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Memorandum

To: Ryan Higgins, SFWMD

Cc: Chris Sweazy, SFWMD

From: George Schlutermann, P.G., PB

Date: October 30, 2009

Subject: South Florida Water Management District Water Use Pemrtis (WUPs)
City of St. Cloud: 49-00084-W
Tohopekaliga Water Authority: 49-00103-W
Orange County Utilities: 48-00134-W
Polk County (Oak Hill Estates): 53-00126-W
Reedy Creek Improvement District: 48-00009-W
STOPR Group Lake Ajay Lower Floridan Aquifer Monitoring Well Completion Report

INTRODUCTION

On behalf of the City of St. Cloud, the Tohopekaliga Water Authority (TWA), Orange County Utilities (OCU), Polk County, and Reedy Creek Improvement District (RCID), collectively known as the STOPR Group, PB Americas, Inc. (PB) has prepared this technical memorandum to serve as a record of the completion of the construction of a saline monitoring well, known as the Lake Ajay Lower Floridan Aquifer monitoring well (Lake Ajay well).

Condition 31 of the STOPR Group WUPs (Condition 30 of the RCID WUP) states that the STOPR Group must collect water quality samples from four existing and one proposed monitoring well on a quarterly basis. The STOPR Group was responsible for the drilling of the proposed monitoring well which was to be contructed with the specific criteria outlined in the STOPR Group WUPs. Condition 31 states that:

> *The proposed saline monitoring well shall be installed within 18 months of permit issuance by the Permittee, in partnership with other Permittees or by itself, at a District-approved location within Township 25 South, Range 31 East or within Township 26 South, Range 31 East. This well must be completed within portions of the Floridan aquifer where the saline water interface exists (chloride concentration greater than 250 mgll). Well construction and specific site testing information gathered during the well installation shall be submitted to the District as part of a completion report no later than two years from permit issuance.*

This proposed saline monitoring well was completed by the STOPR Group in August, 2009. Figures 1 and 2 show the location of the Lake Ajay well, situated in Township 25 South, Range 31 East as required by the STOPR Group WUPs and approved by the SFWMD. Based on global positioning system (GPS) level information the longitude and latitude are 81.22488 and 28.34800 degrees, respectively. PB will provide more precise longitude and latitude and elevation information once survey has been completed. We anticipate that this information will be available by December 1, 2009.

CONSTRUCTION AND TESTING SUMMARY

On behalf of the STOPR Group, Toho Water Authority contracted with Rowe Drilling Company (Rowe) to perform the installation of the Lake Ajay well. On October 21, 2008, work began at the Lake Ajay site. Installation of a 30-inch outer diameter (O.D.) steel pit casing was completed on December 1, 2008. A 12 ¼-inch pilot hole was drilled to 250 feet below land surface (bls). The hole was reamed out with a 29-inch bit to 230 feet bls and 24-inch O.D. steel surface casing was installed to 225 feet bls on January 8, 2009. After drilling out the cement plug at the bottom of the casing on January 9, 2009, a 12 ¼-inch pilot hole was drilled to 316 feet bls. The hole was reamed out with a 23-inch bit to 318 feet bls. Geophysical logging was conducted on January 14, 2009, and is provided in Appendix A. Installation of a 16-inch O.D. steel casing was installed to 315 feet bls on January 15, 2009. After drilling out with a 15-inch bit, the driller switched to a 9 7/8-inch bit to conduct pilot hole drilling to the unknown depth of the 250 isochlor interface (it was anticipated that the depth of the isochlor would be encountered between 1,200 feet bls and 1,500 feet bls).

Field water quality sampling of reverse-air water commenced at 377 feet bls in order to locate the 250 isochlor, or the depth at which a 250 mg/L chloride concentration was detected. Drilling was discontinued at a depth of 1,350 feet when the chloride concentration increased from 168 mg/L at 1,340 feet bls to 464 mg/L. This water quality data is provided in Appendix B. Additional samples were taken for laboratory analysis at 1,314 and 1,350 feet bls for validation of the field test data. The laboratory data confirmed the 250 isochlor exceedance at 1,350 feet bls and is provided in Appendix C. Geophysical logging was conducted again on April 27, 2009, and included electric logging, flow (static and dynamic) logging, and water quality (static and dynamic) testing and is provided in Appendix D. On May 4, 2009, PB recommended back plugging of the borehole to 1,330 feet in order to establish a monitor well depth that more closely "targeted" the 250 isochlor than the average concentration of 568 mg/L achieved at 1,350 bls. Mr. Chris Seazy (SFWMD) and Mr. George Ogden (SFWMD) verbally agreed on this date that back plugging the borehole was an acceptable plan.

Back plugging activities commenced on May 8, 2009, and were completed on May 11, 2009, with 65 sacks of Portland Type 1 cement filling in the borehole to 1,325 feet bls.

Following back-plugging, PB conducted packer testing at 1,286 feet bls and 1,308 feet bls from May 13, 2009, to May 21, 2009. Figures 3 and 4 show the packer testing setup and Appendix E contains data sheets showing the water level and water quality information during packer testing. The packer test conducted at 1,286 feet isolated a 39 foot sampling zone and was pumped at 50 gallons per minute (gpm). This resulted in an approximate drawdown of 12 feet and chloride concentrations of 242 mg/L and 226 mg/L (an average concentration of 234 mg/L). The packer test conducted at 1,308 feet bls isolated a 17 foot sampling zone and was pumped at 50 gpm. This resulted in an approximate drawdown of 92 feet and a chloride concentration of 300 mg/L.

After review of the water quality and drawdown data of the packer tests, PB recommended a casing setting depth of 1,286 feet bls and a design change with the installation of 6-inch casing. First, the recommended depth of 1,286 should result in reduced drawdown during sampling collection pumping. The 39 foot sampling interval should be sufficient to allow proper sampling of the formation and reduce stress on the aquifer (and therefore reduce potential saltwater upconing). Following further review of the caliper logs and discussions with Rowe, PB recommended a small adjustment to the casing setting depth to 1,295 feet bls to optimize the

installation of the cement baskets that would be situated a few feet above the cased depth. Proper installation of the cement baskets is important as it serves as the first step in sealing the casing with the formation. Second, the original well design included provisions for the installation of 10-inch casing to the Lower Floridan aquifer and, if necessary a 4-inch casing in order to address a geologic unforeseeable or a much deeper casing setting as a result of a deeper isochlor depth. As a result of good borehole stability and a shallower isochlor depth, PB and Rowe discussed a cost saving option with the STOPR Group, installation of 6-inch casing. The STOPR Group approved the installation of this casing with the condition that it would be acceptable to the SFWMD. Mr. Chris Sweazy (SFWMD) approved a casing depth of 1,295 feet bls and installation of 6-inch casing in a June 9, 2009, e-mail as shown in Appendix F.

Installation of a 6-inch inner diameter (I.D.) steel casing was completed on August 10, 2009. In order to prevent excessive loss of cement to the formation, it was necessary to install pea gravel in selected portions of the annulus as shown in Figure 5. PB discussed this situation with the District on May 4, 2009, and had obtained approval for the use of these materials at these depths.

In August 2009, the Lake Ajay Lower Floridan Aquifer monitoring well was completed. The sampling interval of 30 feet (from 1,295 feet to 1,325 feet bls) will allow for discrete monitoring of the saline water interface.

Based on drill stem water quality sampling and analysis, the 250 isochlor (saline water interface) was identified to exist between the depth of 1,340 feet and 1,350 feet bls. As agreed to by the SFWMD, the well was back plugged to 1,325 feet bls in order to achieve a sampling interval that more closely matched the WUP target of 250 mg/L chloride concentration. Single inflatable packer tests were completed at 1,286 feet and 1,308 feet bls. Utilizing the results of the packer testing data and the geophysical logging data, Rowe installed the 6-inch final well casing to 1,295 feet bls.

Final geophysical and video logs were conducted on August 12 and 13, 2009, respectively. The geophysical logs are provided in Appendix G. Well development was completed on August 13, 2009. Data records showing water quality and drawdown are shown in Appendix H. Final water quality is shown below for the Lake Ajay Well.

The well contractor's *Well Completion Report* submitted to the District is shown attached in Appendix I. In addition, the Driller's Formation log is shown in Appendix J.

FINAL WATER QUALITY

Following installation of the 6-inch casing, well development activities were conducted which provided an opportunity for field and laboratory water quality sampling of the completed well. The temporary installed submersible pump developed the open borehole and provided composite water quality samples of the formation from 1,295 (cased depth) to 1,325 feet (total depth) bls. Well development and laboratory data sheets can be found in Appendix H.

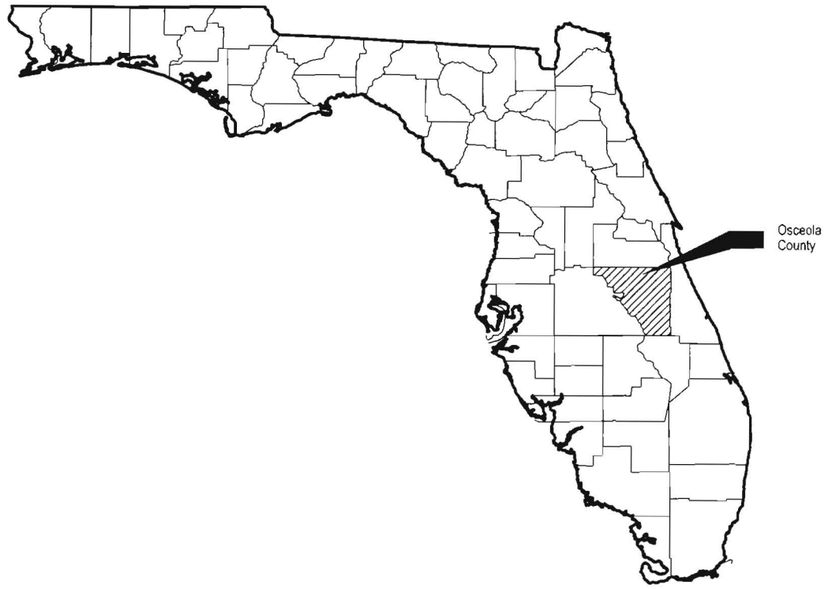
Results of the final field analyses indicate that during the last 75 minutes of pumping at 54 gpm, the water sampled contained an average specific conductivity of 2,026 µmhos/cm, an average pH of 7.03, an average chloride of 280 mg/L, and an average turbidity of 8.98 NTU indicating water quality on target with the intended use of the monitor well. In addition to those analysed

in the field, samples were collected by a PB representative and sent to a FDEP certified laboratory for analyses. The chloride concentration result of 292 mg/L confirms that the monitor well is on target with the WUP requirement, as confirmed by Chris Sweazy (SFWMD) in a June 17, 2009, e-mail as shown in Appendix K.

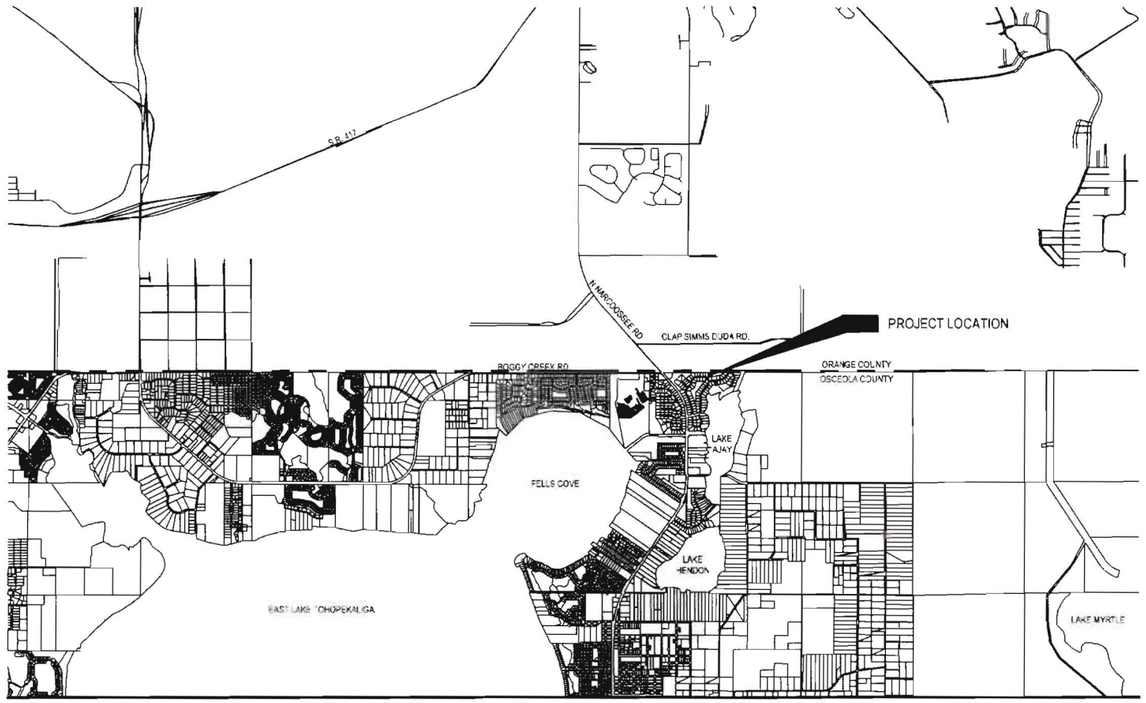
Table 1
Final Laboratory Water Quality Analyses

Parameter	Laboratory Testing Results (August 13, 2009)
Chloride (mg/L)	292
Specific Conductance (µmhos/cm)	2340
Total Dissolved Solids (mg/L)	1720

