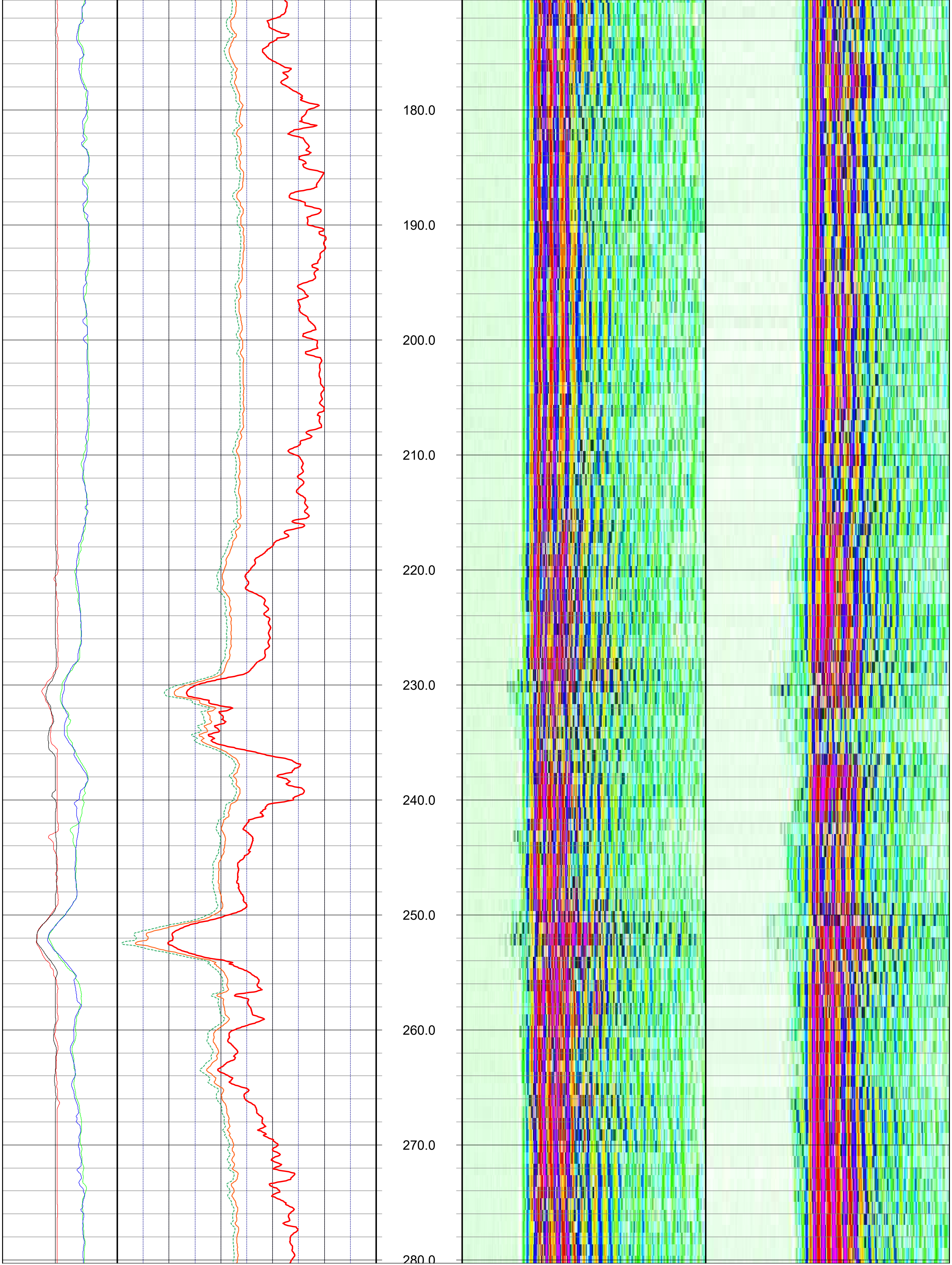

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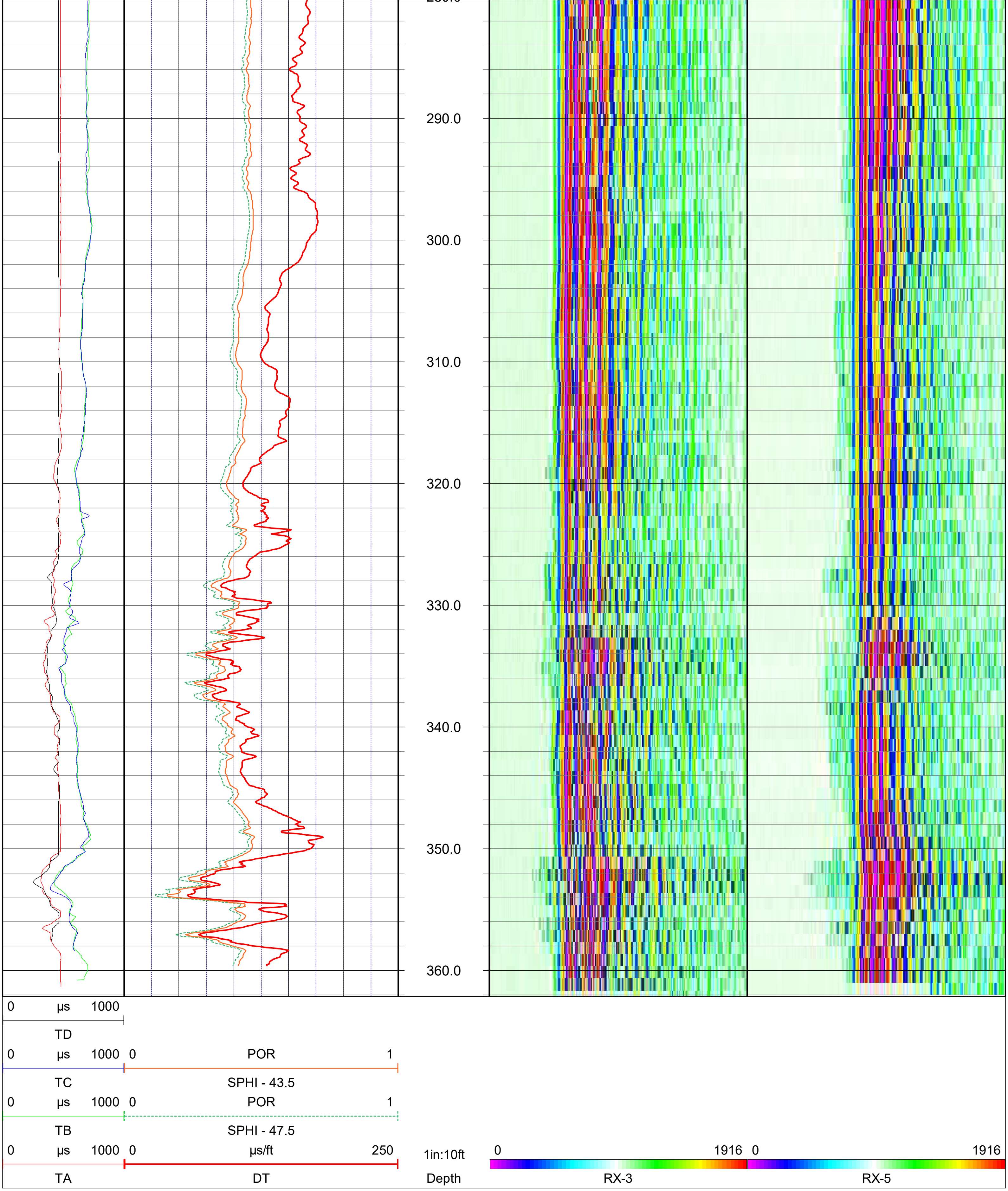

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HEADER NOTES:

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CNTY	OSCEOLA
STAT	FL
PROV	FL
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LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
FLOWMETER
WATER QUALITY
SONIC
VIDEO

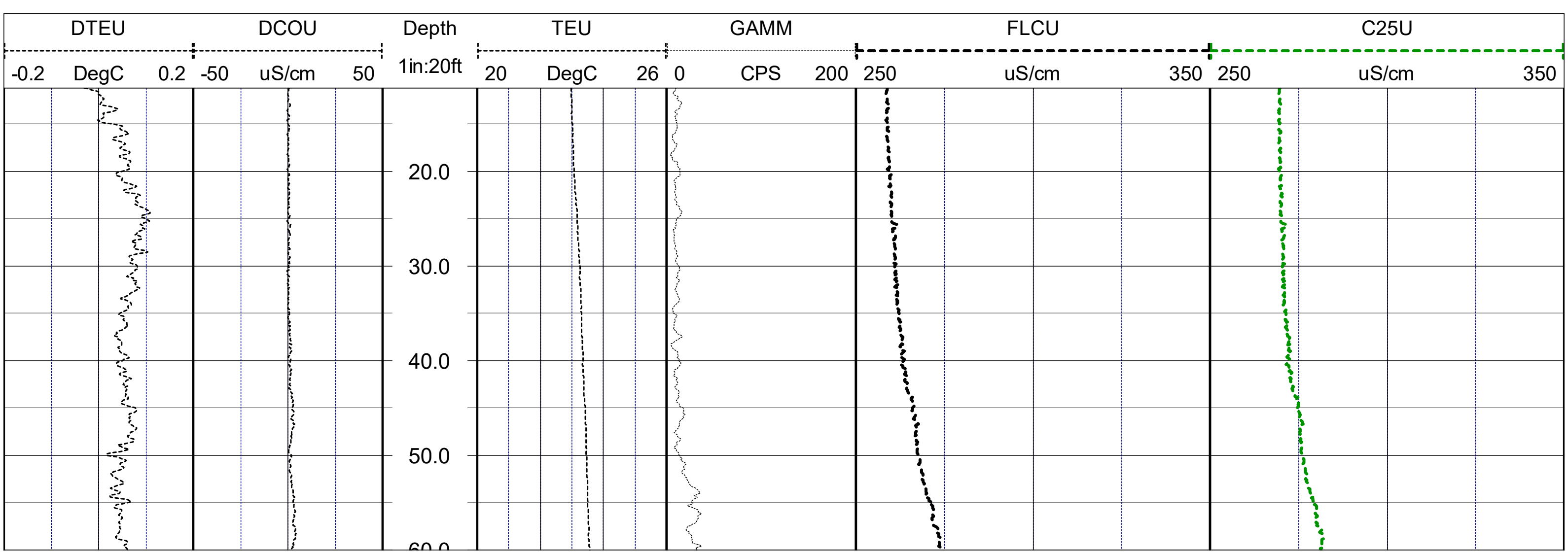
PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

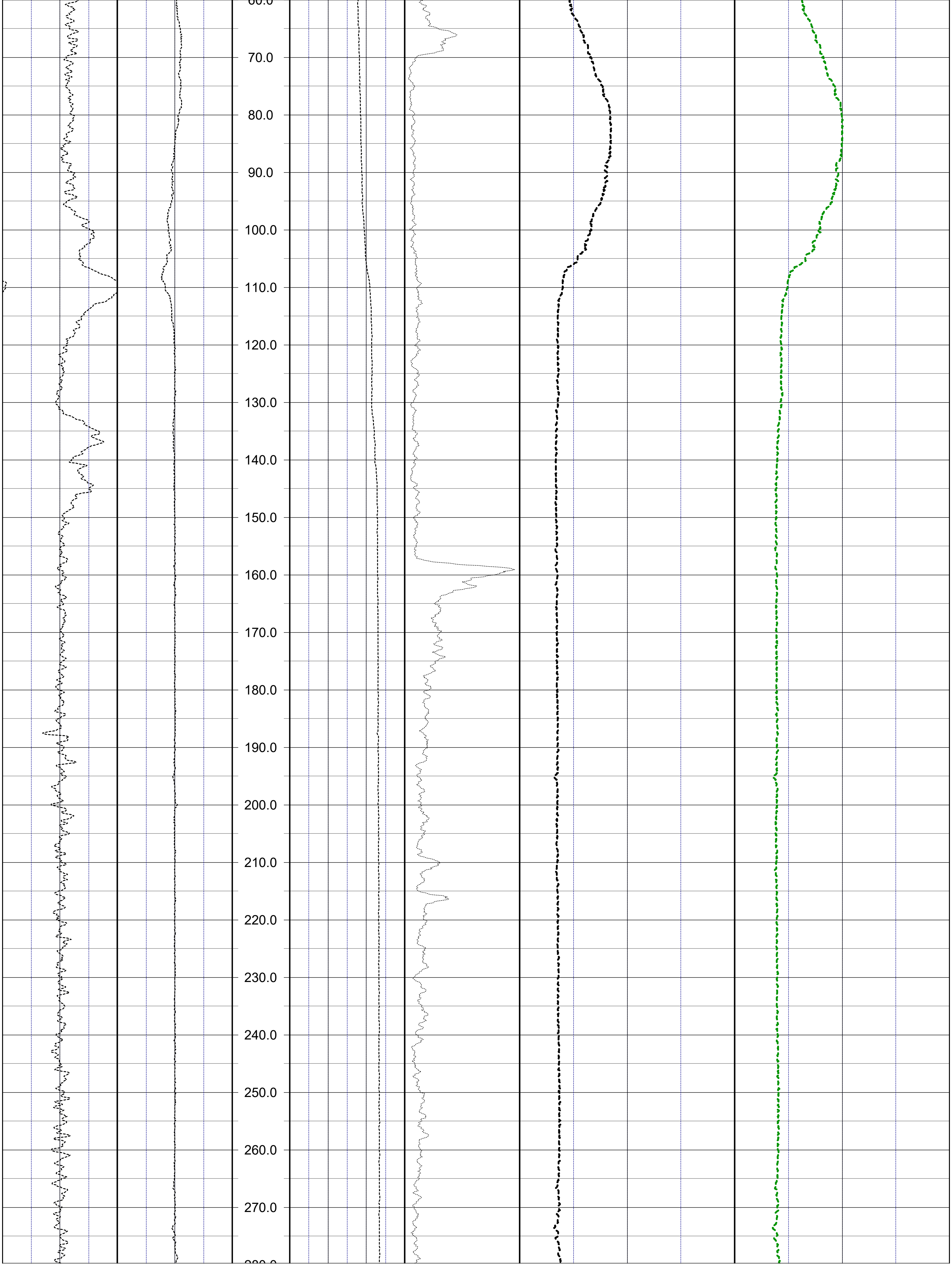
DATE	04 Mar 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	30
TYPE LOG	**WATER QUALITY**	TROLLING DIRECTION	DOWN
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	365		
DEPTH-LOGGER	366.45		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

BOREHOLE RECORD				CASING RECORD			
RUN NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65

WATER QUALITY LOG CODES

static fluid temperature	**TEU**	dynamic fluid conductivity	**FLCP**	caliper	**CAL**
dynamic fluid temperature	**TEP**	static differential cond.	**DCOU**	repeat designation	**R**
static differential temperature	**DTEU**	dynamic differential cond.	**DCOP**	natural gamma	**GAMM**
dynamic differential temp.	**DTEP**	static specific conductance	**C25U**	calibration correction	**C**
static fluid conductivity	**FLCU**	dynamic specific conductance	**C25P**		

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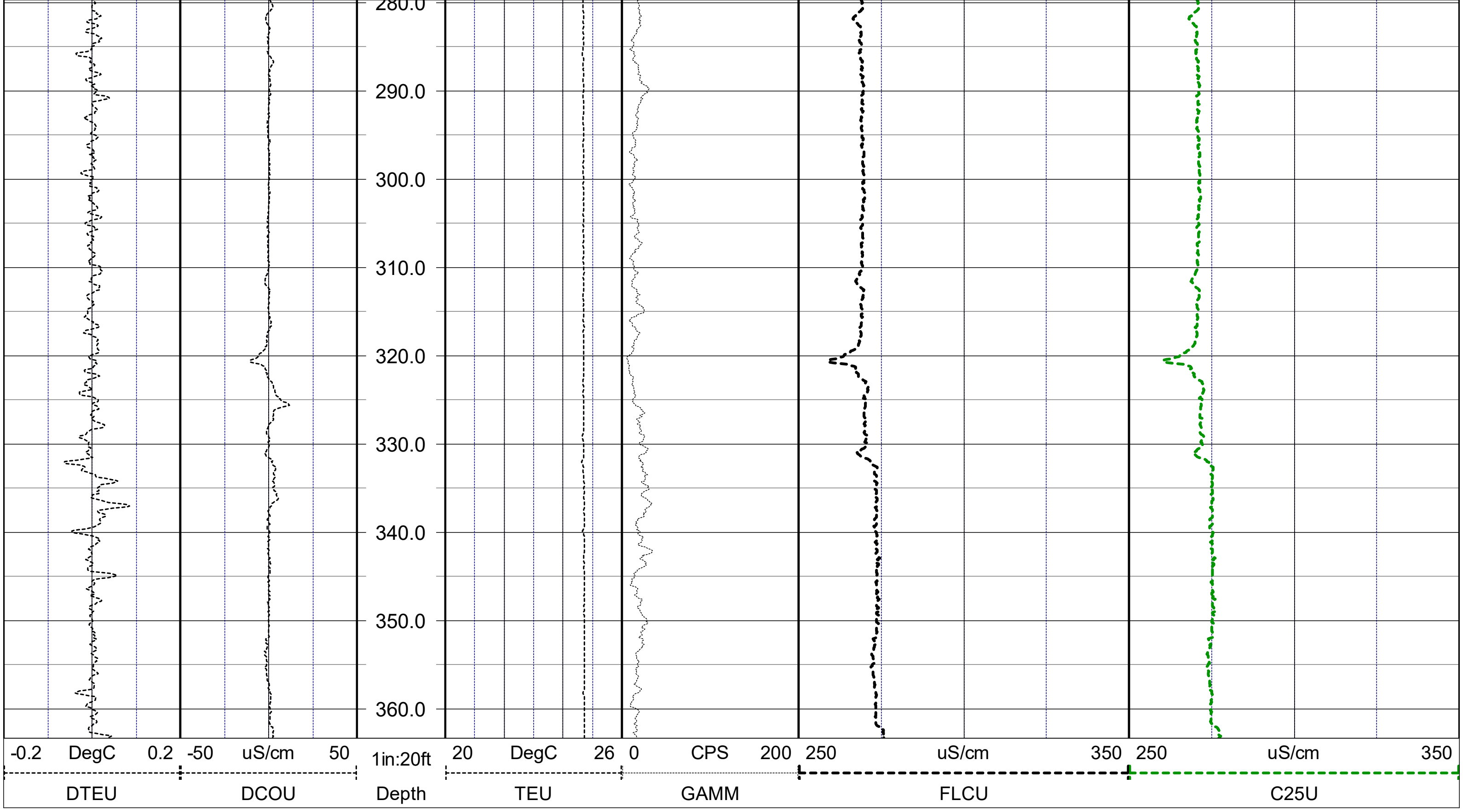

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CTRY	USA

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LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
WATER QUALITY

PERMANENT DATUM:

LOG MEASURED FROM: GROUND SURFACE

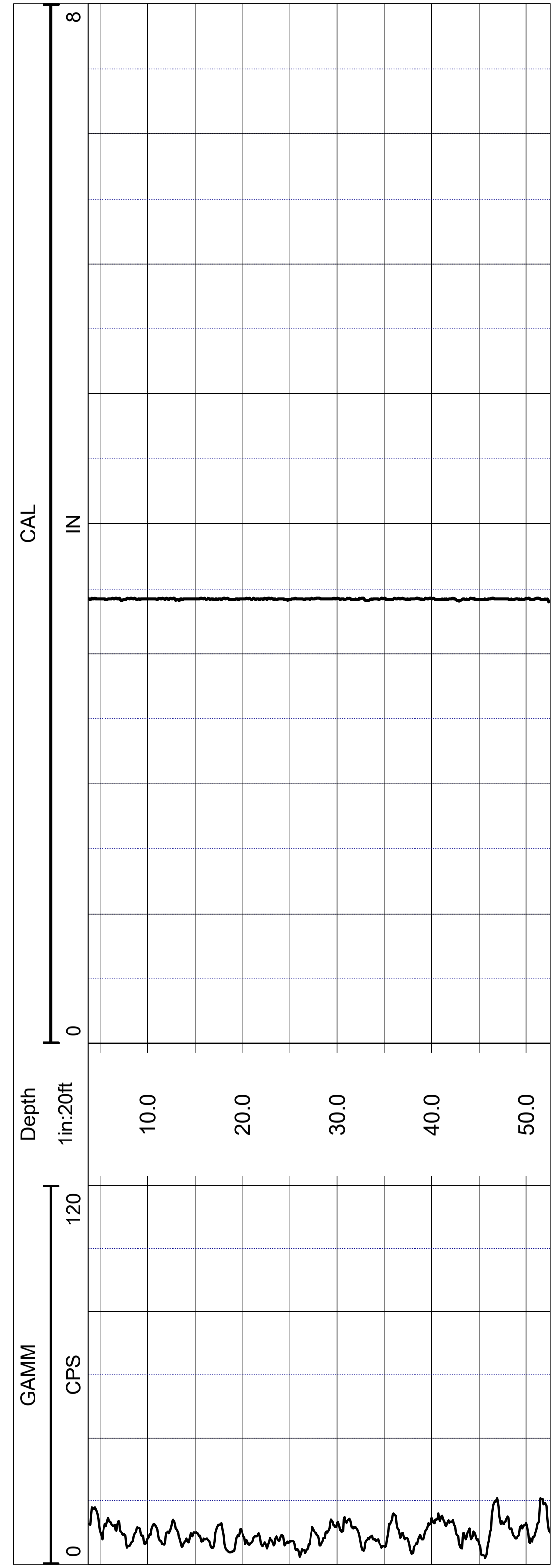
DRILLING MEASURED FROM:

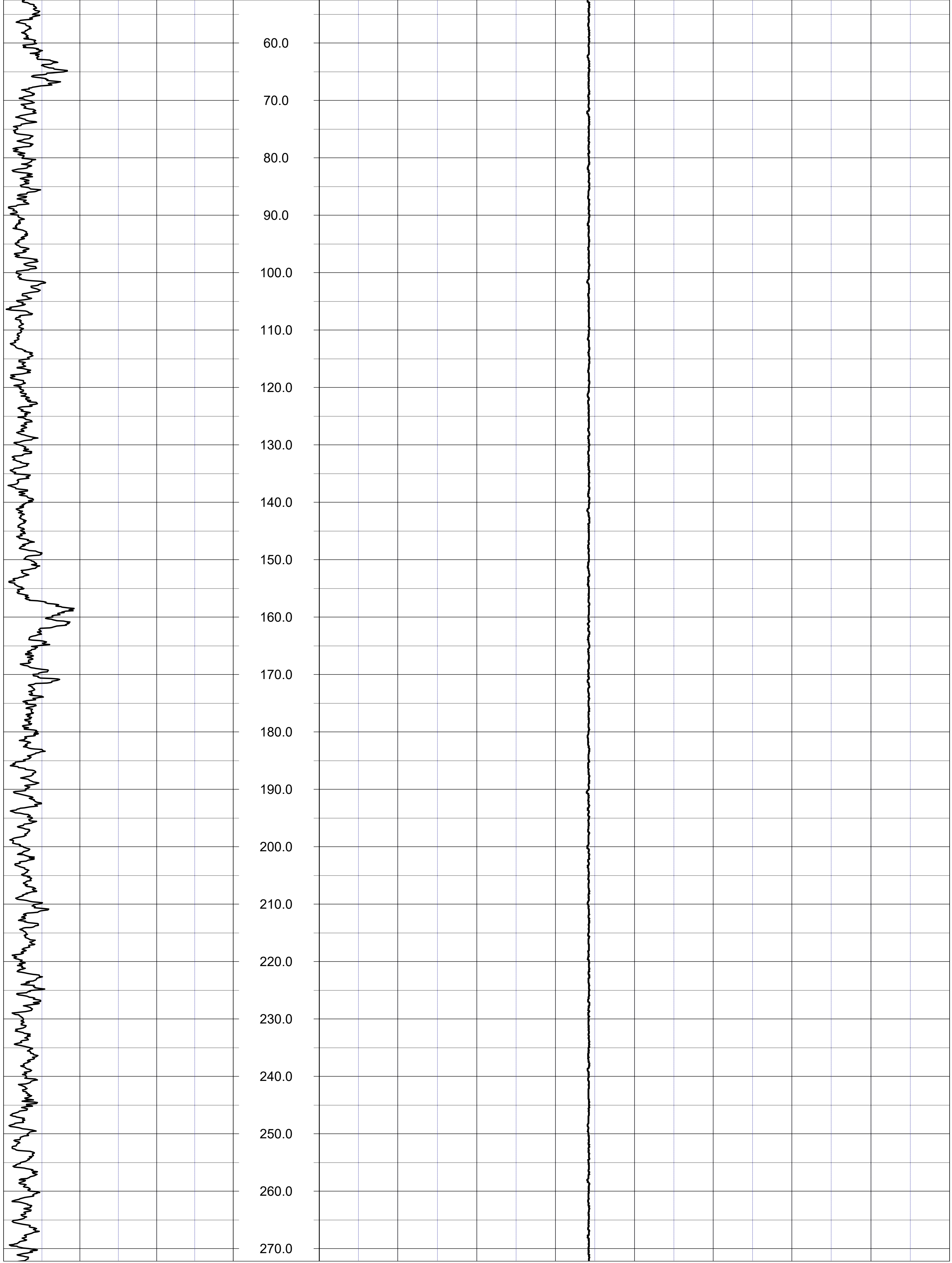
DATE	09 Jul 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	40
TYPE LOG	**CALIPER**	TROLLING DIRECTION	UP
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	2020		
DEPTH-LOGGER	2022.3		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	3.9	730	2022.3	3	TEMP	0	730

LOG CODES

3-arm caliper	**CAL**	long normal resistivity	**RLN**	deep induction conductivity	**IDC**
natural gamma (CPS)	**GAMM**	8 inch resistivity	**R8**	shallow induction conductivity	**ISC**
spontaneous potential	**ESP**	32 inch resistivity	**R32**	sonic interval velocity	**DT**
single point resistance	**RES**	deep induction resistivity	**ILD**	sonic porosity (RHG method)	**SPHI**
short normal resistivity	**RSN**	shallow induction resistivity	**ILM**	repeat designation	**R**

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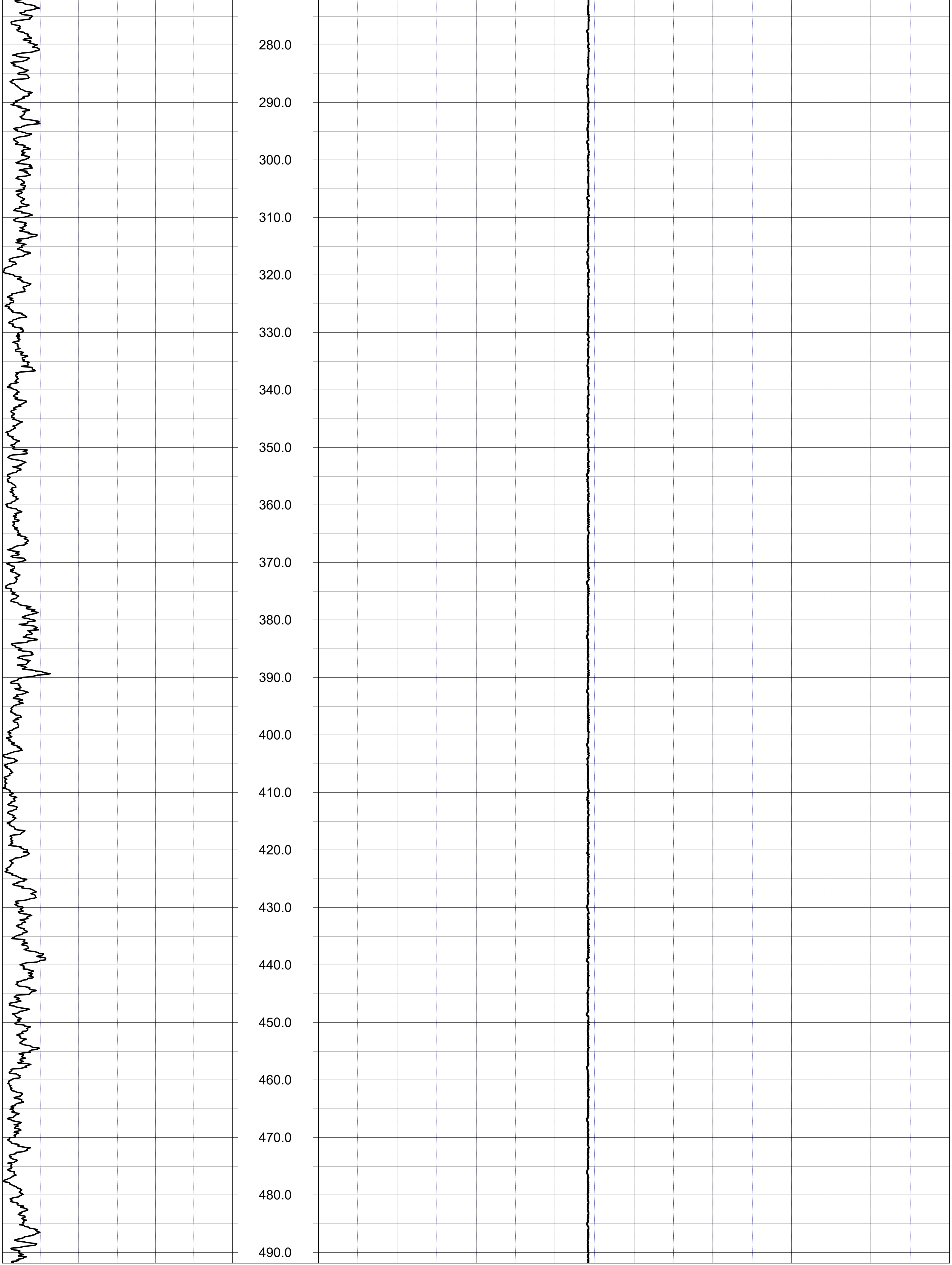
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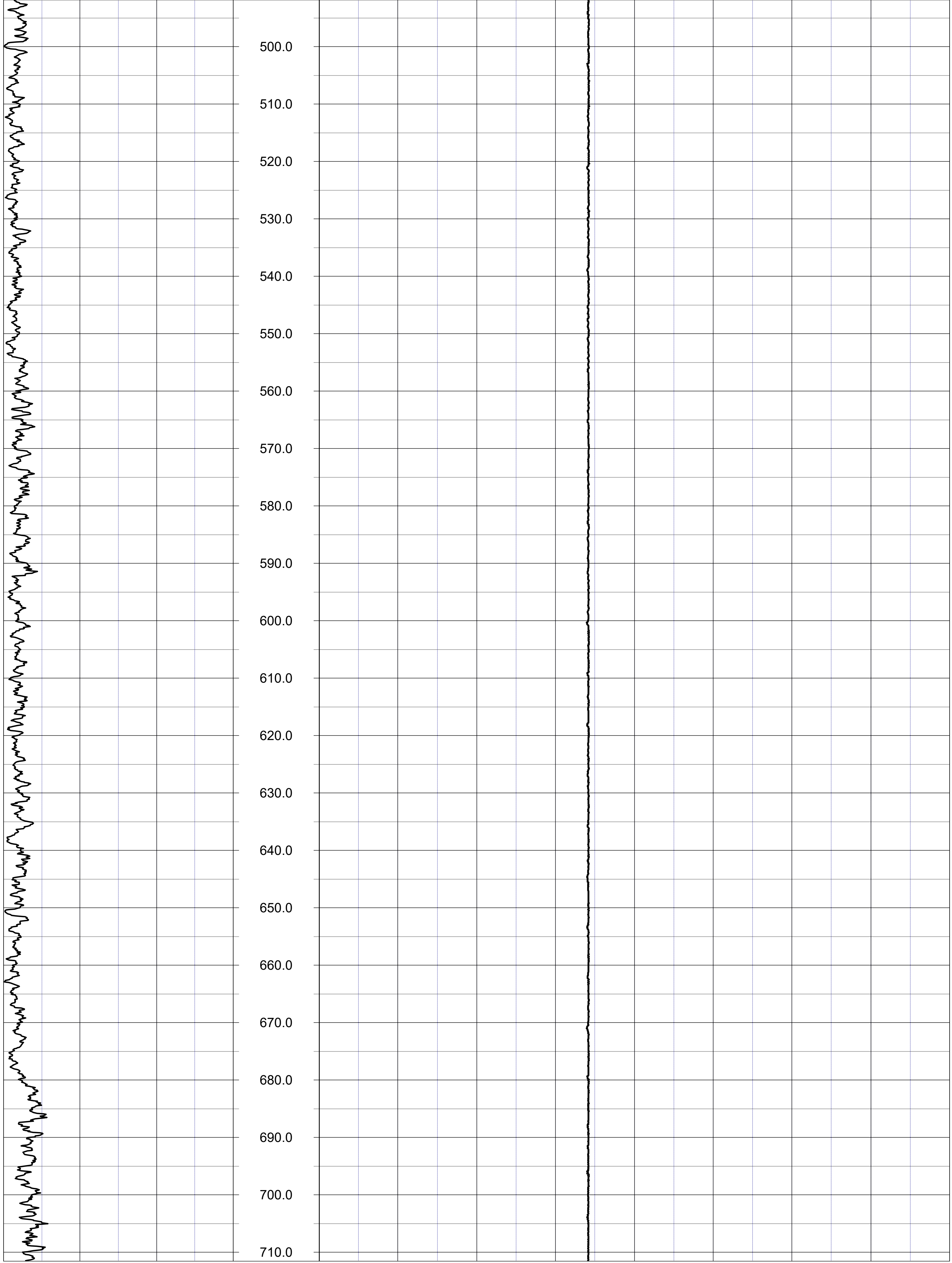
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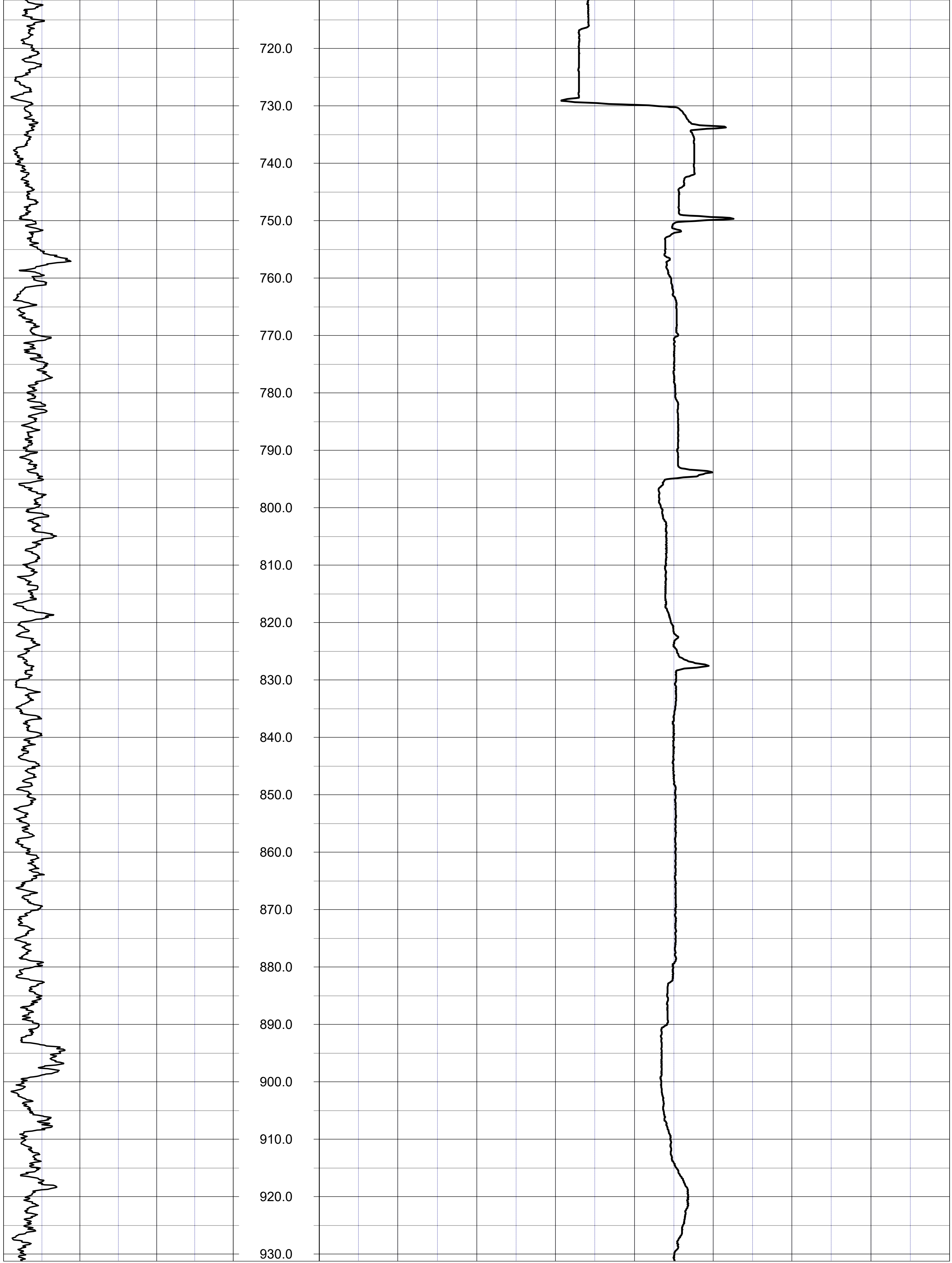
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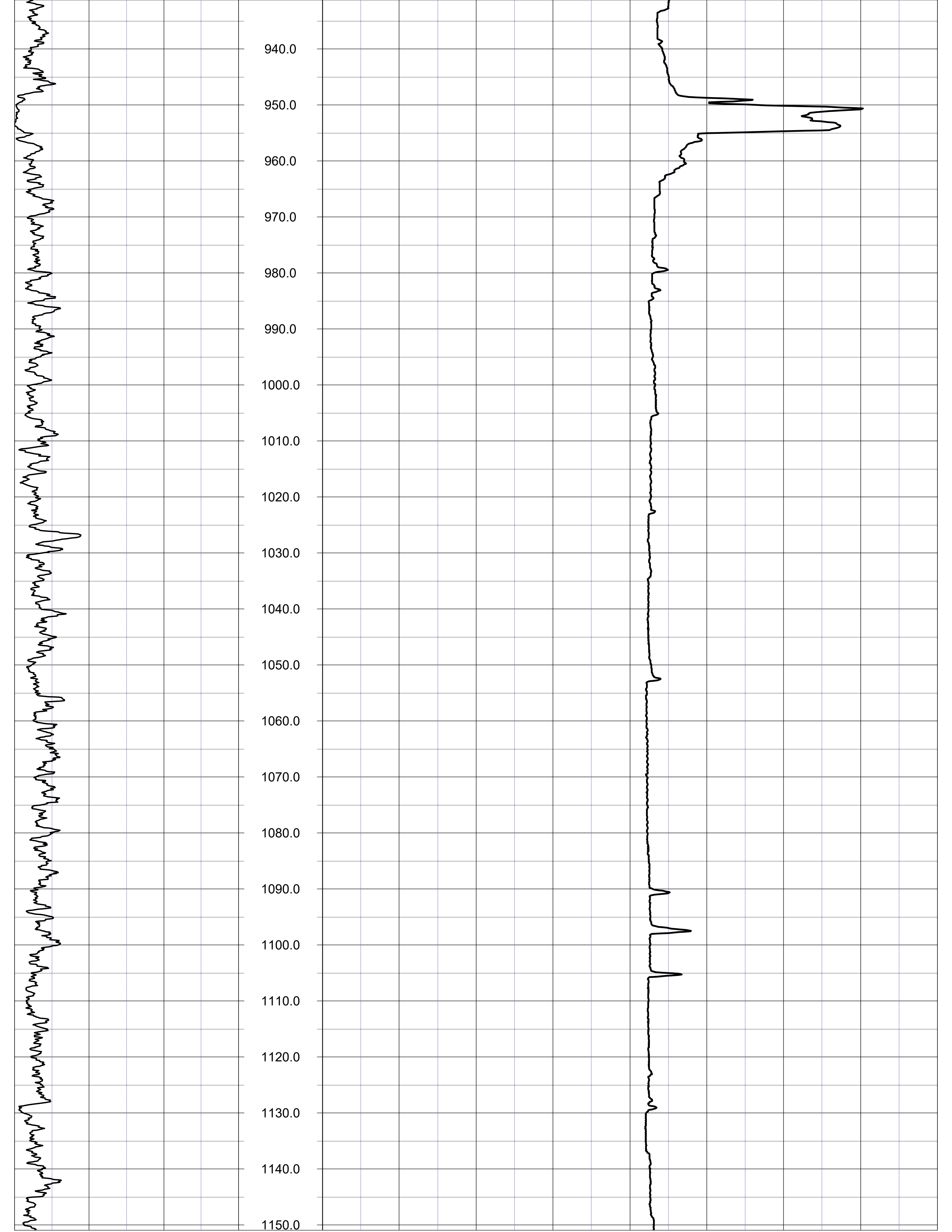
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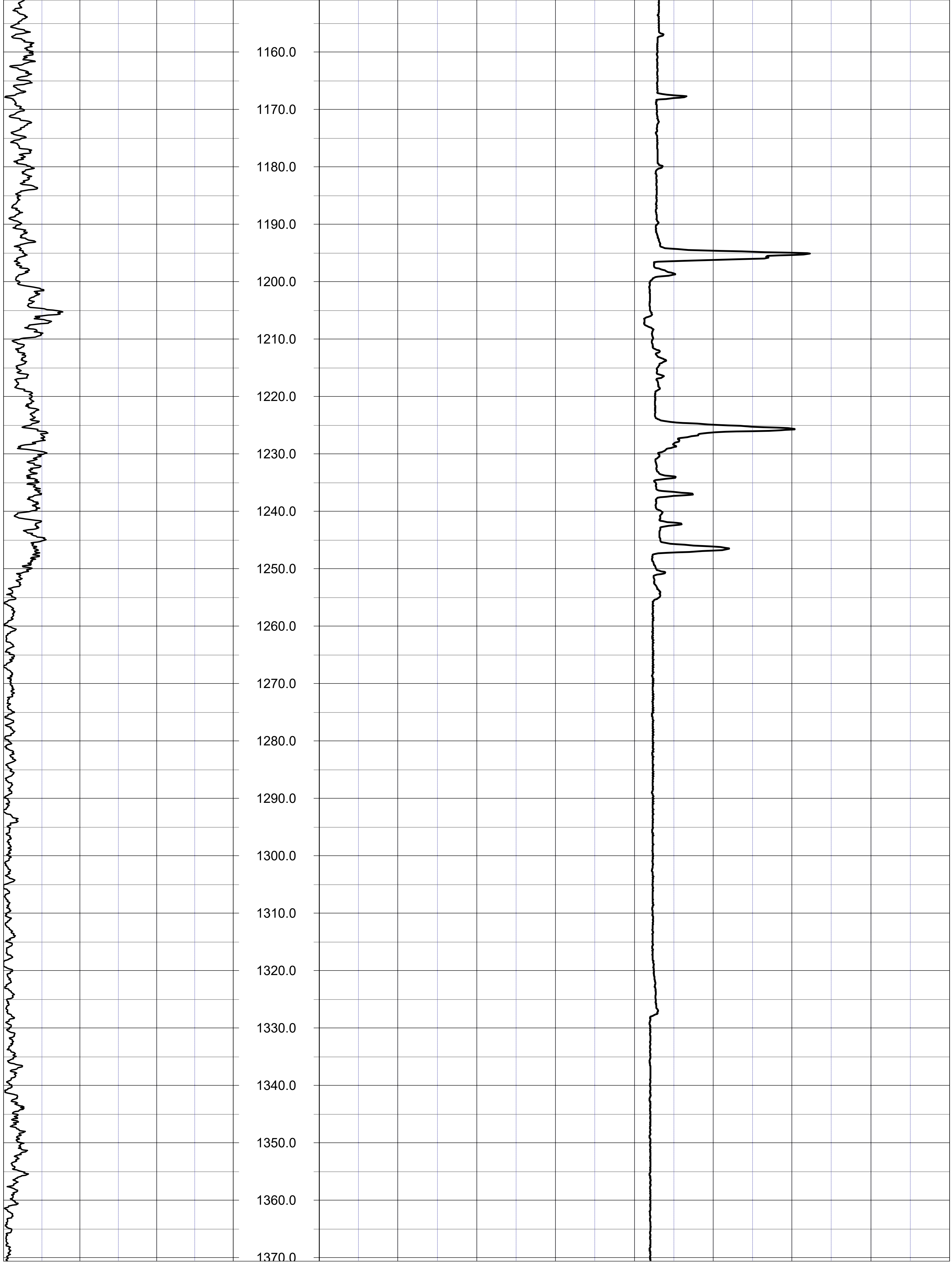
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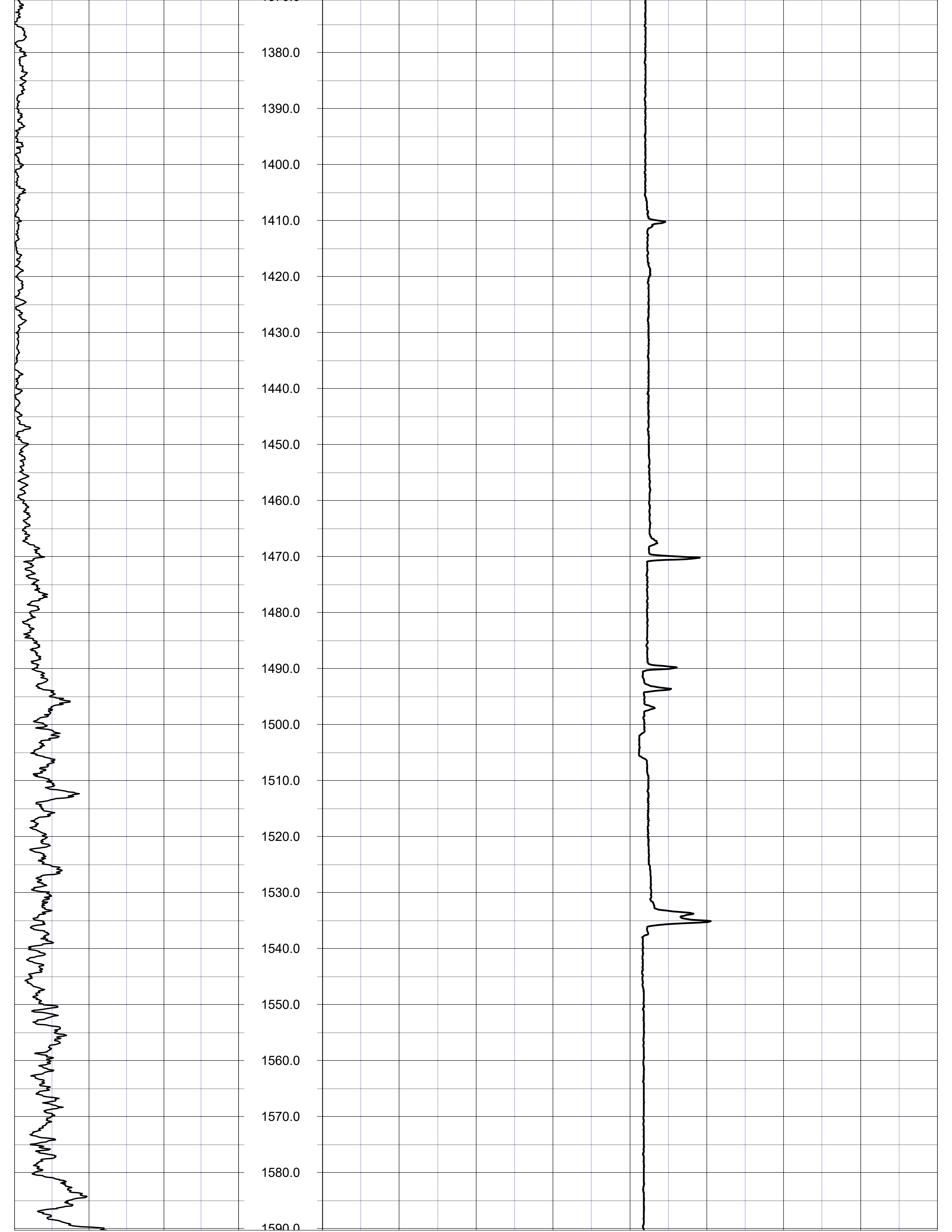
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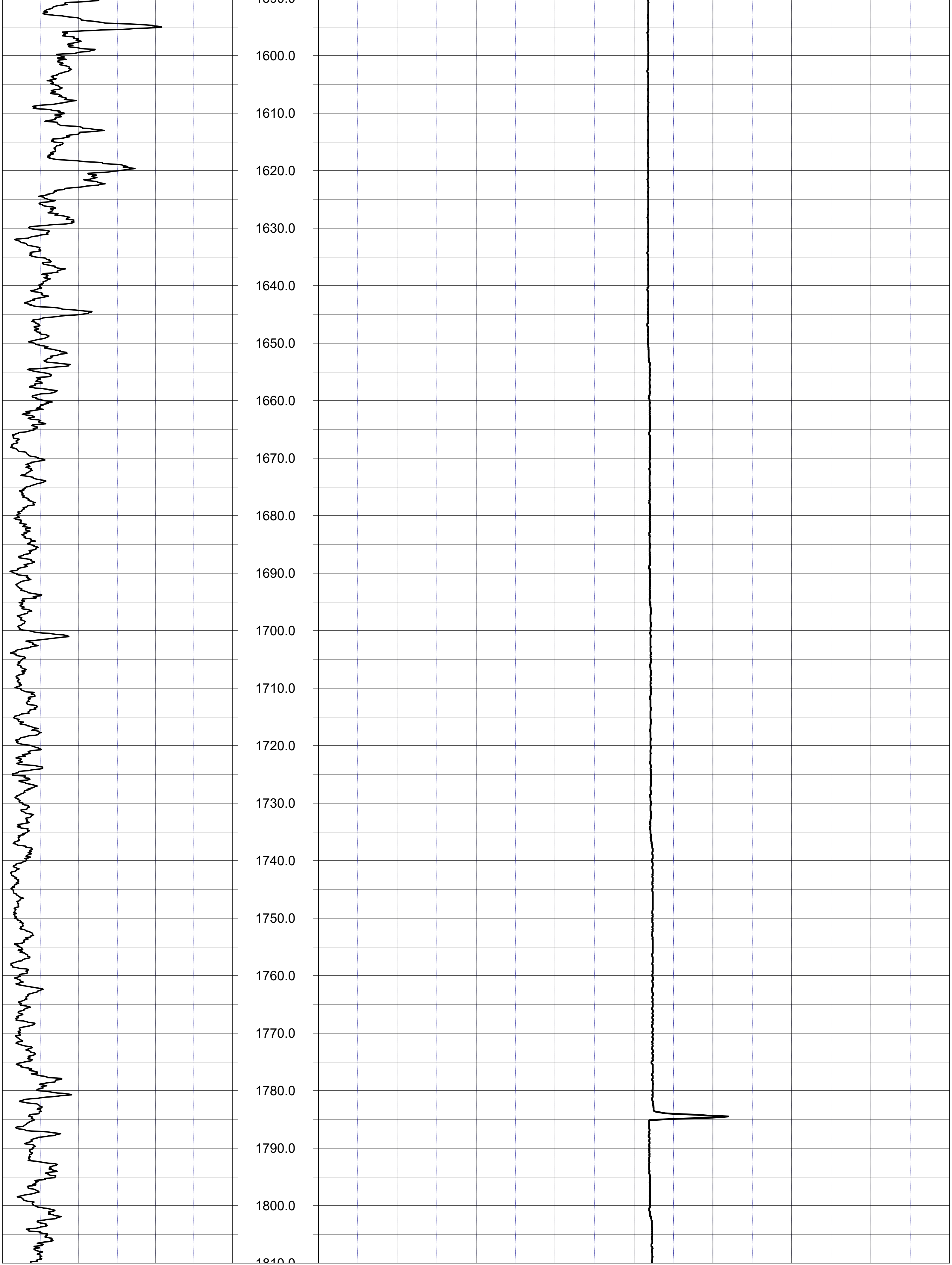
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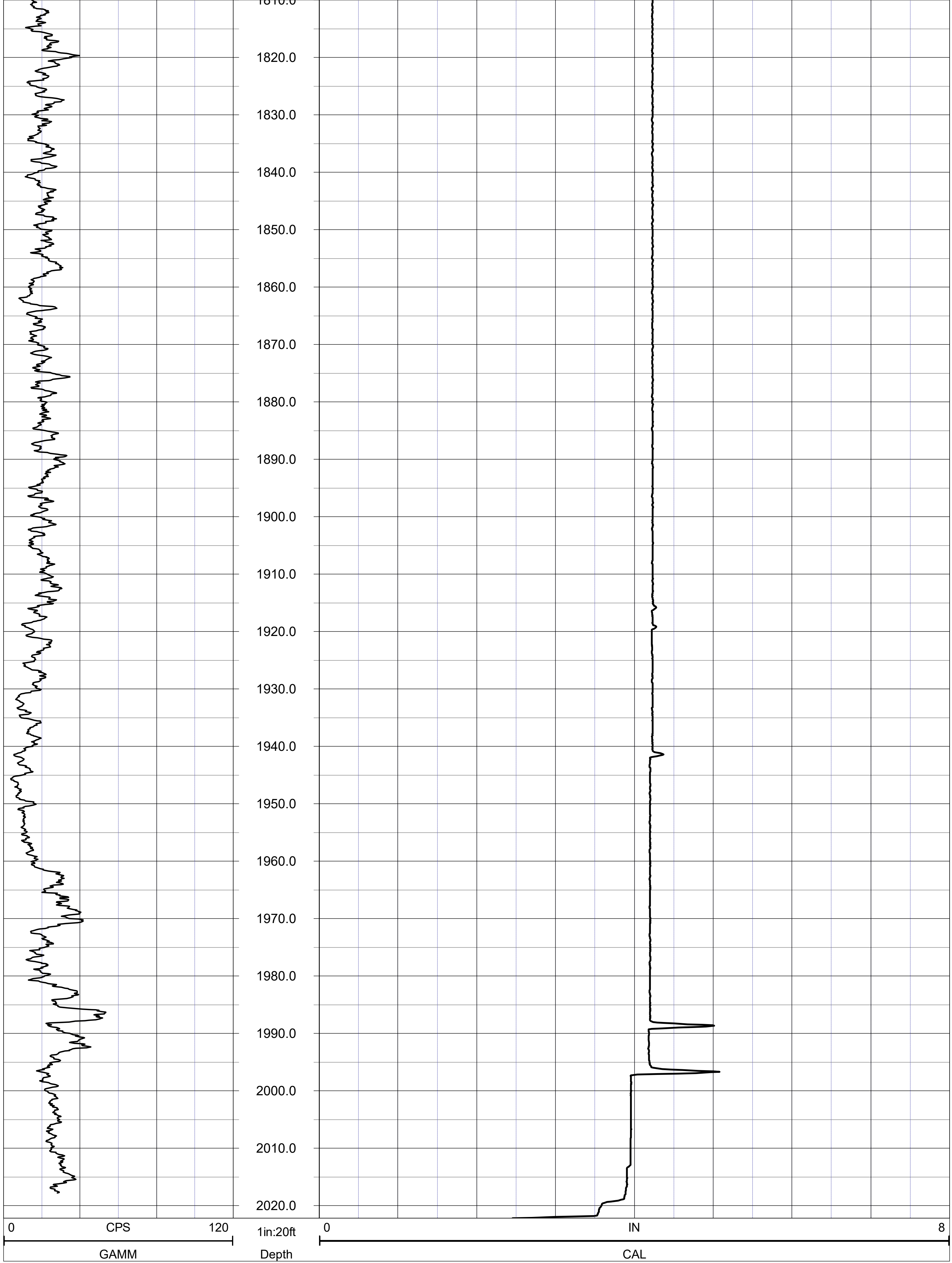

