CITY OF SUNRISE FLORIDA

SAWGRASS WATER TREATMENT PLANT

FLORIDAN BLENDING TEST WELL

MWH

Final Report

April 2007

SUN-BTW

Sawgrass Water Treatment Plant
Floridan Blending Test Well
Sunrise Project No. 06-005
Final Report

Submitted by

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MWH

April 2007

CITY OF SUNRISE
SAWGRASS WATER TREATMENT PLANT
MELALEUCA FLORIDAN BLENDING TEST WELL
FINAL REPORT

FIGURES

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INTRODUCTION

This report provides the results of drilling and testing of the Floridan Blending Test Well for the City of Sunrise. This project was developed as a result of the City of Sunrise's efforts to develop an alternative water supply to help meet the potable water demands of the City and its large users. The project was partially funded under the South Florida Water Management District's (SFWMD) Alternative Water Supply Grant Funding Program.

The test well was drilled with the objective to blend brackish water from the Upper Floridan Aquifer with the membrane softening (nanofiltration) permeate water from the existing Sawgrass Water Treatment Plant (WTP). This alternative water source would potentially increase the supply of treated water without additional withdrawals from the Biscayne Aquifer. In addition, since it is proposed to blend this brackish water downstream from the primary treatment system, the losses typically realized in a membrane treatment process would be eliminated.

The test well is located at the Melaleuca pump station near Flamingo Road and SR 84 as shown in **Figure 1**.

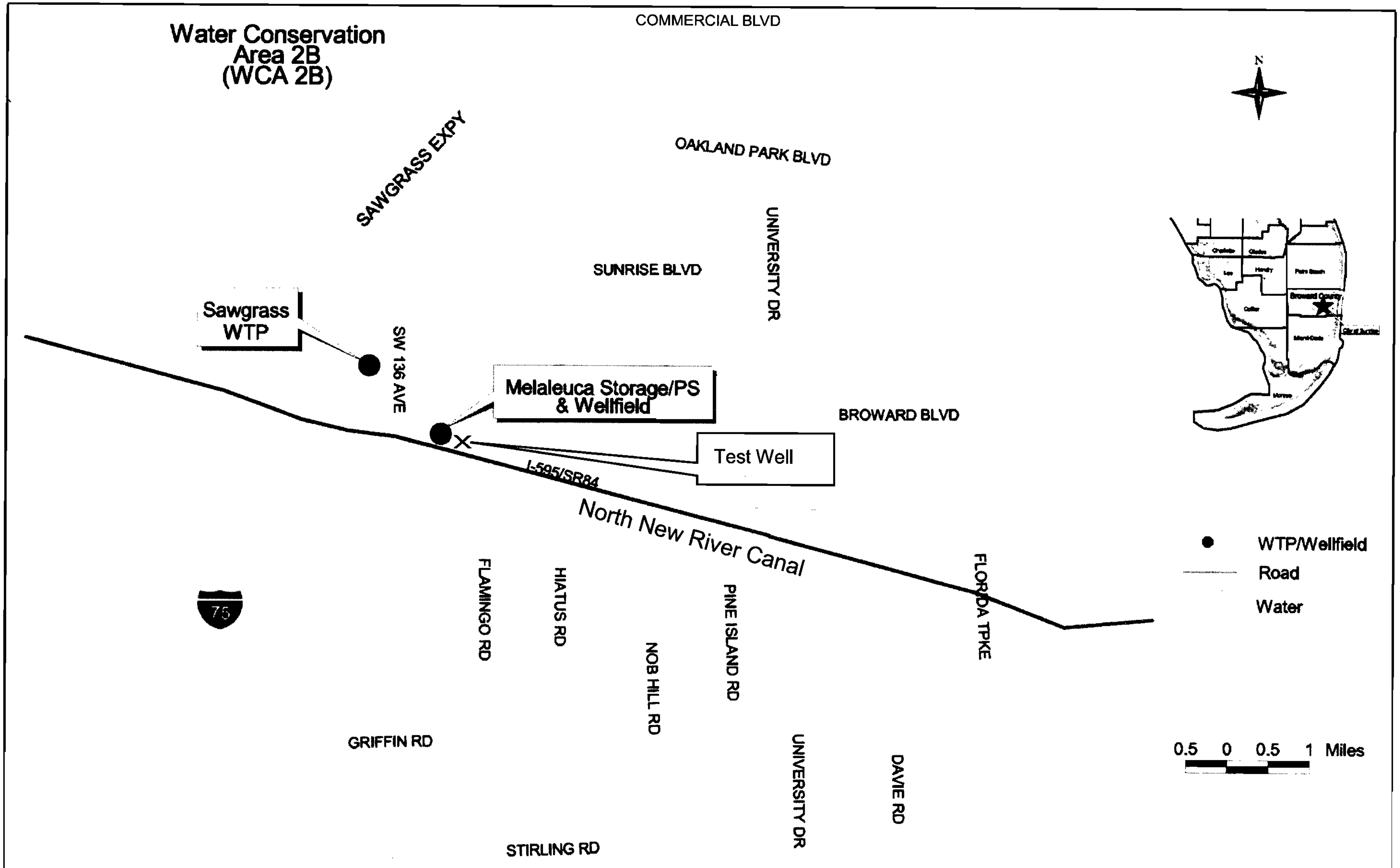
GEOLOGY

Background

The State of Florida lies on the Florida Platform on the southeastern edge of the North American continent. The platform extends 400 miles north to south and nearly 400 miles east to west (at its widest point). More than half of the platform is presently under water, leaving a narrow peninsula of land extending from the mainland. A thick sequence of primarily carbonate rocks, nearly five thousand feet thick (in southern Florida) and ranging in age from mid-Mesozoic to Recent, forms the Florida Platform (Scott, 1992). The stratigraphy and aquifer systems under discussion in this report range in age from Early Eocene to Late Pleistocene.

Floridan Blending Test Well Site-Specific Geology

During drilling and testing of the Test Well, undifferentiated Plio-Pleistocene-aged limestone, sand, clay, and variable amounts of whole and broken pelecypod and gastropod material were observed from land surface to a depth of approximately 270 feet below land surface (bls). These sediments unconformably overlie the Miocene-aged Hawthorn Group (Scott, 1988). At the location of the test well, the



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Melaleuca Upper Floridan Aquifer Test Production Well Project Location Map

FIGURE 1

Hawthorn Group extends from approximately 205 feet to approximately 1,010 feet bls, for a total thickness of approximately 805 feet. The Hawthorn Group is generally segregated into two formations including an upper unit called the Peace River Formation and a lower unit called the Arcadia Formation. The Peace River Formation was identified in this well between 205 feet and 470 feet bls and consists of a light green to dark olive clay and carbonate silt. The clay/silt is plastic and interbedded with minor amounts of light olive gray to white limestone. The clay/silt contains quartz sand, silt, a minor percentage of pelecypod material, with calcite and dolostone cement.

The Arcadia Formation occurs in the well between 470 feet and 1,010 feet bls and is composed of interbedded argillaceous limestone and clay. Limestones of the Arcadia Formation are generally light gray to white, poor to moderately indurated mudstones. In contrast to the Peace River Formation, the Arcadia Formation contains a greater percentage of limestone. **Figure 2** depicts a cross-section of the local hydrologic and lithologic features of the Test Well site.

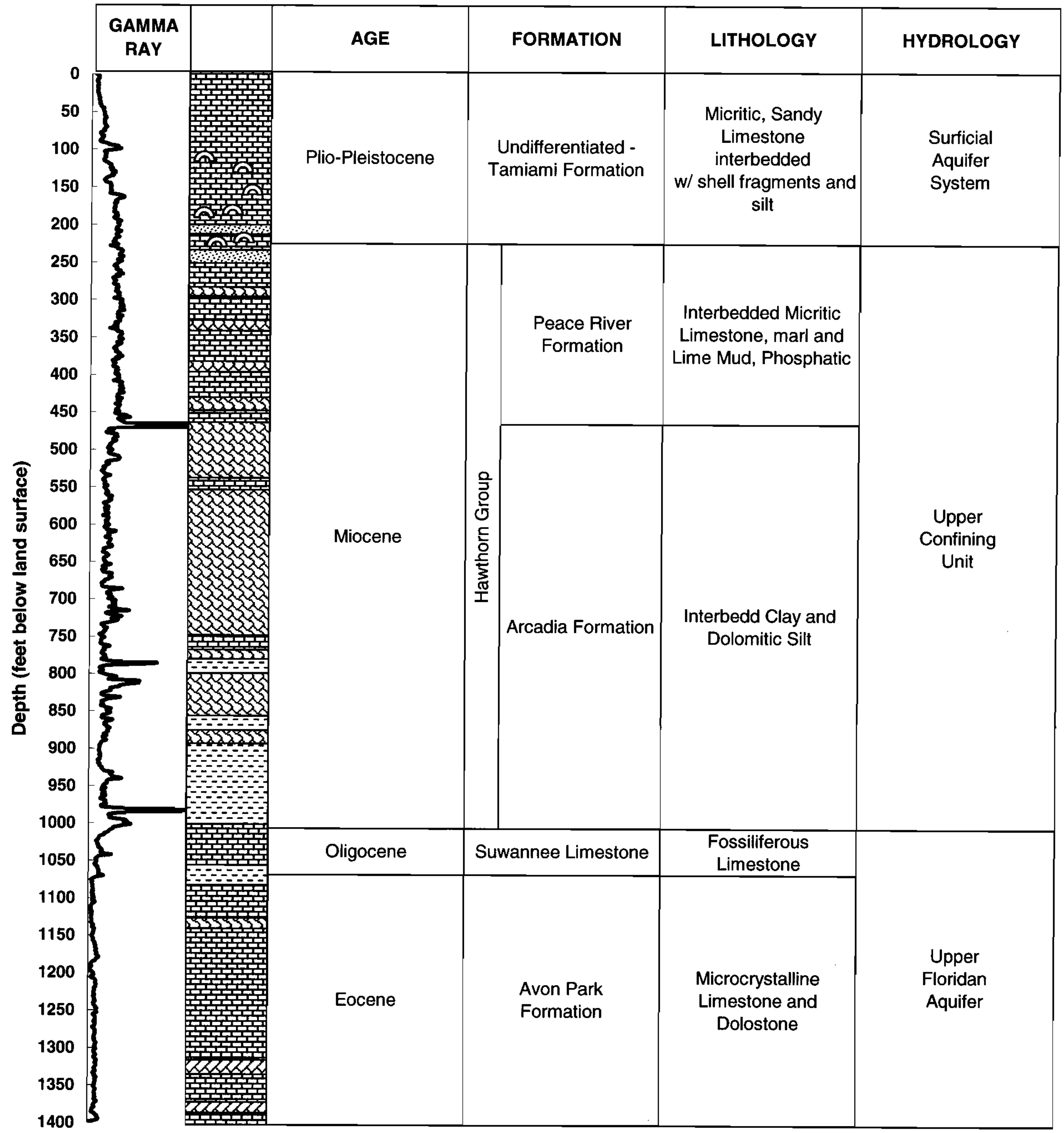
Lying below the Hawthorn Group is the Oligocene-age Suwannee Limestone (Miller, 1986). The top of the unit was encountered at a depth of approximately 1,010 feet bls in this well. The Suwannee Limestone is comprised of white to medium gray, well-indurated, highly fossiliferous packstones and grainstones. Some bioclasts are represented as moldic porosity, and high porosity and permeability are present. Locally, the rock is recrystallized. Biotics include bryozoans, gastropods, pelecypods, cnidarians, foraminifera, and plant fossils. The Suwannee Limestone is approximately 60 feet thick in this vicinity.

Below the Suwannee Limestone is the Eocene-aged Avon Park Formation, the top of which is located at 1,070 feet bls. It is composed of fine-grained, micritic to fossiliferous limestone and dolomitic limestone (Reese, 2000). Locally, the unit is composed of thin layers of very hard micrite of low porosity and permeability interbedded with layers of 15 to 40 percent intergranular and secondary porosity. Abundant foraminifera and echinoids are present in the Avon Park, which is present to the total depth of 1,400 feet bls.

HYDROGEOLOGY

Surficial Aquifer System

The surficial aquifer system is present to a depth of 270 feet bls at the Test Well site. Within the surficial aquifer system is the Biscayne Aquifer, which is the source of most of the drinking water in Palm Beach, Broward, and Miami-Dade Counties.



HYDROLOGY AND LITHOLOGY
AT THE CITY OF SUNRISE
MELALEUCA FLORIDAN BLENDING TEST WELL SITE

FIGURE 2

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The Biscayne Aquifer is composed of the Miami Oolite, Fort Thompson Formation (Pleistocene), and the Tamiami Formation. The Tamiami Formation (Pliocene) is less permeable than the two limestone formations lying above and represents the base of the Biscayne Aquifer at this location. The Tamiami Formation lies unconformably over the Hawthorn Group, which forms the confining unit below. Water within the surficial aquifer is fresh, with chloride concentrations of between 10 milligrams per liter (mg/L) and 100 mg/L. The surficial aquifer system is an unconfined aquifer, recharged by rainfall and surface water canals.

Hawthorn Confining Unit

The Hawthorn Confining Unit extends from approximately 205 feet to 1,010 feet bls and includes clay, sand, silt, and low porosity limestones. This aquitard comprises the upper confining unit that overlies the Floridan Aquifer System. While minor amounts of water can be found in the sands and lower limestones of the Hawthorn in Broward County, insufficient flow and an abundance of uncemented sands typically inhibit these intervals from development for water production.

Floridan Aquifer System "Upper Floridan Aquifer"

The Upper Floridan Aquifer extends from approximately 1,010 to 1,900 feet bls in the vicinity of this test well. The test well is completed within this aquifer. The aquifer includes sediments of the Suwannee Limestone and the Avon Park Formation. Within the Upper Floridan Aquifer are high permeability, inter-aquifer "flow zones" separated by lower permeability units.

Water within this portion of the aquifer is brackish, with typical chloride concentrations of approximately 2,000 to 3,000 mg/L. At the test well site, the chloride concentrations of this interval were in excess of 4,500 mg/L.

CONSTRUCTION SEQUENCE

A 32-inch, steel "conductor" casing was installed by Diversified Drilling Corporation (DDC) to avoid any cave-ins from the surface and ensure stable conditions for the equipment and drilling rig. The casing was cemented in place to a depth of 37 feet bls on April 7, 2006. Drilling of the test well began on April 20, 2006.

Pilot Hole to 220 Feet bls

A pilot hole was drilled to a depth of 220 feet bls using direct mud-rotary drilling in a closed circulation where mud was contained and no fluids were discharged from the well. A 12.25-inch diameter bit was used to drill from 37 feet bls to a depth of 220 feet bls. The drilling of the pilot hole was completed on April 25, 2006. Geophysical logging of the pilot hole was conducted by MV Geophysical Logging on April 26, 2006. Copies of the logs are attached as (.pdf) files in **Appendix A**.

Reaming and Installation of Surface Casing

The pilot hole was reamed to 30.75 inches from 37 feet bls to a depth of 205 feet bls in preparation for installation of the surface casing. Reaming was completed on May 3, 2006. A Caliper log was conducted over the entire length of the borehole on May 4, 2006 to identify a mechanically secure depth for the surface casing and to determine the volume of the hole for cement calculations. Dredging of the borehole was performed to clear any ledges that might obstruct the installation of the casing and to remove debris. A final Caliper log was completed on May 9, 2006.

The 26-inch outside diameter (OD) steel surface casing was installed at a depth of 195 feet bls and cemented on May 17, 2006. The casing was pressure grouted with 93 barrels of neat cement (15.4 lbs/gal) in one stage to land surface. A theoretical annular volume of 81.6 barrels was calculated from the caliper log prior to cementing.

A 25-inch diameter bit was used to drill out the cement inside the casing. Cement was encountered at 180 feet bls (15 feet inside the casing) and was drilled out to a depth of 214 feet bls.

Pilot Hole to 1,200 Feet bls

Drilling of the pilot hole to 1,200 feet bls resumed using direct mud-rotary drilling. A 12.25-inch diameter bit was used to drill the pilot hole from 214 feet bls. Drilling of the pilot hole began on May 22, 2006, and was completed to 1,200 feet bls on June 2, 2006. A lithologic description of the borehole is attached in **Appendix B**.

Geophysical logging of the pilot hole to land surface was performed by MV Geophysical Logging on June 3, 2006, to determine borehole characteristics. Copies of the logs are attached as (.pdf) files in **Appendix A**.

Based on the lithology and geophysical logging results, 1,080 feet bls was selected as the casing setting depth for the final casing. The zone at 1,080 feet bls marked the top of a competent limestone with a lower sand content than the overlying section of the Upper Floridan Aquifer.

Reaming and Installation of Final Casing

A 25-inch diameter bit was used to ream out the pilot hole from 195 feet bls to a depth of 1,085 feet bls for installation of the final casing. Reaming was completed on July 17, 2006. A Caliper log was conducted over the entire length of the borehole on July 17, 2006. The 17-inch OD Fiberglass Reinforced Plastic (FRP) final casing was installed to a depth of 1,080 feet bls and cemented on July 21, 2006.

The casing was cemented in place in five stages with a total of 515 barrels of cement. On the first stage, the casing was pressure grouted with 32 barrels of neat cement (15.4 lbs/gal) and 85 barrels of cement with 6-percent bentonite (13.5 lbs/gal). The following four stages were performed using the tremie method with 6-percent bentonite cement. A theoretical annular volume of 589 barrels was calculated from the caliper log prior to cementing.

Open Hole to 1,400 Feet bls

Mud drilling was continued with a 12.25-inch diameter bit to drill out the cement inside the final casing. Cement was encountered at 1,076 feet bls (4 feet inside the casing). Drilling was then switched to reverse-air rotary to drill the open hole from the base of the fiberglass casing. The open hole was drilled in an "open-circulation" manner, allowing no re-circulation of water down the borehole. A PVC pipe was used to allow the discharge of the well to flow into the North New River Canal, located south of the property under a National Pollutant Discharge Elimination System (NPDES) permit.

Drilling of the open hole began on August 8, 2006, and was completed on August 9, 2006. Lithologic samples were collected and analyzed during drilling of the pilot hole. A lithologic description of the borehole is included in **Appendix B**.

Geophysical logging was first performed in the open-hole on August 11, 2006. During logging, one of the logging tools was stuck at the base of the casing. Attempts to free the tool resulted in breaking the cable. The tool was fished from the hole on August 15, 2006.

A preliminary video of the borehole to total depth showed some damage to the final FRP casing caused by the drill bit. On September 5, 2006, the hole was backfilled with gravel to 1,094 feet bls. On September 6, 2006, the drilling contractor installed a 12-inch ID, 316-stainless steel liner from 1,052 to 1,095 feet bls. The liner was installed to seal any sand-producing zones exposed in the lower portion of the casing. The liner was seated at 1,095 feet bls to utilize a ledge at that depth for additional support. The liner was cemented in place using the tremie method.

Geophysical logging of the pilot hole from 1,400 feet bls to land surface was conducted by MV Geophysical Logging on September 20, 2006. Copies of the geophysical logs are attached as *.pdf files in **Appendix A**.

Back Plugging the Open Hole

Due to the elevated TDS levels encountered during drilling of the pilot hole and initial development, the open hole was plugged back with cement in an attempt to seal off the higher salinity water so the well could still be utilized as a blending well. The hole was backplugged to 1,185 feet bls in four stages.

Development and Pump Testing of the Well

DDC installed a submersible pump in the well on October 4, 2006. Development of the well began on October 5, 2006. The well was developed through October 13, 2006. A total of 1,223,000 gallons of water were evacuated during this period. A 4-hour step rate test of the open hole was performed on November 6, 2006.

MV Geophysical Logging performed a final video of the well from land surface to total depth on November 8, 2006. The video, in DVD format, is included in **Appendix A**. The open hole interval in the test well is from 1,095 feet bls to 1,174 feet bls. A diagram of the completed well is presented as **Figure 3.**

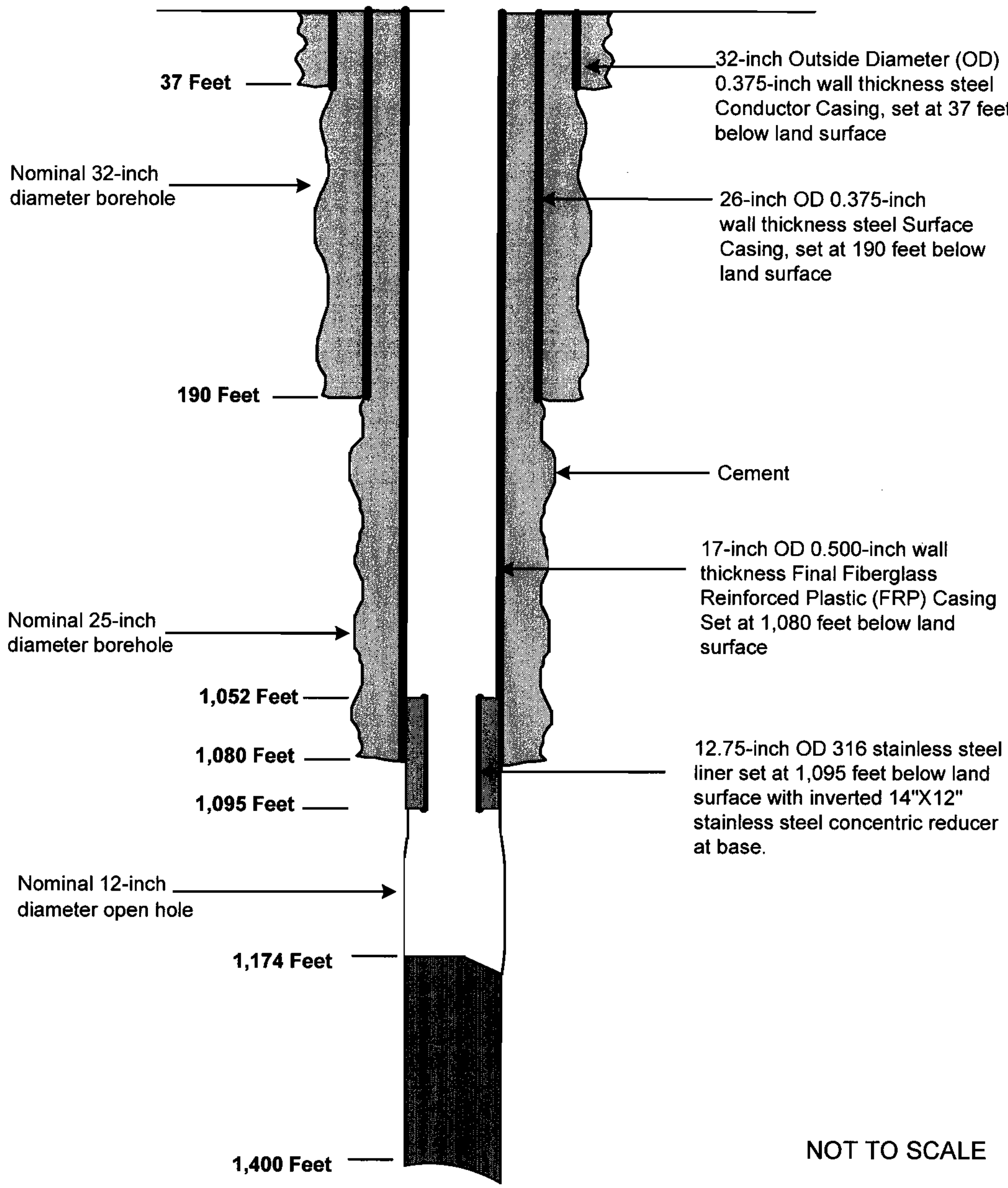
GEOPHYSICAL LOGGING PROGRAM

Pilot Hole Logs Run from 0 Feet to 220 Feet bls

The following logs were run in the 12.25-inch diameter pilot hole prior to selection of the 26-inch OD steel surface casing setting depth:

- Dual induction (DI) / Spontaneous potential (SP)
- Borehole compensated sonic (BHCS) with Variable density log (VDL)
- XY Caliper / Gamma Ray

The pilot hole logs were used to identify the depth of the base of the surficial aquifer and to identify competent formation at which to set the surface casing. The caliper log was run to identify and evaluate the physical nature of the surficial aquifer formation materials. The Dual-Induction/SP log was used to measure porosity changes within the formation materials and the gamma ray log aided in identification of the clays associated with the Hawthorn Group by a measurement



CITY OF SUNRISE
MELALEUCA FLORIDAN BLENDING TEST WELL

FIGURE 3

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of natural gamma radiation. The base of the surficial aquifer can typically be identified by the accumulation of sediments that emit gamma rays indicating a formation change. A gamma ray log is run as a part of every logging suite, because it provides correlation due to the characteristics of the gamma ray emissions, which are related to the physical properties of a specific formation.

Pilot Hole Logs Run from 190 Feet to 1,200 Feet bls

The following logs were run in the 12.25-inch diameter pilot hole prior to selection of the 17-inch OD FRP final casing setting depth:

- Dual induction (DI) / Spontaneous potential (SP)
- Borehole compensated sonic (BHCS) with Variable density log (VDL)
- XY Caliper / Gamma Ray

The primary objective of this logging suite was to identify the limestone that marks the base of the Hawthorn Group and the top of the Suwannee Limestone and to pick a mechanically secure depth for the surface casing. The mechanical properties of the formations were evaluated using the caliper log in order to determine an appropriate casing setting depth. The Dual-Induction/SP log was conducted to identify the formation change between the Hawthorn Group and Suwannee Limestone by variation in formation porosity and density and the reduction in clay mineral concentration. The gamma ray log was used for depth correlation and to identify the high concentrations of phosphate nodules at the base of the Hawthorn Group, which mark the top of the Suwannee Limestone.

Pilot Hole Logs Run from 1,080 Feet to 1,400 Feet bls

The following logs were run in the completed 12.25-inch diameter open hole upon completion of the well.

- X-Y Caliper / Gamma Ray
- Dual Induction/ Spontaneous Potential (SP)
- Borehole Compensated Sonic (BHCS) with Variable Density Log (VDL)
- Video Television Survey
- Fluid Conductivity / Temperature Log
- Dynamic Flowmeter Log

These geophysical logs were used to identify the changes in water quality and the producing zones in the well. The logs were also performed to assess mechanical formation properties prior to selecting a back plugging depth and the final depth of the well.

The caliper log was performed to assist in identifying fractures, solution features and borehole wall collapse which are all associated with producing intervals in the carbonate formations found in this interval (Suwannee Limestone and Avon Park Formation). The Dual-Induction log was particularly useful in identifying the changes in water quality with relation to depth in the borehole. This log, used together with the formation porosity calculated from the sonic log, provided an estimate of the formation water resistivity and total dissolved solids in the well. A plot of Log-Derived TDS with depth is presented as **Figure 4**. The gamma ray log was used with the Dual-Induction/SP log data to identify formation boundaries and lithology changes within the formations.

The dynamic temperature and fluid conductivity logs were used to directly detect the producing intervals by measuring the water flow, the temperature changes, and the water quality changes generated by water production. The caliper log was used with the BHCS and Dual-Induction logs to identify fracture planes, producing zones, and confining intervals. The producing zones were evaluated in terms of water production potential and water quality for the selection of the total depth of the test well.

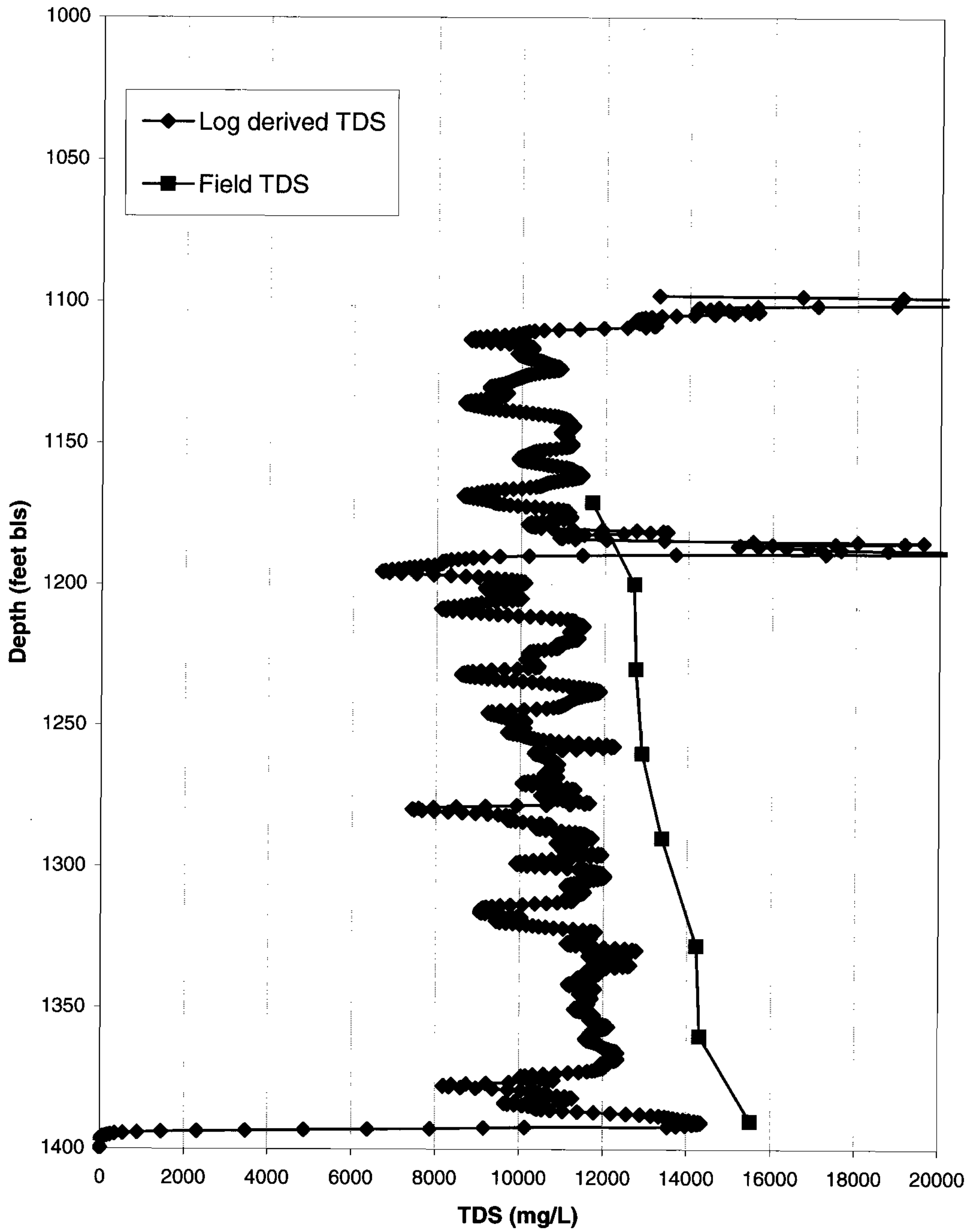
WELL TESTING

Before commencement of air-drilling activities and directing well discharge to the North New River Canal, the well was sampled for metal parameters as specified in the NPDES permit. The results of the water quality analysis are included in **Appendix C**.

Drill Stem Water Quality

During reverse air drilling of the open hole section of the test well, water quality samples were collected and analyzed every 30 feet to provide an estimate of the water quality profile at the Melaleuca site. The samples were analyzed in the field by the contractor.

To obtain a more representative sample of water from the corresponding depth, the well was drilled using an open-circulation system, allowing no re-circulation of water back down the borehole. At every drill pipe connection (30-foot lengths), water was allowed to flow from the drill pipe until formation water was evacuated prior to collecting the sample.



CITY OF SUNRISE
MELALEUCA FLORIDAN BLENDING TEST WELL
LOG-DERIVED TOTAL DISSOLVED SOLIDS (TDS) PLOT

FIGURE 4

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Water quality sampling was performed throughout the drilling of the open hole to 1,400 feet bls. The results of the analyses indicated an increase in concentration of total dissolved solids (TDS) with depth in the open hole. The field TDS values ranged from 11,680 to 15,520 mg/L, between 1,171 and 1,390 feet bls, respectively (**Table 1**). These values are 3 to 4 times greater than the concentrations anticipated for this interval.

Table 1
Drill Stem Field Water Quality

	Parameters				
Depth (feet)	Specific Conductivity (milliSiemens (mS))	Total Dissolved Solids (mg/L)	Chloride (mg/L)	pH (Std. Units)	Temperature (°C)
1,113	ND	ND	2,628	8.27	29.6
1,143	ND	ND	1,585	7.90	31.2
1,171	13.60	11,680	4,004	8.08	27.0
1,200	14.60	12,700	5,840	7.89	29.6
1,230	14.60	12,740	5,690	7.97	27.7
1,260	14.70	12,900	4,000	7.97	28.1
1,290	15.16	13,390	4,160	8.07	24.6
1,328	16.03	14,220	3,980	7.86	24.2
1,360	16.17	14,310	4,600	7.82	28.2
1,390	17.30	15,520	5,760	7.94	24.5

ND= Not Determined

Back Plugging the Open Hole

With a chloride concentration of 5,760 mg/L, the City would only be able to blend 0.77 MGD (533 gpm) from the well to the downstream side of the WTP. The open hole was plugged back with cement in an attempt to seal off the higher salinity water so the well could still be utilized as a blending well. The hole was back-plugged to 1,185 feet bls in four stages. Water quality samples were analyzed from the flowing well after each stage (**Table 2**). Water quality improvement was negligible after plugging back the borehole, and production was diminished after sealing the flow zone below 1,185 feet bls.

Table 2
Backplug Interval Water Quality

Date	Depth (feet bls)	Parameters			
		Specific Conductance (mS)	TDS (mg/L)	Chloride (mg/L)	Temp. (°C)
9/22/06	1,095-1,400	15.45	13,630	ND	23.0
9/25/06	1,095-1,260	14.58	12,760	ND	23.3
9/26/06	1,095-1,210	14.37	12,520	6,750	25.5
10/5/06	1,095-1,185	14.72	13,310	6,500	29.6

ND= Not Determined

4-hr Step Rate Pump Test

Following construction completion of the test well, a 4-hour step rate pumping test was performed on November 6, 2006, to determine the production characteristics of the open hole interval from 1,095 feet to 1,185 feet bls.

A transducer was installed in the well to record data electronically every five seconds. Background was recorded for approximately 90 minutes before the start of the test and recovery was recorded overnight after the test was completed. The 4-hour step test was performed at the average flow rates of 108, 214, 393, 487 gallons per minute; each step duration was 60 minutes. The results are summarized in **Table 3** and presented graphically in **Figures 5** and **6**.

Field and lab water quality sampling was performed at each interval including specific conductance, TDS, pH, temperature, chloride, hydrogen sulfide and sand content by weight. A silt density index (SDI) sample was collected by the contractor at the end of the testing. A field pressure of 30 psi was maintained for the test. **Table 4** presents a summary of water quality testing results during the 4-hour step-rate-pumping test. The complete laboratory analytical results are provided in **Appendix C**.

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MELALEUCA FLORIDAN BLENDING TEST WELL
4-HOUR STEP-RATE PUMPING TEST

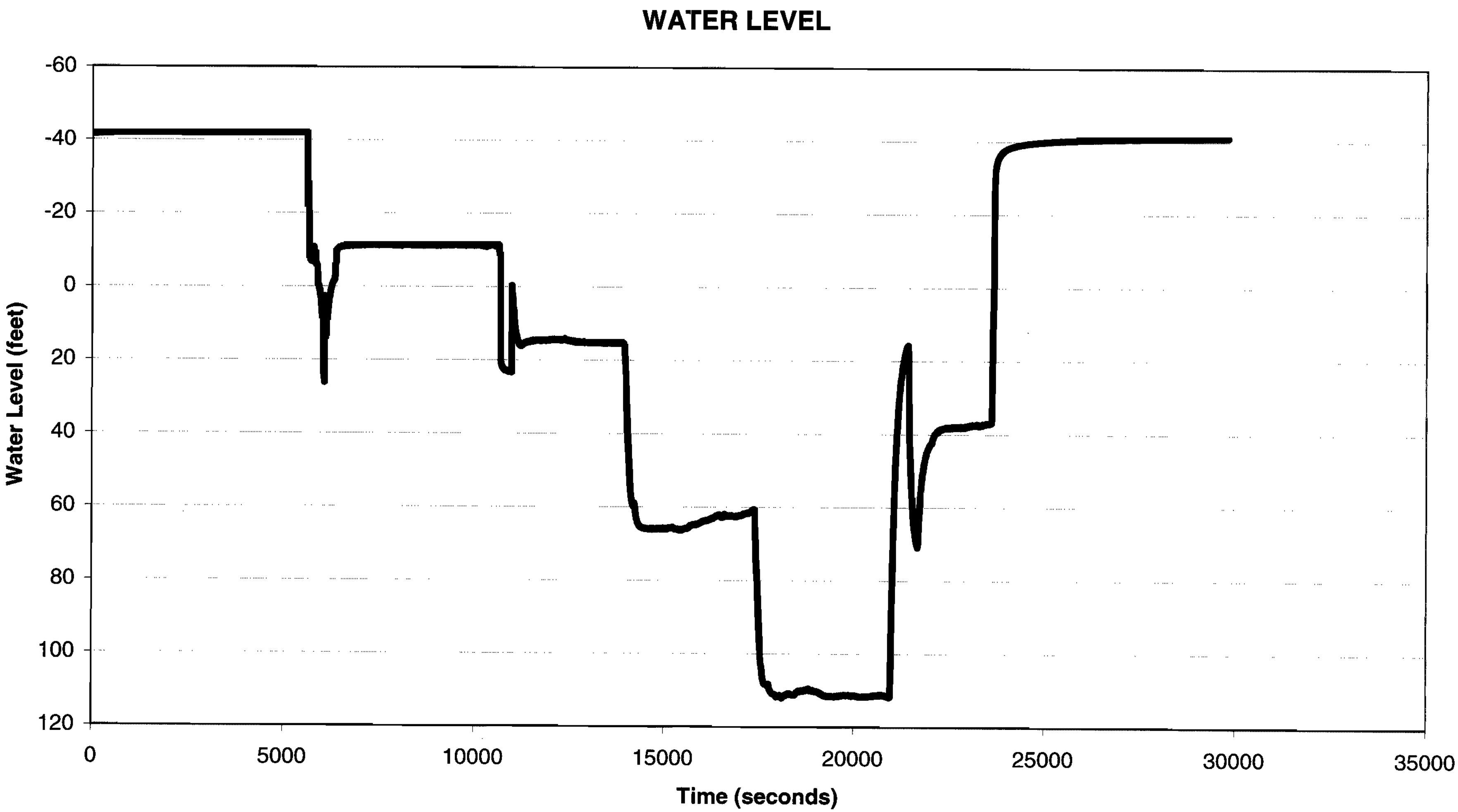


FIGURE 5

CITY OF SUNRISE
MELALEUCA FLORIDAN BLENDING TEST WELL
4 HOUR STEP-RATE PUMPING TEST

DRAWDOWN

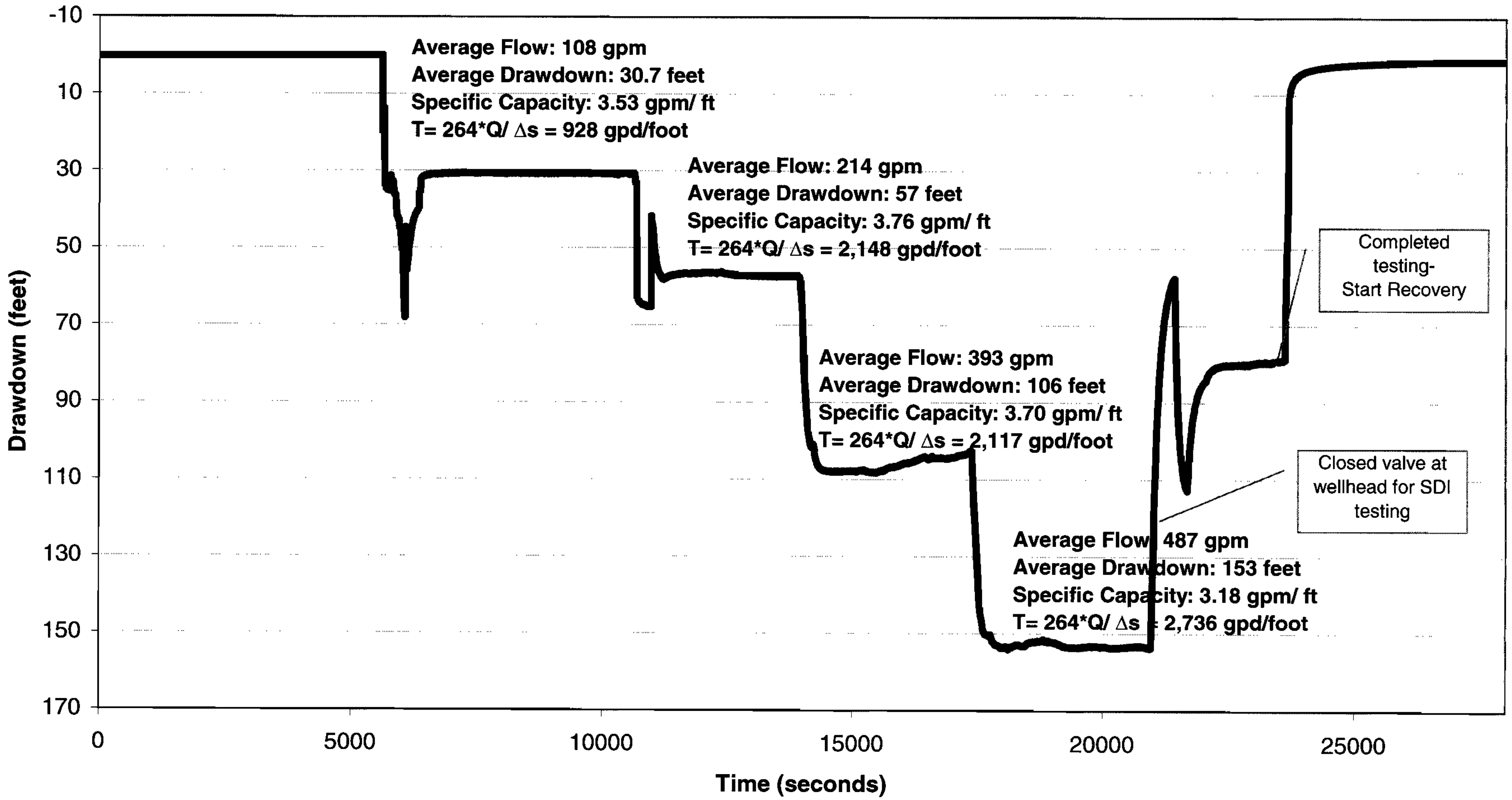


FIGURE 6

Table 3
4-hr Step-Rate Pumping Test Summary

Pumping Test	Average Pumping Rate (gpm)	Drawdown (feet)	Specific Capacity (gpm/ft)	Sand Content (ppm)
Step Rate 1	108	30.7	3.53	Trace of sand
Step Rate 2	214	57.0	3.79	Trace of sand
Step Rate 3	393	106.0	3.70	5.3
Step Rate 4	487	153.0	3.18	6.0
Silt Density Index (SDI) @ 30 psi= 5.6				

Table 4
4-hr Step-Rate Pumping Test Water Quality Summary

	Parameter								
Pump Test	Specific Conductance (milliSiemens (mS))		Total Dissolved Solids (mg/L)		Chloride (mg/L)	pH (Std. Units)		Temp (°C)	Hydrogen Sulfide
	Lab	Field	Lab	Field	Lab	Lab	Field	Field	Lab
Step Rate 1	13.50	14.31	8,700	12,450	4,700	7.99	7.90	24.8	U
Step Rate 2	13.40	14.24	8,600	12,340	4,400	7.98	7.74	24.4	U
Step Rate 3	13.40	14.23	8,700	12,350	4,300	7.95	7.64	23.2	U
Step Rate 4	13.40	14.27	8,400	12,390	4,300	8.15	7.72	24.0	U
Average	**13.43**	**14.26**	**8,600**	**12,382**	**4,425**	**8.02**	**7.75**	**21.46**	**U**

U= under detection limit.

A split water sample was collected from the test well by KSA Laboratory of Miramar, Florida on November 7, 2006. This water sample is representative of the open hole interval from 1,095 feet bls to 1,174 feet bls. The sample was analyzed for primary and secondary drinking water quality standards along with minimum criteria as listed in Chapter 62-550 F.A.C and other parameters of interest related to reverse osmosis treatment as listed in **Table C-2** in **Appendix C**. The laboratory results show no parameters measured above expected ranges. All of the other parameters were measured below the detectable limit. This water quality data will serve as a baseline for all future water quality comparisons. The results of the laboratory water quality analyses are provided in **Appendix C**.

WELL TESTING RESULTS

Water Quality Results

Prior to construction of the Floridan Blending Well, MWH investigated the water quality from the surrounding area as reported in the Technical Memorandum "City of Sunrise – Floridan Aquifer Bypass Blending" (MWH, 2005). As part of this investigation, MWH researched the Florida Department of Environmental Protection databases to determine what upper Floridan Aquifer wells currently exist in or near Broward County and their corresponding water quality.

Water quality data was gathered from Springtree ASR (1997), Hallandale (1999), Hollywood (2003), and two wells from North Miami Beach (wells 3-F and 4-F (2004)). Comparatively, the water quality results encountered during drilling of the Floridan Blending Well are higher than the average concentration from the surrounding wells.

The average water quality from the wells investigated with the average concentrations at the Floridan Blending Well is listed in **Table 5**. The chloride concentration in the Floridan Blending Well is 227-percent higher than the average concentration in the surrounding wells. The TDS concentration is 211-percent higher than the average TDS concentration from the surrounding area.