Figures



Location Map
Scale: None

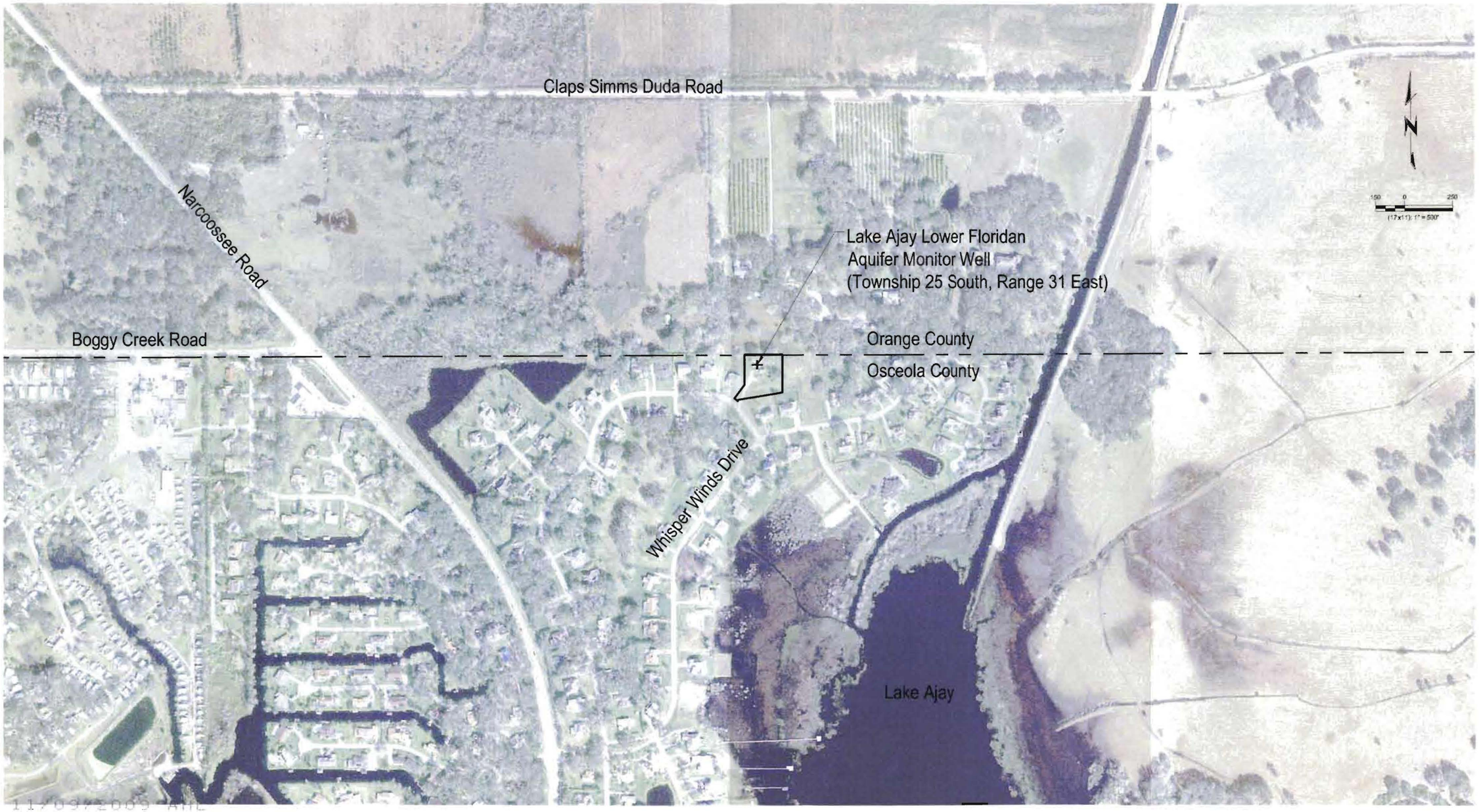


Vicinity Map
Scale: None

PB Americas, Inc.
100 East Pine Street, Suite 500
Orlando, FL 32801 407.581.7000
Certificate of Authorization Number: 00001462

Lake Ajay Lower Floridan Aquifer Monitor Well
Location Map

Figure 1



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Orlando, FL 32801 407-581-1500
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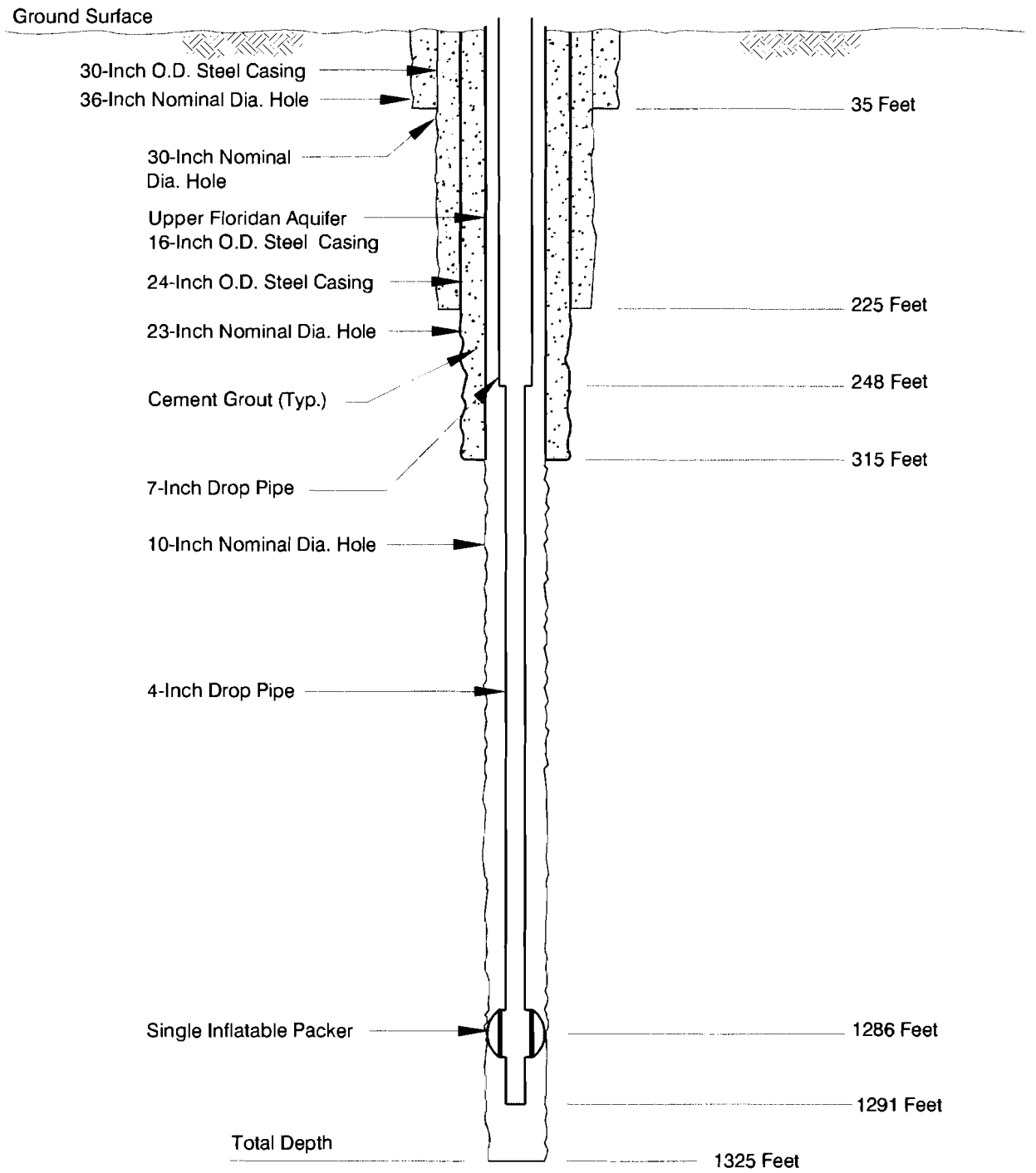
Lake Ajay Lower Floridan Aquifer Monitor Well
Site Map

Figure 2



Scale: NTS

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100 East Pine Street, Suite 500
Orlando, FL 32801 407-587-7600
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Single Inflatable Packer
Testing No. 1

Figure 3

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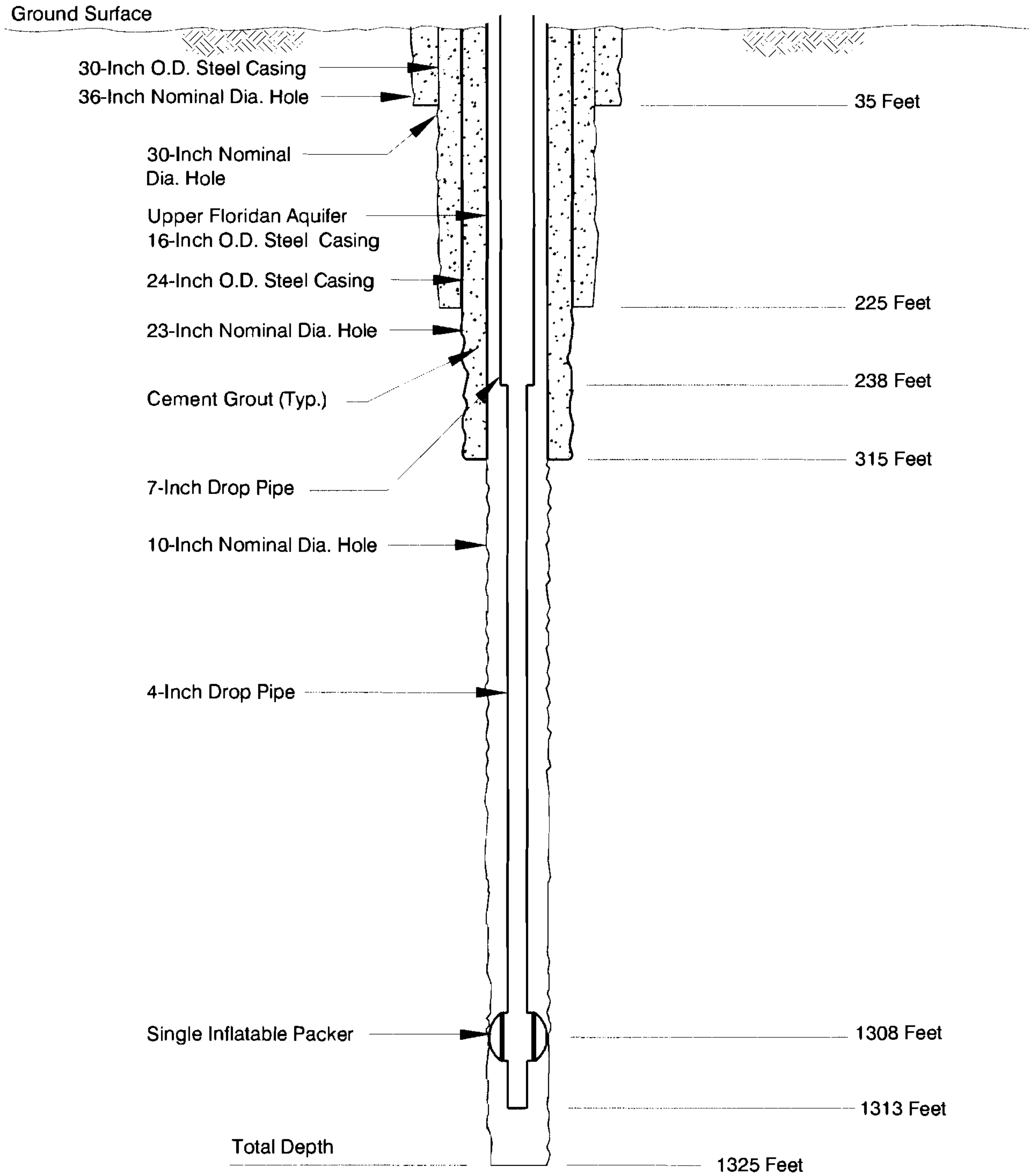
Last Saved By: sepulveda
Last Updated: 20 Oct 2009 8:17am



Scale: NTS

PB Americas, Inc.
100 East Pine Street, Suite 500
Orlando, FL 32801 407-587-7800
Certificate of Authorization Number: 00001462