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1960.0
1970.0
1980.0
1990.0
2000.0
2010.0
2020.0
0
CPS
120
GAMM
1in:20ft
Depth
0
IN
8
CAL

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LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
WATER QUALITY

PERMANENT DATUM:

LOG MEASURED FROM: GROUND SURFACE

DRILLING MEASURED FROM:

DATE	09 Jul 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	35
TYPE LOG	**ELECTRIC + DUIN**	TROLLING DIRECTION	UP
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	2020		
DEPTH-LOGGER	2022.3		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	3.9	730	2022.3	3	TEMP	0	730

LOG CODES

3-arm caliper	**CAL**	long normal resistivity	**RLN**	deep induction conductivity	**IDC**
natural gamma (CPS)	**GAMM**	8 inch resistivity	**R8**	shallow induction conductivity	**ISC**
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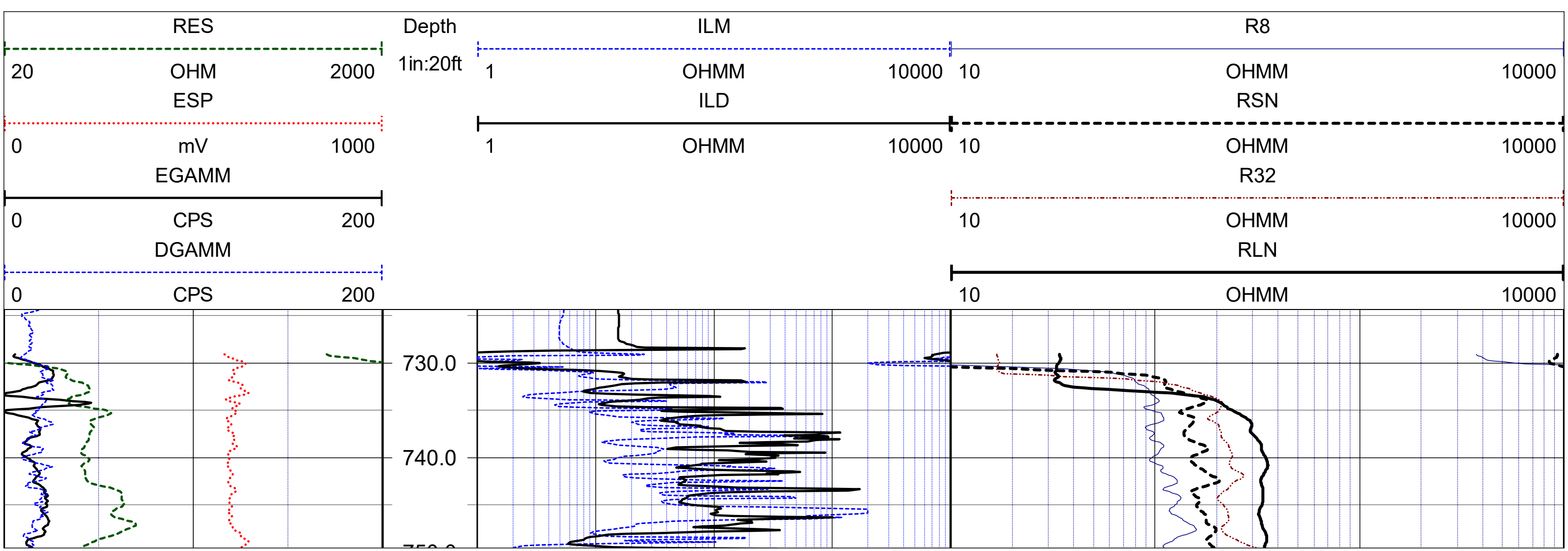
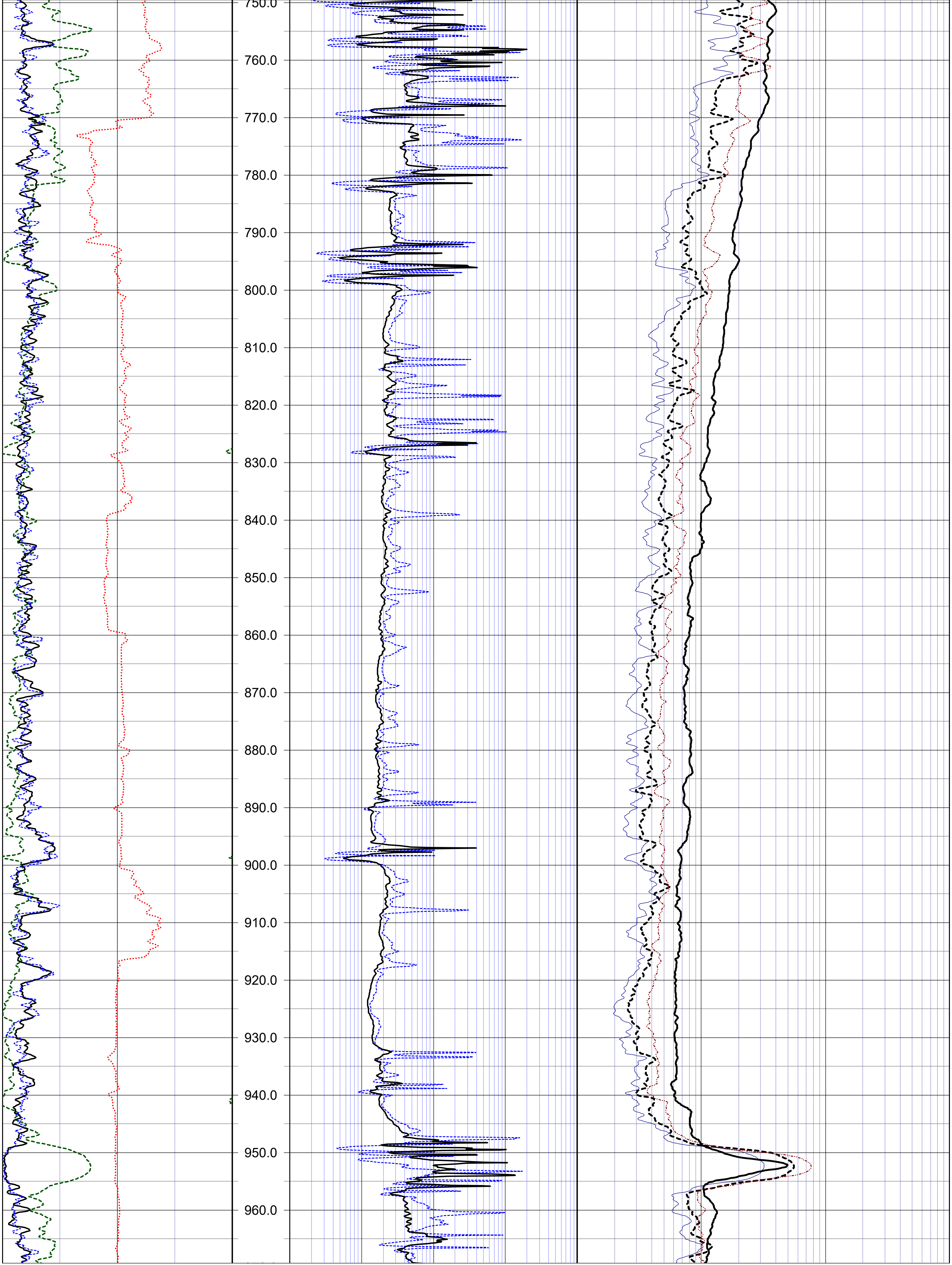
single point resistance	**RES**	deep induction resistivity	**ILD**	sonic porosity (RHG method)	**SPHI**
short normal resistivity	**RSN**	shallow induction resistivity	**ILM**	repeat designation	**R**

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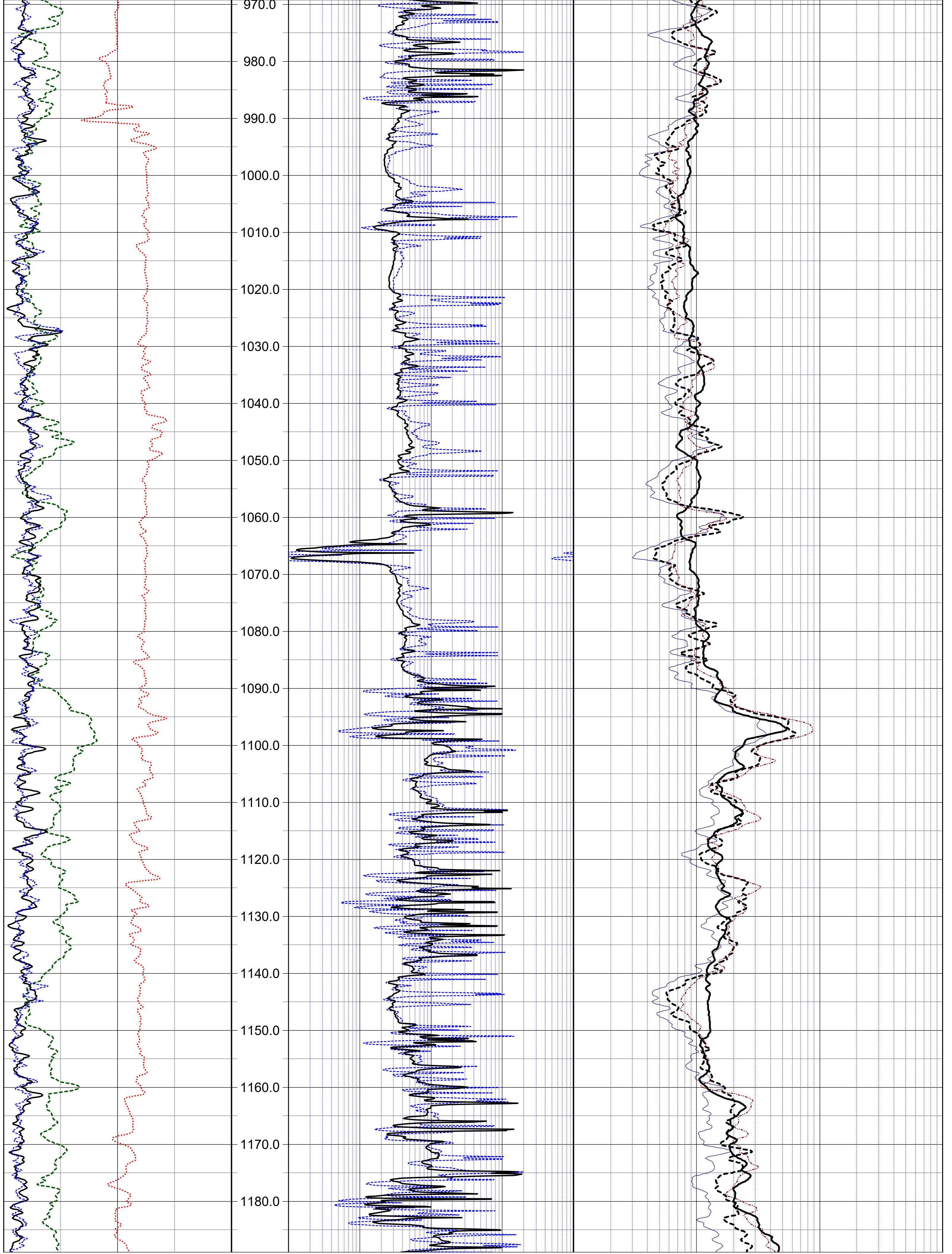
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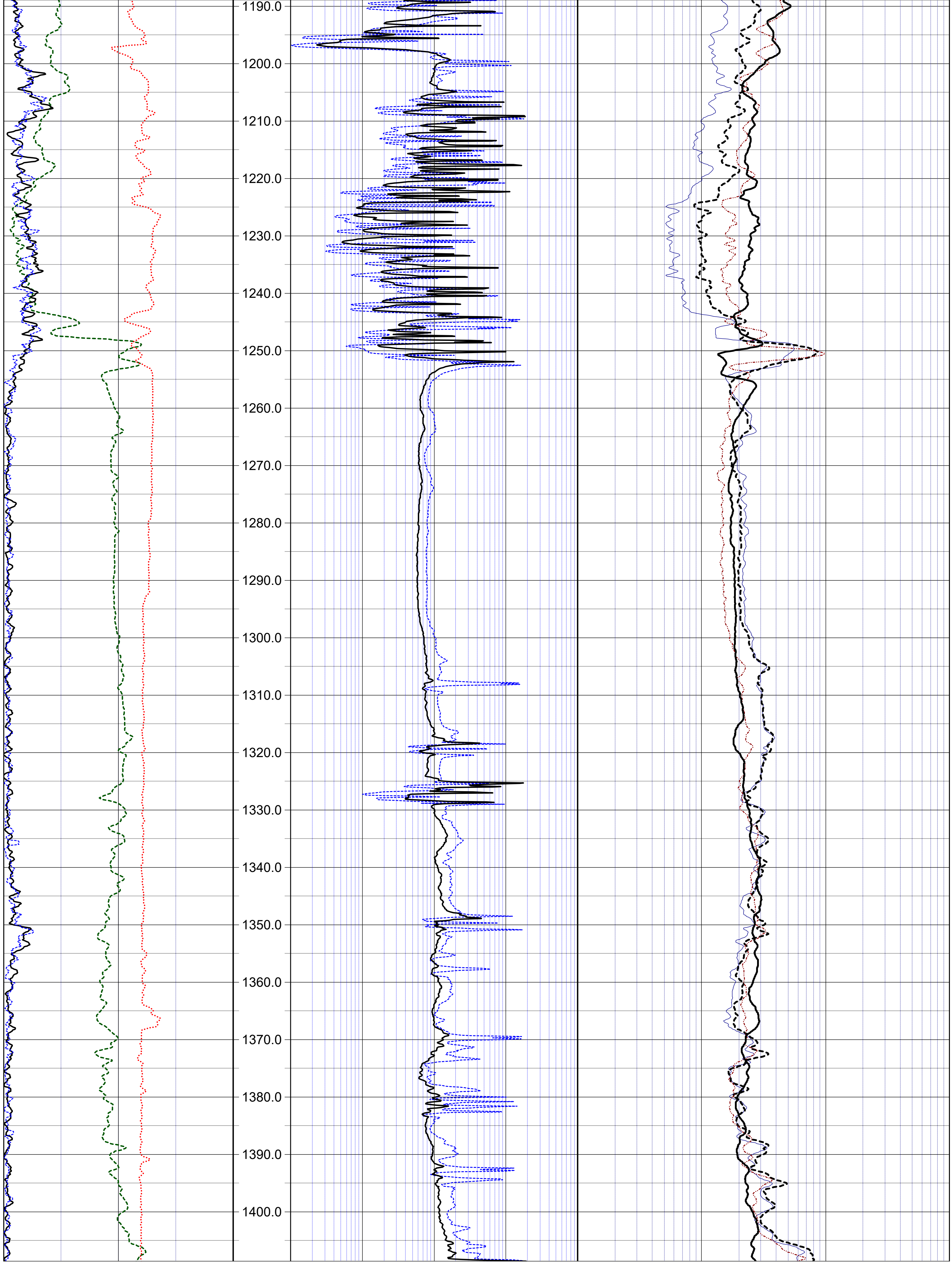
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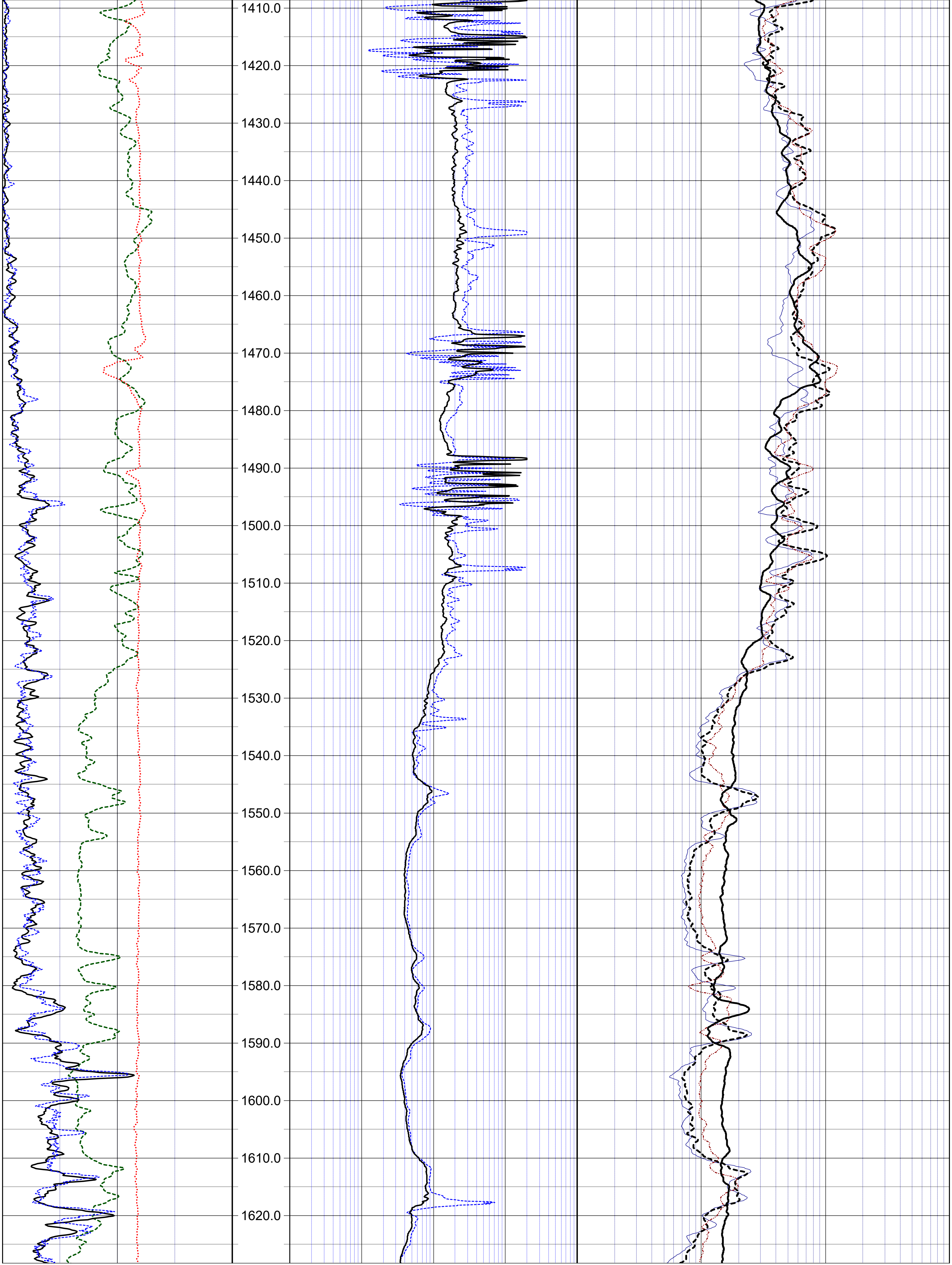
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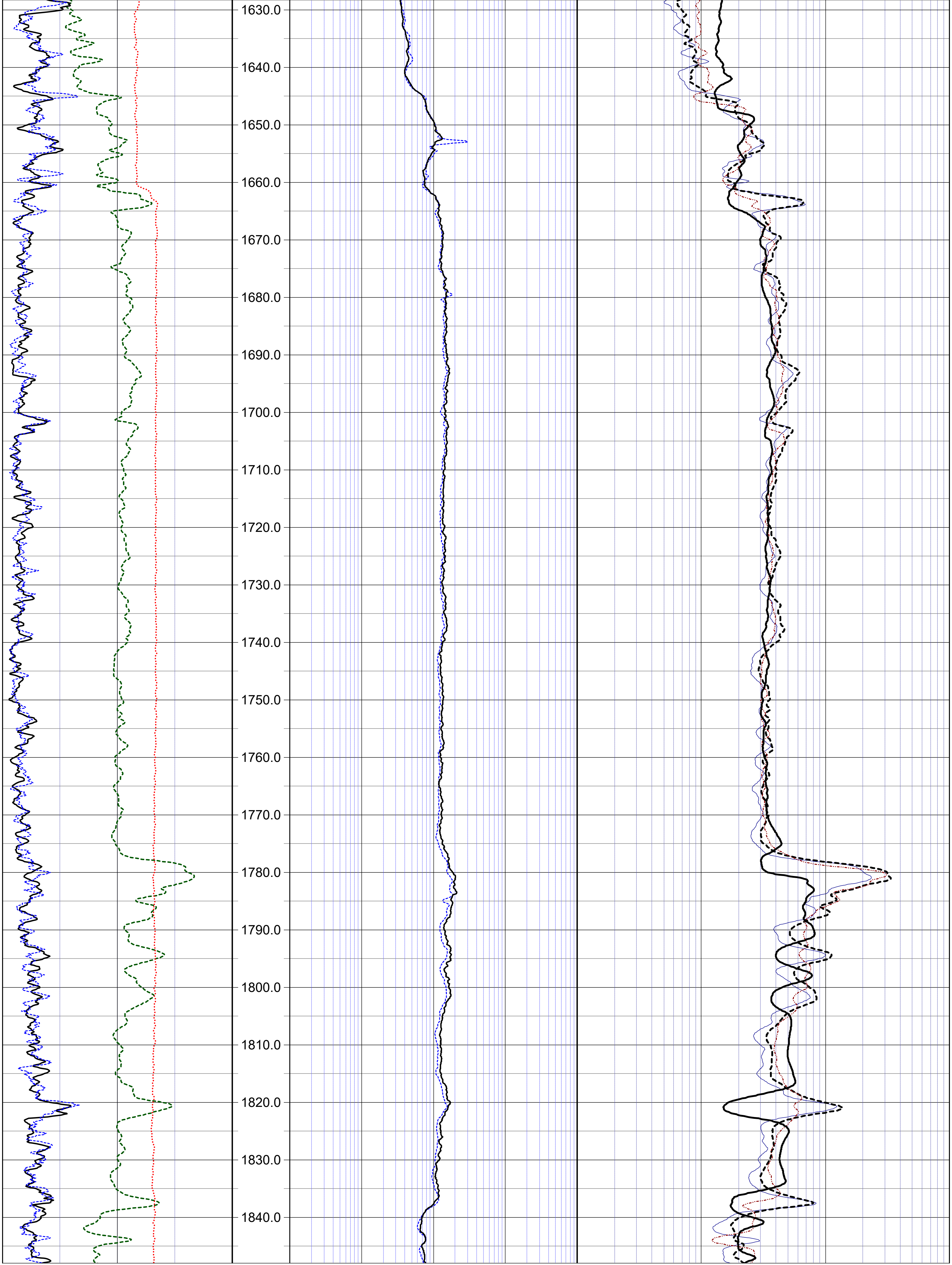
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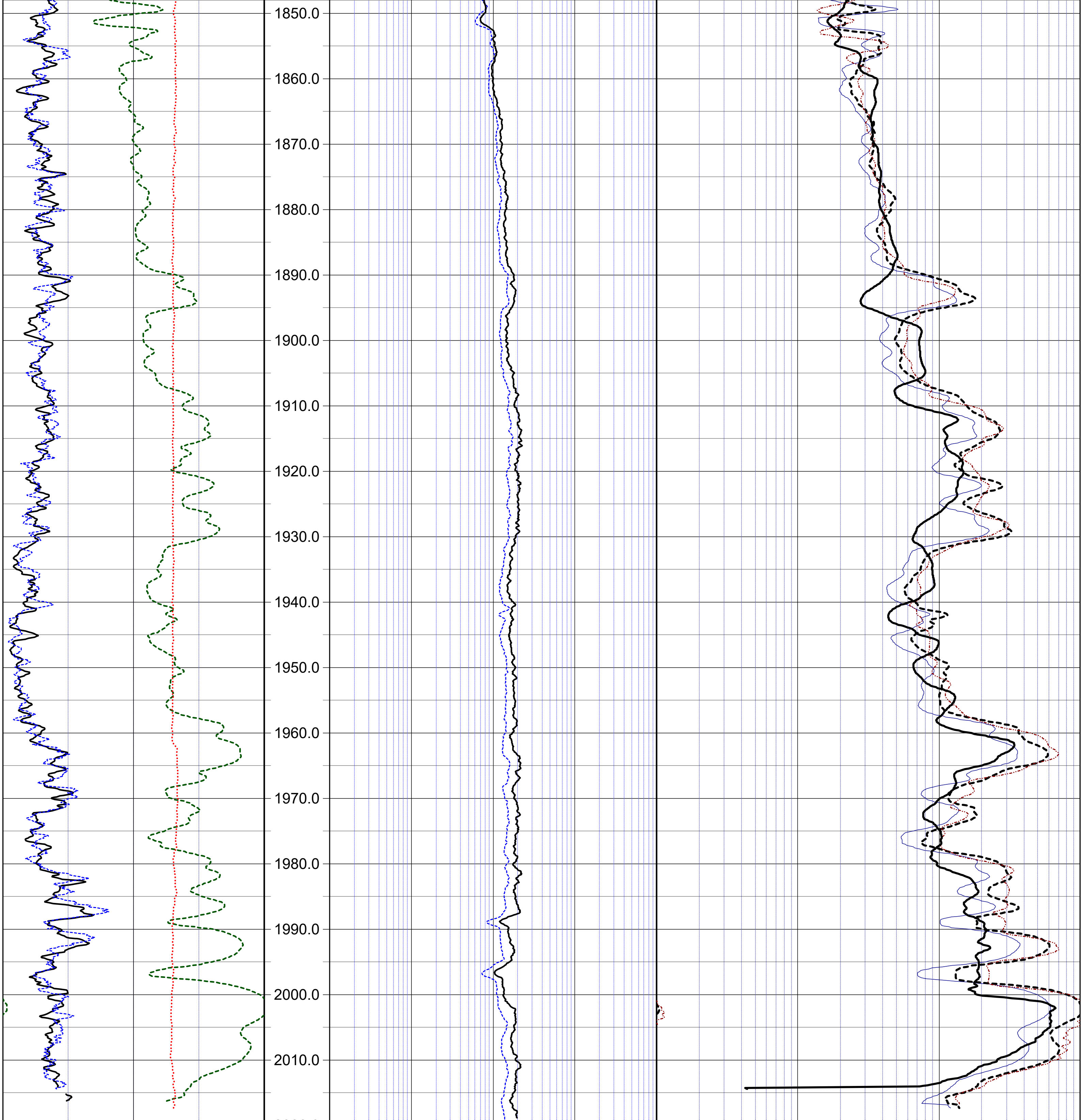

0 CPS 200 DGAMM			10 OHMM 10000 RLN
0 CPS 200 EGAMM			10 OHMM 10000 R32
0 mV 1000 ESP		1 OHMM 10000 ILD	10 OHMM 10000 RSN
20 OHM 2000 RES	1in:20ft Depth	1 OHMM 10000 ILM	10 OHMM 10000 R8

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8600 Oldbridge Lane
Orlando, FL 32819
mobile ph 407-733-8958
rob@rmbaker.com
www.rmbaker.com

WELL OSF-108R
UWI OSF-108R

PROFESSIONAL LICENSES
Geologist PG2186
Licensed Geology Business

HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
WATER QUALITY

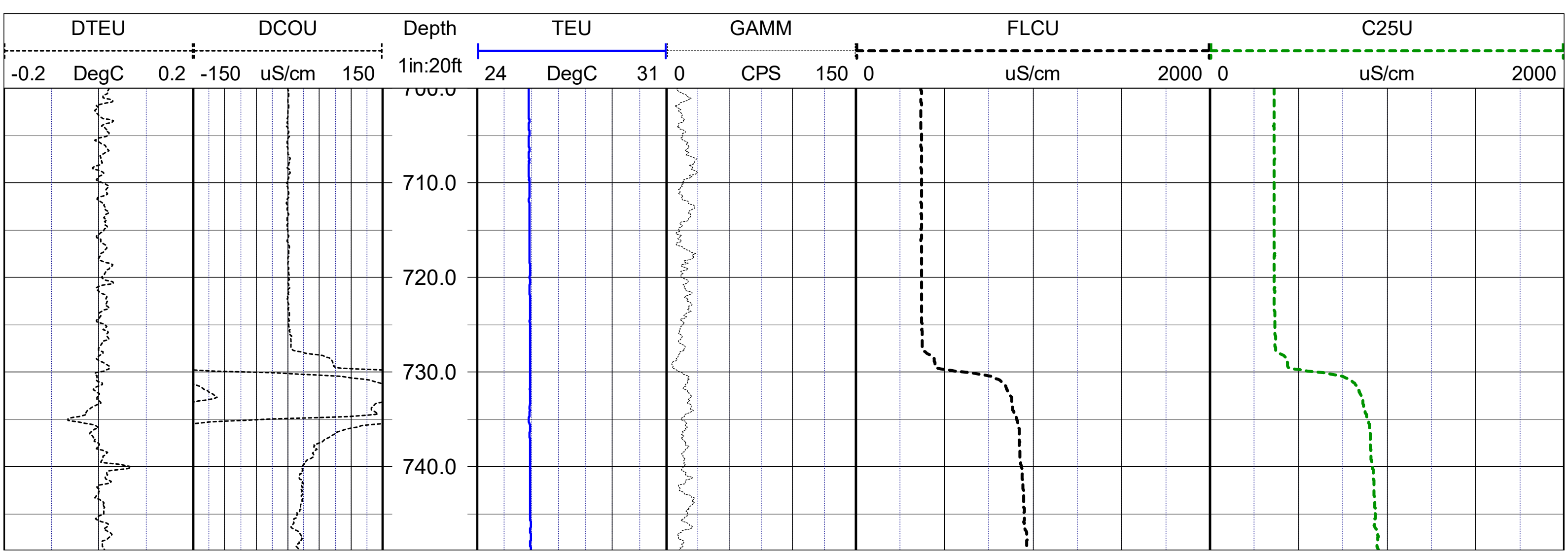
PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

DATE	09 Jul 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	35
TYPE LOG	**WATER QUALITY**	TROLLING DIRECTION	DOWN
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	2020		
DEPTH-LOGGER	2022.3		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	3.9	730	2022.3	3	TEMP	0	730

WATER QUALITY LOG CODES

static fluid temperature	**TEU**	dynamic fluid conductivity	**FLCP**	caliper	**CAL**
dynamic fluid temperature	**TEP**	static differential cond.	**DCOU**	repeat designation	**R**
static differential temperature	**DTEU**	dynamic differential cond.	**DCOP**	natural gamma	**GAMM**
dynamic differential temp.	**DTEP**	static specific conductance	**C25U**	calibration correction	**C**
static fluid conductivity	**FLCU**	dynamic specific conductance	**C25P**		

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760.0
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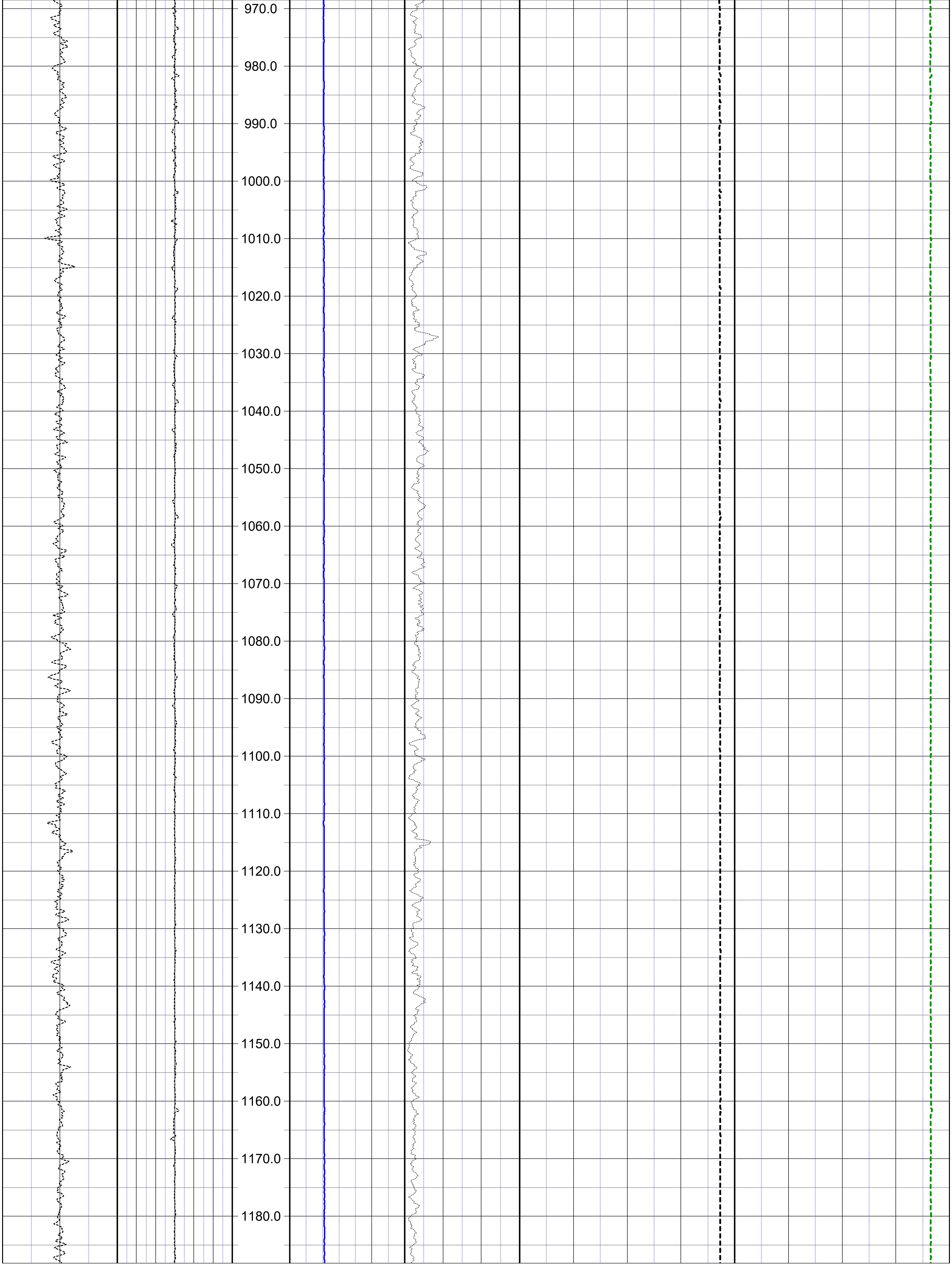
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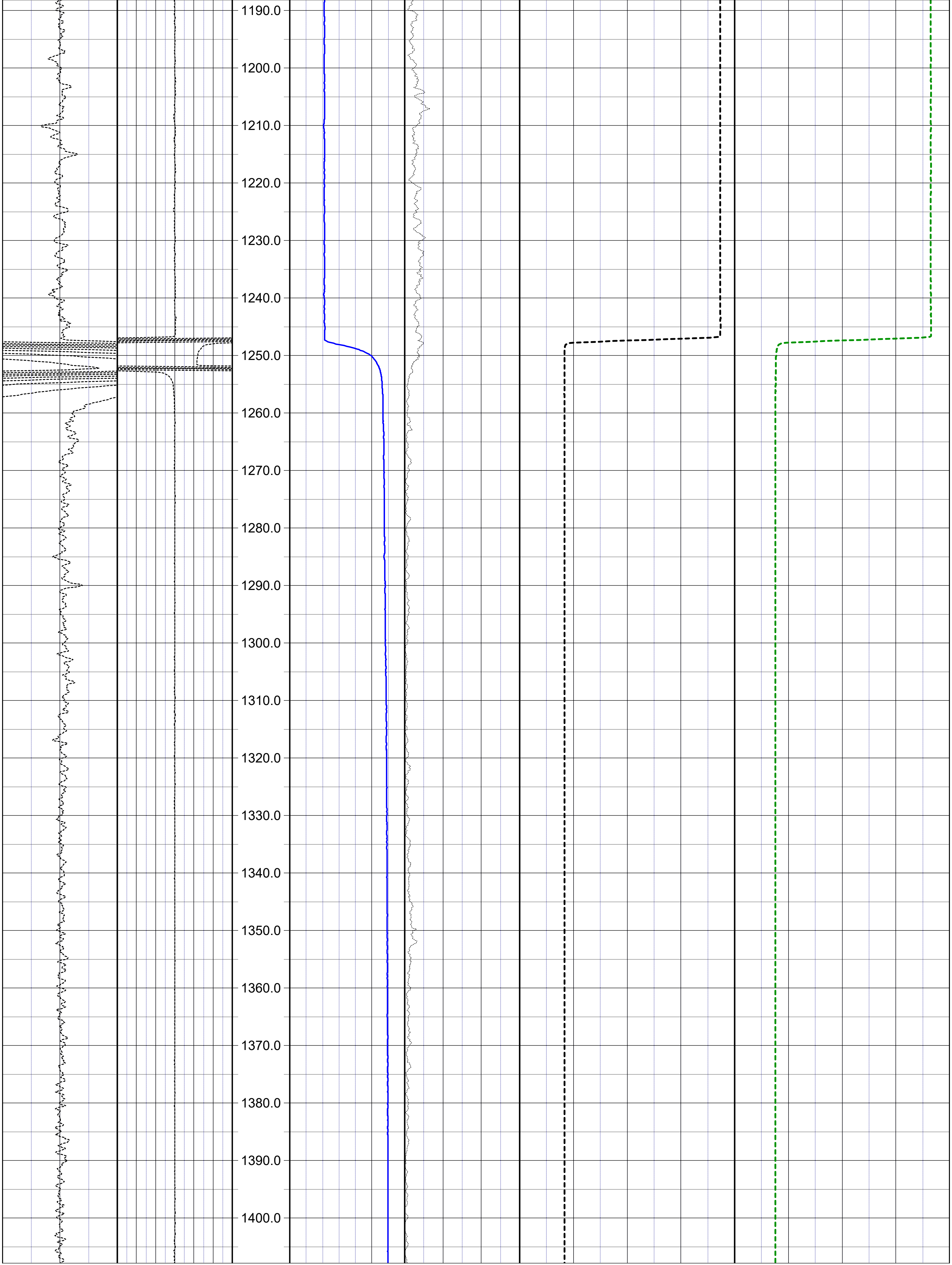
1180.0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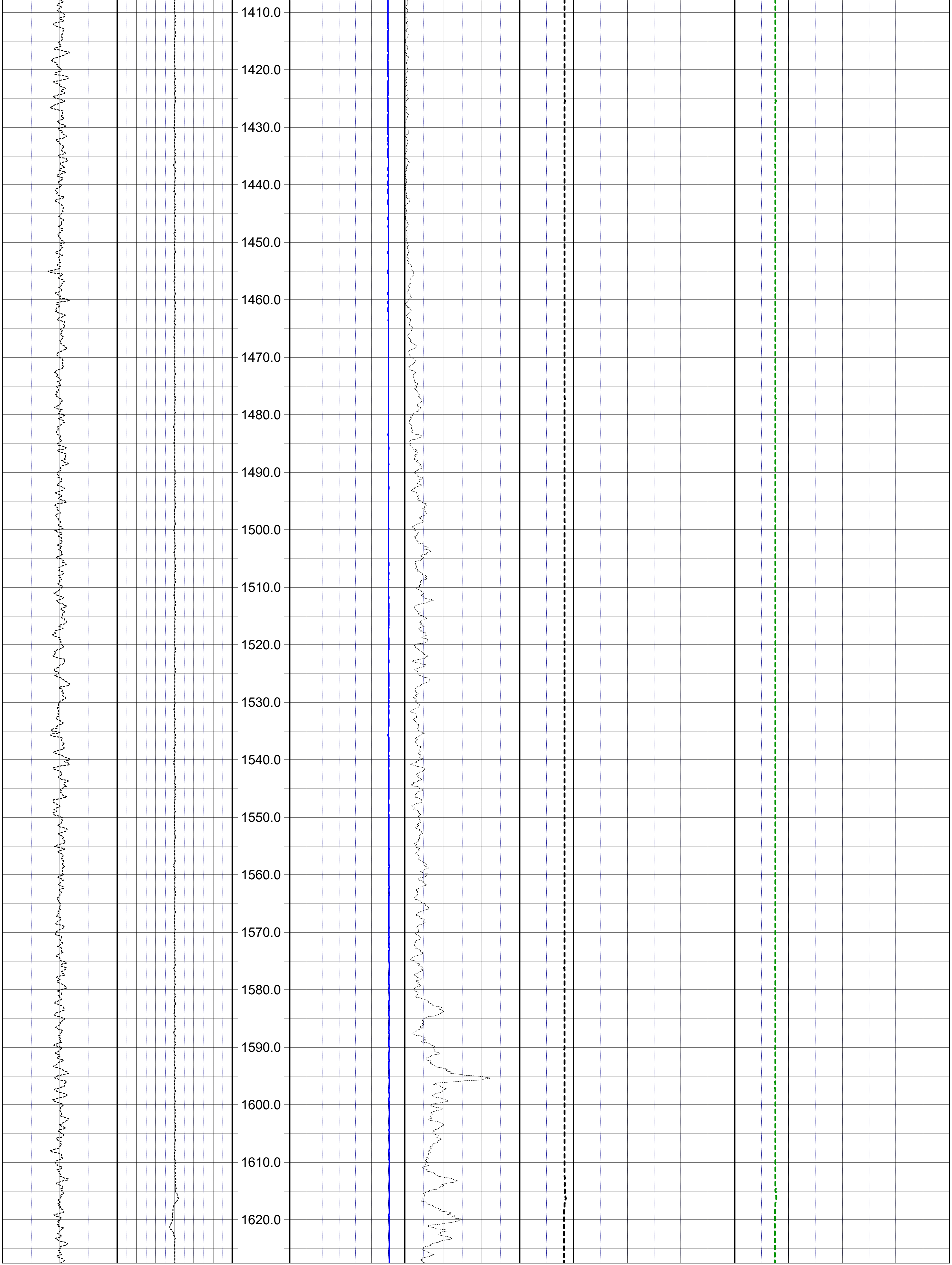
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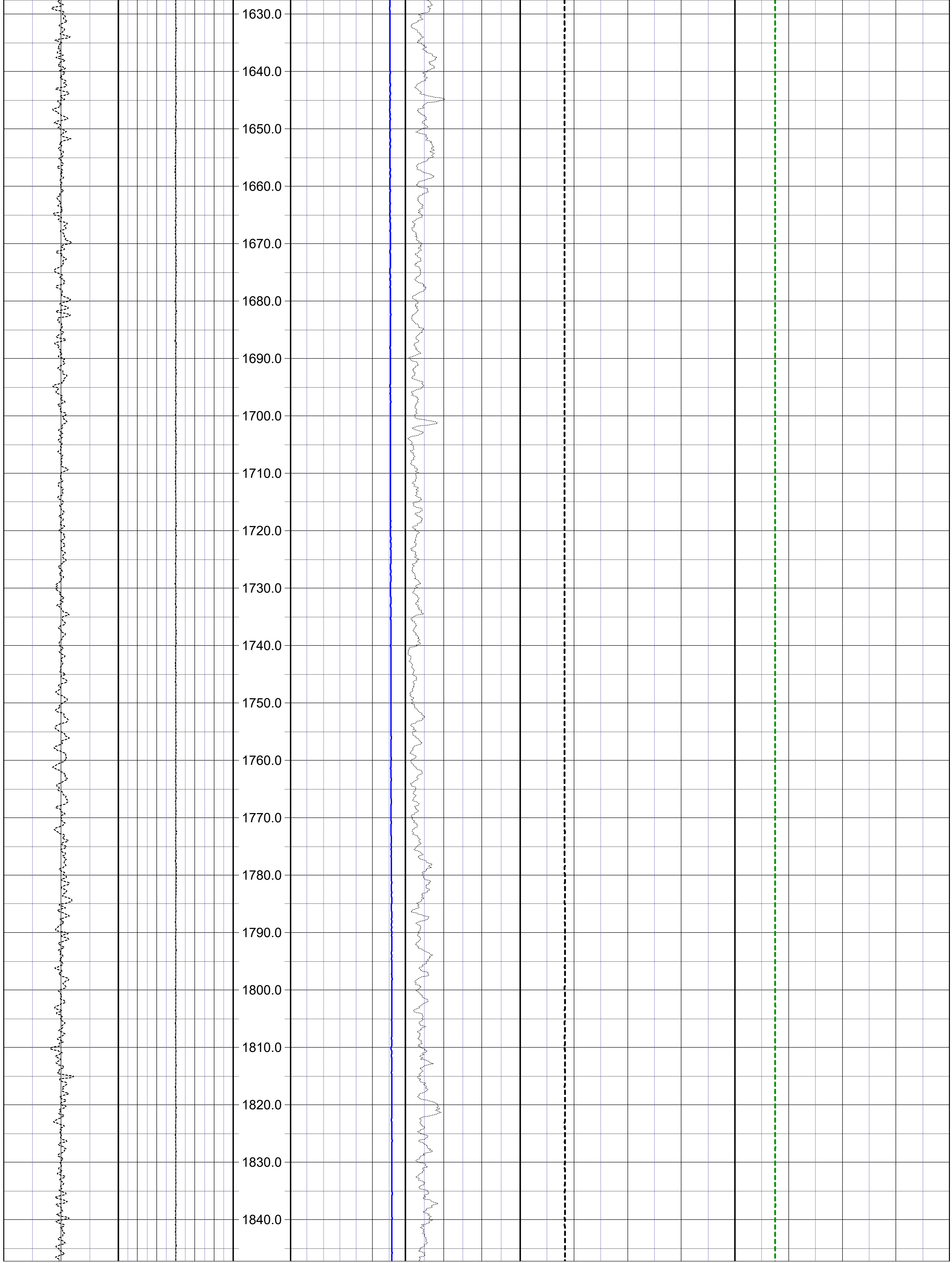
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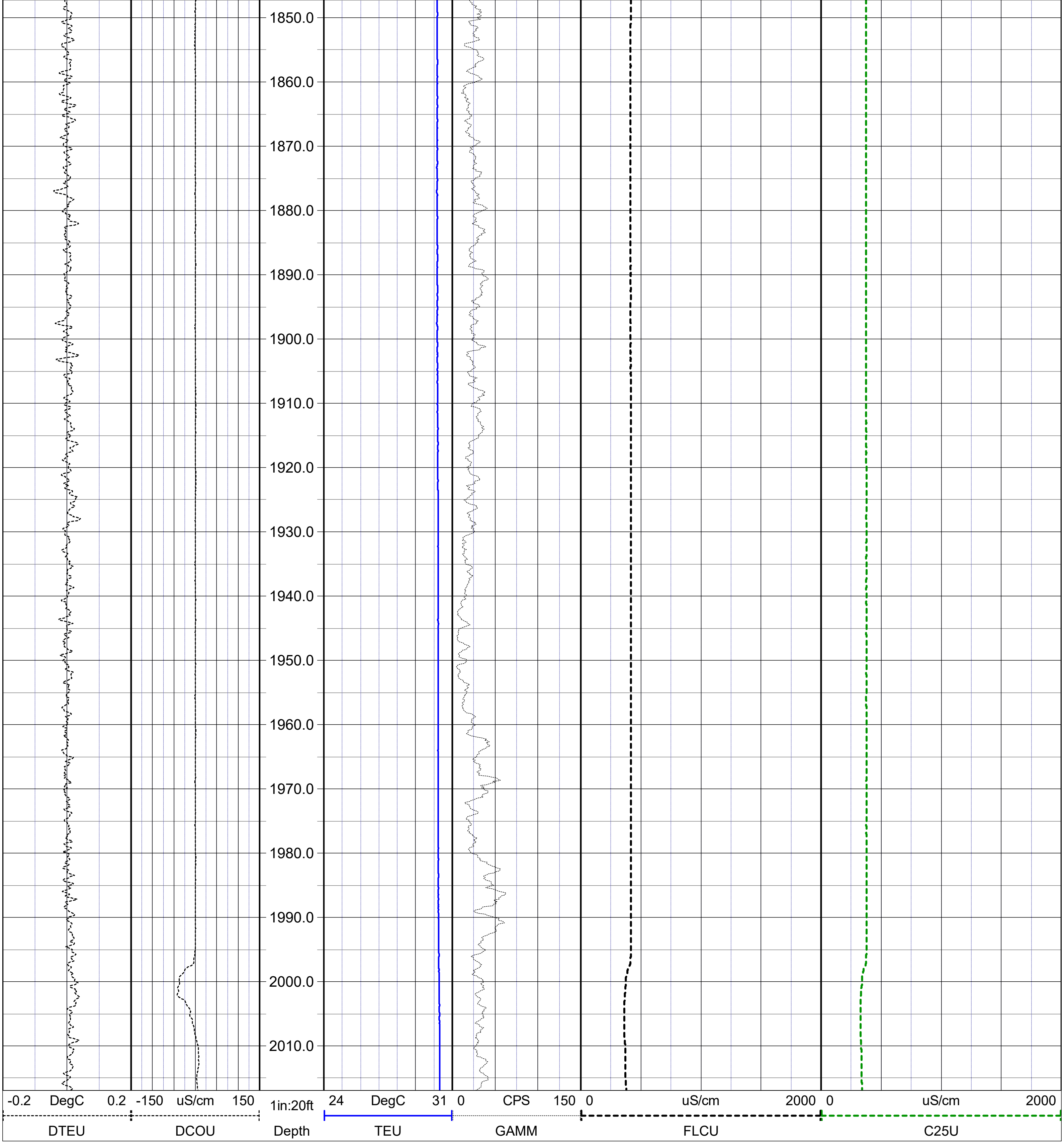


NOTES:

While due care has been exercised in the performance of these measurements and observations, in accordance with methodologies utilized by the general practitioner, RMBAKER LLC can make no representations, warranties, or guarantees with respect to latent or concealed conditions that may exist, which may be beyond the detection capabilities of the methodologies used, or that may extend beyond the areas and depths surveyed.