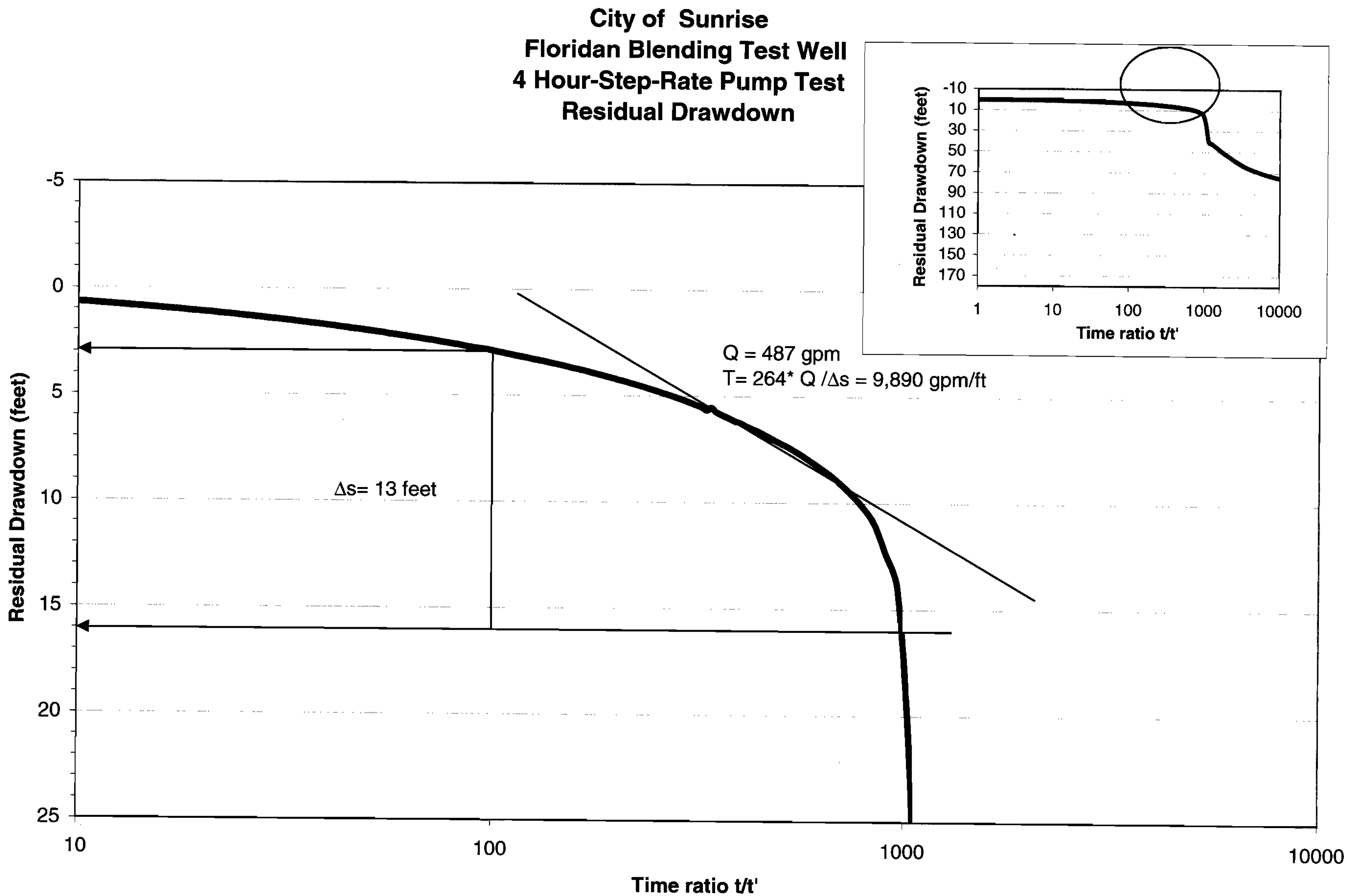
Table 5
Water Quality Comparison Summary

Parameter	Floridan Blending Well [Average]	Wells in Surrounding Area [Average]
Total Dissolved Solids (mg/L)	8,600	4,080
Chloride (mg/L)	4,425	1,953

4-hr Step Test Results

During the 4-hour step test the well was pumped at a rate between 400 gpm and 600 gpm with an average of 487 gpm. The resulting drawdown at this rate was 153 feet with a specific capacity of 3.18 gpm per foot. A transmissivity value was calculated using the Theis Recovery method. The transmissivity of this interval is 9,890 gpm/ft **(Figure 7)**. This value is low for the upper Floridan. This is likely due to the backplugging of the well across the flow zone below 1,185 feet bls and the limited open hole section of the well.

There was a notable increase in sand with increase in flow rate. The sand content at 487 gpm was 6 ppm. The valve downstream of the flowmeter was partially closed during the last step to obtain 30 psi for the SDI test. The SDI value at 200 gpm was 5.6. These values should lower with increased production. As the quantity of water and up-hole velocity increases, the sand and fine-fraction should be removed.



City of Sunrise
Floridan Blending Test Well
4 Hour-Step-Rate Pump Test
Residual Drawdown
Q = 487 gpm
T= 264* Q /Δs = 9,890 gpm/ft
Δs= 13 feet
Residual Drawdown (feet)
-5
0
5
10
15
20
25
10
100
1000
10000
Time ratio t/t'
-10
10
30
50
70
90
110
130
150
170
1
10
100
1000
10000

FIGURE 7

CONCLUSIONS AND RECOMMENDATIONS

- The salinity of the Upper Floridan aquifer encountered in the vicinity of the Melaleuca Pump Station is much higher than reported in other wells completed in this same interval
- Blending the water from this well to the downstream side of the Sawgrass WTP will be limited to less than 0.8 MGD (assuming 18 MGD of permeate) due to the concentration of sodium at 3,300 mg/L in the Upper Floridan aquifer.
- The unexpected poor water quality and associated limitation to the use of the well for blending significantly impacts the cost benefit ratio of this project as originally conceived.
- Given the high TDS in this source water and the limited volume, the cost of using this water for blending is significantly higher than planned. Thus, outfitting the well with a pump and power supply; and installing a pipeline to the WTP would not be recommended at this time.
- It is recommended that this well be reinvestigated for use in conjunction with a reverse osmosis membrane treatment system for a cost benefit comparison.
- It is recommended that the specific capacity of the well be increased by drilling the well back down to 1,400 feet bls or below and performing acidification, if necessary to enhance water production.
- It is recommended that the well be developed at a high flow rate to lower the SDI value and sand content.

REFERENCES

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Appendix A

MWH

Appendix A
Geophysical Logging

April 26, 2006

- Depth: 0 to 195 feet below land surface
- Dual induction (DI) with Spontaneous potential (SP)
- Borehole compensated sonic (BHCS) with Variable density log (VDL)
- XY Caliper with Gamma Ray

June 03, 2006

- Depth: 195 to 1,195 feet below land surface
- Dual induction (DI) with Spontaneous potential (SP)
- Borehole compensated sonic (BHCS) with Variable density log (VDL)
- XY Caliper with Gamma Ray

September 20, 2006

- Depth: 1,080 to 1,400 feet below land surface
- XY Caliper / Gamma Ray
- Dual Induction/ Spontaneous potential (SP)
- Borehole Compensated Sonic (BHCS) with Variable Density Log (VDL)
- Video Television Survey
- Fluid Conductivity / Temperature Log
- Dynamic Flow meter Log

November 08, 2006

- Final video from 0 to 1,174 feet below land surface

MV Geophysical

FLOWMETER LOG

Company	Diversified Drilling Corporation
Well	Floridian Blending Test Well
Field	Sunrise
County	Broward
State/Prv	Florida
Location	Sawgrass Water Treatment Plant MWH
Other Services	XY/GR,DIL BHC,FLOW FCT,DHTV
Permanent Datum	G.L.
Log Measured From	G.L.
Drilling Measured From	G.L.
Elevation	K.B. D.F. G.L.

Company	Diversified Drilling Corp.
Well	Floridian Blending TW
Field	Sunrise
County	Broward
State/Prv	Florida

Date	20-SEP-2006
Run Number	SIX
Depth Driller	1400'
Depth Logger	1401'
Bottom Logged Interval	1401'
Top Log Interval	1000'
Open Hole Size	12.25"
Type Fluid	H2O
Density / Viscosity	NA/NA
Max. Recorded Temp.	na
Estimated Cement Top	NA
Time Well Ready	13:00 9/20/2006
Time Logger on Bottom	17:30 9/20/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	A.Simon (MWH) Barrie (DDC)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	36'	220'	FIVE	12.25"	1080'	1400'
TWO	31"	36'	205'				1398' logger
THREE	12.25"	195'	1195'				
FOUR	25"	195'	1090'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	.375" WT	SURFACE	36'
Prot. String	26"	.375" WT	SURFACE	195'
Production String	16" FRP	16" ID	SURFACE	1080'
Liner	12" SS	12" ID	1051'	1093'
Invoice No	2006280			

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Comments

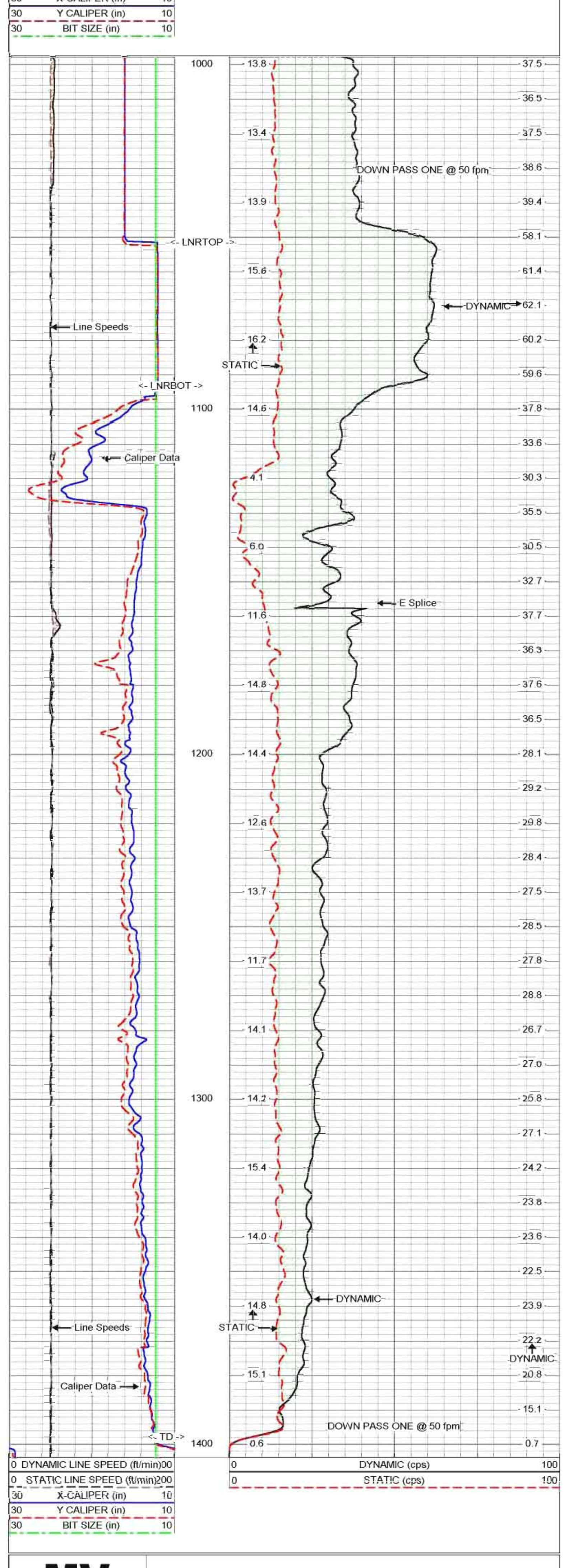
STATIC and DYNAMIC down passes were made at 50 fpm.

9 station performed.

Q =~750 gpm

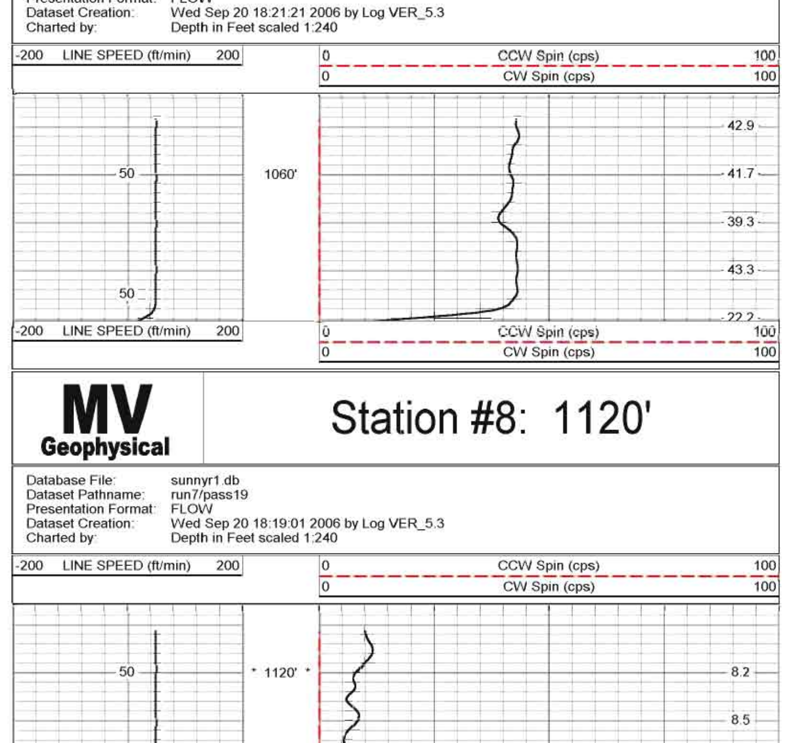
MV Geophysical — S/D DOWN @ 50 fpm

Database File: sunnyr1.db
Dataset Pathname: run7/SD50
Presentation Format: SUNRQ
Dataset Creation: Thu Sep 21 06:41:11 2006
Charted by: Depth in Feet scaled 1:240



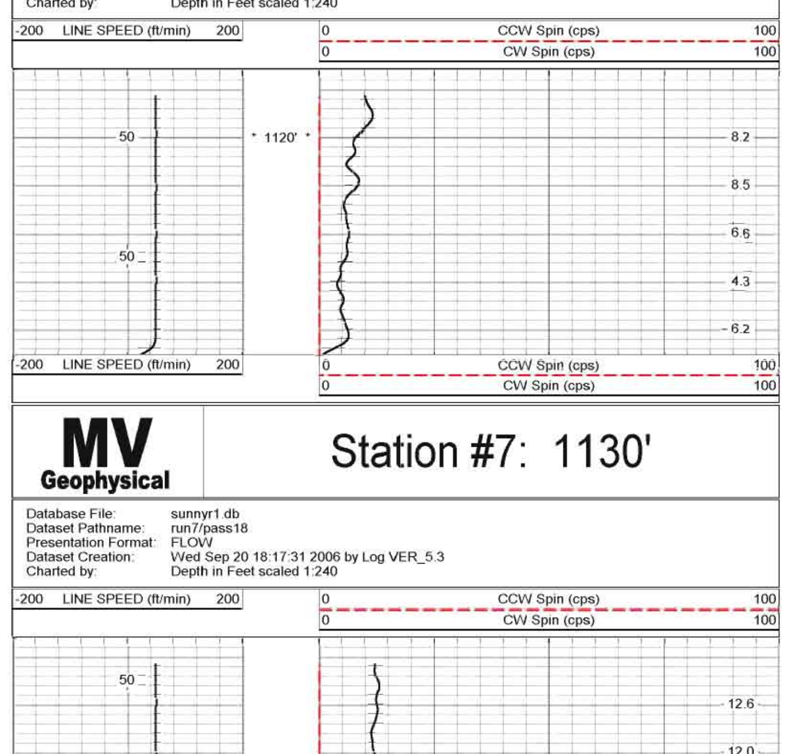
MV Geophysical — Station #9: 1060'

Database File: sunnyr1.db
Charted by: Depth in Feet scaled 1:240



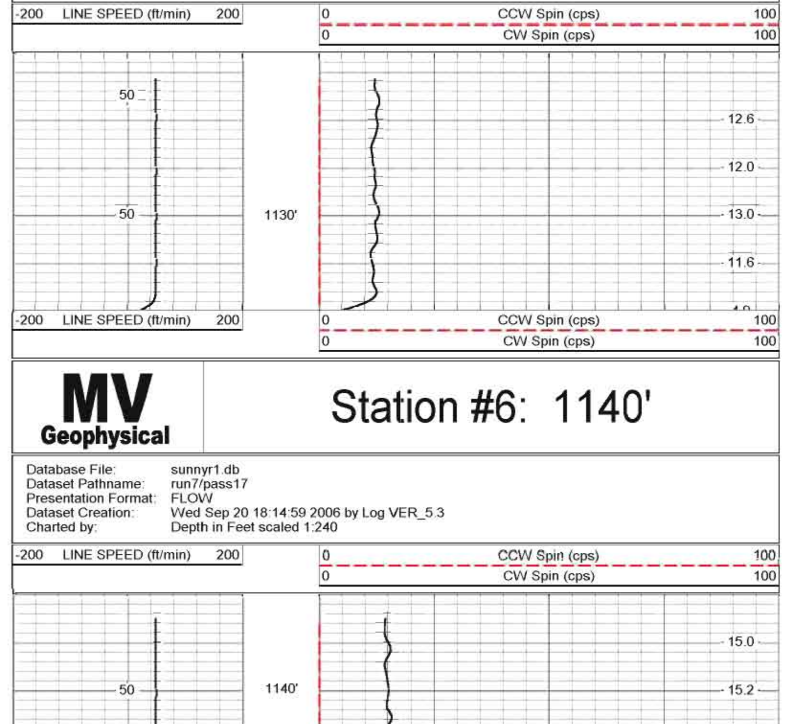
MV Geophysical — Station #8: 1120'

Database File: sunnyr1.db
Dataset Pathname: run7/pass19
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 18:19:01 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:240



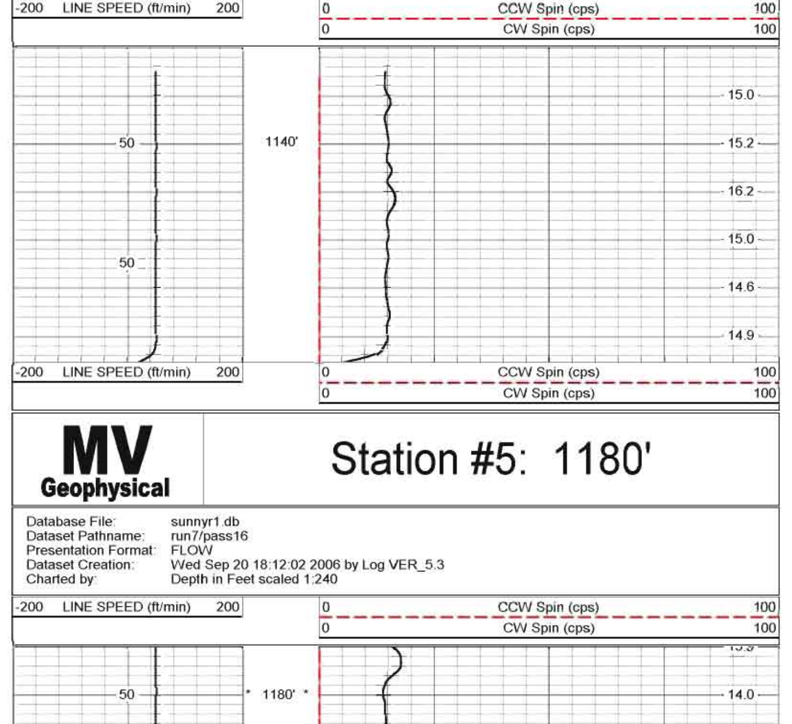
MV Geophysical — Station #7: 1130'

Database File: sunnyr1.db
Dataset Pathname: run7/pass18
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 18:17:31 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:240



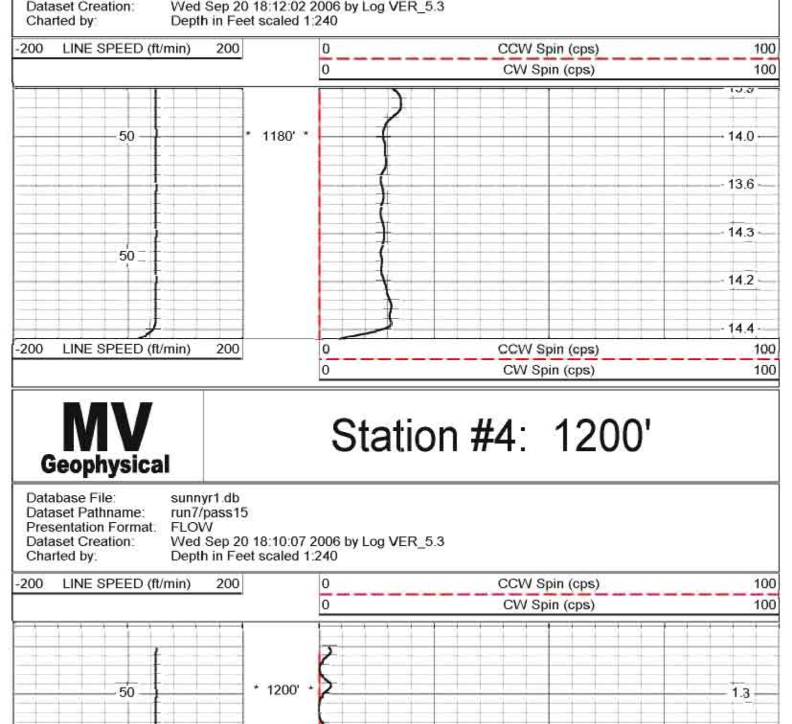
MV Geophysical — Station #6: 1140'

Database File: sunnyr1.db
Dataset Pathname: run7/pass17
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 18:14:59 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:240



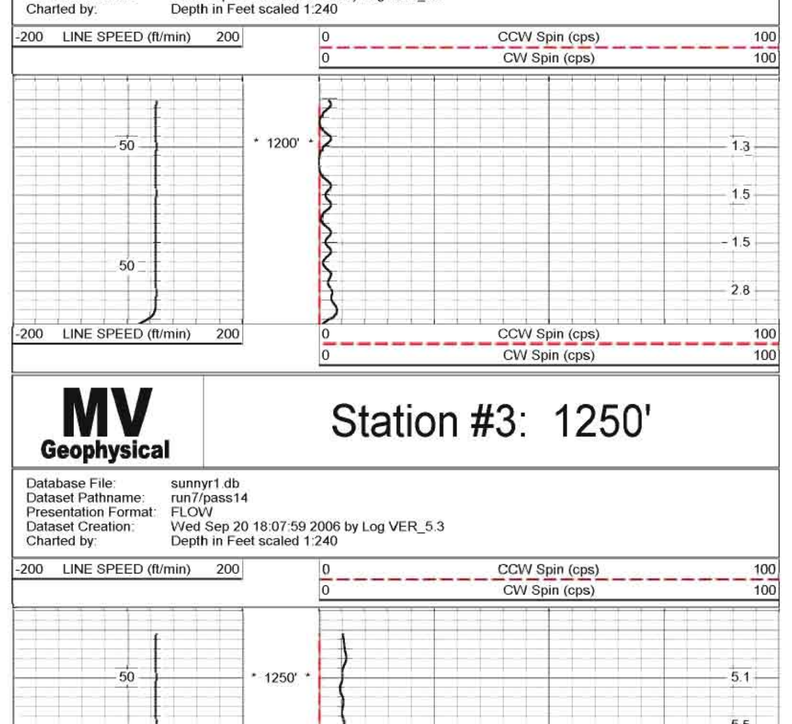
MV Geophysical — Station #5: 1180'

Database File: sunnyr1.db
Dataset Pathname: run7/pass16
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 18:12:02 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:240



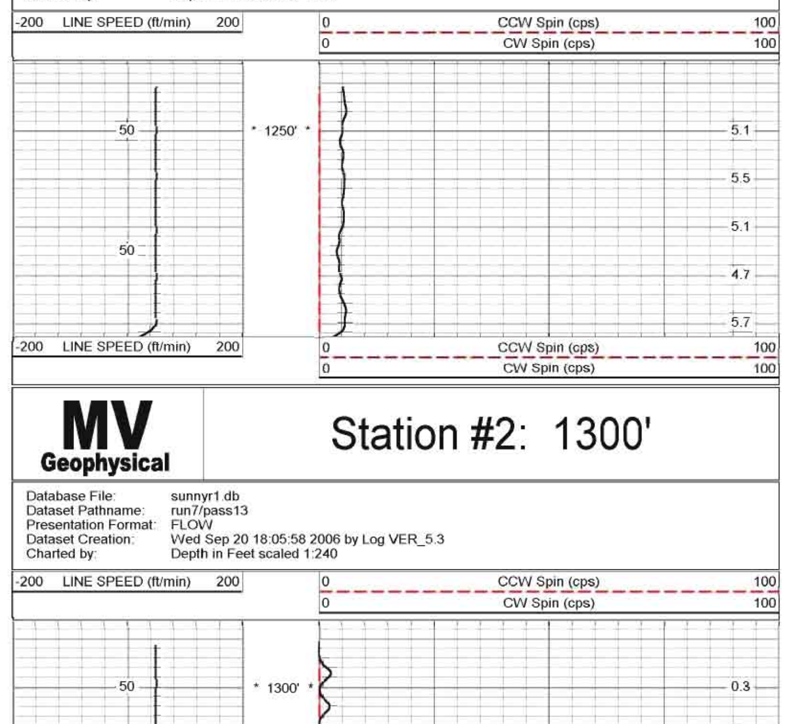
MV Geophysical — Station #4: 1200'

Database File: sunnyr1.db
Dataset Pathname: run7/pass15
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 18:10:07 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:240



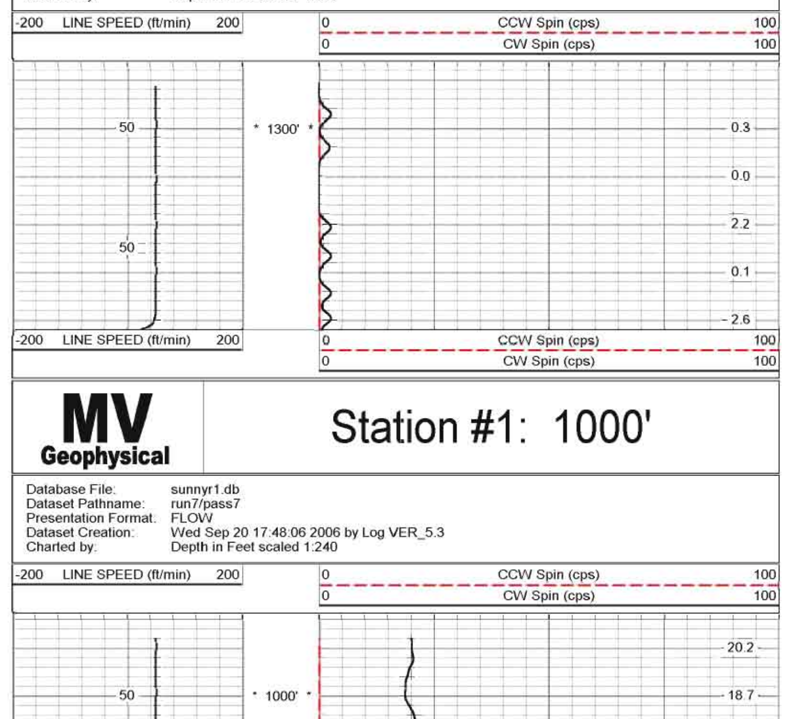
MV Geophysical — Station #3: 1250'

Database File: sunnyr1.db
Dataset Pathname: run7/pass14
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 18:07:59 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:240



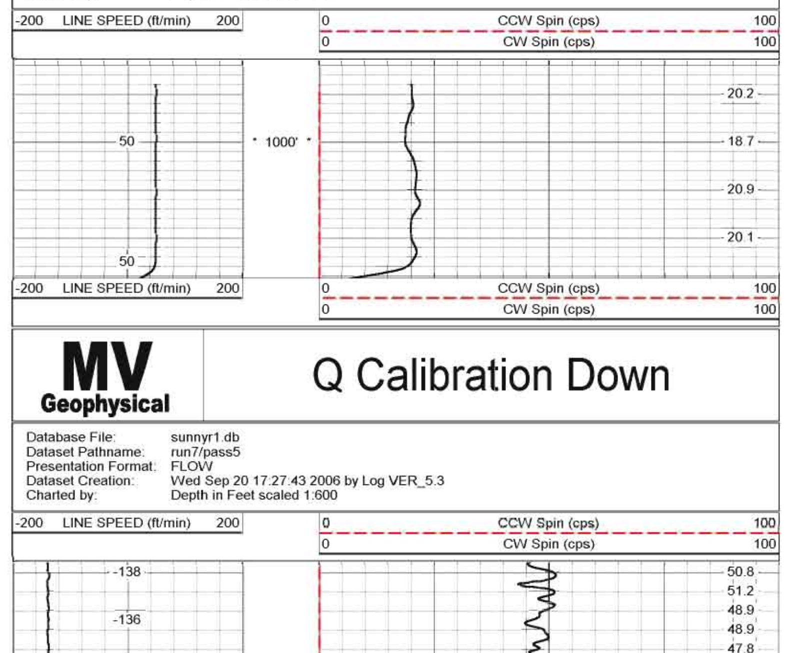
MV Geophysical — Station #2: 1300'

Database File: sunnyr1.db
Dataset Pathname: run7/pass13
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 18:05:58 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:240



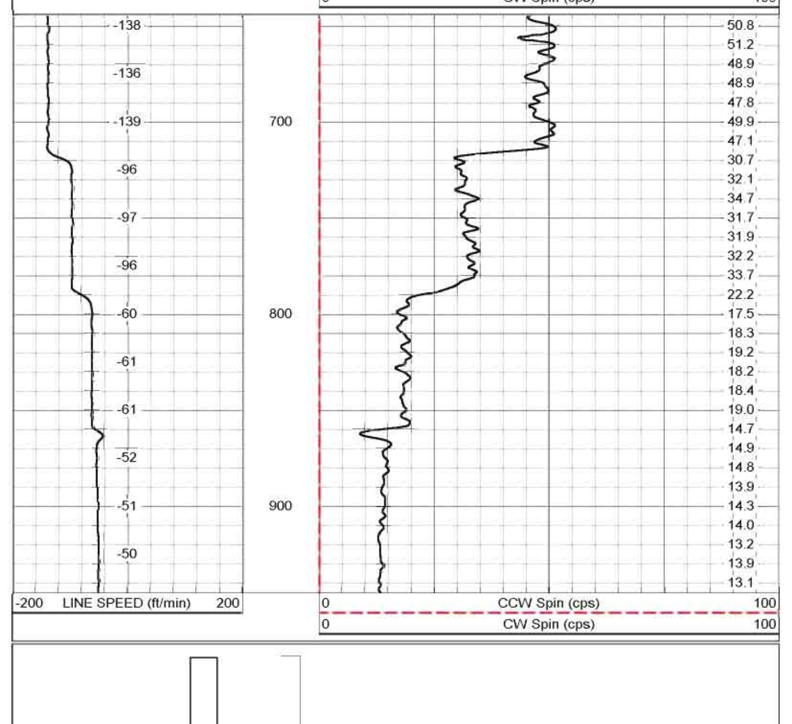
MV Geophysical — Station #1: 1000'

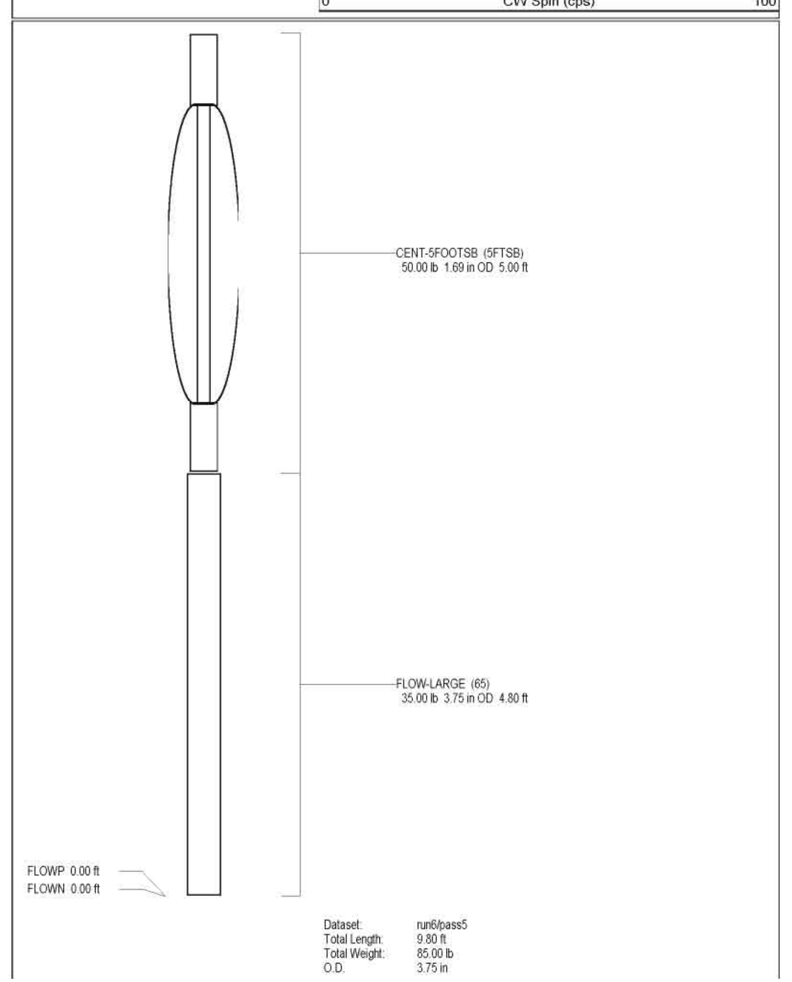
Database File: sunnyr1.db
Dataset Pathname: run7/pass7
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 17:48:06 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:240



MV Geophysical — Q Calibration Down

Database File: sunnyr1.db
Dataset Pathname: run7/pass5
Presentation Format: FLOW
Dataset Creation: Wed Sep 20 17:27:43 2006 by Log VER_5.3
Charted by: Depth in Feet scaled 1:600





Dataset: run6/pass5
Total Length: 9.80 ft
Total Weight: 85.00 lb
O.D.: 3.75 in

MV Geophysical

X-Y CALIPER GAMMA RAY LOG

Company: Diversified Drilling Corp.
Well: Floridian Blending TW
Field: Sunrise
County: Broward
State/Prv: Florida

Company: Diversified Drilling Corporation
Well: Floridian Blending Test Well
Field: Sunrise
County: Broward
State/Prv: Florida
Location: Sawgrass Water Treatment Plant MWH

Other Services: XY/GR,DIL BHC,FLOW FCT,DHTV

Permanent Datum: G.L.
Log Measured From: G.L.
Drilling Measured From: G.L.
Elevation
Elevation: K.B. / D.F. / G.L.

Date	20-SEP-2006
Run Number	SIX
Depth Driller	1400'
Depth Logger	1401'
Bottom Logged Interval	1401'
Top Log Interval	SURFACE
Open Hole Size	12.25"
Type Fluid	H2O
Density / Viscosity	NA/NA
Max. Recorded Temp.	na
Estimated Cement Top	NA
Time Well Ready	13:00 9/20/2006
Time Logger on Bottom	20:00 9/20/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	A.Simon (MWH) / Ralph (DDC)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	36'	220'	FIVE	12.25"	1080'	1400'
TWO	31"	36'	205'				1398' logger
THREE	12.25"	195'	1195'				
FOUR	25"	195'	1090'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	375" WT	SURFACE	36'
Prot. String	26"	375" WT	SURFACE	195'
Production String	16" FRP	16" ID	SURFACE	1080'
Liner	12" SS	12" ID	1051'	1093'
Invoice No	2006280			* FIELD PRINT *

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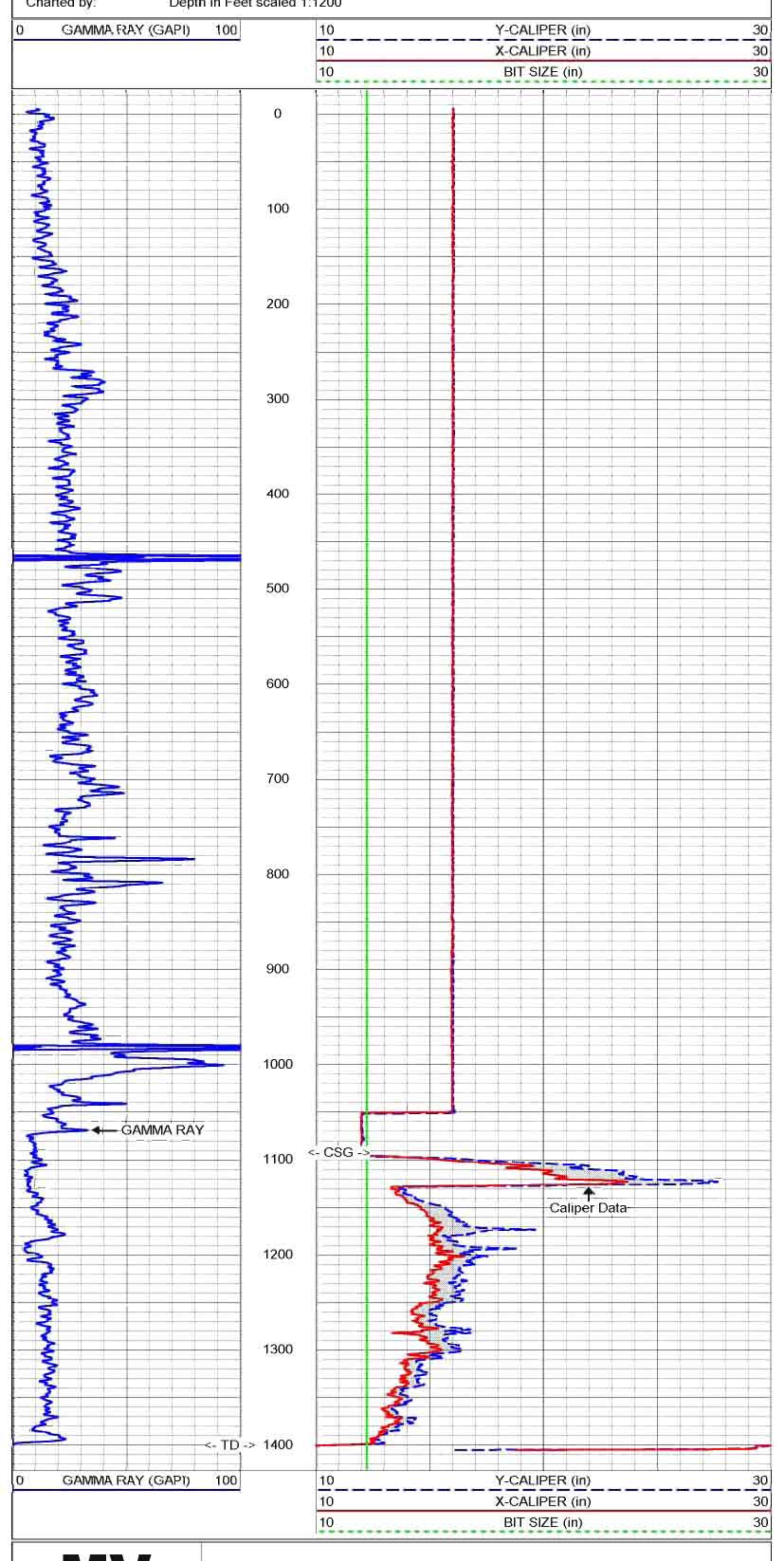
Comments

X-Y Caliper Arm Extensions: 33"

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRXYG1
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:1200

0 GAMMA RAY (GAPI) 100 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

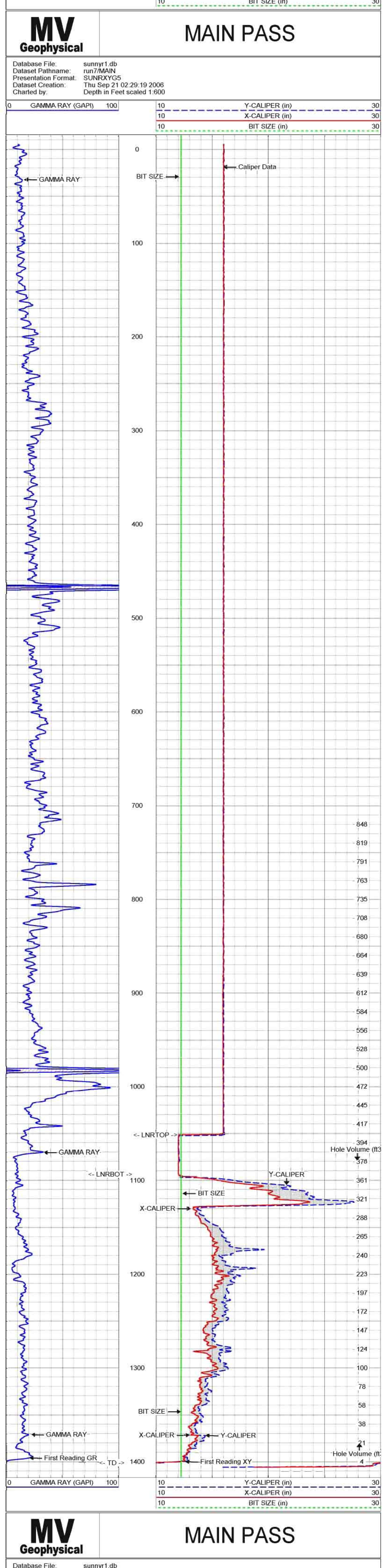


0 GAMMA RAY (GAPI) 100 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRXYG5
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 100 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

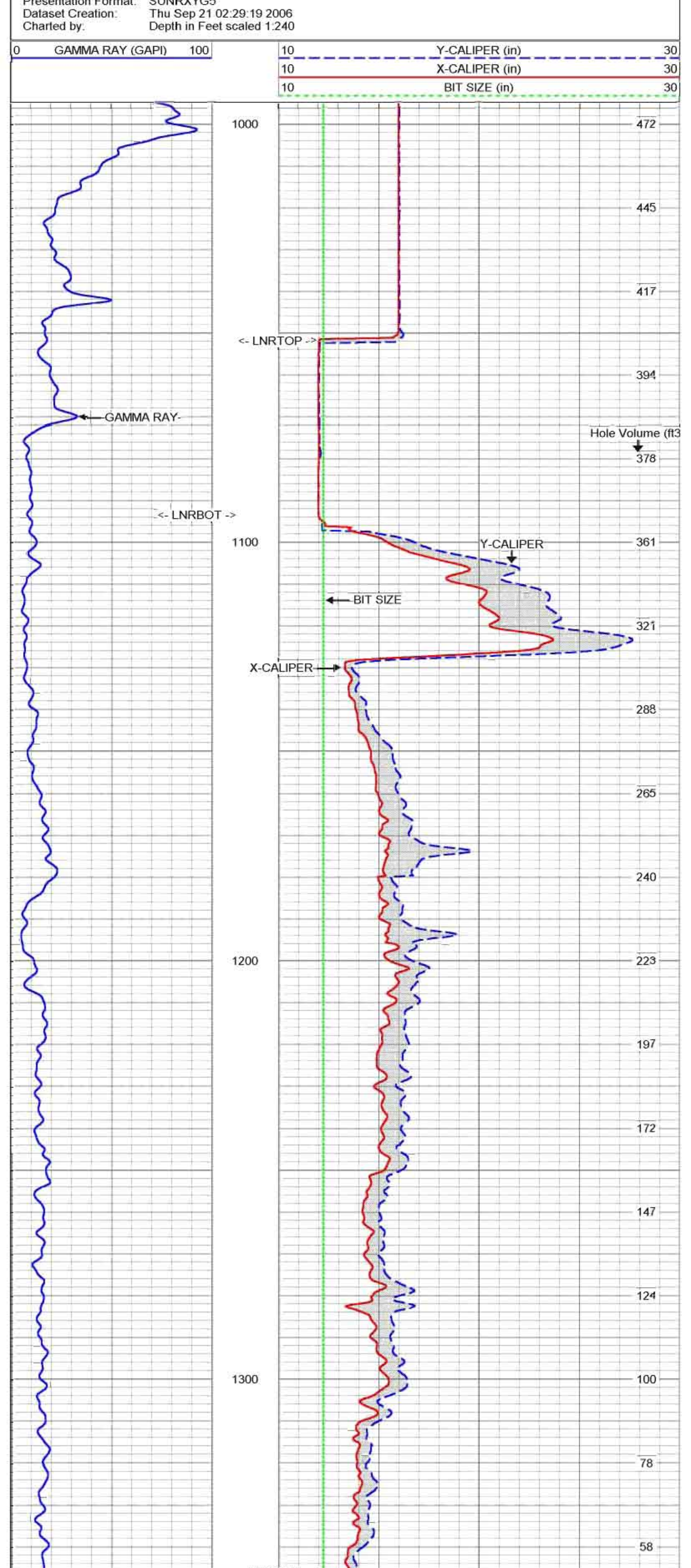


0 GAMMA RAY (GAPI) 100 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRXYG5
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 100 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

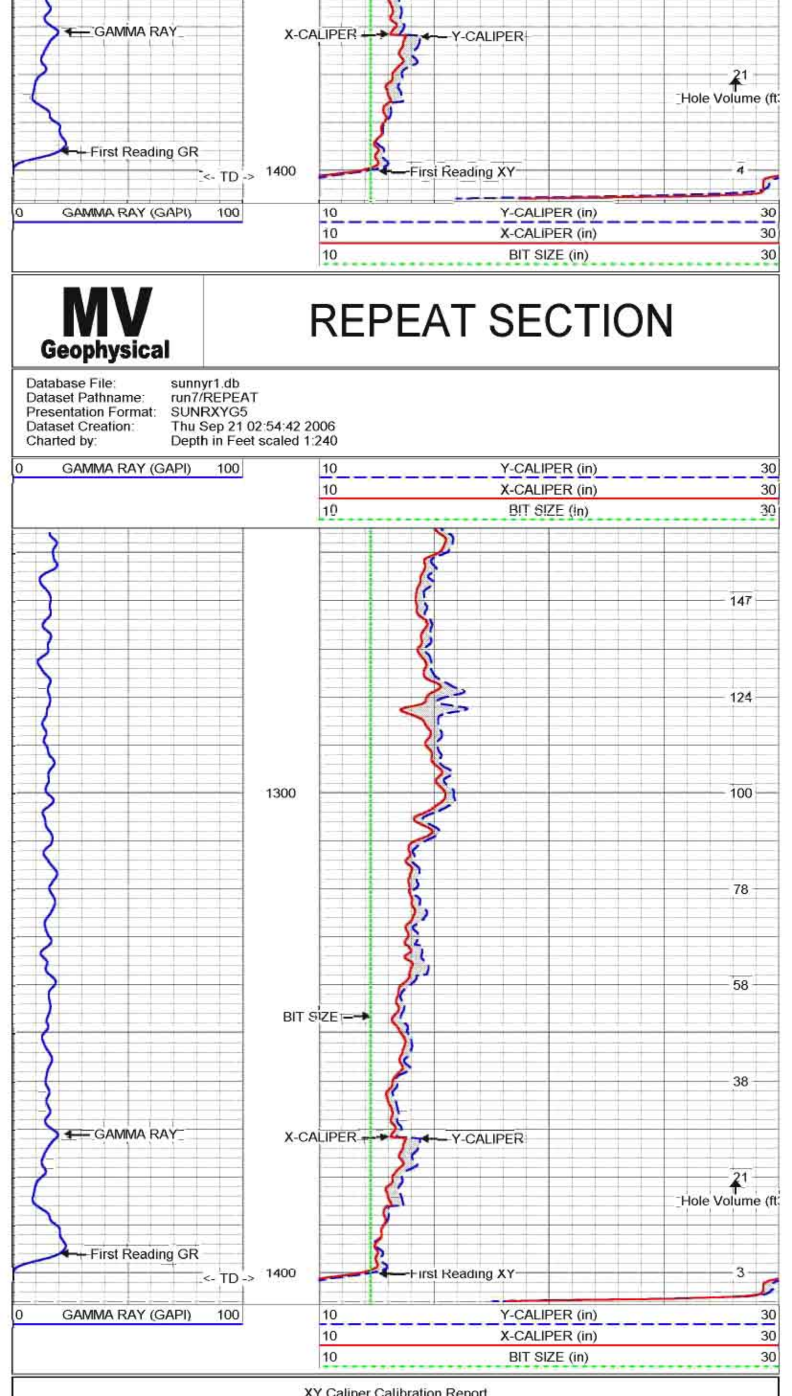


0 GAMMA RAY (GAPI) 100 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

MV Geophysical — REPEAT SECTION

Database File: sunnyr1.db
Dataset Pathname: run7/REPEAT
Presentation Format: SUNRXYG5
Dataset Creation: Thu Sep 21 02:54:42 2006
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 100 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30



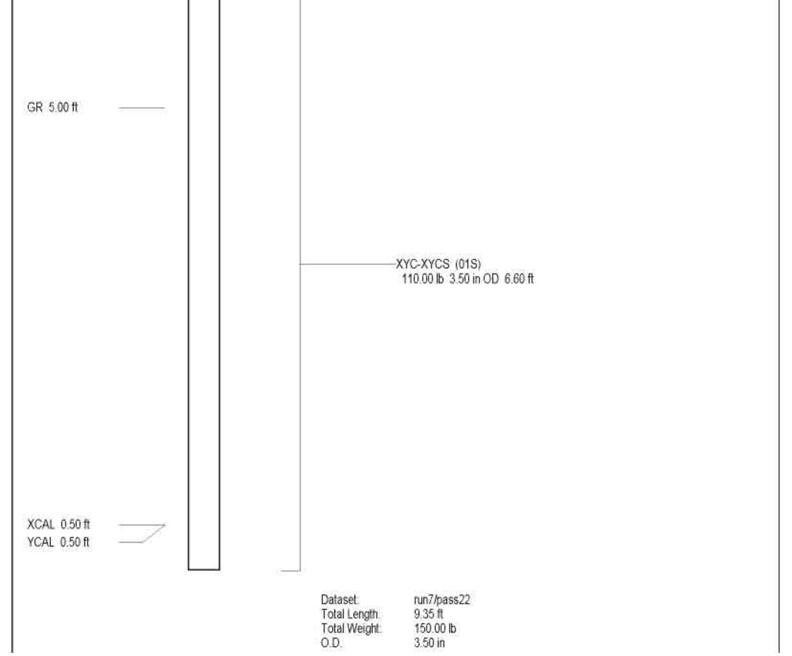
0 GAMMA RAY (GAPI) 100 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

XY Caliper Calibration Report

Serial Number:	01S		
Tool Model:	XYCS		
Performed:	Wed Sep 20 19:52:13 2006		
Small Ring:	12.25	in	
Large Ring:	33	in	
	X Caliper	Y Caliper	
Reading with Small Ring:	659	671.7	cps
Reading with Large Ring:	1116	1007	cps
Gain:	0.0454048	0.0626305	
Offset:	-17.6718	-30.0689	

Gamma Ray Calibration Report

Serial Number:	02	
Tool Model:	GROH	
Performed:	Wed Sep 20 18:55:18 2006	
Calibrator Value:	120	GAPI
Background Reading:	28.4658	cps
Calibrator Reading:	152.513	cps
Sensitivity:	0.967376	GAPI/cps



Dataset: run7/pass22
Total Length: 9.35 ft
Total Weight: 150.00 lb
O.D.: 3.50 in

Company Diversified Drilling Corp.
Well Floridian Blending TW
Field Sunrise
County Broward
State/Prv Florida

MV Geophysical

DUAL INDUCTION LL3 / SP LOG

Company Diversified Drilling Corporation
Well Floridian Blending Test Well
Field Sunrise
County Broward State/Prv Florida
Location Sawgrass Water Treatment Plant MWH

Other Services XY/GR,DIL BHC,FLOW FCT,DHTV

Permanent Datum G.L. Elevation
Log Measured From G.L.
Drilling Measured From G.L.