Single Inflatable Packer
Testing No. 2

Figure 4

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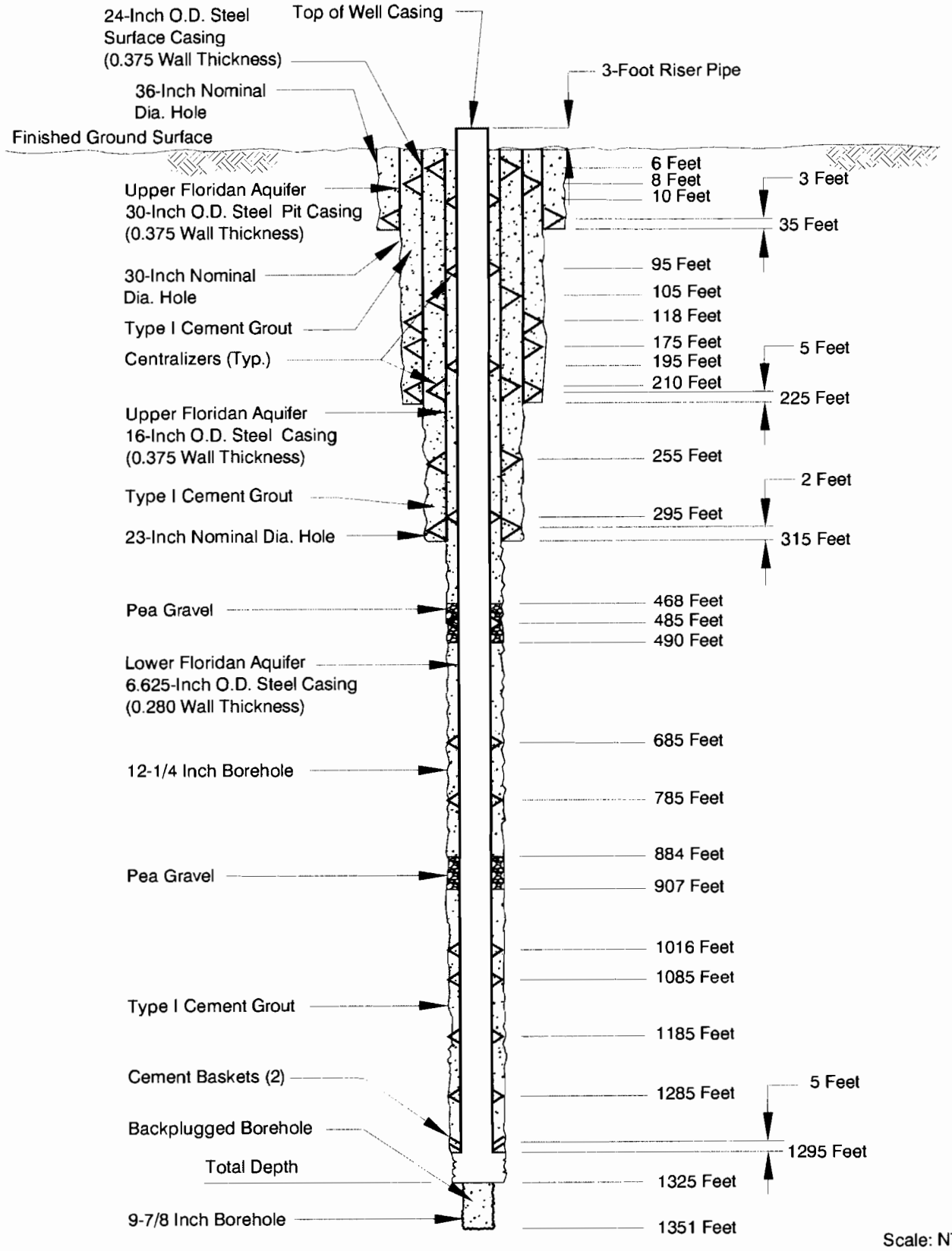
Last Updated: 20 Oct 2009 - 8:38am



PB Americas, Inc.
100 East Pine Street, Suite 500
Orlando, FL 32801 407-587-7800
Certificate of Authorization Number: 00001462

Well Construction Diagram
Lake Ajay Lower Floridan Aquifer Monitor Well

Figure 5

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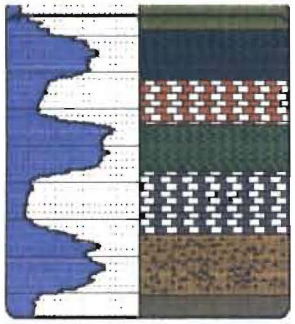
Last Updated 20 Oct 2009 - 8:49am

Appendix A
Geophysical Logs to Set the 16-inch Casing

Appendix A
Geophysical Logs to Set the 16-inch Casing

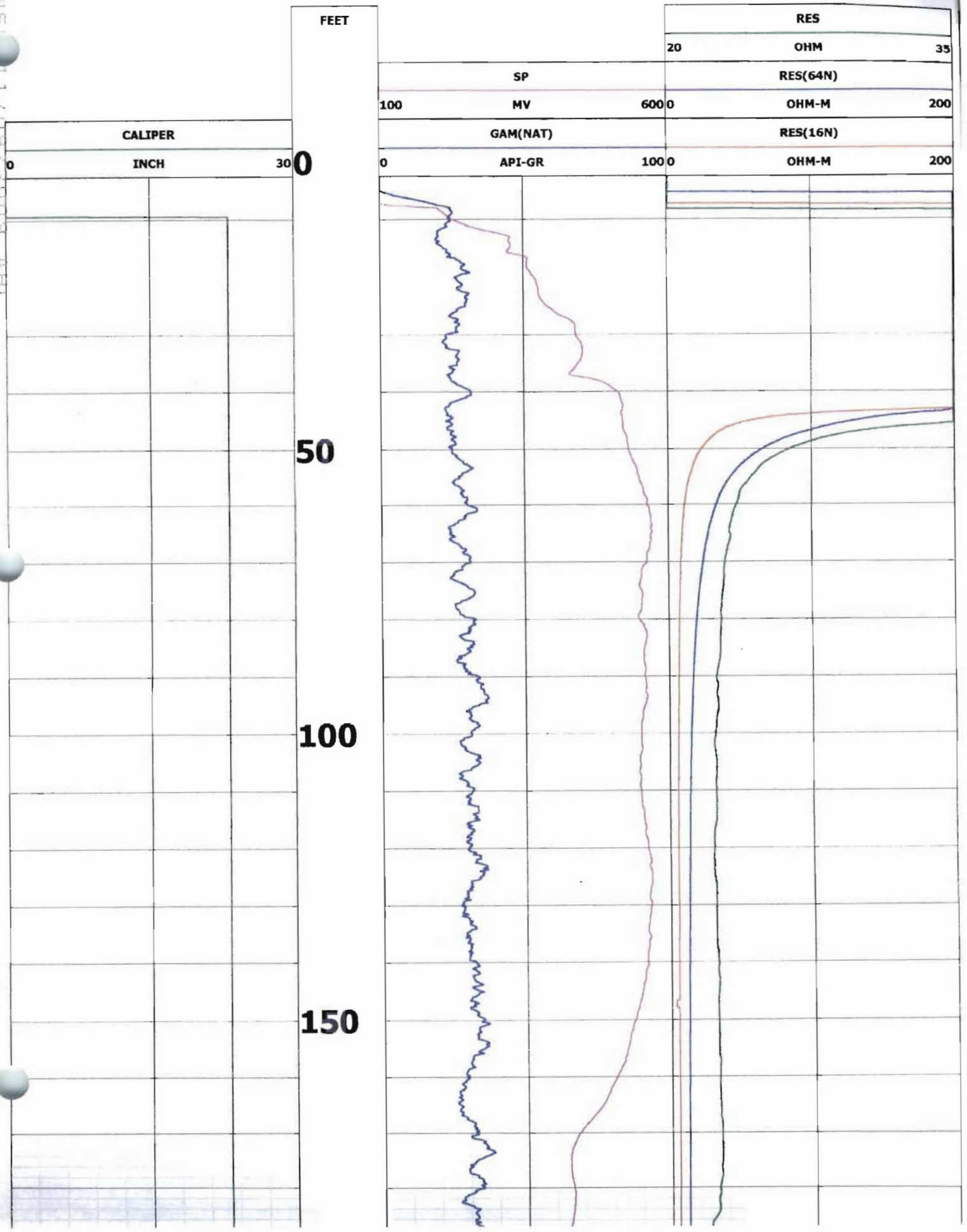


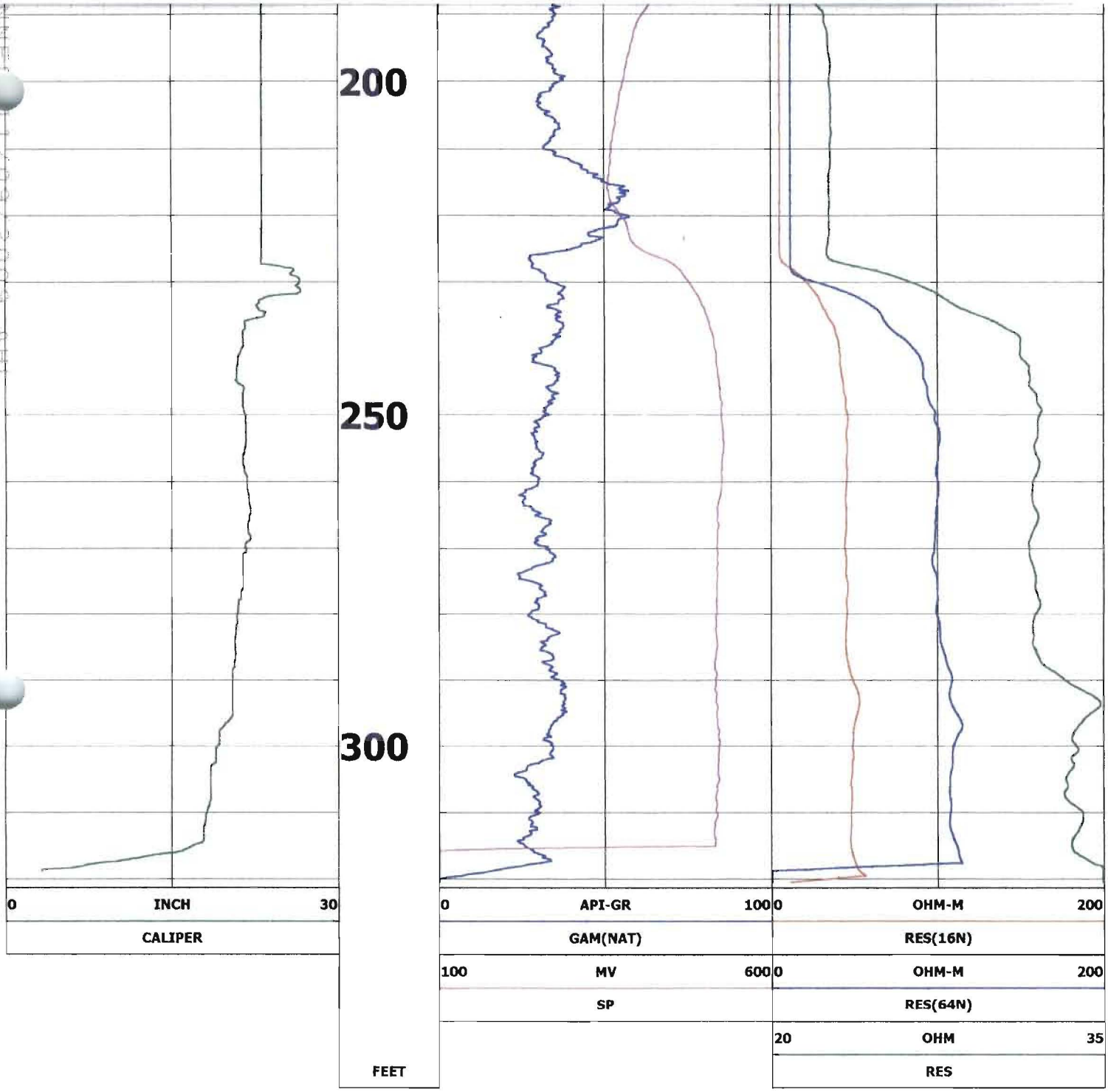
Southern Resource Exploration

P.O. Box 14311
Gainesville, Florida 32604
Phone 352-3725950

LAKE AJAY

COMPANY	: ROWE DRILLING			OTHER SERVICES:	
WELL	: LAKE AJAY				
LOCATION/FIELD	: NARCOOSEE RD				
COUNTY	: OSCEOLA				
STATE	: FL				
SECTION	:	TOWNSHIP	:	RANGE	:
DATE	: 01/14/09	PERMANENT DATUM	:		
DEPTH DRILLER	: 317			KB	:
LOG BOTTOM	: 319.25	LOG MEASURED FROM:	GL	DF	:
LOG TOP	: 9.25	DRL MEASURED FROM:	GL	GL	:
CASING DIAMETER	: 24	LOGGING UNIT	:		
CASING TYPE	: STL	FIELD OFFICE	:		
CASING THICKNESS:	0	RECORDED BY	:		
BIT SIZE	: 23	BOREHOLE FLUID	: 0	FILE	: ORIGINAL
MAGNETIC DECL.	: 0	RM	: 0	TYPE	: 9065A1
MATRIX DENSITY	: 2.71	RM TEMPERATURE	: 0		
NEUTRON MATRIX	: Dolomite	MATRIX DELTA T	: 140		
CASING OD	:			THRESH:	4000





Appendix B
Field Water Quality During Drilling Data

Table B1: Field Water Quality - Drill Stem Data

Date	Time	Depth (feet bls[1])	Specific Conductance (µmhos/cm)	pH (Standard Units)	Chloride (mg/L)	Temperature (Centigrade)
5-Feb-09	10:00	377	606	8.2	56	22.0
10-Feb-09	13:10	408	638	8.4	48	25.5
17-Feb-09	15:25	439	956	6.0	76	25.8
18-Feb-09	12:00	469	883	8.6	68	24.8
20-Feb-09	12:00	500	1017	7.1	86	23.1
23-Feb-09	15:10	531	1002	8.6	85	24.9
26-Feb-09	14:35	563	1004	8.6	84	26.4
26-Feb-09	16:20	594	1002	8.5	84	24.3
27-Feb-09	10:15	626	972	8.6	80	26.4
27-Feb-09	13:30	656	939	8.5	82	27.3
2-Mar-09	15:30	687	973	8.8	84	28.5
9-Mar-09	14:40	700	882	8.7	98	29.1
10-Mar-09	10:30	720	774	8.6	84	25.9
10-Mar-09	12:00	740	892	8.6	84	28.1
10-Mar-09	14:20	760	904	8.6	84	28.1
10-Mar-09	15:20	780	927	8.7	80	27.2
10-Mar-09	17:00	800	920	8.8	80	26.6
11-Mar-09	09:45	820	959	8.8	84	26.4
11-Mar-09	11:15	840	871	8.7	100	29.5
12-Mar-09	09:00	860	975	8.7	86	23.4
12-Mar-09	10:20	880	903	8.7	84	30.2
12-Mar-09	11:20	900	885	8.8	84	30.8
12-Mar-09	14:20	920	940	8.8	80	26.8
12-Mar-09	17:00	940	952	8.7	80	27.7
18-Mar-09	10:00	960	956	8.7	84	27.6
24-Mar-09	09:10	980	982	8.7	80	22.6
24-Mar-09	13:25	1000	915	8.7	80	28.2
24-Mar-09	16:20	1020	905	8.9	84	28.9
25-Mar-09	14:20	1040	918	8.8	80	29.2
26-Mar-09	11:00	1060	939	8.8	84	28.5
26-Mar-09	16:05	1080	929	8.8	80	28.6
30-Mar-09	17:15	1100	880	8.7	84	24.3
31-Mar-09	10:50	1120	961	8.7	84	27.6
1-Apr-09	08:50	1140	1049	8.8	92	24.9
1-Apr-09	14:05	1160	1394	8.7	120	30.9
2-Apr-09	10:25	1180	1195	8.9	110	27.4
2-Apr-09	16:25	1200	1212	8.8	108	29.2
6-Apr-09	13:40	1220	1401	8.9	120	30.2
7-Apr-09	07:29	1240	1515	8.7	128	23.9
7-Apr-09	10:40	1260	1481	8.8	120	27.7
9-Apr-09	10:50	1280	1718	8.8	138	26.3
9-Apr-09	13:45	1300	1555	8.8	132	31.5
10-Apr-09	08:40	1320	1825	8.8	160	23.7
10-Apr-09	10:15	1330	1805	8.8	180	26.1
10-Apr-09	11:53	1340	1825	8.8	168	27.5
14-Apr-09	13:25	1350	N/A	8.9	464	25.5

NOTE: [1] bls is below land surface

Appendix C
Laboratory Water Quality During Drilling Data

Table C1: Laboratory Water Quality Data - Drill Stem Data

Date	Depth (feet bls[1])	Specific Conductance (µmhos/cm)	pH (Standard Units)	Chloride (mg/L)	Laboratory
9-Apr-09	1350	N/A	N/A	132	Orange County Laboratory
15-Apr-09	1350	3,400	7.6	560	Southern Analytical Laboratories
17-Apr-09	1350	3,010	7.26	576	Florida Analytical

NOTE. [1] bls is below land surface

Florida Analytical, Inc.