The geophysical well logs show subsurface conditions as they existed at the dates and locations shown, and it is not warranted that they are representative of subsurface conditions at other locations and times.

If, at any time, different subsurface conditions from those observed are determined to be present, we must be advised and allowed to review and revise our observations if necessary.

Florida Geology Business Licenced by PG2186

END OF LOG

ABS

GAMMA RAY (API)-CALIPER
OSF-108

COMPANY HUSS DRILLING
WELL OSF-108
WELL EXT
FIELD
COUNTY OSCEOLA
STATE FLORIDA
COUNTRY ---
API NO.

COMPANY : HUSS DRILLING
WELL : OSF-108
WELL EXT :
FIELD :
COUNTY : OSCEOLA
STATE : FLORIDA
COUNTRY : ---
API NO. :
UNIQ ID : NONE

SECTION: TOWNSHIP: RANGE:

LOCATION : KISSISSMMEE
LAT GPS UTM
LON GPS UTM

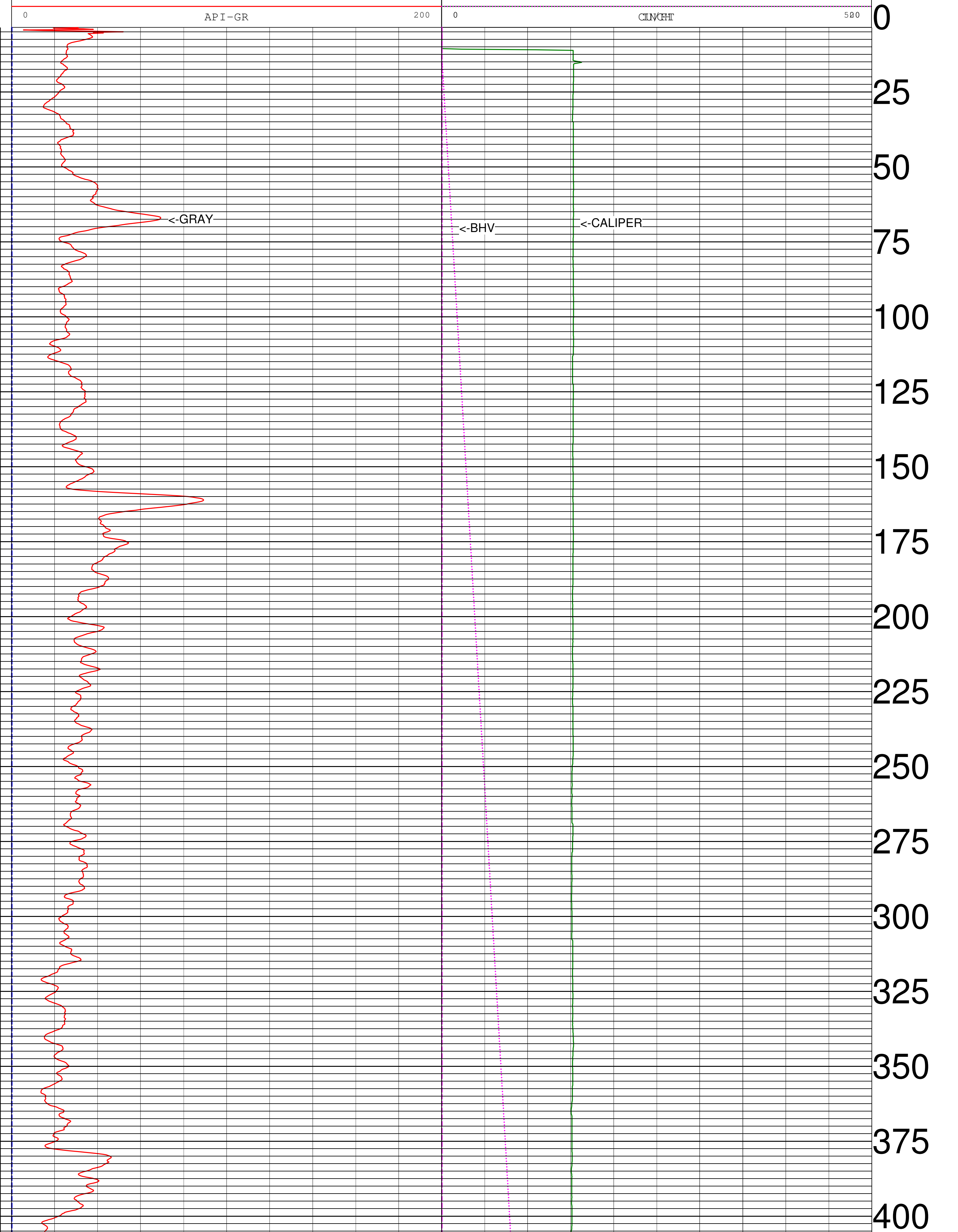
DISPLAY7_JL56

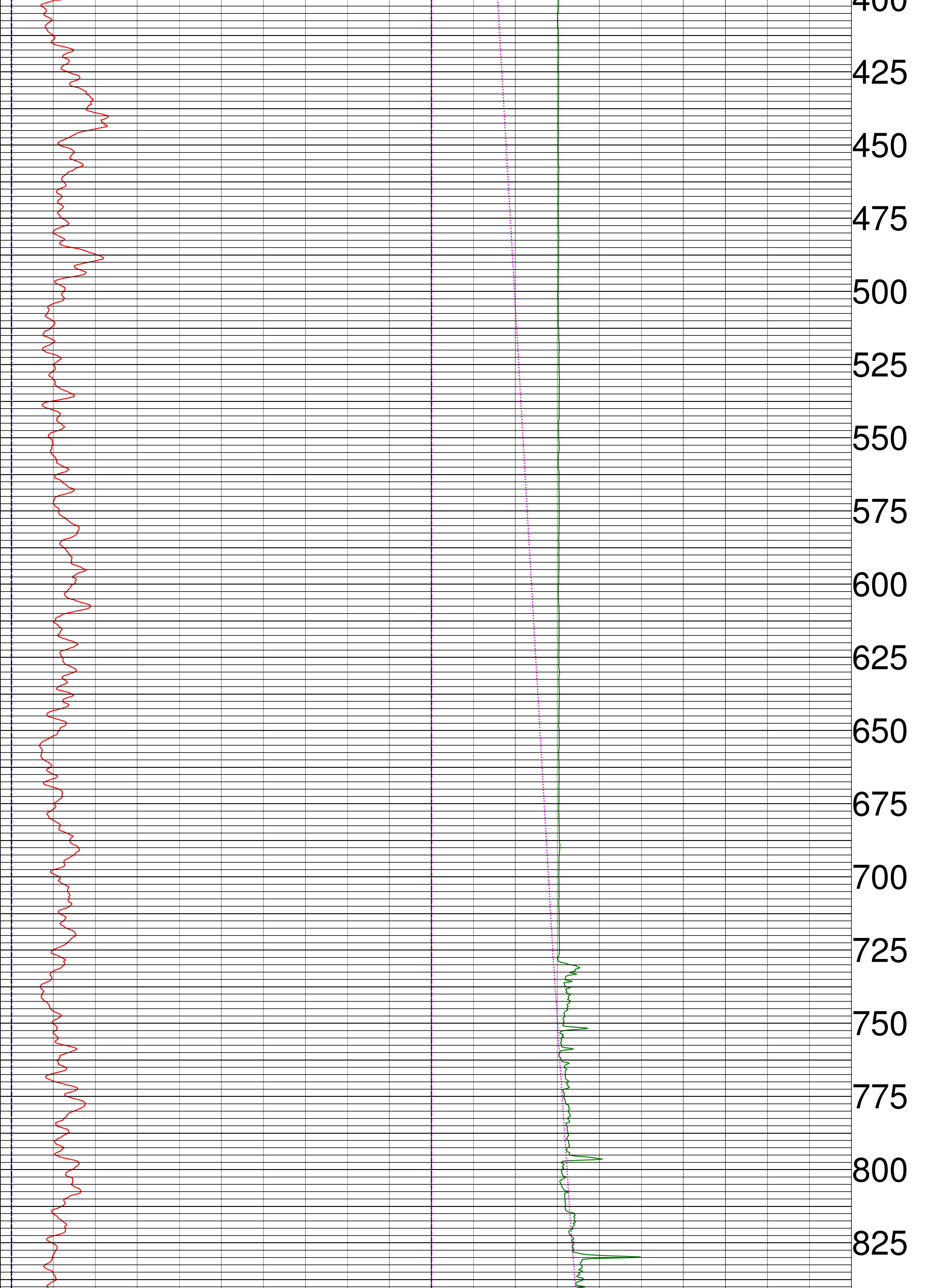
PERMANENT DATUM	MSL	Elevations:		Other Services:	
DRL MEASURED FROM	CASE	KB	FT	8711	
LOG MEASURED FROM	CASE	DF	FT	9320	
ELEV. PERM. DATUM	FT	GL	FT		

DATE	TIME			
DEPTH DRILLER	2020	FT		
DEPTH LOGGER	2020	FT		
FIRST READING		FT		
LAST READING		FT		
BIT SIZE	6	IN		
CASING -- DRILLER	728	FT		
CASING -- LOGGER		FT		
CASING O.D.	6	IN		
CASING TYPE	PVC			
FLUID TYPE	FOR			
FLUID DENSITY		LB/GAL		
FLUID VISCOSITY				
FLUID PH				
MUD SOURCE				
RM @ MEAS TEMP	@ F			
RMF @ MEAS TEMP	@ F			
RMC @ MEAS TEMP	@ F			
CIRC STOPPED				
RIG NUMBER				
RECORDED BY	AFB			
WITNESSED BY	KEVIN			
REMARKS 1	COMPLETION			
REMARKS 2				
REMARKS 3				

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

GAMMA	CALIPER	FEET
200 API-GR 400	30 INCH 60	SPEED --
GAMMA	CALIPER / BHV	
0 API-GR 200	0 INCH / CNT 5 / 20	

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450
475
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525
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575
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650
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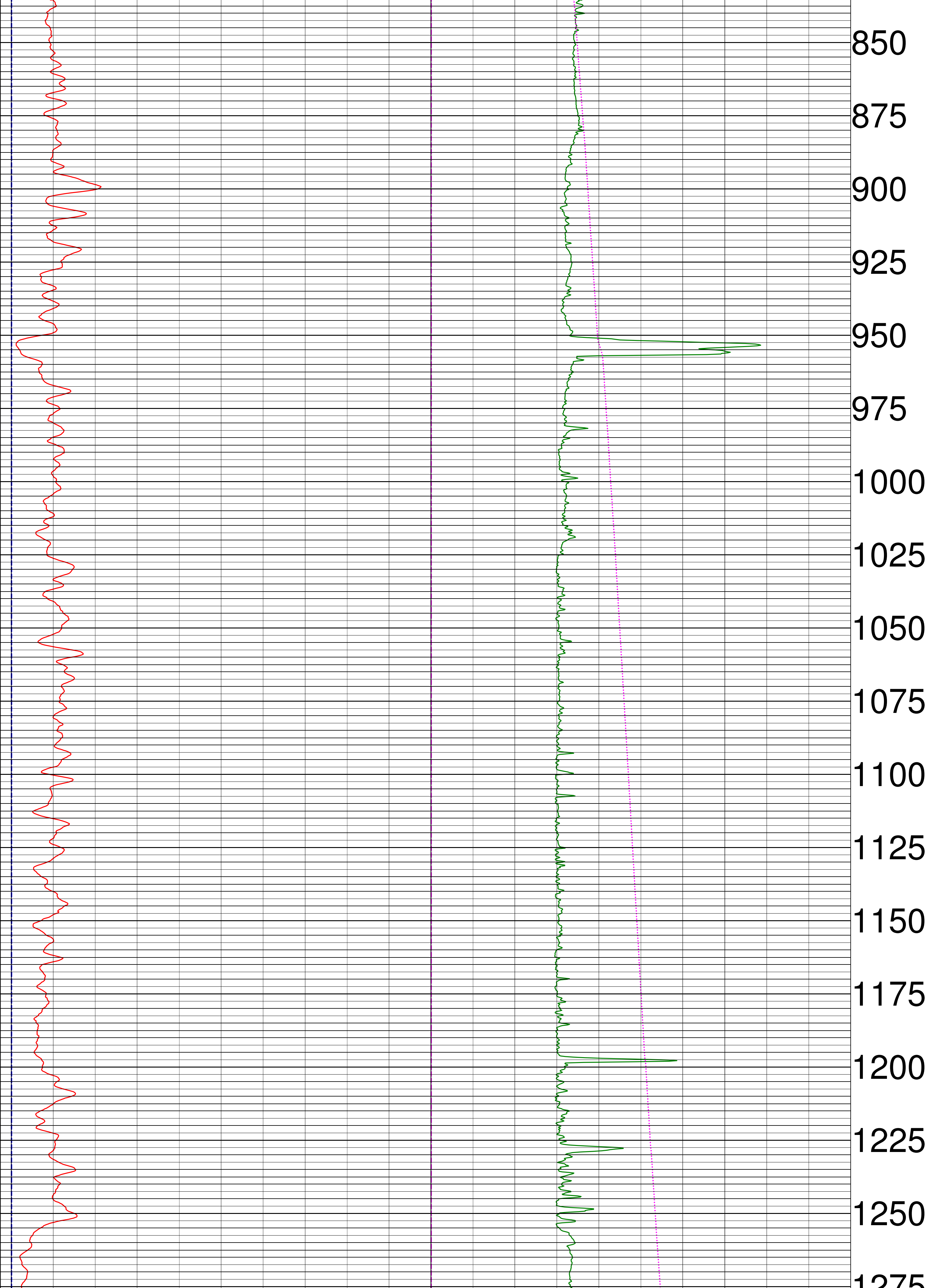
700
725
750
775
800
825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900
925
950
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1000
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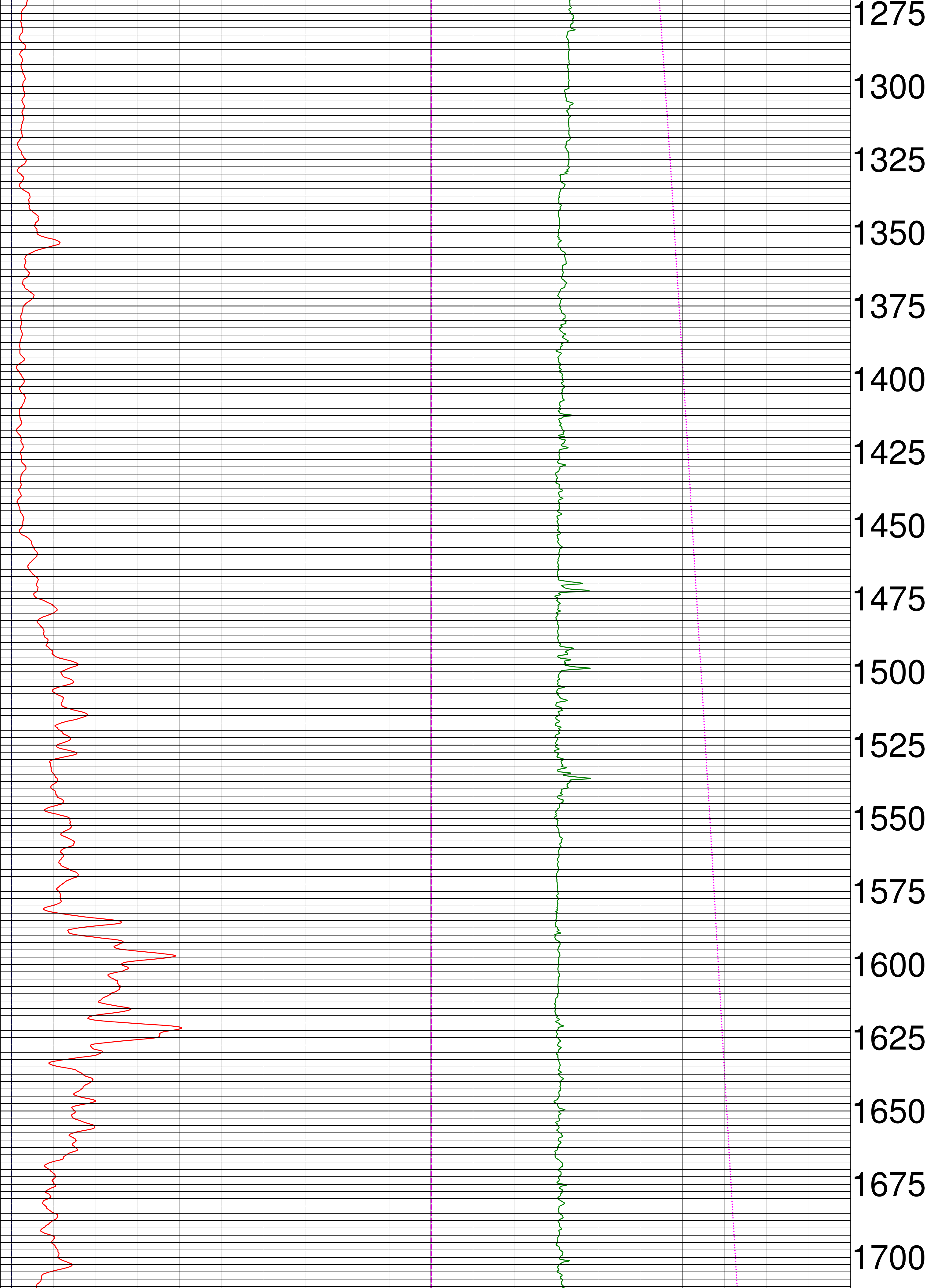
1100
1125
1150
1175
1200
1225
1250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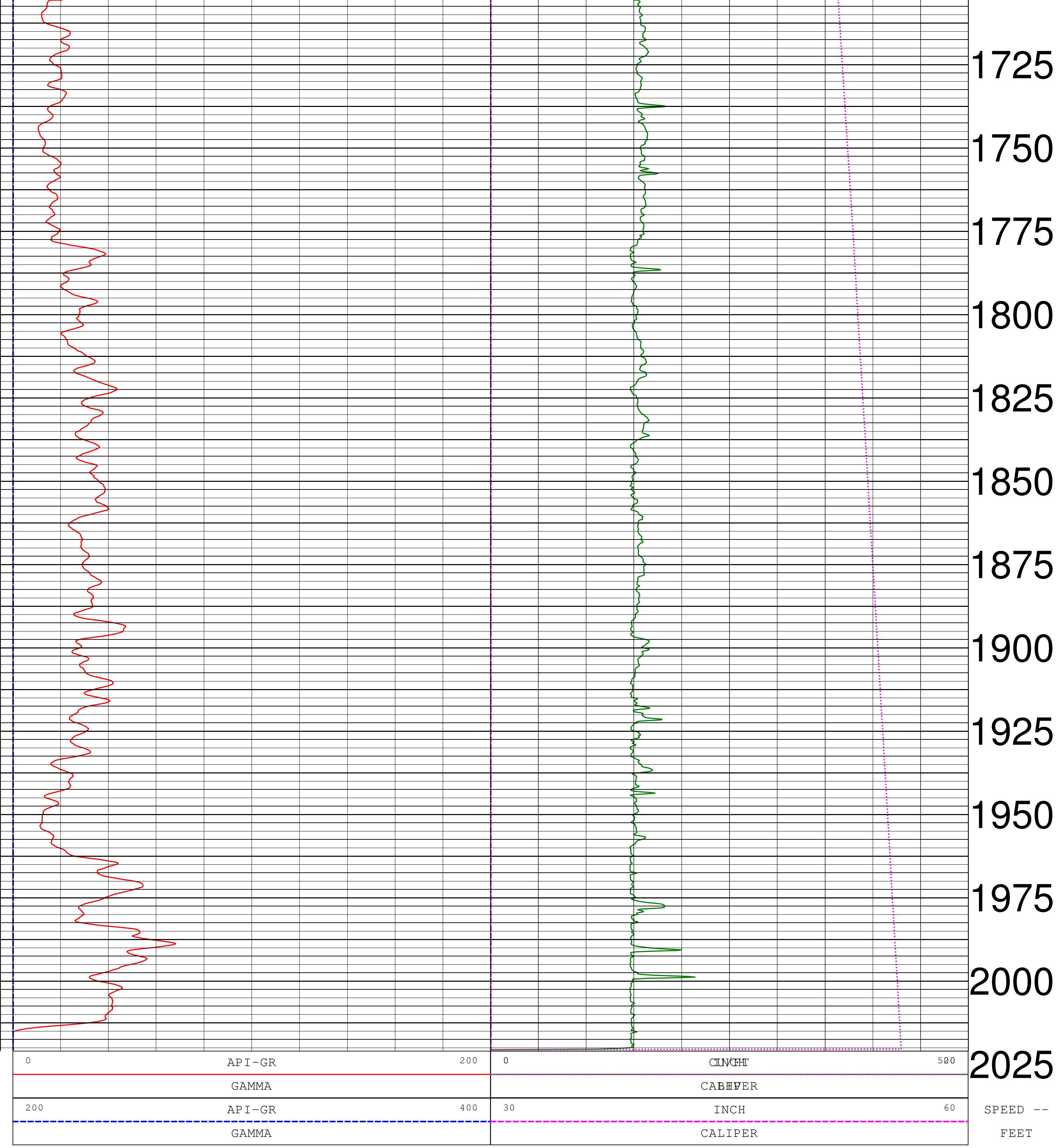
1675
1700


1725
1750
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1800
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1850
1875
1900
1925
1950
1975
2000
2025
0
API-GR
200
GAMMA
200
API-GR
400
GAMMA
0
30
INCH
60
CALIPER
SPEED --
FEET

TOOL CALIBRATION OSF-108 09/14/21 14:49
TOOL   9074A1   TM VERSION 2004
SERIAL 3158

	DATE	TIME	SENSOR		STANDARD Point1	STANDARD Point2	RESPONSE [CPS] Point1	RESPONSE [CPS] Point2
1	Jul16,19	11:01:03	GAMMA	[API-GR]	1.000	340.000	0.000	365
2	Jul16,19	11:04:12	CALIPER	[INCH]	4.000	6.000	69017	85360
3	Mar09,21	10:51:18	CALIPERL	[INCH]	8.000	23.000	82709	166401
4	Jul16,19	11:00:52	CALIPERX	[CPS]	Default	Default	Default	Default

ABS

GAMMA RAY-LSN (16-64)
OSF-108

COMPANY	HUSS DRILLING
WELL	OSF-108
WELL EXT	
FIELD	
COUNTY	OSCEOLA
STATE	FLORIDA
COUNTRY	---
API NO.	

COMPANY : HUSS DRILLING
WELL : OSF-108
WELL EXT :
FIELD :
COUNTY : OSCEOLA
STATE : FLORIDA
COUNTRY : ---
API NO. :
UNIQ ID : NONE

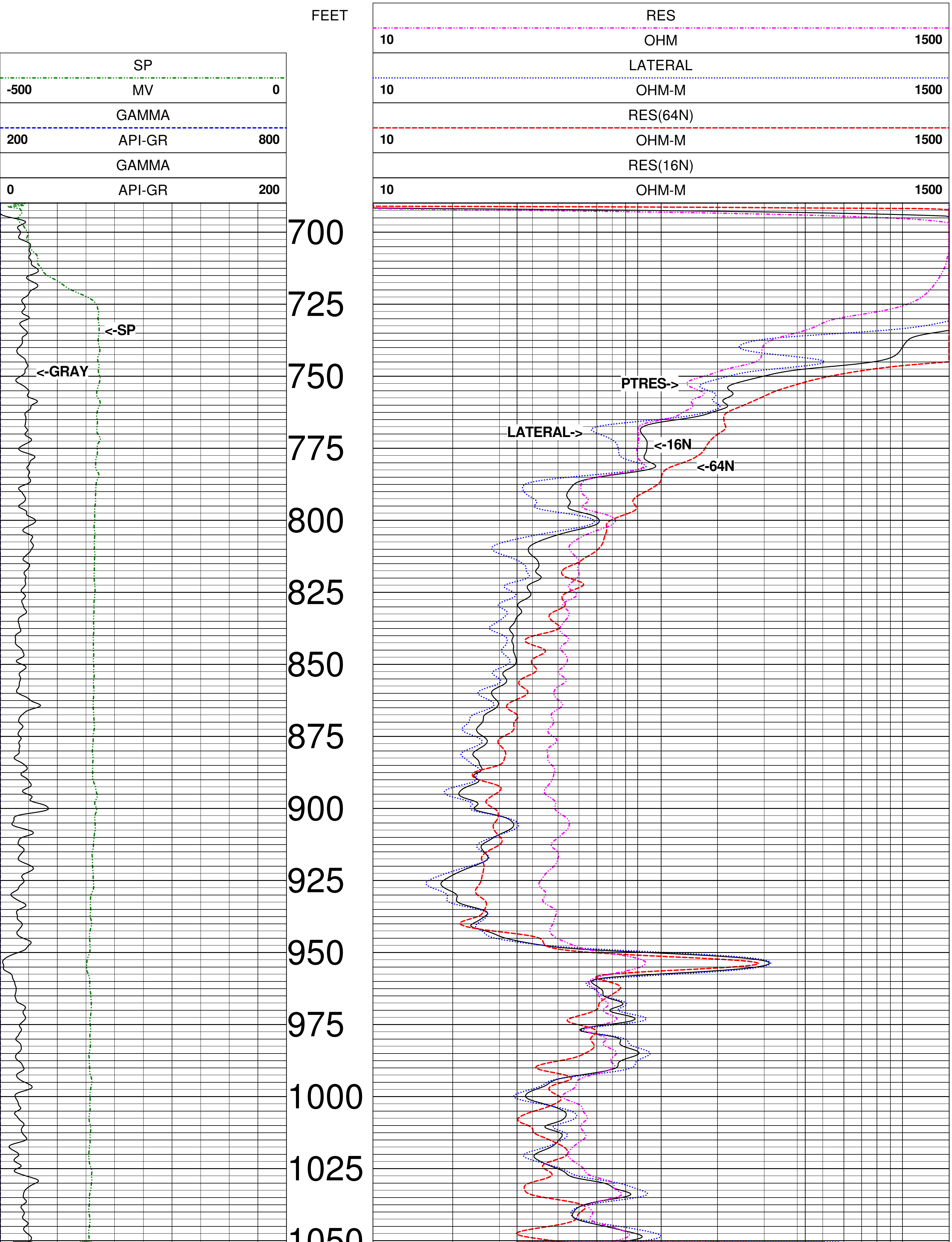
SECTION: TOWNSHIP: RANGE:

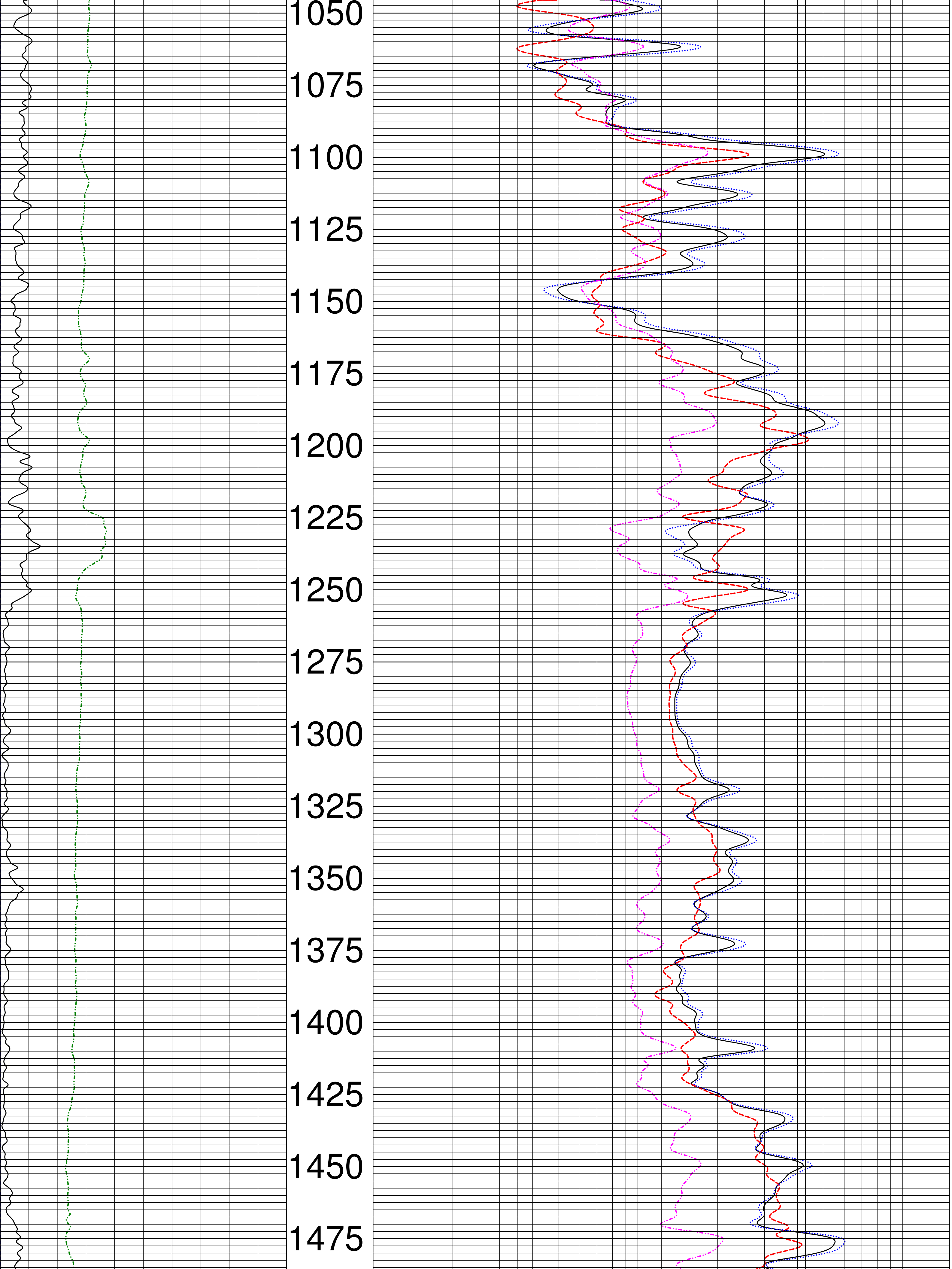
LOCATION : KISSISSMMEE
LAT GPS UTM
LON GPS UTM

DISPLAY7_JL56

PERMANENT DATUM	MSL		Elevations:		Other Services:
DRL MEASURED FROM	CASE		KB	FT	8711
LOG MEASURED FROM	CASE		DF	FT	9320
ELEV. PERM. DATUM		FT	GL	FT	

DATE	TIME			
DEPTH DRILLER	2020	FT		
DEPTH LOGGER	2020	FT		
FIRST READING		FT		
LAST READING		FT		
BIT SIZE	6	IN		
CASING -- DRILLER	728	FT		
CASING -- LOGGER	728	FT		
CASING O.D.	6	IN		
CASING TYPE	PVC			
FLUID TYPE	FOR			
FLUID DENSITY		LB/GAL		
FLUID VISCOSITY				
FLUID PH				
MUD SOURCE				
RM @ MEAS TEMP	@ F			
RMF @ MEAS TEMP	@ F			
RMC @ MEAS TEMP	@ F			
CIRC STOPPED				
RIG NUMBER				
RECORDED BY	AFB			
WITNESSED BY	KEVIN			
REMARKS 1	COMPLETION			
REMARKS 2				
REMARKS 3				


FEET
RES
10 OHM 1500
LATERAL
10 OHM-M 1500
RES(64N)
10 OHM-M 1500
RES(16N)
10 OHM-M 1500
SP
-500 MV 0
GAMMA
200 API-GR 800
GAMMA
0 API-GR 200
<-SP
<-GRAY
PTRES->
LATERAL->
<-16N
<-64N
700
725
750
775
800
825
850
875
900
925
950
975
1000
1025
1050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1450
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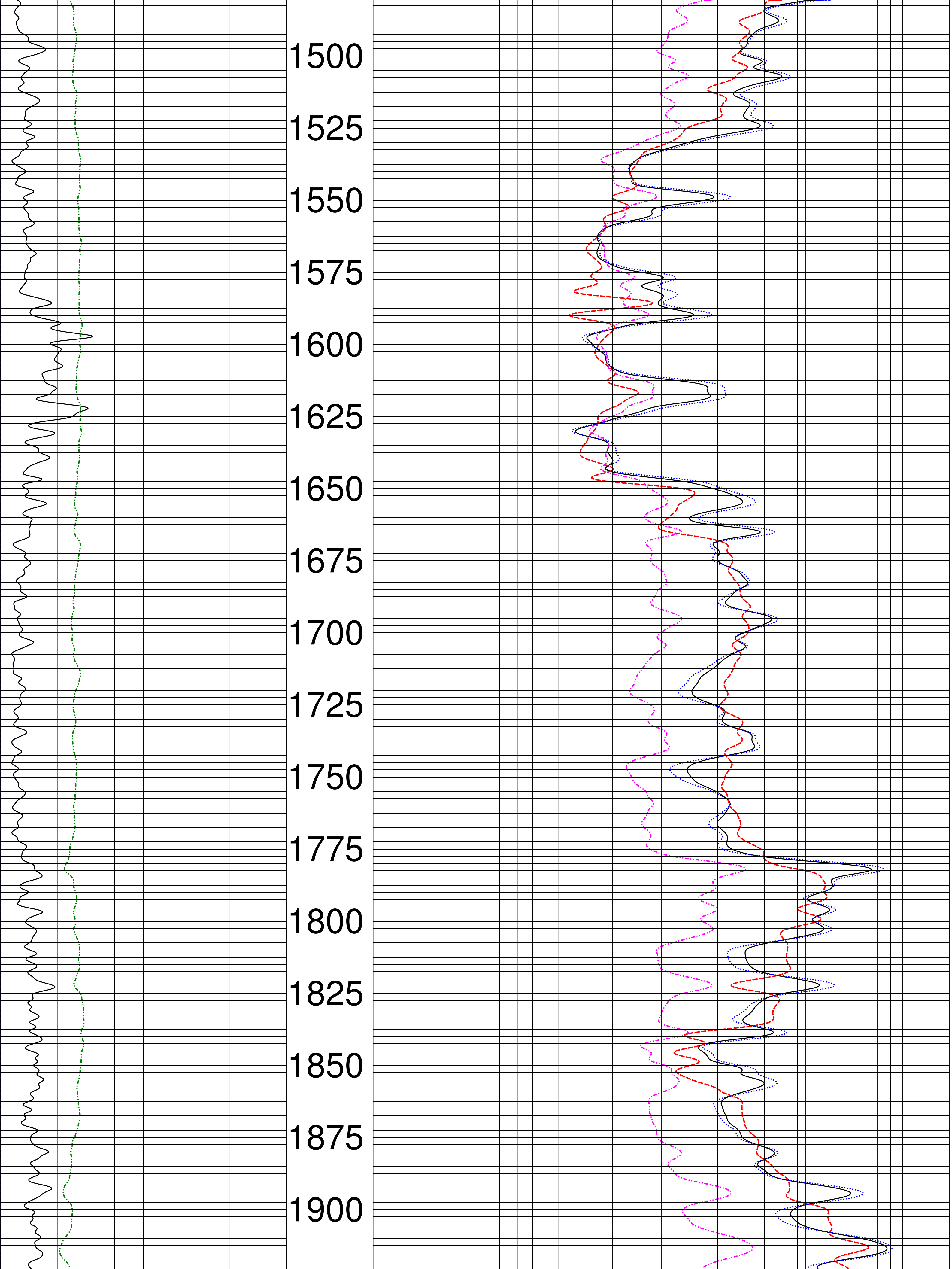
1500
1525
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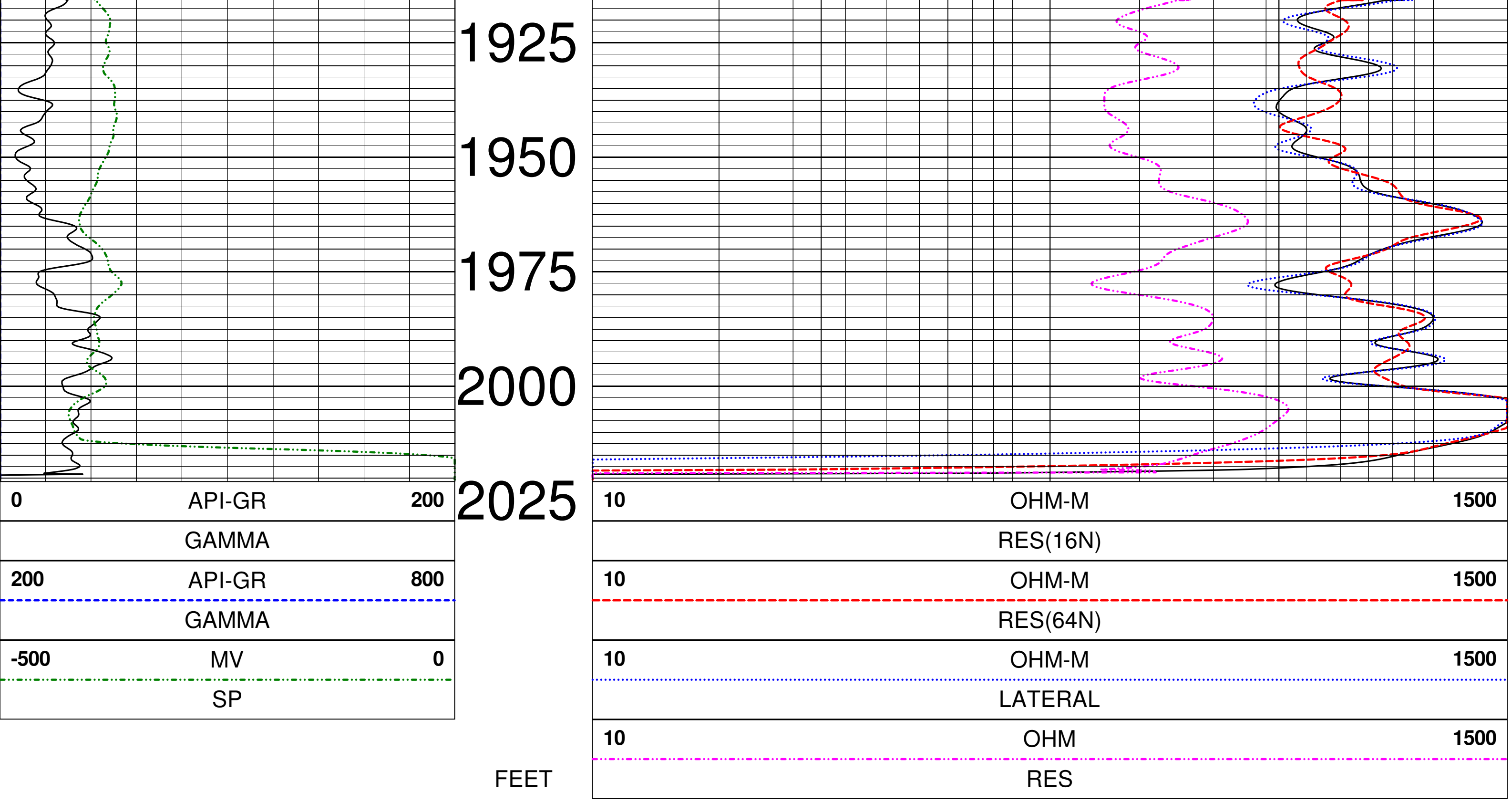
1900


1925
1950
1975
2000
2025
0 API-GR 200
GAMMA
200 API-GR 800
GAMMA
-500 MV 0
SP
FEET
10 OHM-M 1500
RES(16N)
10 OHM-M 1500
RES(64N)
10 OHM-M 1500
LATERAL
10 OHM 1500
RES

TOOL CALIBRATION OSF-108 09/14/21 09:03
TOOL   8044A   TM VERSION 2003
SERIAL 938

	DATE	TIME	SENSOR		STANDARD Point1	STANDARD Point2	RESPONSE [CPS] Point1	RESPONSE [CPS] Point2
1	Jan03,03	02:49:05	GAMMA	[API-GR]	0.001	180.000	0.000	169
2	Mar25,20	11:04:13	RES(FL)	[OHM-M]	15.450	7.290	30214	16551
3	Aug17,14	12:00:23	SP	[MV]	0.000	395.000	59670	23612
4	Feb02,20	14:59:18	RES(16N)	[OHM-M]	0.000	1996.000	4010	103211
5	Feb02,20	15:00:15	RES(64N)	[OHM-M]	0.000	1990.000	4089	103487
6	Sep29,19	18:57:40	TEMP	[DEG-F]	71.700	86.100	63355	57070
7	Aug17,14	10:39:11	RES	[OHM]	0.000	988.000	9855	58788

BHC ACOUSTIC-VDL
OSF-108

COMPANY HUSS DRILLING
WELL OSF-108
WELL EXT
FIELD
COUNTY OSCEOLA
STATE FLORIDA
COUNTRY ---
API NO.