Elevation K.B. D.F. G.L.

Date	20-SEP-2006
Run Number	SIX
Depth Driller	1400'
Depth Logger	1401'
Bottom Logged Interval	1399'
Top Log Interval	1093'
Open Hole Size	12.25"
Type Fluid	H2O
Density / Viscosity	NA/NA
Max. Recorded Temp.	na
Estimated Cement Top	NA
Time Well Ready	13:00 9/20/2006
Time Logger on Bottom	21:15 9/20/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	A.Simon (MWH) Ralph (DDC)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	36'	220'	FIVE	12.25"	1080'	1400'
TWO	31"	36'	205'				
THREE	12.25"	195'	1195'				1398' logger
FOUR	25"	195'	1090'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	.375" WT	SURFACE	36'
Prot. String	26"	.375" WT	SURFACE	195'
Production String	16" FRP	16" ID	SURFACE	1080'
Liner	12" SS	12" ID	1061'	1093'

Invoice No 2006280 * FIELD PRINT *

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Comments

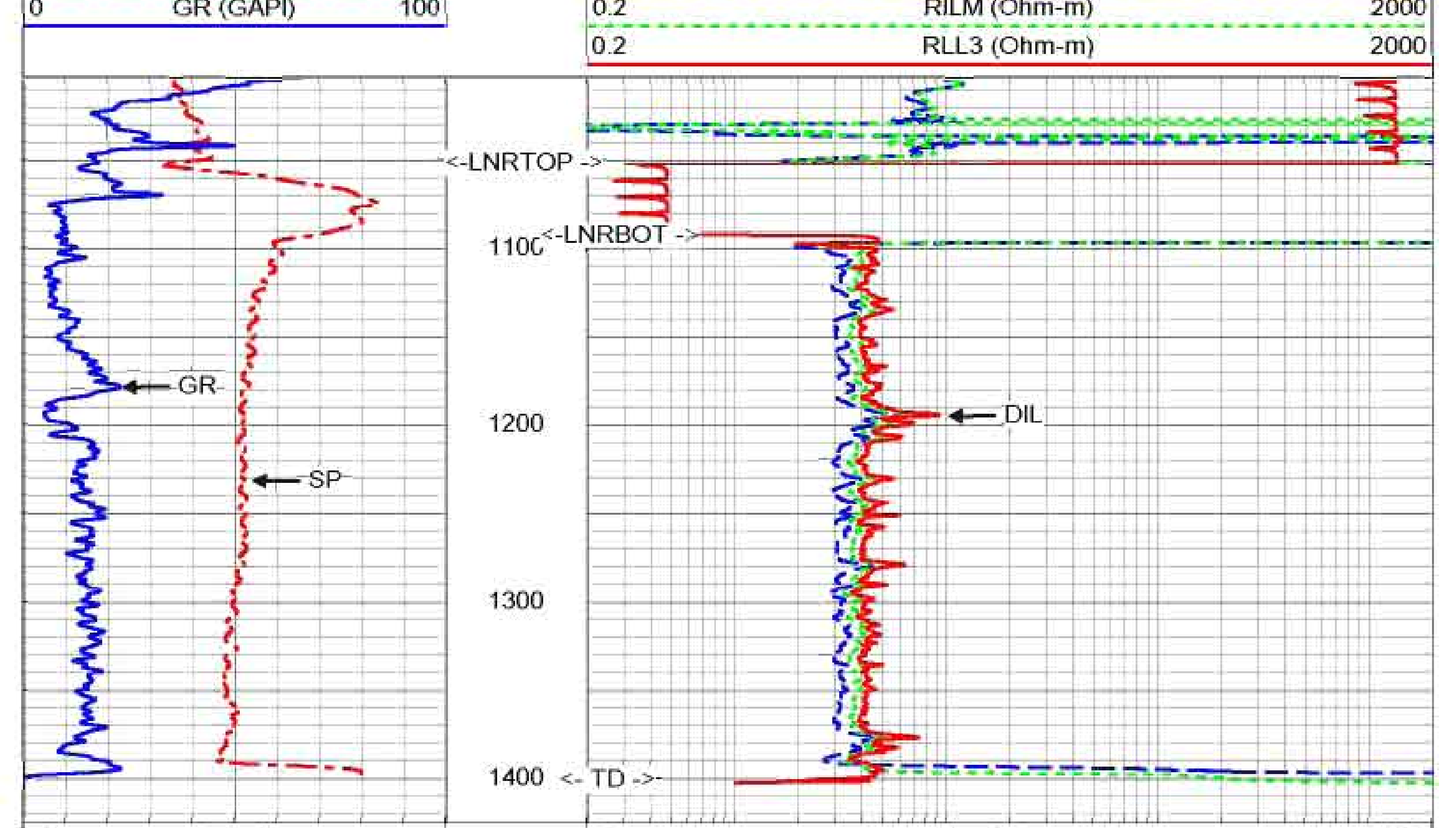
Rw=0.670 ohm-m @ 71.5 degF

MV Geophysical

MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRDIL1
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:1200

-10 SP (mV) 10
0 GR (GAPI) 100
0.2 RILD (Ohm-m) 2000
0.2 RILM (Ohm-m) 2000
0.2 RLL3 (Ohm-m) 2000



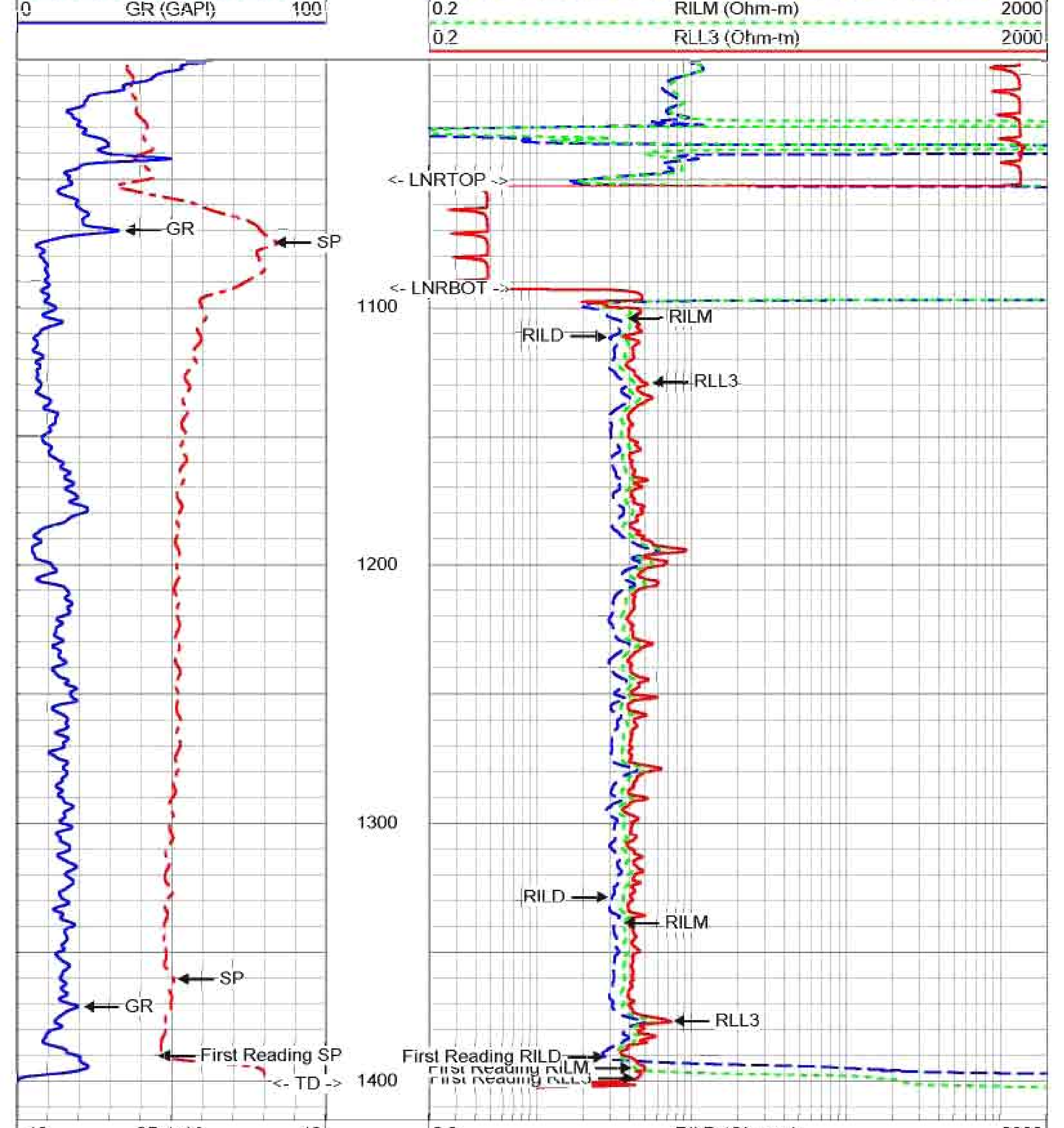
-10 SP (mV) 10
0 GR (GAPI) 100
0.2 RILD (Ohm-m) 2000
0.2 RILM (Ohm-m) 2000
0.2 RLL3 (Ohm-m) 2000

MV Geophysical

MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRDIL5
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:600

-10 SP (mV) 10
0 GR (GAPI) 100
0.2 RILD (Ohm-m) 2000
0.2 RILM (Ohm-m) 2000
0.2 RLL3 (Ohm-m) 2000



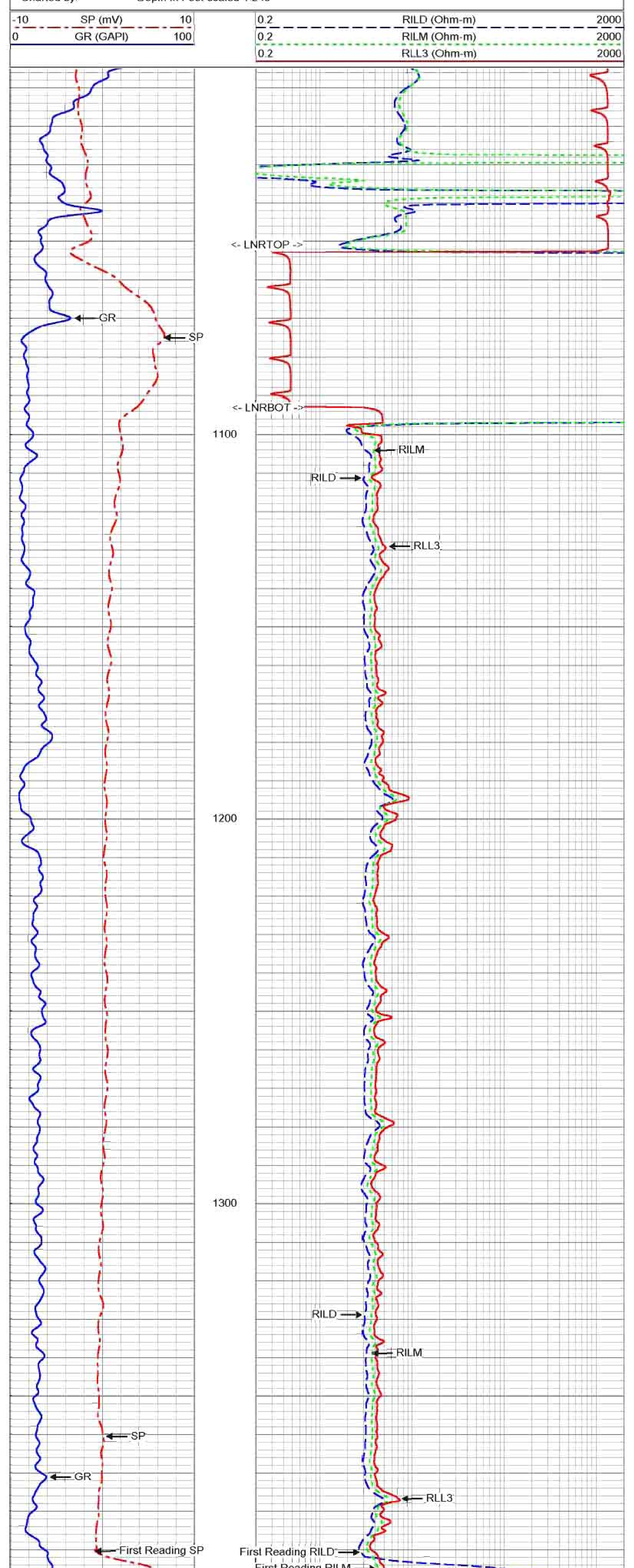
-10 SP (mV) 10
0 GR (GAPI) 100
0.2 RILD (Ohm-m) 2000
0.2 RILM (Ohm-m) 2000
0.2 RLL3 (Ohm-m) 2000

MV Geophysical

MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRDIL5
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:240

-10 SP (mV) 10
0 GR (GAPI) 100
0.2 RILD (Ohm-m) 2000
0.2 RILM (Ohm-m) 2000
0.2 RLL3 (Ohm-m) 2000



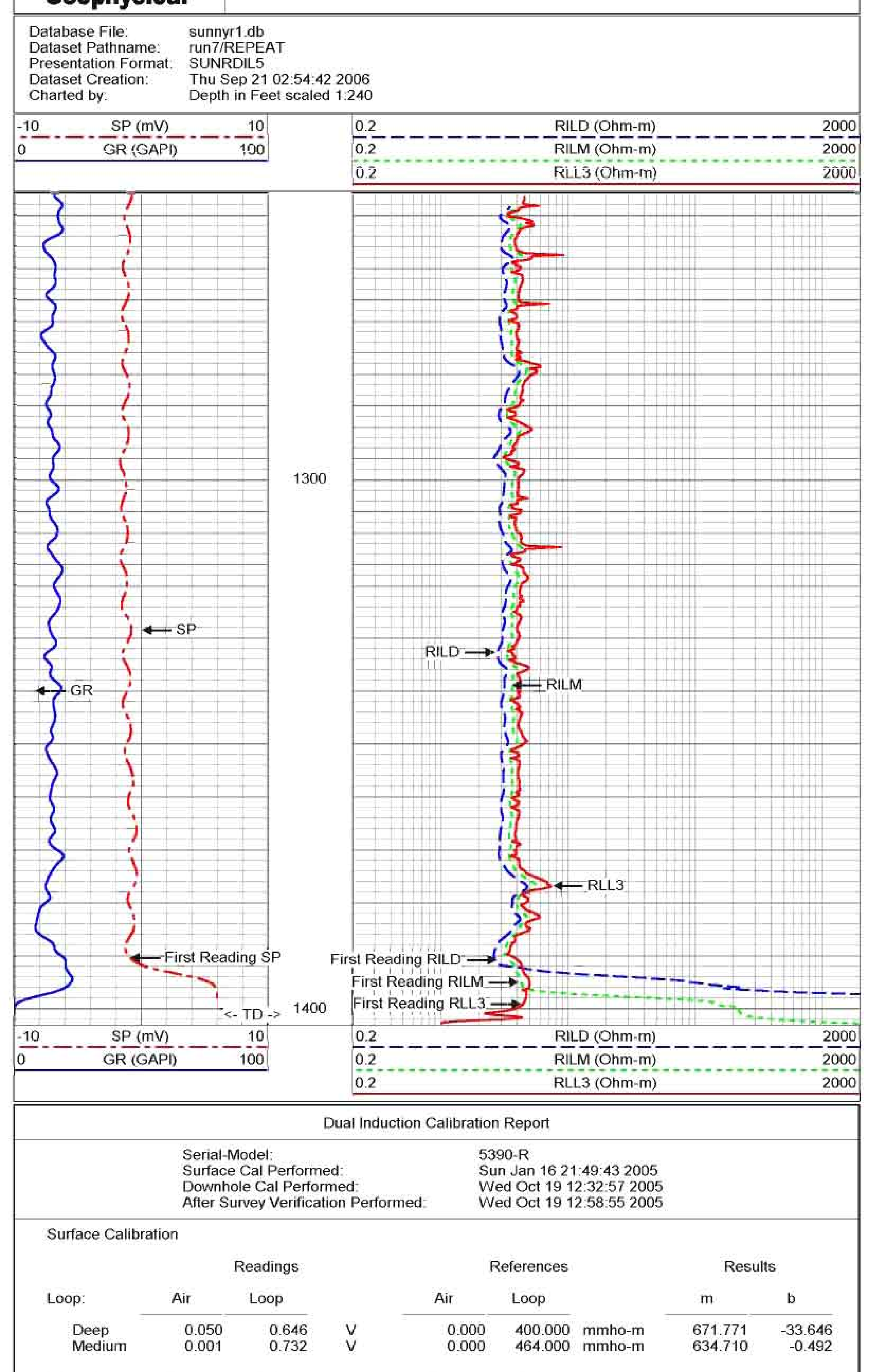
-10 SP (mV) 10
0 GR (GAPI) 100
0.2 RILD (Ohm-m) 2000
0.2 RILM (Ohm-m) 2000
0.2 RLL3 (Ohm-m) 2000

MV Geophysical

REPEAT SECTION

Database File: sunnyr1.db
Dataset Pathname: run7/REPEAT
Presentation Format: SUNRDIL5
Dataset Creation: Thu Sep 21 02:54:42 2006
Charted by: Depth in Feet scaled 1:240

-10 SP (mV) 10
0 GR (GAPI) 100
0.2 RILD (Ohm-m) 2000
0.2 RILM (Ohm-m) 2000
0.2 RLL3 (Ohm-m) 2000



-10 SP (mV) 10
0 GR (GAPI) 100
0.2 RILD (Ohm-m) 2000
0.2 RILM (Ohm-m) 2000
0.2 RLL3 (Ohm-m) 2000

Dual Induction Calibration Report

Serial-Model: 5390-R
Surface Cal Performed: Sun Jan 16 21:49:43 2005
Downhole Cal Performed: Wed Oct 19 12:32:57 2005
After Survey Verification Performed: Wed Oct 19 12:58:55 2005

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.050	0.646	V	0.000	400.000	mmho-m	671.771	-33.646
Medium	0.001	0.732	V	0.000	464.000	mmho-m	634.710	-0.492
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.641	V	0.000	400.000	mmho-m	634.996	-7.104
Medium	-0.009	0.738	V	0.000	464.000	mmho-m	620.900	5.734

Downhole Calibration

	Readings			References			Results	
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	-26.659	398.163	mmho-m	-26.130	397.036	mmho-m	0.996	0.425
Medium	-7.097	468.715	mmho-m	-6.353	467.967	mmho-m	0.997	0.722
Shallow	2.509	0.019	V	494.500	2.000	Ohm-m	197.790	-1.721

After Survey Verification

	Readings			Targets			Results	
Internal:	Zero	Cal		Zero	Cal		m'	b'
Deep	-27.012	397.367	mmho-m	-26.659	398.163	mmho-m	0.996	0.425
Medium	-7.085	467.858	mmho-m	-7.097	468.715	mmho-m	0.997	0.722
Shallow	494.011	1.606	Ohm-m	494.500	2.000	Ohm-m	1.000	0.393

MV Geophysical

BOREHOLE COMPENSATED SONIC w/ VARIABLE DENSITY LOG

Company Diversified Drilling Corporation
Well Floridian Blending Test Well
Field Sunrise
County Broward State/Prv Florida

Location: Sawgrass Water Treatment Plant MWH

Other Services: XY/GR,DIL BHC,FLOW FCT,DHTV

Permanent Datum	G.L.	Elevation
Log Measured From	G.L.	K.B.
Drilling Measured From	G.L.	D.F.
		G.L.

Company Diversified Drilling Corp.
Well Floridian Blending TW
Field Sunrise
County Broward
State/Prv Florida

Date	20-SEP-2006
Run Number	SIX
Depth Driller	1400'
Depth Logger	1401'
Bottom Logged Interval	1393'
Top Log Interval	1035'
Open Hole Size	12.25"
Type Fluid	H2O
Density / Viscosity	NA/NA
Max. Recorded Temp.	na
Estimated Cement Top	NA
Time Well Ready	13:00 9/20/2006
Time Logger on Bottom	20:45 9/20/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	A.Simon (MWH) Ralph (DDC)

Borehole Record / Tubing Record

Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	36'	220'	FIVE	12.25"	1080'	1400'
TWO	31"	36'	205'				1398' logger
THREE	12.25"	195'	1195'				
FOUR	25"	195'	1090'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	375" WT	SURFACE	36'
Prot. String	26"	375" WT	SURFACE	195'
Production String	16" FRP	16" ID	SURFACE	1080'
Liner	12" SS	12" ID	1051'	1093'
Invoice No	2006280			* FIELD PRINT *

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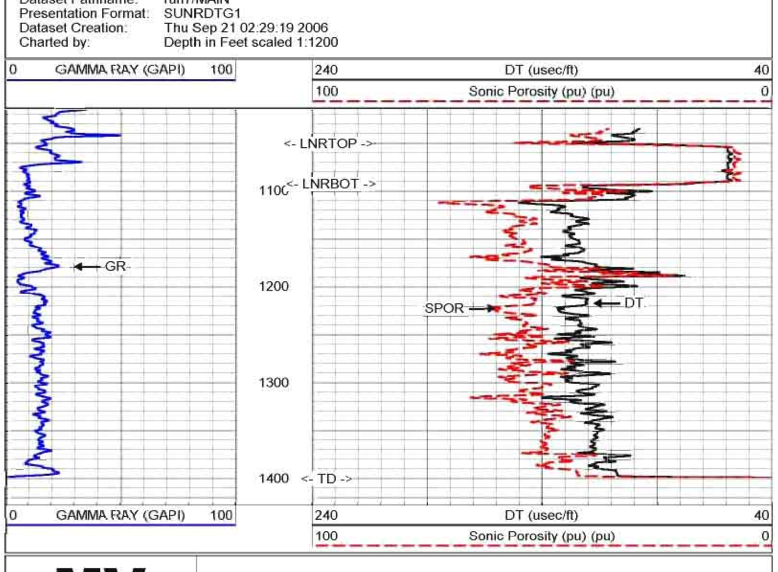
Comments

Sonic Porosity was run on a Limestone Matrix (=47.5)

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRDTG1
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:1200

0 GAMMA RAY (GAPI) 100 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0

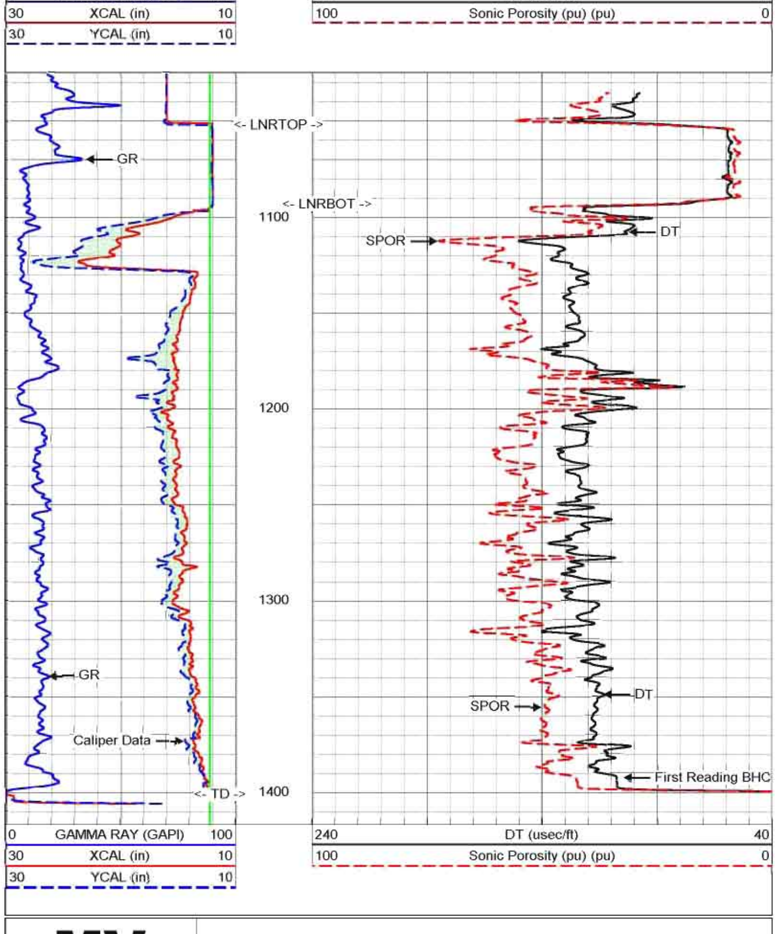


0 GAMMA RAY (GAPI) 100 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRDTXY
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 100 | 30 XCAL (in) 10 | 30 YCAL (in) 10 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0

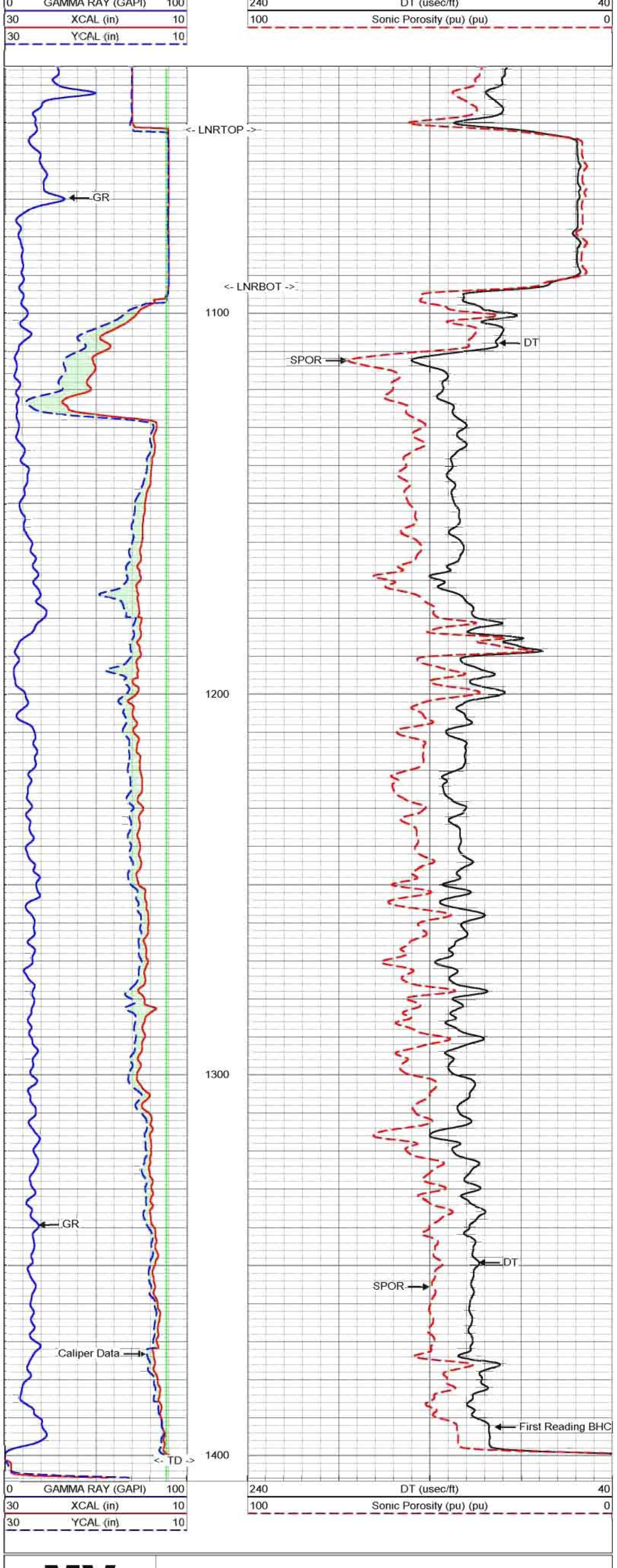


0 GAMMA RAY (GAPI) 100 | 30 XCAL (in) 10 | 30 YCAL (in) 10 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SUNRDTXY
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 100 | 30 XCAL (in) 10 | 30 YCAL (in) 10 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0

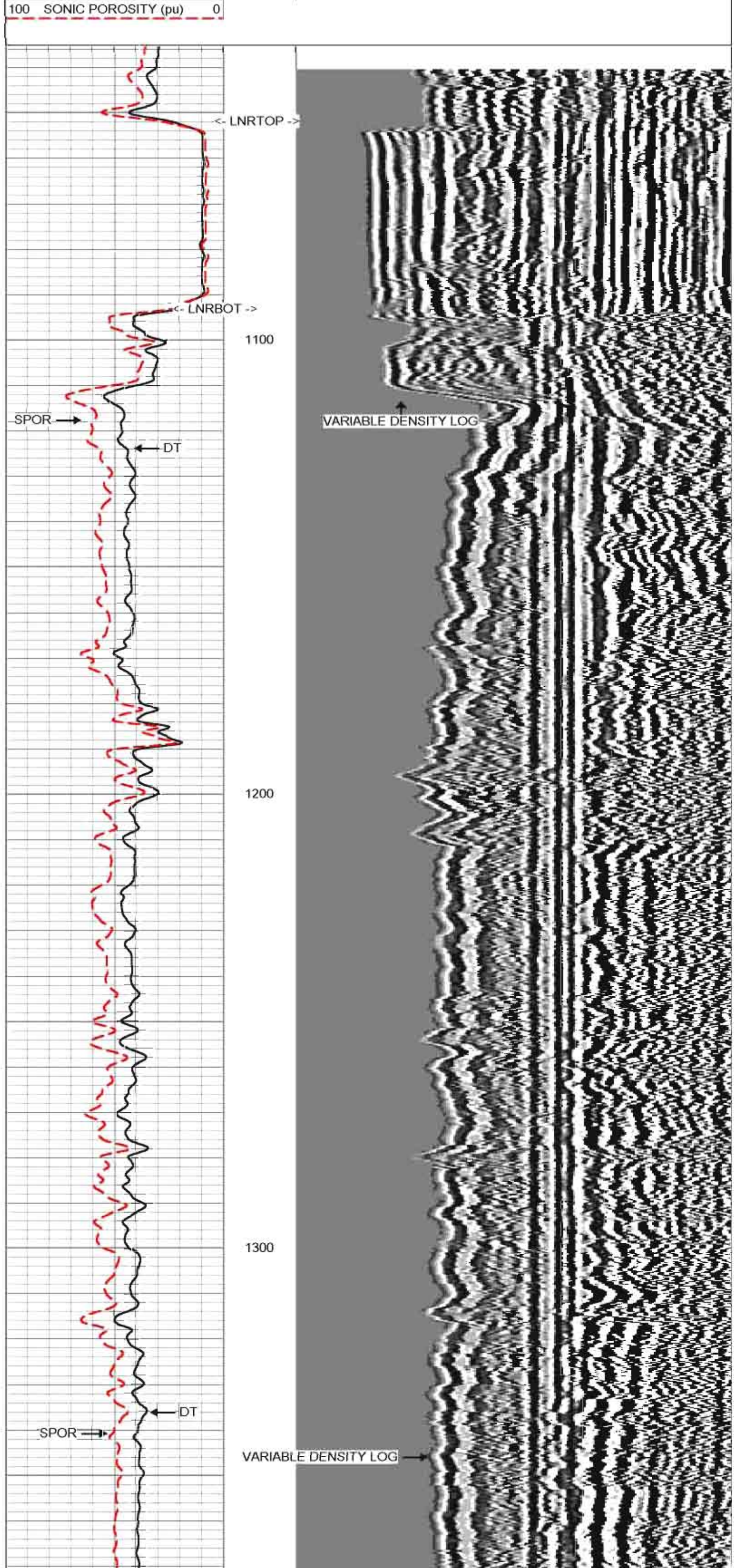


0 GAMMA RAY (GAPI) 100 | 30 XCAL (in) 10 | 30 YCAL (in) 10 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run7/MAIN
Presentation Format: SRDDVNOL
Dataset Creation: Thu Sep 21 02:29:19 2006
Charted by: Depth in Feet scaled 1:240

240 DT (usec/ft) 40 | 100 SONIC POROSITY (pu) 0 | 200 VARIABLE DENSITY LOG 1200

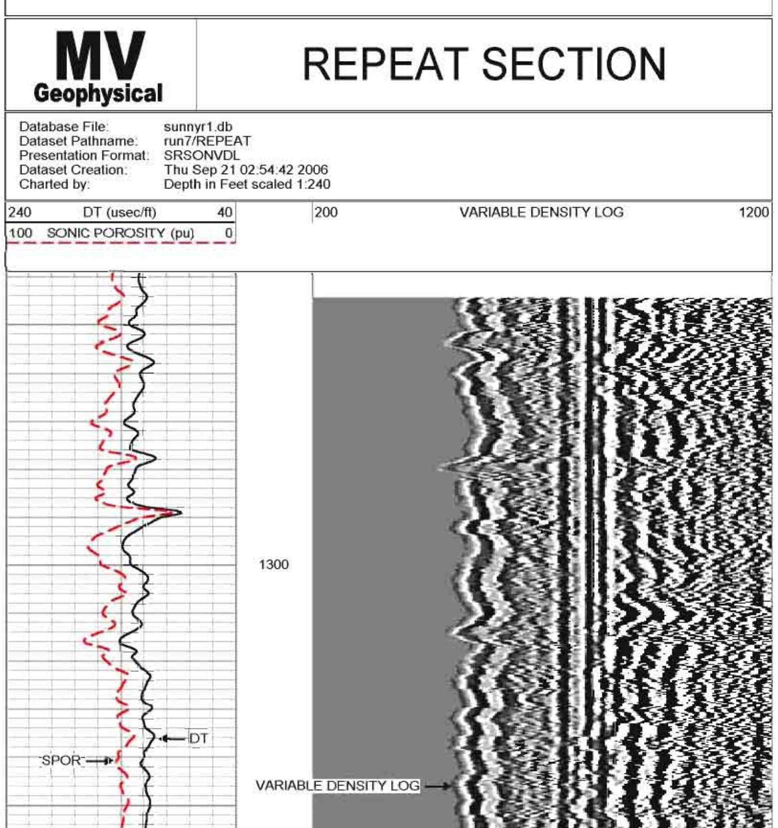


240 DT (usec/ft) 40 | 100 SONIC POROSITY (pu) 0 | 200 VARIABLE DENSITY LOG 1200

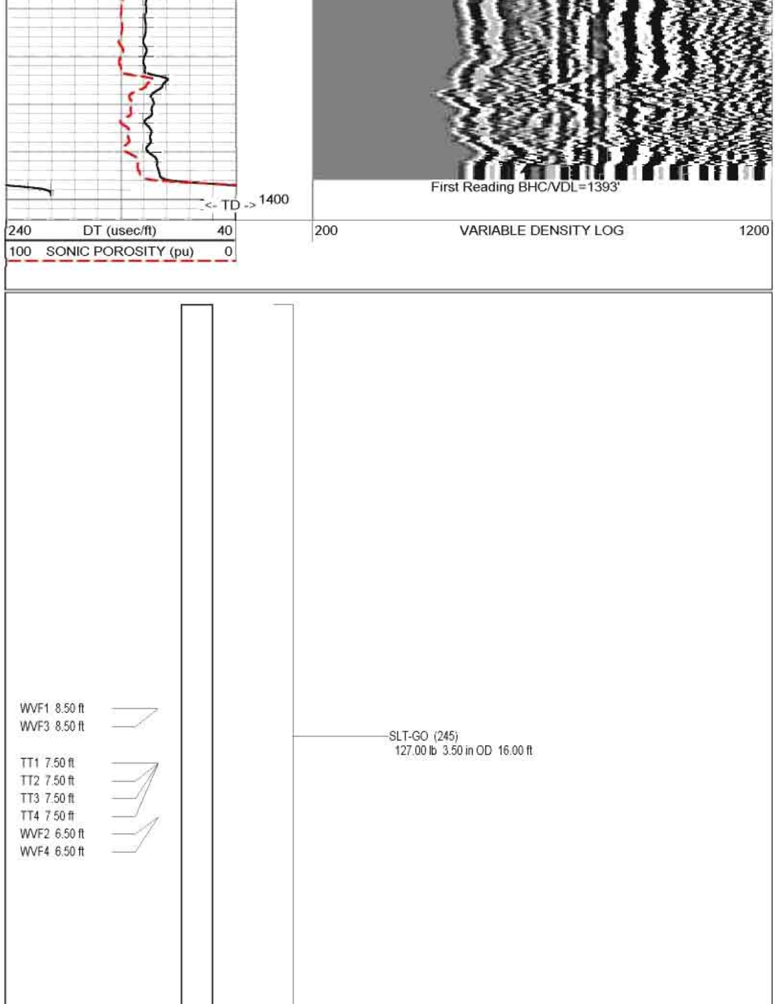
MV Geophysical — REPEAT SECTION

Database File: sunnyr1.db
Dataset Pathname: run7/REPEAT
Presentation Format: SRDDVNOL
Dataset Creation: Thu Sep 21 02:54:40 2006
Charted by: Depth in Feet scaled 1:240

240 DT (usec/ft) 40 | 100 SONIC POROSITY (pu) 0 | 200 VARIABLE DENSITY LOG 1200



240 DT (usec/ft) 40 | 100 SONIC POROSITY (pu) 0 | 200 VARIABLE DENSITY LOG 1200



Total Length 16.68 ft
Total Weight 127.00 lb
O.D. 2.00 in

MV Geophysical

FLUID CONDUCTIVITY TEMPERATURE LOG

Company	Diversified Drilling Corp.
Well	Floridian Blending TW
Field	Sunrise
County	Broward
State/Prv	Florida

Company Diversified Drilling Corporation
Well Floridian Blending Test Well
Field Sunrise
County Broward State/Prv Florida

Location: Sawgrass Water Treatment Plant MWH

Other Services: XY/GR,DIL BHC,FLOW FCT,DHTV

		Elevation	
Permanent Datum	G.L.		K.B.
Log Measured From	G.L.		D.F.
Drilling Measured From	G.L.		G.L.

Date	20-SEP-2006		
Run Number	SIX		
Depth Driller	1400'		
Depth Logger	1401'		
Bottom Logged Interval	1401'		
Top Log Interval	995'		
Open Hole Size	12.25"		
Type Fluid	H2O		
Density / Viscosity	NA/NA		
Max. Recorded Temp.	na		
Estimated Cement Top	NA		
Time Well Ready	13:00 9/20/2006		
Time Logger on Bottom	16:00 9/20/2006		
Equipment Number	MVGS-1		
Location	Ft. Myers		
Recorded By	S.Miller		
Witnessed By	A.Simon (MWH)	Ralph (DDC)	

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	36'	220'	FIVE	12.25"	1080'	1400'
TWO	31"	36'	205'				1398' logger
THREE	12.25"	195'	1195'				
FOUR	25"	195'	1090'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	.375" WT	SURFACE	36'
Prot. String	26"	.375" WT	SURFACE	195'
Production String	16" FRP	16" ID	SURFACE	1080'
Liner	12" SS	12" ID	1051'	1093'
Invoice No.	2006280			* FIELD PRINT *

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Comments

STATIC and DYNAMIC DOWN passes were performed.
Cw=14970 uS/cm @ 71.4 degF (Dynamic Sample). Q =~750 gpm.

FLUID RESISTIVITY CALIBRATION REPORT (Performed: 1-AUG-06 13:45)

uS/cm	CPS
3025.47	2921.77
5822.35	2559.28
14887.7	2228.22

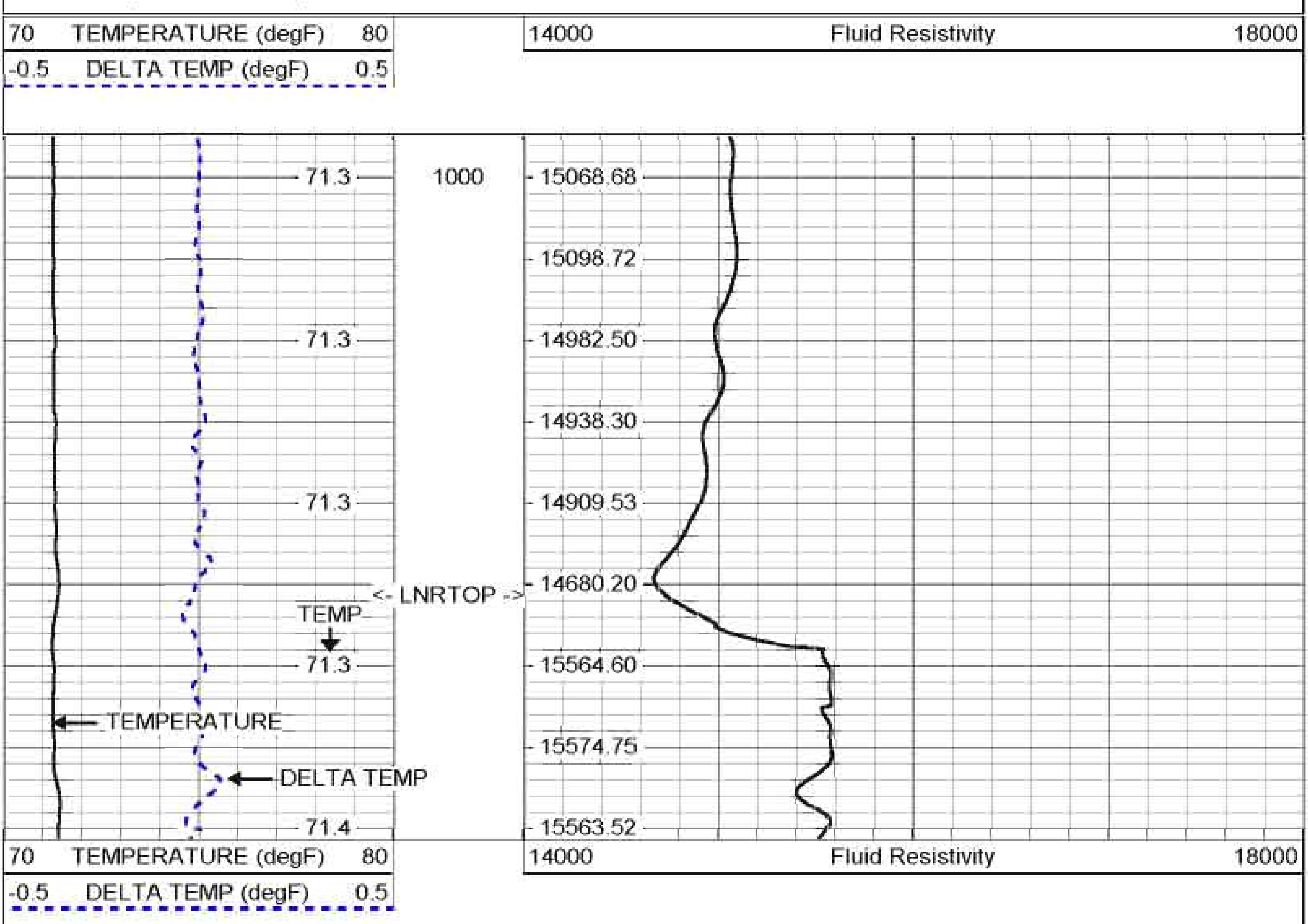
TEMPERATURE CALIBRATION REPORT (Performed: 1-AUG-06 13:15)

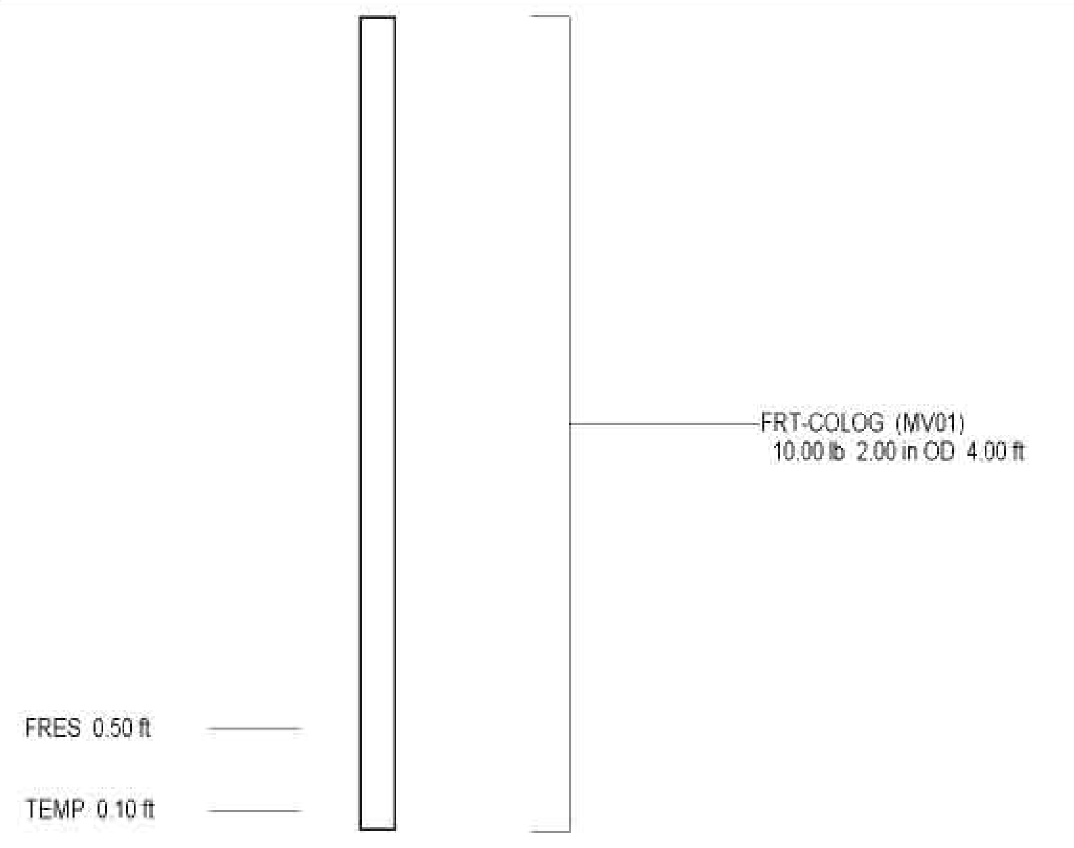
DEG-F	CPS
34.1	2341.78
142.1	6966.78

MV Geophysical

DYNAMIC FCT DOWN

Database File:	sunnyr1.db
Dataset Pathname:	run7/DFCT
Presentation Format:	FCTSUNR2
Dataset Creation:	Thu Sep 21 01:28:47 2006
Charted by:	Depth in Feet scaled 1:240





Dataset:	run7/pass3
Total Length:	4.00 ft
Total Weight:	20.00 lb
O.D	2.00 in

X-Y CALIPER GAMMA RAY LOG

MV Geophysical

Company Diversified Drilling Corp.
Well Floridan Blending Test Well
Field Sunrise
County Broward
State/Prv Florida

Company Diversified Drilling Corporation
Well Floridan Blending Test Well
Field Sunrise
County Broward State/Prv Florida
Location Sawgrass Water Treatment Plant MWH

Other Services DIL/SP BHC/VDL

Permanent Datum G.L. Elevation
Log Measured From G.L.
Drilling Measured From G.L.