4320 Old Hwy. 37 Lakeland, FL 33813 (863) 646-8526 Fax: (863) 646-1042

"A Laboratory Management Partner"

4/23/2009

Rowe Drilling
Mr. Johnny Wills
P.O. Box 1098
Polk City, FL, 33868

Ref: Analytical Testing
Report Number: 09-107-0214
Project Description: Lake Ajay

Florida Analytical, Inc. received 1 sample(s) on 4/17/2009 for the analyses presented in the following report. Samples collected by Florida Analytical, Inc. are in accordance with DEP-SOP-001/01 (Revised February 1, 2004).

The above referenced project has been analyzed per your instructions. The analyses were performed in our laboratory in accordance with Standard Methods, The Solid Waste Manual SW-846, EPA Methods for Chemical Analysis of Water and Wastes and /or 40 CFR part 136.

The EPA requires that water samples analyzed for pH, dissolved oxygen and total residual chlorine be analyzed in the field. Analyses and results reported which do not indicate "Field" for these parameters were analyzed outside the holding time as specified in Table II of 40 CFR Part 136.3.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Test results meet all requirements of USEPA and NELAC, unless otherwise noted in this report. Uncertainties in test results are available upon request. This report may not be reproduced in part and results relate only to the samples tested. Qualifiers shown on the data report are defined as follows:

B Result based on colony counts outside the acceptable range, (microbiology).
I The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J Estimated value, value is not accurate: to be used when:
1. Surrogate recovery limits have been exceeded.
2. No known quality control criterion exists.
3. Report value failed to meet established QC criteria.
4. Sample matrix interference precludes accurate determination.
5. Data is questionable due to improper lab or field protocols.

Q Sample held beyond the accepted holding time.
U Compound was analyzed for but not detected.
Y 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.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Stephanie Richards
Laboratory Manager

Florida Analytical, Inc.

4320 Old Hwy. 37 Lakeland, FL 33813 (863) 646-8526 Fax: (863) 646-1042

"A Laboratory Management Partner"

00259
Rowe Drilling
Mr. Johnny Wills
P.O. Box 1098
Polk City , FL 33868

Project ID :
Description : Lake Ajay

Report Date : 4/23/2009

Report Number : **09-107-0214**

REPORT OF ANALYSIS

Received : 4/17/2009

Lab No : **78328**
Sample ID : **Well Head**

Matrix: **Aqueous**
Sampled: **4/17/2009 13:52**

Test	Results	Units	MDL	Date / Time Analyzed	By	Analytical Method
Chloride	**576**	mg/L	0.086	04/20/09 11:00	JP	EPA-300.0
Conductivity	**3010**	æmhos/cm	0.9	04/21/09 11:15	SS	SM-2510B
pH	**7.26 Q**	s.u.	0.01	04/20/09 16:45	CVS	SM-4500H+B

Qualifiers/ Definitions MDL Method Detection Limit

Florida Analytical, Inc.

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"A Laboratory Management Partner"

Cooler Receipt Form

Customer Number: **00259**
Customer Name: **Rowe Drilling**
Report Number: **09-107-0214**

09-107-0214

Shipping Method

○ FedEx ○ UPS ○ US Postal ● Client ○ LMP ○ Courier ○ Other:

Shipping container/cooler uncompromised?	● Yes	○ No	○ Not Present
Custody seals intact on shipping container/cooler?	○ Yes	○ No	● Not Required
Custody seals intact on sample bottles?	○ Yes	○ No	● Not Required
Chain of Custody present?	● Yes	○ No	
COC agrees with sample labels?	● Yes	○ No	
Samples in proper containers?	● Yes	○ No	
Sample containers intact?	● Yes	○ No	
Sufficient sample volume for indicated tests?	● Yes	○ No	
All samples received within holding time?	● Yes	○ No	
Container temperature in compliance?	● Yes	○ No	
Water - VOA vials free of headspace?	○ Yes	○ No	● N/A
Water - Preservation acceptable upon receipt?	● Yes	○ No	○ N/A
Samples screened for radioactivity (COE only)?	○ Yes	○ No	● N/A
Special precautions or instructions included?	○ Yes	● No	

Comments:

Any regulatory non-compliance issues will be recorded on non-compliance report.

Signature: Joyce Hulett

Date & Time: 04-17-2009 16:17

Florida Analytical, Inc. Chain of Custody Record Page _ of _

Project/Client Name:	Project/Site Location:	Client Contact Name:
Rowe Drilling Co.	Lake Ajay	Tara Wilks
PWS Number:	Project Manager:	Phone Number:
		863-984-3100
Report Mailing Address:	Invoice Address:	Fax Number:
PO Box 1098		863-984-3110
Report Mailing City, State, ZIP:	Invoice City, State, ZIP:	e-mail Address:
Polk City, FL 33868		twilks@rowedrilling

Purchase Order Number:

Matrix Key

GW	Ground Water
SW	Surface Water
DW	Drinking Water
WW	Wastewater
SL	Soil
SD	Solid
ST	Sediment
NL	Nonaqueous Liquid
SG	Sludge
Other	

Key

Other | Z | Other

(II) Container Type Key

P	Plastic
G	Glass
Other	

09-107-0214
00259
Apr 17 2009
4:20PM
Rowe Drilling
Lake Ajay

Florida Analytical, Inc.
4320 Old Highway 37
Lakeland, Florida 33813
(863) 646-8526 (phone)
(863) 646-1042 (fax)
www.floridaanalytical.com

Date:	Time:	Sample Identification:	Matrix	Required Analysis: USP Cond, Chloride, Cond, PH	(I) # of Containers, (II) Container Size/Container Type, (III) Sample Preservative (See keys upper right)	Field Parameters: Specific Conductance (microMhos/cm)	pH, SU	Temperature °C	Dissolved Oxygen (mg/L)	Total Chlorine Residual (mg/L)	Turbidity (NTU)	Florida Analytical Laboratory Sample Identification Number (for laboratory use only)
4-17	1552	Wellhead										

For Laboratory Use Only:

Sample Kit Prepared by:	FA Cooler No:	Sampled by: (PRINT):	Sampled by: (SIGNATURE):	Date:	Time:	Received by: (SIGNATURE)	Date:	Time:
		John Barrs		4-17-09	4:17			
Date:	Time:	Cooler Returned: ☐Yes ☐No	Client Code:	Relinquished by: (SIGNATURE)	Date:	Time:	Received by: (SIGNATURE)	Date:	Time:
Laboratory Remarks: 239			Relinquished by: (SIGNATURE)	Date:	Time:	Received by: (SIGNATURE)	Date:	Time:
			Relinquished by: (SIGNATURE)	Date:	Time:	Received @ FA by: (SIGNATURE)	Date: 4-17-09	Time: 1617

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

CERTIFICATE OF ANALYSIS

May 1, 2009

Luisa Maria Gomez
PB Water
100 East Pine Street
Suite 500
Orlando, FL 32801

RE: Workorder ID: O904147
Project ID: Lake Ajay 040909

Dear Luisa Gomez:

Enclosed are the analytical results for sample(s) received by the laboratory on Thursday, April 09, 2009. The results in this report relate only to the samples listed on page 2. The chain of custody is included as part of the Certificate of Analysis for the above referenced Workorder ID and should be retained as a permanent record thereof. Estimated uncertainties, in the form of quality control limits, are available in the laboratory's Quality Manual. Precision, in the form of relative percent difference (RPD), is not calculated for results that are less than four times the method detection limit (MDL) and are labeled as 'N/A' (not applicable). If reported, results for radionuclides (Gross Alpha, Radium-226 and Radium-228) were analyzed by NELAP-certified laboratory ID E83033. The results contained in this report meet all requirements of the National Environmental Laboratory Accreditation Conference (NELAC) standards, where applicable.

If you have any questions concerning this report, please feel free to contact me.

Certified By:

Kimberly A. Kunihiro, Water Quality Manager

Enclosures

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

SAMPLE SUMMARY

Workorder: O904147
Project ID: Lake Ajay 040909

Lab ID	Sample ID	Matrix	Date/Time Collected	Date/Time Received
O90414701	Lake Ajay	Surface Water	4/9/2009 15:55	4/9/2009 16:25

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

ANALYTICAL RESULTS

Workorder: O904147
Project ID: Lake Ajay 040909
Results reported on a wet weight basis.

Lab ID: **O90414701** Date Collected: 4/9/2009 15:55 Matrix: Surface Water
Sample ID: **Lake Ajay** Date Received: 4/9/2009 16:25

Parameters	Results	Units	Qualifier	RDL	MDL	Prep Date	By	Analysis Date	By
Wet Chemistry									
Analysis Desc: SM4500CL E	**Dilution Factor:**	**1**							
Chloride	132	mg/L		0.666	0.666			04/10/09 11:36	LV

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

QUALITY CONTROL DATA

Workorder: O904147
Project ID: Lake Ajay 040909

QC Batch:	GEWC/33986	Analysis Method:	SM4500CL E
QC Batch Method:	SM4500CL E		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 847629 847630 Original: O90413106

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Chloride	mg/L	2.70	40	42	42	98	98	80-120	0	20	

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Rowe Drilling Company
PO Box 1098
Polk City, FL 33868-

April 16, 2009
Project No: 91152

Laboratory Report

Project Name	**Lake Ajay**	
Sample Description	**Well Head**	
Matrix	**Groundwater**	
SAL Sample Number	**91152.01**	
Date/Time Collected	**04/15/09**	**11:00**
Date/Time Received	**04/15/09**	**13:37**

Parameters	Units	Results	Method	Detection Limit	Date/Time Analyzed	Date/Time Prep	Analyst
Inorganics							
Chloride	mg/l	560	EPA 300.0	0.05	04/15/09 14:42		VWC
Specific Conductance	umhos/cm	3,400	SM 2510B	0.5	04/15/09 14:58		JSB
pH	Units	7.6 Q5	EPA 150.1		04/15/09 14:21		MEJ

SOUTHERN ANALYTICAL LABORATORIES, INC.
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Rowe Drilling Company
PO Box 1098
Polk City, FL 33868-

April 16, 2009
Project No: 91152

Laboratory Report

Footnotes

*	Test results presented in this report meet all the requirements of the NELAC standards.
**	A statement of estimated uncertainty of test results is available upon request.
***	For methods marked with ***, all QC criteria have been met for this method which is equivalent to a SAL certified method.
Q5	Analysis should be performed "immediately" in the field. Lab analysis was performed at a later time.