COMPANY : HUSS DRILLING
WELL : OSF-108
WELL EXT :
FIELD :
COUNTY : OSCEOLA
STATE : FLORIDA
COUNTRY : ---
API NO. :
UNIQ ID : NONE

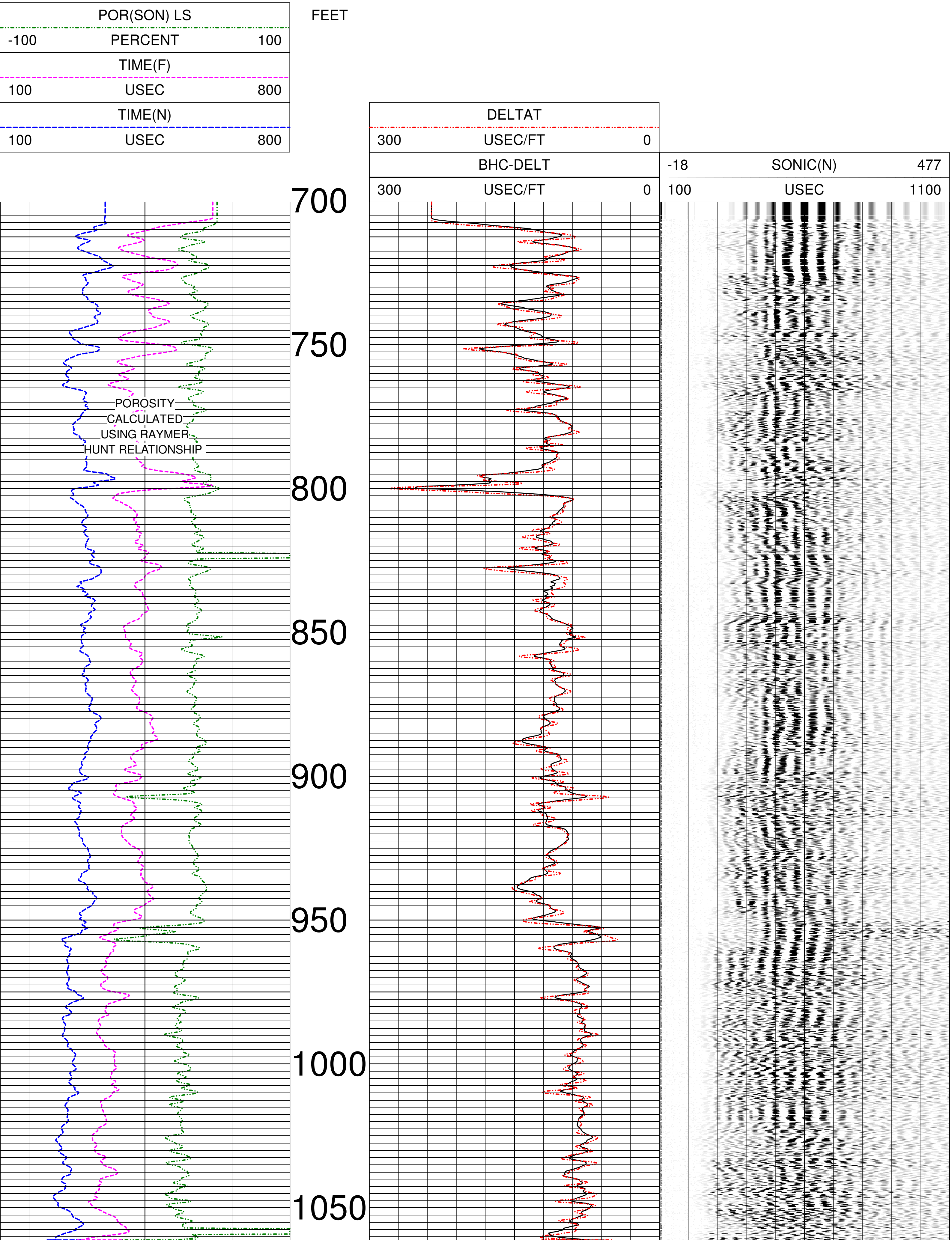
SECTION: TOWNSHIP: RANGE:

LOCATION : KISSISSMMEE
LAT GPS UTM
LON GPS UTM

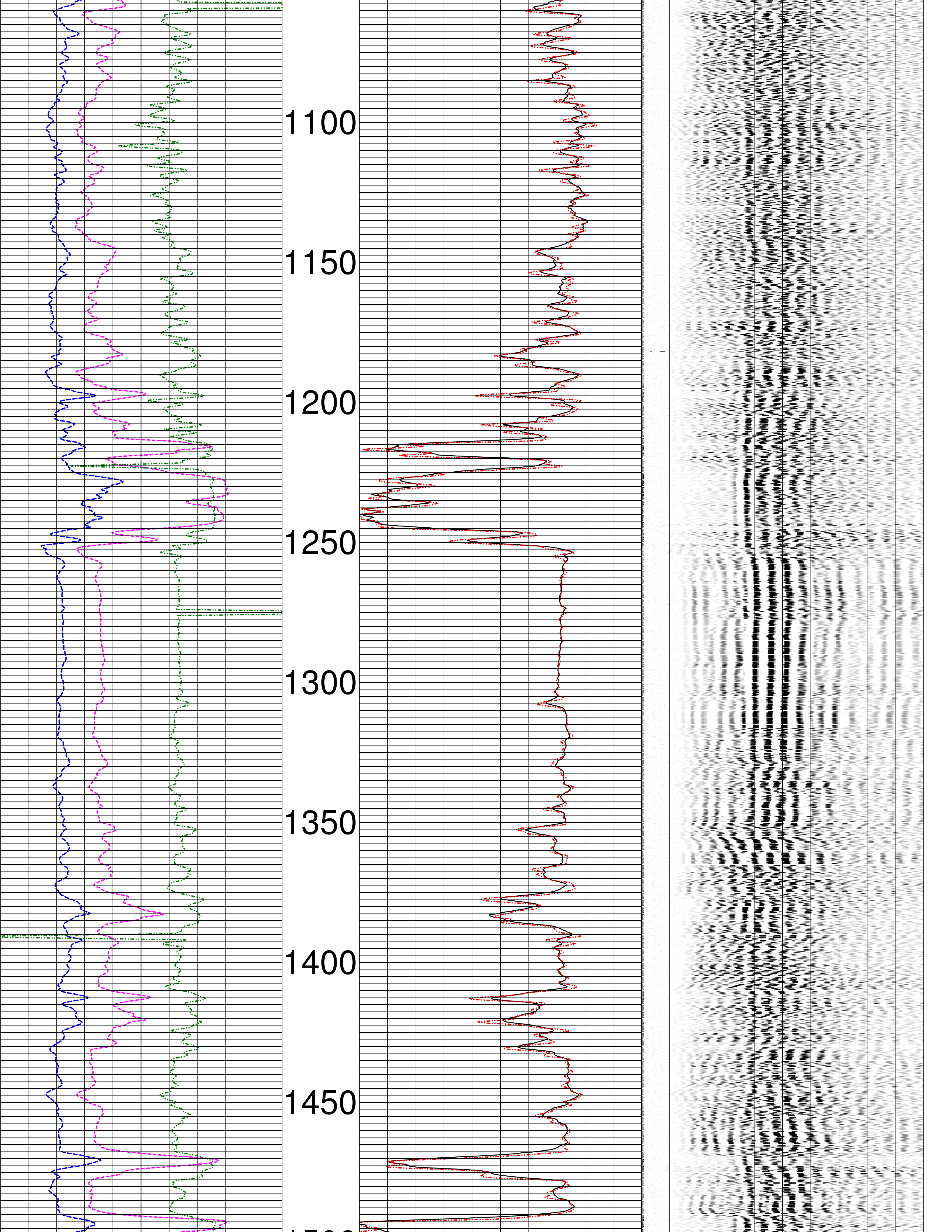
DISPLAY7_JL56

PERMANENT DATUM	MSL	Elevations:		Other Services:	
DRL MEASURED FROM	CASE	KB	FT	8711	
LOG MEASURED FROM	CASE	DF	FT	9320	
ELEV. PERM. DATUM	FT	GL	FT		

DATE	TIME			
DEPTH DRILLER	2020	FT		
DEPTH LOGGER	2020	FT		
FIRST READING		FT		
LAST READING		FT		
BIT SIZE	6	IN		
CASING -- DRILLER	728	FT		
CASING -- LOGGER	728	FT		
CASING O.D.	6	IN		
CASING TYPE	PVC			
FLUID TYPE	FOR			
FLUID DENSITY		LB/GAL		
FLUID VISCOSITY				
FLUID PH				
MUD SOURCE				
RM @ MEAS TEMP	@ F			
RMF @ MEAS TEMP	@ F			
RMC @ MEAS TEMP	@ F			
CIRC STOPPED				
RIG NUMBER				
RECORDED BY	AFB			
WITNESSED BY	KEVIN			
REMARKS 1	COMPLETION			
REMARKS 2				
REMARKS 3				



POR(SON) LS
-100 PERCENT 100
TIME(F)
100 USEC 800
TIME(N)
100 USEC 800
FEET
DELTAT
300 USEC/FT 0
BHC-DELT
300 USEC/FT 0
-18 SONIC(N) 477
100 USEC 1100
700
750
800
850
900
950
1000
1050
POROSITY
CALCULATED
USING RAYMER
HUNT RELATIONSHIP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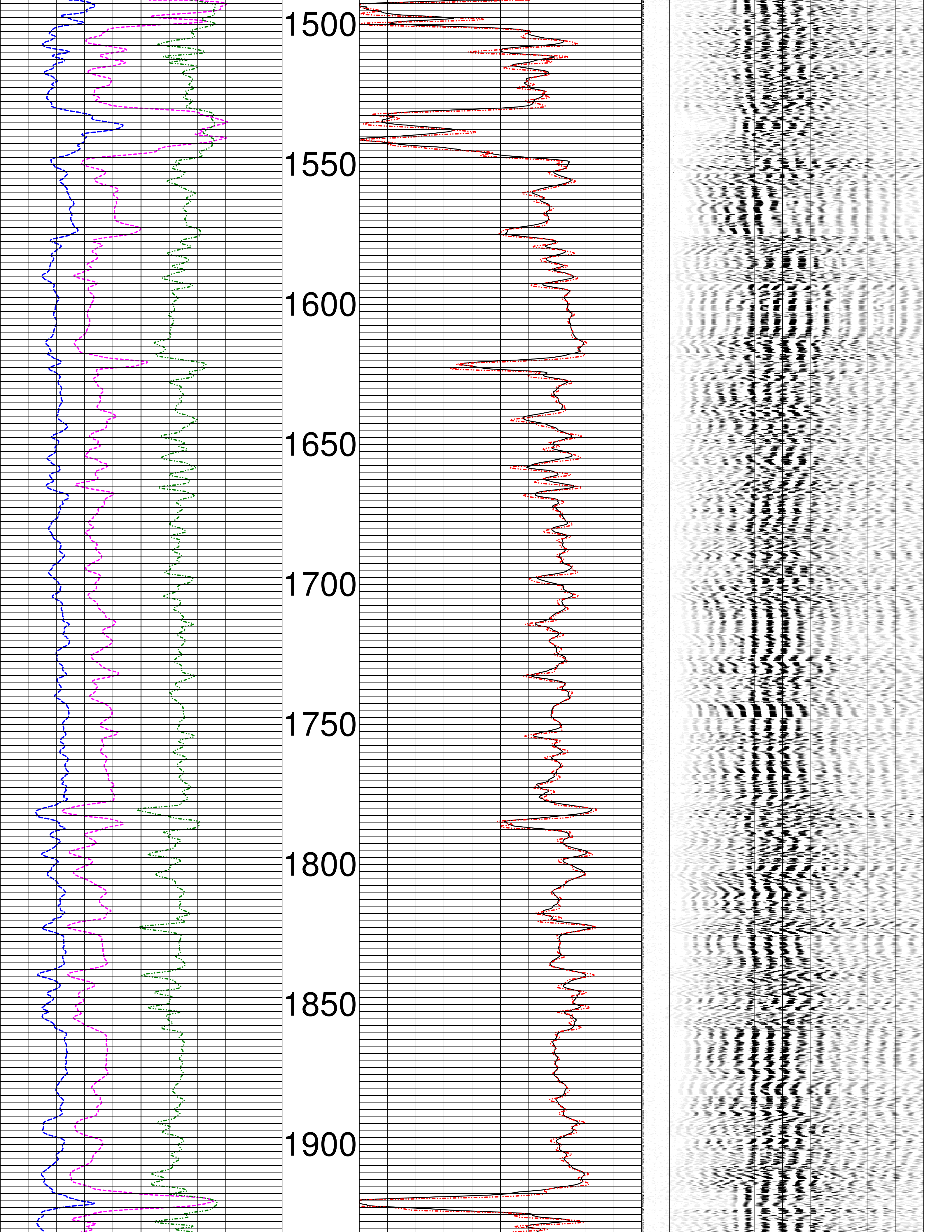
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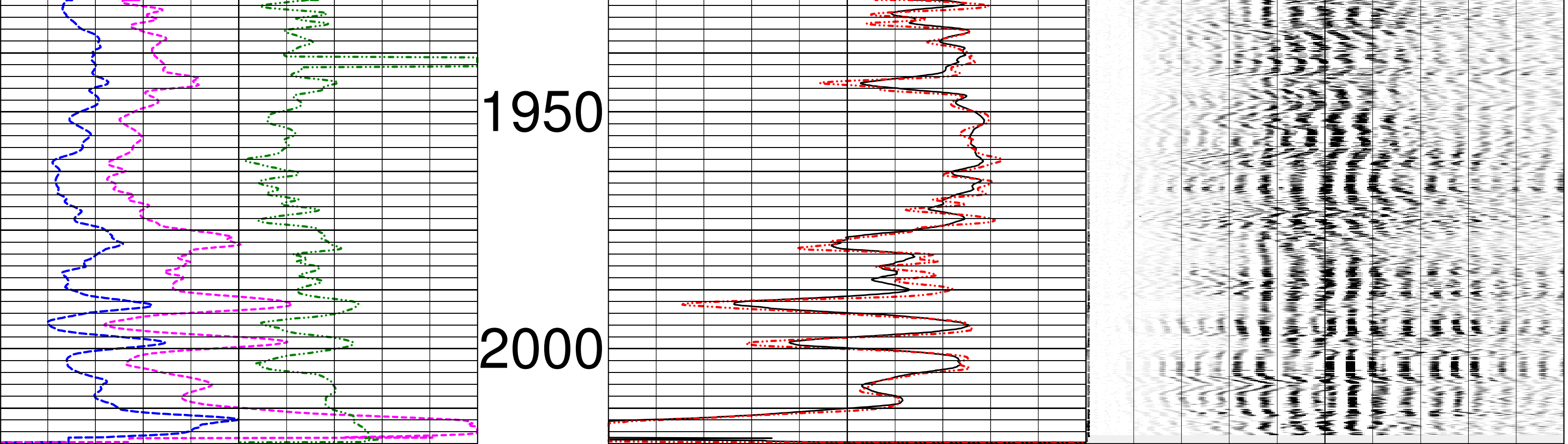
1700
1750
1800
1850
1900



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	BHC-DELT	
300	USEC/FT	0
	DELTAT	

100	USEC	1100
-18	SONIC(N)	477

100	USEC	800
	TIME(N)	
100	USEC	800
	TIME(F)	
-100	PERCENT	100
	POR(SON) LS	

FEET

TOOL CALIBRATION OSF-108 09/14/21 10:23
TOOL 9320A2 TM VERSION 4003
SERIAL 667

	DATE	TIME	SENSOR		STANDARD Point1	STANDARD Point2	RESPONSE [CPS] Point1	RESPONSE [CPS] Point2
1	Apr12,99	15:12:30	GAMMA	[CPS]	Default	Default	Default	Default

FLOW-STATIC WELL
OSF-108

COMPANY HUSS DRILLING
WELL OSF-108
WELL EXT
FIELD
COUNTY OSCEOLA
STATE FLORIDA
COUNTRY ---
API NO.

COMPANY : HUSS DRILLING
WELL : OSF-108
WELL EXT :
FIELD :
COUNTY : OSCEOLA
STATE : FLORIDA
COUNTRY : ---
API NO. :
UNIQ ID : NONE

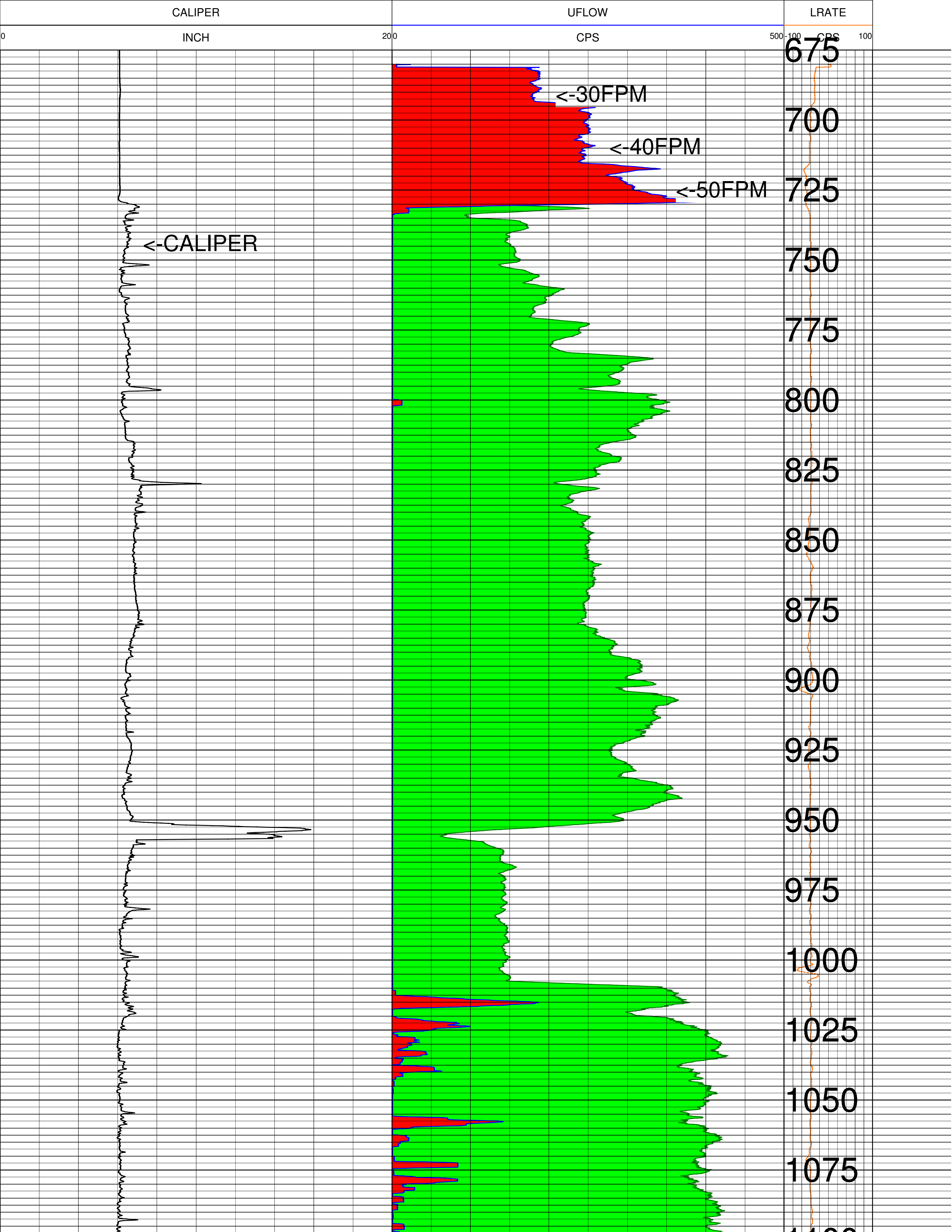
SECTION: TOWNSHIP: RANGE:

LOCATION : KISSISSMMEE
LAT GPS UTM
LON GPS UTM

DISPLAY7_JL56

PERMANENT DATUM	MSL	Elevations:	Other Services:
DRL MEASURED FROM	CASE	KB FT	8711
LOG MEASURED FROM	CASE	DF FT	9320
ELEV. PERM. DATUM	FT	GL FT	

DATE	TIME		
DEPTH DRILLER	2020 FT		
DEPTH LOGGER	2020 FT		
FIRST READING	FT		
LAST READING	FT		
BIT SIZE	6 IN		
CASING -- DRILLER	728 FT		
CASING -- LOGGER	FT		
CASING O.D.	6 IN		
CASING TYPE	PVC		
FLUID TYPE	FOR		
FLUID DENSITY	LB/GAL		
FLUID VISCOSITY			
FLUID PH			
MUD SOURCE			
RM @ MEAS TEMP	@ F		
RMF @ MEAS TEMP	@ F		
RMC @ MEAS TEMP	@ F		
CIRC STOPPED			
RIG NUMBER			
RECORDED BY	AFB		
WITNESSED BY	KEVIN		
REMARKS 1	COMPLETION		
REMARKS 2			
REMARKS 3			



CALIPER
INCH
0
20
UFLOW
CPS
0
500
LRATE
CPS
-100
100
<-30FPM
<-40FPM
<-50FPM
<-CALIPER
675
700
725
750
775
800
825
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875
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925
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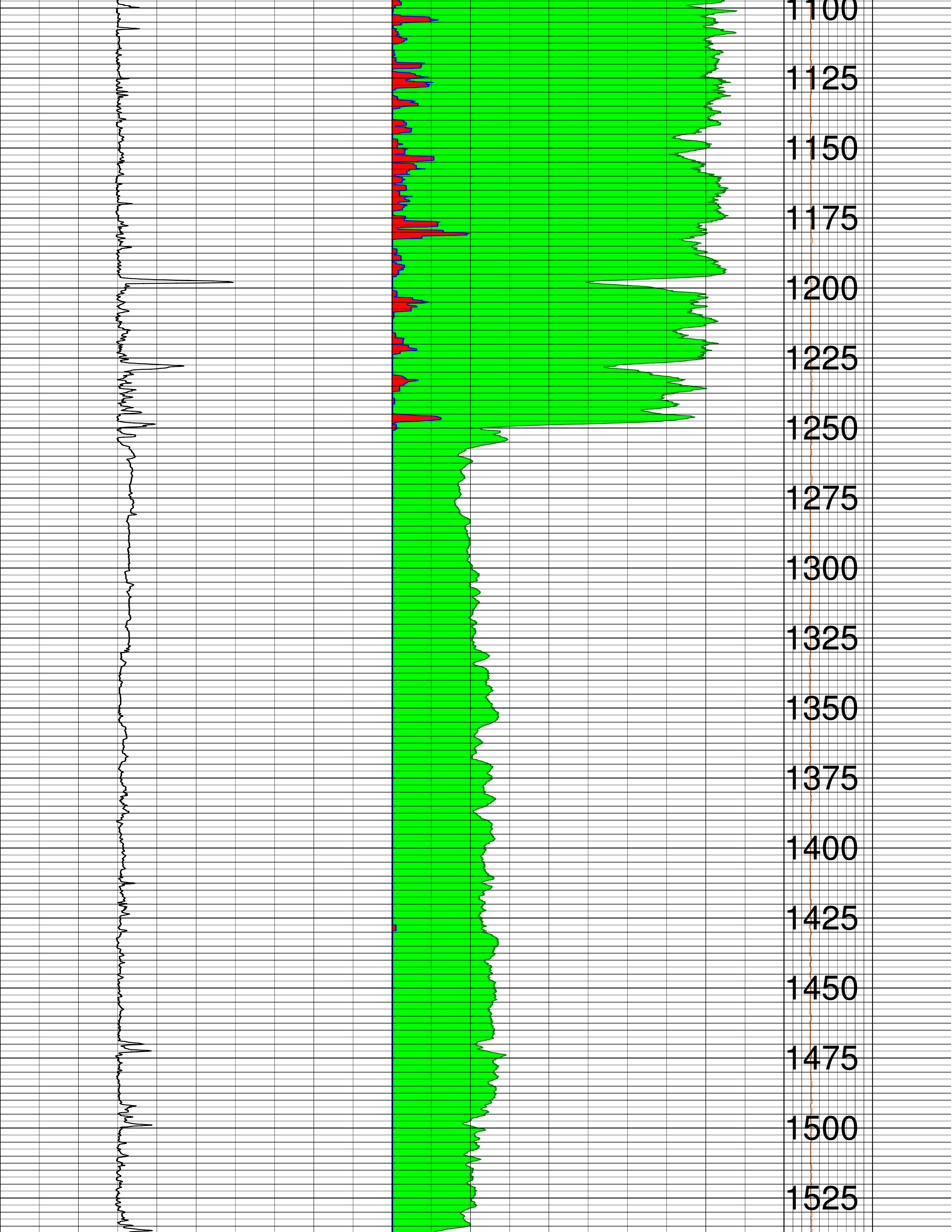
1025
1050
1075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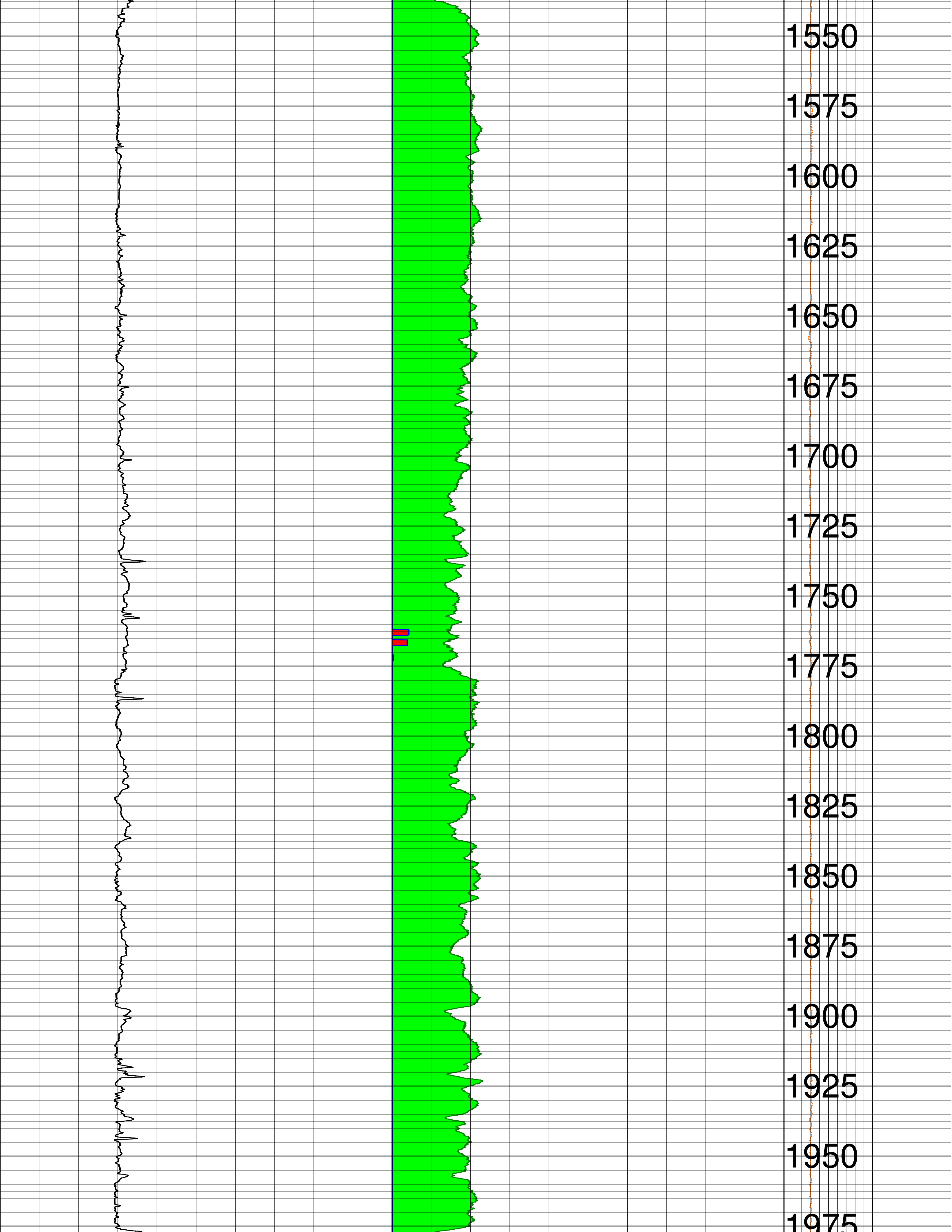
1475
1500
1525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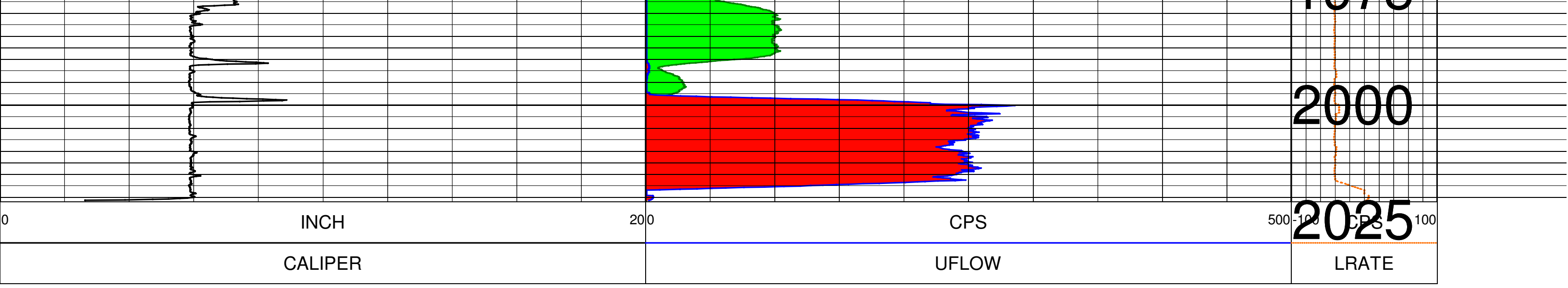
1900
1925
1950



2000
2025
0
INCH
20
0
CPS
500
-100
CPS
100
CALIPER
UFLOW
LRATE

ABS

FLOW STATIONS STATIC
OSF-108

COMPANY HUSS DRILLING
WELL OSF-108
WELL EXT
FIELD
COUNTY OSCEOLA
STATE FLORIDA
COUNTRY ---
API NO.

COMPANY : HUSS DRILLING
WELL : OSF-108
WELL EXT :
FIELD :
COUNTY : OSCEOLA
STATE : FLORIDA
COUNTRY : ---
API NO. :
UNIQ ID : NONE

SECTION: TOWNSHIP: RANGE:

LOCATION : KISSISSMMEE
LAT GPS UTM
LON GPS UTM

DISPLAY7_JL56

PERMANENT DATUM	MSL	Elevations:		Other Services:
DRL MEASURED FROM	CASE	KB	FT	8711
LOG MEASURED FROM	CASE	DF	FT	9320
ELEV. PERM. DATUM	FT	GL	FT	

DATE	TIME			
DEPTH DRILLER	2020	FT		
DEPTH LOGGER	2020	FT		
FIRST READING		FT		
LAST READING		FT		
BIT SIZE	6	IN		
CASING -- DRILLER	728	FT		
CASING -- LOGGER	728	FT		
CASING O.D.	6	IN		
CASING TYPE	PVC			
FLUID TYPE	FOR			
FLUID DENSITY		LB/GAL		
FLUID VISCOSITY				
FLUID PH				
MUD SOURCE				
RM @ MEAS TEMP	@ F			
RMF @ MEAS TEMP	@ F			
RMC @ MEAS TEMP	@ F			
CIRC STOPPED				
RIG NUMBER				
RECORDED BY	AFB			
WITNESSED BY	KEVIN			
REMARKS 1	COMPLETION			
REMARKS 2				
REMARKS 3				

ALL SERVICES PROVIDED SUBJECT TO STANDARD TERMS AND CONDITIONS

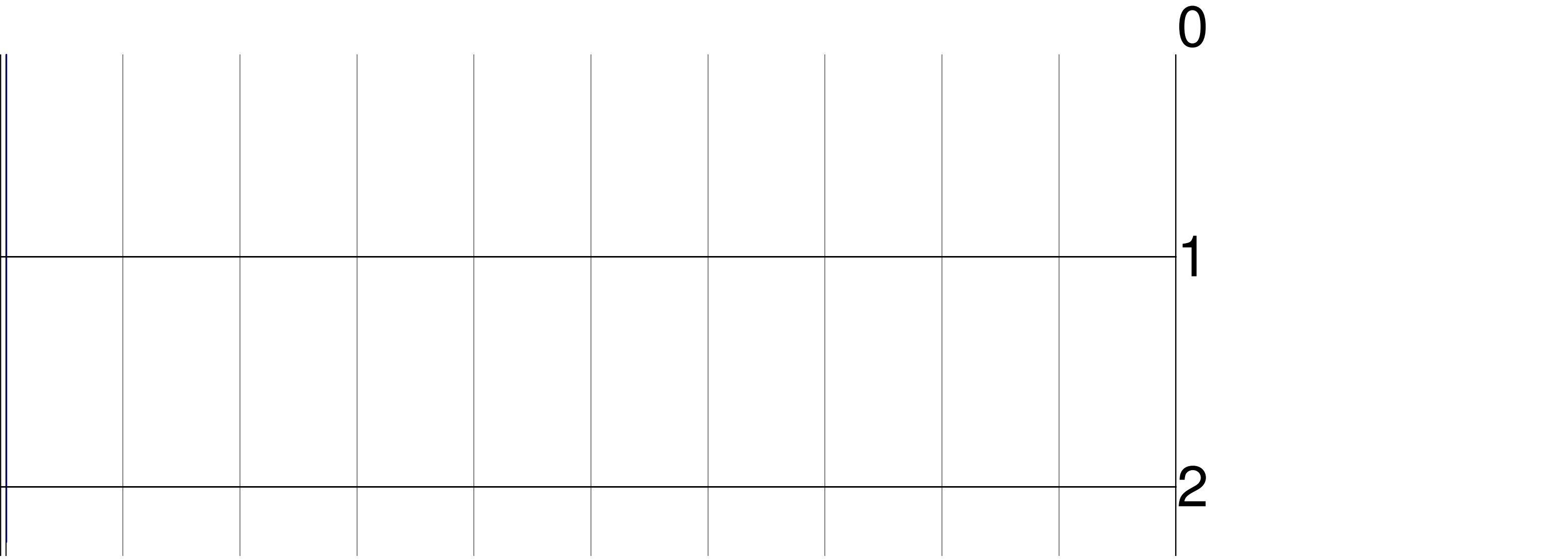
FLOW STA 715   OSF-108

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : DOLOMITE	MATRIX DELTA T : 54
MAGNETIC DECL : 0	ELECT. CUTOFF : 2500	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56

DFLOW MIN

0 CPS 750



0 CPS 750

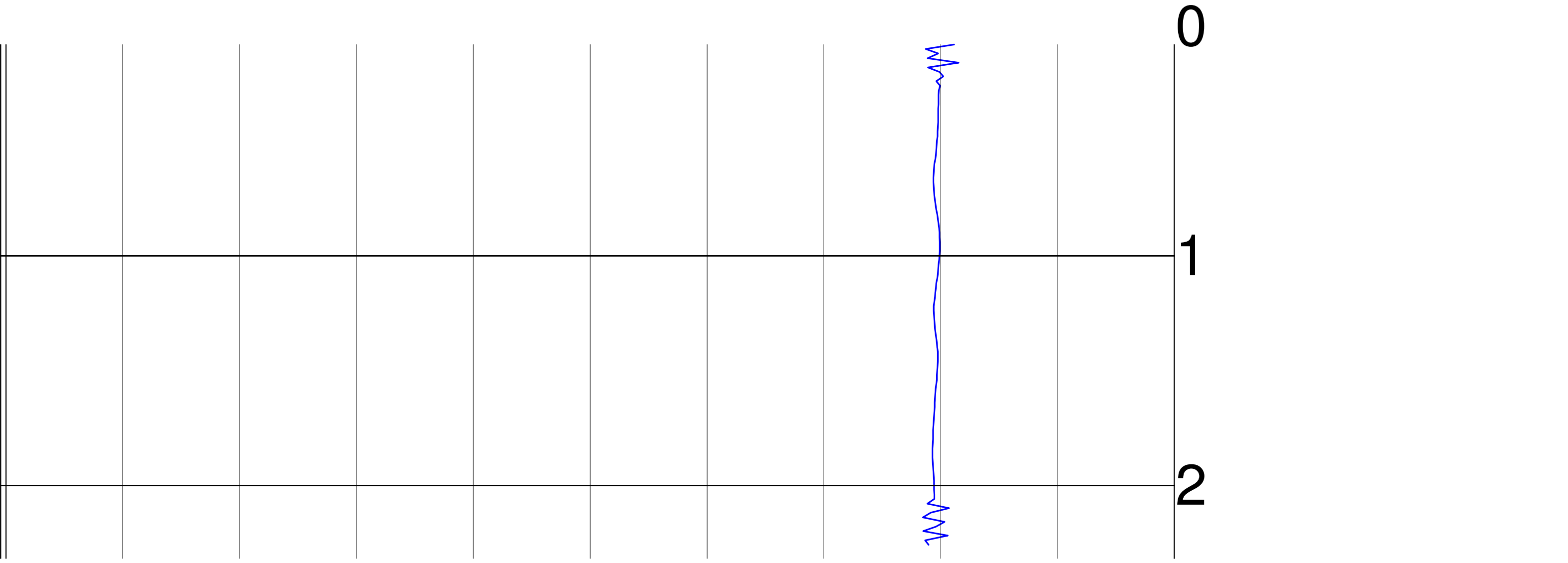
DFLOW MIN

FLOW STAS 800 OSF-108 800

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : LIMESTONE	MATRIX DELTA T : 161
MAGNETIC DECL : 0	ELECT. CUTOFF : 99999	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56

DFLOW	MIN
0 CPS 2500	



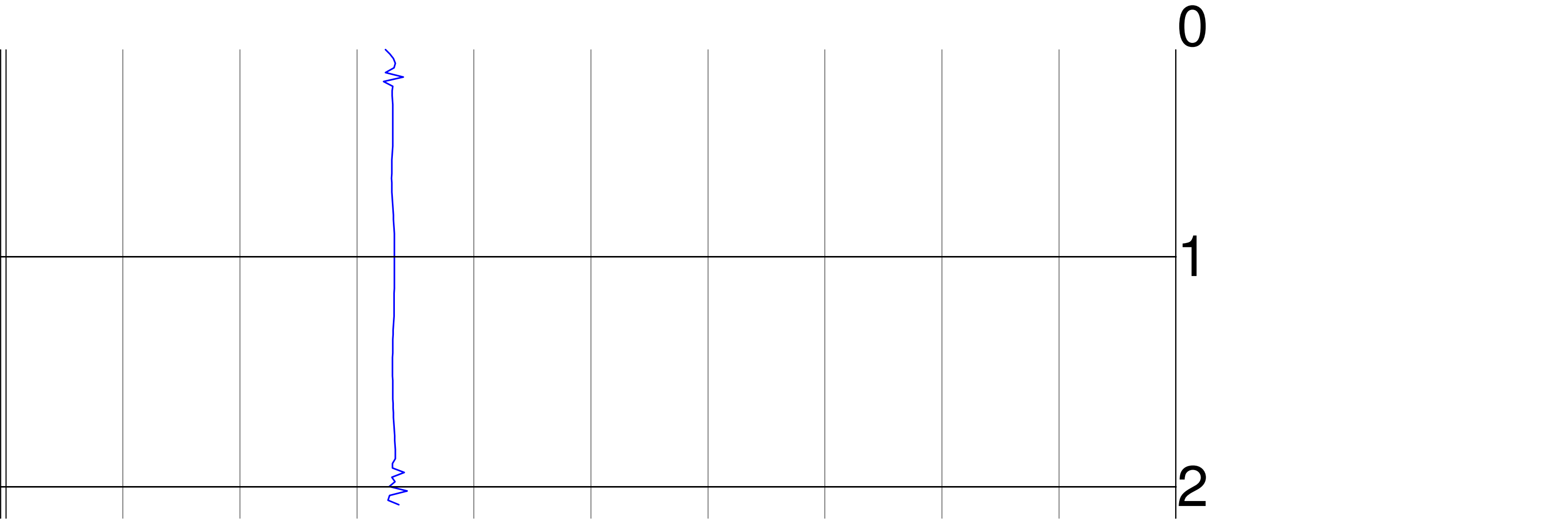
0 CPS 2500	
DFLOW	MIN

FLOW STAS 1400   OSF-108 1400

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : LIMESTONE	MATRIX DELTA T : 161
MAGNETIC DECL : 0	ELECT. CUTOFF : 99999	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56

DFLOW	MIN
0 CPS 2500	



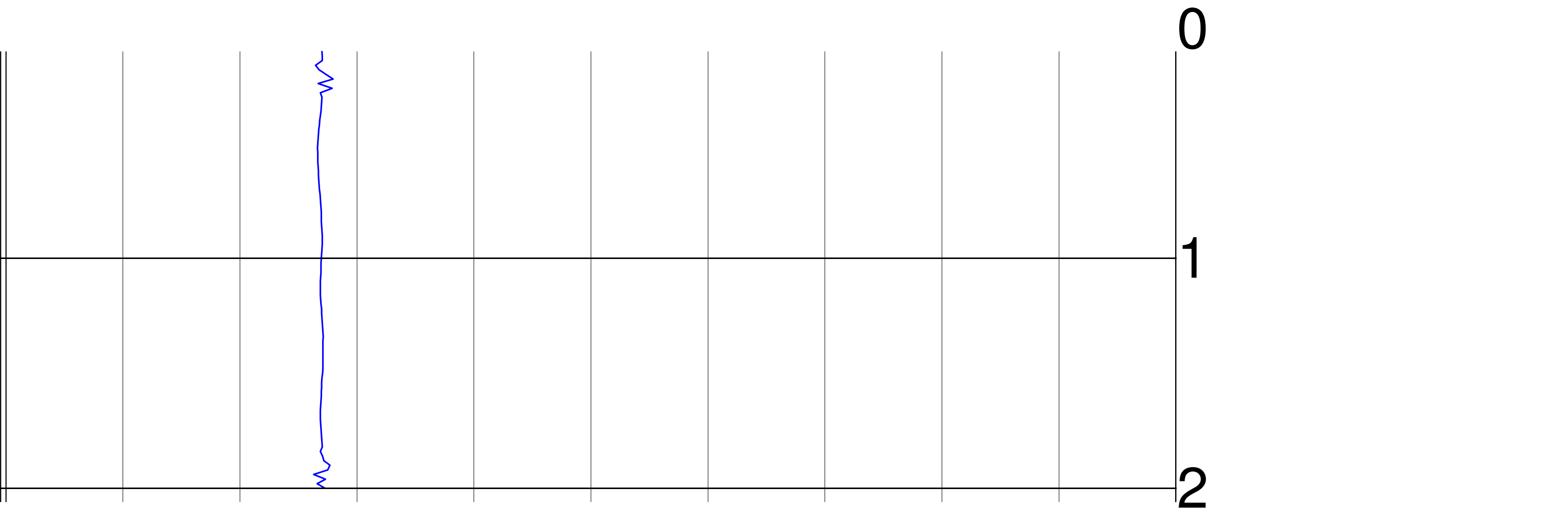
0 CPS 2500	
DFLOW	MIN

FLOW STAS 1510 None

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : Dolomite	MATRIX DELTA T : 54
MAGNETIC DECL : 0	ELECT. CUTOFF : 2500	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56

DFLOW	MIN
0 CPS 2500	

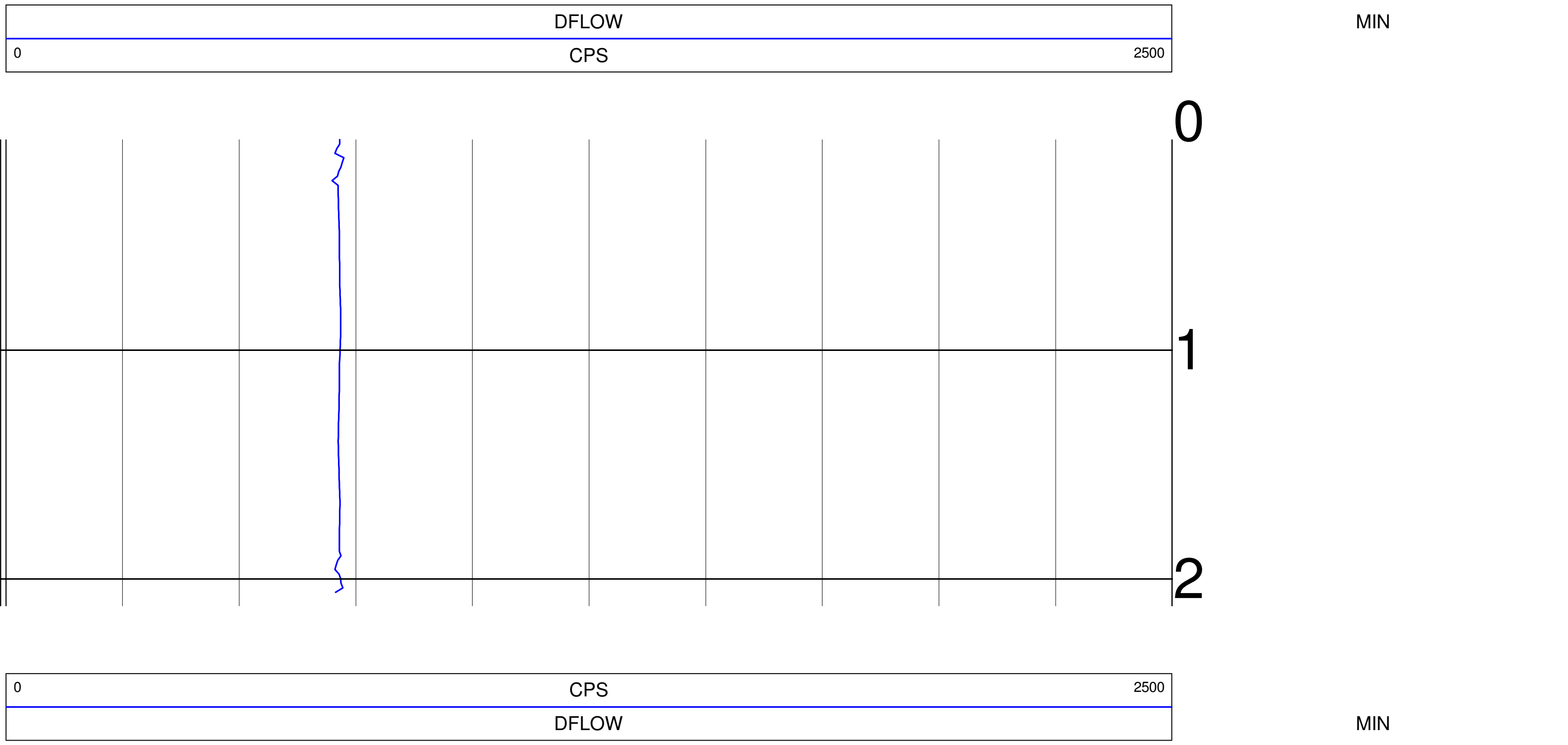


0 CPS 2500	
DFLOW	MIN

FLOW STAS 1660   OSF-108 1775

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : LIMESTONE	MATRIX DELTA T : 161
MAGNETIC DECL : 0	ELECT. CUTOFF : 99999	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56



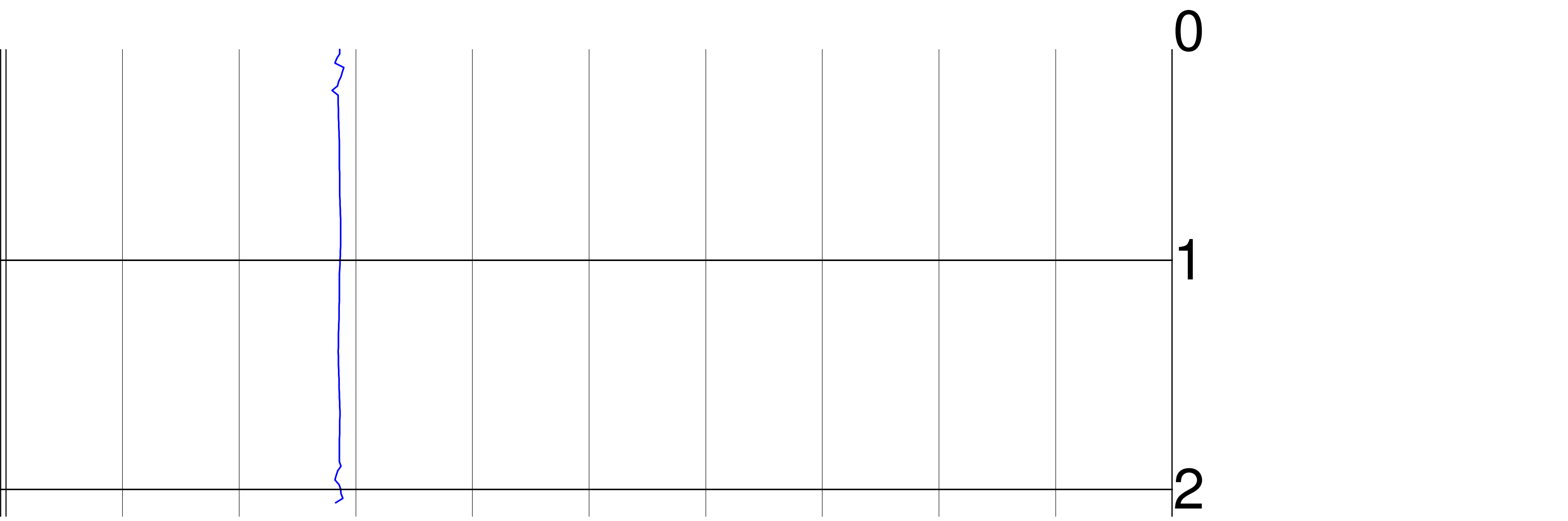
DFLOW
MIN
0
CPS
2500
0
1
2
0
CPS
2500
DFLOW
MIN

FLOW STAS 1775   OSF-108 1775

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : LIMESTONE	MATRIX DELTA T : 161
MAGNETIC DECL : 0	ELECT. CUTOFF : 99999	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56

DFLOW	MIN
0 CPS 2500	



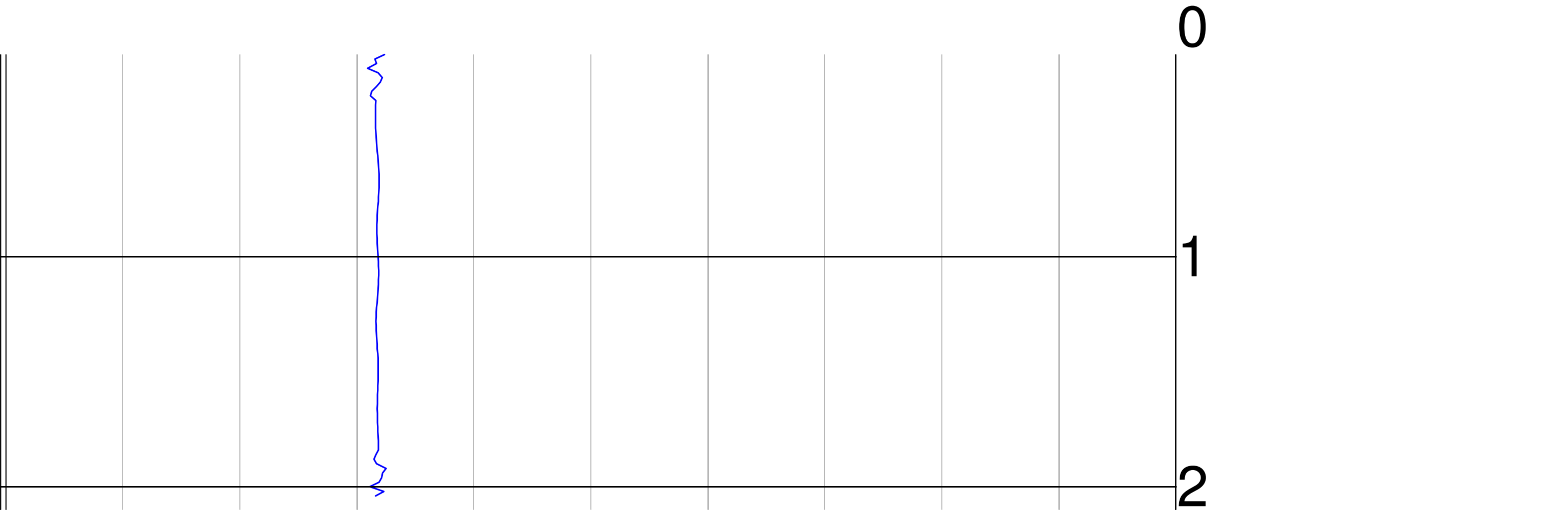
0 CPS 2500	
DFLOW	MIN

FLOW STAS 1850 OSF-108 1850

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : LIMESTONE	MATRIX DELTA T : 161
MAGNETIC DECL : 0	ELECT. CUTOFF : 99999	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56