Elevation K.B. D.F. G.L.

Date	26-APR-2006
Run Number	ONE
Depth Driller	220'
Depth Logger	229'
Bottom Logged Interval	229'
Top Log Interval	SURFACE
Open Hole Size	12.25"
Type Fluid	MUD
Density / Viscosity	NA/NA
Max. Recorded Temp.	na
Estimated Cement Top	NA
Time Well Ready	14:00 4/26/2006
Time Logger on Bottom	14:00 4/26/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	A. Simon (MWH) T.Toy (DDC)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	36'	220'				
			229' Logger				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	.375" WT	SURFACE	36'
Prot. String				
Production String				
Liner				

Invoice No. 2006118 P.O. # Job No.: * FIELD PRINT *

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Comments

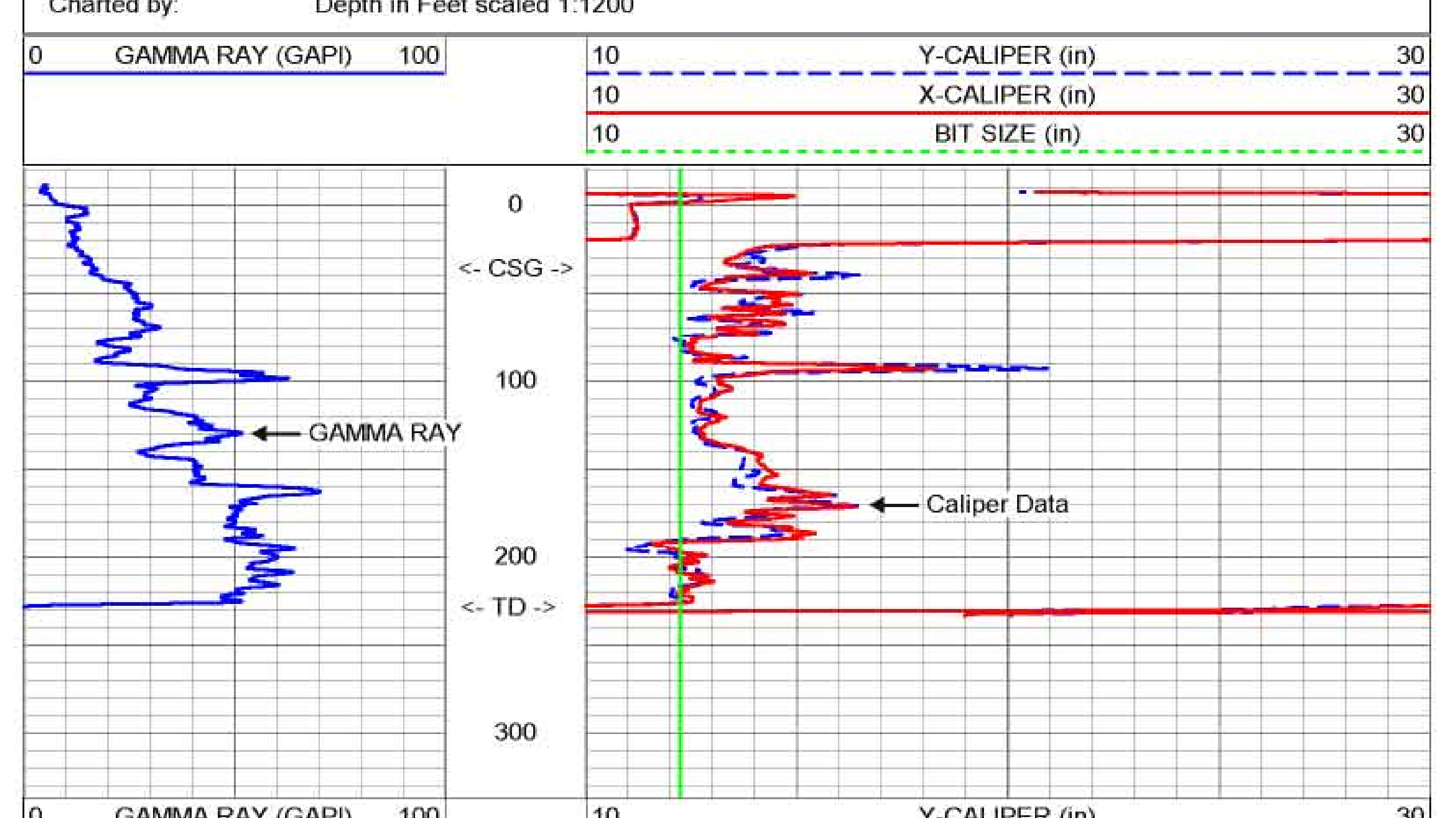
X-Y Caliper Arm Extensions: 33"

MV Geophysical

MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: XY1030-1
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:1200

0 GAMMA RAY (GAPI) 100
10 Y-CALIPER (in) 30
10 X-CALIPER (in) 30
10 BIT SIZE (in) 30



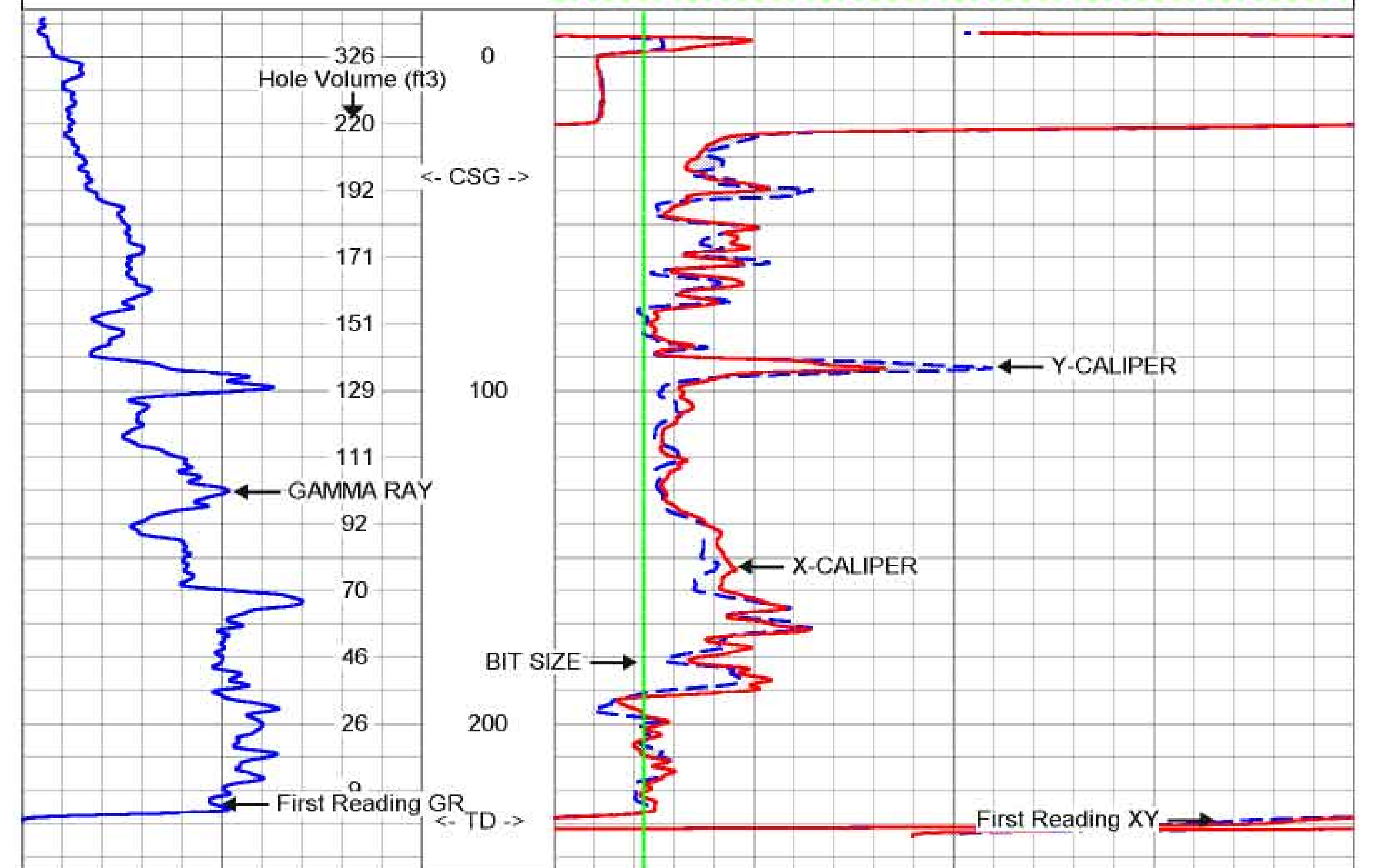
0 GAMMA RAY (GAPI) 100
10 Y-CALIPER (in) 30
10 X-CALIPER (in) 30
10 BIT SIZE (in) 30

MV Geophysical

MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: XY1030-5
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 100
10 Y-CALIPER (in) 30
10 X-CALIPER (in) 30
10 BIT SIZE (in) 30



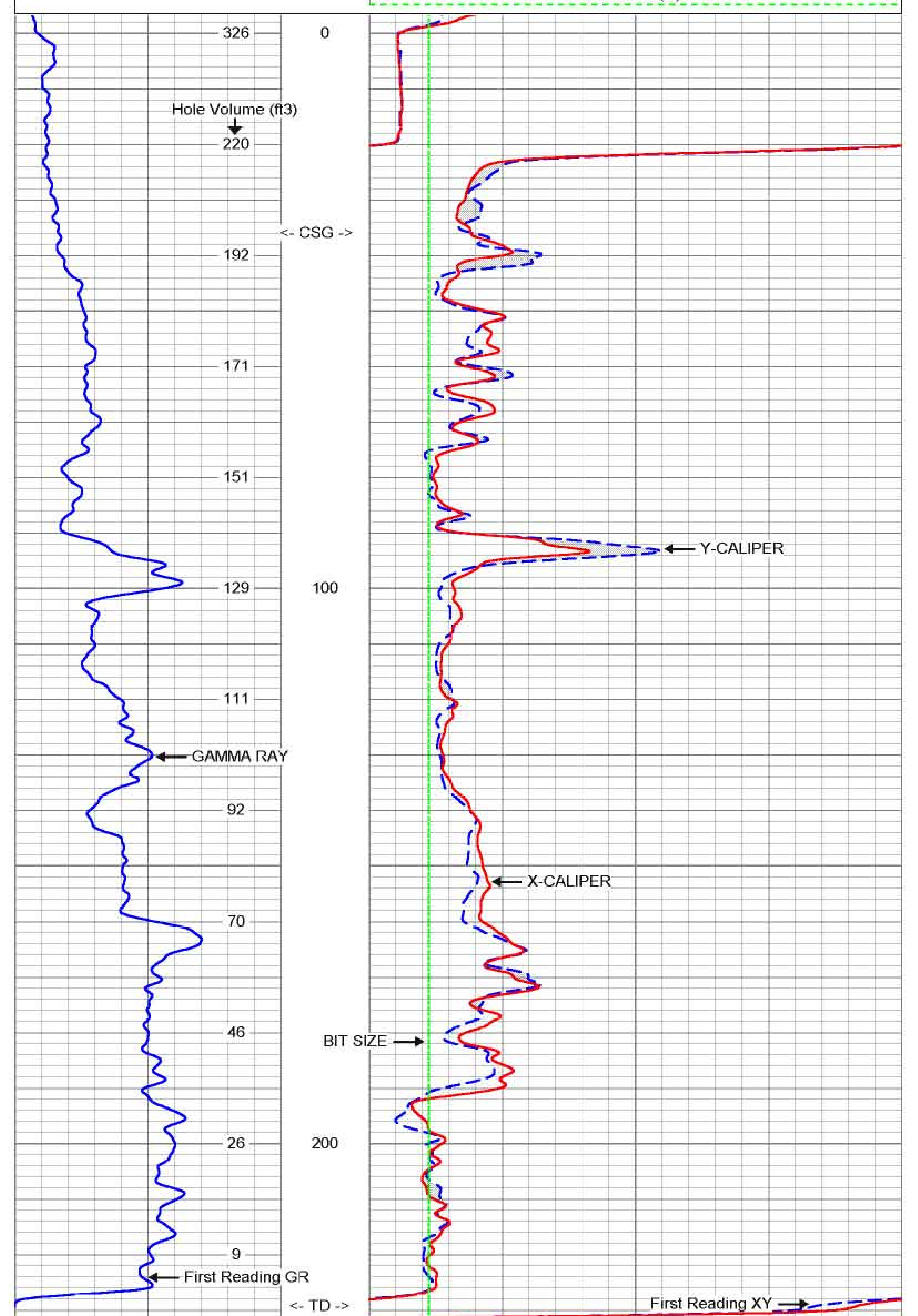
0 GAMMA RAY (GAPI) 100
10 Y-CALIPER (in) 30
10 X-CALIPER (in) 30
10 BIT SIZE (in) 30

MV Geophysical

MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: XY1030-5
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 100
10 Y-CALIPER (in) 30
10 X-CALIPER (in) 30
10 BIT SIZE (in) 30



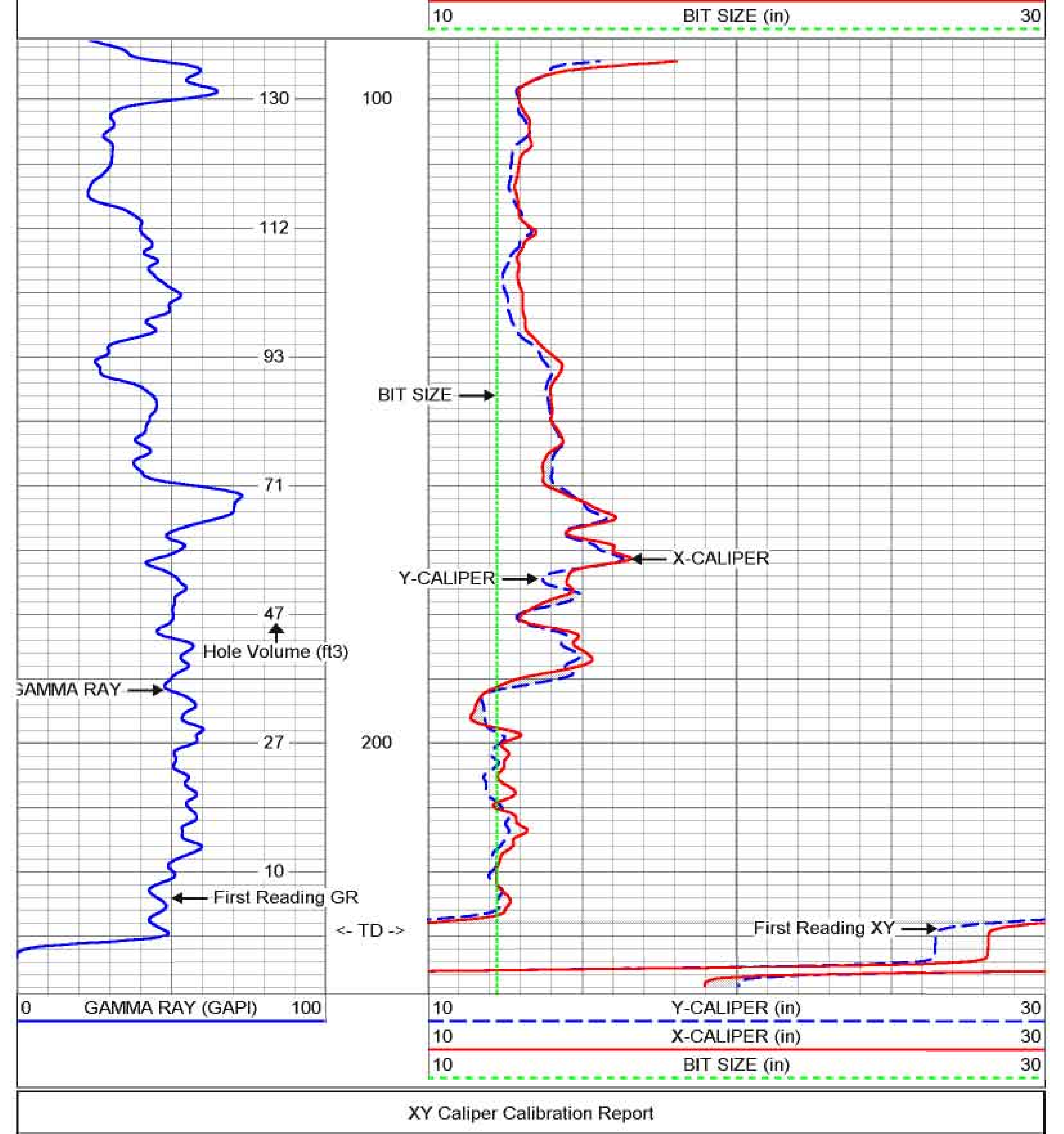
0 GAMMA RAY (GAPI) 100
10 Y-CALIPER (in) 30
10 X-CALIPER (in) 30
10 BIT SIZE (in) 30

MV Geophysical

REPEAT SECTION

Database File: sunnyr1.db
Dataset Pathname: REPEAT
Presentation Format: XY1030-5
Dataset Creation: Wed Apr 26 14:41:38 2006
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 100
10 Y-CALIPER (in) 30
10 X-CALIPER (in) 30
10 BIT SIZE (in) 30



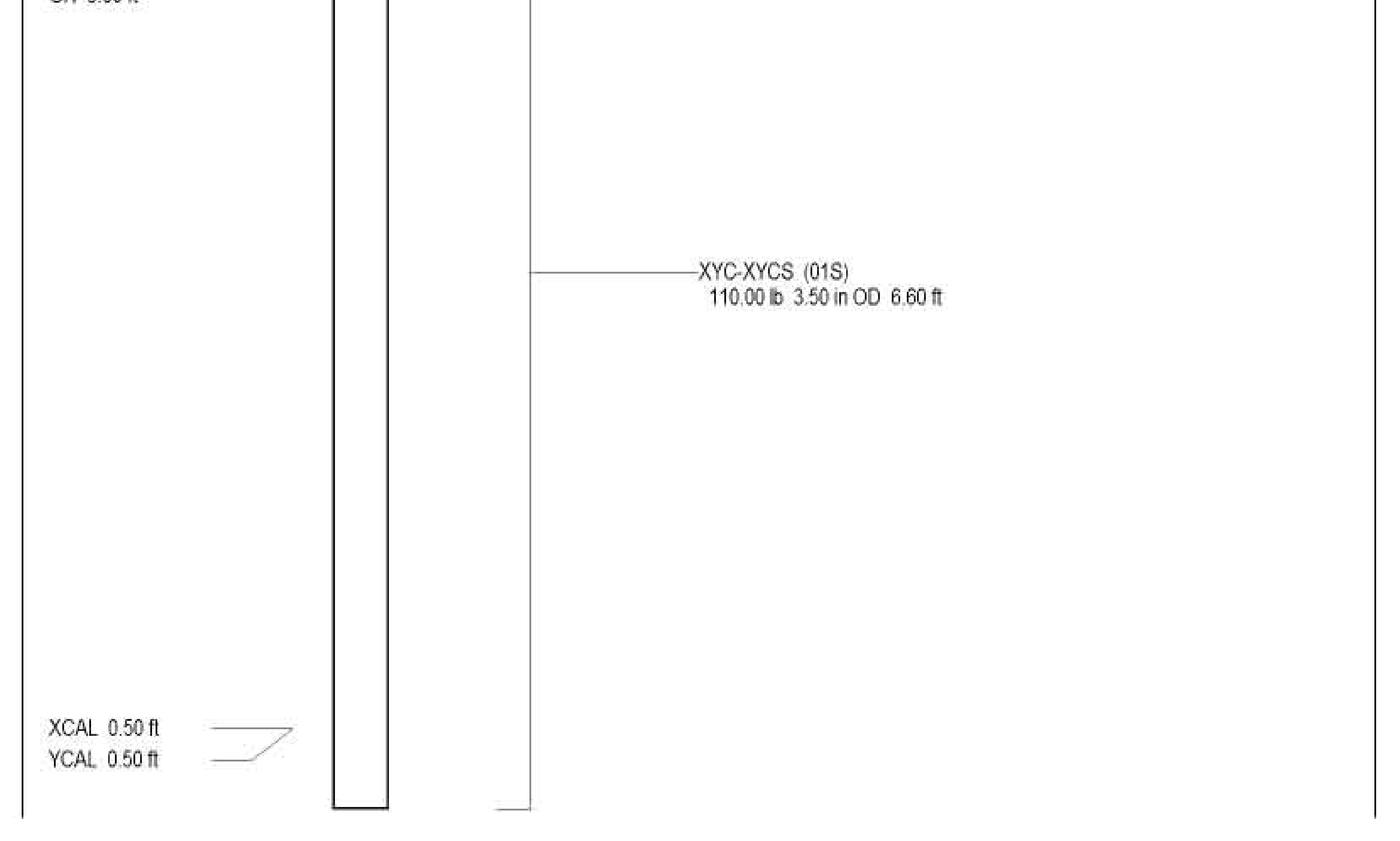
0 GAMMA RAY (GAPI) 100
10 Y-CALIPER (in) 30
10 X-CALIPER (in) 30
10 BIT SIZE (in) 30

XY Caliper Calibration Report

Serial Number:	01S		
Tool Model:	XYCS		
Performed:	Wed Apr 26 14:28:05 2006		
Small Ring:	12.25	in	
Large Ring:	31.25	in	
	X Caliper	Y Caliper	
Reading with Small Ring:	642.1	669.7	cps
Reading with Large Ring:	1008.5	1064.9	cps
Gain:	0.0518559	0.0480769	
Offset:	-21.0467	-19.9471	

Gamma Ray Calibration Report

Serial Number:	01	
Tool Model:	GROH	
Performed:	Tue Apr 25 09:30:21 2006	
Calibrator Value:	120	GAPI
Background Reading:	3.9691	cps
Calibrator Reading:	123.169	cps
Sensitivity:	1.00671	GAPI/cps



DUAL INDUCTION LL3 / SP LOG

MV Geophysical

Company	Diversified Drilling Corporation
Well	Floridan Blending Test Well
Field	Sunrise
County	Broward
State/Prv	Florida
Location	Sawgrass Water Treatment Plant MWH
Other Services	DIL/SP BHC/VDL

Company	Diversified Drilling Corp.
Well	Floridan Blending Test Well
Field	Sunrise
County	Broward
State/Prv	Florida

		Elevation
Permanent Datum	G.L.	K.B.
Log Measured From	G.L.	D.F.
Drilling Measured From	G.L.	G.L.

Date	26-APR-2006
Run Number	ONE
Depth Driller	220'
Depth Logger	229'
Bottom Logged Interval	227'
Top Log Interval	36'
Open Hole Size	12.25"
Type Fluid	MUD
Density / Viscosity	NA/NA
Max. Recorded Temp.	na
Estimated Cement Top	NA
Time Well Ready	14:00 4/26/2006
Time Logger on Bottom	14:45 4/26/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	A. Simon (MWH) / T.Toy (DDC)

Borehole Record

Run Number	Bit	From	To
ONE	12.25"	36'	220'
			229' Logger

Tubing Record

Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	.375" WT	SURFACE	36'
Prot. String				
Production String				
Liner				

Invoice No. 2006118 P.O. # Job No.: * FIELD PRINT *

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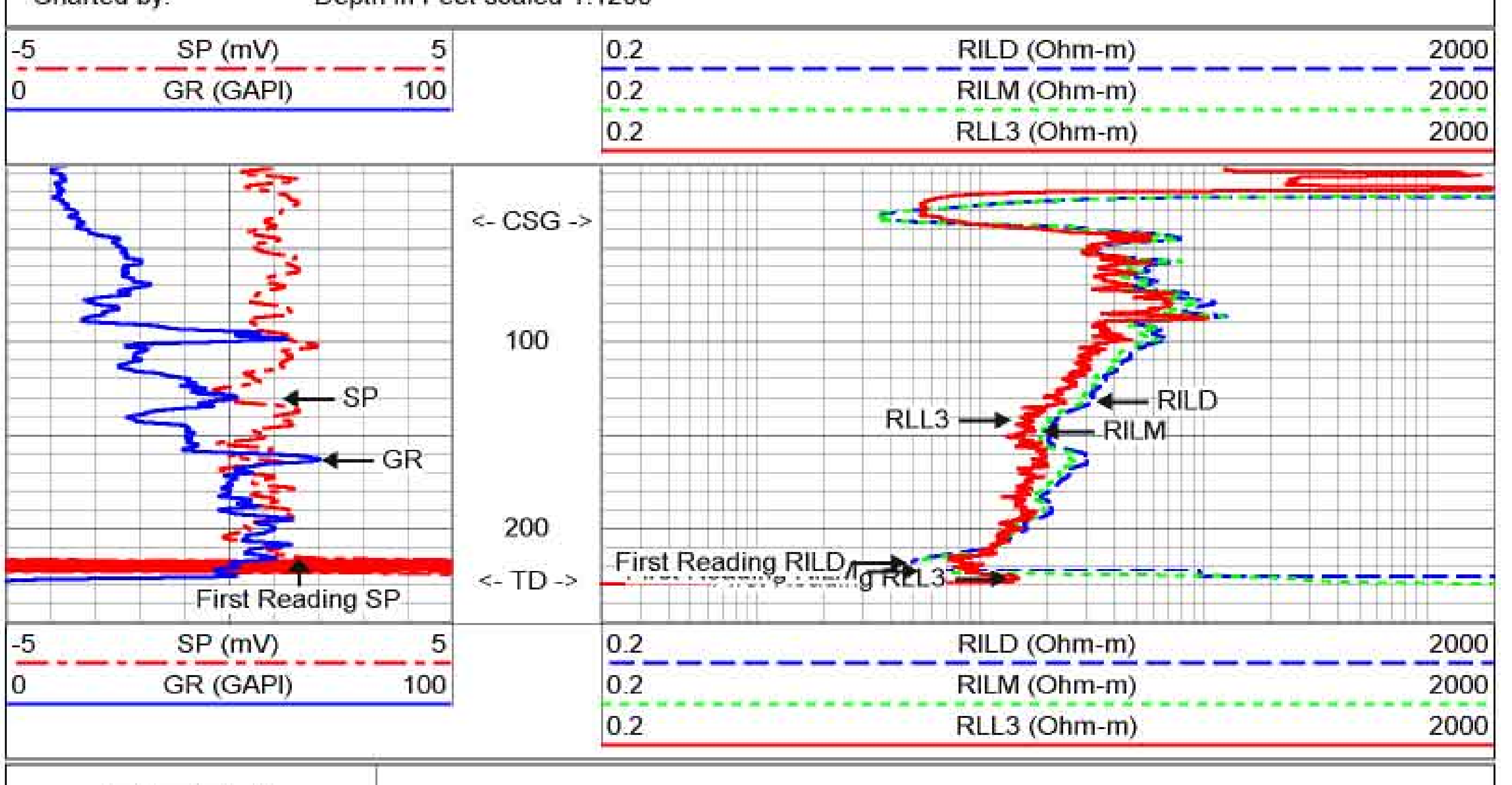
Comments

Rm=13.457 ohm-m @ 81.5 degF

MV Geophysical

MAIN PASS

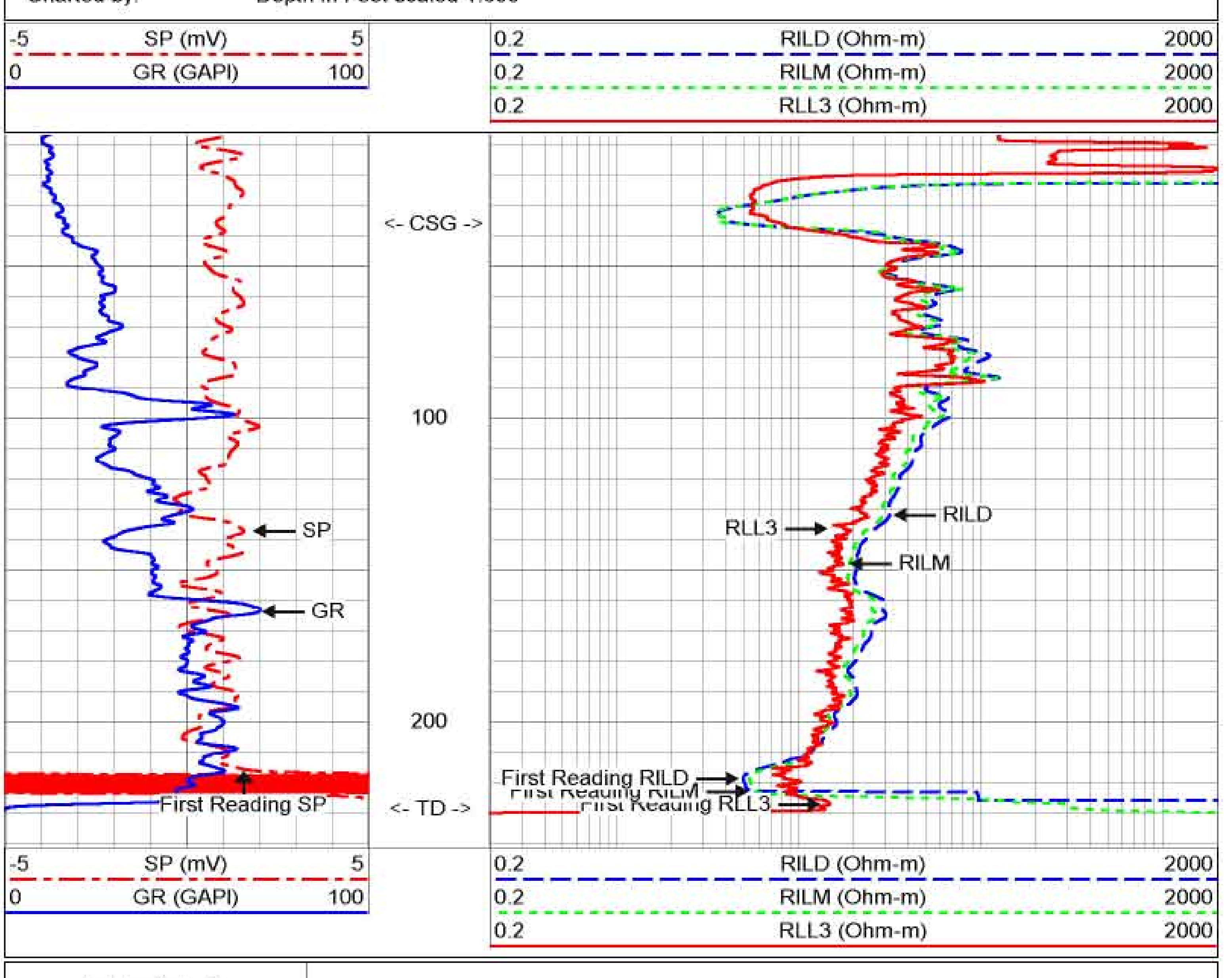
Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: DIL-1
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:1200



MV Geophysical

MAIN PASS

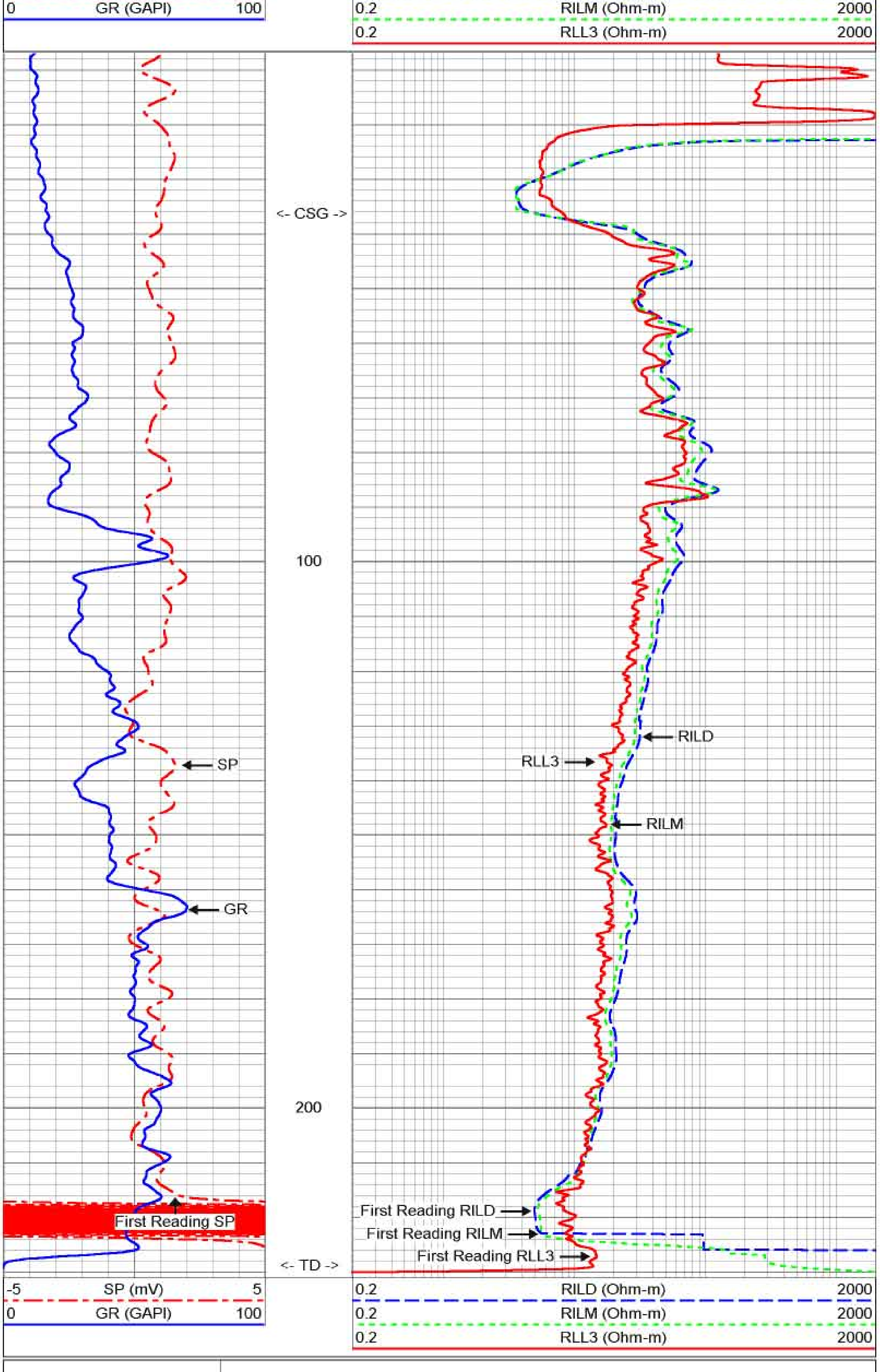
Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: DIL
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:600



MV Geophysical

MAIN PASS

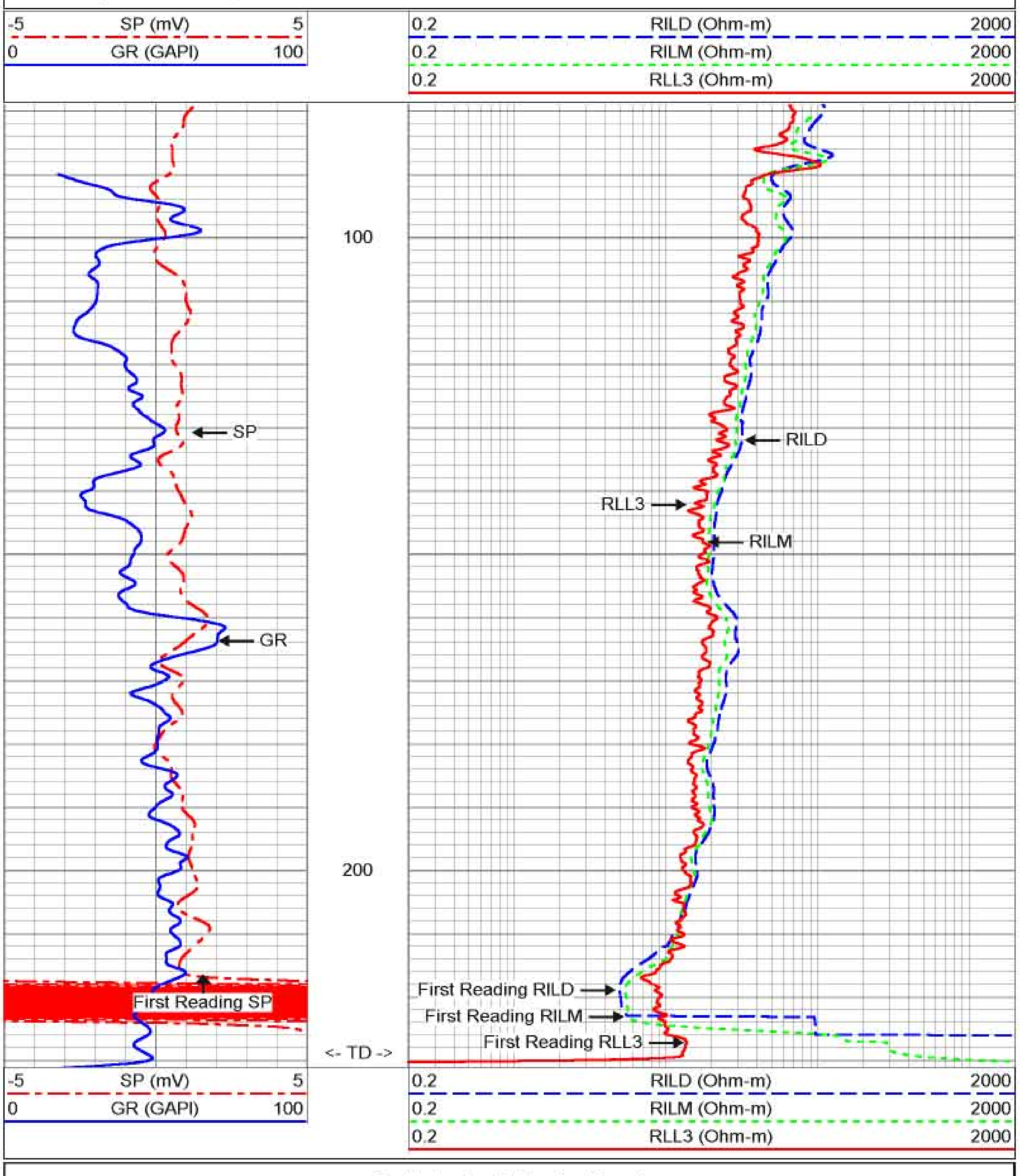
Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: DIL
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:240



MV Geophysical

REPEAT SECTION

Database File: sunnyr1.db
Dataset Pathname: REPEAT
Presentation Format: DIL
Dataset Creation: Wed Apr 26 14:41:38 2006
Charted by: Depth in Feet scaled 1:240



Dual Induction Calibration Report

Serial-Model:	5390-R
Surface Cal Performed:	Sun Jan 16 21:49:43 2005
Downhole Cal Performed:	Thu Mar 02 08:33:17 2006
After Survey Verification Performed:	Thu Mar 02 09:07:55 2006

Surface Calibration

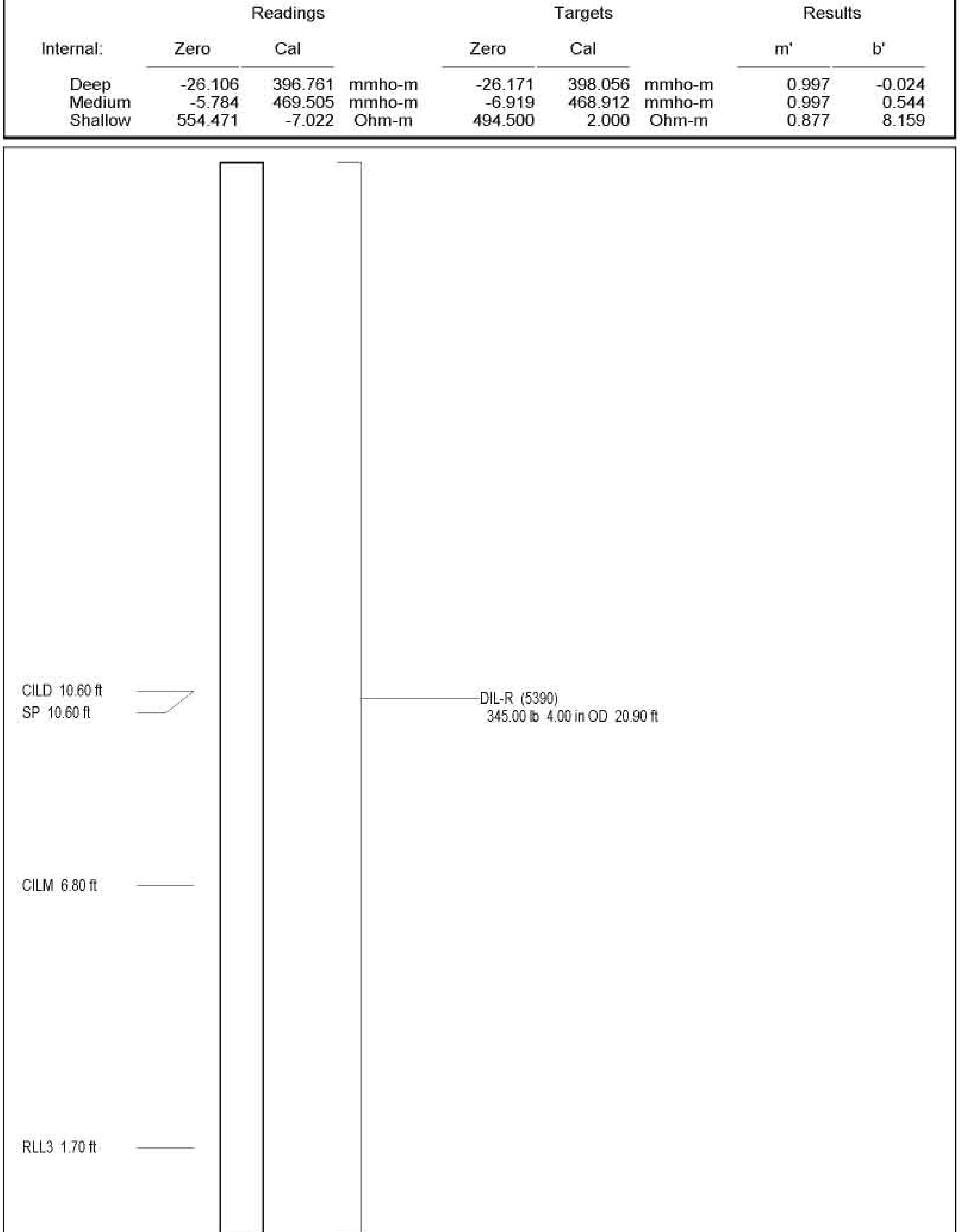
	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.050	0.646	V	0.000	400.000	mmho-m	671.771	-33.646
Medium	0.001	0.732	V	0.000	464.000	mmho-m	634.710	-0.492
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.641	V	0.000	400.000	mmho-m	634.996	-7.104
Medium	-0.009	0.738	V	0.000	464.000	mmho-m	620.900	5.734

Downhole Calibration

	Readings			References			Results	
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	-26.171	398.056	mmho-m	-26.130	397.036	mmho-m	0.997	-0.024
Medium	-6.919	468.912	mmho-m	-6.353	467.967	mmho-m	0.997	0.544
Shallow	0.010	0.005	V	494.500	2.000	Ohm-m	86951.773	-398.156

After Survey Verification

	Readings			Targets			Results	
Internal:	Zero	Cal		Zero	Cal		m'	b'
Deep	-26.106	396.761	mmho-m	-26.171	398.056	mmho-m	0.997	-0.024
Medium	-5.784	469.505	mmho-m	-6.919	468.912	mmho-m	0.997	0.544
Shallow	554.471	-7.022	Ohm-m	494.500	2.000	Ohm-m	0.877	8.159



Dataset: run1/pass5
Total Length: 20.90 ft
Total Weight: 345.00 lb
O.D. 4.00 in

MV Geophysical

BOREHOLE COMPENSATED SONIC w/ VARIABLE DENSITY LOG

Company: Diversified Drilling Corp.
Well: Floridan Blending Test Well
Field: Sunrise
County: Broward
State/Prov: Florida
Location: Sawgrass Water Treatment Plant

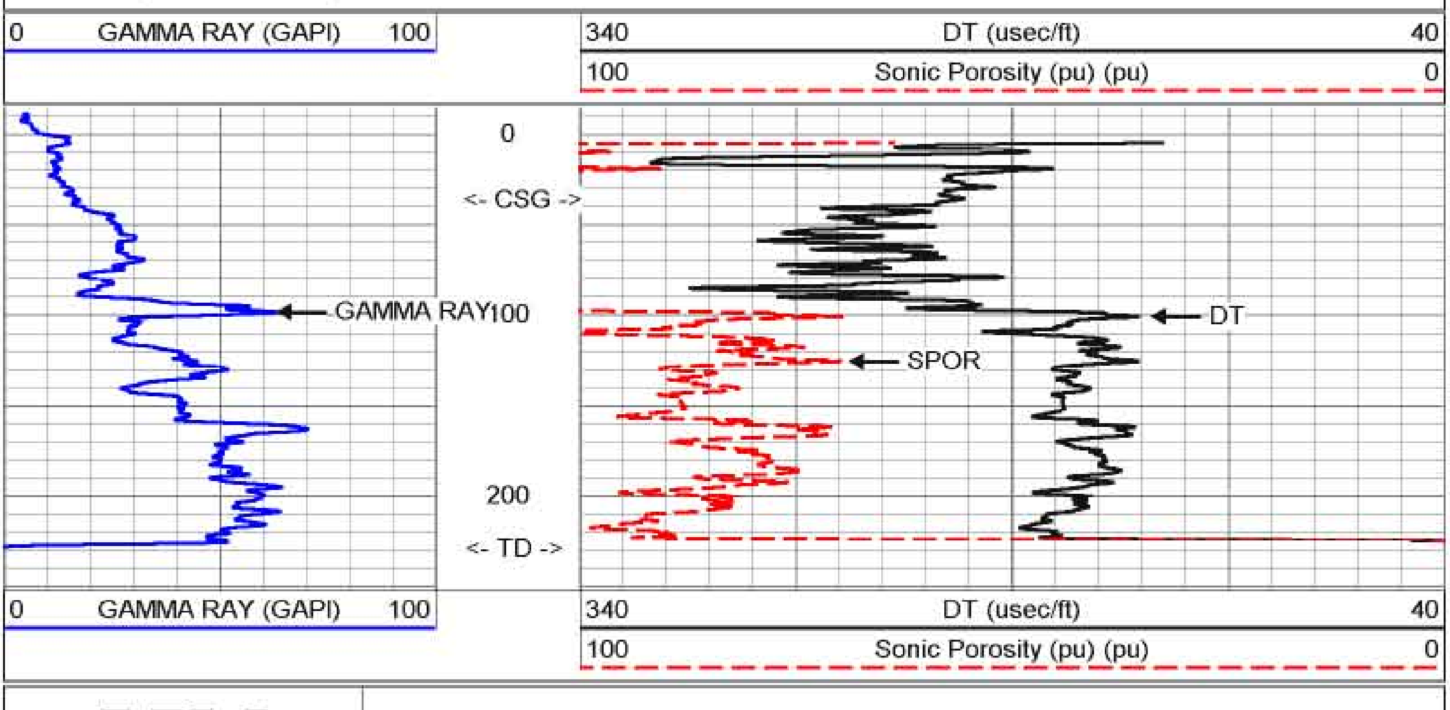
Comments

Sonic Porosity was run on a Limestone Matrix (=47.5)

Acoustic coupling marginaal above 100' bls.