FDOH Laboratory No. E84129
NELAP Accredited

Approved By: **Francis I. Daniels, Laboratory Director**
Leslie C. Boardman, Q. A. Manager

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 91152

Client Name: Rowe Drilling Company	Contact / Phone: Tricia Crossley (813) 265-1413 x-123
Project Name / Location: Lake Ajay	Turn Around Time Requested (*Surcharges may apply) 24 Hour* ☐ 48 Hour* ☐ 5 Bus. Days* ☑ 10 Bus. Days ☐
Samplers: (Signature)	

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	PARAMETER / CONTAINER DESCRIPTION: 1LP, Cool Chloride, Cond, pH	[illegible]							No. of Containers (Total per each location)
01	Well head	4/15/09	11:00	GW		X	1								1

Containers Prepared/ Relinquished:	Date/Time: 0930 01-23-09	Received:	Date/Time:
Relinquished: John Will	Date/Time: 4/15/09 13:37	Received:	Date/Time: 1337 4/15/09
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N (NA)
Samples intact upon arrival? (Y) N NA
Received on ice? Temp_____ (Y) N NA
Proper preservatives indicated? Y N (NA)
Rec'd within holding time? (Y) N NA
Volatiles rec'd w/out headspace? Y N (NA)
Proper containers used? (Y) N NA

Instructions / Remarks

PO # 06-306

Email reports: tjs@rowedrilling.com

24 hr TAT

Chain of Custody

Appendix D
Geophysical Logs to Set the 6-inch Casing

MV Geophysical

X-Y CALIPER GAMMA RAY LOG

Company Rowe Well Drilling Co.
Well Lake Ajay LFA MW
Field Narcoossee
County Osceola State/Prv Florida

Company Rowe Well Drilling Co.
Well Lake Ajay LFA MW
Field Narcoossee
County Osceola State/Prv . Florida

Location
Ajay Lake Lower Floridan Aquifer
Monitor Well Project
Parsons Brinckerhoff

Other Services
XY/GR,DIL
FCT,FLO

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

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

Date	23-APR-2009		
Run Number	ONE		
Depth Driller	1351'		
Depth Logger	1351'		
Bottom Logged Interval	1351'		
Top Log Interval	SURFACE		
Open Hole Size	9.875"		
Type Fluid	H2O		
Density / Viscosity	NA/NA		
Max. Recorded Temp.	See FCT log		
Estimated Cement Top	NA		
Time Well Ready	08:45 4/23/2009		
Time Logger on Bottom	08:45 4/23/2009		
Equipment Number	MVGS-1		
Location	Ft. Myers		
Recorded By	S.Miller/C.Miller		T.Toy (RWD)
Witnessed By	G.Schlutermann (PB)	Mark (PB)	D.Williamson (RWD)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	9.875"	315'	1350'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	16"	0.375" WT	SURFACE	315'
Prot. String				
Production String				
Liner				rdcsedew.db
Invoice No.	2009054	P.O. #:	Job No.:	* FIELD PRINT *

<<< Fold Here >>>

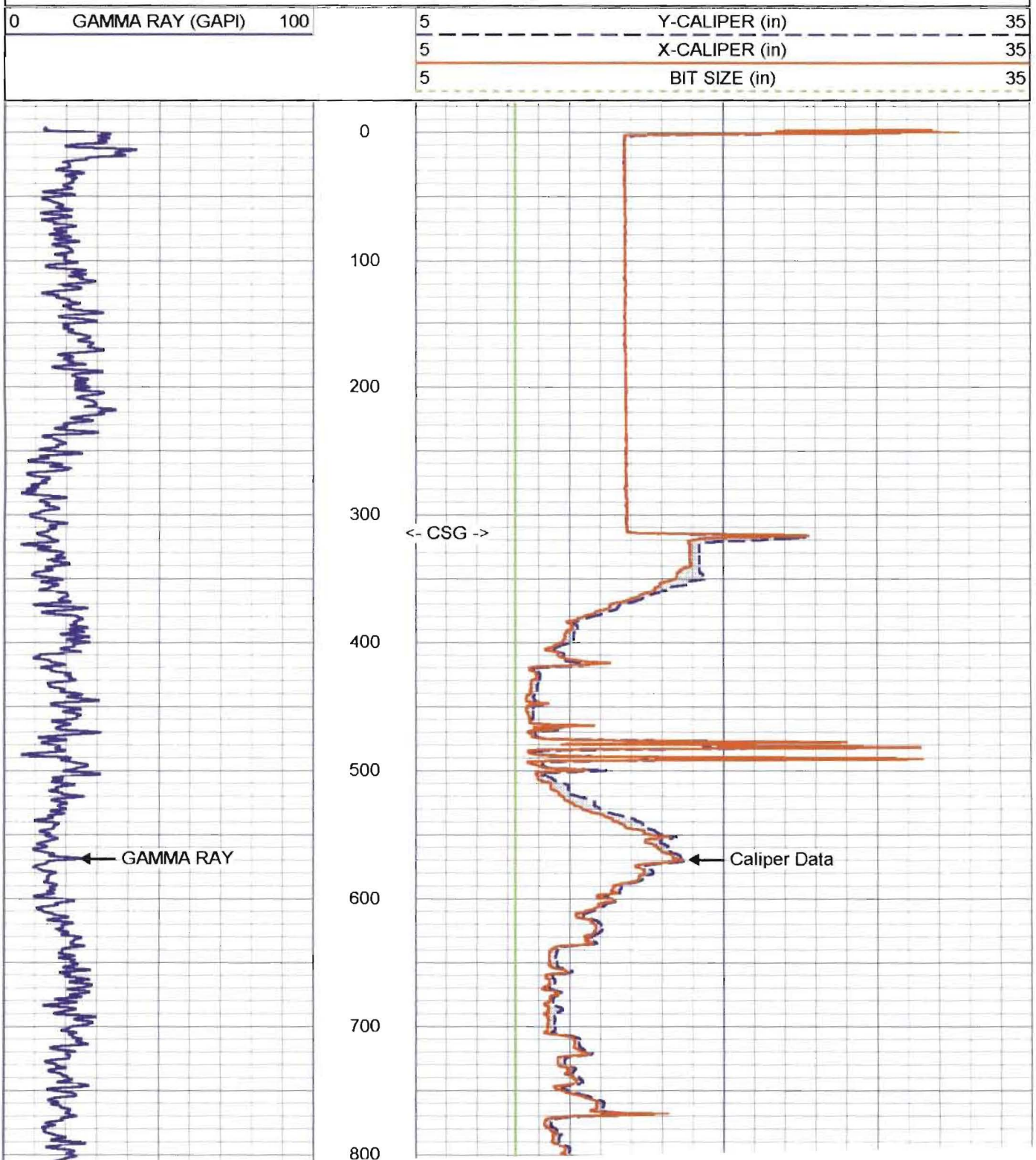
Comments

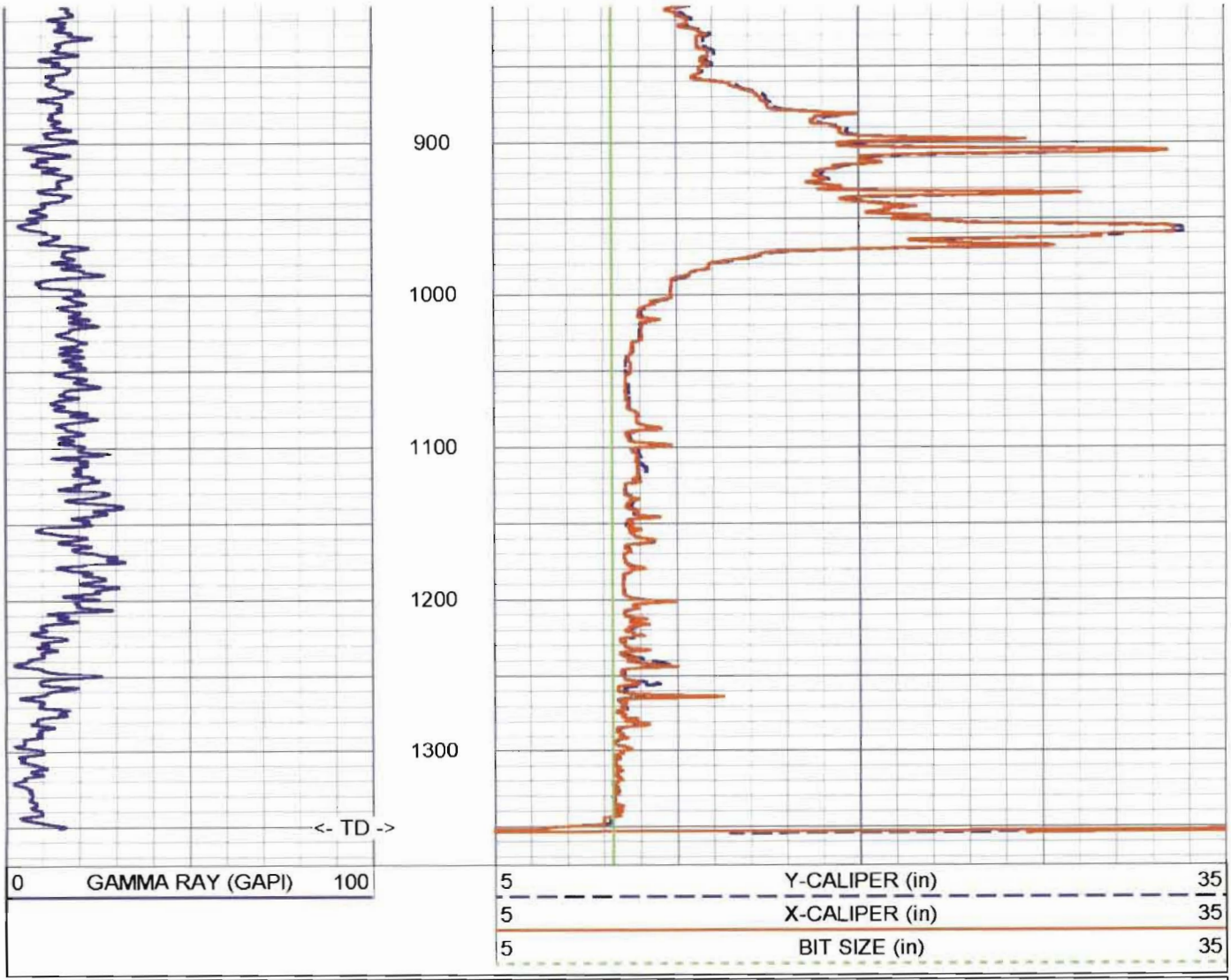
X-Y Caliper Arm Extensions: 33"

MV Geophysical

MAIN PASS

Database File:	rlakeaj1.db
Dataset Pathname:	MAIN
Presentation Format:	XY535-1
Dataset Creation:	Thu Apr 23 11:05:52 2009
Charted by:	Depth in Feet scaled 1:1200