DFLOW	MIN
0 CPS 2500	

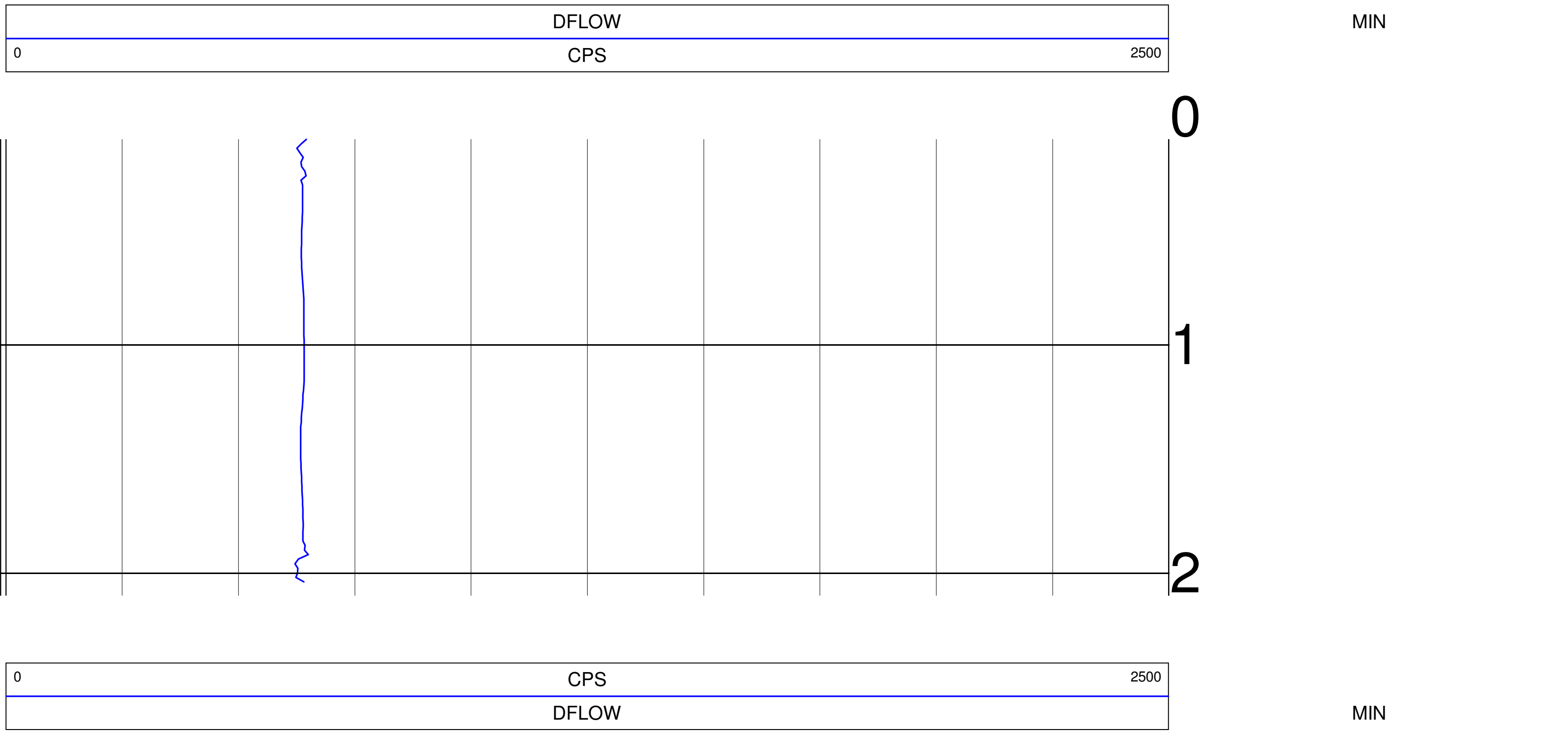


0 CPS 2500	
DFLOW	MIN

FLOW STAS 1895 OSF-108 1895

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : LIMESTONE	MATRIX DELTA T : 161
MAGNETIC DECL : 0	ELECT. CUTOFF : 99999	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56



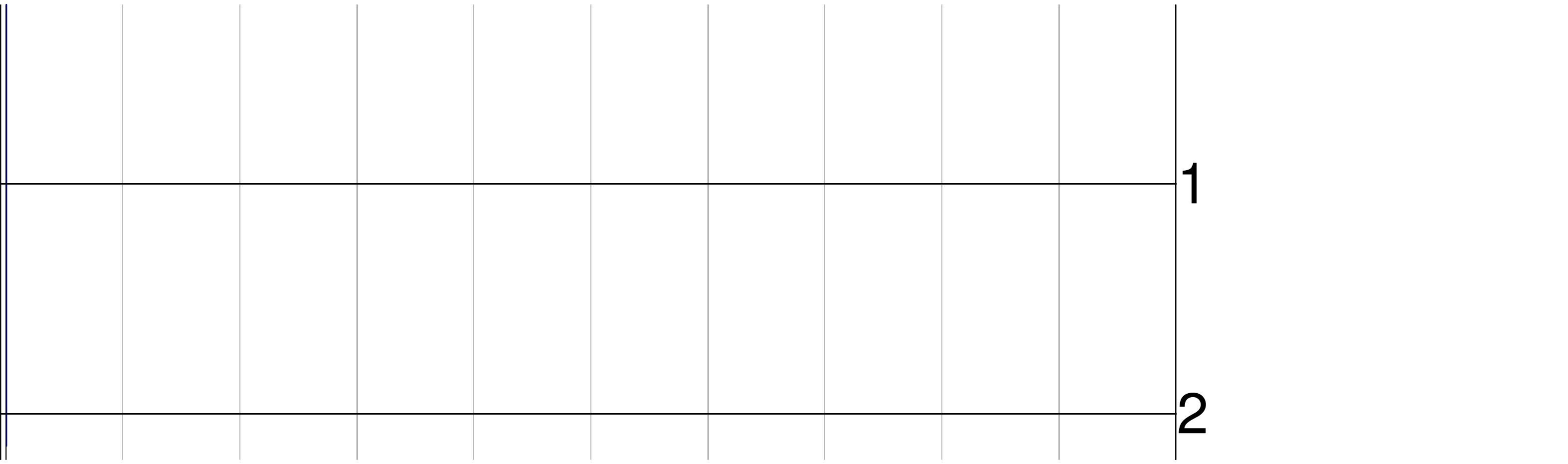
DFLOW
MIN
0
CPS
2500
0
1
2
0
CPS
2500
DFLOW
MIN

FLOW STAS 2014 OSF-108 2014

LOG PARAMETERS

MATRIX DENSITY : 2.71	NEUTRON MATRIX : LIMESTONE	MATRIX DELTA T : 140
MAGNETIC DECL : 0	ELECT. CUTOFF : 99999	BIT SIZE : 6 IN
PRESENTATION : FLOWSTATIONS.0 -- 09/15/2021		DISPLAY7_JL56

DFLOW	MIN
0 CPS 2500	



0 CPS 2500	
DFLOW	MIN

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WELL OSF-108R
UWI OSF-108R

PROFESSIONAL LICENSES
Geologist PG2186
Licensed Geology Business

HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
DUAL INDUCTION
ELECTRIC
WATER QUALITY
FLOWMETER
SONIC

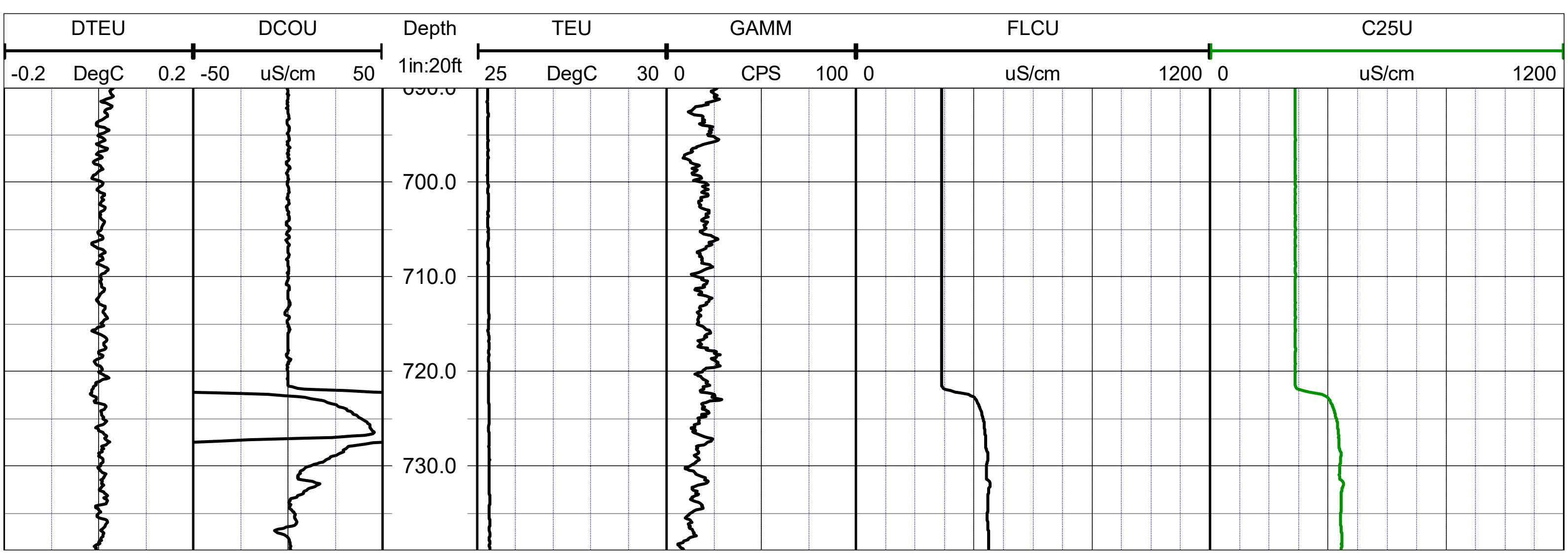
PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

DATE	08 SEP 21	TYPE FLUID IN HOLE	WATER
RUN No	1	LOGGING SPEED (FT/MIN)	30
TYPE LOG	WATER QUALITY	TROLLING DIRECTION	DOWN
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	2020		
DEPTH-LOGGER	2020.5		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

BOREHOLE RECORD				CASING RECORD			
RUN NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	5.875	728.7	2020.5	6	TEMP	0	728.7

WATER QUALITY LOG CODES

static fluid temperature	**TEU**	dynamic fluid conductivity	**FLCP**	caliper	**CAL**
dynamic fluid temperature	**TEP**	static differential cond.	**DCOU**	repeat designation	**R**
static differential temperature	**DTEU**	dynamic differential cond.	**DCOP**	natural gamma	**GAMM**
dynamic differential temp.	**DTEP**	static specific conductance	**C25U**	calibration correction	**C**
static fluid conductivity	**FLCU**	dynamic specific conductance	**C25P**		

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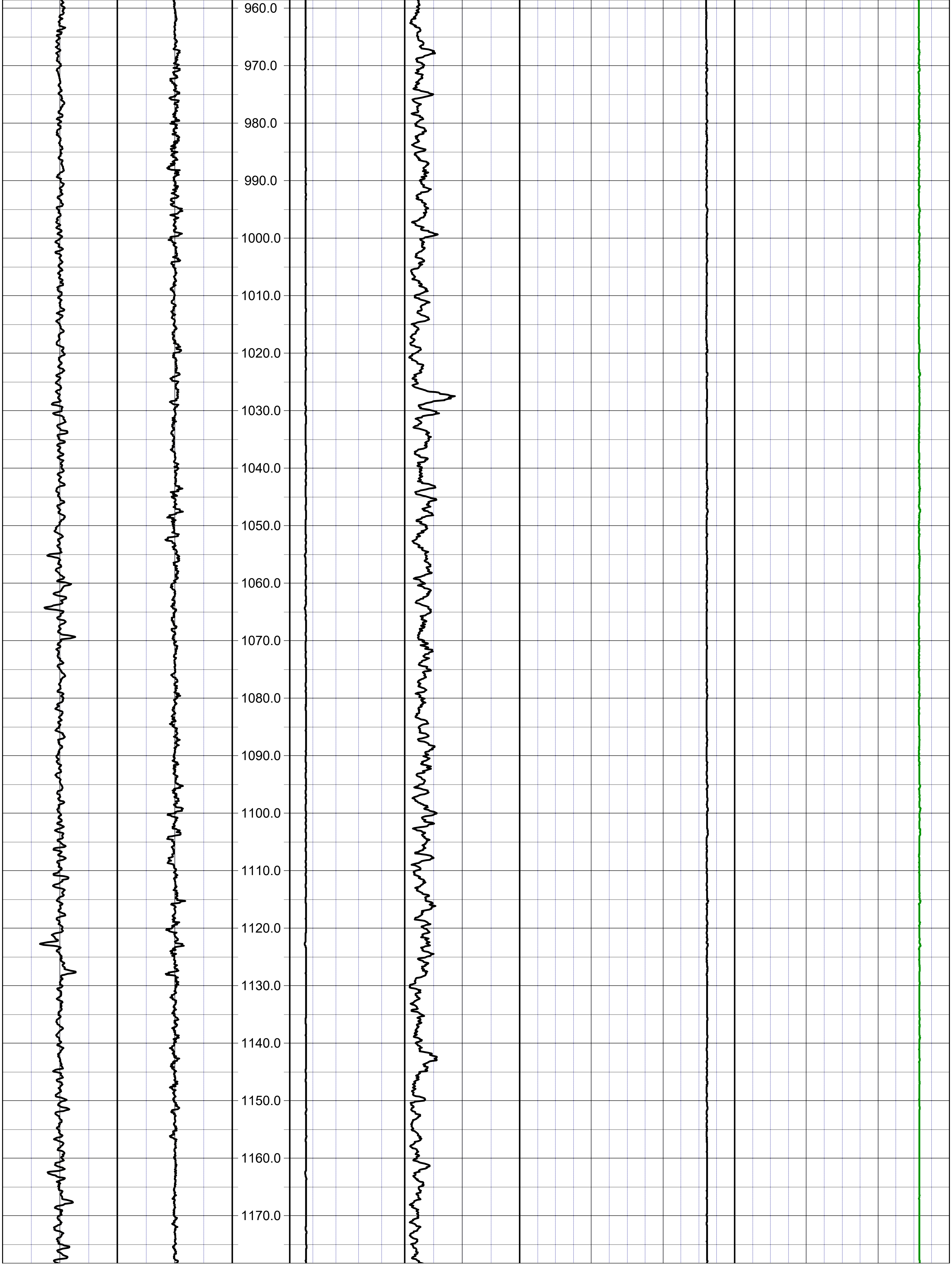
950.0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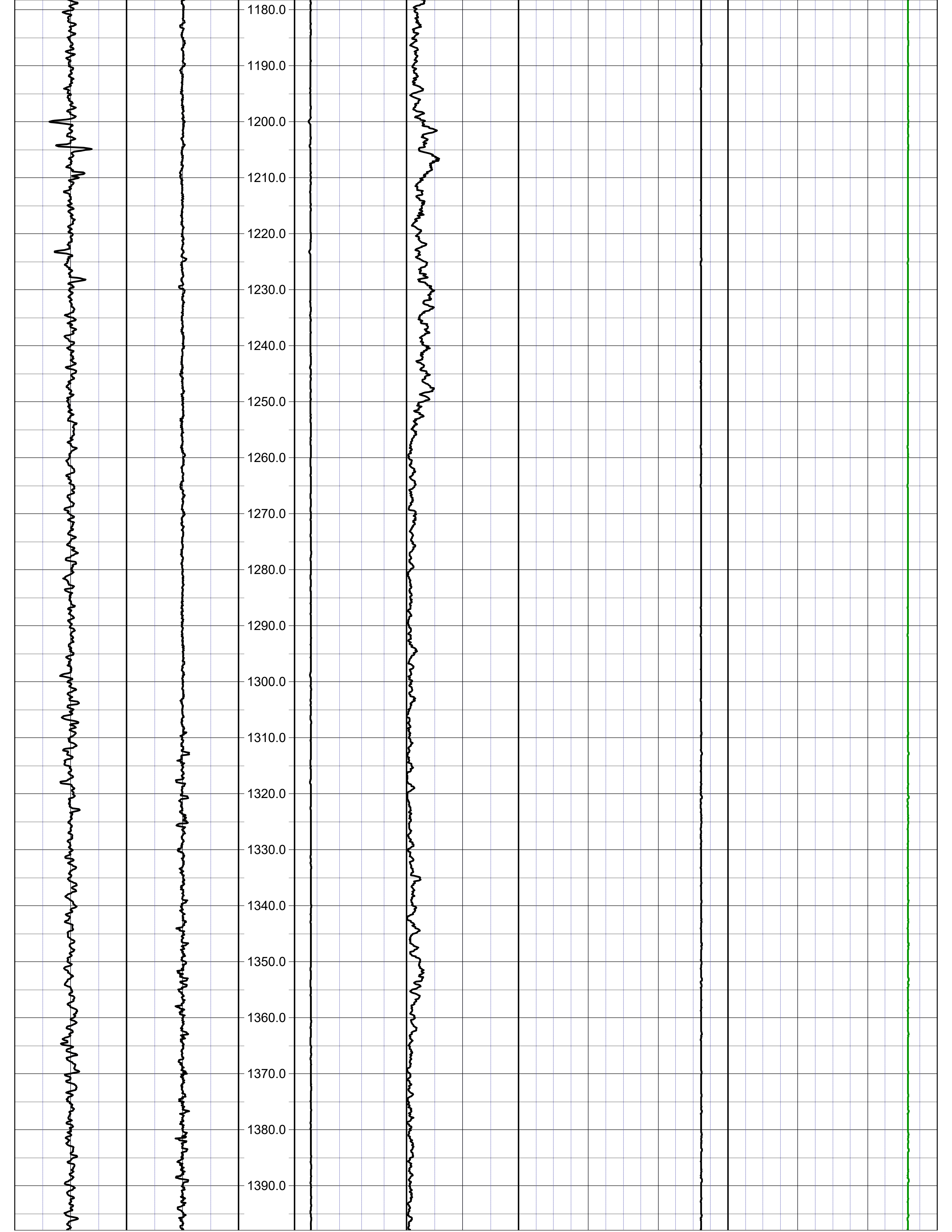
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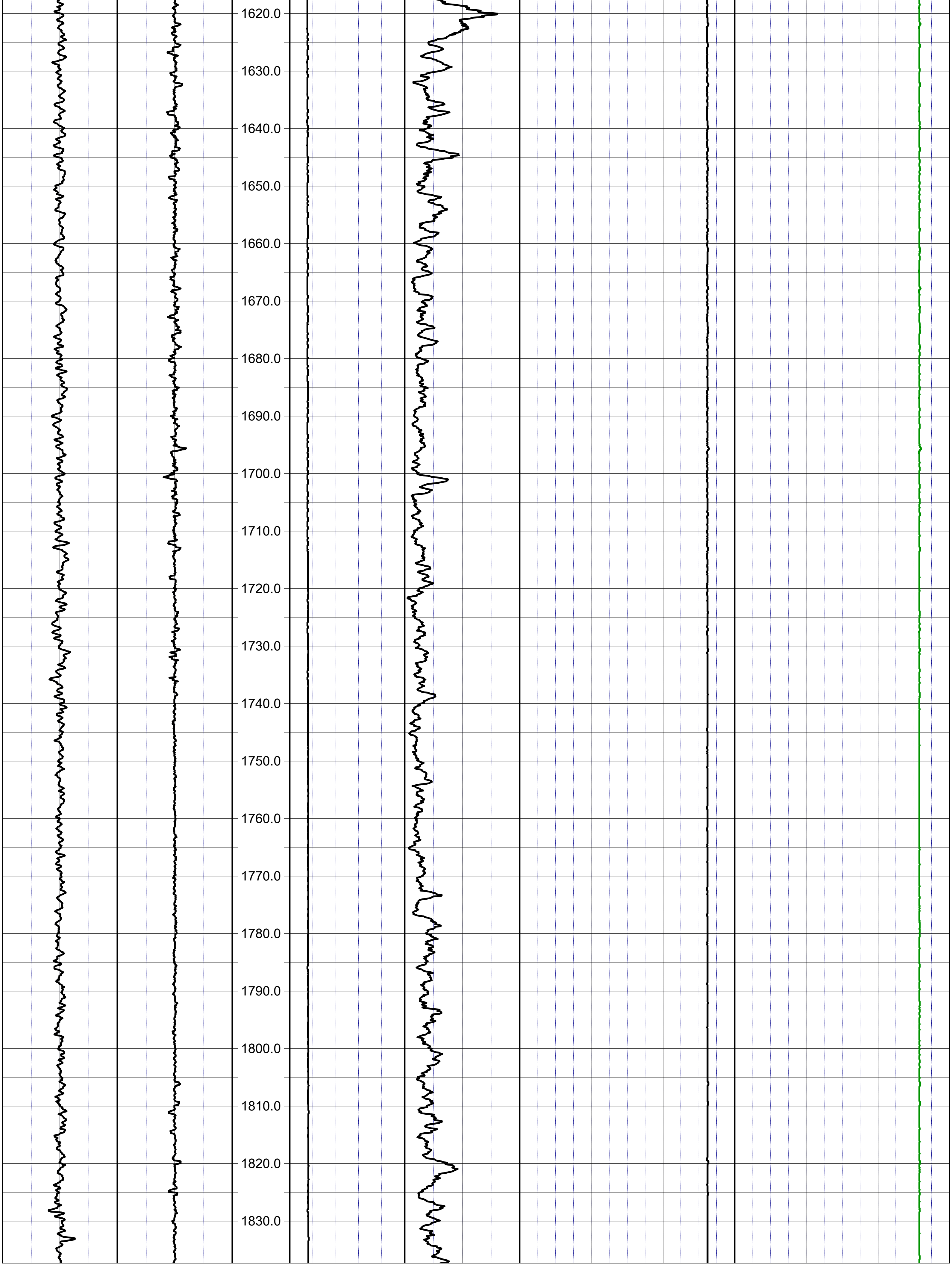
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1790.0
1800.0
1810.0
1820.0
1830.0

NOTES:

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UWI OSF-108R

PROFESSIONAL LICENSES
Geologist PG2186
Licensed Geology Business

HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
ELECTRIC
WATER QUALITY
FLOWMETER
SONIC

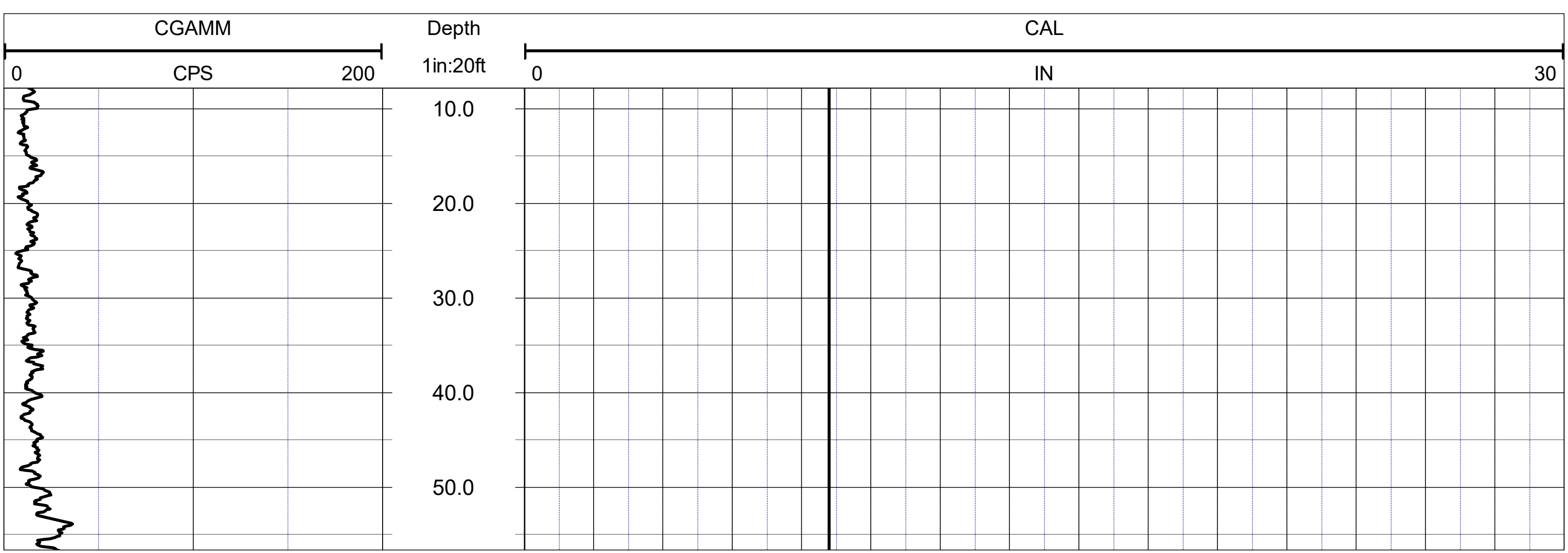
PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

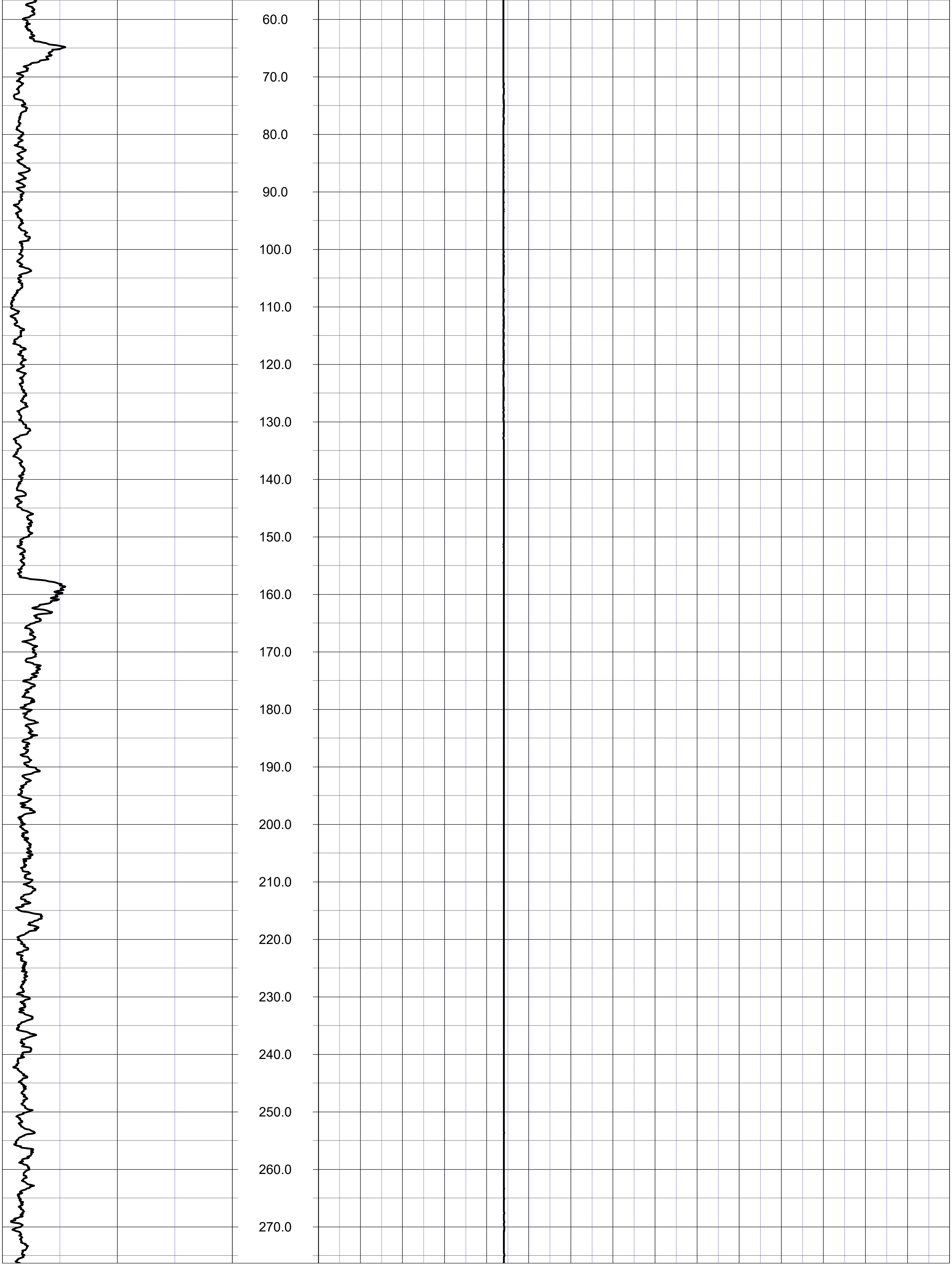
DATE	28 SEP 21	TYPE FLUID IN HOLE	WATER
RUN No	2	LOGGING SPEED (FT/MIN)	40
TYPE LOG	CALIPER	TROLLING DIRECTION	UP
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	715		
DEPTH-LOGGER	713.5		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

BOREHOLE RECORD				CASING RECORD			
RUN NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	7.875	341	713.5	8	STEEL	0	341

LOG CODES

3-arm caliper	**CAL**	long normal resistivity	**RLN**	deep induction conductivity	**IDC**
natural gamma (CPS)	**GAMM**	8 inch resistivity	**R8**	shallow induction conductivity	**ISC**
spontaneous potential	**ESP**	32 inch resistivity	**R32**	sonic interval velocity	**DT**
single point resistance	**RES**	deep induction resistivity	**ILD**	sonic porosity (RHG method)	**SPHI**
short normal resistivity	**RSN**	shallow induction resistivity	**ILM**	repeat designation	**R**

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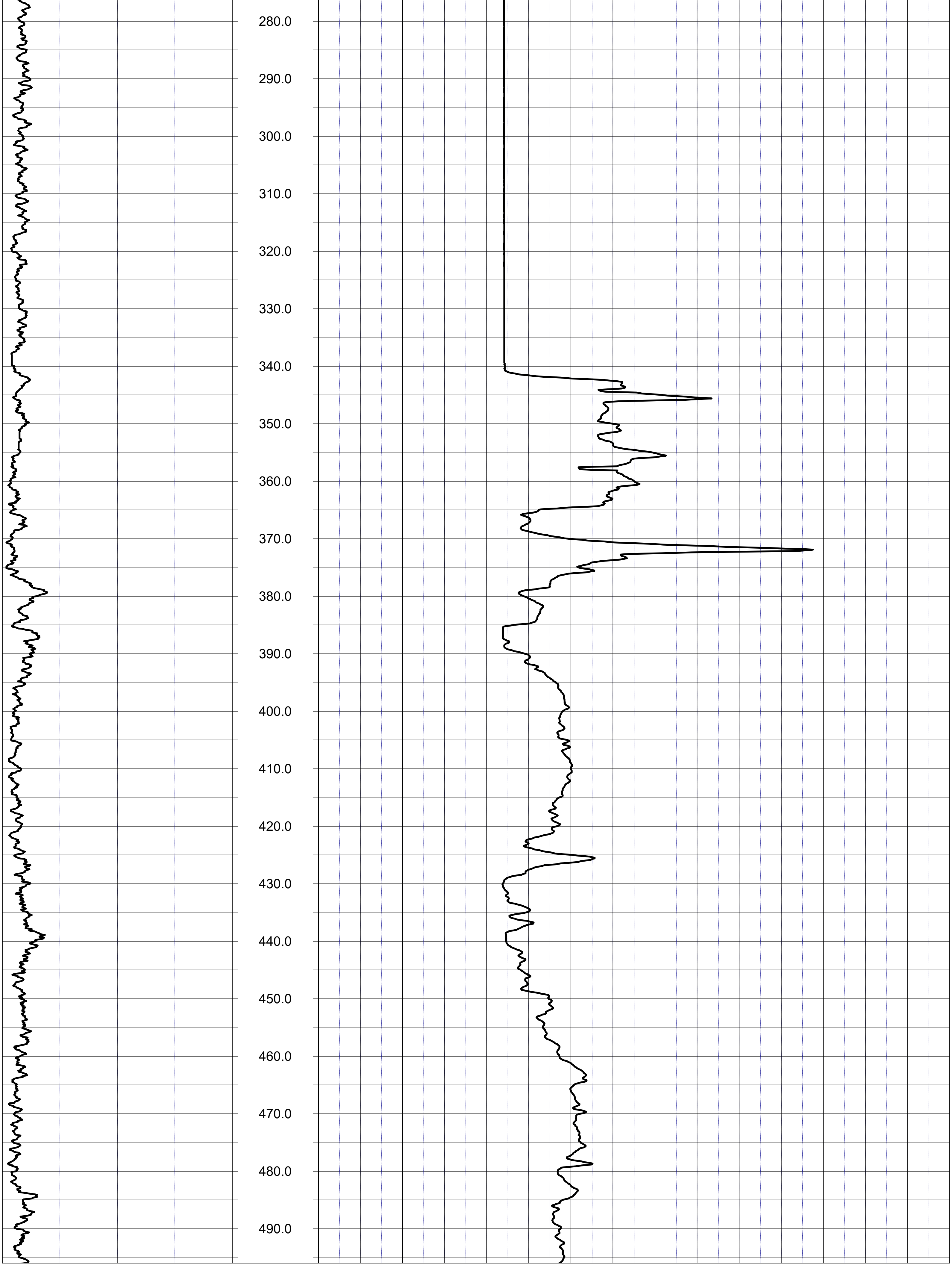
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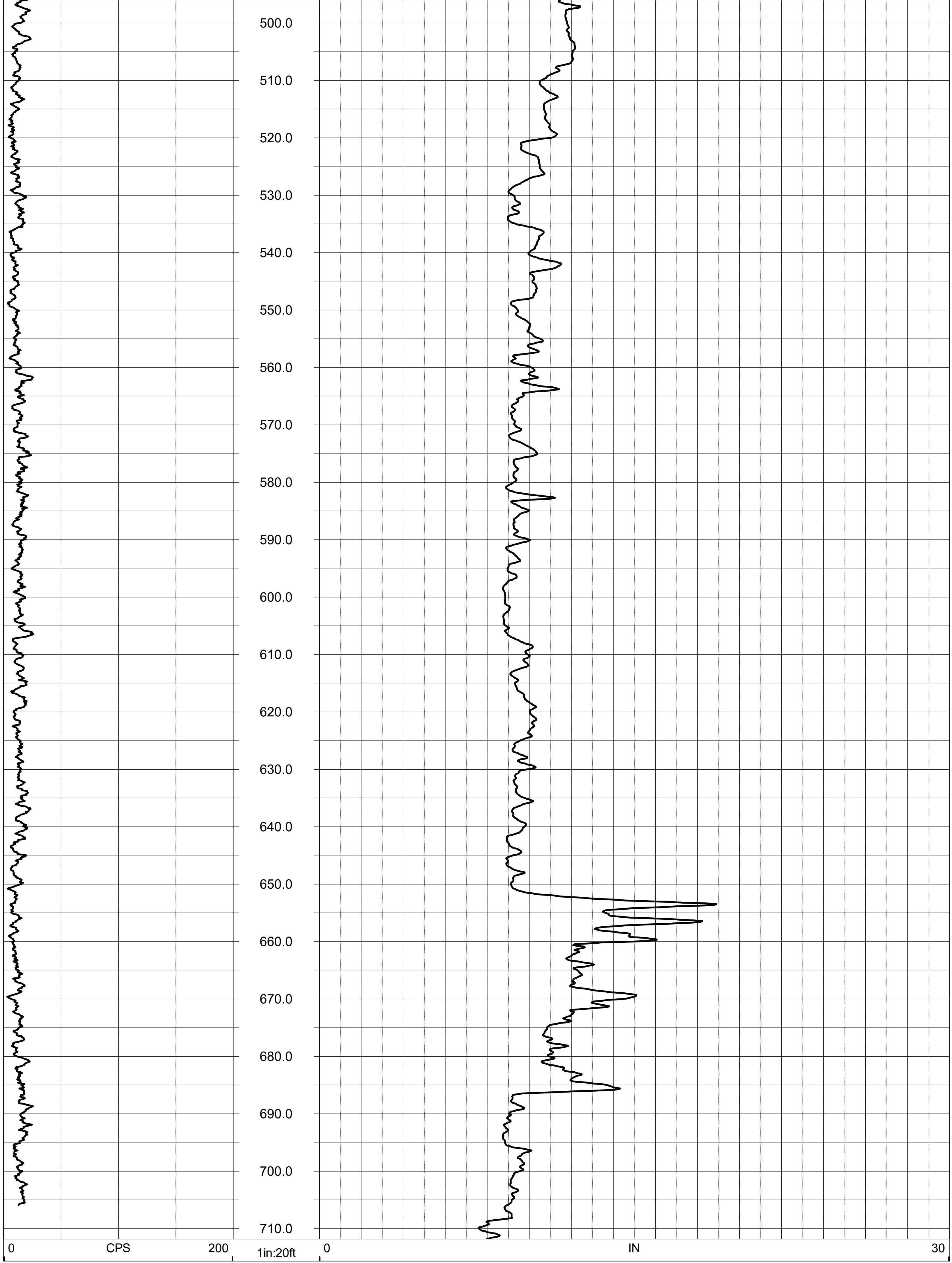
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640.0
650.0
660.0
670.0
680.0
690.0
700.0
710.0
0
CPS
200
1in:20ft
0
IN
30

CGAMM	Depth	CAL

NOTES:

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UWI OSF-108R

PROFESSIONAL LICENSES
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HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
ELECTRIC
WATER QUALITY
FLOWMETER
SONIC

PERMANENT DATUM:

LOG MEASURED FROM: GROUND SURFACE

DRILLING MEASURED FROM:

DATE	28 SEP 21	TYPE FLUID IN HOLE	WATER
RUN No	2	LOGGING SPEED (FT/MIN)	35
TYPE LOG	**ELECTRIC**	TROLLING DIRECTION	UP
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	715		
DEPTH-LOGGER	713.5		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	7.875	341	713.5	8	STEEL	0	341

LOG CODES

3-arm caliper	**CAL**	long normal resistivity	**RLN**	deep induction conductivity	**IDC**
natural gamma (CPS)	**GAMM**	8 inch resistivity	**R8**	shallow induction conductivity	**ISC**
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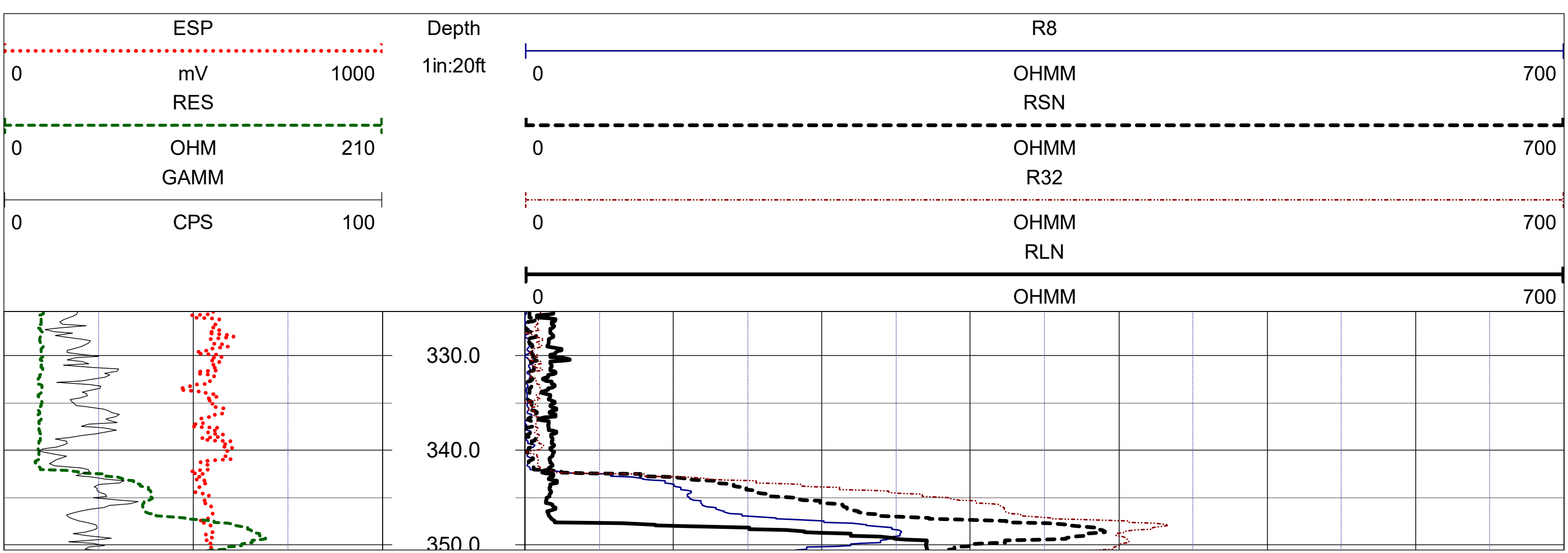
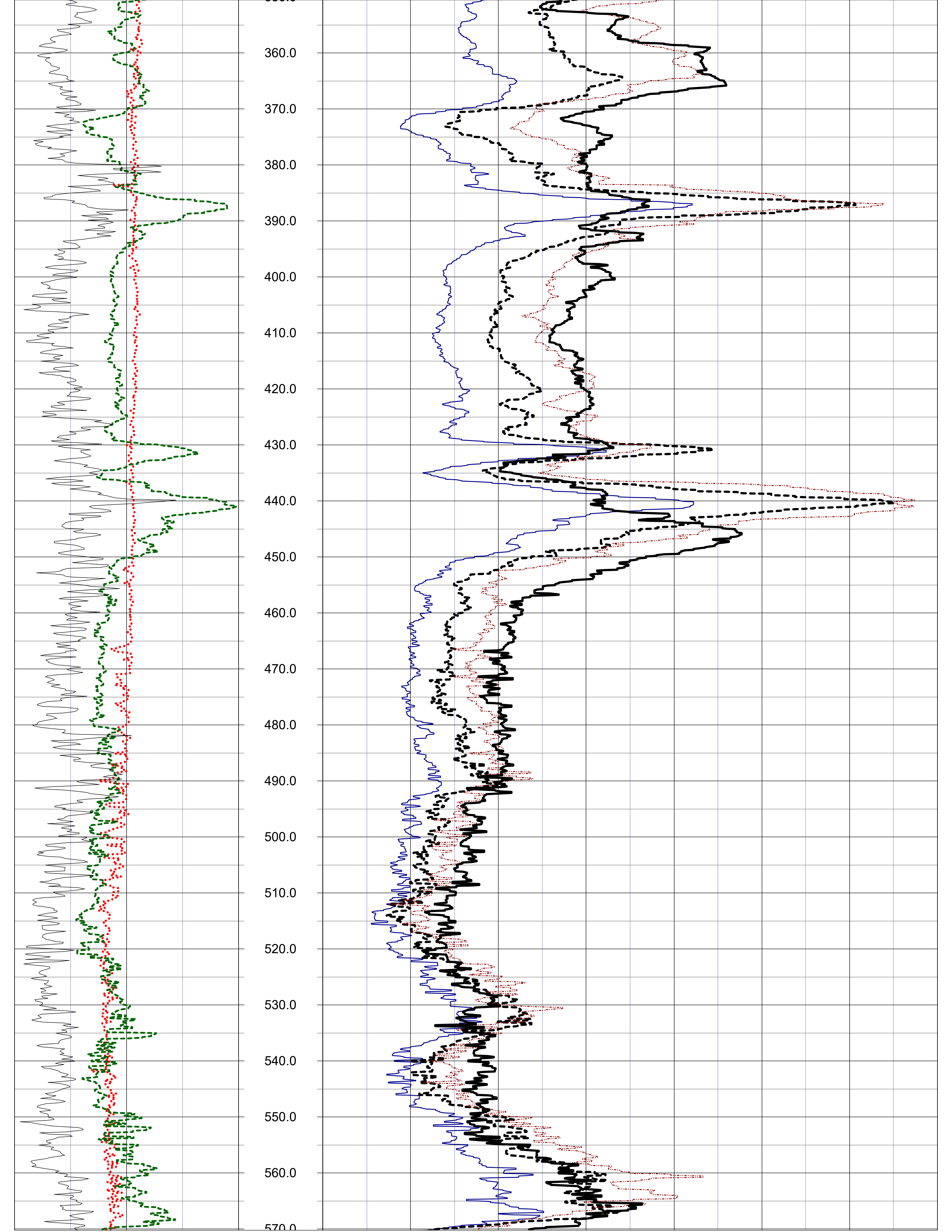
single point resistance	**RES**	deep induction resistivity	**ILD**	sonic porosity (RHG method)	**SPHI**
short normal resistivity	**RSN**	shallow induction resistivity	**ILM**	repeat designation	**R**

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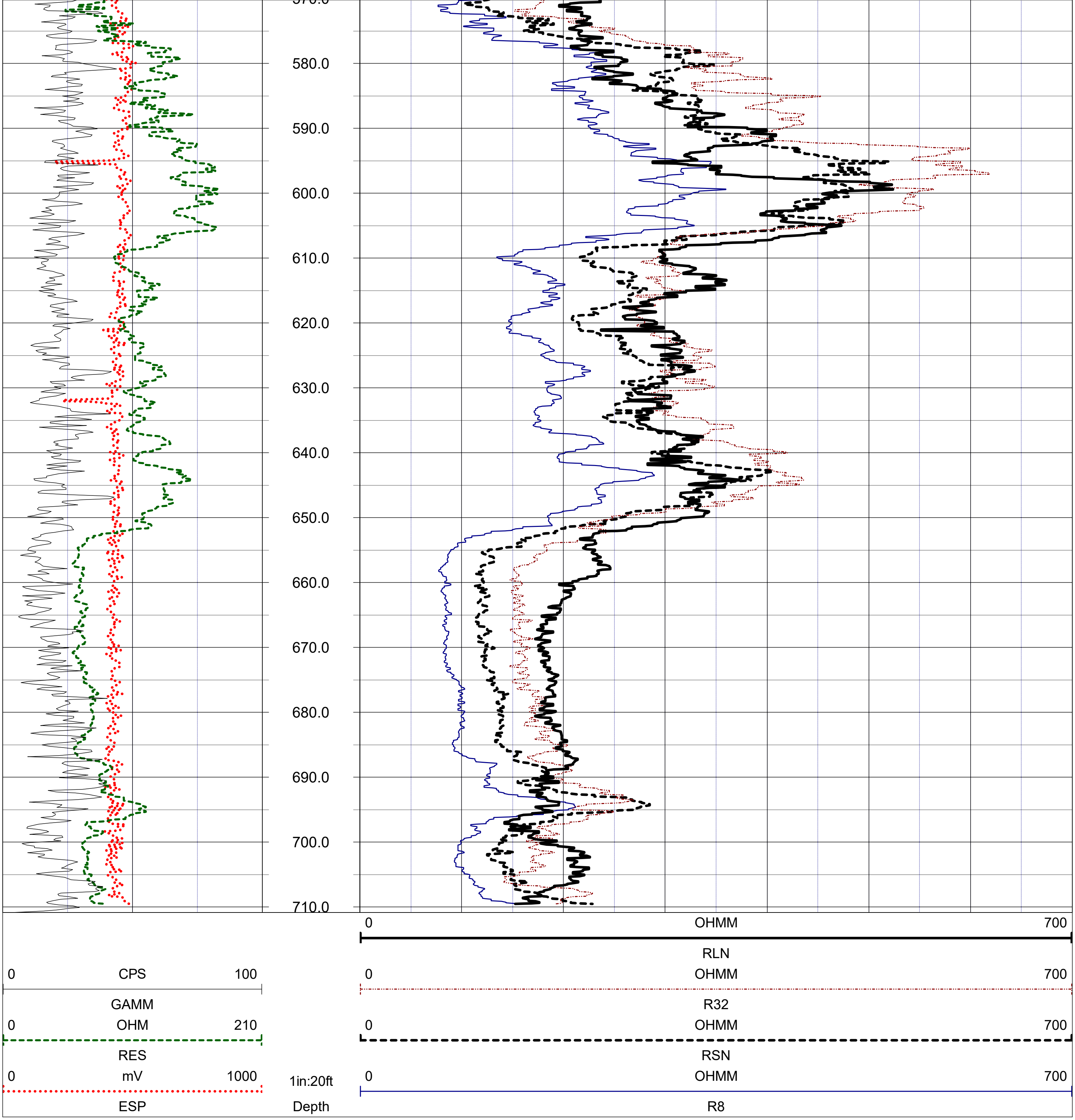

NOTES:

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HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
ELECTRIC
WATER QUALITY
FLOWMETER
SONIC

PERMANENT DATUM:

LOG MEASURED FROM: GROUND SURFACE

DRILLING MEASURED FROM:

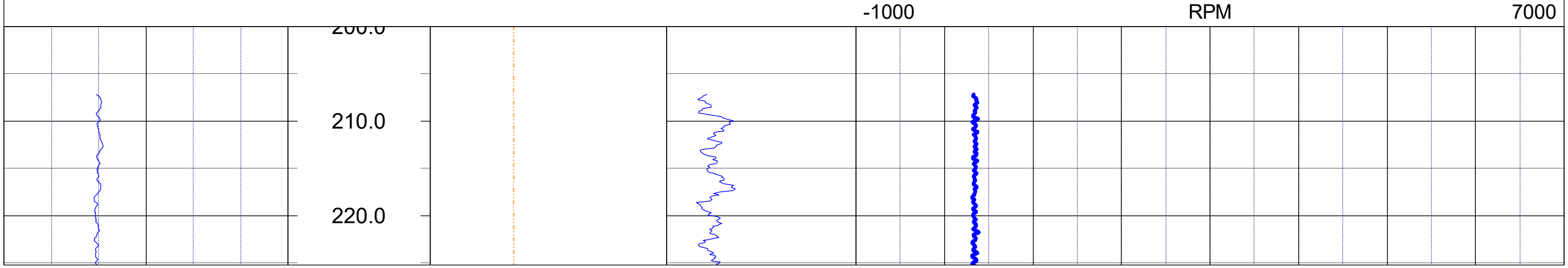
DATE	28 SEP 21	TYPE FLUID IN HOLE	WATER
RUN No	2	LOGGING SPEED (FT/MIN)	40
TYPE LOG	**CALIPER**	TROLLING DIRECTION	UP
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	715		
DEPTH-LOGGER	713.5		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