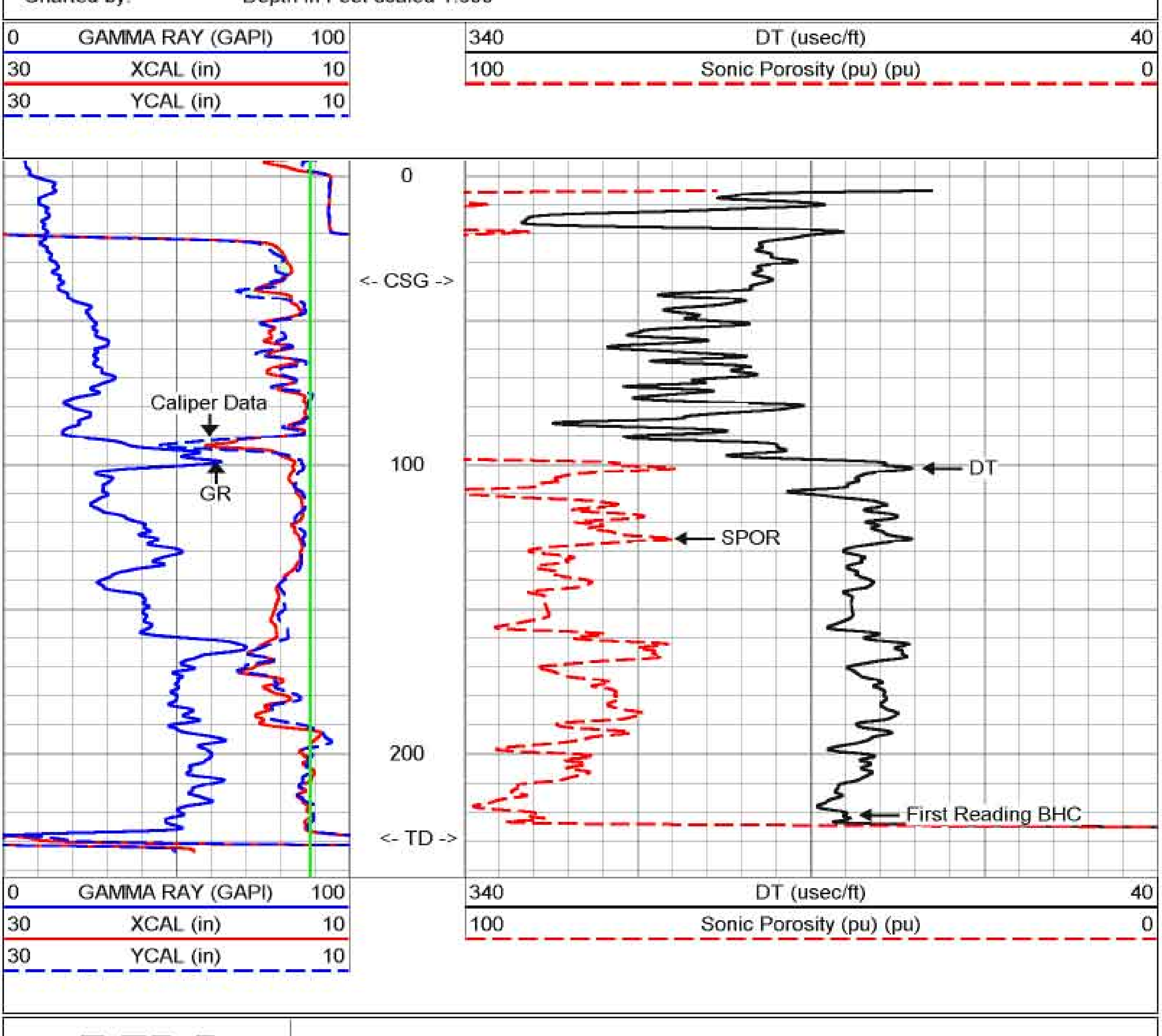
MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: DTG-1340
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:1200



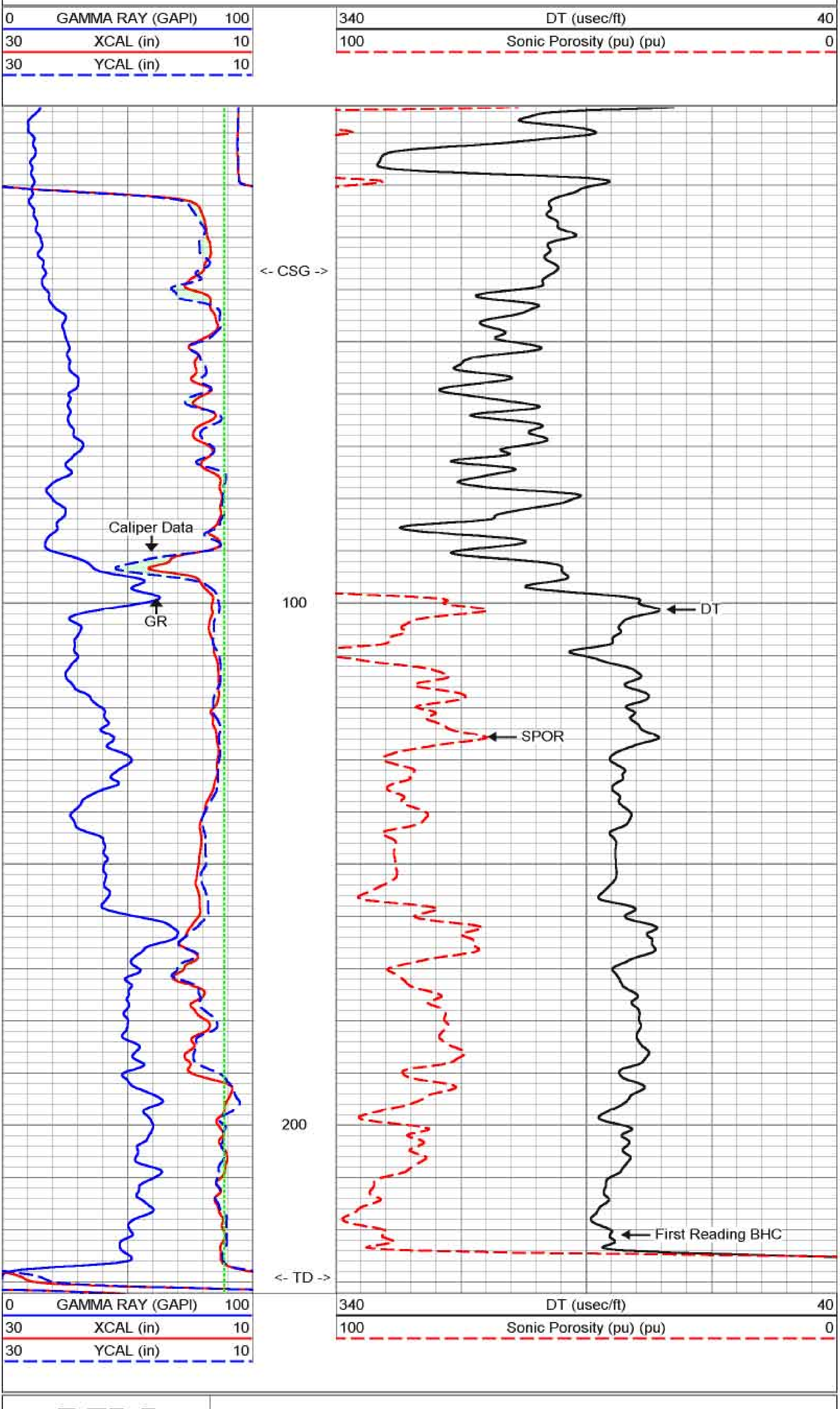
MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: DTXY340
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:600



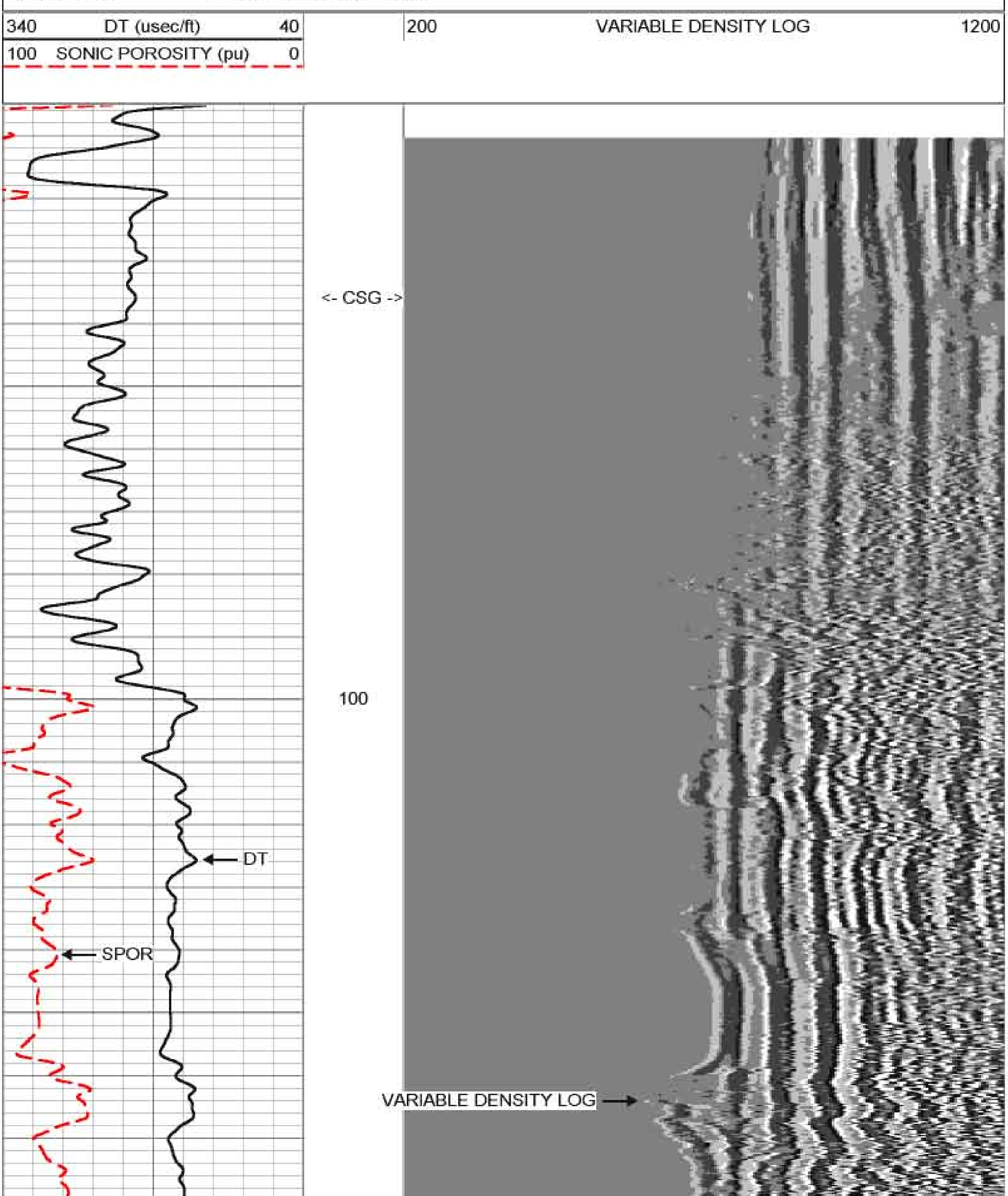
MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: DTXY340
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:240



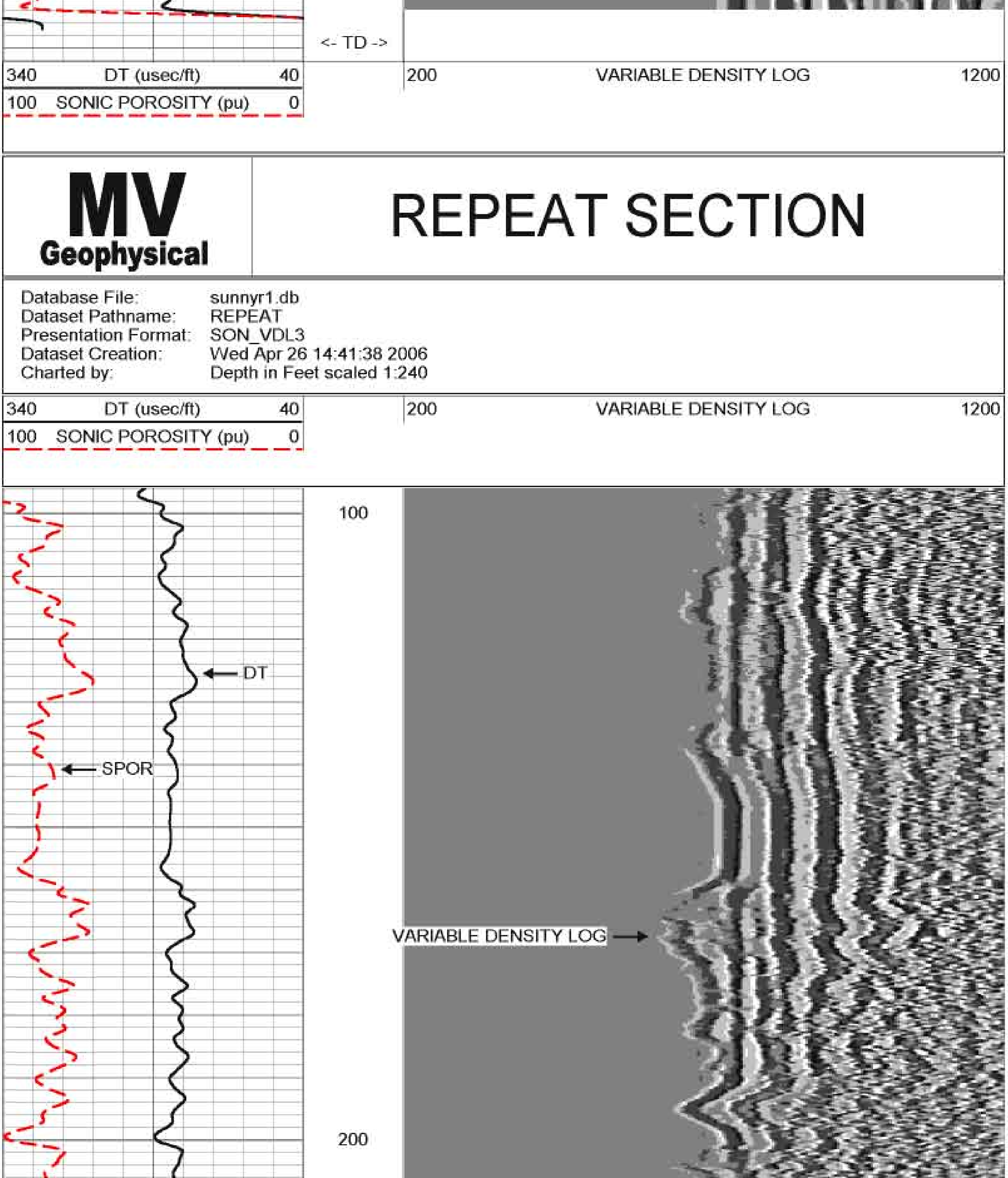
MAIN PASS

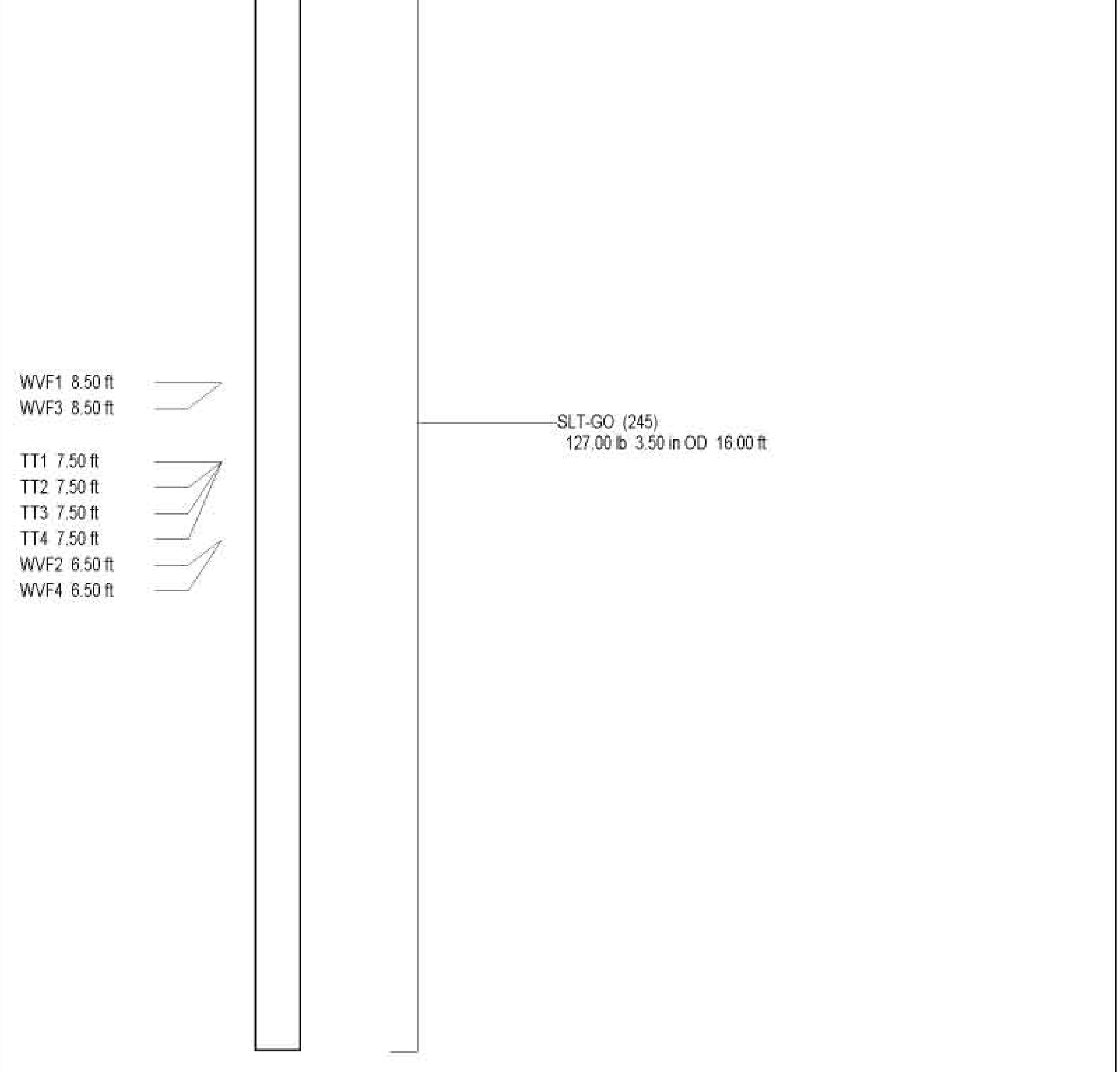
Database File: sunnyr1.db
Dataset Pathname: MAIN
Presentation Format: SON_VDL3
Dataset Creation: Wed Apr 26 14:46:05 2006
Charted by: Depth in Feet scaled 1:240



REPEAT SECTION

Database File: sunnyr1.db
Dataset Pathname: REPEAT
Presentation Format: SON_VDL3
Dataset Creation: Wed Apr 26 14:41:38 2006
Charted by: Depth in Feet scaled 1:240





Dataset:	run1/pass6
Total Length:	16.00 ft
Total Weight:	127.00 lb
O.D.	3.50 in

MV Geophysical

Company	Diversified Drilling Corp.
Well	Floridian Blending TW
Field	Sunrise
County	Broward
State/Prv	Florida

X-Y CALIPER GAMMA RAY LOG

Company	Diversified Drilling Corporation
Well	Floridian Blending Test Well
Field	Sunrise
County	Broward
State/Prv	Florida
Location	Sawgrass Water Treatment Plant MWH
Other Services	DIL/SP BHC/VDL

Permanent Datum	G.L.	Elevation	
Log Measured From	G.L.		K.B.
Drilling Measured From	G.L.		D.F.
			G.L.

Date	3-JUN-2006
Run Number	THREE
Depth Driller	1195'
Depth Logger	1190'
Bottom Logged Interval	1190'
Top Log Interval	SURFACE
Open Hole Size	12.25"
Type Fluid	MUD
Density / Viscosity	NA/NA
Max. Recorded Temp.	na
Estimated Cement Top	NA
Time Well Ready	13:00 6/3/2006
Time Logger on Bottom	13:00 6/3/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	M.Ramirez (MWH) / T.Toy (DDC)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	36'	220'				
TWO	31"	36'	205'				
THREE	12.25"	195'	1195'				
			1190' Logger				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	.375" WT	SURFACE	36'
Prot. String	26"	.375" WT	SURFACE	195'
Production String				
Liner				

Invoice No	2006167	P.O. #	Job No.: * FIELD PRINT *

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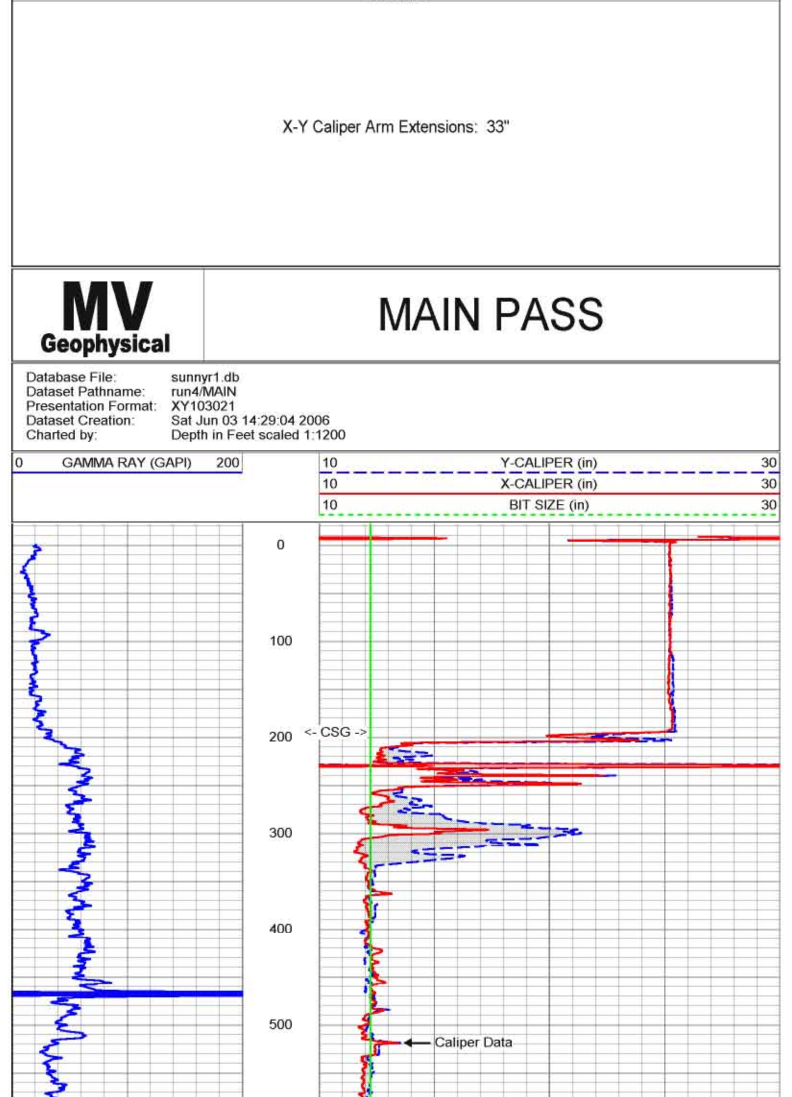
Comments

X-Y Caliper Arm Extensions: 33"

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run4/MAIN
Presentation Format: XY103021
Dataset Creation: Sat Jun 03 14:29:04 2006
Charted by: Depth in Feet scaled 1:1200

0 GAMMA RAY (GAPI) 200 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

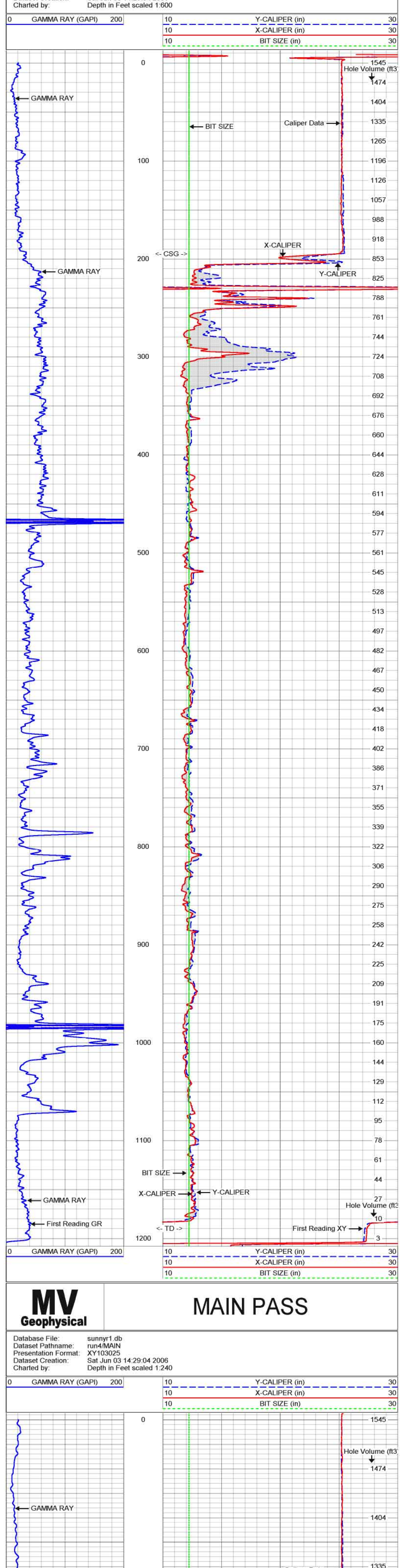


0 GAMMA RAY (GAPI) 200 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run4/MAIN
Presentation Format: XY103025
Dataset Creation: Sat Jun 03 14:29:04 2006
Charted by: Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 200 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30



0 GAMMA RAY (GAPI) 200 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

MV Geophysical — MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run4/MAIN
Presentation Format: XY103025
Dataset Creation: Sat Jun 03 14:29:04 2006
Charted by: Depth in Feet scaled 1:240

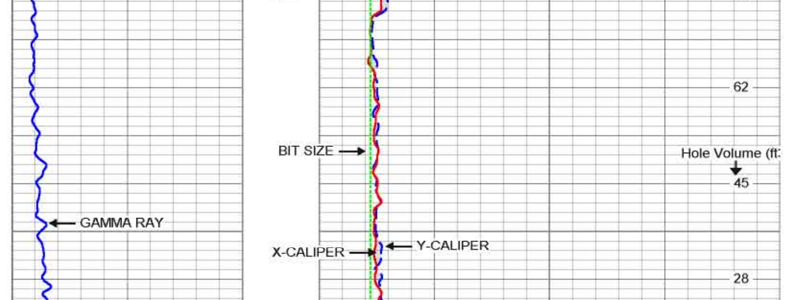
0 GAMMA RAY (GAPI) 200 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

0 GAMMA RAY (GAPI) 200 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

MV Geophysical — REPEAT SECTION

Database File: sunnyr1.db
Dataset Pathname: run4/REPEAT
Presentation Format: XY103025
Dataset Creation: Sat Jun 03 14:41:14 2006
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 200 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30



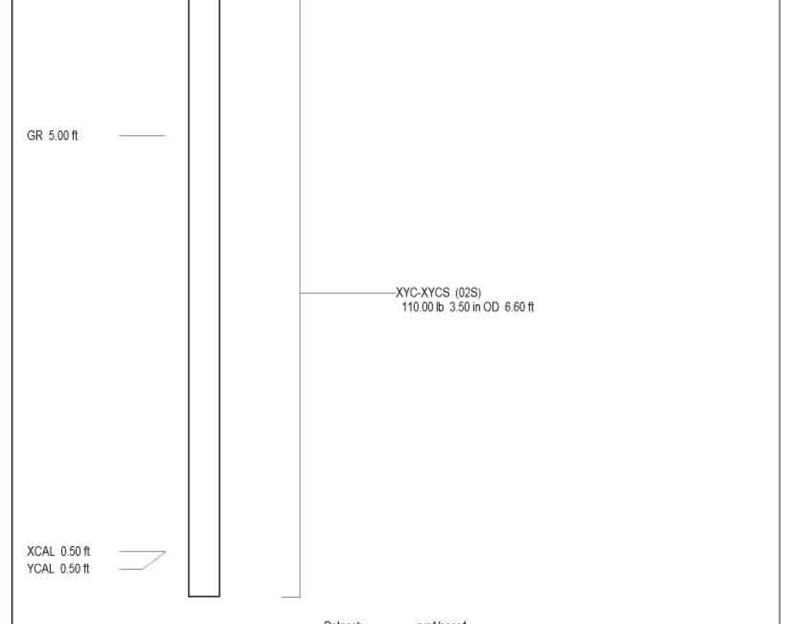
0 GAMMA RAY (GAPI) 200 | 10 Y-CALIPER (in) 30 | 10 X-CALIPER (in) 30 | 10 BIT SIZE (in) 30

XY Caliper Calibration Report

Serial Number:	02S		
Tool Model:	XYCS		
Performed:	Sat Jun 03 13:45:19 2006		
Small Ring:	12.25	in	
Large Ring:	25.25	in	
	X Caliper	Y Caliper	
Reading with Small Ring:	680.71	962.7	cps
Reading with Large Ring:	923.3	1315.3	cps
Gain:	0.0535884	0.036869	
Offset:	-24.2281	-23.2438	

Gamma Ray Calibration Report

Serial Number:	02	
Tool Model:	GROH	
Performed:	Sat Jun 03 13:19:06 2006	
Calibrator Value:	120	GAPI
Background Reading:	5.2347	cps
Calibrator Reading:	73.511	cps
Sensitivity:	1.75756	GAPI/cps



Dataset: run4/pass1
Total Length: 9.35 ft
Total Weight: 150.00 lb
O.D. 3.50 in

MV Geophysical

BOREHOLE COMPENSATED SONIC w/ VARIABLE DENSITY LOG

Company	Diversified Drilling Corporation
Well	Floridian Blending Test Well
Field	Sunrise
County	Broward
State/Prv	Florida
Location	Sawgrass Water Treatment Plant MWH
Other Services	XY/GR DIL/SP
Permanent Datum	G.L.
Log Measured From	G.L.
Drilling Measured From	G.L.
Elevation	K.B. / D.F. / G.L.

Date	3-JUN-2006
Run Number	THREE
Depth Driller	1195'
Depth Logger	1190'
Bottom Logged Interval	1190'
Top Log Interval	SURFACE
Open Hole Size	12.25"
Type Fluid	MUD
Density / Viscosity	NA/NA
Max. Recorded Temp.	73 degF
Estimated Cement Top	NA
Time Well Ready	13:00 6/3/2006
Time Logger on Bottom	16:30 6/3/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	M.Ramirez (MWH) / T.Toy (DDC)

Borehole Record: Run Number	Bit	From	To	Tubing Record: Size	Weight	From	To
ONE	12.25"	36'	220'				
TWO	31"	36'	205'				
THREE	12.25"	195'	1195' / 1190' Logger				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	.375" WT	SURFACE	36'
Prot. String	26"	.375" WT	SURFACE	195'
Production String				
Liner				

Invoice No. 2006167 | P.O. #: | Job No.: | * FIELD PRINT *

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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

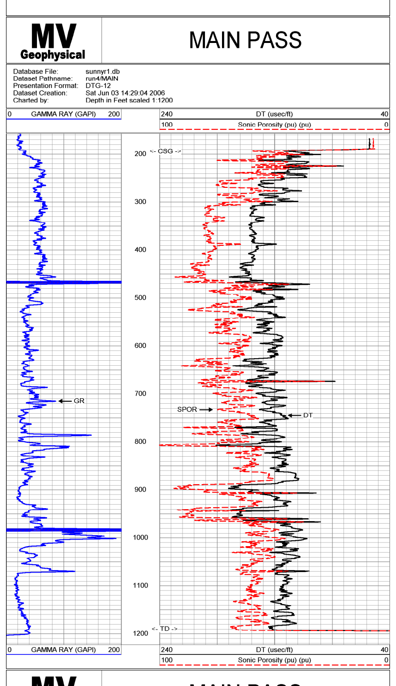
Sonic Porosity was run on a Limestone Matrix (=47.5)

MV Geophysical

MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run4/MAIN
Presentation Format: DTG-12
Dataset Creation: Sat Jun 03 14:29:04 2006
Charted by: Depth in Feet scaled 1:1200

0 GAMMA RAY (GAPI) 200 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0



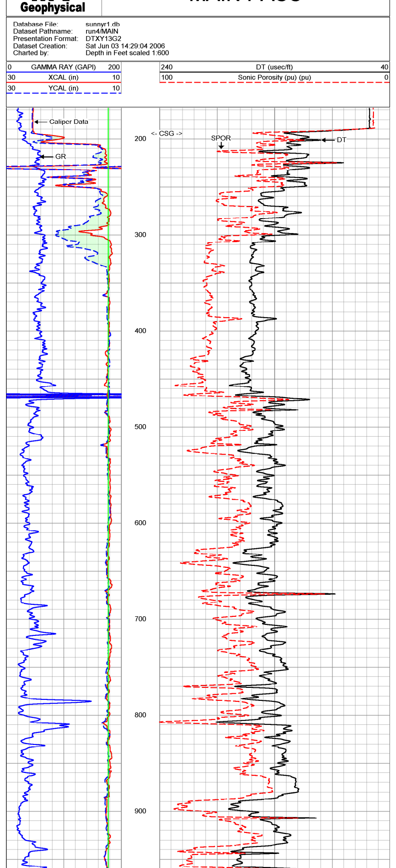
0 GAMMA RAY (GAPI) 200 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0

MV Geophysical

MAIN PASS

Database File: sunnyr1.db
Dataset Pathname: run4/MAIN
Presentation Format: DTXY13G2
Dataset Creation: Sat Jun 03 14:29:04 2006
Charted by: Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 200 | 30 XCAL (in) 10 | 30 YCAL (in) 10 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0

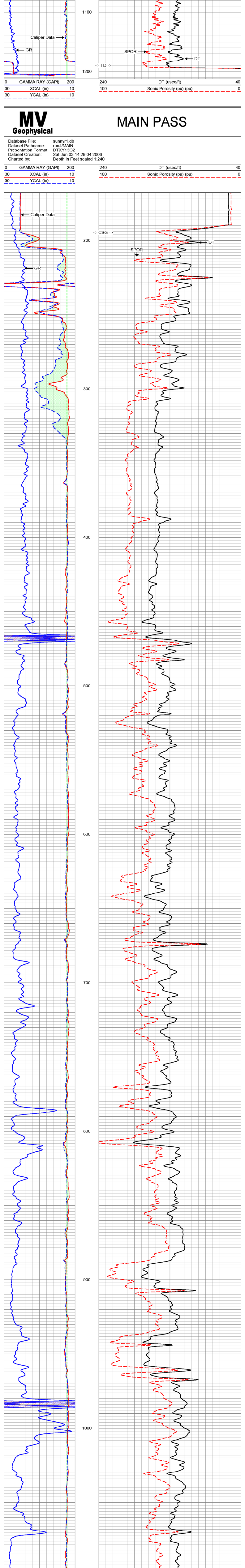


MV Geophysical

MAIN PASS

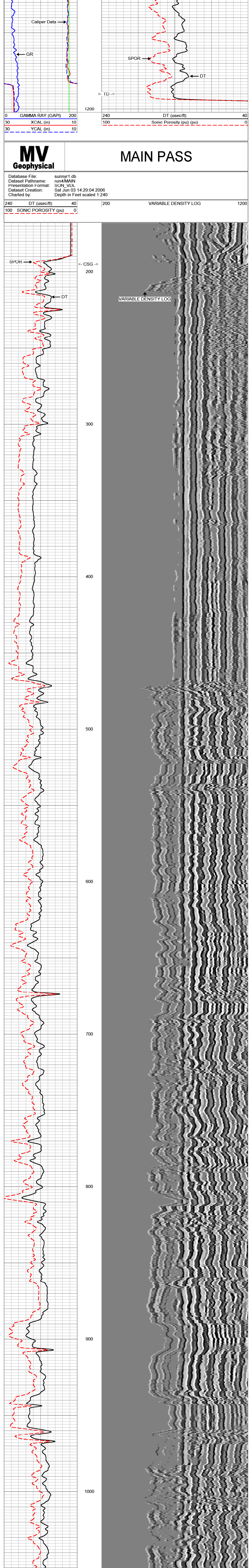
Database File: sunnyr1.db
Dataset Pathname: run4/MAIN
Presentation Format: DTXY13G2
Dataset Creation: Sat Jun 03 14:29:04 2006
Charted by: Depth in Feet scaled 1:240

0 GAMMA RAY (GAPI) 200 | 30 XCAL (in) 10 | 30 YCAL (in) 10 | 240 DT (usec/ft) 40 | 100 Sonic Porosity (pu) (pu) 0



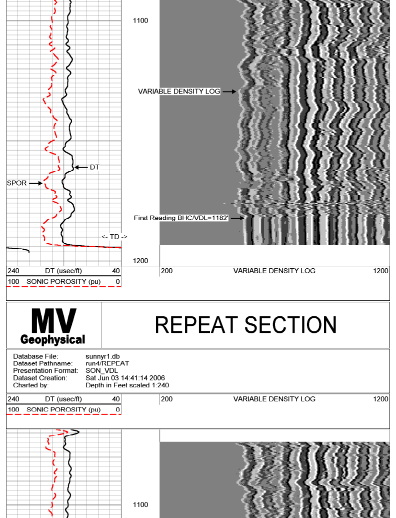
MV Geophysical

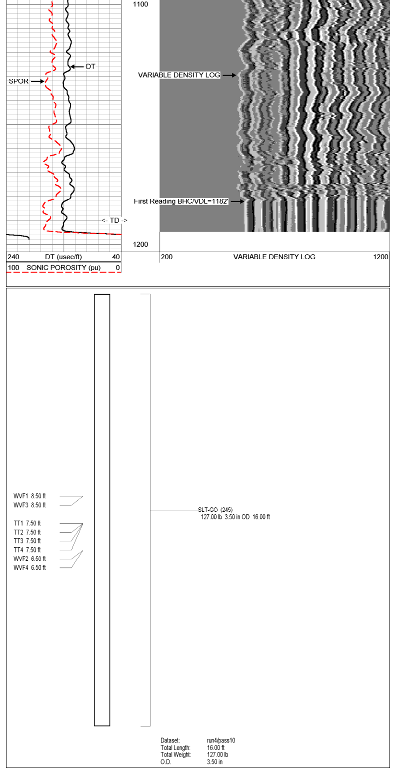
MAIN PASS



MV Geophysical

REPEAT SECTION





MV Geophysical

DUAL INDUCTION LL3 / SP LOG

Company	Diversified Drilling Corp.
Well	Floridian Blending TW
Field	Sunrise
County	Broward
State/Prv	Florida

Company	Diversified Drilling Corporation
Well	Floridian Blending Test Well
Field	Sunrise
County	Broward
State/Prv	Florida
Location	Sawgrass Water Treatment Plant MWH
Other Services	XY/GR BHC/VDL

		Elevation
Permanent Datum	G.L.	K.B.
Log Measured From	G.L.	D.F.
Drilling Measured From	G.L.	G.L.