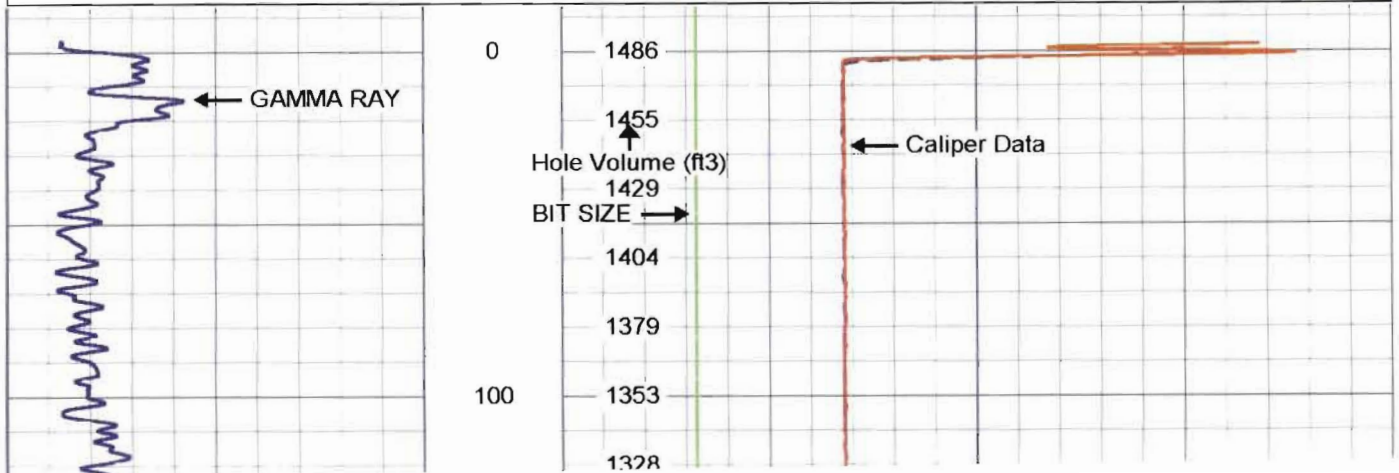


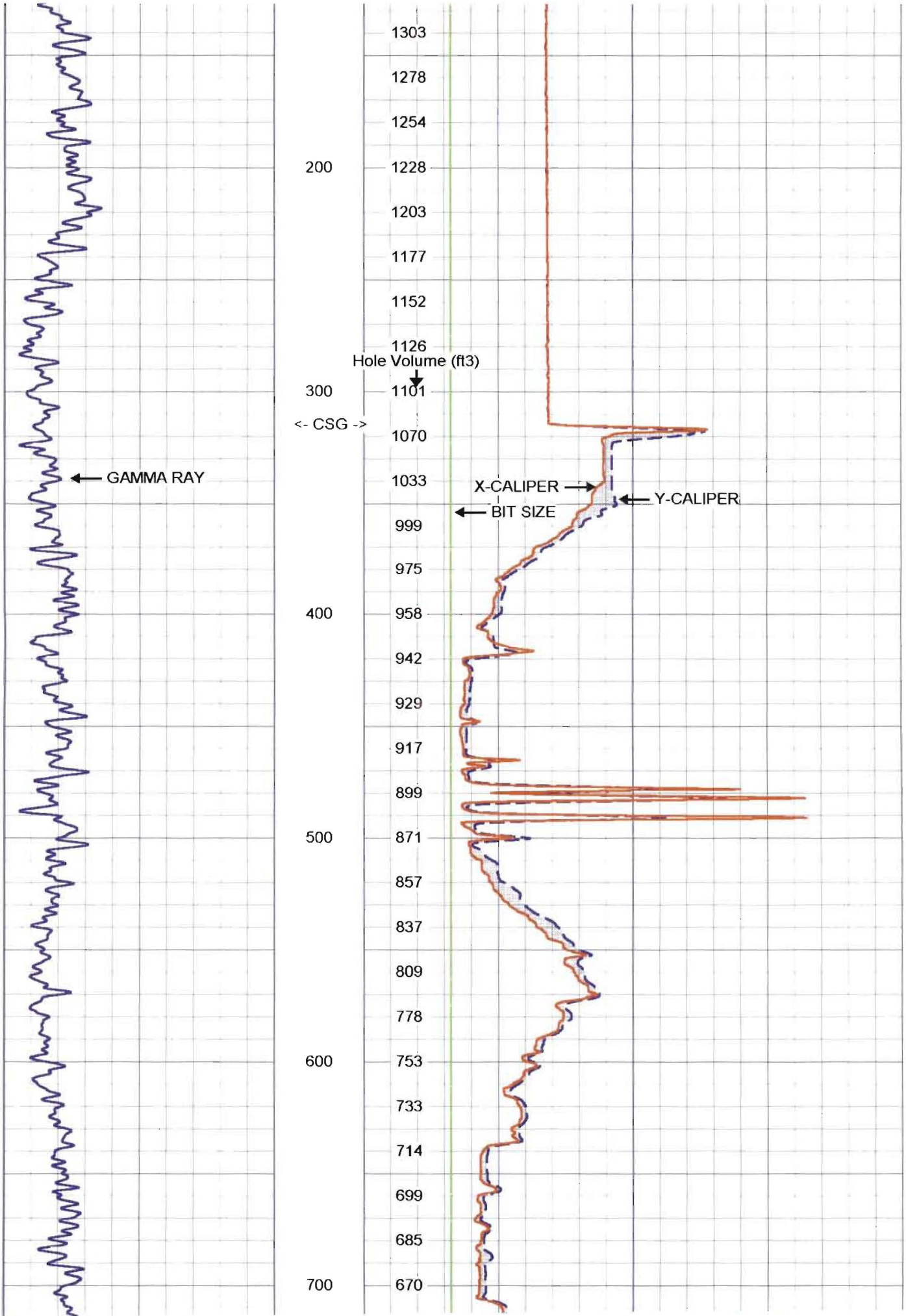
MV Geophysical

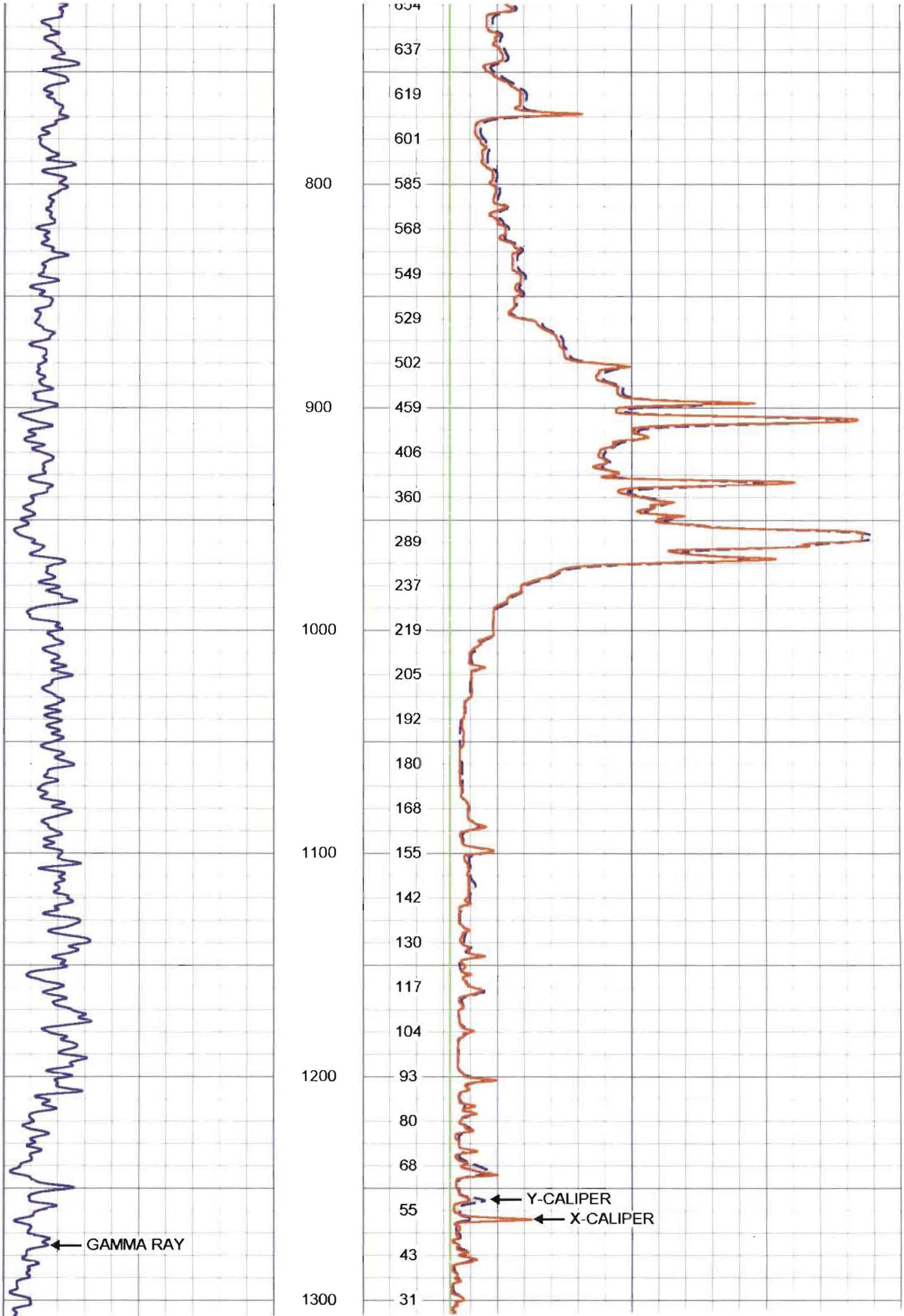
MAIN PASS

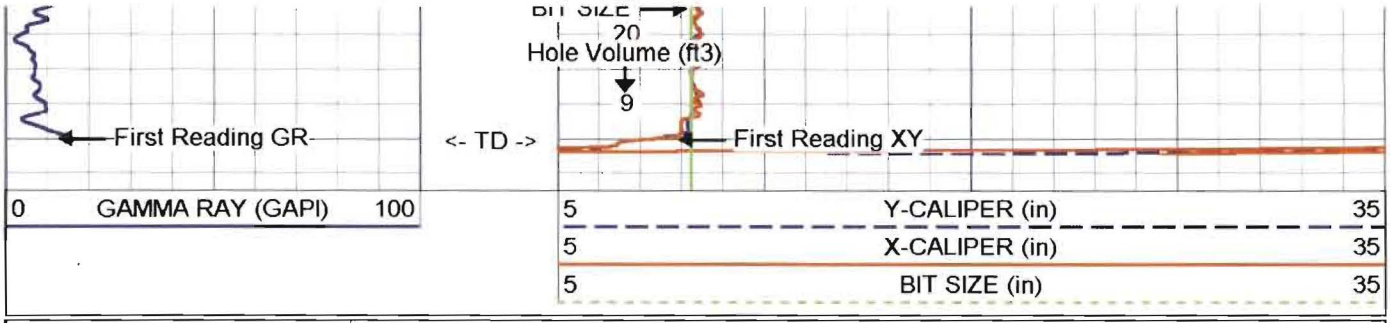
Database File:	rlakeaj1.db
Dataset Pathname:	MAIN
Presentation Format:	XY535-5
Dataset Creation:	Thu Apr 23 11:05:52 2009
Charted by:	Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 100
5 Y-CALIPER (in) 35
5 X-CALIPER (in) 35
5 BIT SIZE (in) 35





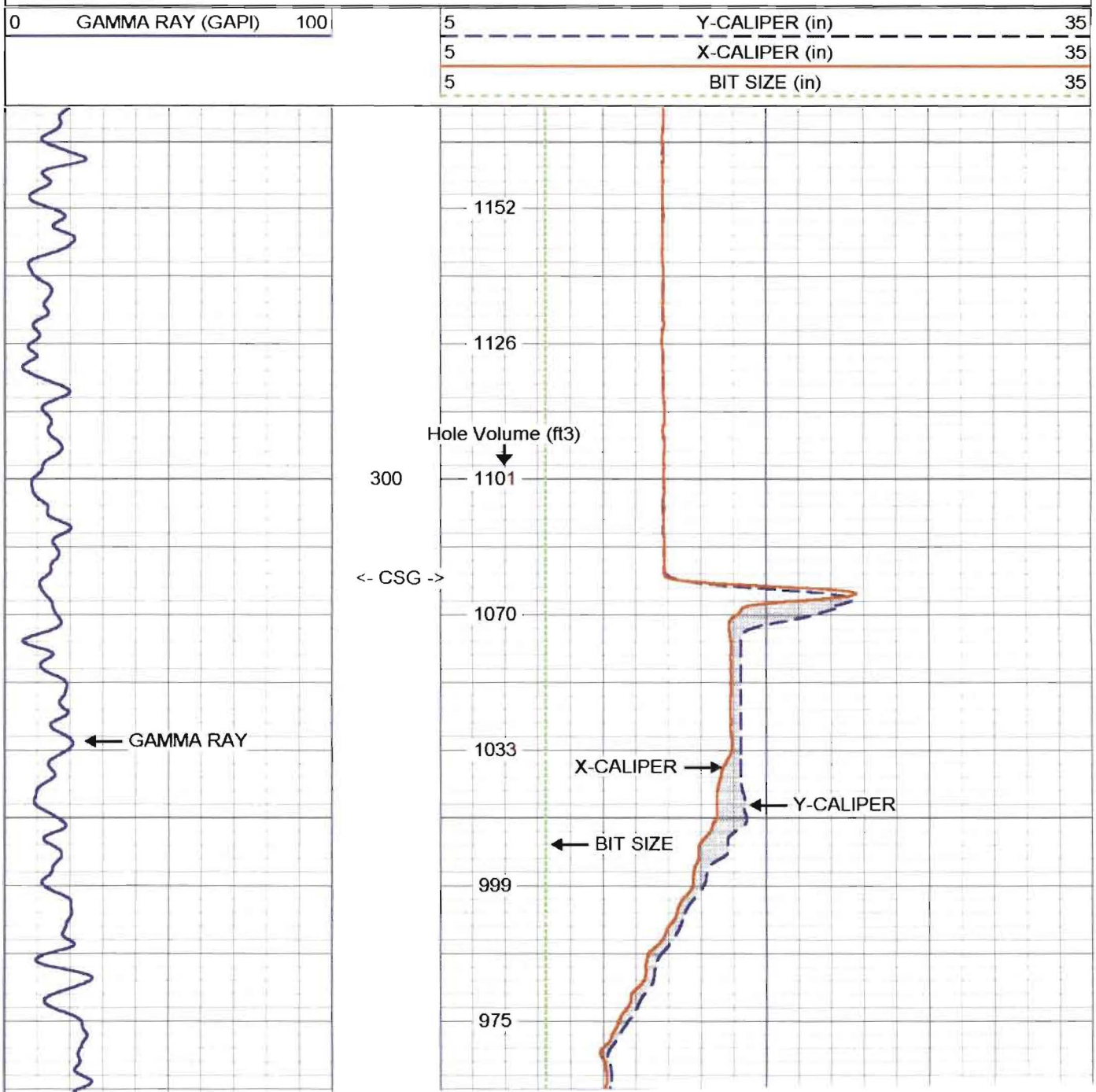


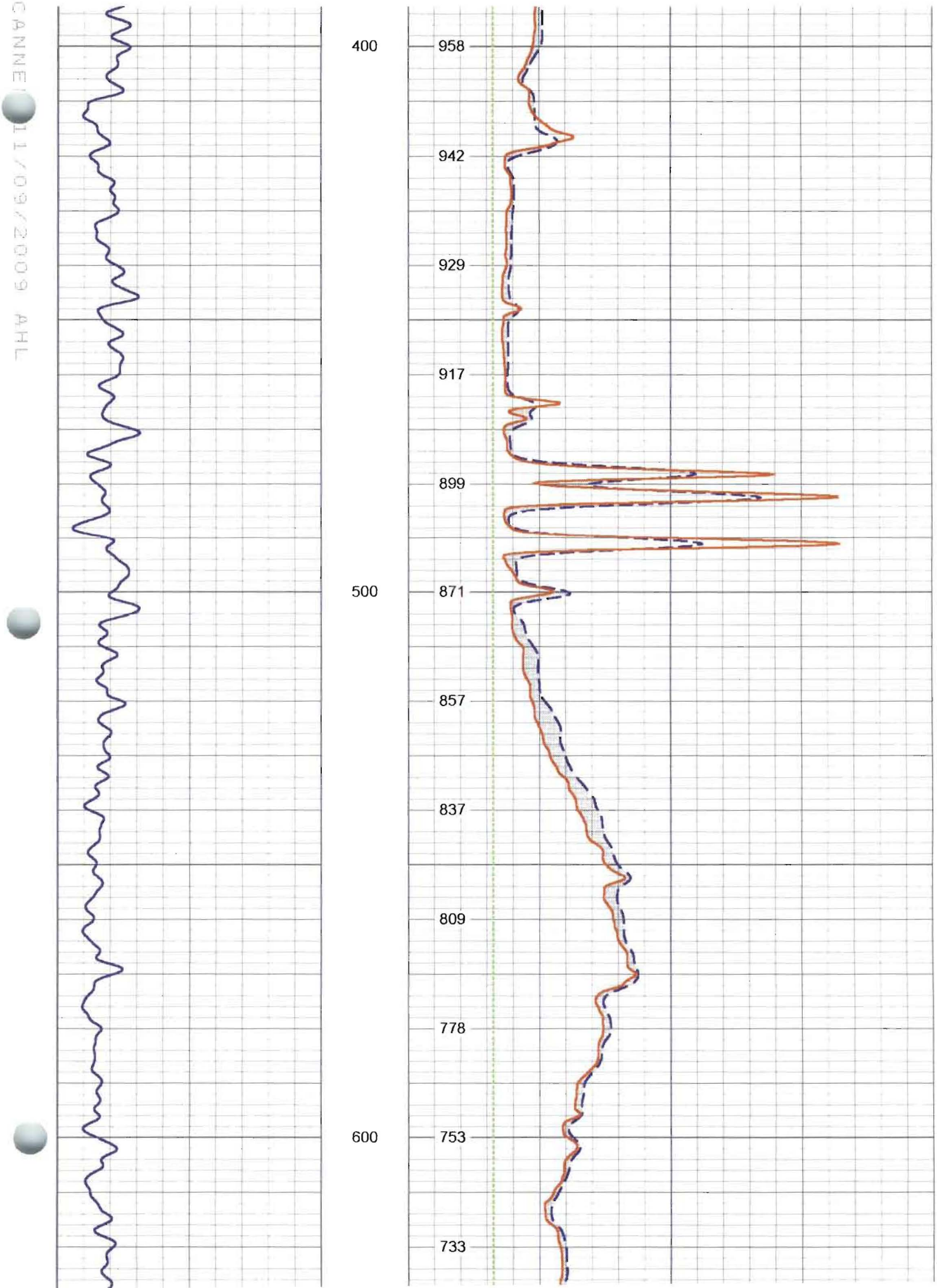


MV Geophysical

MAIN PASS

Database File:	rlakeaj1.db
Dataset Pathname:	MAIN
Presentation Format:	XY535-5
Dataset Creation:	Thu Apr 23 11:05:52 2009
Charted by:	Depth in Feet scaled 1:240