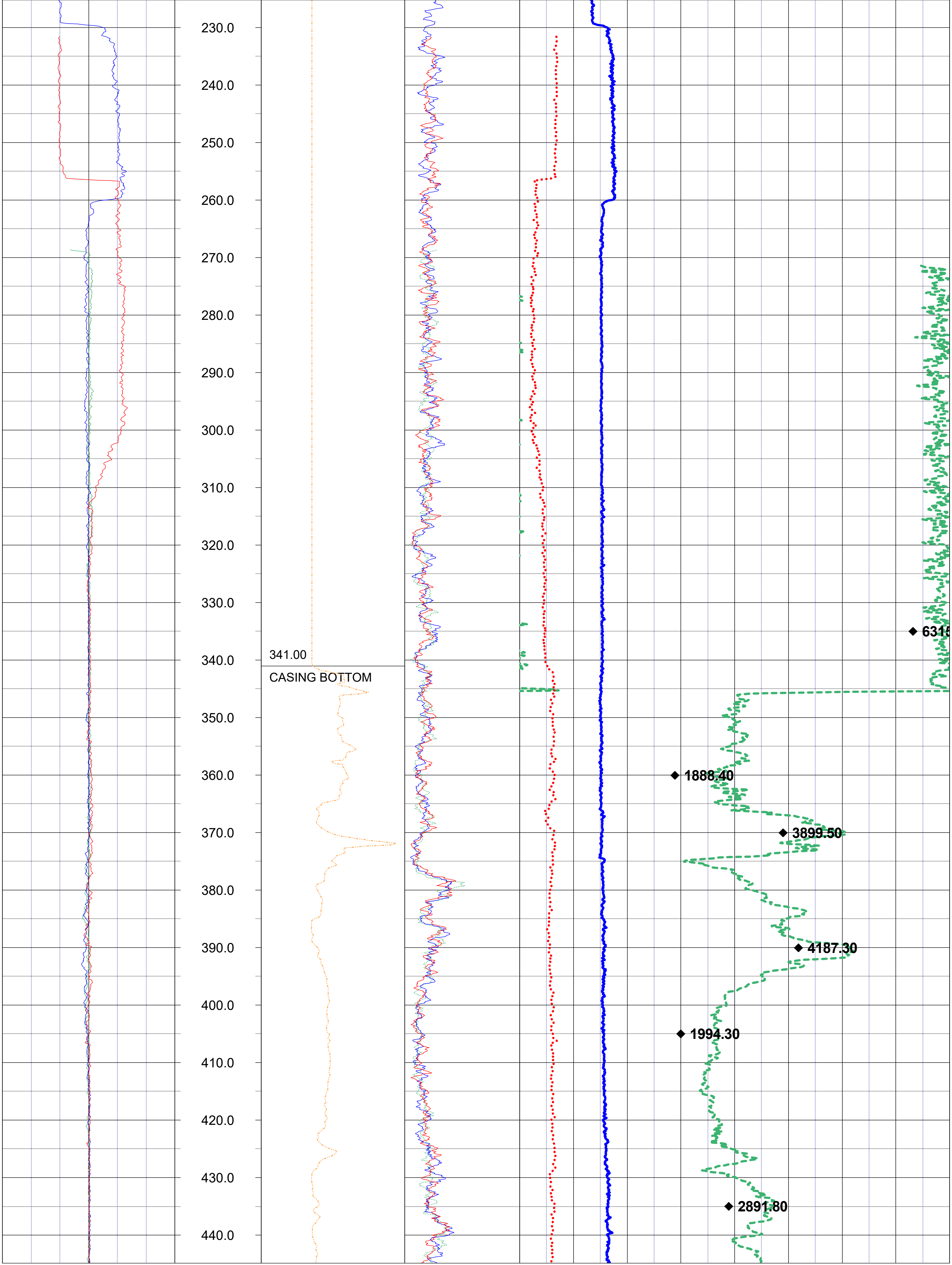
RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	7.875	341	713.5	8	STEEL	0	341

FLOWMETER LOG CODES

down static spinner rate	**FSD**	down static line speed	**LSSD**	natural gamma (w/annot.)	**GAMM**
up static spinner rate	**UTS**	up static line speed	**LSSU**	caliper	**CAL**
down dynamic spinner rate	**DYND**	down dynamic line speed	**LSDD**	repeat designation	**R**
up dynamic spinner rate	**DYNU**	up dynamic line speed	**LSDU**	percent flow	**PFLO**
static station spinner rate	**FSU**	dynamic station spinner rate	**FSP**	GPM flow	**GPMFLO**

LSDD 0 ft/min 60	Depth 1in:20ft	CAL 0 IN 25	DD GAMM 0 CPS 100	DYND -1000 RPM 7000
LSSD 0 ft/min 60		NOTES	DS GAMM 0 CPS 100	FSD -1000 RPM 7000
LSSU 0 ft/min 60			US GAMM 0 CPS 100	UTS -1000 RPM 7000
				STATIONS ◆ -1000 RPM 7000

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CASING BOTTOM
350.0
360.0
1888.40
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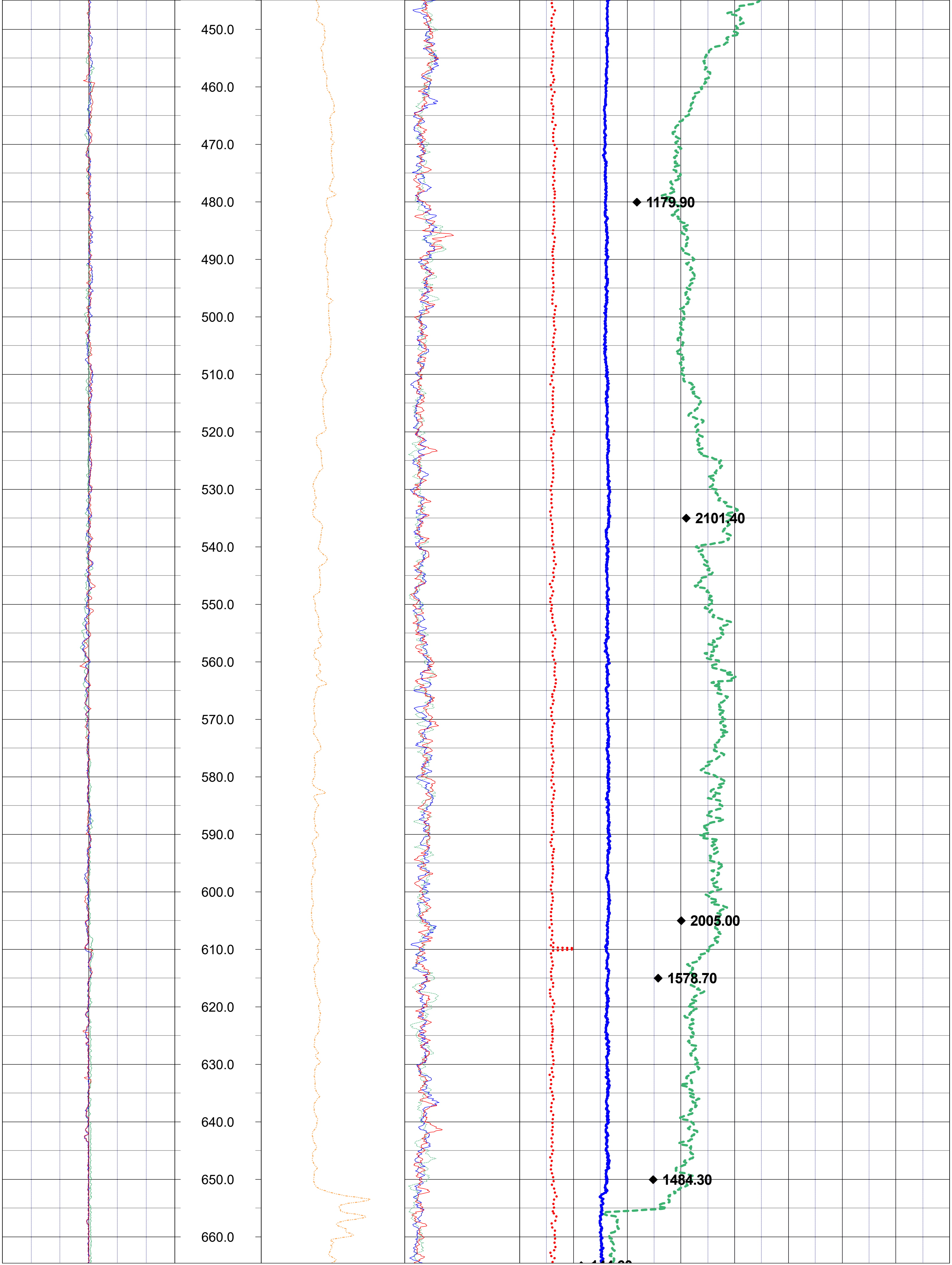
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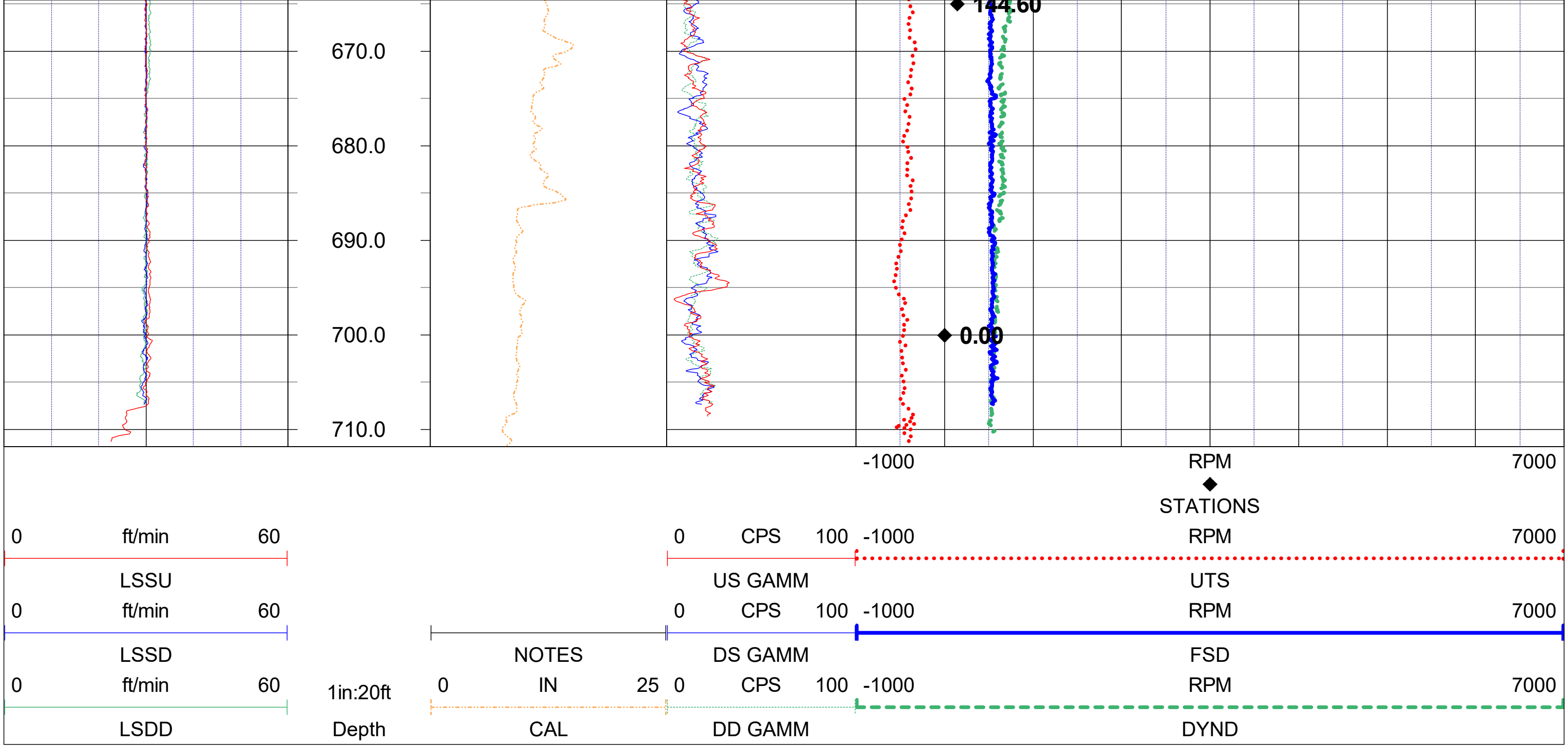

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END OF LOG

RMBAKER
Geology and Geophysics

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Orlando, FL 32819
mobile ph 407-733-8958
rob@rmbaker.com
www.rmbaker.com

WELL OSF-108R
UWI OSF-108R

PROFESSIONAL LICENSES
Geologist PG2186
Licensed Geology Business

HEADER NOTES:

COMP	SFWMD
LOC	FUNIE STEED RD
FLD	KISSIMMEE AREA
CNTY	OSCEOLA
STAT	FL
PROV	FL
CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
ELECTRIC
WATER QUALITY
FLOWMETER
SONIC

PERMANENT DATUM:

LOG MEASURED FROM: GROUND SURFACE

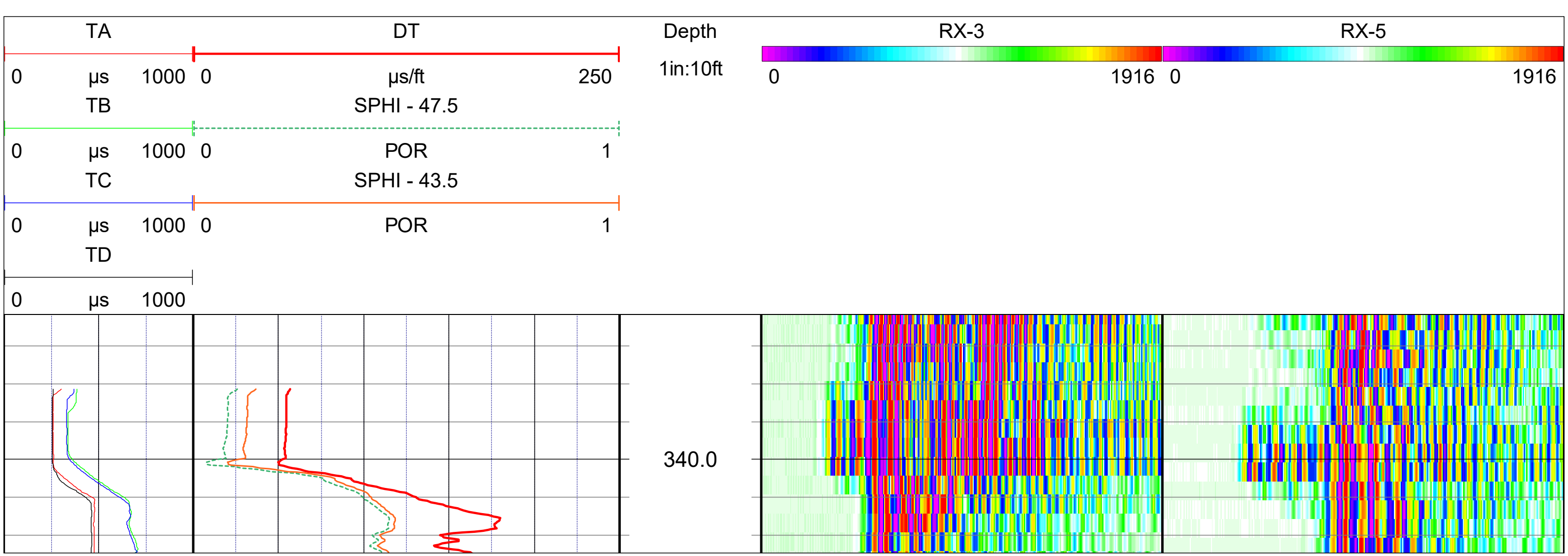
DRILLING MEASURED FROM:

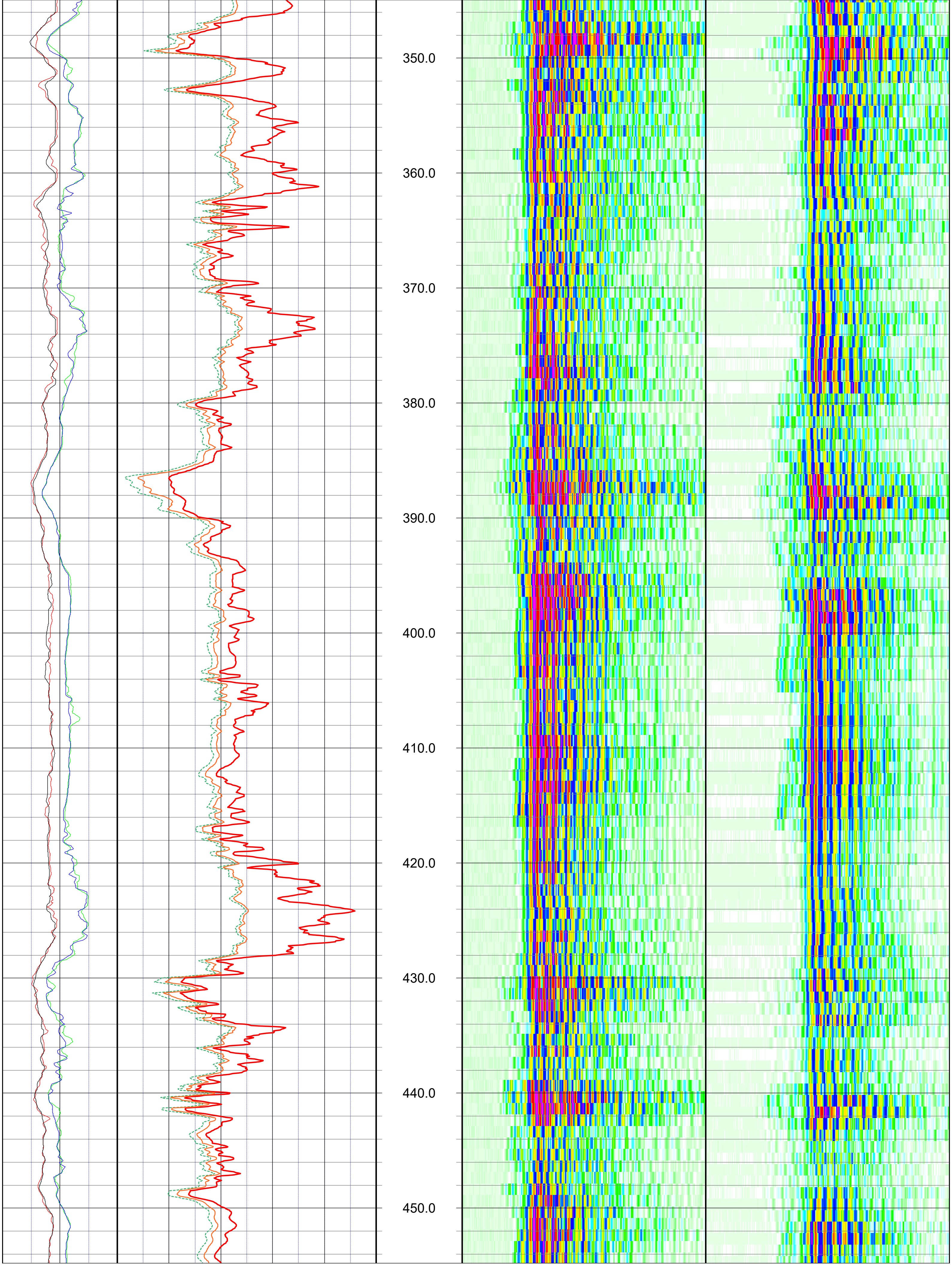
DATE	28 SEP 21	TYPE FLUID IN HOLE	WATER
RUN No	2	LOGGING SPEED (FT/MIN)	14
TYPE LOG	**SONIC**	TROLLING DIRECTION	UP
		PUMPING RATE (GPM)	N/A
DEPTH-DRILLER	715		
DEPTH-LOGGER	713.5		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

RUN	BOREHOLE RECORD			CASING RECORD			
NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	7.875	341	713.5	8	STEEL	0	341

LOG CODES

3-arm caliper	**CAL**	long normal resistivity	**RLN**	deep induction conductivity	**IDC**
natural gamma (CPS)	**GAMM**	8 inch resistivity	**R8**	shallow induction conductivity	**ISC**
spontaneous potential	**ESP**	32 inch resistivity	**R32**	sonic interval velocity	**DT**
single point resistance	**RES**	deep induction resistivity	**ILD**	sonic porosity (RHG method)	**SPHI**
short normal resistivity	**RSN**	shallow induction resistivity	**ILM**	repeat designation	**R**

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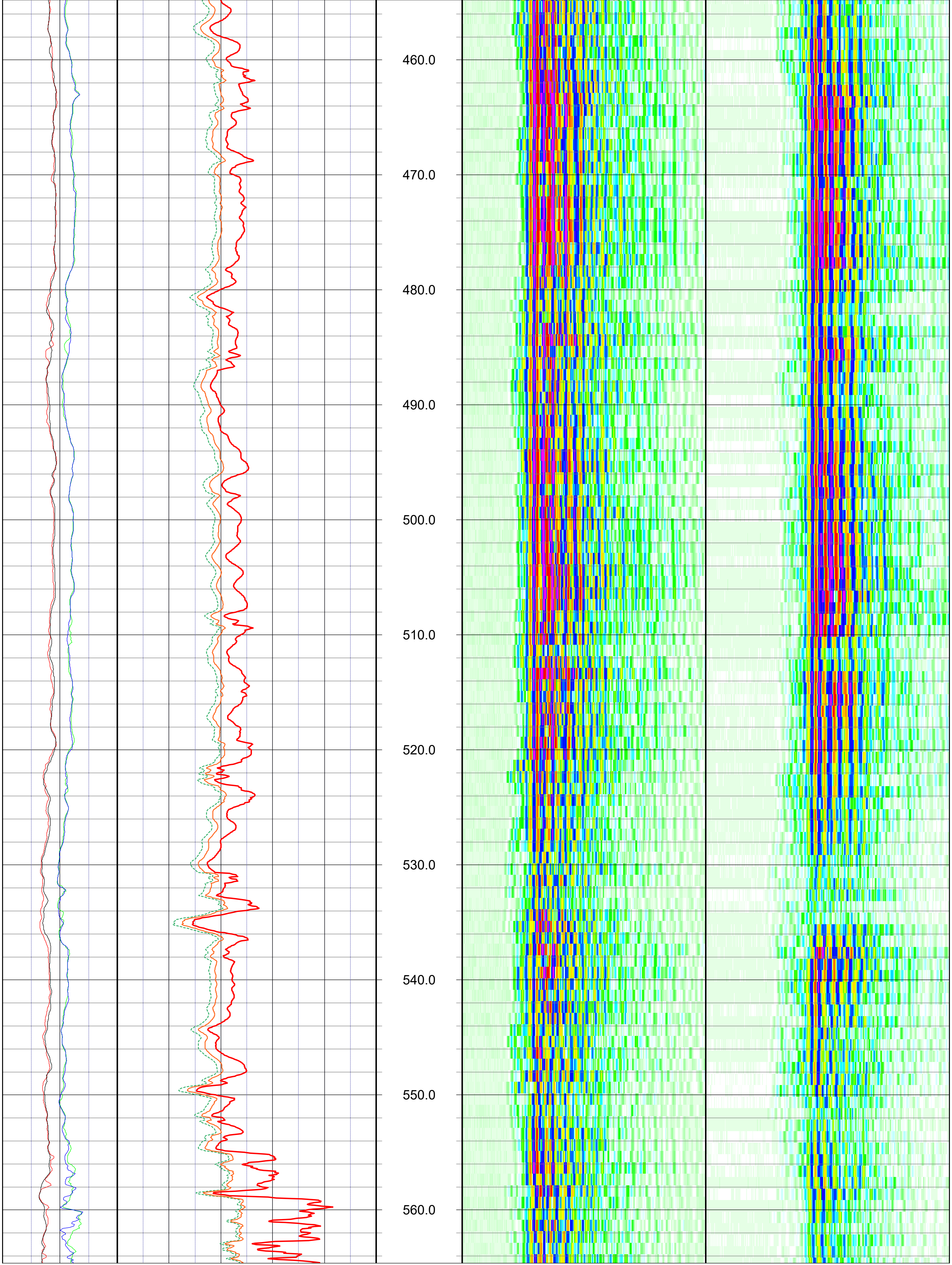
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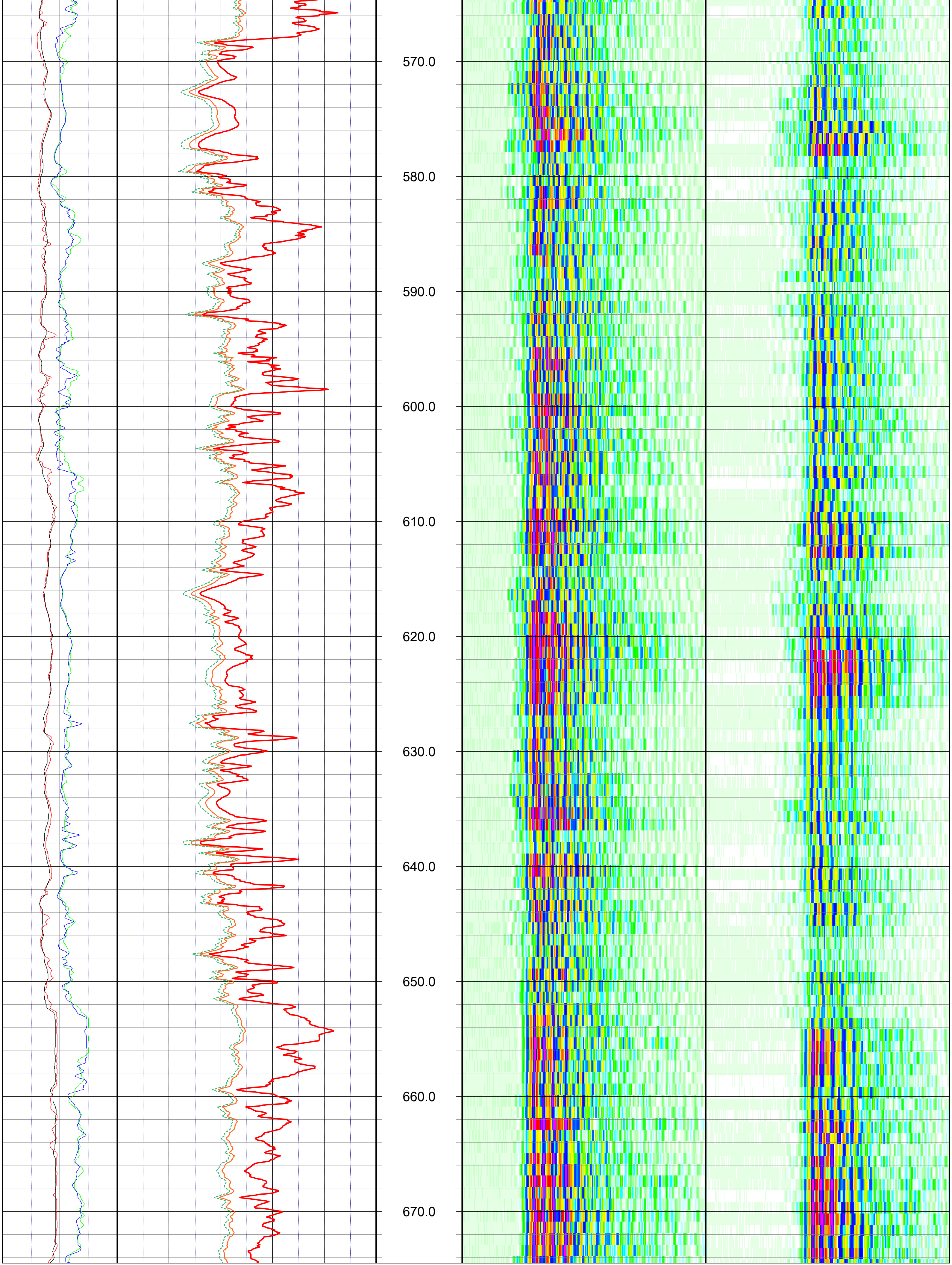
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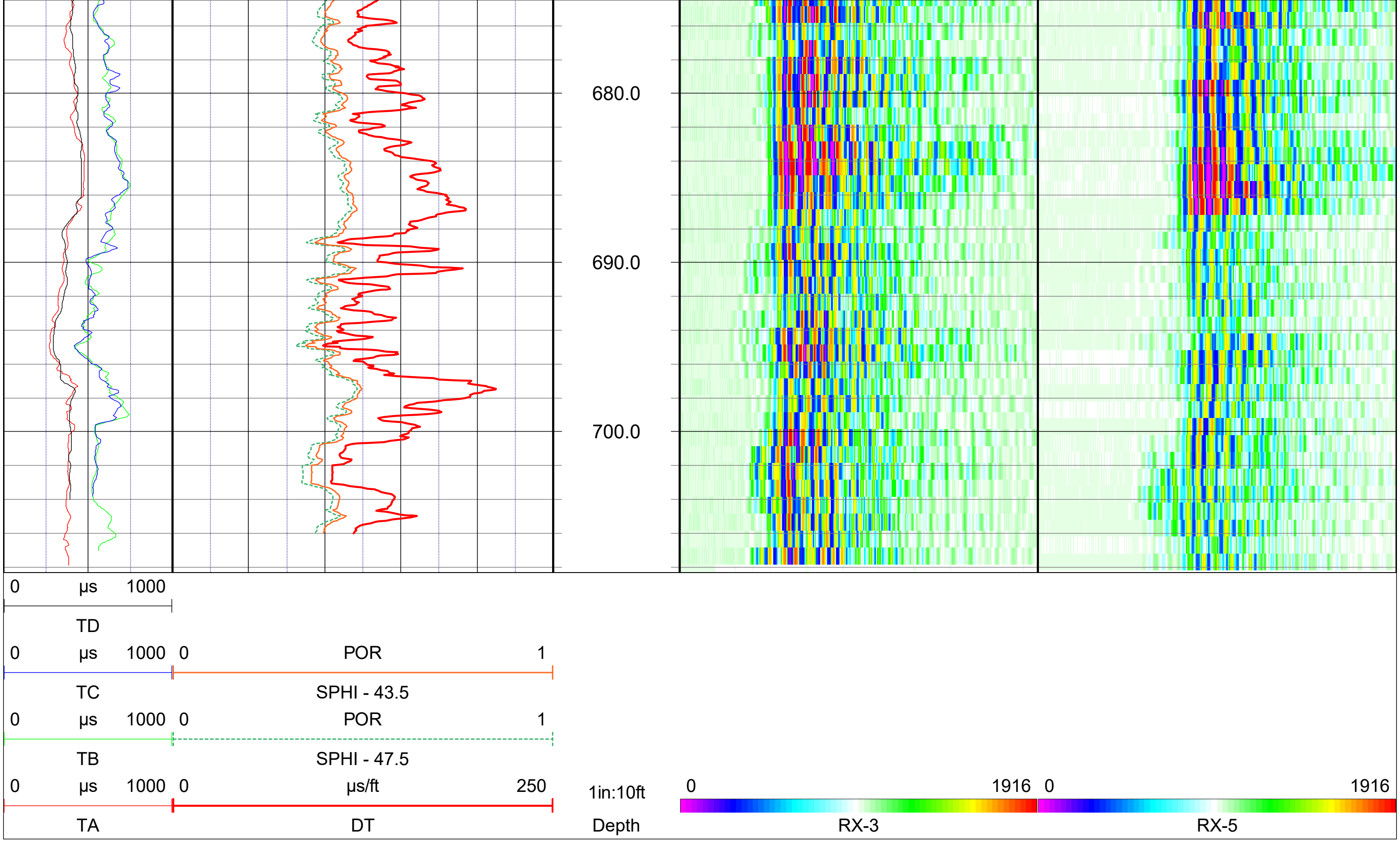

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CTRY	USA

LATI		X	
LONG		Y	
GDAT	WGS84	H DAT	
SEC		ELEV	
TWP		V DAT	
RGE			

ALL SERVICES:
CALIPER
NATURAL GAMMA
ELECTRIC
WATER QUALITY
FLOWMETER
SONIC

PERMANENT DATUM:
LOG MEASURED FROM: GROUND SURFACE
DRILLING MEASURED FROM:

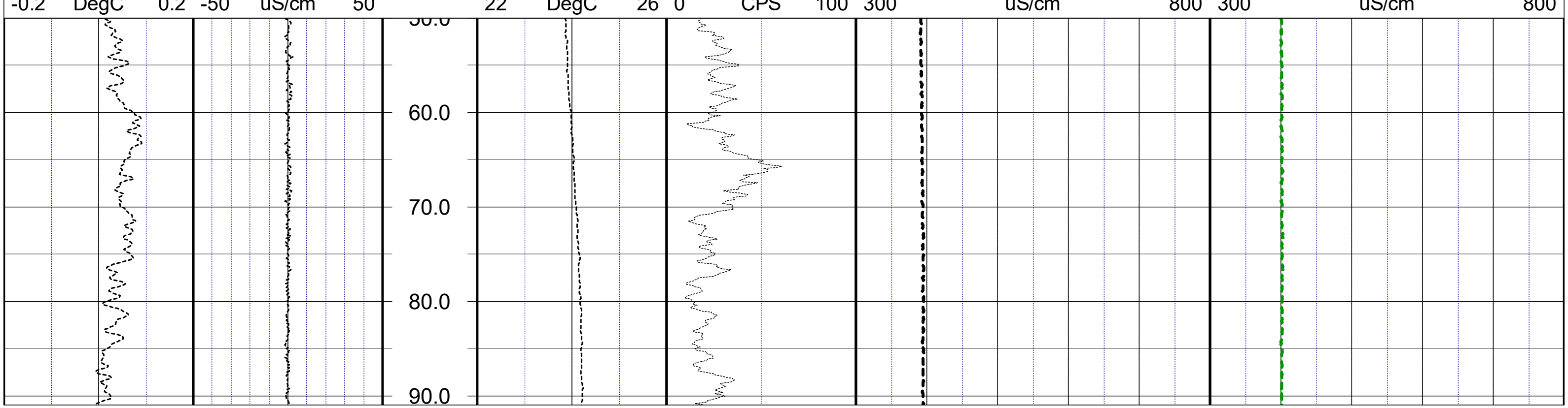
DATE	28 SEP 21	TYPE FLUID IN HOLE	WATER
RUN No	2	LOGGING SPEED (FT/MIN)	30
TYPE LOG	WATER QUALITY	TROLLING DIRECTION	DOWN
		PUMPING RATE (GPM)	900
DEPTH-DRILLER	715		
DEPTH-LOGGER	713.5		
DRILLER	HUSS DRILLING		
RECORDED BY	RMB		
SRVC	RMBAKER LLC	API	N/A
WITNESSED BY	SFWMD	LIC	N/A

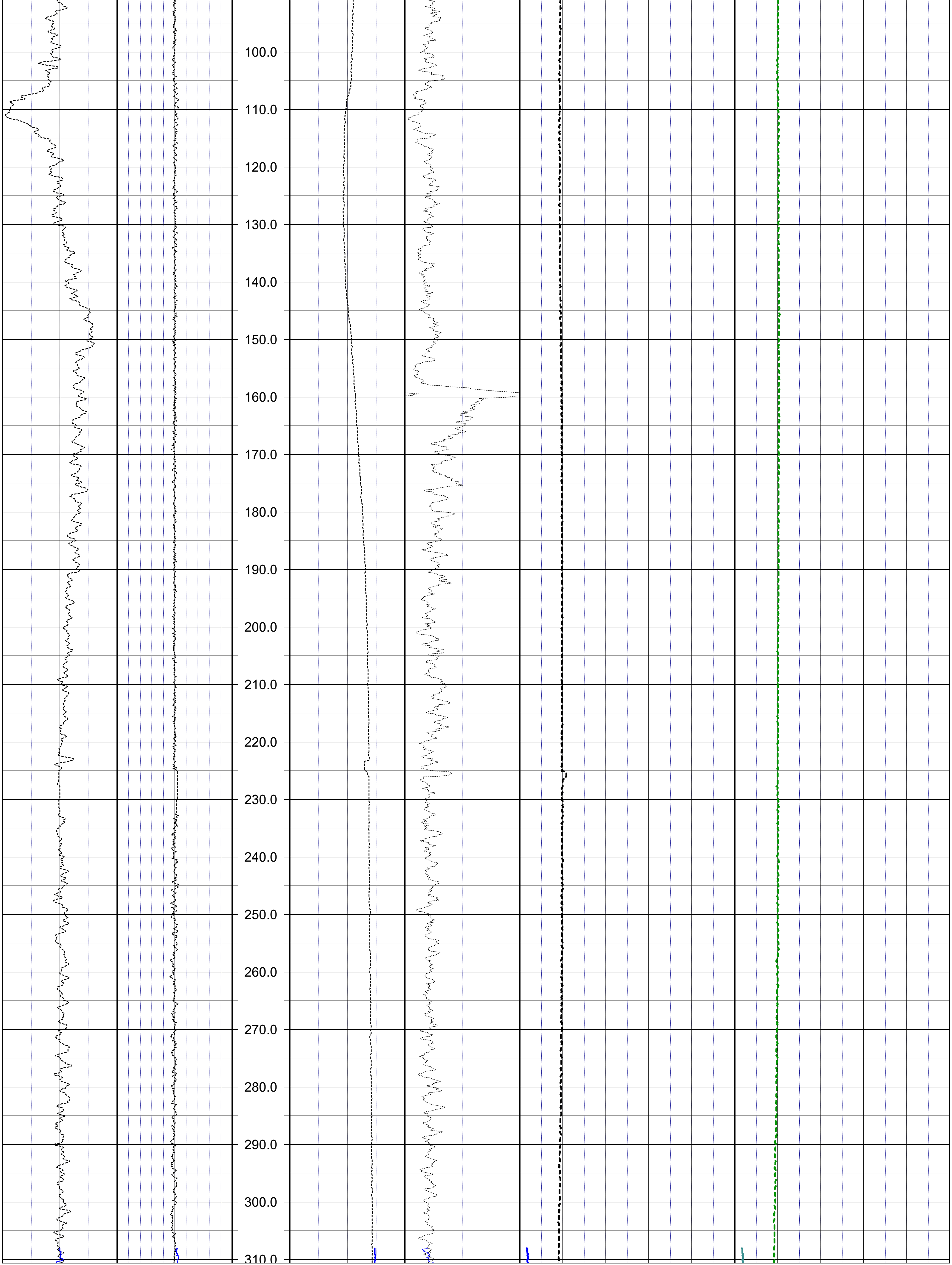
BOREHOLE RECORD				CASING RECORD			
RUN NO.	BIT	FROM	TO	SIZE	MAT.	FROM	TO
1	12	65	366	16	STEEL	0	65
2	7.875	341	713.5	8	STEEL	0	341

WATER QUALITY LOG CODES

static fluid temperature	TEU	dynamic fluid conductivity	FLCP	caliper	CAL
dynamic fluid temperature	TEP	static differential cond.	DCOU	repeat designation	R
static differential temperature	DTEU	dynamic differential cond.	DCOP	natural gamma	GAMM
dynamic differential temp.	DTEP	static specific conductance	C25U	calibration correction	C
static fluid conductivity	FLCU	dynamic specific conductance	C25P		

DTEU	DCOU	Depth	TEU	DS GAMM	FLCU	C25U
-0.2 DegC 0.2	-50 uS/cm 50	1in:20ft	22 DegC 26	0 CPS 100	300 uS/cm 800	300 uS/cm 800
DTEP	DCOP		TEP	DD GAMM	FLCP	C25P
-0.2 DegC 0.2	-50 uS/cm 50		22 DegC 26	0 CPS 100	300 uS/cm 800	300 uS/cm 800

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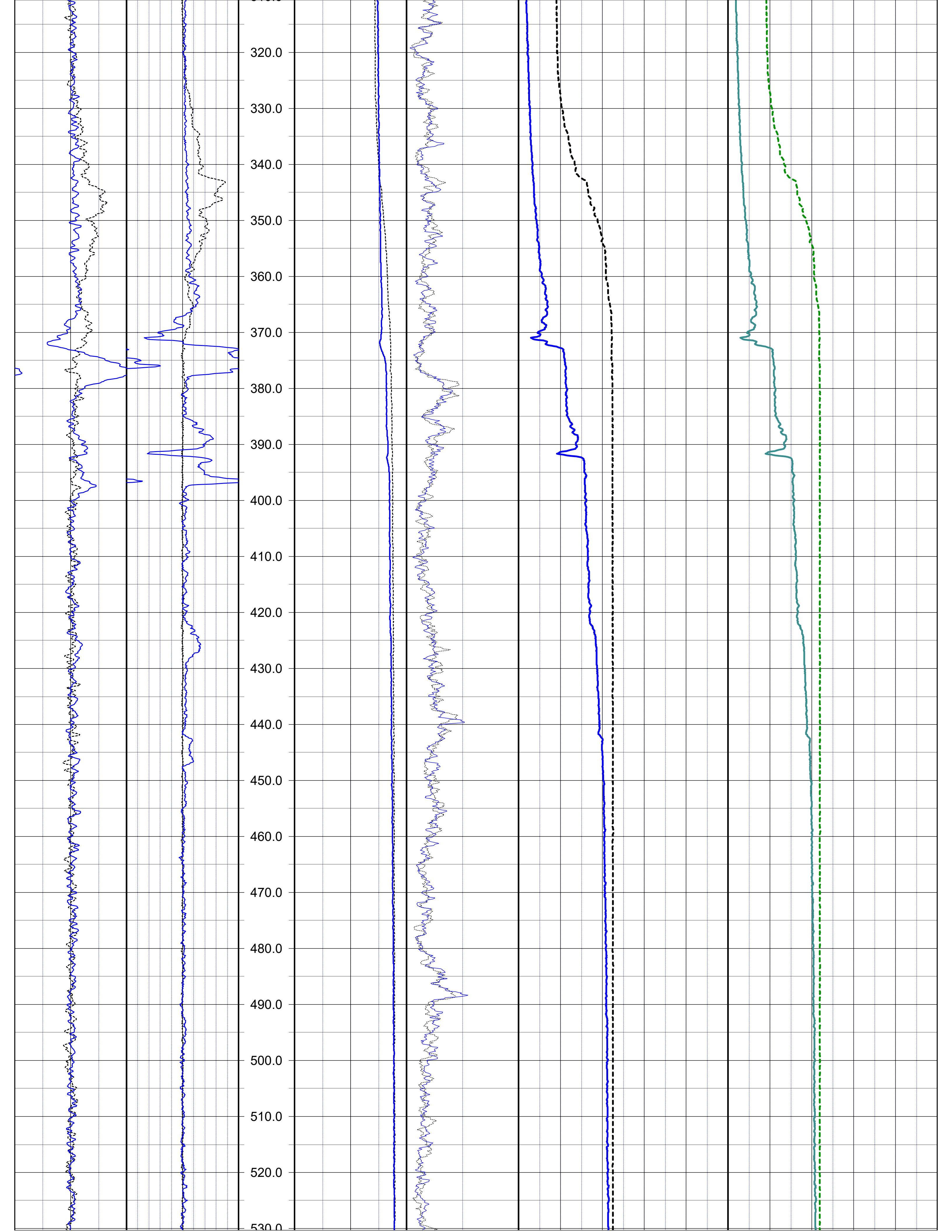
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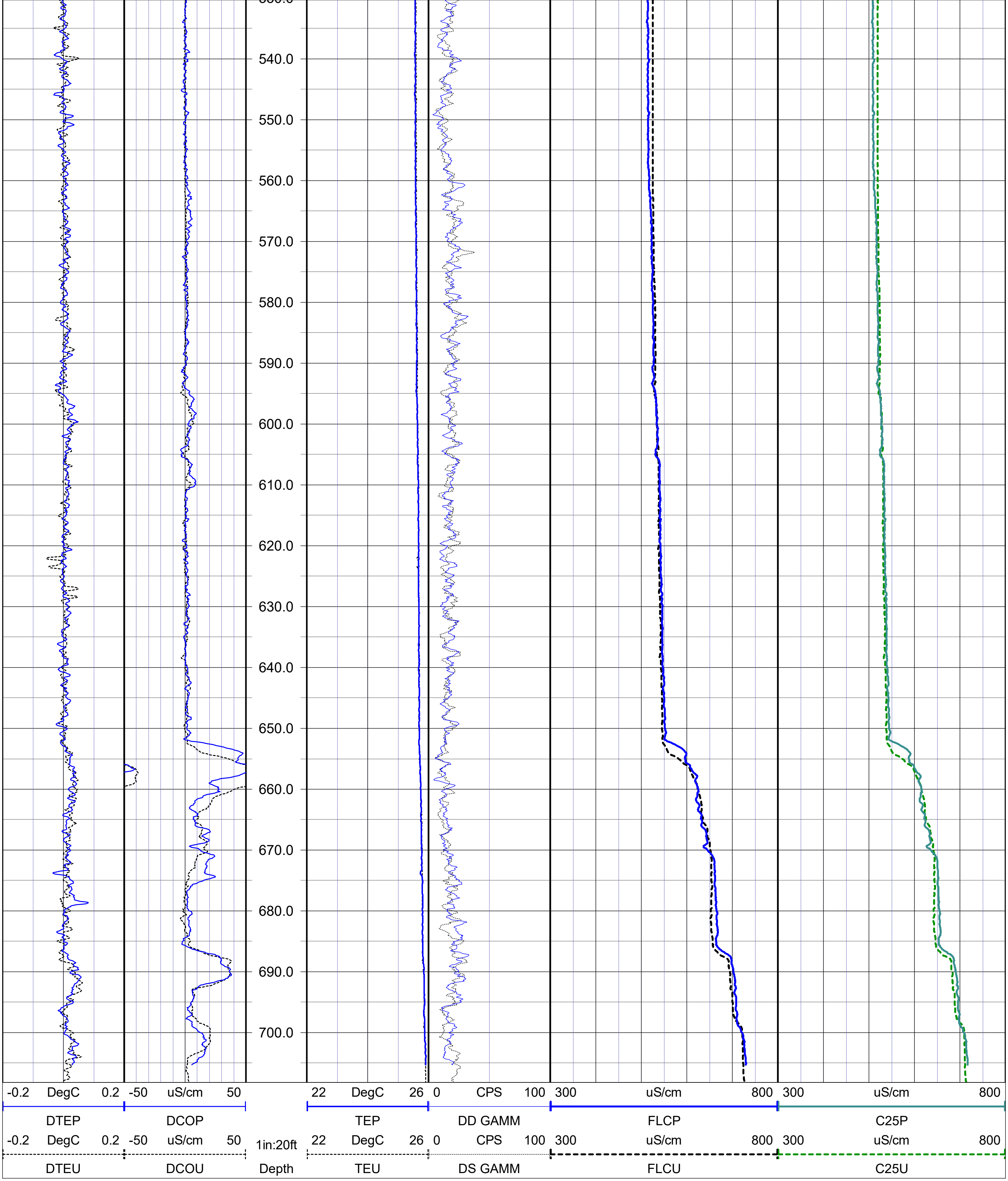

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END OF LOG

APPENDIX E:
OPTICAL BOREHOLE IMAGING LOGS

USGS Caribbean-Florida Water Science Center

WELL	Oak Island	PROJECT	SFWMD OBI Logging	DATE OF COMPLETION	08 April 2021
LOCATION	28-20-?? N (GPS, NAD 83)	ELEVATION	GL ?? Feet (Survey, NGVD 29)	WELL DEPTH	730 Feet TD
	080-38-?? W	DATE OF OBI/ABI LOGGING	08 April 2021		

Oak Island OBI Upper Section

Depth 1ft:6ft | **Optical Borehole Image (QL40-OBI-2G)** 0° 90° 180° 270° 0°


370.0
375.0
380.0
385.0
390.0
395.0

400.0
405.0
410.0
415.0
420.0

425.0
430.0
435.0
440.0
445.0
450.0


455.0
460.0
465.0
470.0
475.0
480.0


485.0
490.0
495.0
500.0
505.0
510.0


515.0
520.0
525.0
530.0
535.0
540.0


545.0
550.0
555.0
560.0
565.0


570.0
575.0
580.0
585.0
590.0
595.0


600.0
605.0
610.0
615.0
620.0
625.0

630.0
635.0
640.0
645.0
650.0
655.0


660.0
665.0
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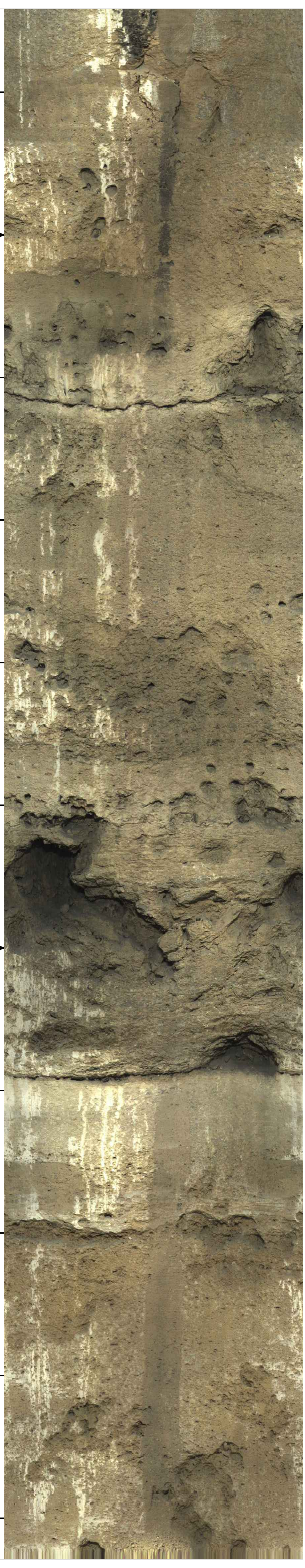
675.0
680.0


685.0
690.0
695.0
700.0
705.0
710.0

715.0

720.0



USGS Caribbean-Florida Water Science Center

WELL	OSF-108L	PROJECT	SFWMD OBI Logging	DATE OF COMPLETION	
LOCATION	28-20-03.1 N (GPS, NAD 83)	ELEVATION	GL ?? Feet (Survey, NGVD29)	WELL DEPTH	2020 Feet TD
	81-38-01.3 W	DATE OF OBI/ABI LOGGING	31 August 2021		