Date	3-JUN-2006
Run Number	THREE
Depth Driller	1195'
Depth Logger	1190'
Bottom Logged Interval	1190'
Top Log Interval	SURFACE
Open Hole Size	12.25"
Type Fluid	MUD
Density / Viscosity	NA/NA
Max. Recorded Temp.	78 degF
Estimated Cement Top	NA
Time Well Ready	13:00 6/3/2006
Time Logger on Bottom	15:00 6/3/2006
Equipment Number	MVGS-1
Location	Ft. Myers
Recorded By	S.Miller
Witnessed By	M.Ramirez (MWH) / T.Toy (DDC)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	12.25"	36'	220'				
TWO	31"	36'	205'				
THREE	12.25"	195'	1195'				
			1190' Logger				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	32"	.375" WT	SURFACE	36'
Prot. String	26"	.375" WT	SURFACE	195'
Production String				
Liner				

Invoice No.	2006167	P.O. #:		Job No.:	* FIELD PRINT *

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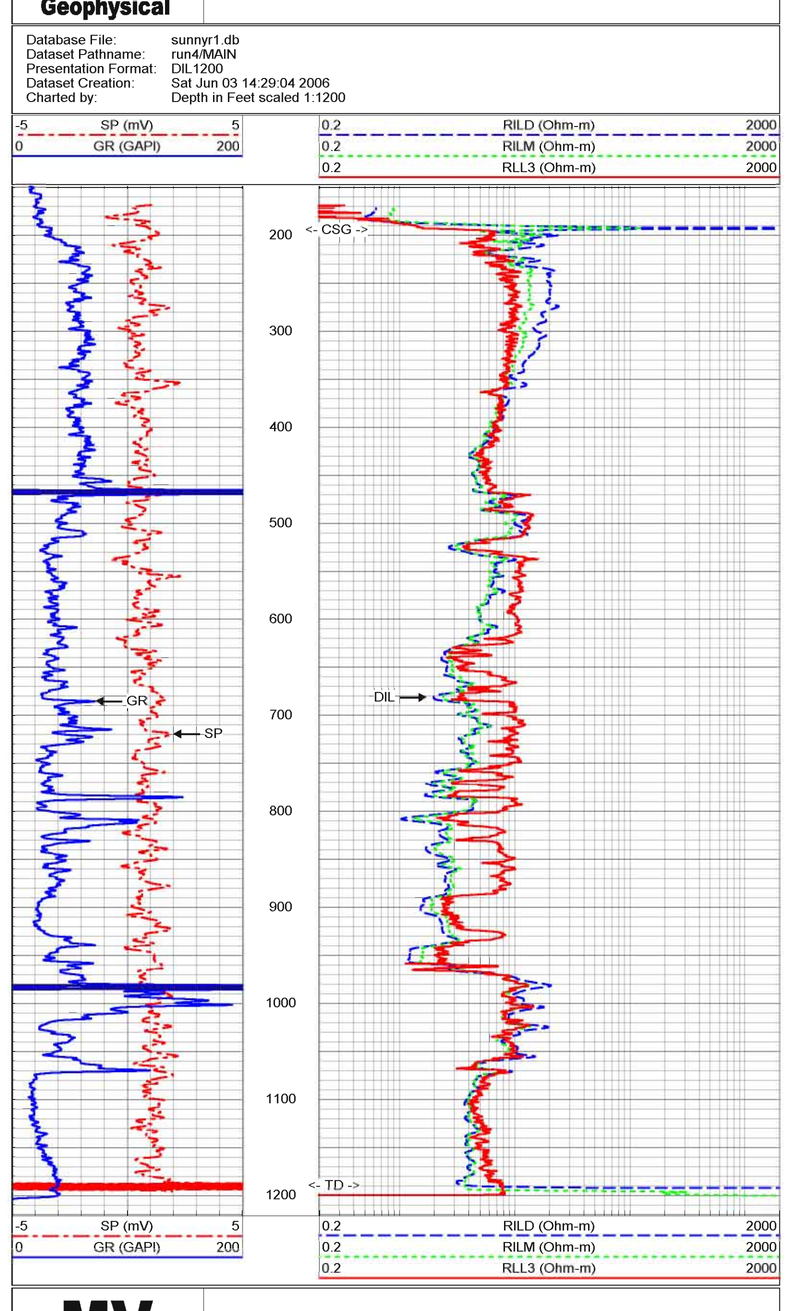
Comments

Rm=7.147 ohm-m @ 78.1 degF

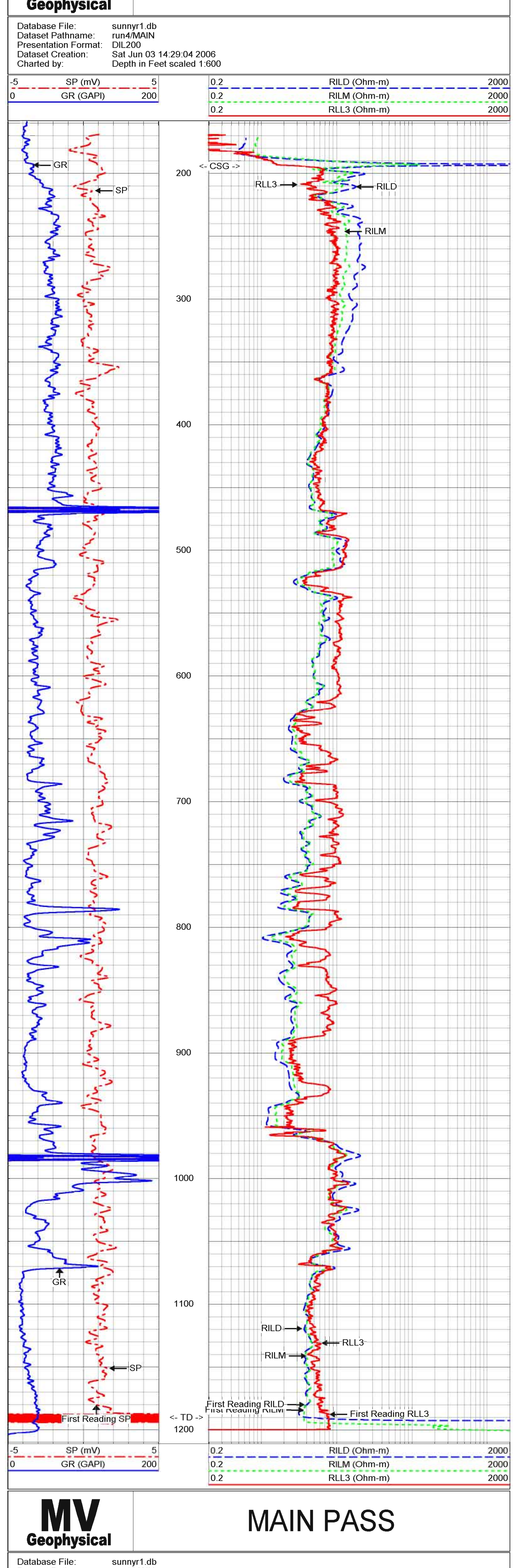
MAIN PASS

Database File:	sunnyr1.db
Dataset Pathname:	run4/MAIN
Presentation Format:	DIL1200
Dataset Creation:	Sat Jun 03 14:29:04 2006
Charted by:	Depth in Feet scaled 1:1200

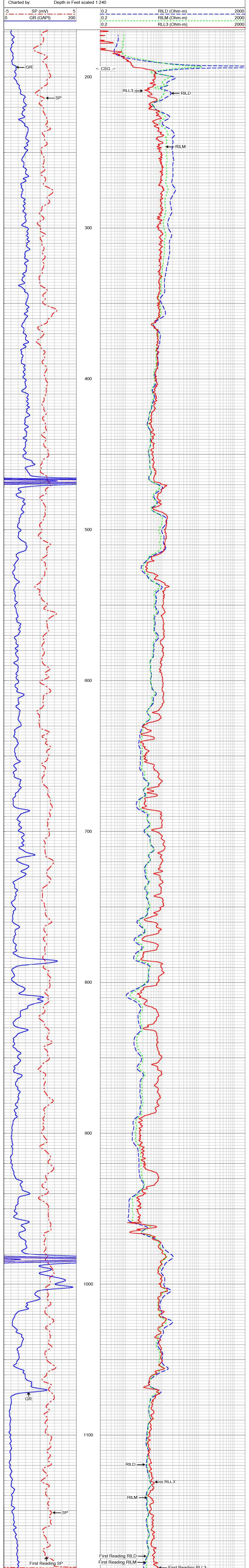


MAIN PASS

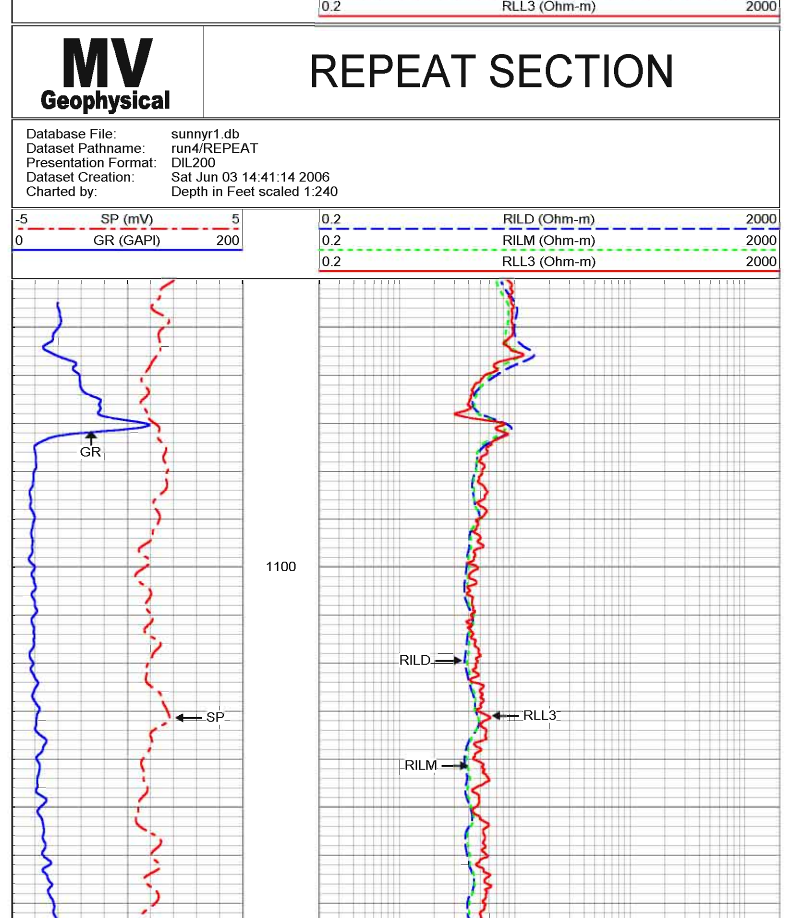
Database File:	sunnyr1.db
Dataset Pathname:	run4/MAIN
Presentation Format:	DIL200
Dataset Creation:	Sat Jun 03 14:29:04 2006
Charted by:	Depth in Feet scaled 1:600

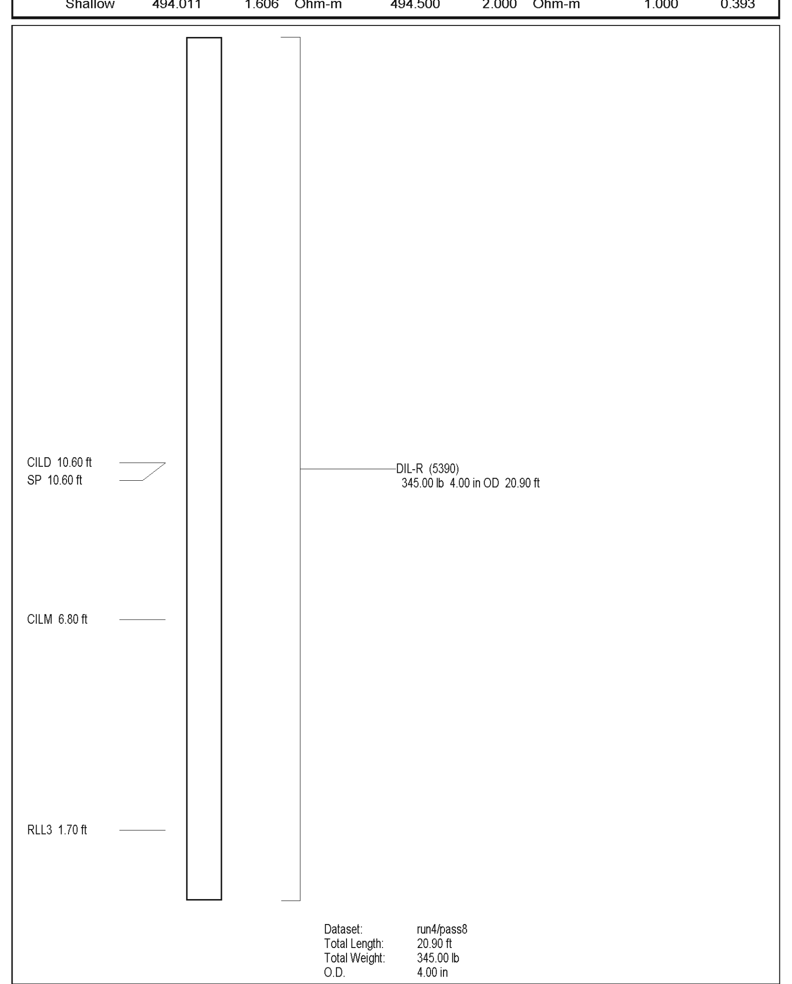


MAIN PASS



REPEAT SECTION





Appendix B

Appendix B
Lithologic Logs

City of Sunrise

Floridan Blending Test Well-Lithologic Description

Depth below land surface (bls)	Description		
0-40	No recovery- Pit Casing set to 37 feet bls.		
Undifferentiated Plio-Pleistocene Sediments – Tamiami Formation			
40-55	Limestone	80%	Color: (10YR 8/2) very pale orange, microcrystalline, calcite lacking allochems (micrite), aphamocrystalline- very fine crystalline, translucent to opaque, well consolidated, indurated.
	Mudstone	20%	Color: (5Y 6/1) light olive gray, intramicrite, very fine grained, well sorted matrix, with (10YR 8/2) very pale orange limestone pellets, soft fine grained, sparse.
55-65	Limestone	95%	Color: (10YR 8/2) very pale orange, microcrystalline, calcite lacking allochems (micrite), aphamocrystalline- very fine crystalline, translucent to opaque, well consolidated, indurated.
	Mudstone	5%	Color: (5Y 6/1) light olive gray, intramicrite, very fine grained, well sorted matrix, with (10YR 8/2) very pale orange limestone pellets, soft fine grained, sparse.
65-85	Limestone	100%	Color: (10YR 8/2) very pale orange, micrite, very finely crystalline, translucent to opaque, secondary diagenesis, moderate consolidation, indurated.
85-90	Limestone	100%	Color: (5Y 8/1) yellowish gray, biomicrite, contains abundant shell and quartz grain in well cemented matrix, moderately hard, moderate consolidation, locally friable shell- pelecypoda/gastropoda.
90-95	Limestone	90%	Color: (5Y 8/1) yellowish gray, biomicrite, contains abundant shell and quartz grain in well cemented matrix, moderately hard, moderate consolidation, locally friable shell- pelecypoda/gastropoda.
	Limestone	10%	Color: (N8) very light gray, biomicrite, very fine calcarenite grains, fine calcilutite calcite mud matrix, abundant shell- pelecypoda/gastropoda, moderately hard, moderately consolidated.

95-100	Limestone	80%	Color: (5Y 8/1) yellowish gray, biomicrite, contains abundant shell and quartz grain in well cemented matrix, moderately hard, moderate consolidation, locally friable shell- pelecypoda/gastropoda.
	Limestone	20%	Color: (N8) very light gray, biomicrite, very fine calcarenite grains, fine calcilutite calcite mud matrix, abundant shell- pelecypoda/gastropoda, moderately hard, moderately consolidated.
100-130	Limestone	60%	Color: (10YR 8/2) very pale orange, (10YR 8/2) pale yellowish brown, biomicrite, abundant shell (pelecypoda/gastropoda) and quartz grains in fine calcilutite matrix, moderately hard, moderately cemented/ consolidated.
	Shell	40%	Color: (10YR 6/2) pale yellowish brown to (N1) black, unconsolidated, pelecypoda and gastropoda.
130-135	Limestone	80%	Color: (10YR 8/2) very pale orange, (10 YR 8/2) pale yellowish brown, biomicrite, abundant shell (pelecypoda /gastropoda) and quartz grains in fine calcilutite matrix, moderately hard, moderately cemented/ consolidated.
	Silt	20%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, well sorted, fine grained.
135-160	Limestone	40%	Color: (10YR 8/2) very pale orange, (10 YR 8/2) pale yellowish brown, biomicrite, abundant shell (pelecypoda /gastropoda) and quartz grains in fine calcilutite matrix, moderately hard, moderately cemented/ consolidated.
	Shell	30%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Silt	30%	Color: (10YR 6/2) pale yellowish brown to (10 YR 4/2) dark yellowish brown, unconsolidated, well sorted, fine-grained.
160-180	Limestone	50%	Color: (10YR 8/2) very pale orange, (10 YR 8/2) pale yellowish brown, biomicrite, abundant shell (pelecypoda /gastropoda) and quartz grains in fine calcilutite matrix, moderately hard, moderately cemented/ consolidated.
	Shell	40%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Silt	10%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, well sorted, fine grained.

180-205	Limestone	40%	Color: (10YR 8/2) very pale orange, (10 YR 8/2) pale yellowish brown, biomicrite, abundant shell (pelecypoda /gastropoda) and quartz grains in fine calcilutite matrix, moderately hard, moderately cemented/ consolidated.
	Shell	30%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Silt	30%	Color: (10YR 6/2) pale yellowish brown to (10 YR 4/2) dark yellowish brown, unconsolidated, well sorted, fine grained.
Peace River Formation of the Hawthorn Group			
205-220	Limestone	40%	Color: (10YR 8/2) very pale orange, (10 YR 8/2) pale yellowish brown, biomicrite, abundant shell (pelecypoda /gastropoda) and quartz grains in fine calcilutite matrix, moderately hard, moderately cemented/ consolidated.
	Shell	30%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Silt	30%	Color: (10YR 6/2) pale yellowish brown to (10 YR 4/2) dark yellowish brown, unconsolidated, well sorted, fine grained.
220-230	Limestone	100%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
230-245	Limestone	80%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Silt	20%	Color: (10 YR 6/2) pale yellowish brown unconsolidated, well sorted, fine-grained.
245-270	Limestone	40%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Shell	40%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Silt	20%	Color: (10YR 6/2) pale yellowish brown to (10 YR 4/2) dark yellowish brown, unconsolidated, well sorted, fine-grained.
270-275	Limestone	60%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.

	Clay	40%	Color: (5Y 8/1) yellowish gray, unconsolidated, soft, moderately plasticity, well sorted.
275-290	Limestone	40%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Shell	40%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Silt	20%	Color: (10 YR 6/2) pale yellowish brown to (10 YR 4/2) dark yellowish brown, unconsolidated, well sorted, fine-grained.
290-305	Limestone	50%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Clay	40%	Color: (5Y 8/1) yellowish gray, unconsolidated, soft, moderately plasticity, well sorted.
	Shell	10%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
305-370	Sandy-clay	100%	Color: (5Y 6/1) light olive gray, very sandy, unconsolidated, moderately sorted, clay to fine sand sized grains, very soft.
370-380	Limestone	35%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Shell:	35%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Clay/mud	30%	Color: (5Y 6/1) light olive gray, calcareous unconsolidated, very soft, clay to mud sized grains, moderately sorting.
380-385	Clay/mud	60%	Color: (5Y 6/1) light olive gray, calcareous unconsolidated, very soft, clay to mud sized grains, moderately sorting.
	Shell	20%	20% (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Limestone:	20%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
385-400	Limestone:	60%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Shell:	20%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.

	Clay/mud:	20%	Color: (5Y 6/1) Light olive gray, calcareous unconsolidated, very soft, clay to mud sized grains, moderately sorting.
400-430	Limestone	50%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Shell	20%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
	Clay/mud	30%	Color: (5Y 6/1) Light olive gray, calcareous unconsolidated, very soft, clay to mud sized grains, moderately sorting.
430-470	Clay/mud	80%	Color: (5Y 6/1) Light olive gray, calcareous unconsolidated, very soft, clay to mud sized grains, moderately sorting.
	Limestone:	10%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Shell:	5%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
Arcadia Formation of the Hawthorn Group			
470-640	Clay	90%	Color: (5Y 6/1) light olive gray to yellowish gray (5Y 8/1) calcareous, soft, unconsolidated, moderate plasticity, clay to silt sized grains, well sorted.
	Limestone	5%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
	Shell	5%	Color: (10YR 6/2) pale yellowish brown, unconsolidated, pelecypoda and gastropoda.
640-705	Clay	90%	Color: (5Y 6/1) light olive gray to yellowish gray (5Y 8/1) calcareous, soft, unconsolidated, moderate plasticity, clay to silt sized grains, well sorted.
	Limestone	10%	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.
705-790	Clay	70%	Color: (5Y 6/1) light olive gray to yellowish gray (5Y 8/1) calcareous, soft, unconsolidated, moderate plasticity, clay to silt sized grains, well sorted.
	Limestone	20%:	Color: (5Y 6/1) light olive gray, micrite, lime mud matrix, well sorted, fine calcilutite, moderately consolidated, moderately hard.

	Shell	10%	Color: (10YR 6/2) pale yellowish brown, Texture: unconsolidated, pelecypoda and gastropoda.
790-820	Dolosilt	75%	Color: light olive gray (5Y 6/1), Texture: unconsolidated silt, plastic deformation, sticky, Grains: very fine silt, well sorted, Cement/Matrix: unconsolidated dolomitic silt, Hardness: very soft, Accessories: black (N1) shell fragments, < 0.25mm, assorted molusca shells, phosphate
	Siltstone	25%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated dolomitic siltstone, Grains: very fine silt, well sorted, Cement/Matrix: dolomitic silt, Hardness: moderately soft, Accessories: phosphate
820-825	Siltstone	85%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated dolomitic siltstone, Grains: very fine silt, well sorted, Cement/Matrix: dolomitic silt, Hardness: moderately soft, Accessories: phosphate
	Dolosilt	15%	Color: light olive gray (5Y 6/1), Texture: unconsolidated silt, plastic deformation, sticky, Grains: very fine silt, well sorted, Cement/Matrix: unconsolidated dolomitic silt, Hardness: very soft, Accessories: black (N1) shell fragments, < 0.25mm, assorted molusca shells, phosphate
825 - 860	Dolosilt	75%	Color: light olive gray (5Y 6/1), Texture: unconsolidated silt, plastic deformation, sticky, Grains: very fine silt, well sorted, Cement/Matrix: unconsolidated dolomitic silt, Hardness: very soft, Accessories: black (N1) shell fragments, < 0.25mm, assorted molusca shells, phosphate
	Siltstone	15%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated dolomitic siltstone, Grains: very fine silt, well sorted, Cement/Matrix: dolomitic silt, Hardness: moderately soft, Accessories: phosphate
	Shell	10%	Color: light olive gray (5Y 6/1) to yellowish gray (5Y 8/1), Texture: well consolidated fragments, Grains: fragments 0.25 to 2mm, Cement/Matrix: shell, Hardness: hard, Accessories: bone

860 - 890	Siltstone	70%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated dolomitic siltstone, Grains: very fine silt, well sorted, Cement/Matrix: dolomitic silt, Hardness: moderately soft, Accessories: phosphate
	Shell	15%	Color: light olive gray (5Y 6/1) to yellowish gray (5Y 8/1), Texture: well consolidated fragments, Grains: fragments 0.25 to 2mm, Cement/Matrix: shell, Hardness: hard, Accessories: bone
	Dolosilt	15%	Color: light olive gray (5Y 6/1), Texture: unconsolidated silt, plastic deformation, sticky, Grains: very fine silt, well sorted, Cement/Matrix: unconsolidated dolomitic silt, Hardness: very soft, Accessories: black (N1) shell fragments, < 0.25mm, assorted molusca shells, phosphate
890 - 900	No Return		
900 - 920	Siltstone	100%	Color: light olive gray (5Y 6/1) to yellowish gray (5Y 8/1), Texture: moderately consolidated dolomitic siltstone, Grains: very fine silt, well sorted, Cement/Matrix: dolomitic silt to calcitic mud, Hardness: moderate, Accessories: shell fragments < 0.25mm, phosphate
920 - 925	No Return		
925 - 945	Siltstone	100%	Color: light olive gray (5Y 6/1) to yellowish gray (5Y 8/1), Texture: moderately consolidated dolomitic siltstone, Grains: very fine silt, well sorted, Cement/Matrix: dolomitic silt to calcitic mud, Hardness: moderate, Accessories: shell fragments < 0.25mm, phosphate

945 -955	Siltstone	85%	Color: light olive gray (5Y 6/1) to yellowish gray (5Y 8/1), Texture: moderately consolidated dolomitic siltstone, Grains: very fine silt, well sorted, Cement/Matrix: dolomitic silt to calcitic mud, Hardness: moderate, Accessories: shell fragments < 0.25mm, phosphate
	Mudstone	15%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated calicitic to dolomitic mud/siltstone, Grains: very fine silt/mud, well sorted, Cement/Matrix: very fine mud/silt, Hardness: moderate, Accessories: phosphate
955 - 960	siltstone	100%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated calcitic to dolomitic siltstone, Grains: yellowish gray (5Y 8/1), < 0.2mm, siltstone, Cement/Matrix: fine siltstone, Hardness: moderate, Accessories: shell fragments, phosphate
960 - 985	siltstone	50%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated calcitic to dolomitic siltstone, Grains: yellowish gray (5Y 8/1), < 0.2mm, siltstone, Cement/Matrix: fine siltstone, Hardness: moderate, Accessories: shell fragments, phosphate
	Mudstone	20%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated calicitic to dolomitic mud/siltstone, Grains: very fine silt/mud, well sorted, Cement/Matrix: very fine mud/silt, Hardness: moderate, Accessories: phosphate
	Siltstone	20%	Color: light olive gray (5Y 6/1) to yellowish gray (5Y 8/1), Texture: moderately consolidated dolomitic siltstone, Grains: very fine silt, well sorted, Cement/Matrix: dolomitic silt to calcitic mud, Hardness: moderate, Accessories: shell fragments < 0.25mm, phosphate
	Shell	10%	Color: light olive gray (5Y 6/1) to yellowish gray (5Y 8/1), Texture: well consolidated fragments, Grains: fragments 0.25 to 2mm, Cement/Matrix: shell, Hardness: hard, Accessories: n/a
985 – 1,000	No Return		

1,000 – 1,010	Limestone	50%	Color: yellowish gray (5Y 8/1), texture: consolidated, microcrystalline calcite lacking allochems to biosparite to pelsparite, recrystallized, complexly interbedded, Grains: sparse pelloids and shell fragments, Cement/Matrix: calcite spar to recrystallized calcite, Hardness: hard, Accessories: phosphate
	siltstone	50%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated calcitic to dolomitic siltstone, Grains: yellowish gray (5Y 8/1), < 0.2mm, siltstone, Cement/Matrix: fine siltstone, Hardness: moderate, Accessories: shell fragments, phosphate
Suwannee Limestone			
1,010 – 1,070	Limestone	100%	Color: white (N9) to yellowish gray (5Y 8/1) to light olive gray (5Y 6/1), Texture: well to moderately consolidated, intrasparite to biosparite, somewhat friable, locally recrystallized, Grains: minor phosphate, minor undiscernable shell fragments, Cement/Matrix: sparry calcite cement, Hardness: well indurated, Accessories: reef fauna hard parts, molds and casts of mollusca
Avon Park Formation			
1,070 – 1,075	Limestone	50%	Color: yellowish gray (5Y 8/1), texture: consolidated, microcrystalline calcite lacking allochems to biosparite to pelsparite, recrystallized, complexly interbedded, Grains: sparse pelloids and shell fragments, Cement/Matrix: calcite spar to recrystallized calcite, Hardness: hard, Accessories: phosphate
	siltstone	50%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated calcitic to dolomitic siltstone, Grains: yellowish gray (5Y 8/1), < 0.2mm, siltstone, Cement/Matrix: fine siltstone, Hardness: moderate, Accessories: shell fragments, phosphate, plant remnants

1,075 – 1,125	Limestone	50%	Color: white (N9) to yellowish gray (5Y 8/1), texture: well consolidated, intrasparite, locally recrystallized, Grains: reef assemblage hard parts, pelloids, Cement/Matrix: sparry calcite cement, Hardness: well indurated, Accessories: shell fragments, molds and casts of mollusca
	siltstone	50%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated calcitic to dolomitic siltstone, Grains: white (N9) to yellowish gray (5Y 8/1), intrasparite limestone, Cement/Matrix: fine siltstone, Hardness: moderate, Accessories: shell fragments, plant remnants
1,125 – 1,140	Limestone	80%	Color: white (N9) to very light gray (N8) to yellowish gray (5Y 8/1), texture: well consolidated, intrasparite, locally recrystallized, Grains: reef assemblage hard parts, pelloids, Cement/Matrix: sparry calcite cement, Hardness: well indurated, Accessories: shell fragments, molds and casts of mollusca
	Mudstone	20%	Color: very light gray (N8), Texture: moderately consolidated calicitic to dolomitic mud/siltstone, Grains: very fine silt/mud, well sorted, Cement/Matrix: very fine mud/silt, Hardness: moderate, Accessories: n/a
1,140 – 1,145	Limestone	50%	Color: white (N9) to yellowish gray (5Y 8/1), Texture: well consolidated, intrasparite, locally recrystallized, Grains: reef assemblage hard parts, pelloids, Cement/Matrix: sparry calcite cement, Hardness: well indurated, Accessories: shell fragments, molds and casts of mollusca
	siltstone	50%	Color: light olive gray (5Y 6/1), Texture: moderately consolidated calcitic to dolomitic siltstone, Grains: white (N9) to yellowish gray (5Y 8/1), intrasparite limestone, Cement/Matrix: fine siltstone, Hardness: moderate, Accessories: shell fragments, plant remnants

1,145 – 1,165	Limestone	100%	Color: white (N9) to yellowish gray (5Y 8/1), Texture: well consolidated, intrasparite, locally recrystallized, Grains: reef assemblage hard parts, pelloids, Cement/Matrix: sparry calcite cement, Hardness: well indurated, Accessories: shell fragments, molds and casts of mollusca
1,165 – 1,170	Limestone	100%	Color: yellowish gray (5Y 8/1), Texture: moderately consolidated, biosparite, Grains: well sorted, sub-angular, coarse grained biotic hardparts, Cement/Matrix: sparry calcite cement, Hardness: indurated, Accessories: Gastropoda molds and casts
1,170 – 1,175	Limestone	100%	Color: yellowish gray (5Y 8/1) to pale yellowish brown (10YR 6/2), Texture: well consolidated, biosparite and minor locally recrystallized dolomite, Cement/Matrix: sparry calcite cement in biosparite, Hardness: well indurated, Accessories: Gastropoda molds and casts
1,175 – 1,190	Limestone	50%	Color: pale yellowish brown (10YR 6/2) , Texture: well consolidated, biosparite, minor locally recrystallized dolonite, Grains: coarse, sub-angular, well sorted, Cement/Matrix: sparry calcite cement, Hardness: well indurated, Accessories: biotics
	Limestone	50%	Color: yellowish gray (5Y 8/1), Texture: well consolidated, biosparite, minor locally recrystallized dolonite, Grains: coarse, sub-angular, well sorted, Cement/Matrix: sparry calcite cement, Hardness: well indurated, Accessories: reef assemblage hard parts
1,190 – 1,205	Limestone	100%	Color: white (N1), Texture: well consolidated, biomicrite, Grains: chalky, Cement/Matrix: microcrystalline calcite cement, very minor dolomitization, Hardness: well indurated, Accessories: minor pin-hole sized vugs

1,205 – 1,210	Siltstone	50%	Color: light bluish gray (5B 7/1), Texture: well consolidated, calcitic siltstone, Grains: fine grained, well sorted, sub-round, Cement/Matrix: silt, Hardness: soft to moderated, Accessories: None
	Limestone	50%	Color: very pale orange (10YR 8/2), Texture: well consolidated, biosparite, minor locally recrystallized dolomite, Grains: coarse, sub-angular, well sorted, Cement/Matrix: sparry calcite cement, Hardness: well indurated, Accessories: biotics
1,210 – 1,215	Limestone	100%	Color: pale yellowish brown (10YR 6/2), Texture: intramicrite, well consolidated, Grains: fine grained biotics, Cement/Matrix: microcrystalline calcite cement, Hardness: well indurated, Accessories: mollusca fragments
1,215 – 1,235	Limestone	100%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
1,235 – 1,240	Limestone	100%	Color: pale yellowish brown (10YR 6/2), Texture: intramicrite, well consolidated, Grains: fine grained biotics, Cement/Matrix: microcrystalline calcite cement, Hardness: well indurated, Accessories: mollusca fragments
1,240 – 1,245	No sample		
1,245 – 1,285	Limestone	95%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
	Limestone	5%	Color: white (N1), Texture: biolithite, Grains: crystalline, Cement/Matrix: microcrystalline calcite, Harness: well indurated, Accessories: none

1,285 – 1,290	Limestone	100%	Color: pale yellowish brown (10YR 6/2), Texture: intramicrite, well consolidated, Grains: fine grained biotics, Cement/Matrix: microcrystalline calcite cement, Hardness: well indurated, Accessories: mollusca fragments
1,290 – 1,335	Limestone	95%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
	Limestone	5%	Color: white (N1), Texture: biolithite, Grains: crystalline, Cement/Matrix: microcrystalline calcite, Harness: well indurated, Accessories: none
1,335 – 1,340	Limestone	50%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
	Dolostone	50%	Color: pale yellowish brown (10YR 6/2), Texture: very well consolidated, crystalline, Cement/Matrix: microcrystalline, Hardness: well indurated, Accessories: none
1,340 – 1,350	Limestone	95%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
	Limestone	5%	Color: white (N1), Texture: biolithite, Grains: crystalline, Cement/Matrix: microcrystalline calcite, Harness: well indurated, Accessories: none

1,350 – 1,375	Limestone	95%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
	Limestone	5%	Color: white (N1), Texture: biolithite, Grains: crystalline, Cement/Matrix: microcrystalline calcite, Harness: well indurated, Accessories: none
1,375 – 1,390	Limestone	50%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
	Dolostone	50%	Color: pale yellowish brown (10YR 6/2), Texture: very well consolidated, crystalline, Cement/Matrix: microcrystalline, Hardness: well indurated, Accessories: none
1,390 – 1,395	Limestone	100%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
1,395 – 1,400	Limestone	95%	Color: very pale orange (10YR 8/2), Texture: moderately consolidated, intersparite, Grains: medium, well sorted, sub-angular, Cement/Matrix: sparry calcite, Hardness: moderate, Accessories: very minor shell fragments
	Limestone	5%	Color: white (N1), Texture: biolithite, Grains: crystalline, Cement/Matrix: microcrystalline calcite, Harness: well indurated, Accessories: none

Notes: [1]Color description from "Geological Society of America, 1995, Rock-Color Chart with Genuine Munsell® Color Chips".
[2]General description based on Folk, R.L, 1961, Spectral Subdivision of Limestone Types, in Classification of Carbonate Rocks – A Symposium, AAPG Memoir One.
[3]Preliminary Formation picks based on lithology and geophysical logs to 1,190 ft bls.

Appendix C

MWH

Appendix C
Water Quality Laboratory Reports

Table C-1
Sunrise Water Treatment Plant
Floridan Blending Test Well

Generic Permit for the Discharge of Produced Ground Water from any Non-Contaminated Site Activity.

Parameters	Screening Values for Discharges into:	
	Fresh Waters	Coastal Waters
Total Organic Carbon (TOC)	10 mg/L	10 mg/L
PH, Standard Units	6.0-8.5	6.5-8.5
Total Recoverable Mercury	0.012 ug/L	0.025 ug/L
Total Recoverable Cadmium	9.3 ug/L	9.3 ug/L
Total Recoverable Copper	2.9 ug/L	2.9 ug/L
Total Recoverable Lead	0.03 mg/L	5.6 ug/L
Total Recoverable Zinc	86 ug/L	86 ug/L
Total Recoverable Chromium (Hex.)	11 ug/L	50 ug/L
Benzene	1 ug/L	1 ug/L
Naphthalene	100 ug/L	100 ug/L

Appendix C
Water Quality Laboratory Reports

Table C-2
Sunrise Water Treatment Plant
Floridan Blending Test Well

F.A.C 62-550.310 Water Quality Parameters

Primary Standards

Inorganics

Antimony
Arsenic
Asbestos
Barium
Beryllium
Cadmium
Chromium
Cyanide
Fluoride
Lead
Mercury
Nickel
Nitrate (as N)
Nitrite (as N)
Total Nitrate + Nitrite (as N)
Selenium
Sodium
Thallium

Volatile Organic

1,1 Dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
1,2 Dichloroethane
1,2 Dichloropropane
1,2,4 Trichlorobenzene
Benzene
Carbon Tetrachloride
cis-1,2-Dichloroethylene
Dichloromethane
Ethylbenzene
Monochlorobenzene
o-Dichlorobenzene
para-Dichlorobenzene
Styrene
Tetrachloroethylene
Toluene
trans-1,2-Dichloroethylene
Trichloroethylene
Vinyl Chloride
Xylenes Total

Residual Disinfectants

Chlorine
Chloramines
Chlorine Dioxide

Disinfection Byproducts

Total Trihalomethanes
Haloacetic Acids (HAA5)
Bromate
Chlorite

Synthetics

Dioxin
2,4-D
2,4,5-TP (silvex)
Endothall
Endrin
Ethylene dibromide (EDB)

Table C-2 (Continued)
Sunrise Water Treatment Plant
Floridan Blending Test Well

Synthetics (continued)

Alachlor	Heptachlor
Atrazine	Heptachlor epoxide
Benzo(a)pyrene	Hexachlorobenzene
Carbofuran	Hexachlorocyclopentadiene
Chlordane	Lindane
Dalapon	Methoxychlor
Di(2-ethylhexyl)adipate	Oxamyl (vydate)
Di(2-ethylhexyl)phthalate	Pentachlorophenol
Dibromochloropropane (DBCP)	Picloram
Dinoseb	Polychlorinated byphenyls (PCBs)
Diquat	Simazine
Glyphosate	Toxaphene

Secondary Standards

Inorganics

Aluminum	Sulfate
Chloride	Zinc
Copper	Color
Fluoride	Odor
Iron	pH
Manganese	Todal Dissolved Solids
Silver	Foaming Agents

Treatment Parameters

Calcium	Silt Density Index (Field at 30 psi)
Magnesium	Turbidity
Potassium	Hydrogen Sulfide
Ammonium	Dissolved Oxygen
Strontium	Specific Conductivity
Carbon Dioxide	Chlorides
Carbonate	Temperature
Bicarbonate	BOD
Silica	Carbonate hardness
Total Suspended Solids	Total hardness
Pesticides and PCBs	Alkalinity
Gross Alpha	
Radiologicals 226/228	

KSA Environmental Laboratory, Inc.

ugust 02, 2006

Diversified Drilling Corporation - Lehigh Acres
Attn: George Bard
5620 Lee Street
Lehigh Acres, FL 33971

RE: Dewatering Project
KSA Workorder: P002527

Dear George Bard,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on 08/01/06 14:15.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

This data has been produced in accordance with NELAC standards. This report shall not be produced except in full, without the written approval of the Laboratory.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Wayne Khan
Vice President

Enclosure(s)

Florida Certifications: E86349 & E86616 (Microbiology)
10200 USA Today Way • Miramar, Florida 33025
Phone: (954) 431-4550 • Fax: (954) 431-1959

SAMPLE SUMMARY

	Client ID	Matrix	Sampled	Received
P002527-01	FW	Groundwater	08/01/06 13:30	08/01/06 14:15
P002527-02	BA	Groundwater	08/01/06 13:39	08/01/06 14:15

ANALYTICAL REPORT

Sample ID:	FW	Project:	Dewatering Project
Lab #:	P002527-01	Work Order #:	P002527
led:	08/01/06 13:30	Matrix:	Groundwater

Volatiles by GC/MS

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Benzene	0.36 ug/L	U	1	0.36	1.0	8260	08/01/06 13:30	08/01/06 15:58	6080007
Naphthalene	0.45 ug/L	U	1	0.45	1.0	8260	08/01/06 13:30	08/01/06 15:58	6080007
Surrogate Recovery				**% Recovery**		**% Recovery Limits**			
1,2-Dichloroethane-d4				102 %		75-128			6080007
4-Bromofluorobenzene				97.5 %		70-130			6080007
Dibromofluoromethane				101 %		84-126			6080007
Toluene-d8				99.0 %		86-112			6080007

Metals

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Cadmium, Total	0.00043 mg/L	I, V	1	0.00032	0.0050	6010	08/01/06 19:56	08/02/06 13:38	6080032
Chromium, Total	0.0078 mg/L		1	0.0016	0.0050	6010	08/01/06 19:56	08/02/06 13:38	6080032
Copper, Total	0.0023 mg/L	I	1	0.0012	0.0029	6010	08/01/06 19:56	08/02/06 13:38	6080032
Lead, Total	0.0053 mg/L	I	1	0.0035	0.015	6010	08/01/06 19:56	08/02/06 13:38	6080032
ury, Total	0.000020 mg/L	U	1	0.000020	0.00020	7470	08/01/06 19:48	08/02/06 10:19	6080031
, Total	0.049 mg/L	V	1	0.0031	0.020	6010	08/01/06 19:56	08/02/06 13:38	6080032

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Carbon, Total Organic	1.4 mg/L		1	0.042	1.0	415.1	08/01/06 16:30	08/01/06 16:30	6080036
pH	7.99 pH Units		1	0.00	0.00	150.1	08/01/06 17:30	08/01/06 17:30	6080026

ANALYTICAL REPORT

Sample ID:	BA		Project:	Dewatering Project
Lab #:	P002527-02RE1		Work Order #:	P002527
led:	08/01/06 13:39		Matrix:	Groundwater

Volatiles by GC/MS

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Benzene	0.36 ug/L	U	1	0.36	1.0	8260	08/01/06 13:39	08/01/06 16:23	6080007
Naphthalene	0.45 ug/L	U	1	0.45	1.0	8260	08/01/06 13:39	08/01/06 16:23	6080007

Surrogate Recovery	% Recovery	% Recovery Limits	
1,2-Dichloroethane-d4	102 %	75-128	6080007
4-Bromofluorobenzene	96.8 %	70-130	6080007
Dibromofluoromethane	103 %	84-126	6080007
Toluene-d8	100 %	86-112	6080007

Metals

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Cadmium, Total	0.00032 mg/L	U	1	0.00032	0.0050	6010	08/01/06 19:56	08/02/06 13:38	6080032
Chromium, Total	0.0017 mg/L	I	1	0.0016	0.0050	6010	08/01/06 19:56	08/02/06 13:38	6080032
Copper, Total	0.0012 mg/L	U	1	0.0012	0.0029	6010	08/01/06 19:56	08/02/06 13:38	6080032
Lead, Total	0.0035 mg/L	U	1	0.0035	0.015	6010	08/01/06 19:56	08/02/06 13:38	6080032
ury, Total	0.000020 mg/L	U	1	0.000020	0.00020	7470	08/01/06 19:48	08/02/06 10:19	6080031
, Total	0.010 mg/L	I, V	1	0.0031	0.020	6010	08/01/06 19:56	08/02/06 13:38	6080032

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Carbon, Total Organic	14 mg/L		1	0.042	1.0	415.1	08/01/06 16:30	08/01/06 16:30	6080036
pH	7.27 pH Units		1	0.00	0.00	150.1	08/01/06 17:30	08/01/06 17:30	6080026

QUALITY CONTROL FOR :P002527

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit

[illegible]atiles by GC/MS - Quality Control

Blank (6080007-BLK1) Prepared & Analyzed: 01-Aug-06

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.33	U	0.33	1.0	ug/L				
1,1,1-Trichloroethane	0.18	U	0.18	1.0	ug/L				
1,1,2,2-Tetrachloroethane	0.36	U	0.36	1.0	ug/L				
1,1,2-Trichloroethane	0.36	U	0.36	1.0	ug/L				
1,1-Dichloroethane	0.31	U	0.31	1.0	ug/L				
1,1-Dichloroethene	0.25	U	0.25	1.0	ug/L				
1,1-Dichloropropene	0.34	U	0.34	1.0	ug/L				
1,2,3-Trichlorobenzene	0.39	U	0.39	1.0	ug/L				
1,2,3-Trichloropropane	0.64	U	0.64	1.0	ug/L				
1,2,4-Trichlorobenzene	0.31	U	0.31	1.0	ug/L				
1,2,4-Trimethylbenzene	0.30	U	0.30	1.0	ug/L				
1,2-Dibromo-3-chloropropane	0.63	U	0.63	1.0	ug/L				
1,2-Dibromoethane (EDB)	0.34	U	0.34	1.0	ug/L				
1,2-Dichlorobenzene	0.43	U	0.43	1.0	ug/L				
1,2-Dichloroethane	0.29	U	0.29	1.0	ug/L				
1,2-Dichloropropane	0.41	U	0.41	1.0	ug/L				
1,3,5-Trimethylbenzene	0.28	U	0.28	1.0	ug/L				
1,3-Dichlorobenzene	0.30	U	0.30	1.0	ug/L				
1,3-Dichloropropane	0.41	U	0.41	1.0	ug/L				
1,4-Dichlorobenzene	0.32	U	0.32	1.0	ug/L				
2,2-Dichloropropane	0.27	U	0.27	1.0	ug/L				
2-Butanone	2.3	U	2.3	5.0	ug/L				
2-Hexanone	2.0	U	2.0	5.0	ug/L				
4-Isopropyl Toluene	0.31	U	0.31	1.0	ug/L				
[illegible]thyl-2-pentanone	2.3	U	2.3	5.0	ug/L				
[illegible]ne	4.3	U	4.3	5.0	ug/L				
Acetonitrile	18	U	18	40	ug/L				
Acrolein	2.0	U	2.0	10	ug/L				
Benzene	0.36	U	0.36	1.0	ug/L				
Bromobenzene	0.34	U	0.34	1.0	ug/L				
Bromochloromethane	0.37	U	0.37	1.0	ug/L				
Bromodichloromethane	0.26	U	0.26	1.0	ug/L				
Bromoform	0.41	U	0.41	1.0	ug/L				
Bromomethane	0.77	U	0.77	1.0	ug/L				
Carbon disulfide	0.31	U	0.31	1.0	ug/L				
Carbon tetrachloride	0.15	U	0.15	1.0	ug/L				
Chlorobenzene	0.23	U	0.23	1.0	ug/L				
Chlorodibromomethane	0.30	U	0.30	1.0	ug/L				
Chloroethane	0.66	U	0.66	1.0	ug/L				
Chloroform	0.30	U	0.30	1.0	ug/L				
Chloromethane	0.72	U	0.72	1.0	ug/L				
cis-1,2-Dichloroethene	0.26	U	0.26	1.0	ug/L				
cis-1,3-Dichloropropene	0.32	U	0.32	1.0	ug/L				
Dibromomethane	0.30	U	0.30	1.0	ug/L				
Dichlorodifluoromethane	0.88	U	0.88	1.0	ug/L				
Ethylbenzene	0.33	U	0.33	1.0	ug/L				
Hexachlorobutadiene	0.62	U	0.62	1.0	ug/L				
Isopropylbenzene	0.95	U	0.95	1.0	ug/L				
Methylene chloride	0.42	U	0.42	5.0	ug/L				
Methyl-t-butyl ether	0.32	U	0.32	1.0	ug/L				
Naphthalene	0.45	U	0.45	1.0	ug/L				
n-Butyl Benzene	0.33	U	0.33	1.0	ug/L				
[illegible]pyl Benzene	0.37	U	0.37	1.0	ug/L				
[illegible]rotoluene	0.36	U	0.36	1.0	ug/L				
p-Chlorotoluene	0.36	U	0.36	1.0	ug/L				

Volatiles by GC/MS - Quality Control

Blank (6080007-BLK1) Continued — Prepared & Analyzed: 01-Aug-06

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
sec-Butyl Benzene	0.29	U	0.29	1.0	ug/L				
Styrene	0.31	U	0.31	1.0	ug/L				
t-Butyl Benzene	0.26	U	0.26	1.0	ug/L				
Tetrachloroethene	0.34	U	0.34	1.0	ug/L				
Toluene	0.31	U	0.31	1.0	ug/L				
trans-1,2-Dichloroethene	0.38	U	0.38	1.0	ug/L				
trans-1,3-Dichloropropene	0.34	U	0.34	1.0	ug/L				
Trichloroethene	0.42	U	0.42	1.0	ug/L				
Trichlorofluoromethane	0.26	U	0.26	1.0	ug/L				
Vinyl acetate	2.5	U	2.5	5.0	ug/L				
Vinyl chloride	0.31	U	0.31	1.0	ug/L				
Xylenes, Total	0.83	U	0.83	3.0	ug/L				
Surrogate: 1,2-Dichloroethane-d4						*102*	*75-128*		
Surrogate: 4-Bromofluorobenzene						*95.8*	*70-130*		
Surrogate: Dibromofluoromethane						*103*	*84-126*		
Surrogate: Toluene-d8						*100*	*86-112*		

Volatiles by GC/MS - Quality Control

LCS (6080007-BS1) — Prepared & Analyzed: 01-Aug-06

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
1,1,1-Trichloroethane						96.0	79-133		20
1,1,2,2-Tetrachloroethane						98.5	78-127		20
1,1,2-Trichloroethane						103	77-123		20
1,1-Dichloroethane						100	76-127		20
ichloroethene						112	73-142		20
ichlorobenzene						100	84-116		20
1,2-Dichloropropane						100	77-125		20
1,3-Dichlorobenzene						102	83-117		20
1,4-Dichlorobenzene						102	83-116		20
Benzene						101	80-126		20
Chlorobenzene						99.0	82-118		20
Chloroform						101	78-126		20
cis-1,2-Dichloroethene						104	76-128		20
Ethylbenzene						102	83-122		20
Methyl-t-butyl ether						102	77-124		20
Tetrachloroethene						104	76-126		20
Toluene						103	77-123		20
trans-1,2-Dichloroethene						105	77-126		20
Trichloroethene						99.0	79-126		20
Vinyl chloride						95.5	67-127		20
Xylenes, Total						101	84-123		20
Surrogate: 1,2-Dichloroethane-d4						*98.2*	*75-128*		
Surrogate: 4-Bromofluorobenzene						*96.5*	*70-130*		
Surrogate: Dibromofluoromethane						*102*	*84-126*		
Surrogate: Toluene-d8						*102*	*86-112*		

QUALITY CONTROL FOR :P002527

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Volatiles by GC/MS - Quality Control								
LCS Dup (6080007-BSD1)					Prepared & Analyzed: 01-Aug-06			
1,1,1-Trichloroethane					88.5	79-133	8.13	20
1,1,2,2-Tetrachloroethane					94.5	78-127	4.15	20
1,1,2-Trichloroethane					99.5	77-123	3.46	20
1,1-Dichloroethane					92.5	76-127	7.79	20
1,1-Dichloroethene					102	73-142	9.35	20
1,2-Dichlorobenzene					96.0	84-116	4.08	20
1,2-Dichloropropane					94.5	77-125	5.66	20
1,3-Dichlorobenzene					96.0	83-117	6.06	20
1,4-Dichlorobenzene					96.0	83-116	6.06	20
Benzene					93.0	80-126	8.25	20
Chlorobenzene					93.5	82-118	5.71	20
Chloroform					94.5	78-126	6.65	20
cis-1,2-Dichloroethene					96.5	76-128	7.48	20
Ethylbenzene					95.0	83-122	7.11	20
Methyl-t-butyl ether					100	77-124	1.98	20
Tetrachloroethene					97.5	76-126	6.45	20
Toluene					95.0	77-123	8.08	20
trans-1,2-Dichloroethene					96.5	77-126	8.44	20
Trichloroethene					93.0	79-126	6.25	20
Vinyl chloride					88.5	67-127	7.61	20
Xylenes, Total					94.0	84-123	7.18	20
Surrogate: 1,2-Dichloroethane-d4					*98.0*	*75-128*		
Surrogate: 4-Bromofluorobenzene					*99.0*	*70-130*		
urrogate: Dibromofluoromethane					*102*	*84-126*		
rogate: Toluene-d8					*101*	*86-112*		
Volatiles by GC/MS - Quality Control								
Matrix Spike (6080007-MS1)	**Source: P002519-01**				Prepared & Analyzed: 01-Aug-06			
Acetone					89.3	70-130		20
Methylene chloride					104	70-130		20
Surrogate: 1,2-Dichloroethane-d4					*98.5*	*75-128*		
Surrogate: 4-Bromofluorobenzene					*98.5*	*70-130*		
Surrogate: Dibromofluoromethane					*101*	*84-126*		
Surrogate: Toluene-d8					*101*	*86-112*		
Metals - Quality Control								
Blank (6080031-BLK1)					Prepared: 01-Aug-06 Analyzed: 02-Aug-06			
Mercury, Total	0.000020 U	0.000020	0.00020	mg/L				
Metals - Quality Control								
LCS (6080031-BS1)					Prepared: 01-Aug-06 Analyzed: 02-Aug-06			
Mercury, Total					102	85-115		20
Metals - Quality Control								
Matrix Spike (6080031-MS1)	**Source: P002521-02**				Prepared: 01-Aug-06 Analyzed: 02-Aug-06			
Mercury, Total					73.0	75-125		20
Metals - Quality Control								
Matrix Spike Dup (6080031-MSD1)	**Source: P002521-02**				Prepared: 01-Aug-06 Analyzed: 02-Aug-06			
ury, Total					68.5	75-125	6.36	20

QUALITY CONTROL FOR :P002527

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Metals - Quality Control									
Blank (6080032-BLK1)						Prepared: 01-Aug-06 Analyzed: 02-Aug-06			
Cadmium, Total	0.00033	I	0.00032	0.0050	mg/L				
Chromium, Total	0.0016	U	0.0016	0.0050	mg/L				
Copper, Total	0.0012	U	0.0012	0.0029	mg/L				
Lead, Total	0.0035	U	0.0035	0.015	mg/L				
Zinc, Total	0.0041	I	0.0031	0.020	mg/L				
Metals - Quality Control									
LCS (6080032-BS1)						Prepared: 01-Aug-06 Analyzed: 02-Aug-06			
Cadmium, Total						102	80-120		20
Chromium, Total						106	80-120		20
Copper, Total						102	80-120		20
Lead, Total						105	80-120		20
Zinc, Total						103	80-120		20
Metals - Quality Control									
Matrix Spike (6080032-MS1)				**Source: P002521-01**		Prepared: 01-Aug-06 Analyzed: 02-Aug-06			
Cadmium, Total						99.7	75-125		20
Chromium, Total						105	75-125		20
Copper, Total						102	75-125		20
Lead, Total						103	75-125		20
Zinc, Total						100	75-125		20
Metals - Quality Control									
Matrix Spike Dup (6080032-MSD1)				**Source: P002521-01**		Prepared: 01-Aug-06 Analyzed: 02-Aug-06			
Cadmium, Total						100	75-125	0.300	20
Chromium, Total						106	75-125	0.948	20
Copper, Total						103	75-125	0.976	20
Lead, Total						103	75-125	0.00	20
Zinc, Total						101	75-125	0.995	20
Wet Chemistry - Quality Control									
LCS (6080026-BS1)						Prepared & Analyzed: 01-Aug-06			
pH						101	90-110		20
Wet Chemistry - Quality Control									
LCS Dup (6080026-BSD1)						Prepared & Analyzed: 01-Aug-06			
pH						101	90-110	0.162	20
Wet Chemistry - Quality Control									
Duplicate (6080026-DUP1)				**Source: P002527-01**		Prepared & Analyzed: 01-Aug-06			
pH	8.00			0.00	pH Units			0.125	20
Wet Chemistry - Quality Control									
Reference (6080026-SRM1)						Prepared & Analyzed: 01-Aug-06			
pH						100	0-200		
Wet Chemistry - Quality Control									
Blank (6080036-BLK1)						Prepared & Analyzed: 01-Aug-06			
Carbon, Total Organic	0.042	U	0.042	1.0	mg/L				

QUALITY CONTROL FOR :P002527

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Wet Chemistry - Quality Control								
LCS (6080036-BS1)				Prepared & Analyzed: 01-Aug-06				
Carbon, Total Organic					108	90-110		20
Wet Chemistry - Quality Control								
LCS (6080036-BS2)				Prepared & Analyzed: 01-Aug-06				
Carbon, Total Organic					110	90-110		20
Wet Chemistry - Quality Control								
LCS Dup (6080036-BSD1)				Prepared & Analyzed: 01-Aug-06				
Carbon, Total Organic					109	90-110	0.922	20
Wet Chemistry - Quality Control								
LCS Dup (6080036-BSD2)				Prepared & Analyzed: 01-Aug-06				
Carbon, Total Organic					107	90-110	2.76	20
Wet Chemistry - Quality Control								
Matrix Spike (6080036-MS1)		**Source: P002527-01**		Prepared & Analyzed: 01-Aug-06				
Carbon, Total Organic					99.6	85-115		20
Wet Chemistry - Quality Control								
Matrix Spike Dup (6080036-MSD1)		**Source: P002527-01**		Prepared & Analyzed: 01-Aug-06				
Carbon, Total Organic					98.6	85-115	1.01	20

NOTES AND DEFINITIONS

U	Indicates the compound was analyzed for but not detected.
	The reported value is between the laboratory method detection limit and the reporting limit.
	Indicated the analyte was detected in both the sample and the associated method blank. The value in the method blank is not subtracted from the associated samples.
#	Quality control recovered outside acceptance criteria.