SCANNED 11/09/2009 AHL
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500
600
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917
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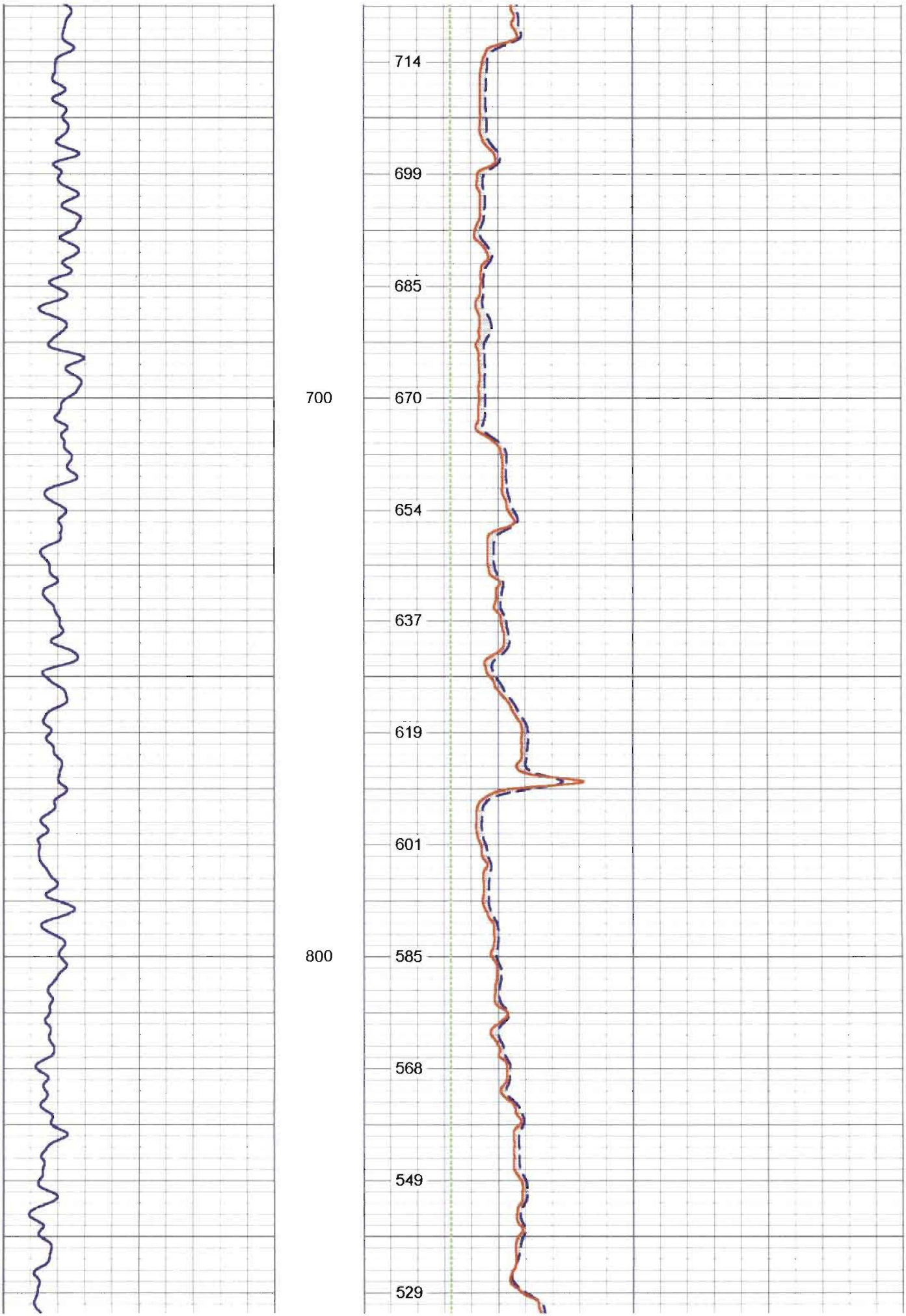
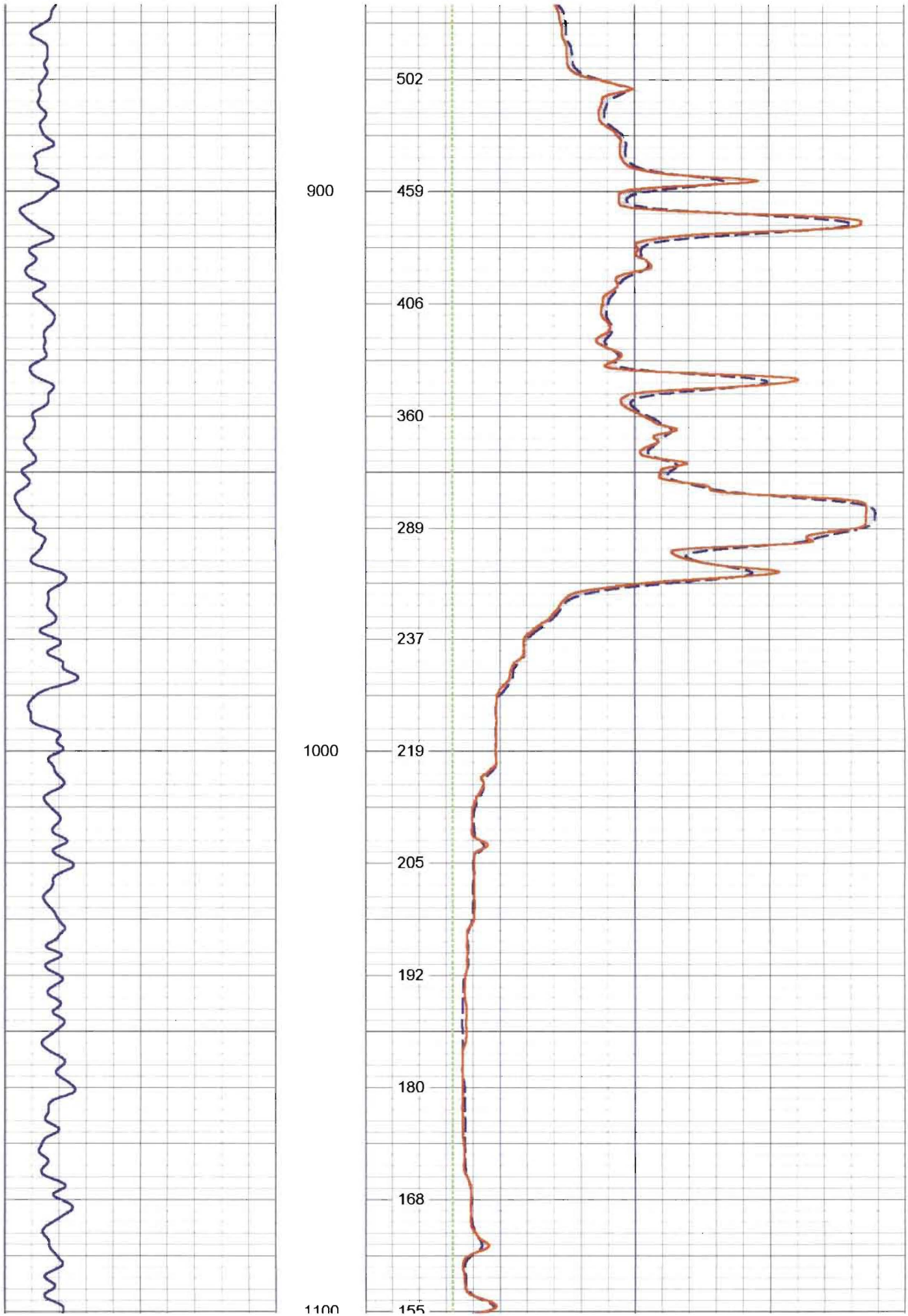
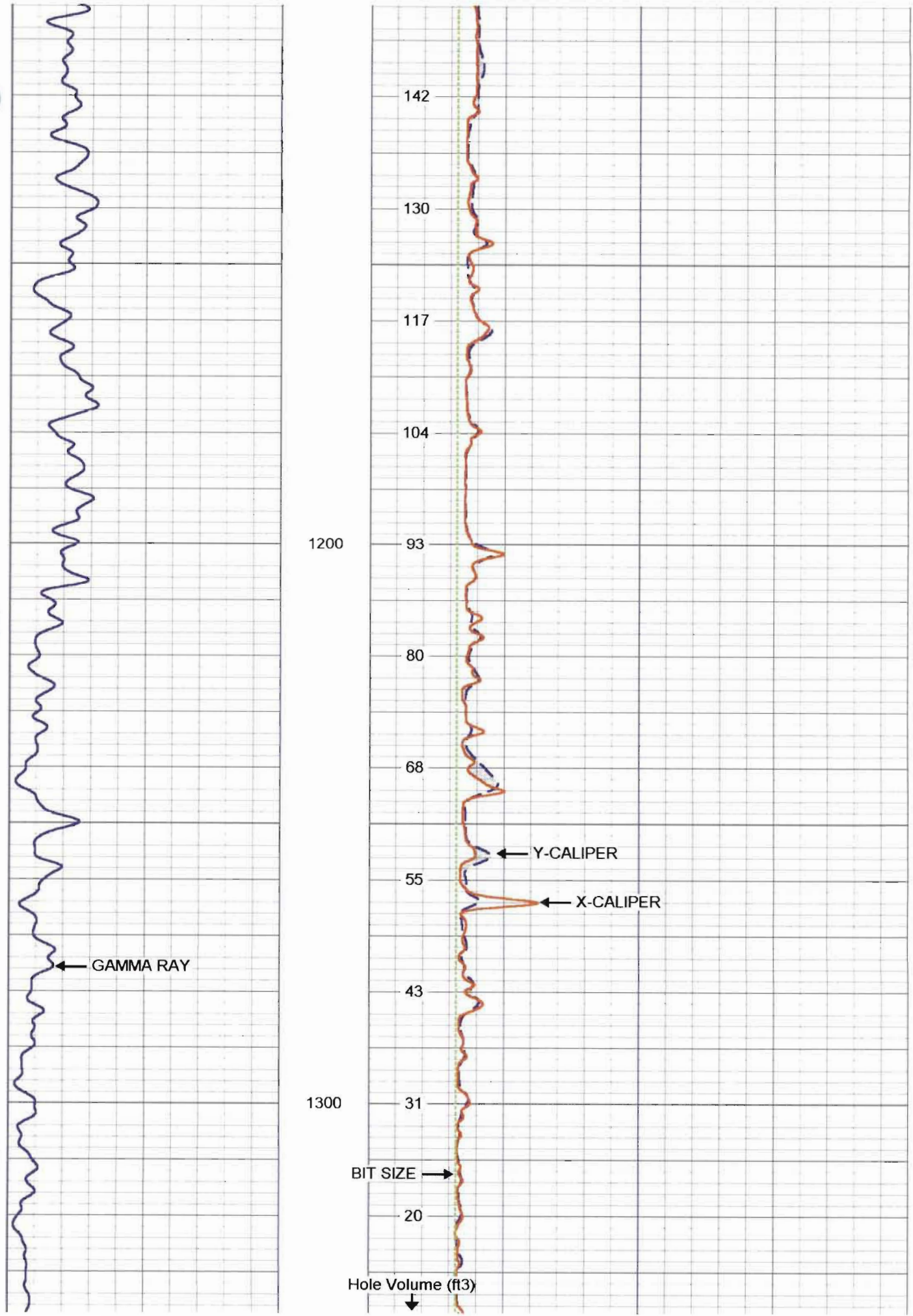
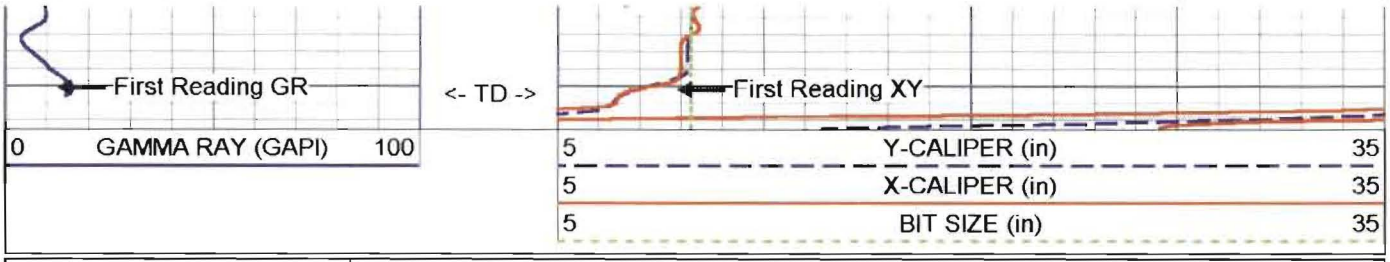
871
857
837
809
778
753
733