740.0

745.0

750.0

755.0

760.0

765.0

770.0

775.0

780.0

785.0
790.0
795.0

800.0

805.0

810.0

815.0

820.0

825.0


830.0
835.0
840.0


845.0
850.0
855.0

860.0

865.0

870.0


875.0
880.0
885.0

890.0

895.0

900.0

905.0

910.0

915.0

920.0

925.0

930.0

935.0

940.0


945.0
950.0
955.0


960.0
965.0
970.0


975.0
980.0
985.0


990.0
995.0
1000.0


1005.0
1010.0
1015.0

1020.0

1025.0

1030.0

1035.0

1040.0

1045.0

1050.0

1055.0

1060.0

1065.0

1070.0

1075.0


1080.0
1085.0
1090.0

1095.0

1100.0


1105.0
1110.0
1115.0


1120.0
1125.0
1130.0


1135.0
1140.0
1145.0

1150.0

1155.0

1160.0


1165.0
1170.0
1175.0

1180.0

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1190.0

1195.0

1200.0

1205.0

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1255.0

1260.0

1265.0

1270.0

1275.0

1280.0

1285.0

1290.0

1295.0

1300.0

1305.0


1310.0
1315.0
1320.0

1325.0

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1335.0

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1370.0

1375.0

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1400.0
1405.0
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1420.0
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1465.0

1470.0

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1490.0

1495.0

1500.0

1505.0

1510.0


1515.0
1520.0
1525.0

1530.0

1535.0

1540.0


1545.0
1550.0
1555.0

1560.0

1565.0

1570.0


1575.0
1580.0
1585.0

1590.0

1595.0

1600.0

1605.0

1610.0

1615.0

1620.0

1625.0

1630.0

1635.0
1640.0
1645.0

1650.0

1655.0

1660.0

1665.0

1670.0

1675.0

1680.0

1685.0

1690.0

1695.0

1700.0


1705.0
1710.0
1715.0

1720.0

1725.0

1730.0


1735.0
1740.0
1745.0

1750.0

1755.0

1760.0


1765.0
1770.0
1775.0

1780.0

1785.0

1790.0

1795.0

1800.0

1805.0


1810.0
1815.0
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1825.0
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1905.0


1910.0
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1920.0

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1935.0


1940.0
1945.0
1950.0


1955.0
1960.0
1965.0

1970.0

1975.0

1980.0


1985.0
1990.0
1995.0

2000.0
2005.0
2010.0

2015.0

APPENDIX F:
LITHOLOGIC LOG

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	150.0	155.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	155.0	160.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FALLOTELLA	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	160.0	170.0	DOLOMITIC-LIMESTONE; GRAYISH ORANGE : 10YR 7/4; ECHINOIDS, CONES, FALLOTELLA	DOLOMITIC-LIMESTONE					ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	170.0	175.0	DOLOMITIC-LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ECHINOIDS, CONES, FALLOTELLA	DOLOMITIC-LIMESTONE					ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	175.0	180.0	DOLOMITIC-LIMESTONE; GRAYISH ORANGE : 10YR 7/4; ECHINOIDS, CONES, FALLOTELLA	DOLOMITIC-LIMESTONE					ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	180.0	185.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FALLOTELLA	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	185.0	210.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	210.0	215.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2	LIMESTONE						VERY PALE ORANGE : 10YR 8/2		
OSF-108R	215.0	225.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	225.0	235.0	DOLOSTONE; 30% LIMESTONE; DARK YELLOWISH BROWN : 10YR 4/2; ECHINOIDS, CONES, FALLOTELLA, FORAMINIFERA	DOLOSTONE					ECHINOIDS	DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	235.0	240.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA	LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	240.0	245.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FALLOTELLA, FORAMINIFERA	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	245.0	250.0	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; ECHINOIDS	DOLOSTONE					ECHINOIDS	DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	250.0	255.0	LIMESTONE; 10% SHELL FRAGMENTS; YELLOWISH GRAY : 5Y 7/2; FORAMINIFERA, CONES, FALLOTELLA	LIMESTONE					FORAMINIFERA	YELLOWISH GRAY : 5Y 7/2		
OSF-108R	255.0	260.0	LIMESTONE; 30% SHELL FRAGMENTS; PALE YELLOWISH BROWN : 10YR 6/2	LIMESTONE						PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	260.0	265.0	DOLOSTONE; 40% LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; CONES, FALLOTELLA	DOLOSTONE					CONES	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	265.0	270.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FALLOTELLA	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	270.0	275.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA	LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	275.0	280.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA, CONES, FALLOTELLA	LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	280.0	285.0	DOLOMITIC-LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ECHINOIDS	DOLOMITIC-LIMESTONE					ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	285.0	290.0	DOLOMITIC-LIMESTONE; YELLOWISH GRAY : 5Y 7/2; ECHINOIDS, FORAMINIFERA, CONES, FALLOTELLA	DOLOMITIC-LIMESTONE					ECHINOIDS	YELLOWISH GRAY : 5Y 7/2		
OSF-108R	290.0	300.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA, CONES, FALLOTELLA	LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	300.0	315.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FALLOTELLA	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	315.0	320.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; CONES, FALLOTELLA	LIMESTONE					CONES	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	320.0	325.0	LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FALLOTELLA; 20% WHITE QUARTZ SAND; TRACE PHOSPHATE	LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	1
OSF-108R	325.0	330.0	DOLOSTONE; 40% LIMESTONE; VERY PALE ORANGE : 10YR 8/2; CONES, FALLOTELLA; 2% QUARTZ SAND; 2% PHOSPHATE	DOLOSTONE					CONES	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	2
OSF-108R	330.0	335.0	DOLOSTONE; 30% LIMESTONE; VERY PALE ORANGE : 10YR 8/2, CONES, FALLOTELLA; ECHINOIDS; 1% PHOSPHATE; 10% OF LIMESTONE HAS IRON STAINING	DOLOSTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	1
OSF-108R	335.0	345.0	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA, CONES, FALLOTELLA	DOLOMITIC-LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	345.0	350.0	DOLOSTONE; 30% DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2, CONES, FALLOTELLA; ECHINOIDS; 1% PHOSPHATE; 1% QUARTZ SAND	DOLOSTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	350.0	355.0	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FALLOTELLA, FORAMINIFERA; 20% OF GRAINS HAVE IRON STAINING; 2% BLACK ORGANICS	DOLOMITIC-LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2	ORGANICS	2
OSF-108R	355.0	360.0	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; ECHINOIDS, CONES, FALLOTELLA, FORAMINIFERA; TRACE PHOSPHATES	DOLOMITIC-LIMESTONE					ECHINOIDS	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	1
OSF-108R	360.0	365.0	DOLOMITIC-LIMESTONE; 10% DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; FORAMINIFERA; CONES, FALLOTELLA; TRACE PHOSPHATES	DOLOMITIC-LIMESTONE					FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2	PHOSPHATIC SAND	1
OSF-108R	365.0	370.0	NO SAMPLE									
OSF-108R	370.0	371.1	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	371.1	377.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION; FORAMINIFERA; BIVALVES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	377.6	378.8	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	378.8	380.0	NO RECOVERY									

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	380.0	382.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION; BIVALVES, GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	382.0	384.2	LIMESTONE-PACKSTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; FORAMINIFERA; MILIOLIDS	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	384.2	385.3	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	385.3	387.3	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE VUGGY POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	387.3	389.0	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE VUGGY POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	389.0	390.0	NO RECOVERY									
OSF-108R	390.0	391.5	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	391.5	393.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE MOLDIC AND VUGGY POROSITY; GOOD INDURATION; ECHINOIDS; BIVALVES, GASTROPODS, MILIOLID, NEOLAGNUM	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD		ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	393.0	396.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	396.0	397.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	397.2	400.0	NO RECOVERY									
OSF-108R	400.0	401.3	LIMESTONE-PACKSTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; FORAMINIFERA; GASTROPODS	LIMESTONE-PACKSTONE	30	INTERGRANULAR	POOR		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	401.3	402.0	LIMESTONE-PACKSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION; FORAMINIFERA	LIMESTONE-PACKSTONE	10	INTERGRANULAR	POOR		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	402.0	405.2	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION; FORAMINIFERA	LIMESTONE-PACKSTONE	20	INTERGRANULAR	POOR		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	405.2	407.0	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; FORAMINIFERA	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	407.0	410.0	NO RECOVERY									
OSF-108R	410.0	415.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; FORAMINIFERA; BIVALVES AND GASTROPODS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	415.2	416.6	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; FORAMINIFERA; BIVALVES AND GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR		FORAMINIFERA	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	415.9	418.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; FORAMINIFERA; BIVALVES AND GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	418.0	418.9	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	418.9	421.4	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	421.4	423.0	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	423.0	424.1	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	424.1	425.4	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	425.4	427.1	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	427.1	428.7	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-MUDSTONE	20	INTERGRANULAR	GOOD		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	428.7	430.0	NO RECOVERY									
OSF-108R	430.0	431.5	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	431.5	435.6	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW VUGGY AND INTERGRANULAR POROSITY; POOR INDURATION; SOME FRACTURES	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			PALE YELLOWISH BROWN : 10YR 6/2	CELESTINE	
OSF-108R	435.6	436.2	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	436.2	438.7	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	FRACTURED	MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	438.7	439.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	439.2	440.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	440.0	441.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	441.5	442.6	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	442.6	443.4	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	443.4	444.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR AND VUGGY POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	444.0	445.1	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	445.1	446.4	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	446.4	446.8	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	446.8	447.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	447.5	448.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	448.0	448.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	448.6	449.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	449.5	450.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; MOLLUSKS-BIVALVES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	450.0	450.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	450.7	451.3	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	451.3	454.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	454.0	454.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	454.6	455.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	455.0	455.8	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION; FRACTURED	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	455.8	458.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	458.0	459.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; POOR INDURATION; MOLLUSKS-BIVALVES; GASTROPODS, SOME FRACTURES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	459.5	460.0	NO RECOVERY									
OSF-108R	460.0	461.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	461.7	463.9	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	463.9	466.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	466.0	467.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	467.0	468.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	468.0	470.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; POOR INDURATION; SOME FRACTURES	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	470.0	473.4	LIMESTONE-WACKESTONE; DARK YELLOWISH ORANGE : 10YR 6/6; HIGH INTERGRANULAR POROSITY; POOR INDURATION; FRACTURED	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR	FRACTURED		DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	473.4	476.0	LIMESTONE-WACKESTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	476.0	476.7	LIMESTONE-WACKESTONE; DARK YELLOWISH ORANGE : 10YR 6/6; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	476.7	478.8	LIMESTONE-MUDSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	POOR			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	478.8	480.0	NO RECOVERY									
OSF-108R	480.0	481.2	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	481.2	482.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	482.0	482.9	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	482.9	483.6	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	483.6	484.9	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			DARK YELLOWISH BROWN : 10YR 4/2	CHERT	
OSF-108R	484.9	486.0	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	486.0	490.0	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	490.0	491.1	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	491.1	492.0	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	492.0	492.6	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	492.6	495.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	495.0	496.3	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	496.3	498.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; MOLLUSKS-BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD		MOLLUSKS-BIVALVES	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	498.0	500.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	500.0	501.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	501.5	504.3	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	504.3	508.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; POOR INDURATION; LAMINATED	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	508.0	510.0	NO RECOVERY									
OSF-108R	510.0	511.7	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	511.7	512.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	512.5	514.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	POOR			VERY PALE ORANGE : 10YR 8/2		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	514.0	516.0	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	516.0	517.0	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	30	INTERGRANULAR	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	517.0	518.5	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-MUDSTONE	20	INTERGRANULAR	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	518.5	520.0	NO RECOVERY									
OSF-108R	520.0	521.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; FRACTURED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	FRACTURED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	521.8	523.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	523.2	526.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	526.2	527.9	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	POOR	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	527.9	528.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	528.8	529.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	529.7	531.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	531.5	532.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	532.0	534.0	CALCAREOUS DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	CALCAREOUS DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	534.0	535.2	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; FRACTURED; ORGANICS	CALCAREOUS DOLOSTONE	0	NO OBSERVABLE	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	535.2	536.3	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	536.3	538.0	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	0	NO OBSERVABLE	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	538.0	540.0	NO RECOVERY									
OSF-108R	540.0	543.0	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	543.0	545.1	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE PINPOINT POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	0	NO OBSERVABLE	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	545.1	547.1	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	547.1	550.4	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; ORGANICS	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	550.4	552.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	552.2	554.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	554.2	558.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	558.0	566.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT, VUGGY, AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	566.8	567.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	567.7	569.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	569.5	571.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	571.5	572.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, VUGGY, AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	572.8	574.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; QUARTZ	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4	QUARTZ	
OSF-108R	574.2	576.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	576.0	577.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	577.0	578.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED; CHERT	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	CHERT	
OSF-108R	578.8	580.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	580.0	581.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	581.8	583.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	583.0	584.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	584.9	586.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	586.0	588.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; QUARTZ	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZ	
OSF-108R	588.0	589.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	589.6	590.0	NO RECOVERY									
OSF-108R	590.0	591.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	591.6	592.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	592.7	594.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	594.0	596.2	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	596.2	597.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	597.9	602.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	602.0	603.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	603.1	604.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	604.0	606.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	30	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	606.3	608.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	608.2	608.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	608.9	609.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	609.5	610.0	NO RECOVERY									
OSF-108R	610.0	611.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	611.8	613.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	613.7	614.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; FRACTURED; ORGANICS; LAMINATED	DOLOSTONE	10	PIN POINT - VUGS	POOR	FRACTURED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	614.2	616.3	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	616.3	620.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	620.0	623.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	623.2	623.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	623.8	626.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	626.4	626.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	626.8	628.2	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	628.2	629.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	629.3	630.0	NO RECOVERY									
OSF-108R	630.0	631.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	631.7	632.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	632.1	634.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	634.7	636.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	636.0	637.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	637.0	640.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	640.3	641.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	641.1	644.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	644.8	645.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	POOR	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	645.8	646.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	646.0	648.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	648.4	650.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	650.5	652.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	652.0	653.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	653.8	654.1	CALCAREOUS DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	654.1	655.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	655.0	656.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	656.0	656.5	CALCAREOUS DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	656.5	660.0	NO RECOVERY									
OSF-108R	660.0	661.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	661.0	662.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	662.1	663.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	663.8	665.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	665.1	666.0	NO RECOVERY									
OSF-108R	666.0	666.4	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	666.4	670.0	NO RECOVERY									
OSF-108R	670.0	671.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; FRACTURED; ORGANICS; LAMINATED	DOLOSTONE	20	PIN POINT - VUGS	POOR	FRACTURED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	671.1	678.0	NO RECOVERY									
OSF-108R	678.0	680.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	POOR	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	680.0	681.4	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	681.4	682.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	682.9	686.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	686.0	690.0	NO RECOVERY									
OSF-108R	690.0	690.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	690.8	696.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	696.0	696.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	696.7	697.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	697.5	698.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	698.2	700.0	NO RECOVERY									
OSF-108R	700.0	701.7	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	701.7	703.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	703.0	705.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	705.2	705.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION; LAMINATED; ORGANICS; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	POOR	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	705.8	707.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	707.0	707.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	707.6	710.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; POOR INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	POOR	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	710.0	711.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	711.8	712.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	712.1	716.4	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	716.4	717.4	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	717.4	717.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	717.8	720.1	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	720.1	721.1	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	721.1	721.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	721.7	722.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	722.2	724.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	724.4	726.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	726.0	727.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	727.8	729.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	729.0	730.0	NO RECOVERY									
OSF-108R	730.0	734.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	734.0	735.3	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	735.3	736.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	736.0	737.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	737.9	740.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	740.1	742.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	742.0	744.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	744.0	746.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	746.0	748.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	748.0	750.0	NO RECOVERY									
OSF-108R	750.0	751.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	751.2	752.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	752.0	752.8	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	30	PIN POINT - VUGS	GOOD			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	752.8	758.0	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	758.0	759.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	759.0	760.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	760.0	761.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	761.0	763.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 162.2 FT: CALCITE IN VUGS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	CALCITE	
OSF-108R	763.5	765.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	765.0	767.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	767.6	768.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	768.0	770.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	770.0	771.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	771.0	772.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	772.0	776.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	776.0	777.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	777.7	779.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	779.0	781.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	781.2	782.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	782.2	786.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	786.0	788.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	788.2	789.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	789.1	790.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	790.0	792.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	792.0	793.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	793.1	794.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	794.1	796.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	796.1	798.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	798.3	799.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	799.0	800.0	NO RECOVERY									
OSF-108R	800.0	802.3	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	802.3	804.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	804.0	806.4	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	806.4	807.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	807.7	810.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	810.0	812.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	812.2	813.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	813.5	816.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	816.0	817.4	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	817.4	819.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	819.5	820.0	NO RECOVERY									
OSF-108R	820.0	822.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	822.0	824.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	824.0	825.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	825.2	828.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	828.0	830.0	NO RECOVERY									

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	830.0	831.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	831.0	832.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	832.0	835.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	835.7	837.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	837.7	839.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION; 839 FT: CALCITE CRYSTALS IN VUGS	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4	CALCITE	
OSF-108R	839.8	845.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	845.2	846.3	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	846.3	848.6	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	848.6	850.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	850.8	851.6	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	851.6	852.3	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	852.3	853.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	853.1	853.7	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	853.7	854.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	854.5	856.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	856.0	856.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	856.8	859.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	859.2	861.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	861.0	861.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; GOOD INDURATION	DOLOSTONE	30	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	861.7	862.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	862.1	862.9	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	862.9	864.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	864.0	866.6	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	866.6	867.9	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	867.9	868.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	868.7	870.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	870.0	872.4	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	872.4	873.9	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	873.9	874.6	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	874.6	876.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	876.0	876.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	876.8	878.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	878.0	880.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	880.0	881.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	881.5	885.6	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; SUCROSIC; HIGH PINPOINT AND INTERGRANULAR POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	885.6	886.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; POOR INDURATION	DOLOSTONE	0	NO OBSERVABLE	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	886.0	886.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	886.9	888.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	888.2	888.9	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	30	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	888.9	889.5	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	889.5	890.0	NO RECOVERY									
OSF-108R	890.0	891.6	DOLOSTONE; YELLOWISH GRAY (2) : 5Y 8/1; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			YELLOWISH GRAY (2) : 5Y 8/1		
OSF-108R	891.6	893.1	DOLOSTONE; YELLOWISH GRAY (2) : 5Y 8/1; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION	DOLOSTONE	0	NO OBSERVABLE	MODERATE			YELLOWISH GRAY (2) : 5Y 8/1		
OSF-108R	893.1	893.9	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION	DOLOSTONE	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	893.9	896.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	896.2	897.7	DOLOSTONE; YELLOWISH GRAY (2) : 5Y 8/1; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION	DOLOSTONE	0	NO OBSERVABLE	MODERATE			YELLOWISH GRAY (2) : 5Y 8/1		
OSF-108R	897.7	898.1	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	0	NO OBSERVABLE	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	898.1	899.4	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	899.4	900.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	900.0	901.0	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE PINPOINT AND INTERGRANULAR POROSITY; POOR INDURATION	DOLOMITIC-LIMESTONE	20	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	901.0	902.5	DOLOMITIC-LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE PINPOINT AND INTERGRANULAR POROSITY; MODERATE INDURATION	DOLOMITIC-LIMESTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	902.5	903.8	DOLOMITIC-LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH PINPOINT AND INTERGRANULAR POROSITY; POOR INDURATION	DOLOMITIC-LIMESTONE	30	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	903.8	906.2	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; CALCITE	DOLOMITIC-LIMESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	CALCITE	
OSF-108R	906.2	906.9	CLAY; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; UNCONSOLIDATED INDURATION	CLAY	10	INTERGRANULAR	UNCONSOLIDATED			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	906.9	907.5	DOLOMITIC-LIMESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; POOR INDURATION	DOLOMITIC-LIMESTONE	10	INTERGRANULAR	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	907.5	909.3	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE PINPOINT, VUGGY, AND INTERGRANULAR POROSITY; MODERATE INDURATION	DOLOMITIC-LIMESTONE	20	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	909.3	910.0	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	910.0	911.6	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; POOR INDURATION; LAMINATED; ORGANICS	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	911.6	912.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	912.6	914.3	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	DOLOMITIC-LIMESTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	914.3	915.5	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; CLAY	DOLOMITIC-LIMESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	CLAY	

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	915.5	916.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	916.2	917.1	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	DOLOMITIC-LIMESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	917.1	919.0	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOMITIC-LIMESTONE	10	INTERGRANULAR	POOR	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	919.0	920.0	DOLOMITIC-LIMESTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; POOR INDURATION	DOLOMITIC-LIMESTONE	0	NO OBSERVABLE	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	920.0	921.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	921.1	922.5	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	922.5	925.9	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	925.9	929.3	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	929.3	930.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	930.0	931.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	931.8	933.6	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION; CHERT	DOLOSTONE	20	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2	CHERT	
OSF-108R	933.6	934.4	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	934.4	935.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; CHERT; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	CHERT	
OSF-108R	935.5	936.0	CLAY; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE POROSITY; UNCONSOLIDATED INDURATION; LAMINATED; CHERT; ORGANICS; LIMONITE	CLAY	0	NO OBSERVABLE	UNCONSOLIDATED	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	CHERT	
OSF-108R	936.0	937.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION	DOLOSTONE	10	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	937.2	937.3	CHERT; DUSKY YELLOWISH BROWN : 10YR 2/2; NO OBSERVEABLE POROSITY; GOOD INDURATION	CHERT	0	NO OBSERVABLE	GOOD			DUSKY YELLOWISH BROWN : 10YR 2/2		
OSF-108R	937.3	938.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	938.0	938.9	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; POOR INDURATION	DOLOSTONE	20	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	938.9	940.0	NO RECOVERY									
OSF-108R	940.0	942.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; FINE-GRAINED; HIGH PINPOINT AND INTERGRANULAR POROSITY; POOR INDURATION; FRACTURED; PELLETS	DOLOSTONE	30	PIN POINT - VUGS	POOR	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	942.5	943.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	POOR	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	943.5	946.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; ORGANICS	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	946.2	948.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; PELLETS	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	948.0	950.0	EVAPORITES; WHITE : N9; NO OBSERVEABLE POROSITY; MODERATE INDURATION; 15% DOLOMITE	EVAPORITES	0	NO OBSERVABLE	MODERATE			WHITE : N9	DOLOMITE	15
OSF-108R	950.0	954.0	EVAPORITES; WHITE : N9; NO OBSERVEABLE POROSITY; GOOD INDURATION; 40% DOLOMITE	EVAPORITES	0	NO OBSERVABLE	GOOD			WHITE : N9	DOLOMITE	40
OSF-108R	954.0	960.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	0	NO OBSERVABLE	GOOD			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	20
OSF-108R	960.0	963.6	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	20
OSF-108R	963.6	966.3	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 15% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	15
OSF-108R	966.3	968.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; 10% EVAPORITE MINERALSORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	10
OSF-108R	968.2	970.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	970.0	972.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 30% EVAPORITE MINERALS; LIMONITE	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	30
OSF-108R	972.9	973.1	EVAPORITES; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; 10% DOLOMITE	EVAPORITES	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2	DOLOMITE	10
OSF-108R	973.1	978.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	20
OSF-108R	978.0	979.0	EVAPORITES; VERY PALE ORANGE : 10YR 8/2; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 30% DOLOMITE; ORGANICS	EVAPORITES	10	PIN POINT - VUGS	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	DOLOMITE	30
OSF-108R	979.0	980.0	NO RECOVERY									
OSF-108R	980.0	981.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	981.8	982.6	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	20
OSF-108R	982.6	983.8	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; 40% EVAPORITE MINERALS	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	40
OSF-108R	983.8	985.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	985.7	988.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 15% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	15
OSF-108R	988.0	990.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	5
OSF-108R	990.0	991.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	10
OSF-108R	991.0	993.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 2% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	2
OSF-108R	993.7	994.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; 30% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	30
OSF-108R	994.5	995.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 15% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	15
OSF-108R	995.2	996.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; 2% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	POOR			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	2
OSF-108R	996.0	998.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	10
OSF-108R	998.0	998.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 2% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	2
OSF-108R	998.5	1000.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 5% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	5
OSF-108R	1000.0	1001.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	0	NO OBSERVABLE	GOOD			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	1001.0	1001.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; POOR INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	0	NO OBSERVABLE	POOR			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	20
OSF-108R	1001.9	1004.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; 30% EVAPORITE MINERALS	DOLOSTONE	0	NO OBSERVABLE	GOOD			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	30
OSF-108R	1004.0	1009.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	0	NO OBSERVABLE	GOOD			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	1009.0	1010.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	1010.0	1010.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	0	NO OBSERVABLE	GOOD			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	20
OSF-108R	1010.5	1011.9	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	20

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1011.9	1012.5	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; POOR INDURATION; ORGANICS	DOLOSTONE	0	NO OBSERVABLE	POOR			VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	1012.5	1014.3	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	POOR			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	10
OSF-108R	1014.3	1017.4	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	5
OSF-108R	1017.4	1020.0	DOLOSTONE; YELLOWISH GRAY (2) : 5Y 8/1; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			YELLOWISH GRAY (2) : 5Y 8/1	EVAPORITE MINERALS	5
OSF-108R	1020.0	1022.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1022.0	1022.5	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; 30% EVAPORITE MINERALS	DOLOSTONE	0	NO OBSERVABLE	GOOD			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	30
OSF-108R	1022.5	1024.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1024.0	1026.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	0	NO OBSERVABLE	GOOD			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	5
OSF-108R	1026.2	1027.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1027.8	1029.1	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; ORGANICS	DOLOSTONE	0	NO OBSERVABLE	GOOD			VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	1029.1	1030.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1030.0	1030.5	EVAPORITES; WHITE : N9; LOW PINPOINT POROSITY; MODERATE INDURATION; 40% DOLOMITE	EVAPORITES	10	PIN POINT - VUGS	MODERATE			WHITE : N9	DOLOMITE	40
OSF-108R	1030.5	1034.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 15% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	15
OSF-108R	1034.0	1041.5	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	20
OSF-108R	1041.5	1042.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	20
OSF-108R	1042.8	1043.3	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; LAMINATED; 5% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5
OSF-108R	1043.3	1044.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; 30% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	30
OSF-108R	1044.8	1045.0	GRAYISH ORANGE : 10YR 7/4	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5
OSF-108R	1045.0	1046.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; 15% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	15
OSF-108R	1046.5	1048.3	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	20
OSF-108R	1048.3	1050.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	20
OSF-108R	1050.0	1055.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	5
OSF-108R	1055.0	1057.2	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	1057.2	1060.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	20
OSF-108R	1060.0	1060.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1060.5	1063.6	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	5
OSF-108R	1063.6	1065.7	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; FINE-GRAINED; LOW PINPOINT POROSITY; MODERATE INDURATION; 1% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	1
OSF-108R	1065.7	1068.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; FINE-GRAINED; LOW PINPOINT POROSITY; MODERATE INDURATION; 15% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	15
OSF-108R	1068.0	1070.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; FINE-GRAINED; LOW PINPOINT POROSITY; MODERATE INDURATION; 1% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	1

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1070.0	1071.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 15% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	15
OSF-108R	1071.1	1073.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 30% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	30
OSF-108R	1073.0	1077.5	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 5% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	5
OSF-108R	1077.5	1078.4	CALCAREOUS DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 5% EVAPORITE MINERALS; ORGANICS	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	5
OSF-108R	1078.4	1079.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 15% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	15
OSF-108R	1079.8	1080.0	NO RECOVERY									
OSF-108R	1080.0	1081.8	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 15% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	15
OSF-108R	1081.8	1083.1	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 5% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	5
OSF-108R	1083.1	1083.3	EVAPORITES; MODERATE LIGHT GRAY : N6; NO OBSERVEABLE POROSITY; MODERATE INDURATION	EVAPORITES	0	PIN POINT - VUGS	MODERATE			MODERATE LIGHT GRAY : N6		
OSF-108R	1083.3	1085.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 5% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	5
OSF-108R	1085.7	1089.5	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	5
OSF-108R	1089.5	1090.0	EVAPORITES; LIGHT GRAY : N7; NO OBSERVEABLE POROSITY; MODERATE INDURATION	EVAPORITES	0	PIN POINT - VUGS	MODERATE			LIGHT GRAY : N7		
OSF-108R	1090.0	1091.6	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 40% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	40
OSF-108R	1091.6	1092.4	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	10
OSF-108R	1092.4	1093.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	10
OSF-108R	1093.7	1096.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	20
OSF-108R	1096.0	1097.2	EVAPORITES; LIGHT GRAY : N7; LOW PINPOINT POROSITY; MODERATE INDURATION; 40% DOLOMITE	EVAPORITES	10	PIN POINT - VUGS	MODERATE			LIGHT GRAY : N7	DOLOMITE	40
OSF-108R	1097.2	1098.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	10
OSF-108R	1098.7	1100.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 5% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	5
OSF-108R	1100.0	1103.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 15% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	15
OSF-108R	1103.0	1104.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	1104.0	1104.7	EVAPORITES; MODERATE LIGHT GRAY : N6; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 10% DOLOMITE; ORGANICS	EVAPORITES	10	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE LIGHT GRAY : N6	DOLOMITE	10
OSF-108R	1104.7	1106.2	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; GOOD INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	10
OSF-108R	1106.2	1108.2	CALCAREOUS DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1108.2	1109.7	CALCAREOUS DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION; 20% EVAPORITE MINERALS	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	20
OSF-108R	1109.7	1110.0	NO RECOVERY									
OSF-108R	1110.0	1111.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION; 15% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	15
OSF-108R	1111.7	1112.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 40% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	40
OSF-108R	1112.0	1113.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	10
OSF-108R	1113.4	1114.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; LAMINATED; 10% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	10
OSF-108R	1114.0	1114.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 10% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	10
OSF-108R	1114.6	1116.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	10
OSF-108R	1116.1	1118.4	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	20
OSF-108R	1118.4	1120.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	5
OSF-108R	1120.0	1121.8	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	5
OSF-108R	1121.8	1122.3	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 40% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	40
OSF-108R	1122.3	1124.2	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	20
OSF-108R	1124.2	1126.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 20% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	20
OSF-108R	1126.3	1126.9	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	10
OSF-108R	1126.9	1127.7	DOLOSTONE; MODERATE LIGHT GRAY : N6; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 40% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE LIGHT GRAY : N6	EVAPORITE MINERALS	40
OSF-108R	1127.7	1130.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; FRACTURED; 10% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	1130.0	1131.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION	DOLOSTONE	0	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1131.0	1133.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5
OSF-108R	1133.7	1134.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1134.5	1135.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 25% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	25
OSF-108R	1135.0	1141.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5
OSF-108R	1141.2	1143.4	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; 5% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5
OSF-108R	1143.4	1145.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS; CHERT	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5
OSF-108R	1145.2	1145.4	CHERT; BLACK : N1; LOW PINPOINT POROSITY; GOOD INDURATION; 10% DOLOMITE	CHERT	10	PIN POINT - VUGS	GOOD			BLACK : N1	DOLOMITE	10
OSF-108R	1145.4	1147.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; CHERT	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1147.0	1147.2	CHERT; BLACK : N1; LOW PINPOINT POROSITY; GOOD INDURATION; 50% DOLOMITE	CHERT	10	PIN POINT - VUGS	GOOD			BLACK : N1	DOLOMITE	50

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1147.2	1149.6	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS; CHERT	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5
OSF-108R	1149.6	1150.0	NO RECOVERY									
OSF-108R	1150.0	1152.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 15% EVAPORITE MINERALS; ORGANICS; LIMONITE	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	15
OSF-108R	1152.0	1152.4	EVAPORITES; VERY LIGHT GRAY : N8; LOW PINPOINT POROSITY; MODERATE INDURATION; 40% DOLOMITE	EVAPORITES	10	PIN POINT - VUGS	MODERATE			VERY LIGHT GRAY : N8	DOLOMITE	40
OSF-108R	1152.4	1155.7	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 2% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	2
OSF-108R	1155.7	1156.2	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION	DOLOSTONE	0	PIN POINT - VUGS	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1156.2	1156.6	EVAPORITES; VERY LIGHT GRAY : N8; NO OBSERVEABLE POROSITY; MODERATE INDURATION; LAMINATED; 40% DOLOMITE; ORGANICS	EVAPORITES	0	PIN POINT - VUGS	MODERATE	LAMINATED		VERY LIGHT GRAY : N8	DOLOMITE	40
OSF-108R	1156.6	1157.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION; LAMINATED; 10% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	0	PIN POINT - VUGS	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	1157.0	1157.5	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; 10% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	10
OSF-108R	1157.5	1158.0	NO RECOVERY									
OSF-108R	1158.0	1159.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION; LAMINATED; 10% EVAPORITE MINERALS; ORGANICS	DOLOSTONE	0	PIN POINT - VUGS	GOOD	LAMINATED		VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	10
OSF-108R	1159.0	1160.0	DOLOSTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION	DOLOSTONE	0	PIN POINT - VUGS	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1160.0	1162.6	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; GOOD INDURATION; CALCITE IN VUGS	DOLOSTONE	20	PIN POINT - VUGS	GOOD			GRAYISH ORANGE : 10YR 7/4	CALCITE	
OSF-108R	1162.6	1165.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1165.0	1167.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; GOOD INDURATION; LAMINATED; CALCITE IN VUGS	DOLOSTONE	20	PIN POINT - VUGS	GOOD	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	CALCITE	
OSF-108R	1167.7	1169.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1169.1	1170.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; GOOD INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	GOOD	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1170.0	1170.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; LIMONITE	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	LIMONITE	
OSF-108R	1170.5	1171.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1171.8	1173.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1173.1	1174.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; CALCITE IN VUGS	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	CALCITE	
OSF-108R	1174.6	1177.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; CALCITE IN VUGS	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	CALCITE	
OSF-108R	1177.0	1179.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1179.0	1180.0	NO RECOVERY									
OSF-108R	1180.0	1181.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS CALCITE IN VUGS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1181.2	1182.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; CALCITE IN VUGS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2	CALCITE	

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1182.0	1182.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY ; MODERATE INDURATION; FRACTURED; ORGANICS; LAMINATED; CALCITE IN VUGS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1182.7	1183.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE AND SUCROSIC; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1183.3	1184.2	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1184.2	1187.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS; CALCITE IN VUGS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1187.5	1188.6	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	30	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1188.6	1189.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; CALCITEIN VUGS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	CALCITE	
OSF-108R	1189.8	1192.0	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS; CALCITE IN VUGS	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	LAMINATED		DARK YELLOWISH ORANGE : 10YR 6/6	ORGANICS	
OSF-108R	1192.0	1192.8	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	1192.8	1194.2	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; SUCROSIC; HIGH INTERCRYSTALLINE POROSITY; POOR INDURATION	DOLOSTONE	30	INTERCRYSTALLINE	POOR			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	1194.2	1194.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1194.8	1196.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; SUCROSIC; HIGH INTERCRYSTALLINE POROSITY; POOR INDURATION	DOLOSTONE	30	INTERCRYSTALLINE	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1196.0	1196.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; CALCITE IN VUGS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1196.5	1196.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; SUCROSIC; HIGH INTERCRYSTALLINE POROSITY; POOR INDURATION	DOLOSTONE	30	INTERCRYSTALLINE	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1196.9	1200.0	NO RECOVERY									
OSF-108R	1200.0	1200.8	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; CALCITE IN VUGS	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	CALCITE	
OSF-108R	1200.8	1201.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; SUCROSIC; HIGH PINPOINT AND VUGGY POROSITY; POOR INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	POOR	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1201.5	1205.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; MODERATE INDURATION; FRACTURED; CALCITE INFILLING VUGS; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1205.0	1206.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT POROSITY; GOOD INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	GOOD	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1206.0	1206.6	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1206.6	1208.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; SUCROSIC; HIGH INTERCRYSTALLINE AND VUGGY POROSITY; POOR INDURATION; LAMINATED; ORGANICS	DOLOSTONE	30	INTERCRYSTALLINE	POOR	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1208.0	1208.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE AND SUCROSIC; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; CALCITE INFILLING VUGS; ORGANICS	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1208.9	1210.0	NO RECOVERY									
OSF-108R	1210.0	1212.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1212.0	1213.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; SUCROSIC; MODERATE INTERCRYSTALLINE POROSITY; MODERATE INDURATION	DOLOSTONE	20	INTERCRYSTALLINE	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1213.0	1214.0	NO RECOVERY									
OSF-108R	1214.0	1216.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; SUCROSIC; MODERATE INTERCRYSTALLINE POROSITY; MODERATE INDURATION	DOLOSTONE	20	INTERCRYSTALLINE	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1216.4	1218.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1218.0	1220.0	NO RECOVERY									
OSF-108R	1220.0	1221.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1221.3	1223.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; GOOD INDURATION; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1223.0	1224.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1224.0	1225.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1225.0	1226.0	NO RECOVERY									
OSF-108R	1226.0	1227.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1227.0	1227.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1227.7	1228.0	NO RECOVERY									
OSF-108R	1228.0	1228.4	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1228.4	1230.0	NO RECOVERY									
OSF-108R	1230.0	1231.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; CALCITE IN VUGS AND ON FRACTURE SURFACES; ORGANICS	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1231.0	1232.0	NO RECOVERY									
OSF-108R	1232.0	1233.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; CALCITE IN VUGS AND ON FRACTURE SURFACES; ORGANICS	DOLOSTONE	30	PIN POINT - VUGS	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1233.0	1234.0	NO RECOVERY									
OSF-108R	1234.0	1234.4	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; CALCITE IN VUGS AND ON FRACTURE SURFACES; ORGANICS	DOLOSTONE	30	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1234.4	1235.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; CALCITE IN VUGS AND ON FRACTURE SURFACES; LIMONITE	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	LIMONITE	
OSF-108R	1235.8	1236.0	NO RECOVERY									
OSF-108R	1236.0	1238.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED; CALCITE IN VUGS AND ON FRACTURE SURFACES	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1238.8	1239.0	NO RECOVERY									
OSF-108R	1239.0	1240.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED; CALCITE IN VUGS AND ON FRACTURE SURFACES	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1240.0	1241.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; FRACTURED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1241.5	1247.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; DRUZY CALCITE IN VUGS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1247.0	1248.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1248.0	1250.0	NO RECOVERY									
OSF-108R	1250.0	1250.9	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; LOW PINPOINT POROSITY; MODERATE INDURATION; DOLOMITIC; LAMINATED; ORGANICS	LIMESTONE-WACKESTONE	10	PIN POINT - VUGS	MODERATE	DOLOMITIC		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1250.9	1251.7	LIMESTONE-PACKSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC; FORAMINIFERA	LIMESTONE-PACKSTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC	FORAMINIFERA	MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1251.7	1253.6	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC; FORAMINIFERA	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC	FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1253.6	1254.5	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; POOR INDURATION; DOLOMITIC; FORAMINIFERA	LIMESTONE-PACKSTONE	10	INTERGRANULAR	POOR	DOLOMITIC	FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1254.5	1260.0	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC; FORAMINIFERA	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC	FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1260.0	1261.6	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1261.6	1270.0	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1270.0	1275.0	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1275.0	1280.0	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1280.0	1290.0	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION; ECHINOIDS	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1290.0	1291.8	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; BRYOZOANS; ECHINOIDS	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		BRYOZOANS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1291.8	1298.0	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; BRYOZOANS; ECHINOIDS	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		BRYOZOANS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1298.0	1299.4	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; BRYOZOANS; ECHINOIDS; BIVALVES	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		BRYOZOANS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1299.4	1300.0	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; BRYOZOANS; ECHINOIDS; BIVALVES	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		BRYOZOANS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1300.0	1301.1	LIMESTONE-GRAINSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; ECHINOIDS	LIMESTONE-GRAINSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1301.1	1302.5	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; ECHINOIDS; ALGAE	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1302.5	1303.8	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; ECHINOIDS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1303.8	1306.0	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; ECHINOIDS	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1306.0	1310.0	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION; ECHINOIDS; WHITE QUARTZ AT 1307.4; QUARTZ	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4	QUARTZ	
OSF-108R	1310.0	1310.4	LIMESTONE-PACKSTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; ECHINOIDS	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1310.4	1315.5	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION; ECHINOIDS	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1315.5	1318.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1318.0	1320.0	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION; ECHINOIDS	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1320.0	1327.0	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; ALGAE	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1327.0	1328.8	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR, VUGGY, AND MOLDIC POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; GASTROPODS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1328.8	1329.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR, VUGGY, AND MOLDIC POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1329.5	1330.0	NO RECOVERY									
OSF-108R	1330.0	1330.7	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1330.7	1333.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1333.0	1334.6	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR, VUGGY, AND MOLDIC POROSITY; GOOD INDURATION; BIVALVE MOLDS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1334.6	1336.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; BIVALVE MOLDS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1336.0	1338.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; BIVALVE MOLDS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1338.2	1338.8	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR, VUGGY, AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED; BIVALVE AND GASTROPOD MOLDS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1338.8	1340.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR, VUGGY, AND MOLDIC POROSITY; MODERATE INDURATION; BIVALVE AND GASTROPOD MOLDS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1340.0	1345.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1345.7	1348.1	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1348.1	1349.1	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1349.1	1350.0	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1350.0	1350.2	LIMESTONE-PACKSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1350.2	1351.6	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1351.6	1358.0	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1358.0	1360.0	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1360.0	1362.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1362.0	1366.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1366.0	1369.2	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1369.2	1370.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1370.0	1371.0	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1371.0	1374.0	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	GOOD			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1374.0	1377.3	LIMESTONE-PACKSTONE; YELLOWISH GRAY : 5Y 7/2; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1377.3	1378.0	LIMESTONE-GRAINSTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-GRAINSTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1378.0	1380.0	LIMESTONE-GRAINSTONE; YELLOWISH GRAY : 5Y 7/2; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-GRAINSTONE	30	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1380.0	1382.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1382.0	1383.5	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; 5% ANHYDRITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2	ANHYDRITE	5
OSF-108R	1383.5	1385.5	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1385.5	1387.4	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; HIGH INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; 10% ANHYDRITE	LIMESTONE-WACKESTONE	30	INTERGRANULAR	GOOD			YELLOWISH GRAY : 5Y 7/2	ANHYDRITE	10
OSF-108R	1387.4	1388.3	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1388.3	1390.0	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1390.0	1391.0	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1391.0	1391.8	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR AND VUGGY POROSITY; POOR INDURATION; 10% ANHYDRITE	LIMESTONE-WACKESTONE	30	INTERGRANULAR	POOR			PALE YELLOWISH BROWN : 10YR 6/2	ANHYDRITE	10
OSF-108R	1391.8	1393.3	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; LOW INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; BIVALVE MOLDS; 5% ANHYDRITE	LIMESTONE-WACKESTONE	10	INTERGRANULAR	GOOD			YELLOWISH GRAY : 5Y 7/2	ANHYDRITE	5
OSF-108R	1393.3	1396.0	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; POOR INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	POOR			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1396.0	1396.4	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; MODERATE INTERGRANULAR POROSITY; GOOD INDURATION; 5% ANHYDRITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			YELLOWISH GRAY : 5Y 7/2	ANHYDRITE	5
OSF-108R	1396.4	1397.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1397.2	1398.1	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1398.1	1399.4	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1399.4	1400.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1400.0	1402.0	LIMESTONE-MUDSTONE; YELLOWISH GRAY : 5Y 7/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1402.0	1404.0	LIMESTONE-MUDSTONE; LIGHT OLIVE GRAY : 5Y 5/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			LIGHT OLIVE GRAY : 5Y 5/2		
OSF-108R	1404.0	1405.0	LIMESTONE-MUDSTONE; LIGHT GRAY : N7; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			LIGHT GRAY : N7		
OSF-108R	1405.0	1406.0	LIMESTONE-MUDSTONE; LIGHT GRAY : N7; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	GOOD			LIGHT GRAY : N7		
OSF-108R	1406.0	1408.2	LIMESTONE-PACKSTONE; LIGHT GRAY : N7; MODERATE INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-PACKSTONE	20	INTERGRANULAR	GOOD			LIGHT GRAY : N7		
OSF-108R	1408.2	1409.3	LIMESTONE-PACKSTONE; LIGHT OLIVE GRAY : 5Y 5/2; HIGH INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION	LIMESTONE-PACKSTONE	30	INTERGRANULAR	GOOD			LIGHT OLIVE GRAY : 5Y 5/2		
OSF-108R	1409.3	1410.0	LIMESTONE-MUDSTONE; YELLOWISH GRAY : 5Y 7/2; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	GOOD			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1410.0	1412.0	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; LOW INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	GOOD			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1412.0	1414.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1414.0	1415.3	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1415.3	1416.5	LIMESTONE-PACKSTONE; MODERATE GRAY : N5; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-PACKSTONE	10	INTERGRANULAR	GOOD			MODERATE GRAY : N5		
OSF-108R	1416.5	1416.9	LIMESTONE-PACKSTONE; YELLOWISH GRAY : 5Y 7/2; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-PACKSTONE	10	INTERGRANULAR	GOOD			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1416.9	1418.0	LIMESTONE-PACKSTONE; YELLOWISH GRAY : 5Y 7/2; HIGH INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-PACKSTONE	30	INTERGRANULAR	POOR			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1418.0	1419.5	LIMESTONE-WACKESTONE; YELLOWISH GRAY : 5Y 7/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			YELLOWISH GRAY : 5Y 7/2		
OSF-108R	1419.5	1420.0	NO RECOVERY									
OSF-108R	1420.0	1422.0	LIMESTONE-PACKSTONE; VERY LIGHT GRAY : N8; LOW INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; ALGAE	LIMESTONE-PACKSTONE	10	INTERGRANULAR	MODERATE		ALGAE	VERY LIGHT GRAY : N8		
OSF-108R	1422.0	1426.0	LIMESTONE-PACKSTONE; LIGHT GRAY : N7; MODERATE INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; ALGAE; ECHINOIDS	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		ALGAE	LIGHT GRAY : N7		
OSF-108R	1426.0	1427.4	CALCAREOUS DOLOSTONE; MODERATE GRAY : N5; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	MODERATE			MODERATE GRAY : N5		
OSF-108R	1427.4	1428.0	LIMESTONE-PACKSTONE; MODERATE GRAY : N5; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	10	INTERGRANULAR	MODERATE			MODERATE GRAY : N5		
OSF-108R	1428.0	1429.6	LIMESTONE-PACKSTONE; VERY LIGHT GRAY : N8; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION	LIMESTONE-PACKSTONE	10	INTERGRANULAR	MODERATE			VERY LIGHT GRAY : N8		
OSF-108R	1429.6	1430.0	LIMESTONE-WACKESTONE; VERY LIGHT GRAY : N8; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY LIGHT GRAY : N8		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1430.0	1431.3	LIMESTONE-WACKESTONE; LIGHT GRAY : N7; MODERATE INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; GLAUCONITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	LIGHT GRAY : N7	GLAUCONITE	
OSF-108R	1431.3	1432.3	LIMESTONE-WACKESTONE; VERY LIGHT GRAY : N8; MODERATE INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	VERY LIGHT GRAY : N8		
OSF-108R	1432.3	1433.0	LIMESTONE-PACKSTONE; VERY LIGHT GRAY : N8; HIGH INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; ALGAE	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	VERY LIGHT GRAY : N8		
OSF-108R	1433.0	1433.9	LIMESTONE-PACKSTONE; VERY LIGHT GRAY : N8; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; ALGAE	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	VERY LIGHT GRAY : N8		
OSF-108R	1433.9	1435.0	LIMESTONE-PACKSTONE; VERY LIGHT GRAY : N8; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; ALGAE	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	VERY LIGHT GRAY : N8		
OSF-108R	1435.0	1435.8	LIMESTONE-WACKESTONE; VERY LIGHT GRAY : N8; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; ALGAE; GLAUCONITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	VERY LIGHT GRAY : N8	GLAUCONITE	
OSF-108R	1435.8	1438.0	LIMESTONE-PACKSTONE; VERY LIGHT GRAY : N8; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES; ALGAE	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	VERY LIGHT GRAY : N8		
OSF-108R	1438.0	1440.0	LIMESTONE-WACKESTONE; LIGHT GRAY : N7; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			LIGHT GRAY : N7		
OSF-108R	1440.0	1440.6	LIMESTONE-PACKSTONE; VERY LIGHT GRAY : N8; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	VERY LIGHT GRAY : N8		
OSF-108R	1440.6	1443.0	LIMESTONE-WACKESTONE; VERY LIGHT GRAY : N8; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY LIGHT GRAY : N8		
OSF-108R	1443.0	1443.9	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; FRACTURED; DOLOMITIC	LIMESTONE-WACKESTONE	10	INTERGRANULAR	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1443.9	1444.6	LIMESTONE-WACKESTONE; VERY LIGHT GRAY : N8; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY LIGHT GRAY : N8		
OSF-108R	1444.6	1446.2	LIMESTONE-WACKESTONE; LIGHT GRAY : N7; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			LIGHT GRAY : N7		
OSF-108R	1446.2	1447.8	LIMESTONE-WACKESTONE; VERY LIGHT GRAY : N8; MODERATE INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY LIGHT GRAY : N8		
OSF-108R	1447.8	1449.1	LIMESTONE-PACKSTONE; LIGHT GRAY : N7; HIGH INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; ECHINOIDS; BIVALVES, ALGAE	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		ECHINOIDS	LIGHT GRAY : N7		
OSF-108R	1449.1	1450.0	LIMESTONE-WACKESTONE; LIGHT GRAY : N7; MODERATE INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION; ECHINOIDS; BIVALVES, ALGAE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD		ECHINOIDS	LIGHT GRAY : N7		
OSF-108R	1450.0	1457.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1457.0	1457.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1457.6	1460.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1460.0	1460.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; GLAUCONITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	GLAUCONITE	
OSF-108R	1460.7	1462.3	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1462.3	1463.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1463.5	1465.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1465.0	1466.0	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1466.0	1467.0	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; HIGH INTERGRANULAR, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE	DOLOMITIC		MODERATE YELLOWISH BROWN : 10YR 5/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1467.0	1468.0	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; HIGH PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	30	PIN POINT - VUGS	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1468.0	1470.0	NO RECOVERY									
OSF-108R	1470.0	1472.0	CALCAREOUS DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; GOOD INDURATION	CALCAREOUS DOLOSTONE	30	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1472.0	1473.3	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; 5% GLAUCONITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	GLAUCONITE	5
OSF-108R	1473.3	1474.9	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1474.9	1476.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; HIGH INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1476.0	1477.7	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; MOLLUSKS-BIVALVES	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE		MOLLUSKS-BIVALVES	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1477.7	1480.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1480.0	1484.2	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; ECHINOIDS; FORAMINIFERA	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1484.2	1487.5	LIMESTONE-PACKSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; ECHINOIDS; FORAMINIFERA; LAMINATIONS AND ORGANICS AT 1486.5'	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		ECHINOIDS	MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1487.5	1490.0	CALCAREOUS DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT, MOLDIC, AND VUGGY POROSITY; MODERATE INDURATION; CALCITE AND WHTE QUARTZ IN VUGS; CALCITE	CALCAREOUS DOLOSTONE	30	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	CALCITE	
OSF-108R	1490.0	1491.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC, AND VUGGY POROSITY; GOOD INDURATION; WHITE QUARTZ IN VUGS; QUARTZ	DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZ	
OSF-108R	1491.7	1493.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; WHITE QUARTZ IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZ	
OSF-108R	1493.0	1496.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; WHITE QUARTZ IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZ	
OSF-108R	1496.3	1500.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; WHITE QUARTZ IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZ	
OSF-108R	1500.0	1500.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION	DOLOSTONE	0	NO OBSERVABLE	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1500.7	1508.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1508.0	1510.0	DOLOSTONE; DARK YELLOWISH ORANGE : 10YR 6/6; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; LAMINATIONS AND ORGANICS AT 1509'; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		DARK YELLOWISH ORANGE : 10YR 6/6	ORGANICS	
OSF-108R	1510.0	1511.2	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; FRACTURED; WHITE QUARTZ IN VUGS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1511.2	1512.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; FRACTURED; WHITE QUARTZ AND CALCITE IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZ	
OSF-108R	1512.5	1517.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; WHITE QUARTZ AND CALCITE IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZ	
OSF-108R	1517.0	1517.7	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; WHITE QUARTZ IN VUGS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1517.7	1520.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; WHITE QUARTZ AND CALCITE IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4	QUARTZ	