KSA Environmental Laboratory Inc. - 10200 USA Today Way - Miramar, FL 33025 - (954) 431-4550

Florida Certifications: E86349 & E86616 (Microbiology)

Submission Code: P002527

Orders:

Entered to Lims: CB

KSA Environmental Laboratory, Inc.

CHAIN OF CUSTODY RECORD (DEP 62-770.900 - modified form)

10200 USA Today Way • Miramar, Florida 33025

Phone (954) 431-4550 • Fax (954) 431-1959 • Sample Custody Fax (954) 432-3875

FDEP Facility No E 86349

Page ____ of ____

Sampling CompQAP No ____

Approval Date ____

Original - Return w/Report | Yellow - Lab Copy | Pink - Sampler Copy

Report To: Diversified Drilling | Report To Address: 5620 Lee St. Lehigh Acres, FL 33971

Bill To: " " | Billing Address

Project Number/Name: ~~Ralf Atkins~~ Dewatering Project | Site Location:

Project Contact: Ralf V Delia | Phone: (239) 368-6404 | FAX: (239) 368-6716

Alternate Contact: " " | Phone: | FAX:

Sampled By (print): | Sampler's Signature

ITEM	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	pH FLD	TEMP °C FLD	COND FLD	MATRIX (DW SW GW SED S EFF HW BIO SA)	SAMPLE LOCATION JOB DESCRIPTION (optional if needed when samples are from different site location)	# CONTAINERS	8260 Benz Naph	TOC	pH	Cd Cr Cu Pb	Zn Hg		Lot Number of Sampling Containers Used
1	FW	8/1/06	1330				GW			✓	✓	✓	✓	✓		
2	BA	↓	1339				↓			✓	✓	✓	✓	✓		
3																
4																
5																
6																
7																
8																
9																
10																

ANALYSIS REQUIRED — PLACE NAME OR METHOD NUMBER OF TESTS NEEDED IN LARGE BOXES BELOW (✓) CHECK OFF WHICH SAMPLE ITEMS NEED EACH TEST PERFORMED

Sample Condition as Received: Temp 6 C; Sealed Yes No

RUSH

Special Comments: 24 Hr Turn Around | Total # of Containers: | QA/QC Report Needed? Yes No (See price guide for applicable fees)

Report Format: Standard Other (specify)

(1) Relinquished by Signature: [signature]	Date: 1-8-06	(2) Relinquished by Signature:	Date:	DUE DATE REQUESTED Confirmation #: 24 HR 8/2/06
Company: Diversified Drilling	Time: 2:15pm	Company:	Time	Coating Code: ____ O / L / D
(1) Received by Signature: [signature]	Date: 8/1/06	(2) Received by Signature:	Date	Misc. Charges:
Company: KSA	Time: 1415	Company:	Time	SHADED AREAS ARE FOR LAB USE ONLY

Submission Code: P002527

Orders:

Entered to Lims: CB

KSA Environmental Laboratory, Inc.

CHAIN OF CUSTODY RECORD (DEP 62-770.900 - modified form)

10200 USA Today Way • Miramar, Florida 33025

Phone (954) 431-4550 • Fax (954) 431-1959 • Sample Custody Fax (954) 432-8875

FDEP Facility No. E 86349

Page: ____ of ____

Sampling ComQAP No.

Approval Date:

Original - Return w/Report | Yellow - Lab Copy | Pink - Sampler Copy

Report To: Diversified Drilling		Report To Address: 5620 Lee St. Lehigh Acres, FL 33971	
Bill To: " "		Billing Address:	
Project Number/Name: ~~Ralf Adkins~~ CB Dewatering Project			Site Location:
Project Contact: Ralf ↓ Delia	Phone: (239) 368-6404	FAX: (239) 368-6716	
Alternate Contact: " "	Phone:	FAX:	
Sampled By (print):		Sampler's Signature:	

ITEM	SAMPLE ID	DATE COLLECTED	TIME COLLECTED	pH FLD	TEMP °C FLD	COND FLD	MATRIX DW SW GW SED S EFF HW BIO SA	SAMPLE LOCATION JOB DESCRIPTION (optional if needed when samples are from different site location)	# CONTAINERS	8260 Benzene Naph	TOC	pH	Cd Cr Cu Pb	Zn Hg		Lot Number of Sampling Containers Used
1	FW	8/1/06	1330				GW			✓	✓	✓	✓	✓		
2	BA	↓	1339				↓			✓	✓	✓	✓	✓		
3																
4																
5																
6																
7																
8																
9																
10																

ANALYSIS REQUIRED: PLACE NAME OR METHOD NUMBER OF TESTS NEEDED IN LARGE BOXES BELOW (✓) CHECK OFF WHICH SAMPLE ITEMS NEED EACH TEST PERFORMED

Sample Condition as Received: Temp 6 C; Sealed Yes No

Special Comments: 24 Hr Turn Around

Total # of Containers:

RUSH

QA/QC Report Needed? Yes No (See price guide for applicable fees)

Report Format: Standard Other (specify)

(1) Relinquished by Signature: [signature]	Date: 1-8-06	(2) Relinquished by Signature:	Date:	DUE DATE REQUESTED Confirmation # 24 HR 8/2/06
Company: Diversified Drilling	Time: 2:15pm	Company:	Time:	Coating Code: ____ Q / L / D
(1) Received by Signature: [signature]	Date: 8/1/06	(2) Received by Signature:	Date:	Misc. Charges:
Company: KSA	Time: 1415	Company:	Time:	SHADED AREAS ARE FOR LAB USE ONLY

Florida Environmental

Report To:
Ralf De :i
Diversified Drilling Corp.
8801 M islin Drive
Tampa, FL 33637

Page 1 of 10
Report Printed: 08/02/06
Submission # 608000018
Order # 16830

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: BA
Collected: 08/01/06 11:46
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
pH	7.22		units	0.1	0.3	150.1	08/01	08/01 17:08	KYT
Organic Carbon, Total	14.9		mg/L	0.042	0.126	415.1	08/02 14:23	08/02 14:23	EMS
Cadmium	U	U	mg/L	0.00006	0.00018	200.7	08/01	08/01 18:24	IMN
Chromium	U	U	mg/L	0.0006	0.0018	200.7	08/01	08/01 18:24	IMN
Copper	U	U	mg/L	0.00016	0.00048	200.7	08/01	08/01 18:24	IMN
Lead	U	U	mg/L	0.00008	0.00024	200.7	08/01	08/01 18:24	IMN
Zinc	U	U	mg/L	0.00056	0.00168	200.7	08/01	08/01 18:24	IMN
Mercury	U	U	mg/L	0.0002	0.0006	245.1	08/01	08/02 12:21	EN
8260.B Volatile Organics in Water by GC/MS				Dilution Factor = 1					
Acetone	U	U	ug/L	1.75	5.25	5030/8260B	08/01 19:08	08/01 19:08	MD
Acrolein	U	U	ug/L	0.75	2.25	5030/8260B	08/01 19:08	08/01 19:08	MD
Acrylonitrile	U	U	ug/L	0.41	1.23	5030/8260B	08/01 19:08	08/01 19:08	MD
Methyl Ethyl Ketone	U	U	ug/L	0.75	2.25	5030/8260B	08/01 19:08	08/01 19:08	MD
Dichlorodifluoromethane	U	U	ug/L	0.13	0.39	5030/8260B	08/01 19:08	08/01 19:08	MD
Chloromethane	U	U	ug/L	0.35	1.05	5030/8260B	08/01 19:08	08/01 19:08	MD
Vinyl Chloride	U	U	ug/L	0.34	1.02	5030/8260B	08/01 19:08	08/01 19:08	MD
Bromomethane	U	U	ug/L	0.41	1.23	5030/8260B	08/01 19:08	08/01 19:08	MD
Chloroethane	U	U	ug/L	0.17	0.51	5030/8260B	08/01 19:08	08/01 19:08	MD

Report To:
Ralf Dela
Diversified Drilling Corp.
8801 Maislin Drive
Tampa, FL 33637

Report Printed: 08/02/06
Submission # 608000018
Order # 16830

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: BA
Collected: 08/01/06 11:46
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Trichlorofluoromethane	U	U	ug/L	0.47	1.41	5030/8260B	08/01 19:08	08/01 19:08	MD
1,1-Dichloroethene	U	U	ug/L	0.52	1.56	5030/8260B	08/01 19:08	08/01 19:08	MD
Methylene Chloride	U	U	ug/L	0.99	2.97	5030/8260B	08/01 19:08	08/01 19:08	MD
Trans-1,2-Dichloroethene	U	U	ug/L	0.50	1.50	5030/8260B	08/01 19:08	08/01 19:08	MD
Methyl-Tert-Butyl Ether	U	U	ug/L	0.50	1.50	5030/8260B	08/01 19:08	08/01 19:08	MD
1,1-Dichloroethane	U	U	ug/L	0.53	1.59	5030/8260B	08/01 19:08	08/01 19:08	MD
2,2-Dichloropropane	U	U	ug/L	0.31	0.93	5030/8260B	08/01 19:08	08/01 19:08	MD
Cis-1,2-Dichloroethene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:08	08/01 19:08	MD
Chloroform	U	U	ug/L	0.80	2.40	5030/8260B	08/01 19:08	08/01 19:08	MD
Bromochloromethane	U	U	ug/L	0.55	1.65	5030/8260B	08/01 19:08	08/01 19:08	MD
1,1,1-Trichloroethane	U	U	ug/L	0.25	0.75	5030/8260B	08/01 19:08	08/01 19:08	MD
1,1-Dichloropropene	U	U	ug/L	0.07	0.21	5030/8260B	08/01 19:08	08/01 19:08	MD
Carbon Tetrachloride	U	U	ug/L	0.19	0.57	5030/8260B	08/01 19:08	08/01 19:08	MD
Benzene	U	U	ug/L	0.09	0.27	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2-Dichloroethane	U	U	ug/L	0.24	0.72	5030/8260B	08/01 19:08	08/01 19:08	MD
Trichloroethene	U	U	ug/L	0.09	0.27	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2-Dichloropropane	U	U	ug/L	0.20	0.60	5030/8260B	08/01 19:08	08/01 19:08	MD
Bromodichloromethane	U	U	ug/L	0.24	0.72	5030/8260B	08/01 19:08	08/01 19:08	MD

Report To:
Ralf Dela
Diversified Drilling Corp.
8801 Maislin Drive
Tampa, FL 33637

Report Printed: 08/02/06
Submission # 608000018
Order # 16830

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: BA
Collected: 08/01/06 11:46
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
2-Chloroethylvinyl Ether	U	U	ug/L	1.00	3.00	5030/8260B	08/01 19:08	08/01 19:08	MD
Dibromomethane	U	U	ug/L	0.42	1.26	5030/8260B	08/01 19:08	08/01 19:08	MD
Cis-1,3-Dichloropropene	U	U	ug/L	0.38	1.14	5030/8260B	08/01 19:08	08/01 19:08	MD
Toluene	U	U	ug/L	0.14	0.42	5030/8260B	08/01 19:08	08/01 19:08	MD
Trans-1,3-Dichloropropene	U	U	ug/L	0.50	1.50	5030/8260B	08/01 19:08	08/01 19:08	MD
1,1,2-Trichloroethane	U	U	ug/L	0.36	1.08	5030/8260B	08/01 19:08	08/01 19:08	MD
1,3-Dichloropropane	U	U	ug/L	0.38	1.14	5030/8260B	08/01 19:08	08/01 19:08	MD
Tetrachloroethene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:08	08/01 19:08	MD
Dibromochloromethane	U	U	ug/L	0.39	1.17	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2-Dibromoethane (EDB)	U	U	ug/L	0.40	1.20	5030/8260B	08/01 19:08	08/01 19:08	MD
Bromobenzene	U	U	ug/L	0.46	1.38	5030/8260B	08/01 19:08	08/01 19:08	MD
Chlorobenzene	U	U	ug/L	0.09	0.27	5030/8260B	08/01 19:08	08/01 19:08	MD
Ethylbenzene	U	U	ug/L	0.13	0.39	5030/8260B	08/01 19:08	08/01 19:08	MD
1,1,1,2-Tetrachloroethane	U	U	ug/L	0.37	1.11	5030/8260B	08/01 19:08	08/01 19:08	MD
m & p-Xylene	U	U	ug/L	0.19	0.57	5030/8260B	08/01 19:08	08/01 19:08	MD
o-Xylene	U	U	ug/L	0.19	0.57	5030/8260B	08/01 19:08	08/01 19:08	MD
Styrene	U	U	ug/L	0.17	0.51	5030/8260B	08/01 19:08	08/01 19:08	MD
Isopropylbenzene	U	U	ug/L	0.50	1.50	5030/8260B	08/01 19:08	08/01 19:08	MD

Report To:
Ralf Del:
Diversifi:d Drilling Corp.
8801 Ma:lin Drive
Tampa, F_ 33537

Report Printed: 08/02/06
Submission # 608000018
Order # 16830

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: BA
Collected: 08/01/06 11:46
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Bromoform	U	U	ug/L	0.38	1.14	5030/8260B	08/01 19:08	08/01 19:08	MD
1,1,2,2-Tetrach oroethane	U	U	ug/L	0.29	0.87	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2,3-Tri:hloro ropane	U	U	ug/L	0.23	0.69	5030/8260B	08/01 19:08	08/01 19:08	MD
1,3,5-Trimethylbenzene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:08	08/01 19:08	MD
2-Chloro oluene	U	U	ug/L	0.13	0.39	5030/8260B	08/01 19:08	08/01 19:08	MD
4-Chloro oluene	U	U	ug/L	0.16	0.48	5030/8260B	08/01 19:08	08/01 19:08	MD
Tert-Butylbenzene	U	U	ug/L	0.16	0.48	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2,4-Trimethy benzene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:08	08/01 19:08	MD
Sec-Buty benzene	U	U	ug/L	0.17	0.51	5030/8260B	08/01 19:08	08/01 19:08	MD
P-Isopropyltolu ne	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:08	08/01 19:08	MD
1,3-Dich orobe zene	U	U	ug/L	0.20	0.60	5030/8260B	08/01 19:08	08/01 19:08	MD
1,4-Dich orobe zene	U	U	ug/L	0.14	0.42	5030/8260B	08/01 19:08	08/01 19:08	MD
n-Butylb: zene	U	U	ug/L	0.21	0.63	5030/8260B	08/01 19:08	08/01 19:08	MD
n-Propyl Benze e	U	U	ug/L	0.17	0.51	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2-Dichlorobe zene	U	U	ug/L	0.48	1.44	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2-Dibromo-3 Chloropropane (DBCP)	U	U	ug/L	0.30	0.90	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2,4-Tr chloro benzene	U	U	ug/L	0.82	2.46	5030/8260B	08/01 19:08	08/01 19:08	MD
Hexachl obut diene	U	U	ug/L	0.57	1.71	5030/8260B	08/01 19:08	08/01 19:08	MD

Report To:
Ralf Dela
Diversified Drilling Corp.
8801 Maislin Drive
Tampa, FL 33637

Page 5 of 10
Report Printed: 08/02/06
Submission # 608000018
Order # 16830

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: BA
Collected: 08/01/06 11:46
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Naphthalene	U	U	ug/L	0.015	0.045	5030/8260B	08/01 19:08	08/01 19:08	MD
1,2,3-Trichlorobenzene	U	U	ug/L	1.27	3.81	5030/8260B	08/01 19:08	08/01 19:08	MD

QC = Qualifier Codes as defined by DEP 62-160
Unless indicated, soil results are reported based on actual (wet) weight basis.
Analytes not currently NELAC certified denoted by *.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.

Authorized CSM Signature
Florida Environmental Certification # E86006

Report To:
Ralf Del:
Diversified Drilling Corp.
8801 Ma:slin Drive
Tampa, FL 33537

Report Printed: 08/02/06
Submission # 608000018
Order # 16831

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: FW
Collected: 08/01/06 11:42
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
pH	7.96		units	0.1	0.3	150.1	08/01 17:10	08/01 17:10	KYT
Organic Carbon, Total	0.89		mg/L	0.042	0.126	415.1	08/02 14:23	08/02 14:23	EMS
Cadmium	U	U	mg/L	0.00006	0.00018	200.7	08/01	08/01 18:31	IMN
Chromium	U	U	mg/L	0.0006	0.0018	200.7	08/01	08/01 18:31	IMN
Copper	U	U	mg/L	0.00016	0.00048	200.7	08/01	08/01 18:31	IMN
Lead	U	U	mg/L	0.00008	0.00024	200.7	08/01	08/01 18:31	IMN
Zinc	U	U	mg/L	0.00056	0.00168	200.7	08/01	08/01 18:31	IMN
Mercury	U	U	mg/L	0.0002	0.0006	245.1	08/01	08/02 12:18	EN
8260.B Volatile Organics in Water by GC/MS				Dilution Factor = 1					
Acetone	U	U	ug/L	1.75	5.25	5030/8260B	08/01 19:40	08/01 19:40	MD
Acrolein	U	U	ug/L	0.75	2.25	5030/8260B	08/01 19:40	08/01 19:40	MD
Acrylonitrile	U	U	ug/L	0.41	1.23	5030/8260B	08/01 19:40	08/01 19:40	MD
Methyl Ethyl Ketone	U	U	ug/L	0.75	2.25	5030/8260B	08/01 19:40	08/01 19:40	MD
Dichlorodifluoromethane	U	U	ug/L	0.13	0.39	5030/8260B	08/01 19:40	08/01 19:40	MD
Chloromethane	U	U	ug/L	0.35	1.05	5030/8260B	08/01 19:40	08/01 19:40	MD
Vinyl Chloride	U	U	ug/L	0.34	1.02	5030/8260B	08/01 19:40	08/01 19:40	MD
Bromomethane	U	U	ug/L	0.41	1.23	5030/8260B	08/01 19:40	08/01 19:40	MD
Chloroethane	U	U	ug/L	0.17	0.51	5030/8260B	08/01 19:40	08/01 19:40	MD

Report To:
Ralf Dela
Diversified Drilling Corp.
8801 Maislin Drive
Tampa, FL 33637

Report Printed: 08/02/06
Submission # 608000018
Order # 16831

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: FW
Collected: 08/01/06 11:42
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Trichlorofluoromethane	U	U	ug/L	0.47	1.41	5030/8260B	08/01 19:40	08/01 19:40	MD
1,1-Dichloroethene	U	U	ug/L	0.52	1.56	5030/8260B	08/01 19:40	08/01 19:40	MD
Methylene Chloride	U	U	ug/L	0.99	2.97	5030/8260B	08/01 19:40	08/01 19:40	MD
Trans-1,2-Dichloroethene	U	U	ug/L	0.50	1.50	5030/8260B	08/01 19:40	08/01 19:40	MD
Methyl-Tert-Butyl Ether	U	U	ug/L	0.50	1.50	5030/8260B	08/01 19:40	08/01 19:40	MD
1,1-Dichloroethane	U	U	ug/L	0.53	1.59	5030/8260B	08/01 19:40	08/01 19:40	MD
2,2-Dichloropropane	U	U	ug/L	0.31	0.93	5030/8260B	08/01 19:40	08/01 19:40	MD
Cis-1,2-Dichloroethene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:40	08/01 19:40	MD
Chloroform	U	U	ug/L	0.80	2.40	5030/8260B	08/01 19:40	08/01 19:40	MD
Bromochloromethane	U	U	ug/L	0.55	1.65	5030/8260B	08/01 19:40	08/01 19:40	MD
1,1,1-Trichloroethane	U	U	ug/L	0.25	0.75	5030/8260B	08/01 19:40	08/01 19:40	MD
1,1-Dichloropropene	U	U	ug/L	0.07	0.21	5030/8260B	08/01 19:40	08/01 19:40	MD
Carbon Tetrachloride	U	U	ug/L	0.19	0.57	5030/8260B	08/01 19:40	08/01 19:40	MD
Benzene	U	U	ug/L	0.09	0.27	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2-Dichloroethane	U	U	ug/L	0.24	0.72	5030/8260B	08/01 19:40	08/01 19:40	MD
Trichloroethene	U	U	ug/L	0.09	0.27	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2-Dichloropropane	U	U	ug/L	0.20	0.60	5030/8260B	08/01 19:40	08/01 19:40	MD
Bromodichloromethane	U	U	ug/L	0.24	0.72	5030/8260B	08/01 19:40	08/01 19:40	MD

Report To:
Ralf Del:
Diversifi::d Drilling Corp.
8801 Ma :lin Drive
Tampa, FL 33537

Report Printed: 08/02/06
Submission # 608000018
Order # 16831

Project: Sunrise
Site Location Sunrise
Matrix: Water

Sample I.D.: FW
Collected: 08/01/06 11:42
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
2-Chloro :hylvi yl Ether	U	U	ug/L	1.00	3.00	5030/8260B	08/01 19:40	08/01 19:40	MD
Dibromo nethai e	U	U	ug/L	0.42	1.26	5030/8260B	08/01 19:40	08/01 19:40	MD
Cis-1,3-D chlor propene	U	U	ug/L	0.38	1.14	5030/8260B	08/01 19:40	08/01 19:40	MD
Toluene	U	U	ug/L	0.14	0.42	5030/8260B	08/01 19:40	08/01 19:40	MD
Trans-1,3 Dich oropropene	U	U	ug/L	0.50	1.50	5030/8260B	08/01 19:40	08/01 19:40	MD
1,1,2-Trichloro :thane	U	U	ug/L	0.36	1.08	5030/8260B	08/01 19:40	08/01 19:40	MD
1,3-Dich oropr pane	U	U	ug/L	0.38	1.14	5030/8260B	08/01 19:40	08/01 19:40	MD
Tetrachlc roethene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:40	08/01 19:40	MD
Dibromo :hloro nethane	U	U	ug/L	0.39	1.17	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2-Dibr moetl ane (EDB)	U	U	ug/L	0.40	1.20	5030/8260B	08/01 19:40	08/01 19:40	MD
Bromober zene	U	U	ug/L	0.46	1.38	5030/8260B	08/01 19:40	08/01 19:40	MD
Chlorobe nzene	U	U	ug/L	0.09	0.27	5030/8260B	08/01 19:40	08/01 19:40	MD
Ethylben ene	U	U	ug/L	0.13	0.39	5030/8260B	08/01 19:40	08/01 19:40	MD
1,1,1,2-Tetrach loroethane	U	U	ug/L	0.37	1.11	5030/8260B	08/01 19:40	08/01 19:40	MD
m & p-Xylene	U	U	ug/L	0.19	0.57	5030/8260B	08/01 19:40	08/01 19:40	MD
o-Xylene	U	U	ug/L	0.19	0.57	5030/8260B	08/01 19:40	08/01 19:40	MD
Styrene	U	U	ug/L	0.17	0.51	5030/8260B	08/01 19:40	08/01 19:40	MD
Isopropyl benze ne	U	U	ug/L	0.50	1.50	5030/8260B	08/01 19:40	08/01 19:40	MD

Report To:
Ralf Dela
Diversified Drilling Corp.
8801 Marlin Drive
Tampa, FL 33637

Report Printed: 08/02/06
Submission # 608000018
Order # 16831

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: FW
Collected: 08/01/06 11:42
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Bromoform	U	U	ug/L	0.38	1.14	5030/8260B	08/01 19:40	08/01 19:40	MD
1,1,2,2-Tetrachloroethane	U	U	ug/L	0.29	0.87	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2,3-Trichloropropane	U	U	ug/L	0.23	0.69	5030/8260B	08/01 19:40	08/01 19:40	MD
1,3,5-Trimethylbenzene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:40	08/01 19:40	MD
2-Chlorotoluene	U	U	ug/L	0.13	0.39	5030/8260B	08/01 19:40	08/01 19:40	MD
4-Chlorotoluene	U	U	ug/L	0.16	0.48	5030/8260B	08/01 19:40	08/01 19:40	MD
Tert-Butylbenzene	U	U	ug/L	0.16	0.48	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2,4-Trimethylbenzene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:40	08/01 19:40	MD
Sec-Butylbenzene	U	U	ug/L	0.17	0.51	5030/8260B	08/01 19:40	08/01 19:40	MD
P-Isopropyltoluene	U	U	ug/L	0.11	0.33	5030/8260B	08/01 19:40	08/01 19:40	MD
1,3-Dichlorobenzene	U	U	ug/L	0.20	0.60	5030/8260B	08/01 19:40	08/01 19:40	MD
1,4-Dichlorobenzene	U	U	ug/L	0.14	0.42	5030/8260B	08/01 19:40	08/01 19:40	MD
n-Butylbenzene	U	U	ug/L	0.21	0.63	5030/8260B	08/01 19:40	08/01 19:40	MD
n-PropylBenzene	U	U	ug/L	0.17	0.51	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2-Dichlorobenzene	U	U	ug/L	0.48	1.44	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2-Dibromo-3-Chloropropane (DBCP)	U	U	ug/L	0.30	0.90	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2,4-Trichlorobenzene	U	U	ug/L	0.82	2.46	5030/8260B	08/01 19:40	08/01 19:40	MD
Hexachlorobutadiene	U	U	ug/L	0.57	1.71	5030/8260B	08/01 19:40	08/01 19:40	MD

Report To:
Ralf Dela
Diversified Drilling Corp.
8801 Maislin Drive
Tampa, FL 33637

Report Printed: 08/02/06
Submission # 608000018
Order # 16831

Project: Sunrise
Site Location: Sunrise
Matrix: Water

Sample I.D.: FW
Collected: 08/01/06 11:42
Received: 08/01/06 15:15
Collected by: David Adkins

LABORATORY ANALYSIS REPORT

PARAMETER	RESULT	QC	UNITS	MDL	PQL	METHOD	DATE EXT.	DATE ANALY.	ANALYST
Naphthalene	U	U	ug/L	0.015	0.045	5030/8260B	08/01 19:40	08/01 19:40	MD
1,2,3-Trichlorobenzene	U	U	ug/L	1.27	3.81	5030/8260B	08/01 19:40	08/01 19:40	MD

QC = Qualifier Codes as defined by DEP 62-160
Unless indicated, soil results are reported based on actual (wet) weight basis.
Analytes not currently NELAC certified denoted by *.
Work performed by outside (subcontract) labs denoted by Cert.ID in Analyst Field.

Authorized CSM Signature
Florida Environmental Certification # E86006

SUBMISSION # 668-018

F-304 Logged in LIMS by [signature]
CSM assigned

CHAIN OF CUSTODY RECORD

Florida Environmental

1460 W. McNab Road Ft Laud. FL 33309 Tel: (954) 978-6400 Fax: (954) 978-2233
940 Alt. 27 South Babson Park, FL 33827 Tel: (863) 638-3255 Fax: (863) 638-3637
630 Indian Street Savannah, GA 31401 Tel: (912) 238-5050 Fax: (912) 234-4815
528 Gooch Road Fort Meade, FL 33841 Tel: (863) 285-8145 Fax: (863) 285-7030

Original-Return w/report Yellow- Lab File Copy Pink- Sampler Copy

DUE DATE Requested: 24 Hr 8/02
RUSH RESERVATION #: MEC 232
Rush Surcharges apply

P 012/012

Report to: (company name) DIVERSIFIED DRILLING
Report to Address:
Invoice to: (company name)
Purchase Order #
Invoice to Address:
Project Name and/or Number: SUNRISE
Site Location: SUNRISE

T-001

Project Contact: RALF DELA
Phone: 239-368-6404
Fax: 239/368-6716
Email:
Sampler Name (printed): DAVID ADKINS
Sampler Signature

+9549782233

ORDER # Lab Control Number (Shaded Areas For Laboratory Use Only)	Sample ID	Date Sampled	Time Sampled	Matrix (DW SW GW WW S SED HW BIO SEA OIL X AIR)	Bottle & Pres. Combo Codes	Number of Containers Received & NELAC Letter Suffixes # A-?	BENZENE NAPH	TOC	PH	CD CR CU PB	ZN HG			TEMP C	PH	COND	CHLOR
1 16830	BA	8-1-06	1146Am	GW	4TL 3VO 3VC CH	7	✓	✓	✓	✓	✓						
2 16831	FW	8-1-06	1142Am	↓	4TL 3VO 3VC CH	7	✓	✓	✓	✓	✓						
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Received 8260, TOC, pH 8/1/06 1655 [signature]

RUSH

FROM-FLORIDA SPECTRUM ENVIRONMENTAL INC

Special Comments:
"I waive NELAC protocol" (sign here) >
Deliverables: QA/QC Report Needed? Yes No (additional charge)

Total

SAMPLE CUSTODY AND TRANSFER SIGNATURES

			DATE / TIME
1	Relinquished by:		
1	Received by:	[signature]	8/1/06 1515
2	Relinquished by:	[signature]	8-1-06 3:15
2	Received by:		
3	Relinquished by:		
3	Received by:		

www.flenviro.com COC Page

Sample Custody & Field Comments
Temp as received 2 C
Custody Seals? Y N
Billable Field Time ____ hrs
Misc. Charges ____

Bottle Type
A-liter amber
B-Bacteria bag/bottle
F-500 ml O-125 ml
L-liter bottle
S4- 4 oz soil jar / S8- 8 oz soil jar
T-250 ml
V-40 ml vial
W-wide mouth
X-other TED=Tedlar Air Bag

Preservatives
A-ascorbic acid P-H3PO4
C-HCL S-H2SO4
Cu-CuSO4 T-Na2S2O3-H2O
H-HNO3 U-Unpreserved
M-MCAD P-H3PO4
N-NaOH Z-zinc acetate
NH4-NH4CL

08-02-2006 15:10

DDC FT MYERS Fax:2393686716 Aug 2 2006 15:35 P.11

Data Qualifier Codes

A Value reported is the mean (average) of two or more determinations.

B Results based upon colony counts outside the acceptable range. The code is to be used if the colony count is generated from a plate in which the total number of Coliform colonies exceeds the method indicated ideal ranges, which are:
Total Coliforms: 20-80 colonies
Fecal Coliforms: 20-60 colonies

C Result was confirmed by a separate analysis of the sample.

D Measurement was made in the field (i.e. in situ). This applies to any value (ex. pH, specific conductance, etc.) that was obtained under field conditions using approved analytical methods.

H Value based on field kit determination, results may not be accurate.

I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit

J Estimated value; value not accurate. This code shall be used in the following instances:
1. surrogate recovery limits have been exceeded.
2. no known quality control criteria exists for the component
3. the reported value failed to meet the established quality control criteria for either precision or accuracy.
4. the sample matrix interfered with the ability to make any accurate determination; or
5. if the data is questionable because of improper laboratory or field protocols (e.g. composite sample was collected instead of a grab sample).

N Presumptive evidence of presence of material. This qualifier shall be used if:
1. the component has been tentatively identified based on mass spectral library search a
2. there is an indication that the analyte is present, but quality control requirements for confirmation were not met

O Sampled, but analysis lost or not performed; sample compromised.

Q Sample held beyond accepted holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.

R Significant rain in the past 48 hours. This code shall be used when the rainfall might contribute to a lower than normal value.

T Value reported is less than the laboratory method detection limit

U Indicated that the compound was analyzed for but not detected. This shall be used to indicate that the specified component was not detected. The value associated with the qualifier shall be the laboratory method detection limit

V Indicated that the analyte was detected in both the sample and the associated method blank. Note: the value in the blank shall not be subtracted from associated samples.

Y The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.

Z Too many colonies were present (TNTC), the numeric value represents the filtration volume.

? Data is rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.

* Not analyzed due to interference.

! Data deviates from historically established concentration ranges.

- Analysis performed outside NELAP program. (e.g. State of Georgia, UCMR, ICR or other certification.)

KSA Environmental Laboratory Inc.

November 30, 2006

MWH

Attn: Alejandra Simon

490 Sawgrass Corp. Pkwy, Suite #300

Sunrise, FL 33325

RE: City of Sunrise Melaleuca Upper Floridan Well
KSA Workorder: P005471

Dear Alejandra Simon,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on 11/07/06 16:00.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

This data has been produced in accordance with NELAC standards. This report shall not be reproduced except in full, without the written approval of the Laboratory.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Marianne Walker

Senior Project Manager

Enclosure(s)

SAMPLE SUMMARY

	Client ID	Matrix	Sampled	Received
P005471-01	Melaluca Blending-150gpm	Groundwater	11/06/06 16:00	11/07/06 16:00
P005471-02	Melaluca Blending-300gpm	Groundwater	11/06/06 17:00	11/07/06 16:00
P005471-03	Melaluca Blending-450gpm	Groundwater	11/06/06 18:00	11/07/06 16:00
P005471-04	Melaluca Blending-600gpm	Groundwater	11/06/06 19:00	11/07/06 16:00
P005471-05	Melaluca Blending-150gpm	Groundwater	11/06/06 15:30	11/07/06 16:00
P005471-06	Melaluca Blending-450gpm	Groundwater	11/06/06 17:30	11/07/06 16:00
P005471-07	Melaluca Blending-600gpm	Groundwater	11/06/06 18:30	11/07/06 16:00
P005471-08	Melaluca Blending-300gpm	Groundwater	11/06/06 16:30	11/07/06 16:00

ANALYTICAL REPORT

Sample ID:	Melaluca Blending-150gpm		Project:	City of Sunrise Melaleuca Upper Floridan Well
Lab #:	P005471-01		Work Order #:	P005471
Sampled:	11/06/06 16:00		Matrix:	Groundwater

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Sulfide, Hydrogen	0.67 mg/L	U	1	0.67	2.0	376.1	11/10/06 14:00	11/13/06 9:07	6110333

ANALYTICAL REPORT

Sample ID:	Melaluca Blending-300gpm		Project:	City of Sunrise Melaleuca Upper Floridan Well
Lab #:	P005471-02		Work Order #:	P005471
Sampled:	11/06/06 17:00		Matrix:	Groundwater

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Sulfide, Hydrogen	0.67 mg/L	U	1	0.67	2.0	376.1	11/10/06 14:00	11/13/06 9:07	6110333

ANALYTICAL REPORT

Sample ID:	Melaluca Blending-450gpm		Project:	City of Sunrise Melaleuca Upper Floridan Well
Lab #:	P005471-03		Work Order #:	P005471
Sampled:	11/06/06 18:00		Matrix:	Groundwater

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Sulfide, Hydrogen	0.67 mg/L	U	1	0.67	2.0	376.1	11/10/06 14:00	11/13/06 9:07	6110333

ANALYTICAL REPORT

Sample ID:	Melaluca Blending-600gpm		Project:	City of Sunrise Melaleuca Upper Floridan Well
Lab #:	P005471-04		Work Order #:	P005471
Sampled:	11/06/06 19:00		Matrix:	Groundwater

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Sulfide, Hydrogen	0.67 mg/L	U	1	0.67	2.0	376.1	11/10/06 14:00	11/13/06 9:07	6110333

ANALYTICAL REPORT

Sample ID:	Melaluca Blending-150gpm		Project:	City of Sunrise Melaleuca Upper Floridan Well
Lab #:	P005471-05		Work Order #:	P005471
Sampled:	11/06/06 15:30		Matrix:	Groundwater

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Chloride	4700 mg/L		100	20	40	300.0	11/09/06 17:53	11/10/06 11:34	6110270
Conductivity	13500 umhos/cm		1	0.00	0.00	120.1	11/08/06 11:54	11/08/06 11:55	6110193
pH	7.99 s.u.		1	0.00	0.00	150.1	11/07/06 17:15	11/07/06 17:15	6110176
Solids, Total Dissolved	8700 mg/L		1	8.9	10	160.1	11/08/06 16:45	11/08/06 16:45	6110234

ANALYTICAL REPORT

Sample ID:	Melaluca Blending-450gpm		Project:	City of Sunrise Melaleuca Upper Floridan Well
Lab #:	P005471-06		Work Order #:	P005471
Sampled:	11/06/06 17:30		Matrix:	Groundwater

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Chloride	4300 mg/L		100	20	40	300.0	11/09/06 17:53	11/10/06 11:52	6110270
Conductivity	13400 umhos/cm		1	0.00	0.00	120.1	11/08/06 11:54	11/08/06 11:55	6110193
pH	7.95 s.u.		1	0.00	0.00	150.1	11/07/06 17:15	11/07/06 17:15	6110176
Solids, Total Dissolved	8700 mg/L		1	8.9	10	160.1	11/08/06 16:55	11/08/06 16:55	6110239

ANALYTICAL REPORT

Sample ID:	Melaluca Blending-600gpm		Project:	City of Sunrise Melaleuca Upper Floridan Well
Lab #:	P005471-07		Work Order #:	P005471
Sampled:	11/06/06 18:30		Matrix:	Groundwater

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Chloride	4300 mg/L		100	20	40	300.0	11/09/06 17:53	11/10/06 12:09	6110270
Conductivity	13400 umhos/cm		1	0.00	0.00	120.1	11/08/06 11:54	11/08/06 11:55	6110193
pH	8.15 s.u.		1	0.00	0.00	150.1	11/07/06 17:15	11/07/06 17:15	6110176
Solids, Total Dissolved	8400 mg/L		1	8.9	10	160.1	11/08/06 16:55	11/08/06 16:55	6110239

ANALYTICAL REPORT

Sample ID:	Melaluca Blending-300gpm		Project:	City of Sunrise Melaleuca Upper Floridan Well
Lab #:	P005471-08		Work Order #:	P005471
Sampled:	11/06/06 16:30		Matrix:	Groundwater

Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Chloride	4400 mg/L		100	20	40	300.0	11/09/06 17:53	11/10/06 12:26	6110270
Conductivity	13400 umhos/cm		1	0.00	0.00	120.1	11/08/06 11:54	11/08/06 11:55	6110193
pH	7.98 s.u.		1	0.00	0.00	150.1	11/07/06 17:15	11/07/06 17:15	6110176
Solids, Total Dissolved	8600 mg/L		1	8.9	10	160.1	11/08/06 16:55	11/08/06 16:55	6110239

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Wet Chemistry - Quality Control									
LCS (6110176-BS1)					Prepared & Analyzed: 07-Nov-06				
pH						107	90-110		
Wet Chemistry - Quality Control									
LCS Dup (6110176-BSD1)					Prepared & Analyzed: 07-Nov-06				
pH						107	90-110	0.153	20
Wet Chemistry - Quality Control									
Duplicate (6110176-DUP1)				**Source: P005473-01**	Prepared & Analyzed: 07-Nov-06				
pH	5.45			0.00	s.u.			0.913	20
Wet Chemistry - Quality Control									
Blank (6110193-BLK1)					Prepared & Analyzed: 08-Nov-06				
Conductivity	0.00		0.00	0.00	umhos/cm				
Wet Chemistry - Quality Control									
LCS (6110193-BS1)					Prepared & Analyzed: 08-Nov-06				
Conductivity						99.9	90-110		
Wet Chemistry - Quality Control									
LCS Dup (6110193-BSD1)					Prepared & Analyzed: 08-Nov-06				
Conductivity						99.7	90-110	0.200	20
Wet Chemistry - Quality Control									
Duplicate (6110193-DUP1)				**Source: P005428-04**	Prepared & Analyzed: 08-Nov-06				
Conductivity	529		0.00	0.00	umhos/cm			0.189	20
Wet Chemistry - Quality Control									
Blank (6110234-BLK1)					Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved	8.9	U	8.9	10	mg/L				
Wet Chemistry - Quality Control									
LCS (6110234-BS1)					Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved						102	80-120		
Wet Chemistry - Quality Control									
LCS Dup (6110234-BSD1)					Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved						98.4	80-120	3.59	30
Wet Chemistry - Quality Control									
Duplicate (6110234-DUP1)				**Source: P005471-05**	Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved	9260		8.9	10	mg/L			6.24	20
Wet Chemistry - Quality Control									
Blank (6110239-BLK1)					Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved	8.9	U	8.9	10	mg/L				
Wet Chemistry - Quality Control									
LCS (6110239-BS1)					Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved						102	80-120		

QUALITY CONTROL FOR :P005471

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Wet Chemistry - Quality Control									
Duplicate (6110239-DUP1)			**Source: P005481-08**		Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved	430		8.9	10	mg/L			7.23	20
Wet Chemistry - Quality Control									
Blank (6110270-BLK1)					Prepared & Analyzed: 09-Nov-06				
Chloride	0.20	U	0.20	0.40	mg/L				
Wet Chemistry - Quality Control									
LCS (6110270-BS1)					Prepared: 09-Nov-06 Analyzed: 10-Nov-06				
Chloride						99.1	90-110		
Wet Chemistry - Quality Control									
LCS Dup (6110270-BSD1)					Prepared: 09-Nov-06 Analyzed: 10-Nov-06				
Chloride						98.1	90-110	1.01	20
Wet Chemistry - Quality Control									
Blank (6110333-BLK1)					Prepared: 10-Nov-06 Analyzed: 13-Nov-06				
Sulfide, Hydrogen	0.67	U	0.67	2.0	mg/L				
Wet Chemistry - Quality Control									
LCS (6110333-BS1)					Prepared: 10-Nov-06 Analyzed: 13-Nov-06				
Sulfide, Hydrogen						84.4	0-200		
Wet Chemistry - Quality Control									
LCS Dup (6110333-BSD1)					Prepared: 10-Nov-06 Analyzed: 13-Nov-06				
Sulfide, Hydrogen						83.2	0-200	1.43	200

NOTES AND DEFINITIONS

U	Indicates the compound was analyzed for but not detected.
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
DF	Dilution Factor
%REC	Percent Recovery
RPD	Relative Percent Difference

KSA Environmental Laboratory Inc. - 10200 USA Today Way - Miramar, FL 33025 - (954) 431-4550

Florida Certifications: E86349 & E86616 (Microbiology)

CHAIN OF CUSTODY RECORD

KSA KSA Environmental Laboratory, Inc.

Nº 0933

Work Order # P605491 COC# 1

Client Name: MWH
Phone: 954 846 0401
Client Address: 470 Sawgrass Corp Pkwy #300 Sunrise, FL
Project: Melaleuca Blending Well
Project Contact: Alejandra Simon
Project Name: City of Sunrise Melaleuca Wel
Sampled By: A. Simon

	Sample ID	Date	Time	Matrix	No.	H_2S	Spec. Cond	TDS	Chlorides	[illegible]	Temp	Remarks
Treated	~~Hamden~~ Melaleuca Blending - 150gpm	11/6/06	16:00	GW	1	X						pH 7.90, Cond = 14.24 ms/cm
	Melaleuca Blending - 300gpm	11/6/06	17:30	GW	1	X						pH 7.74 Cond = 14.24 ms/cm
	Melaleuca Blending - 450gpm	"	17:00	GW	1	X						pH 7.04 Cond 14.23 ms/cm
	Melaleuca Blending - 600gpm	"	19:00	GW	1	X						pH 7.72 Cond 14.27 ms/cm
Untreated	Melaleuca Blending - 150gpm	11/6/06	15:30	GW	1		X	X	X	X	X	
	Melaleuca Blending - 450gpm	"	18:30	GW	1		X	X	X			
	Melaleuca Blending - 600gpm	"	8:30	GW	1		X	X	X			
	Melaleuca Blending - 750gpm	"	16:30	GW			X	X	X	X	X	

Relinquished by: Alejandra Simon — MWH — 11/7/06 — Received by: [signature] — KSA — 11/7/06

Relinquished by: [signature] — KSA — 11/7/06 — Received by: [signature]

KSA Environmental Laboratory Inc.

December 05, 2006

MWH
Attn: Alejandra Simon
490 Sawgrass Corp. Pkwy, Suite #300
Sunrise, FL 33325

RE: Floridan Aquifier
KSA Workorder: P005441

Dear Alejandra Simon,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on 11/07/06 16:00.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

This data has been produced in accordance with NELAC standards. This report shall not be reproduced except in full, without the written approval of the Laboratory.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

DRAFT REPORT
DATA SUBJECT TO CHANGE

Enclosure(s)

CASE NARRATIVE

I. SAMPLE RECEIVING

The analysis for method 552.1 was subcontracted to Harbor Branch Environmental Laboratories, Inc., 5600 US 1 North, Ft. Pierce, FL 34946. NELAC/FDOH #E96080

Methods 508, 515.3, 525.2 and Silica were subcontracted to Florida-Spectrum Environmental Services, Inc. 1460 W. McNab Road, Ft. Lauderdale, FL 33309. NELAC/FDOH #E86006.

Methods 531.1, 547, 548.1, and 549.2 were subcontracted to ELAB, Inc. 8 E. Tower Circle, Ormond Beach, FL 32174. NELAC/FDOH #E83079.

Gross Alpha, Radium 226, and Radium 228 were subcontracted to Florida Radiochemistry Services, 5456 Hoffner Rd. Suite 201, Orlando, FL 32812. NELAC/FDOH #E83033 .

SAMPLE SUMMARY

	Client ID	Matrix	Sampled	Received
P005441-01	DRAFT: Sunrise	Non-potable Water	11/07/06 14:15	11/07/06 16:00

ANALYTICAL REPORT

Sample ID:	DRAFT: Sunrise		Project:	Floridan Aquifier
Lab #:	P005441-01		Work Order #:	P005441
ampled:	11/07/06 14:15		Matrix:	Non-potable Water

DRAFT: Primary DW Volatiles by GC/MS

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
1,1,1-Trichloroethane	0.22 ug/L	U	1	0.22	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
1,1,2-Trichloroethane	0.30 ug/L	U	1	0.30	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
1,1-Dichloroethene	0.25 ug/L	U	1	0.25	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
1,2,4-Trichlorobenzene	0.29 ug/L	U	1	0.29	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
1,2-Dichlorobenzene	0.28 ug/L	U	1	0.28	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
1,2-Dichloroethane	0.23 ug/L	U	1	0.23	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
1,2-Dichloropropane	0.25 ug/L	U	1	0.25	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
1,4-Dichlorobenzene	0.28 ug/L	U	1	0.28	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Benzene	0.30 ug/L	U	1	0.30	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Carbon Tetrachloride	0.24 ug/L	U	1	0.24	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Chlorobenzene	0.27 ug/L	U	1	0.27	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
cis-1,2-Dichloroethene	0.24 ug/L	U	1	0.24	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Ethylbenzene	0.32 ug/L	U	1	0.32	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Methylene chloride	0.42 ug/L	U	1	0.42	1.0	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Styrene	0.27 ug/L	U	1	0.27	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Tetrachloroethene	0.37 ug/L	U	1	0.37	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Toluene	0.41 ug/L	U	1	0.41	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110
trans-1,2-Dichloroethene	0.31 ug/L	U	1	0.31	0.50	524.2	11/10/06 10:49	11/10/06 13:16	61103
Trichloroethene	0.24 ug/L	U	1	0.24	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Vinyl chloride	0.38 ug/L	U	1	0.38	0.50	524.2	11/10/06 10:49	11/10/06 13:16	6110304
Xylenes, Total	0.98 ug/L	U	1	0.98	1.5	524.2	11/10/06 10:49	11/10/06 13:16	6110304

Surrogate Recovery	% Recovery	% Recovery Limits	
1,2-Dichlorobenzene-d4	83.8 %	0-200	6110304
4-Bromofluorobenzene	89.5 %	80-120	6110304

DRAFT: Total Trihalomethanes by GC/MS

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Bromodichloromethane	0.156 ug/L	U	1	0.156	0.500	524.2	11/10/06 10:45	11/10/06 13:16	6110303
Bromoform	0.164 ug/L	U	1	0.164	0.500	524.2	11/10/06 10:45	11/10/06 13:16	6110303
Chlorodibromomethane	0.228 ug/L	U	1	0.228	0.500	524.2	11/10/06 10:45	11/10/06 13:16	6110303
Chloroform	0.301 ug/L	U	1	0.301	0.500	524.2	11/10/06 10:45	11/10/06 13:16	6110303
Trihalomethanes, Total	0.849 ug/L	U	1	0.849	2.00	524.2	11/10/06 10:45	11/10/06 13:16	6110303

DRAFT: Metals

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Aluminum, Total	0.083 mg/L	I	1	0.041	0.20	200.7	11/07/06 18:46	11/08/06 21:49	61101

ANALYTICAL REPORT

Sample ID:	DRAFT: Sunrise		Project:	Floridan Aquifier
Lab #:	P005441-01		Work Order #:	P005441
Sampled:	11/07/06 14:15		Matrix:	Non-potable Water

DRAFT: Metals

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Antimony, Total	0.0036 mg/L	U	1	0.0036	0.0060	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Arsenic, Total	0.0044 mg/L	U	1	0.0044	0.010	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Barium, Total	0.015 mg/L	I	1	0.0011	0.050	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Beryllium, Total	0.00042 mg/L	U	1	0.00042	0.0040	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Cadmium, Total	0.00067 mg/L	U	1	0.00067	0.0050	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Calcium, Total	180 mg/L		1	0.24	1.0	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Chromium, Total	0.00067 mg/L	U	1	0.00067	0.0050	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Copper, Total	0.0029 mg/L		1	0.0017	0.0029	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Iron, Total	0.25 mg/L		1	0.033	0.050	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Lead, Total	0.0056 mg/L	U	1	0.0056	0.015	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Magnesium, Total	300 mg/L		1	0.013	0.50	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Manganese, Total	0.0045 mg/L	I	1	0.0022	0.0050	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Mercury, Total	0.000020 mg/L	U	1	0.000020	0.00020	245.1	11/08/06 13:26	11/08/06 18:54	6110194
Nickel, Total	0.0013 mg/L	U	1	0.0013	0.0050	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Potassium, Total	170 mg/L		1	0.23	1.0	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Selenium, Total	0.0035 mg/L	U	1	0.0035	0.010	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Silver, Total	0.00099 mg/L	U	1	0.00099	0.0050	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Sodium, Total	3300 mg/L		1	0.53	1.0	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Strontium, Total	17 mg/L	V	1	0.0011	1.0	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Thallium, Total	0.0040 mg/L	U	1	0.0040	0.010	200.7	11/07/06 18:46	11/08/06 21:49	6110178
Zinc, Total	0.012 mg/L	I	1	0.0094	0.020	200.7	11/07/06 18:46	11/08/06 21:49	6110178

DRAFT: Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Alkalinity	140 mg/L		1	5.0	5.0	310.1	11/08/06 15:00	11/08/06 15:00	6110207
Bicarbonate Alkalinity	140 mg/L		1	5.0	5.0	310.1	11/08/06 15:00	11/08/06 15:56	6110207
Biochemical Oxygen Demand	2.6 mg/L	U	3	2.6	6.0	405.1	11/08/06 7:50	11/08/06 7:50	6110343
Carbon Dioxide	0.0 mg/L	U	1			310.1	11/15/06 10:43	11/15/06 10:43	6110398
Carbonate Alkalinity	5.0 mg/L	U	1	5.0	5.0	310.1	11/08/06 15:00	11/08/06 15:56	6110207
Chloride	4300 mg/L		100	20	40	300.0	11/10/06 11:00	11/10/06 11:00	6110325
Color	10 cu		1	2.5	2.5	110.2	11/08/06 9:45	11/08/06 9:45	6110299
Cyanide, Total	0.0026 mg/L	U	1	0.0026	0.0050	335.3	11/10/06 16:30	11/10/06 16:34	6110295
Fluoride	2.6 mg/L	I	20	1.1	4.0	300.0	11/08/06 17:00	11/08/06 17:24	6110284
Hardness, Calcium	1300 mg/L		1	1.0	1.0	130.2	11/09/06 15:30	11/09/06 16:15	6110257
Hardness, Total	1500 mg/L		1	1.0	1.0	130.2	11/09/06 15:30	11/09/06 15:30	6110257
MBAS	0.062 mg/L	U	1	0.062	0.10	425.1	11/09/06 12:00	11/09/06 12:00	6110358
Nitrate/Nitrite	1.2 mg/L	U	20	1.2	10	300.0	11/08/06 17:00	11/08/06 17:24	[CALC]
Nitrogen, Ammonia (as N)	0.81 mg/L		1	0.014	0.020	350.1	11/08/06 8:59	11/08/06 17:30	6110179
Nitrogen, Ammonia (Unionized)	0.029 mg/L		1	0.014	0.020	DEP SOP	11/09/06 9:21	11/10/06 17:44	6110227

Florida Certifications: E86349 & E86616 (Microbiology)

ANALYTICAL REPORT

Sample ID:	DRAFT: Sunrise		Project:	Floridan Aquifier
Lab #:	P005441-01		Work Order #:	P005441
ampled:	11/07/06 14:15		Matrix:	Non-potable Water

DRAFT: Wet Chemistry

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Nitrogen, Ammonium as NH4	0.95 mg/L		1	0.017	0.024	[CALC]	11/09/06 9:21	11/10/06 17:44	[CALC]
Nitrogen, Nitrate (as N)	1.2 mg/L	U	20	1.2	10	300.0	11/08/06 17:00	11/08/06 17:24	6110284
Nitrogen, Nitrite (as N)	0.42 mg/L	U	20	0.42	10	300.0	11/08/06 17:00	11/08/06 17:24	6110284
Odor	0.0 t.o.n.	U	1	0.0	0.0	140.1	11/08/06 9:45	11/08/06 9:45	6110298
pH	8.01 s.u.		1	0.00	0.00	150.1	11/07/06 17:15	11/07/06 17:15	6110176
Solids, Total Dissolved	8500 mg/L		1	8.9	10	160.1	11/08/06 16:45	11/08/06 16:45	6110234
Solids, Total Suspended	23 mg/L		1	3.5	5.0	160.2	11/08/06 16:00	11/08/06 16:00	6110237
Sulfate	830 mg/L		20	2.8	20	300.0	11/08/06 17:00	11/08/06 17:24	6110284
Sulfide, Hydrogen	0.67 mg/L	U	1	0.67	2.0	376.1	11/10/06 14:00	11/13/06 9:07	6110333
Turbidity	2.9 NTU		1	0.088	0.10	180.1	11/09/06 13:30	11/09/06 13:30	6110300

DRAFT: Field Parameters

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Specific Conductance (Field)	200 umhos/cm		1			Field	11/07/06 14:15	11/07/06 14:15	6110181
Temperature (Field)	26 °C		1			Field	11/07/06 14:15	11/07/06 14:15	6110181

DRAFT: Subcontract Data

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Dibromoacetic Acid	0.18 ug/L		1	0.18	0.72	552.1	11/09/06 12:48	11/09/06 20:21	
Dichloroacetic Acid	0.66 ug/L		1	0.66	2.6	552.1	11/09/06 12:48	11/09/06 20:21	
Monobromoacetic Acid	0.28 ug/L		1	0.28	1.1	552.1	11/09/06 12:48	11/09/06 20:21	
Monochloroacetic Acid	0.88 ug/L		1	0.88	3.5	552.1	11/09/06 12:48	11/09/06 20:21	
Total HAA5	0.18 ug/L		1	0.18	0.80	552.1	11/09/06 12:48	11/09/06 20:21	
Trichloroacetic Acid	0.20 ug/L		1	0.20	0.72	552.1	11/09/06 12:48	11/09/06 20:21	

DRAFT: Subcontract Data - 200.7

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Silicon	5.63 mg/L		1	0.22	0.66	200.7			

DRAFT: Subcontract Data - 508

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Chlordane	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
Endrin	0.005 ug/L	U	1	0.005	0.015	508	11/10/06 14:00	11/11/06 3:08	
gamma-BHC	0.004 ug/L	U	1	0.004	0.012	508	11/10/06 14:00	11/11/06 3:08	

ANALYTICAL REPORT

Sample ID:	DRAFT: Sunrise			
Lab #:	P005441-01		Project:	Floridan Aquifier
Sampled:	11/07/06 14:15		Work Order #:	P005441
			Matrix:	Non-potable Water

DRAFT: Subcontract Data - 508

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Heptachlor	0.005 ug/L	U	1	0.005	0.015	508	11/10/06 14:00	11/11/06 3:08	
Heptachlor epoxide	0.008 ug/L	U	1	0.008	0.024	508	11/10/06 14:00	11/11/06 3:08	
Hexachlorobenzene	0.42 ug/L	U	1	0.42	1.26	508	11/10/06 14:00	11/11/06 3:08	
Hexachlorocyclopentadiene	0.42 ug/L	U	1	0.42	1.26	508	11/10/06 14:00	11/11/06 3:08	
Methoxychlor	0.007 ug/L	U	1	0.007	0.021	508	11/10/06 14:00	11/11/06 3:08	
PCB 1016	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
PCB 1221	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
PCB 1232	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
PCB 1242	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
PCB 1248	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
PCB 1254	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
PCB 1260	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
Total PCBs	0.10 ug/L	U	1	0.10	0.30	508	11/10/06 14:00	11/11/06 3:08	
Toxaphene	0.40 ug/L	U	1	0.40	1.20	508	11/10/06 14:00	11/11/06 3:08	

DRAFT: Subcontract Data - 515.3

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
2,4,5-TP (Silvex)	0.038 ug/L	U	1	0.038	0.114	515.3	11/13/06 13:11	11/15/06 13:11	
2,4-D	0.09 ug/L	U	1	0.09	0.27	515.3	11/13/06 13:11	11/15/06 13:11	
Dalapon	0.08 ug/L	U	1	0.08	0.24	515.3	11/13/06 13:11	11/15/06 13:11	
Dinoseb	0.06 ug/L	U	1	0.06	0.18	515.3	11/13/06 13:11	11/15/06 13:11	
Pentachlorophenol	0.02 ug/L	U	1	0.02	0.06	515.3	11/13/06 13:11	11/15/06 13:11	
Picloram	0.08 ug/L	U	1	0.08	0.24	515.3	11/13/06 13:11	11/15/06 13:11	

DRAFT: Subcontract Data - 525.2

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Alachlor	0.20 ug/L	U	1	0.20	0.60	525.2	11/09/06 17:04	11/11/06 17:04	
Atrazine	0.20 ug/L	U	1	0.20	0.60	525.2	11/09/06 17:04	11/11/06 17:04	
Benzo (a) pyrene	0.017 ug/L	U	1	0.017	0.051	525.2	11/09/06 17:04	11/11/06 17:04	
Di(2-ethylhexyl)adipate	0.36 ug/L	U	1	0.36	1.08	525.2	11/09/06 17:04	11/11/06 17:04	
Di(2-ethylhexyl)phthalate	0.36 ug/L	U	1	0.36	1.08	525.2	11/09/06 17:04	11/11/06 17:04	
Simazine	0.20 ug/L	U	1	0.20	0.60	525.2	11/09/06 17:04	11/11/06 17:04	

DRAFT: Subcontract Data - 531.1

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
3-Hydroxycarbofuran	0.50 ug/L	U	1	0.50	1.50	531.1	11/27/06 13:00	11/28/06 0:51	

ANALYTICAL REPORT

Sample ID:	DRAFT: Sunrise		Project:	Floridan Aquifier
Lab #:	P005441-01		Work Order #:	P005441
Sampled:	11/07/06 14:15		Matrix:	Non-potable Water

DRAFT: Subcontract Data - 531.1

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Aldicarb	0.50 ug/L	U	1	0.50	1.50	531.1	11/27/06 13:00	11/28/06 0:51	
Aldicarb sulfone	0.50 ug/L	U	1	0.50	1.50	531.1	11/27/06 13:00	11/28/06 0:51	
Aldicarb sulfoxide	0.50 ug/L	U	1	0.50	1.50	531.1	11/27/06 13:00	11/28/06 0:51	
Carbaryl	0.50 ug/L	U	1	0.50	1.50	531.1	11/27/06 13:00	11/28/06 0:51	
Carbofuran	0.5 ug/L	U	1	0.5	1.5	531.1	11/27/06 13:00	11/28/06 0:51	
Methomyl	0.50 ug/L	U	1	0.50	1.50	531.1	11/27/06 13:00	11/28/06 0:51	
Oxamyl	0.5 ug/L	U	1	0.5	1.5	531.1	11/27/06 13:00	11/28/06 0:51	

DRAFT: Subcontract Data - 547

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Glyphosate	10.0 ug/L	U	1	10.0	30.0	547.1	11/20/06 17:00	11/21/06 1:37	

DRAFT: Subcontract Data - 548.1

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Endothall	20.0 ug/L	U	1	20.0	60.0	548.1	11/14/06 8:00	11/22/06 3:22	

DRAFT: Subcontract Data - 549.2

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Diquat	1.00 ug/L	U	1	1.00	3.00	549.2	11/13/06 12:45	11/17/06 23:09	

DRAFT: Subcontract Data - Radiologicals

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Gross Alpha	pCi/L		1			900			
Radium-226	pCi/L		1			903.1			
Radium-228	pCi/L		1						

Florida Certifications: E86349 & E86616 (Microbiology)

QUALITY CONTROL FOR :P005441

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit

DRAFT: Primary DW Volatiles by GC/MS - Quality Control

Blank (6110304-BLK1) Prepared & Analyzed: 10-Nov-06

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
1,1,1-Trichloroethane	0.22	U	0.22	0.50	ug/L				
1,1,2-Trichloroethane	0.30	U	0.30	0.50	ug/L				
1,1-Dichloroethene	0.25	U	0.25	0.50	ug/L				
1,2,4-Trichlorobenzene	0.29	U	0.29	0.50	ug/L				
1,2-Dichlorobenzene	0.28	U	0.28	0.50	ug/L				
1,2-Dichloroethane	0.23	U	0.23	0.50	ug/L				
1,2-Dichloropropane	0.25	U	0.25	0.50	ug/L				
1,4-Dichlorobenzene	0.28	U	0.28	0.50	ug/L				
Benzene	0.30	U	0.30	0.50	ug/L				
Carbon Tetrachloride	0.24	U	0.24	0.50	ug/L				
Chlorobenzene	0.27	U	0.27	0.50	ug/L				
cis-1,2-Dichloroethene	0.24	U	0.24	0.50	ug/L				
Ethylbenzene	0.32	U	0.32	0.50	ug/L				
Methylene chloride	0.42	U	0.42	1.0	ug/L				
Styrene	0.27	U	0.27	0.50	ug/L				
Tetrachloroethene	0.37	U	0.37	0.50	ug/L				
Toluene	0.41	U	0.41	0.50	ug/L				
trans-1,2-Dichloroethene	0.31	U	0.31	0.50	ug/L				
Trichloroethene	0.24	U	0.24	0.50	ug/L				
Vinyl chloride	0.38	U	0.38	0.50	ug/L				
Xylenes, Total	0.98	U	0.98	1.5	ug/L				
Surrogate: 1,2-Dichlorobenzene-d4						*85.5*	*0-200*		
Surrogate: 4-Bromofluorobenzene						*91.2*	*80-120*		

DRAFT: Primary DW Volatiles by GC/MS - Quality Control

LCS (6110304-BS1) Prepared & Analyzed: 10-Nov-06

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
1,1,1-Trichloroethane						96.2	70-130		
1,1,2-Trichloroethane						86.2	70-130		
1,1-Dichloroethene						95.0	70-130		
1,2,4-Trichlorobenzene						81.2	70-130		
1,2-Dichlorobenzene						87.0	70-130		
1,2-Dichloroethane						96.8	70-130		
1,2-Dichloropropane						89.8	70-130		
1,4-Dichlorobenzene						86.0	70-130		
Benzene						92.2	70-130		
Carbon Tetrachloride						101	70-130		
Chlorobenzene						88.2	70-130		
cis-1,2-Dichloroethene						95.0	70-130		
Ethylbenzene						89.4	70-130		
Methylene chloride						97.2	70-130		
Styrene						89.8	70-130		
Tetrachloroethene						86.0	70-130		
Toluene						89.2	70-130		
trans-1,2-Dichloroethene						90.0	70-130		
Trichloroethene						84.6	70-130		
Vinyl chloride						101	70-130		
Xylenes, Total						90.7	70-130		
Surrogate: 1,2-Dichlorobenzene-d4						*94.8*	*0-200*		
Surrogate: 4-Bromofluorobenzene						*98.8*	*80-120*		

QUALITY CONTROL FOR :P005441

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit

DRAFT: Total Trihalomethanes by GC/MS - Quality Control

Blank (6110303-BLK1) Prepared & Analyzed: 10-Nov-06

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Bromodichloromethane	0.156	U	0.156	0.500	ug/L				
Bromoform	0.164	U	0.164	0.500	ug/L				
Chlorodibromomethane	0.228	U	0.228	0.500	ug/L				
Chloroform	0.301	U	0.301	0.500	ug/L				
Trihalomethanes, Total	0.849	U	0.849	2.00	ug/L				
Surrogate: 1,2-Dichlorobenzene-d4						*85.5*	*0-200*		
Surrogate: 4-Bromofluorobenzene						*91.2*	*80-120*		

DRAFT: Total Trihalomethanes by GC/MS - Quality Control

LCS (6110303-BS1) Prepared & Analyzed: 10-Nov-06

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Bromodichloromethane						93.8	70-130		
Bromoform						97.2	70-130		
Chlorodibromomethane						95.6	70-130		
Chloroform						89.4	70-130		
Trihalomethanes, Total							70-130		
Surrogate: 1,2-Dichlorobenzene-d4						*94.8*	*0-200*		
Surrogate: 4-Bromofluorobenzene						*98.8*	*70-130*		

DRAFT: Metals - Quality Control

Blank (6110178-BLK1) Prepared: 07-Nov-06 Analyzed: 08-Nov-06

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Aluminum, Total	0.041	U	0.041	0.20	mg/L				
Antimony, Total	0.0036	U	0.0036	0.0060	mg/L				
Arsenic, Total	0.0044	U	0.0044	0.010	mg/L				
Barium, Total	0.0011	U	0.0011	0.050	mg/L				
Beryllium, Total	0.00042	U	0.00042	0.0040	mg/L				
Cadmium, Total	0.00067	U	0.00067	0.0050	mg/L				
Calcium, Total	0.24	U	0.24	1.0	mg/L				
Chromium, Total	0.00067	U	0.00067	0.0050	mg/L				
Copper, Total	0.0017	U	0.0017	0.0029	mg/L				
Iron, Total	0.033	U	0.033	0.050	mg/L				
Lead, Total	0.0056	U	0.0056	0.015	mg/L				
Magnesium, Total	0.013	U	0.013	0.50	mg/L				
Manganese, Total	0.0022	U	0.0022	0.0050	mg/L				
Nickel, Total	0.0013	U	0.0013	0.0050	mg/L				
Potassium, Total	0.23	U	0.23	1.0	mg/L				
Selenium, Total	0.0035	U	0.0035	0.010	mg/L				
Silver, Total	0.00099	U	0.00099	0.0050	mg/L				
Sodium, Total	0.53	U	0.53	1.0	mg/L				
Strontium, Total	0.0020	I	0.0011	1.0	mg/L				
Thallium, Total	0.0040	U	0.0040	0.010	mg/L				
Zinc, Total	0.0094	U	0.0094	0.020	mg/L				

QUALITY CONTROL FOR :P005441

DRAFT: Metals - Quality Control

LCS (6110178-BS1) Prepared: 07-Nov-06 Analyzed: 08-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Aluminum, Total					135	85-115		
Antimony, Total					114	85-115		
Arsenic, Total					114	85-115		
Barium, Total					113	85-115		
Beryllium, Total					111	85-115		
Cadmium, Total					113	85-115		
Calcium, Total					107	85-115		
Chromium, Total					113	85-115		
Copper, Total					115	85-115		
Iron, Total					113	85-115		
Lead, Total					114	85-115		
Magnesium, Total					104	85-115		
Manganese, Total					106	85-115		
Nickel, Total					114	85-115		
Potassium, Total					92.3	85-115		
Selenium, Total					112	85-115		
Silver, Total					110	85-115		
Sodium, Total					94.9	85-115		
Strontium, Total					112	85-115		
Thallium, Total					115	85-115		
Zinc, Total					114	85-115		

DRAFT: Metals - Quality Control

Matrix Spike (6110178-MS1) **Source: P005427-01** Prepared: 07-Nov-06 Analyzed: 08-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Aluminum, Total					135	70-130		
Antimony, Total					127	70-130		
Arsenic, Total					137	70-130		
Barium, Total					103	70-130		
Beryllium, Total					113	70-130		
Cadmium, Total					112	70-130		
Calcium, Total					100	70-130		
Chromium, Total					110	70-130		
Copper, Total					115	70-130		
Iron, Total					110	70-130		
Lead, Total					115	70-130		
Magnesium, Total					600	70-130		
Manganese, Total					115	70-130		
Nickel, Total					108	70-130		
Potassium, Total					168	70-130		
Selenium, Total					129	70-130		
Silver, Total					117	70-130		
Sodium, Total					NR	70-130		
Strontium, Total					80.0	70-130		
Thallium, Total					118	70-130		
Zinc, Total					115	70-130		

DRAFT: Metals - Quality Control

Matrix Spike Dup (6110178-MSD1) **Source: P005427-01** Prepared: 07-Nov-06 Analyzed: 08-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Aluminum, Total					146	70-130	7.83	20
Antimony, Total					124	70-130	2.39	20
Arsenic, Total					133	70-130	2.96	20
Barium, Total					101	70-130	1.96	20
Beryllium, Total					110	70-130	2.69	20
Cadmium, Total					110	70-130	1.80	20
Calcium, Total					NR	70-130	NR	20
Chromium, Total					108	70-130	1.83	20
Copper, Total					112	70-130	2.64	20
Iron, Total					106	70-130	3.70	20
Lead, Total					112	70-130	2.64	20
Magnesium, Total					100	70-130	143	20
Manganese, Total					112	70-130	2.64	20
Nickel, Total					106	70-130	1.87	20
Potassium, Total					139	70-130	18.9	20
Selenium, Total					121	70-130	6.40	20
Silver, Total					114	70-130	2.60	20
Sodium, Total					NR	70-130	73.9	20
Strontium, Total					50.0	70-130	46.2	20
Thallium, Total					116	70-130	1.71	20
Zinc, Total					113	70-130	1.75	20

DRAFT: Metals - Quality Control

Blank (6110194-BLK1) Prepared & Analyzed: 08-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Mercury, Total	0.000020 U	0.000020	0.00020	mg/L				

DRAFT: Metals - Quality Control

LCS (6110194-BS1) Prepared & Analyzed: 08-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Mercury, Total					109	85-115		

DRAFT: Metals - Quality Control

Matrix Spike (6110194-MS1) **Source: P005484-17** Prepared & Analyzed: 08-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Mercury, Total					42.8	75-125		

DRAFT: Metals - Quality Control

Matrix Spike Dup (6110194-MSD1) **Source: P005484-17** Prepared & Analyzed: 08-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
Mercury, Total					40.8	75-125	4.78	20

DRAFT: Wet Chemistry - Quality Control

LCS (6110176-BS1) Prepared & Analyzed: 07-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
pH					107	90-110		

DRAFT: Wet Chemistry - Quality Control

LCS Dup (6110176-BSD1) Prepared & Analyzed: 07-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
pH					107	90-110	0.153	20

DRAFT: Wet Chemistry - Quality Control

Duplicate (6110176-DUP1) **Source: P005473-01** Prepared & Analyzed: 07-Nov-06

Analyte	Result	MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
pH	5.45		0.00	s.u.			0.913	20

QUALITY CONTROL FOR :P005441

Analyte	Result		MDL	PQL	Units		%REC	%REC Limits	RPD	RPD Limit
DRAFT: Wet Chemistry - Quality Control										
Blank (6110179-BLK1)						Prepared & Analyzed: 08-Nov-06				
Nitrogen, Ammonia (as N)	0.014	U	0.014	0.020	mg/L					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110179-BS1)						Prepared & Analyzed: 08-Nov-06				
Nitrogen, Ammonia (as N)							99.9	90-110		
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110179-BSD1)						Prepared & Analyzed: 08-Nov-06				
Nitrogen, Ammonia (as N)							108	90-110	7.79	20
DRAFT: Wet Chemistry - Quality Control										
Matrix Spike (6110179-MS1)				**Source: P005346-01**		Prepared & Analyzed: 08-Nov-06				
Nitrogen, Ammonia (as N)							101	90-110		
DRAFT: Wet Chemistry - Quality Control										
Matrix Spike Dup (6110179-MSD1)				**Source: P005346-01**		Prepared & Analyzed: 08-Nov-06				
Nitrogen, Ammonia (as N)							98.8	90-110	2.20	20
DRAFT: Wet Chemistry - Quality Control										
Blank (6110207-BLK1)						Prepared & Analyzed: 08-Nov-06				
Alkalinity	5.0	U	5.0	5.0	mg/L					
Bicarbonate Alkalinity	5.0	U	5.0	5.0	mg/L					
Carbonate Alkalinity	5.0	U	5.0	5.0	mg/L					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110207-BS1)						Prepared & Analyzed: 08-Nov-06				
Alkalinity							100	80-120		
Bicarbonate Alkalinity							100	80-120		
Carbonate Alkalinity							100	80-120		
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110207-BSD1)						Prepared & Analyzed: 08-Nov-06				
Alkalinity							100	80-120	0.00	20
Bicarbonate Alkalinity							100	80-120	0.00	20
Carbonate Alkalinity							100	80-120	0.00	20
DRAFT: Wet Chemistry - Quality Control										
Duplicate (6110207-DUP1)				**Source: P005441-01**		Prepared & Analyzed: 08-Nov-06				
Alkalinity	138		5.0	5.0	mg/L				1.44	20
Bicarbonate Alkalinity	138		5.0	5.0	mg/L				1.44	20
Carbonate Alkalinity	5.0	U	5.0	5.0	mg/L					20
DRAFT: Wet Chemistry - Quality Control										
Blank (6110234-BLK1)						Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved	8.9	U	8.9	10	mg/L					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110234-BS1)						Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved							102	80-120		

Analyte	Result		MDL	PQL	Units		%REC	%REC Limits	RPD	RPD Limit
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110234-BSD1)						Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved							98.4	80-120	3.59	30
DRAFT: Wet Chemistry - Quality Control										
Duplicate (6110234-DUP1)				Source: P005471-05		Prepared & Analyzed: 08-Nov-06				
Solids, Total Dissolved	9260		8.9	10	mg/L				6.24	20
DRAFT: Wet Chemistry - Quality Control										
Blank (6110237-BLK1)						Prepared & Analyzed: 08-Nov-06				
Solids, Total Suspended	3.5	U	3.5	5.0	mg/L					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110237-BS1)						Prepared & Analyzed: 08-Nov-06				
Solids, Total Suspended							94.0	80-120		
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110237-BSD1)						Prepared & Analyzed: 08-Nov-06				
Solids, Total Suspended							86.0	80-120	8.89	20
DRAFT: Wet Chemistry - Quality Control										
Blank (6110257-BLK1)						Prepared & Analyzed: 09-Nov-06				
Hardness, Calcium	1.0	U	1.0	1.0	mg/L					
Hardness, Total	1.0	U	1.0	1.0	mg/L					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110257-BS1)						Prepared & Analyzed: 09-Nov-06				
Hardness, Total							109	80-120		
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110257-BSD1)						Prepared & Analyzed: 09-Nov-06				
Hardness, Total							95.6	80-120	13.1	20
DRAFT: Wet Chemistry - Quality Control										
Duplicate (6110257-DUP1)				Source: P005427-01		Prepared & Analyzed: 09-Nov-06				
Hardness, Calcium	1400		1.0	1.0	mg/L				0.00	200
Hardness, Total	1500		1.0	1.0	mg/L				0.00	20
DRAFT: Wet Chemistry - Quality Control										
Blank (6110284-BLK1)						Prepared & Analyzed: 08-Nov-06				
Fluoride	0.054	U	0.054	0.20	mg/L					
Nitrogen, Nitrate (as N)	0.062	U	0.062	0.50	mg/L					
Nitrogen, Nitrite (as N)	0.021	U	0.021	0.50	mg/L					
Sulfate	0.14	U	0.14	1.0	mg/L					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110284-BS1)						Prepared & Analyzed: 08-Nov-06				
Fluoride							94.3	90-110		
Nitrogen, Nitrate (as N)							90.2	80-110		
Nitrogen, Nitrite (as N)							96.6	90-110		
Sulfate							98.2	90-110		

Analyte	Result		MDL	PQL	Units		%REC	%REC Limits	RPD	RPD Limit
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110284-BSD1)						Prepared & Analyzed: 08-Nov-06				
Fluoride							90.8	90-110	3.78	20
Nitrogen, Nitrate (as N)							88.0	80-110	2.47	20
Nitrogen, Nitrite (as N)							96.2	90-110	0.415	20
Sulfate							95.9	90-110	2.37	20
DRAFT: Wet Chemistry - Quality Control										
Blank (6110295-BLK1)						Prepared & Analyzed: 10-Nov-06				
Cyanide, Total	0.0026	U	0.0026	0.0050	mg/L					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110295-BS1)						Prepared & Analyzed: 10-Nov-06				
Cyanide, Total							93.0	80-120		
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110295-BSD1)						Prepared & Analyzed: 10-Nov-06				
Cyanide, Total							92.7	80-120	0.323	20
DRAFT: Wet Chemistry - Quality Control										
Matrix Spike (6110295-MS1)			**Source: P005441-01**			Prepared & Analyzed: 10-Nov-06				
Cyanide, Total							104	80-120		
DRAFT: Wet Chemistry - Quality Control										
Matrix Spike Dup (6110295-MSD1)			**Source: P005441-01**			Prepared & Analyzed: 10-Nov-06				
Cyanide, Total							94.0	80-120	10.1	20
DRAFT: Wet Chemistry - Quality Control										
Blank (6110299-BLK1)						Prepared & Analyzed: 08-Nov-06				
Color	2.5	U	2.5	2.5	cu					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110299-BS1)						Prepared & Analyzed: 08-Nov-06				
Color							100	80-120		
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110299-BSD1)						Prepared & Analyzed: 08-Nov-06				
Color							100	80-120	0.00	20
DRAFT: Wet Chemistry - Quality Control										
Blank (6110300-BLK1)						Prepared & Analyzed: 09-Nov-06				
Turbidity	0.088	U	0.088	0.10	NTU					
DRAFT: Wet Chemistry - Quality Control										
LCS (6110300-BS1)						Prepared & Analyzed: 09-Nov-06				
Turbidity							92.0	90-110		
DRAFT: Wet Chemistry - Quality Control										
LCS Dup (6110300-BSD1)						Prepared & Analyzed: 09-Nov-06				
Turbidity							95.0	90-110	3.21	20

QUALITY CONTROL FOR :P005441

Analyte	Result		MDL	PQL	Units	%REC	%REC Limits	RPD	RPD Limit
DRAFT: Wet Chemistry - Quality Control									
Duplicate (6110300-DUP1)			**Source: P005427-01**		Prepared & Analyzed: 09-Nov-06				
Turbidity	3.26		0.088	0.10	NTU			1.22	20
DRAFT: Wet Chemistry - Quality Control									
Blank (6110325-BLK1)					Prepared & Analyzed: 10-Nov-06				
Chloride	0.20	U	0.20	0.40	mg/L				
DRAFT: Wet Chemistry - Quality Control									
LCS (6110325-BS1)					Prepared & Analyzed: 10-Nov-06				
Chloride						99.1	90-110		
DRAFT: Wet Chemistry - Quality Control									
LCS Dup (6110325-BSD1)					Prepared & Analyzed: 10-Nov-06				
Chloride						99.1	90-110	0.00	20
DRAFT: Wet Chemistry - Quality Control									
Blank (6110333-BLK1)					Prepared: 10-Nov-06 Analyzed: 13-Nov-06				
Sulfide, Hydrogen	0.67	U	0.67	2.0	mg/L				
DRAFT: Wet Chemistry - Quality Control									
LCS (6110333-BS1)					Prepared: 10-Nov-06 Analyzed: 13-Nov-06				
Sulfide, Hydrogen						84.4	0-200		
DRAFT: Wet Chemistry - Quality Control									
LCS Dup (6110333-BSD1)					Prepared: 10-Nov-06 Analyzed: 13-Nov-06				
Sulfide, Hydrogen						83.2	0-200	1.43	200
DRAFT: Wet Chemistry - Quality Control									
Blank (6110343-BLK1)					Prepared & Analyzed: 08-Nov-06				
Biochemical Oxygen Demand	0.86	U	0.86	2.0	mg/L				
DRAFT: Wet Chemistry - Quality Control									
LCS (6110343-BS1)					Prepared & Analyzed: 08-Nov-06				
Biochemical Oxygen Demand						88.9	85-115		
DRAFT: Wet Chemistry - Quality Control									
LCS Dup (6110343-BSD1)					Prepared & Analyzed: 08-Nov-06				
Biochemical Oxygen Demand						89.9	85-115	1.13	20
DRAFT: Wet Chemistry - Quality Control									
Blank (6110358-BLK1)					Prepared & Analyzed: 09-Nov-06				
MBAS	0.062	U	0.062	0.10	mg/L				
DRAFT: Wet Chemistry - Quality Control									
LCS (6110358-BS1)					Prepared & Analyzed: 09-Nov-06				
MBAS						108	90-110		
DRAFT: Wet Chemistry - Quality Control									
LCS Dup (6110358-BSD1)					Prepared & Analyzed: 09-Nov-06				
MBAS						112	90-110	3.64	20

NOTES AND DEFINITIONS

V	Indicates the analyte was detected in both the sample and the associated method blank. The value in the method blank is not subtracted from the associated samples.
U	Indicates the compound was analyzed for but not detected.
I	The reported value is between the laboratory method detection limit and the reporting limit.
#	Quality control recovered outside acceptance criteria.
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
DF	Dilution Factor
%REC	Percent Recovery
RPD	Relative Percent Difference

KSA Environmental Laboratory Inc.
10200 USA Today Way, Miramar, Florida 33025
Phone (954) 431-4550 | Fax (954) 431-1959

CHAIN OF CUSTODY RECORD

NELAC / FDOH Number : E86349
Work Order Number : P005441
Entered to LIMS : ____
Number of Coolers : ____

Sample Condition as Received :
Temperature 1.8 °C
Sealed : Yes No
Technician Hours 1/2

Client Name MWH
Project Name Floridan Aquifier
Project Contact & Phone
Composite Machine Needed No
Office Hours
Sampling Address
Sampled By (print) Jimmy Escobar

Sample ID : P005441-01
Sample Name Sunrise
Date Collected 11/2/06
Matrix Non-potable Water
Num of Containers Required 25
Time Collected 2:15
Sample Comments Use soil jar to collect sample for odor test

Analysis Required for this Sample :

504.1 EDB/DBCP	524.2 - Primary DW List	524.2 - THM's	Alkalinity, Bicarbonate
Alkalinity, Carbonate	Alkalinity, Total	BOD	Carbon Dioxide
Chloride 300.0/9056	Color	Field - Dissolved Oxygen	Field - Specific Conductance
Field - Temperature	Field - Turbidity	Fluoride 300.0/9056	GRP - DW Pests/PCBs (SOC)
GRP - DW Primary Inorganics	GRP - DW Secondary Inorgan	Hardness, Calcium	Hardness, Total
MBAS	ME - 200.7 Aluminum Total	ME - 200.7 Barium Total	ME - 200.7 Beryllium Total
ME - 200.7 Cadmium Total	ME - 200.7 Calcium Total	ME - 200.7 Chromium Total	ME - 200.7 Copper Total
ME - 200.7 Iron Total	ME - 200.7 Magnesium Total	ME - 200.7 Manganese Total	ME - 200.7 Nickel Total
ME - 200.7 Potassium Total	ME - 200.7 Silver Total	ME - 200.7 Sodium Total	ME - 200.7 Strontium Total
ME - 200.7 Zinc Total	ME - 245.1 Mercury	N-Ammonia	N-Ammonia Unionized
N-Ammonium (NH4)	N-Nitrate (300.0/9056)	N-Nitrite (300.0/9056)	Odor
pH (150.1)	Solids, Total Dissolved (TDS)	Solids, Total Suspended	SUB - 200.7 Silicon/Silica
SUB - 200.8 Selenium	SUB - 508 Chlorinated Pestici	SUB - 515.3 - Chlorophenoxy	SUB - 525.2 - Semi-Volatile E>
SUB - 531.1 - Carbamate Pest	SUB - 547 - Glyphosate	SUB - 548.1 - Endothall	SUB - 549.2 - Diquat
SUB - 552.1 HAA5	SUB - Gross Alpha (900.0)	SUB - Radium 226 (903.1)	SUB - Radium 228 (RA05)
Sulfate 300.0/9056	Sulfide, Hydrogen		

pH : 7.78	Conductivity 200	Turbidity :
Temp °C 26	Chlorine :	Dissolved Oxygen :

(1) Relinquished by Signature	Date 11/2/06	(2) Relinquished by Signature	Date
Company KSA	Time 4:06	Company	Time
(1) Received by Signature	Date 11/2/06	(2) Received by Signature	Date
Company KSA	Time 16:00	Company	Time

Page 1 of 1

KSA Environmental Laboratory, Inc.

November 28, 2006

Diversified Drilling Corporation - Lehigh Acres
Attn: Ralf Delia
5620 Lee Street
Lehigh Acres, FL 33971

RE: Sunrise Dewatering Project
KSA Workorder: P005910

Dear Ralf Delia,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on 11/20/06 13:45.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

This data has been produced in accordance with NELAC standards. This report shall not be reproduced except in full, without the written approval of the Laboratory.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Emerson P

Emerson Perez
Project Manager

Enclosure(s)

CASE NARRATIVE

KSA Work Order #: P005910
Project Name: Sunrise Dewatering Project

I. Sample Receiving Notes

All samples listed on the Chain of Custody identified with KSA Work Order # P005910 were received with containers intact, correctly preserved, and at the proper temperature for the requested analyses.

II. Analytical Data Notes

The analyses were performed in accordance with KSA Environmental Laboratory SOP's and industry-standard methodologies in compliance with FDEP/NELAC criteria. There were no notable problems encountered in the analytical process.

III. Quality Control Notes

There were no significant quality control anomalies associated with this work order.

SAMPLE SUMMARY

	Client ID	Matrix	Sampled	Received
P005910-01	Sunrise	Groundwater	11/20/06 13:00	11/20/06 13:45

Florida Certifications: E86349 & E86616 (Microbiology)
KSA Environmental Laboratory Inc. - 10200 USA Today Way - Miramar, FL 33025 - (954) 431-4550

ANALYTICAL REPORT

Sample ID:	Sunrise		Project:	Sunrise Dewatering Project
#:	P005910-01		Work Order #:	P005910
ampled:	11/20/06 13:00		Matrix:	Groundwater

Field Parameters

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Dissolved Oxygen (Field)	1.28 mg/L		1			Field	11/20/06 13:00	11/20/06 13:00	6110598

CHAIN OF CUST(Y RECORD

KSA

KSA Environmental Laboratory, Inc.
10200 USA Today Way - Miramar, Florida 33025
Phone (954)431-4550 Fax (954)431-1959

№ 3308

NELAC / FDOH # : E86349

Work Order #: P005910 COC#______

E.P. Page 1 of 1

Client Name: Diversified Drilling - Lehigh Acres

Phone: (239) 368-6404

Fax:

Client Address: 5620 Lee Street
Lehigh Acres FL 33971

Site Location: 595 & Flamingo Rd. "Sunrise Dewatering"

Project Contact: Andrew Jennings

Project Number/Name: Sunrise Dewatering Project

Sampled By (print): EMERSON PEREZ

Sampler's Signature: Emerson P.

ITEM #	SAMPLE ID	Collected DATE	Collected TIME	MATRIX	# BOTTLES	Field D.O. (Analysis Required)									Sample Remarks	Lab No.
1	Sunrise	11/20/06	13:00	GW		1.28	mg/L									
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
															← Enter Preservation code	

Matrix Code:	Preservation code
A - Air	**1** - Ice
GW - Groundwater	**2** - HCl
S - Soil / Sediment	**3** - H2SO4
WW - Wastewater	**4** - HNO3
DW - Drinking Water	**5** - NaOH
SW - Surface Water	**6** - ZnAcetate
SL - Sludge	**0** - Other
O - Other	

Special Instructions & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
E.P.	KSA	13:45 11/20/06			

KSA Environmental Laboratory, Inc.

December 11, 2006

MWH
Attn: Alejandra Simon
490 Sawgrass Corp. Pkwy, Suite #300
Sunrise, FL 33325

RECEIVED
DEC 27 2006
MWH

RE: City of Sunrise Melaleuca Upper Floridan Well
KSA Workorder: P006203

Dear Alejandra Simon,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on 11/20/06 00:00.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

This data has been produced in accordance with NELAC standards. This report shall not be reproduced except in full, without the written approval of the Laboratory.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Marianne Walker

Marianne Walker
Senior Project Manager

Enclosure(s)

Florida Certifications: E86349

10200 USA Today Way • Miramar, Florida 33025
Phone: (954) 431-4550 • Fax: (954) 431-1959

SAMPLE SUMMARY

	Client ID	Matrix	Sampled	Received
P006203-01	Sunrise	Groundwater	11/20/06 13:00	11/20/06 00:00

ANALYTICAL REPORT

Sample ID:	Sunrise		Project:	City of Sunrise Melaleuca Upper Floridan W
Lab #:	P006203-01		Work Order #:	P006203
Sampled:	11/20/06 13:00		Matrix:	Groundwater

Field Parameters

Parameter	Analytical Results	Q	DF	MDL	PQL	Analysis Method	Prep Date/Time	Analysis Date/Time	Analytical Batch
Dissolved Oxygen (Field)	1.3 mg/L		1			Field	11/20/06 13:00	11/20/06 13:00	6120056

CHAIN OF CUSTODY RECORD

KSA KSA Environmental Laboratory, Inc.
10200 USA Today Way - Miramar, Florida 33025
Phone (954)431-4550 Fax (954)431-1959

№ 3337
NELAC / FDOH # E86349

Work Order # P006203 MS COC#
Page 1 of 1

Client Name:	MWH
Phone	(954) 846 - 0401
Fax	
Client Address	490 Sawgrass Corp Parkway #300 Sunrise, FL
Site Location	Melaleuca Blending well
Project Contact:	Alejandra Simon
Project Number/Name	City of Sunrise / Melaleuca well
Sampled By (print)	Eugene Reppert
Sampler's Signature	[signature]

#	SAMPLE ID	Collected DATE	Collected TIME	MATRIX	# BOTTLES	Analyses Required: Free Cl										Sample Remarks	Lab No.
1	Sunrise	11/20/06	12:00	GW		1.28 mg/L											
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	

◄ Enter Preservation code

Matrix Code:
- **A** - Air
- **GW** - Groundwater
- **S** - Soil / Sediment
- **WW** - Wastewater
- **DW** - Drinking Water
- **SW** - Surface Water
- **SL** - Sludge
- **O** - Other

Preservation code
- **1** - Ice
- **2** - HCl
- **3** - H2SO4
- **4** - HNO3
- **5** - NaOH
- **6** - ZnAcetate
- **0** - Other

Special Instructions & Comments

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
[signature]	KSA	11/20/06	MPShaw	KSA	11/20/06

CHAIN OF CUS ODY RECORD

ms

KSA

KSA Environmental Laboratory, Inc.
10200 USA Today Way - Miramar, Florida 33025
Phone (954)431-4550 Fax (954)431-1959

№ 3337

NELAC / FDOH # : E86349

Work Order #: P006203 COC#______
Page 1 of 1

Client Name: MWH	Phone: (954) 846-0401
	Fax:
Client Address: 490 Sawgrass Corp. Parkway #300 Sunrise, FL	Site Location: Melaleuca Blending Well
Project Contact: Alejandra Simon	
Project Number/Name: City of Sunrise / Melaleuca Well	
Sampled By (print): EMERSON PEREZ	
Sampler's Signature: Emerson P	

Analysis Required

ITEM #	SAMPLE ID	Collected DATE	Collected TIME	MATRIX	# BOTTLES	Field D.O.									
1	Sunrise	11/20/06	13:00	GW		1.28	mg/L								
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															

Matrix Code:
A - Air
GW - Groundwater
S - Soil / Sediment
WW - Wastewater
DW - Drinking Water
SW - Surface Water
SL - Sludge
O - Other

Preservation code
1 - Ice
2 - HCl
3 - H2SO4
4 - HNO3
5 - NaOH
6 - ZnAcetate
0 - Other

Sample Remarks	Lab No.

← Enter Preservation code

Special Instructions & Comments:

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
E. P.	KSA	11/20/06	MPShaw	KSA	11/20/06