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1520.0	1522.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; GOOD INDURATION; WHITE QUARTZ AND CALCITE IN VUGS; LAMINATIONS AND ORGANICS AT 1521'; QUARTZ	DOLOSTONE	20	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1522.5	1525.7	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; WHITE QUARTZ AND CALCITE IN VUGS; LAMINATIONS AND ORGANICS AT 1524.4'; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1525.7	1526.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; POOR INDURATION; LAMINATED; WHITE QUARTZ AND CALCITE IN VUGS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	POOR	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1526.5	1527.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; WHITE QUARTZ AND CALCITE IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1527.5	1529.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE VUGGY POROSITY; MODERATE INDURATION; WHITE QUARTZ AND CALCITE IN VUGS; QUARTZ	DOLOSTONE	20	VUGULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1529.0	1530.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; WHITE QUARTZ AND CALCITE IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1530.0	1531.8	NO RECOVERY									
OSF-108R	1531.8	1537.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW VUGGY POROSITY; MODERATE INDURATION; FRACTURED; WHITE QUARTZ IN VUGS; QUARTZ	DOLOSTONE	10	VUGULAR	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1537.0	1537.6	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; POOR INDURATION; WHITE QUARTZ IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	POOR			PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1537.6	1540.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW VUGGY POROSITY; MODERATE INDURATION; FRACTURED; WHITE QUARTZ AND CALCITE IN VUGS; QUARTZ	DOLOSTONE	10	VUGULAR	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1540.0	1541.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; WHITE QUARTZ IN VUGS; QUARTZ	DOLOSTONE	10	VUGULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	QUARTZ	
OSF-108R	1541.0	1542.0	DOLOSTONE; GRAYISH ORANGE : 10YR 7/4; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION; LAMINATED; WHITE QUARTZ IN VUGS; ORGANICS	DOLOSTONE	0	NO OBSERVABLE	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	1542.0	1544.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; WHITE QUARTZ IN VUGS; QUARTZ	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	QUARTZ	
OSF-108R	1544.0	1545.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; WHITE QUARTZ IN VUGS; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1545.0	1546.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1546.3	1547.1	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; LAMINATED; ORGANICS; 5% EVAPORITE MINERALS	LIMESTONE-WACKESTONE	10	PIN POINT - VUGS	GOOD	LAMINATED		DARK YELLOWISH BROWN : 10YR 4/2	EVAPORITE MINERALS	5
OSF-108R	1547.1	1548.0	LIMESTONE-WACKESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	LIMESTONE-WACKESTONE	10	PIN POINT - VUGS	MODERATE			DARK YELLOWISH BROWN : 10YR 4/2	EVAPORITE MINERALS	5
OSF-108R	1548.0	1550.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION; 5% EVAPORITE MINERALS	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	5
OSF-108R	1550.0	1552.1	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC; CALCITE; 10% EVAPORITE MINERALS	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	10
OSF-108R	1552.1	1556.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC; CALCITE; 10% EVAPORITE MINERALS	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	10
OSF-108R	1556.2	1558.1	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC; CALCITE	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2	CALCITE	
OSF-108R	1558.1	1561.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC; CALCITE	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4	CALCITE	

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1561.0	1568.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; CALCITE	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE			GRAYISH ORANGE : 10YR 7/4	CALCITE	
OSF-108R	1568.0	1570.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC; CALCITE	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4	CALCITE	
OSF-108R	1570.0	1572.0	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; GOOD INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	GOOD	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1572.0	1573.3	LIMESTONE-MUDSTONE; DARK YELLOWISH BROWN : 10YR 4/2; LOW INTERGRANULAR POROSITY; GOOD INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	10	INTERGRANULAR	GOOD	DOLOMITIC		DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1573.3	1575.4	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC; 2% EVAPORITE MINERALS	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	2
OSF-108R	1575.4	1577.4	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1577.4	1578.0	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; MODERATE INDURATION; 15% EVAPORITE MINERALS	CALCAREOUS DOLOSTONE	0	NO OBSERVABLE	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	15
OSF-108R	1578.0	1580.0	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION; 15% EVAPORITE MINERALS	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2	EVAPORITE MINERALS	15
OSF-108R	1580.0	1586.0	CALCAREOUS DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC POROSITY; MODERATE INDURATION; BIVALVE MOLDS	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	MODERATE			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1586.0	1587.5	CALCAREOUS DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; NO OBSERVEABLE POROSITY; GOOD INDURATION	CALCAREOUS DOLOSTONE	0	NO OBSERVABLE	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1587.5	1589.1	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; LAMINATED; DOLOMITIC	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1589.1	1590.0	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; LAMINATED; DOLOMITIC	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1590.0	1593.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	1593.0	1593.8	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED; PSEUDOFRAGMINA; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1593.8	1600.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED; PSEUDOFRAGMINA; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	1600.0	1606.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED; PSEUDOFRAGMINA; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4	ORGANICS	
OSF-108R	1606.0	1609.1	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED; PSEUDOFRAGMINA; WHITE QUARTZ; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	1609.1	1610.0	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED; PSEUDOFRAGMINA; 15% ANHYDRITE; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1610.0	1614.8	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INDURATION; DOLOMITIC; 5% EVAPORITE MINERALS	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2	EVAPORITE MINERALS	5
OSF-108R	1614.8	1618.0	CALCAREOUS DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; ; GOOD INDURATION	CALCAREOUS DOLOSTONE	30	VUGULAR	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1618.0	1619.1	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1619.1	1620.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1620.0	1622.2	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1622.2	1623.2	LIMESTONE-PACKSTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; POOR INDURATION	LIMESTONE-PACKSTONE	30	INTERGRANULAR	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1623.2	1625.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1625.0	1630.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	FRACTURED		GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1630.0	1632.9	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; ; MODERATE INDURATION; LAMINATED; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	1632.9	1633.5	LIMESTONE-WACKESTONE; LIGHT GREENISH GRAY (2) : 5G 8/1; MICROCRYSTALLINE; ; POOR INDURATION; PELLETS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			LIGHT GREENISH GRAY (2) : 5G 8/1		
OSF-108R	1633.5	1635.9	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INDURATION; LAMINATED; ORGANICS	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	1635.9	1638.0	LIMESTONE-WACKESTONE; LIGHT GREENISH GRAY (2) : 5G 8/1; ; MODERATE INDURATION; LAMINATED; CLAY; ORGANICS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	LAMINATED		LIGHT GREENISH GRAY (2) : 5G 8/1	ORGANICS	
OSF-108R	1638.0	1640.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MICROCRYSTALLINE; ; MODERATE INDURATION; LAMINATED; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	1640.0	1640.4	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	10	INTERGRANULAR	POOR	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1640.4	1641.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; POOR INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	POOR	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1641.0	1641.5	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1641.5	1642.3	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1642.3	1643.3	LIMESTONE-MUDSTONE; DARK YELLOWISH BROWN : 10YR 4/2; NO OBSERVEABLE POROSITY; GOOD INDURATION; DOLOMITIC; LAMINATED	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	GOOD	DOLOMITIC		DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1643.3	1644.4	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1644.4	1645.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1645.5	1646.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1646.0	1646.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1646.5	1650.0	LIMESTONE-WACKESTONE; LIGHT GRAY : N7; MODERATE INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			LIGHT GRAY : N7		
OSF-108R	1650.0	1651.5	LIMESTONE-WACKESTONE; VERY LIGHT GRAY : N8; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	GOOD			VERY LIGHT GRAY : N8		
OSF-108R	1651.5	1653.0	LIMESTONE-WACKESTONE; VERY LIGHT GRAY : N8; MODERATE INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; GYPSUM	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD	FRACTURED		VERY LIGHT GRAY : N8	EVAPORITE MINERALS	
OSF-108R	1653.0	1653.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1653.5	1654.3	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; POOR INDURATION; FRACTURED	LIMESTONE-MUDSTONE	10	INTERGRANULAR	POOR	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1654.3	1655.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1655.7	1656.8	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1656.8	1658.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; GOOD INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1658.0	1658.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; FRACTURED; BIVALVE MOLDS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1658.7	1660.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION; FRACTURED	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1660.0	1660.7	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION; LAMINATED	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE	LAMINATED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1660.7	1662.0	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR AND VUGGY POROSITY; GOOD INDURATION; LAMINATED	LIMESTONE-MUDSTONE	10	INTERGRANULAR	GOOD	LAMINATED		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1662.0	1662.4	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	POOR			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1662.4	1663.3	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1663.3	1664.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1664.0	1665.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1665.2	1666.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1666.0	1666.9	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR, MOLDIC AND VUGGY POROSITY; MODERATE INDURATION; DOLOMITIC; BIVALVE MOLDS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1666.9	1670.4	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1670.4	1671.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1671.2	1672.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; DOLOMITIC; BIVALVE MOLDS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1672.2	1672.8	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE POROSITY; GOOD INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	GOOD	DOLOMITIC		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1672.8	1673.7	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR POROSITY; GOOD INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD	DOLOMITIC		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1673.7	1675.8	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR, MOLDIC AND VUGGY POROSITY; MODERATE INDURATION; DOLOMITIC; BIVALVE MOLDS; ANHYDRITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	
OSF-108R	1675.8	1676.5	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC; LAMINATED	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1676.5	1678.8	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1678.8	1679.3	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE INTERGRANULAR POROSITY; GOOD INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	GOOD	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1679.3	1680.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1680.0	1680.6	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1680.6	1685.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR, MOLDIC AND VUGGY POROSITY; MODERATE INDURATION; DOLOMITIC; BIVALVE MOLDS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1685.5	1687.4	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR, MOLDIC AND VUGGY POROSITY; MODERATE INDURATION; DOLOMITIC; BIVALVE AND GASTROPOD MOLDS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1687.4	1689.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1689.2	1690.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC; LAMINATED	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1690.0	1691.0	LIMESTONE-WACKESTONE; DARK YELLOWISH ORANGE : 10YR 6/6; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			DARK YELLOWISH ORANGE : 10YR 6/6		
OSF-108R	1691.0	1692.2	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; CALCITE CRYSTALS IN VUGS; CALCITE	LIMESTONE-MUDSTONE	20	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2	CALCITE	
OSF-108R	1692.2	1695.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR, MOLDIC AND VUGGY POROSITY; MODERATE INDURATION; CALCITE CRYSTALS IN VUGS; BIVALVE MOLDS; CALCITE	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	CALCITE	
OSF-108R	1695.0	1698.1	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1698.1	1699.4	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1699.4	1700.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; BIVALVE MOLDS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1700.0	1701.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; LOW INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1701.0	1702.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1702.0	1704.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1704.0	1704.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1704.5	1706.9	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1706.9	1710.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1710.0	1711.9	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1711.9	1716.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; GLAUCONITE AT 1713.6	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1716.0	1720.3	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR, MOLDIC AND VUGGY POROSITY; MODERATE INDURATION; BIVALVE MOLDS	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	LIMONITE	
OSF-108R	1720.3	1721.5	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; FORAMINIFERA; GASTROPOD MOLDS; LIMONITE	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1721.5	1721.8	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND MOLDIC POROSITY; GOOD INDURATION; DOLOMITIC; FORAMINIFERA; GASTROPOD MOLDS	LIMESTONE-MUDSTONE	20	INTERGRANULAR	GOOD	DOLOMITIC	FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1721.8	1723.1	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR AND MOLDIC POROSITY; MODERATE INDURATION; FORAMINIFERA; GASTROPOD MOLDS	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1723.1	1724.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; ORGANICS AND LAMINATIONS AT 1723.1	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1724.0	1725.7	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; HIGH INTERGRANULAR, MOLDIC AND VUGGY POROSITY; MODERATE INDURATION; FORAMINIFERA; GASTROPOD MOLDS, WORMHOLES	LIMESTONE-PACKSTONE	30	INTERGRANULAR	MODERATE		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1725.7	1727.8	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION; LAMINATED; FORAMINIFERA; GLAUCONITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	LAMINATED	FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4	GLAUCONITE	
OSF-108R	1727.8	1730.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; ORGANICS AND LAMINATIONS AT 1729.8'	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1730.0	1732.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1732.0	1734.3	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1734.3	1734.7	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1734.7	1735.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1735.5	1736.3	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1736.3	1736.7	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; NO OBSERVEABLE POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1736.7	1738.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1738.0	1740.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1740.0	1743.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1743.6	1745.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1745.0	1748.3	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1748.3	1749.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; GLAUCONITE	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	GLAUCONITE	
OSF-108R	1749.5	1750.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1750.0	1752.4	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; DOLOMITIC; FORAMINIFERA; LAMINATED; ORGANICS	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC	FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2	ORGANICS	

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1752.4	1754.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1754.0	1754.6	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1754.6	1755.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; NO OBSERVEABLE PINPOINT POROSITY; MODERATE INDURATION; LAMINATED; ORGANICS	DOLOSTONE	0	NO OBSERVABLE	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1755.0	1756.5	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1756.5	1757.1	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1757.1	1758.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1758.0	1759.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1759.2	1762.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	DOLOMITIC	FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1762.2	1763.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION; FORAMINIFERA	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1763.2	1764.7	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1764.7	1765.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; HIGH INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1765.5	1768.3	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1768.3	1770.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; MODERATE INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1770.0	1772.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION; FORAMINIFERA	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE		FORAMINIFERA	VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1772.0	1773.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1773.0	1775.6	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; LOW INTERGRANULAR ; MODERATE INDURATION; DOLOMITIC	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE	DOLOMITIC		GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1775.6	1776.9	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY ; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1776.9	1777.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT ; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1777.5	1780.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND MOLDIC ; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1780.0	1783.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; CALCITE ON VUG SURFACES; CALCITE	DOLOSTONE	30	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	CALCITE	
OSF-108R	1783.8	1784.4	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1784.4	1784.9	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY POROSITY; GOOD INDURATION; FRACTURED; CALCITE ON VUG SURFACES; CALCITE	DOLOSTONE	30	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	CALCITE	
OSF-108R	1784.9	1789.7	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1789.7	1790.0	NO RECOVERY									
OSF-108R	1790.0	1791.3	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1791.3	1793.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1793.5	1793.7	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1793.7	1798.2	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	1798.2	1800.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1800.0	1803.5	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1803.5	1805.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1805.2	1806.8	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1806.8	1808.5	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1808.5	1810.9	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; HIGH INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1810.9	1812.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1812.0	1814.3	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR AND VUGGY POROSITY; POOR INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1814.3	1817.6	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION; FRACTURED	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE	FRACTURED		VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1817.6	1819.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1819.5	1820.0	LIMESTONE-MUDSTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1820.0	1822.3	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1822.3	1823.6	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1823.6	1826.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; HIGH INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	30	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1826.2	1827.8	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1827.8	1830.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1830.0	1831.6	LIMESTONE-WACKESTONE; YELLOWISH GRAY (2) : 5Y 8/1; ; MODERATE INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			YELLOWISH GRAY (2) : 5Y 8/1		
OSF-108R	1831.6	1833.8	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1833.8	1835.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1835.9	1838.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1838.0	1840.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1840.0	1840.9	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1840.9	1841.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1841.5	1846.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR AND VUGGY POROSITY; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1846.0	1847.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1847.8	1850.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY POROSITY; MODERATE INDURATION; LAMINATED; ECHINOIDS; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	LAMINATED	ECHINOIDS	MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1850.0	1851.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT POROSITY; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1851.4	1853.0	LIMESTONE-MUDSTONE; GRAYISH ORANGE : 10YR 7/4; ; LOW INTERGRANULAR ; MODERATE INDURATION; 1% EVAPORITE MINERALS	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4	EVAPORITE MINERALS	1
OSF-108R	1853.0	1854.4	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1854.4	1855.0	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; 1% EVAPORITE MINERALS	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4	EVAPORITE MINERALS	1
OSF-108R	1855.0	1857.7	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1857.7	1860.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR ; POOR INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1860.0	1861.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1861.0	1867.4	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1867.4	1868.6	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1868.6	1870.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1870.0	1874.2	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1874.2	1877.3	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1877.3	1880.0	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1880.0	1882.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; NO OBSERVEABLE ; MODERATE INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1882.0	1884.7	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1884.7	1886.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-MUDSTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1886.0	1887.1	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1887.1	1888.0	CALCAREOUS DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	CALCAREOUS DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1888.0	1890.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1890.0	1890.5	CALCAREOUS DOLOSTONE; MODERATE BROWN : 5YR 4/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY ; GOOD INDURATION	CALCAREOUS DOLOSTONE	30	PIN POINT - VUGS	GOOD			MODERATE BROWN : 5YR 4/4		
OSF-108R	1890.5	1892.2	CALCAREOUS DOLOSTONE; MODERATE BROWN : 5YR 4/4; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION	CALCAREOUS DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE BROWN : 5YR 4/4		
OSF-108R	1892.2	1893.9	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1893.9	1898.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1898.2	1899.6	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; NO OBSERVEABLE ; GOOD INDURATION	LIMESTONE-MUDSTONE	0	NO OBSERVABLE	GOOD			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1899.6	1900.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR ; POOR INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	POOR			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1900.0	1904.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1904.2	1905.5	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1905.5	1906.4	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; ; MODERATE INTERGRANULAR AND VUGGY ; GOOD INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	20	INTERGRANULAR	GOOD	DOLOMITIC		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1906.4	1908.3	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; NO OBSERVEABLE ; MODERATE INDURATION	LIMESTONE-WACKESTONE	0	NO OBSERVABLE	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1908.3	1908.9	LIMESTONE-WACKESTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; ; HIGH PINPOINT AND VUGGY ; GOOD INDURATION; DOLOMITIC	LIMESTONE-WACKESTONE	30	INTERGRANULAR	GOOD	DOLOMITIC		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1908.9	1910.0	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1910.0	1910.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE AND SUCROSIC; MODERATE PINPOINT ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1910.8	1912.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT, MOLDIC AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1912.0	1914.8	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION; FRACTURED; CALCITE ON FRACTURED SURFACES AND IN VUGS; CALCITE	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		DARK YELLOWISH BROWN : 10YR 4/2	CALCITE	
OSF-108R	1914.8	1918.4	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION; FRACTURED; CALCITE ON FRACTURED SURFACES AND IN VUGS; CALCITE	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2	CALCITE	

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1918.4	1920.0	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION; FRACTURED; CALCITE ON FRACTURED SURFACES AND IN VUGS; CALCITE	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		DARK YELLOWISH BROWN : 10YR 4/2	CALCITE	
OSF-108R	1920.0	1922.8	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE AND SUCROSIC; HIGH PINPOINT AND VUGGY ; GOOD INDURATION; FRACTURED	DOLOSTONE	30	PIN POINT - VUGS	GOOD	FRACTURED		DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1922.8	1923.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1923.8	1927.2	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1927.2	1930.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1930.0	1933.3	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1933.3	1933.7	LIMESTONE-WACKESTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; MODERATE INTERGRANULAR ; MODERATE INDURATION; LAMINATED	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1933.7	1936.9	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR AND VUGGY ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1936.9	1938.2	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-MUDSTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1938.2	1940.0	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY ; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1940.0	1941.6	LIMESTONE-WACKESTONE; GRAYISH ORANGE : 10YR 7/4; ; MODERATE INTERGRANULAR AND MOLDIC ; MODERATE INDURATION	LIMESTONE-WACKESTONE	20	INTERGRANULAR	MODERATE			GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1941.6	1942.0	LIMESTONE-MUDSTONE; VERY PALE ORANGE : 10YR 8/2; ; MODERATE INTERGRANULAR ; MODERATE INDURATION; CALCITE IN VUGS; CALCITE	LIMESTONE-MUDSTONE	20	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2	CALCITE	
OSF-108R	1942.0	1945.4	LIMESTONE-PACKSTONE; GRAYISH ORANGE : 10YR 7/4; ; ; MODERATE INDURATION; FORAMINIFERA	LIMESTONE-PACKSTONE	20	INTERGRANULAR	MODERATE		FORAMINIFERA	GRAYISH ORANGE : 10YR 7/4		
OSF-108R	1945.4	1946.0	DOLOMITIC-LIMESTONE; DARK YELLOWISH BROWN : 10YR 4/2; ; LOW INTERGRANULAR ; MODERATE INDURATION; LAMINATED; ORGANICS	DOLOMITIC-LIMESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		DARK YELLOWISH BROWN : 10YR 4/2	ORGANICS	
OSF-108R	1946.0	1947.6	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1947.6	1948.2	DOLOMITIC-LIMESTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; LOW INTERGRANULAR AND MOLDIC ; GOOD INDURATION; LAMINATED; ORGANICS	DOLOMITIC-LIMESTONE	10	INTERGRANULAR	GOOD	LAMINATED		DARK YELLOWISH BROWN : 10YR 4/2	ORGANICS	
OSF-108R	1948.2	1950.0	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR ; MODERATE INDURATION	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE			VERY PALE ORANGE : 10YR 8/2		
OSF-108R	1950.0	1955.2	LIMESTONE-WACKESTONE; VERY PALE ORANGE : 10YR 8/2; ; LOW INTERGRANULAR ; MODERATE INDURATION; LAMINATED; ORGANICS	LIMESTONE-WACKESTONE	10	INTERGRANULAR	MODERATE	LAMINATED		VERY PALE ORANGE : 10YR 8/2	ORGANICS	
OSF-108R	1955.2	1956.1	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; NO OBSERVEABLE ; GOOD INDURATION	DOLOSTONE	0	NO OBSERVABLE	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1956.1	1957.6	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1957.6	1958.2	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE AND SUCROSIC; LOW PINPOINT ; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1958.2	1960.0	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; NO OBSERVEABLE ; GOOD INDURATION	DOLOSTONE	0	NO OBSERVABLE	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1960.0	1961.8	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; HIGH PINPOINT AND VUGGY ; GOOD INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	30	PIN POINT - VUGS	GOOD	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	1961.8	1936.2	DOLOSTONE; BROWNISH GRAY : 5YR 4/1; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	LAMINATED		BROWNISH GRAY : 5YR 4/1	ORGANICS	
OSF-108R	1936.2	1964.4	DOLOSTONE; LIGHT OLIVE GRAY : 5Y 5/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			LIGHT OLIVE GRAY : 5Y 5/2		
OSF-108R	1964.4	1966.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT ; MODERATE INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1966.0	1967.6	DOLOSTONE; DUSKY YELLOWISH BROWN : 10YR 2/2; MICROCRYSTALLINE; LOW PINPOINT ; MODERATE INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		DUSKY YELLOWISH BROWN : 10YR 2/2	ORGANICS	
OSF-108R	1967.6	1969.0	DOLOSTONE; LIGHT OLIVE GRAY : 5Y 5/2; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			LIGHT OLIVE GRAY : 5Y 5/2		

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	1969.0	1970.0	DOLOSTONE; OLIVE GRAY (2) : 5Y 4/1; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		OLIVE GRAY (2) : 5Y 4/1		
OSF-108R	1970.0	1971.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT ; GOOD INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	GOOD	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	1971.5	1972.2	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; LOW PINPOINT ; MODERATE INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		DARK YELLOWISH BROWN : 10YR 4/2	ORGANICS	
OSF-108R	1972.2	1973.1	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; SUCROSIC; HIGH PINPOINT AND INTERCRYSTALLINE ; POOR INDURATION	DOLOSTONE	30	PIN POINT - VUGS	POOR			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1973.1	1976.0	DOLOSTONE; DUSKY YELLOWISH BROWN : 10YR 2/2; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	LAMINATED		DUSKY YELLOWISH BROWN : 10YR 2/2	ORGANICS	
OSF-108R	1976.0	1979.5	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1979.5	1980.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1980.0	1982.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; ; MODERATE PINPOINT AND VUGGY ; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1982.0	1983.8	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; ; LOW PINPOINT ; GOOD INDURATION; LAMINATED; FRACTURED, HEALED FRACTURES; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	LAMINATED		DARK YELLOWISH BROWN : 10YR 4/2	ORGANICS	
OSF-108R	1983.8	1986.4	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; ; LOW PINPOINT ; GOOD INDURATION; FRACTURED; HEALED FRACTURES	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	1986.4	1988.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; FRACTURED; HEALED FRACTURES	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1988.0	1988.9	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION; FRACTURED; HEALED FRACTURES	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1988.9	1990.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1990.0	1992.5	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1992.5	1994.0	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1994.0	1996.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	1996.0	1997.9	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	1997.9	2000.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	2000.0	2001.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; FRACTURED	DOLOSTONE	10	PIN POINT - VUGS	GOOD	FRACTURED		MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	2001.3	2003.8	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT ; MODERATE INDURATION	DOLOSTONE	10	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	2003.8	2007.2	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION; FRACTURED	DOLOSTONE	20	PIN POINT - VUGS	GOOD	FRACTURED		DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	2007.2	2008.3	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	GOOD	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	
OSF-108R	2008.3	2010.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION; LAMINATED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	GOOD	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	2010.0	2010.6	DOLOSTONE; DARK YELLOWISH BROWN : 10YR 4/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	20	PIN POINT - VUGS	GOOD			DARK YELLOWISH BROWN : 10YR 4/2		
OSF-108R	2010.6	2014.1	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY ; MODERATE INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	10	PIN POINT - VUGS	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	2014.1	2015.2	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; MODERATE INDURATION; LAMINATED; FRACTURED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	MODERATE	LAMINATED		PALE YELLOWISH BROWN : 10YR 6/2	ORGANICS	
OSF-108R	2015.2	2015.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; MODERATE PINPOINT AND VUGGY ; GOOD INDURATION; LAMINATED; ORGANICS	DOLOSTONE	20	PIN POINT - VUGS	GOOD	LAMINATED		MODERATE YELLOWISH BROWN : 10YR 5/4	ORGANICS	

Well	Depth Min, ft bls	Depth Max, ft bls	Description/Comments	Rock Type	Porosity, percent	Porosity Type	Induration	Other Feature	Fossil type	Color	Access Mineral Type	Access. Mineral, percent
OSF-108R	2015.9	2018.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; LOW PINPOINT AND VUGGY ; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			PALE YELLOWISH BROWN : 10YR 6/2		
OSF-108R	2018.0	2018.9	DOLOSTONE; MODERATE YELLOWISH BROWN : 10YR 5/4; MICROCRYSTALLINE; LOW PINPOINT ; GOOD INDURATION	DOLOSTONE	10	PIN POINT - VUGS	GOOD			MODERATE YELLOWISH BROWN : 10YR 5/4		
OSF-108R	2018.9	2020.0	DOLOSTONE; PALE YELLOWISH BROWN : 10YR 6/2; MICROCRYSTALLINE; MODERATE PINPOINT AND MOLDIC ; MODERATE INDURATION	DOLOSTONE	20	PIN POINT - VUGS	MODERATE			PALE YELLOWISH BROWN : 10YR 6/2		

APPENDIX G:
GROUNDWATER QUALITY RESULTS

Packer Test #	Sample Upper Depth, ft bls	Sample Lower Depth, ft bls	Sample Collection Date and Time	Temperature, °C	Field pH	Laboratory pH	Specific Conductivity, µS/cm	TDS, mg/L	Alkalinity, mg/L	Chloride, mg/L	Bicarbonate, mg/L	Sulfate, mg/L	Calcium, mg/L	Potassium, mg/L	Magnesium, mg/L	Sodium, mg/L	Strontium, mg/L	Hardness, mg/L	$\delta^{18}O$, per mille	$\delta^{2}H$, per mille	Charge Balance Error, percent
1	370	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2	400	430	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3	430	460	3/18/21 13:30	25.4	8.1	8.12	273	150	81	17.5	98.76	10.2	30.4	0.9	9.5	9.6	0.20	115.1	-3.6*	-17.1*	8.31
4	460	490	3/19/21 12:07	25.2	7.5	8.05	431	244	191	21.8	232.87	0.1	54.5	1.6	15.6	22.2	1.59	200.1	-2.5	-9.5	6.50
5	490	520	3/22/21 14:20	25.3	7.5	8.02	438	261	202	23.4	246.28	0.1	52.9	1.7	14.1	22.7	1.68	190	-2.3	-9.6	1.82
6	520	550	3/23/21 12:05	25.5	7.5	8.04	449	252	198	22.2	241.40	0.3	57.3	1.8	14.6	21.2	0.90	203.2	-2.4	-10.3	4.82
7	550	580	3/24/21 10:10	25.7	7.5	8.1	453	258	203	22.5	247.50	0.2	54.8	1.9	12	21	0.96	186.4	-2.3	-9.5	0.16
8	580	610	3/24/21 16:25	25.8	7.5	8.1	467	262	201	22.3	245.06	0.3	59.7	1.9	14	20.3	1.10	206.7	-2.4	-10.3	4.52
9	610	640	3/25/21 12:55	25.9	7.4	7.92	448	270	203	22.8	247.50	0.2	58.3	1.8	12.3	20.2	1.47	196.3	-2.3	-9.1	1.88
10	640	670	3/26/21 9:10	25.7	7.4	7.84	531	318	204	28	248.72	32.2	60.3	1.8	16.3	21.9	10.07	217.7	-2.1	-7.8	0.42
11	670	700	3/29/21 10:53	25.9	7.4	7.84	583	354	202	28.4	246.28	61.7	65.9	1.9	18.2	22.4	14.09	239.7	-2.1	-6.9	0.11
12	700	730	3/30/21 9:35	26.1	7.3	7.77	800	524	194	29.4	236.53	182	108.8	2	28.6	20.4	25.06	389.6	-2	-6.2	4.52
13	730	760	4/12/21 15:35	26.2	7.3	7.89	1,048	782	186	30.2	226.77	351	151.4	2.2	33.9	19.8	29.96	517.7	-1.8	-6.6	0.33
14	760	790	4/13/21 13:20	26.4	7.1	7.7	1,873	1,663	178	26.7	217.02	956	327.4	2.7	69.6	16.9	21.51	1,119.10	-1.70	-6.30	-1.75
15	790	820	4/14/21 9:35	26.1	7	7.61	2,548	2,423	178	25	217.02	1,535	516.1	3.1	107	16.2	13.90	1,720.30	-1.80	-6.90	-0.74
16	820	850	4/14/21 15:20	26.5	7	7.62	2,802	2,702	175	23.7	213.36	1,711	567	3.1	117	16.2	12.55	1,804.95	-1.80	-5.50	-0.97
17	850	880	4/15/21 13:55	27	6.9	7.39	2,815	2,854	171	22.8	208.49	1,837	614.8	3.4	123	15.1	12.42	2,048.45	-1.70	-6.30	-0.52
18	880	910	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
19	910	940	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
20	940	970	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
21	970	1,000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
22	1,000	1,030	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
23	1,030	1,060	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
24	1,060	1,090	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
25	1,090	1,120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
26	1,120	1,150	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
27	1,150	1,180	5/3/21 17:45	27.1	7.5	8.01	882	651	139	11.9	169.47	341	135.3	1.7	33.3	8.7	3.12	475.1	-1.3	-6.9	-1.09
28	1,180	1,210	5/5/21 10:10	26.7	7.3	7.82	1,895	1,726	168	23.3	204.83	1,043	365	2.4	71.6	14.6	15.90	1,213.35	-1.90	-6.80	-1.06
29	1,210	1,240	5/10/21 12:30	26.7	7.4	7.68	1,131	866	152	13.8	185.32	463	171.6	1.8	40	9.5	6.43	593.2	-1.1	-6.3	-2.33
30	1,240	1,270	5/12/21 16:15	26.3	7.2	7.39	1,851	1,624	183	26.5	223.12	961	330.2	2.6	69.8	16.5	20.83	1,101.75	-1.80	-6.40	-1.90
31	1,270	1,300	5/14/21 10:50	26.8	7.4	7.86	753	510	135	11.3	164.59	243	132.5	1.7	29.1	8.7	2.67	450.5	-1.1	-5	8.09
32	1,300	1,330	5/18/21 15:30	26.9	7.4	7.92	731	493	138	11.4	168.25	231	97.6	1.7	31.4	8.9	2.63	373	-1	-5.1	0.39
33	1,330	1,360	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	1,360	1,390	5/21/21 10:30	27	7.5	7.91	701	485	132	12.2	160.94	212	79.8	1.6	36.9	9.5	2.46	351.3	-1.1	-5.7	0.92
35	1,390	1,420	5/24/21 15:50	27.2	7.6	7.94	586	400	141	10.5	171.91	157	81	1.6	31.1	8.3	2.17	330.2	-0.9	-4.8	5.03
36	1,420	1,450	5/25/21 14:45	27.3	7.5	7.98	540	350	137	9.6	167.03	122	68.8	1.4	21.3	7.2	1.96	259.7	-0.8	-4.5	0.32
37	1,450	1,480	5/26/21 15:20	27.1	7.5	7.91	578	385	138	9.6	168.25	148	75.5	1.5	23.6	7.2	2.08	285.6	-1	-3.9	0.03
38	1,480	1,510	5/27/21 16:30	27.1	7.6	7.97	684	470	135	9.4	164.59	196	92.9	1.6	27.4	7.3	1.98	344.8	-1	-4.5	1.79
39	1,510	1,540	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
40	1,540	1,570	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
41	1,570	1,600	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
42	1,600	1,630	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
43	1,630	1,660	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
44	1,660	1,690	6/11/21 10:45	26.8	7.6	8.16	354	228	121	9.7	147.52	47.1	38.4	1.5	16.9	7	1.38	165.5	--	--	0.16
45	1,690	1,720	6/14/21 16:50	27	7.6	8.07	358	206	127	10.7	154.84	39.7	38.7	1.3	16.5	7.2	1.12	164.4	-2	-12.6	-0.03
46	1,720	1,750	6/16/21 10:50	26.8	7.7	8.12	364	216	130	10.8	158.50	40.5	36.9	1.4	17.9	7.1	1.06	165.9	-1.9	-11.9	-0.80
47	1,750	1,780	6/17/21 13:55	27.2	7.8	8.15	336	196	132	7.6	160.94	27.1	37.7	1	13.9	5.1	0.81	151.2	-1.4	-12.2	-1.82
48	1,780	1,810	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
49	1,810	1,840	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Packer Test #	Sample Upper Depth, ft bls	Sample Lower Depth, ft bls	Sample Collection Date and Time	Temperature, °C	Field pH	Laboratory pH	Specific Conductivity, µS/cm	TDS, mg/L	Alkalinity, mg/L	Chloride, mg/L	Bicarbonate, mg/L	Sulfate, mg/L	Calcium, mg/L	Potassium, mg/L	Magnesium, mg/L	Sodium, mg/L	Strontium, mg/L	Hardness, mg/L	$\delta^{18}O$, per mille	$\delta^{2}H$, per mille	Charge Balance Error, percent
50	1,840	1,870	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
51	1,870	1,900	6/25/21 11:05	27	7.8	8.16	412	245	136	9.3	165.81	66.1	127.9	1.2	31.1	6.2	1.07	447.5	-1.6	-12.5	36.09
52	1,900	1,930	6/29/21 11:15	27.5	7.8	8.23	360	210	130	8.2	158.50	37.5	45.6	0.9	13.4	5.4	0.68	168.9	-1.1	-10.2	0.62
53	1,930	1,960	6/30/21 16:45	26.8	7.8	8.18	348	200	130	8.2	158.50	32.9	43.3	1.1	14	5.6	0.74	165.6	-1.4	-10.6	1.28
54	1,960	1,990	7/2/21 14:15	27.3	7.8	8.2	369	218	130	8.8	158.50	43.2	44.6	0.8	14	5.9	0.80	168.9	-1.4	-11.5	-0.93
55	1,990	2,020	7/8/21 13:00	27.4	7.8	8.19	374	222	129	8.5	157.28	41.8	45.8	0.8	14.2	5.9	0.78	172.8	-1.4	-11.9	0.87

-- = No Sample Collected

* = Outlier value that is recorded here but was not used for analysis or interpretation

APPENDIX H:
CORE LABORATORIES REPORTS

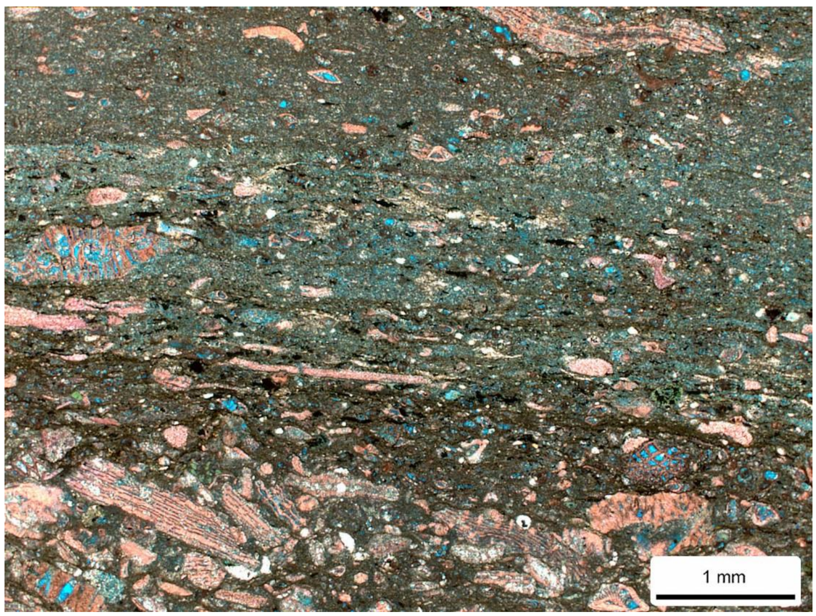
PETROLEUM SERVICES

Thin Section Analysis of Core Sample

South Florida Water Management

OSF-108 Well

Florida



October 2021

Core Laboratories, Inc.
Houston Advanced Technology Center
6316 Windfern Road
Houston, Texas 77040

Houston ATC Job File No.: 2104946G

PLATE 1

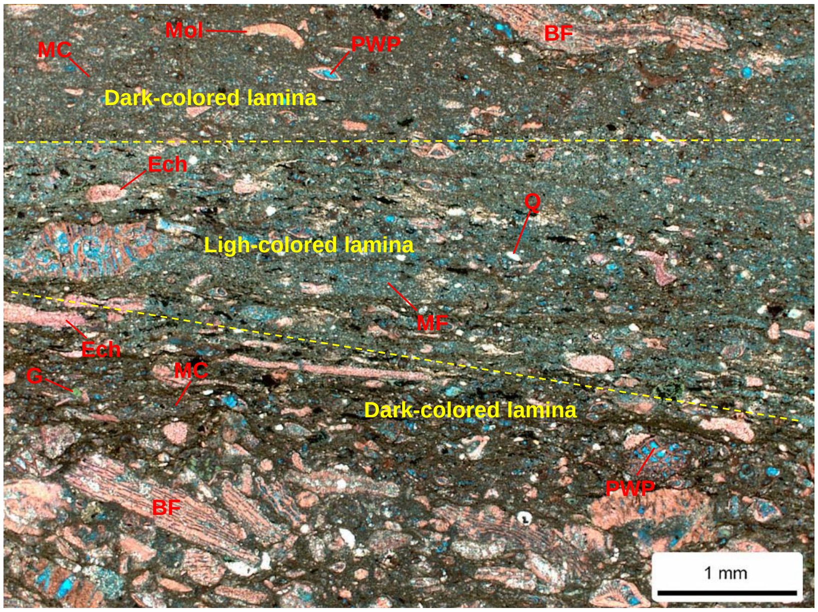
Thin Section Petrography

Company: South Florida Water Management
Well: OSF-108
Location: Florida
Depth (ft): 1592.70
Job No: 2104946G

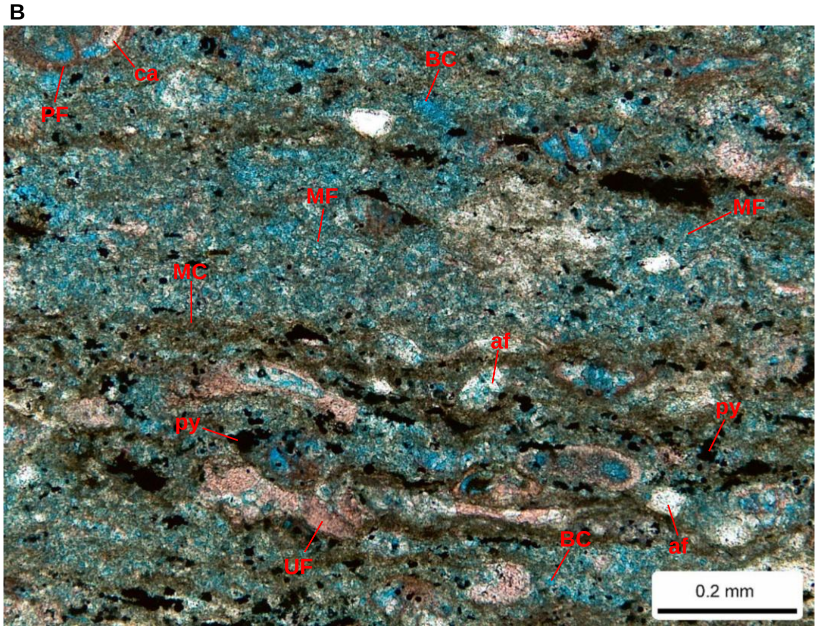
LITHOLOGY AND TEXTURE

Lithology:	Limestone
Classification (Dunham):	Wackestone/packstone
Structures:	Laminae; burrows

A



B



Rock Composition (% by Point-Count)

Allochems:

Benthic forams:	10.3	Ooids:	0.0
Planktonic forams:	1.7	Peloids:	0.0
Mollusks:	1.3	Intraclasts:	0.0
Echinoderms:	3.0	Pisoids:	0.0
Phosphatic fragments:	0.0	Oncoids:	0.0
Ostracods:	0.0		
Undiff. skeletals:	4.3		

Other Grains:

Glauconite:	0.7	Feldspar:	0.0
Quartz:	1.3	Plant fragments:	0.0

Authigenic Minerals:

Calcite:	2.0	Fe-dolomite:	0.0
Dolomite:	0.3	Fe-calcite:	0.0
Pyrite:	2.7	Chert:	3.0

Matrix:

Micrite/feldspar:	25.7	Micrite/clay:	36.3

Pore Types:

Interparticle:	0.0	Vugs:	0.3
Intraskeletal:	4.0	Moldic:	0.0
Intercrystal:	3.0	Fractures:	0.0

Petrographic Description

This is bioclastic wackestone to packstone with widespread laminae and burrows. Light-colored laminae are highlighted by a concentration of micrite/feldspar matrix (MF), which is highly microporous as shown in the high magnification view (Image B). Authigenic feldspar is very finely to finely crystalline and intermixes with micrite (note that XRD reports 27.9 wt.% K-feldspar). The dark-colored laminae are characterized by the enrichment of micrite/clay matrix (MC), which is less porous and relatively tight. Allochems are all skeletal fragments and are unevenly distributed, resulting in a mixed fabric of wackestone (upper to middle Image A) to packstone (lower Image A). Benthic foraminifera (BF; probably Lepidocyclina and Nummulites) are the most common fragments, followed by echinoderms (Ech), planktic foraminifera (PF), mollusks (Mol), and undifferentiated grains (UF). Other grains include glauconite (G) and detrital quartz (Q). Authigenic feldspar (af) locally fills intraskeletal pores. Other authigenic minerals are rare to minor, and consist of calcite cement (ca; partly filling intraskeletal pores), chert, and pyrite (py; highly dispersed). Macropores are mainly intraskeletal (PWP) and intercrystal (BC). Micropores are mostly associated with micrite/feldspar matrix. The depositional fabric may indicate that this limestone was deposited in a relatively low-energy environment such as lagoon.

Relative Abundances:

Trace	**<1%**
Minor	**1-5%**
Moderate	**5-10%**
Common	**10-20%**
Abundant	**>20%**

	Whole Rock Mineralogy (Weight %)									**Clay (Phyllosilicate) Mineralogy (Weight %)**	
Depth	Quartz	Gypsum	Anhydrite	K-Feldspar	Plagioclase	Calcite	Celestine	Dolomite & Fe-Dolomite	Total Clay	Illite/ Smectite*	Illite & Mica
763.00	87.7	0.0	4.0	0.0	0.0	0.0	0.0	8.3	0.0		
839.30	0.7	0.0	0.0	0.0	0.0	0.0	31.8	67.5	0.0		
968.00	0.3	26.5	0.0	0.0	0.0	0.0	0.0	73.2	0.0		
977.20	0.4	24.5	0.0	0.0	0.0	0.0	0.0	75.2	0.0		
998.90	0.3	0.0	0.0	0.0	0.0	0.0	0.0	99.7	0.0		
1592.70	9.9	0.0	0.0	27.9	0.0	52.8	0.0	0.0	9.5	6.7	2.8
1647.40	0.3	0.0	0.0	0.0	0.0	99.7	0.0	0.0	0.0	0.0	0.0

* Mixed-Layer Illite/Smectite Contains 60-70% Smectite Layers

SOUTH FLORIDA WATER MANAGEMENT DISTRICT
OSF-108
Florida

CL File No: 202104946
Date: 18-Oct-2021

CMS-300 CONVENTIONAL PLUG ANALYSIS

Sample Number	Depth (ft)	Net Confining Stress (psig)	Porosity (%)	Permeability (md) Klinkenberg	Permeability (md) Kair	b(air) psi	Beta ft(-1)	Alpha (microns)	Grain Density (g/cm3)	Footnote
1H	760.00	800	22.86	31.1	34.7	2.03	1.01E+09	1.02E+02	2.836	
1V	760.00	800	25.85	26.2	30.8	3.18	3.66E+08	3.10E+01	2.838	
2H	831.30	800	47.94	NA	1110	NA	NA	NA	2.836	(1b)(6a)
2V	831.30	800	48.70	NA	2430	NA	NA	NA	2.840	(6a)
3H	968.00	800	29.08	125	134	1.32	6.07E+07	2.45E+01	2.795	
3V	968.00	800	34.66	305	324	1.00	1.57E+07	1.54E+01	2.810	
4H	977.20	800	22.66	9.56	10.8	2.56	1.93E+09	5.91E+01	2.780	(1b)
4V	977.20	800	29.41	1.80	2.51	8.27	1.82E+11	1.05E+03	2.768	
5H	998.90	800	47.88	170	191	2.07	4.64E+06	2.54E+00	2.816	
5V	998.90	800	49.20	10.9	16.3	9.51	8.56E+07	2.99E+00	2.798	
6H	1282.00	800	29.43	1279	1376	1.16	7.61E+06	3.14E+01	2.698	(7)
6V	1282.00	800	29.99	1124	1192	0.92	9.84E+06	3.57E+01	2.697	(7)
7H	1641.20	800	28.58	.890	1.69	19.82	6.89E+10	1.95E+02	2.707	
7V	1641.20	800	28.10	.975	1.79	18.31	6.29E+10	1.96E+02	2.711	
8H	1668.50	800	34.84	4099	4290	0.70	1.56E+06	2.07E+01	2.707	(7)
8V	1668.50	800	30.96	647	731	2.03	1.51E+07	3.14E+01	2.707	(7)
9H	1728.20	800	38.04	382	407	1.06	1.17E+07	1.43E+01	2.709	
9V	1728.20	800	37.52	506	544	1.19	8.80E+06	1.44E+01	2.705	

Footnotes :

(1b) : Denotes chipped sample. Permeability and/or porosity may be optimistic.

(6a) : Encapsulated sample. Permeability measured using steady-state method.

(7) : Denotes vuggy sample.

Permeability greater than 0.1 mD measured using helium gas. Permeability less than 0.1 mD measured using nitrogen gas. All b values converted to b (air).