MV Geophysical

REPEAT SECTION

Database File:	rlakeaj1.db
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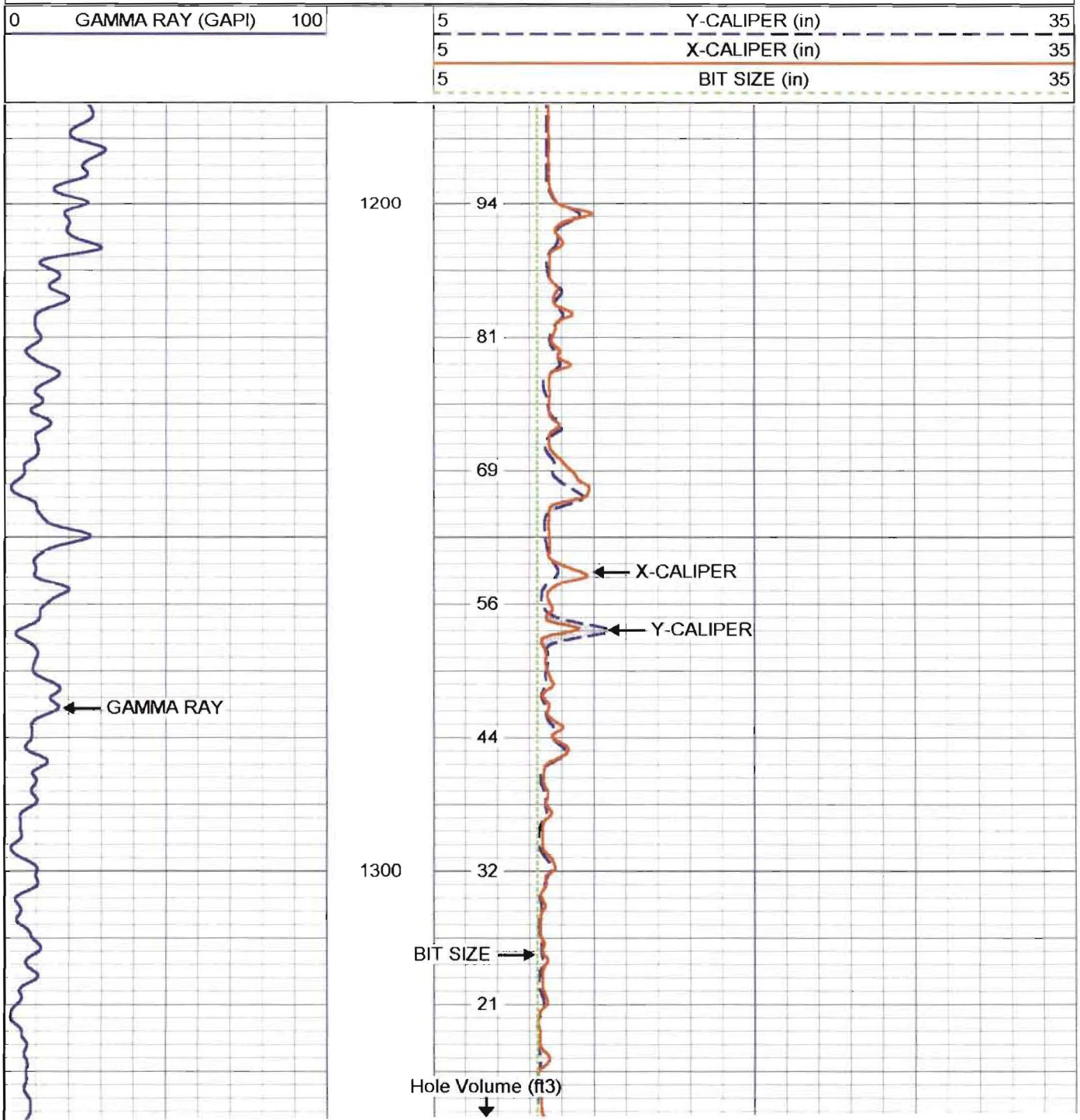
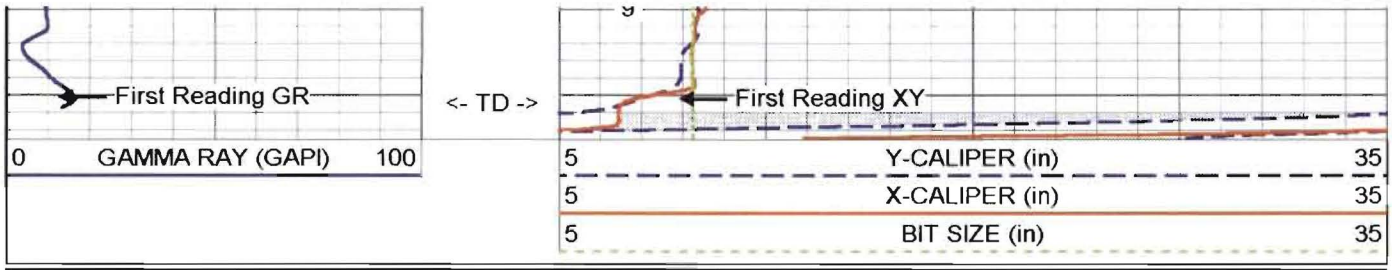
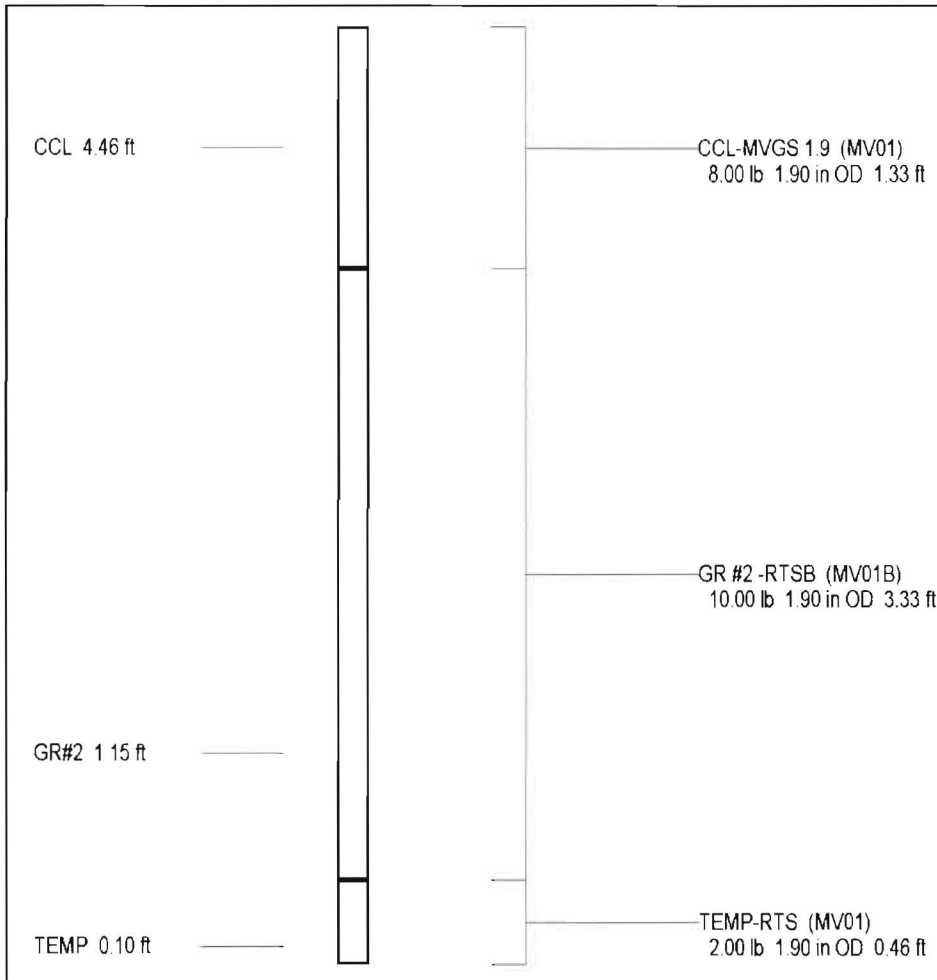




Gamma Ray Calibration Report

Serial Number:	MV01B	
Tool Model:	RTSB	
Performed:	Thu Apr 23 11:12:53 2009	
Calibrator Value:	120	GAPI
Background Reading:	13.8324	cps
Calibrator Reading:	137.868	cps
Sensitivity:	0.967464	GAPI/cps

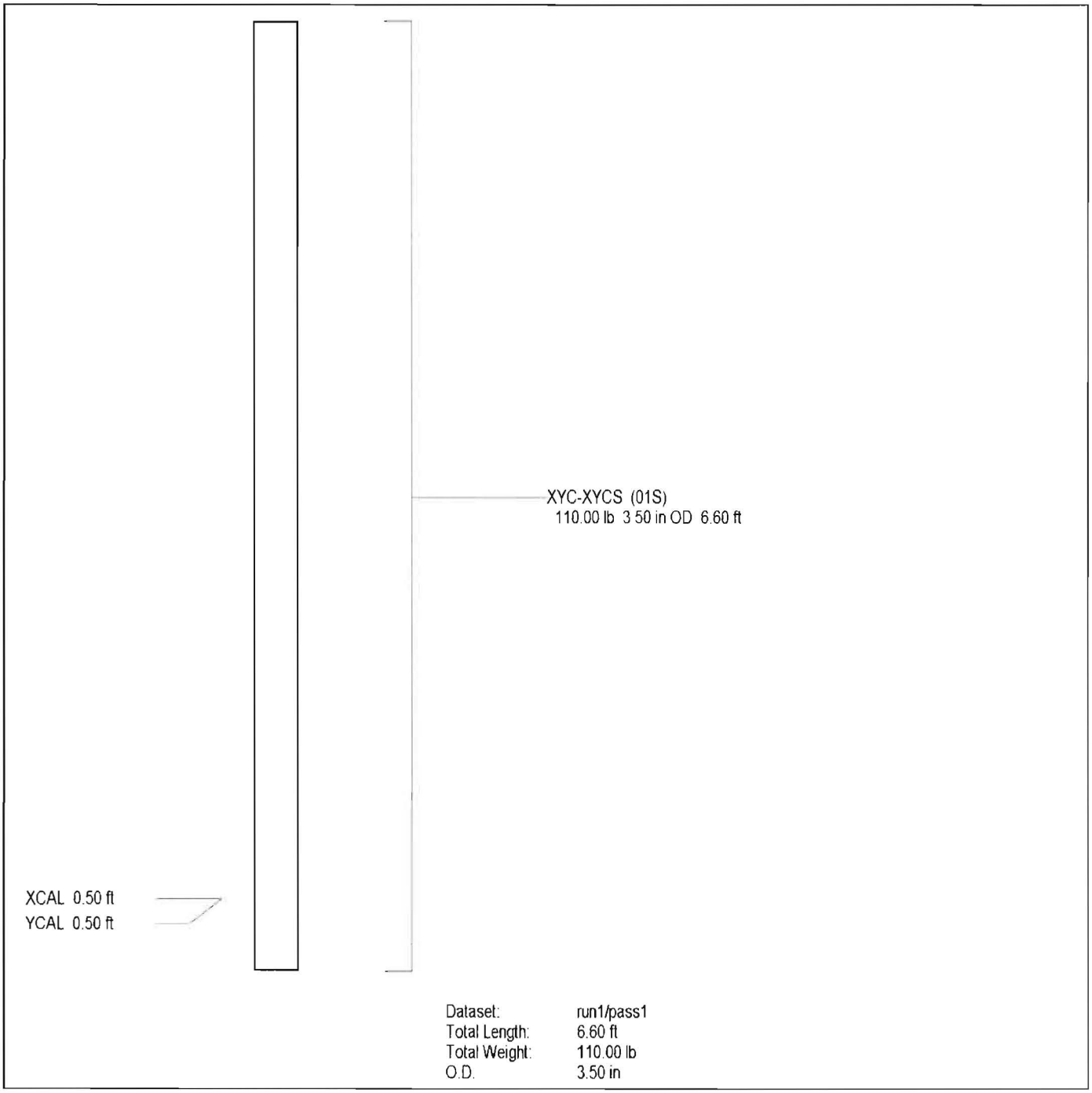


Dataset:	run1/pass6
Total Length:	5.12 ft
Total Weight:	20.00 lb
O.D.	1.90 in

XY Caliper Calibration Report

Serial Number:	01S	
Tool Model:	XYCS	
Performed:	Thu Apr 23 09:07:14 2009	
Small Ring:	12.25	in
Large Ring:	32	in
	X Caliper	Y Caliper

Reading with Small Ring:	1326.61	1328.12	cps
Reading with Large Ring:	1925.3	1963.3	cps
Gain:	0.0330993	0.0342423	
Offset:	-31.726	-33.2278	



Dataset:	run1/pass1
Total Length:	6.60 ft
Total Weight:	110.00 lb
O.D.	3.50 in

MV Geophysical

DUAL INDUCTION LL3 / SP LOG

Company Rowe Well Drilling Co.
Well Lake Ajay LFA MW
Field Narcoossee
County Osceola State/Prv . Florida

Location
Ajay Lake Lower Floridan Aquifer
Monitor Well Project
Parsons Brinckerhoff

Other Services
XY/GR,DIL
FCT,FLO

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

Date	23-APR-2009		
Run Number	ONE		
Depth Driller	1351'		
Depth Logger	1351'		
Bottom Logged Interval	1349'		
Top Log Interval	315'		
Open Hole Size	9.875"		
Type Fluid	H2O		
Density / Viscosity	NA/NA		
Max. Recorded Temp.	See FCT log		
Estimated Cement Top	NA		
Time Well Ready	08:45 4/23/2009		
Time Logger on Bottom	11:30 4/23/2009		
Equipment Number	MVGS-1		
Location	Ft. Myers		
Recorded By	S.Miller/C.Miller		T.Toy (RWD)
Witnessed By	G.Schlutermann (PB)	Mark (PB)	D.Williamson (RWD)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	9.875"	315'	1350'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	16"	0.375" WT	SURFACE	315'
Prot. String				
Production String				
Liner				rdcsedew.db
Invoice No.	2009054	P.O. #:	Job No.:	* FIELD PRINT *

<<< Fold Here >>>

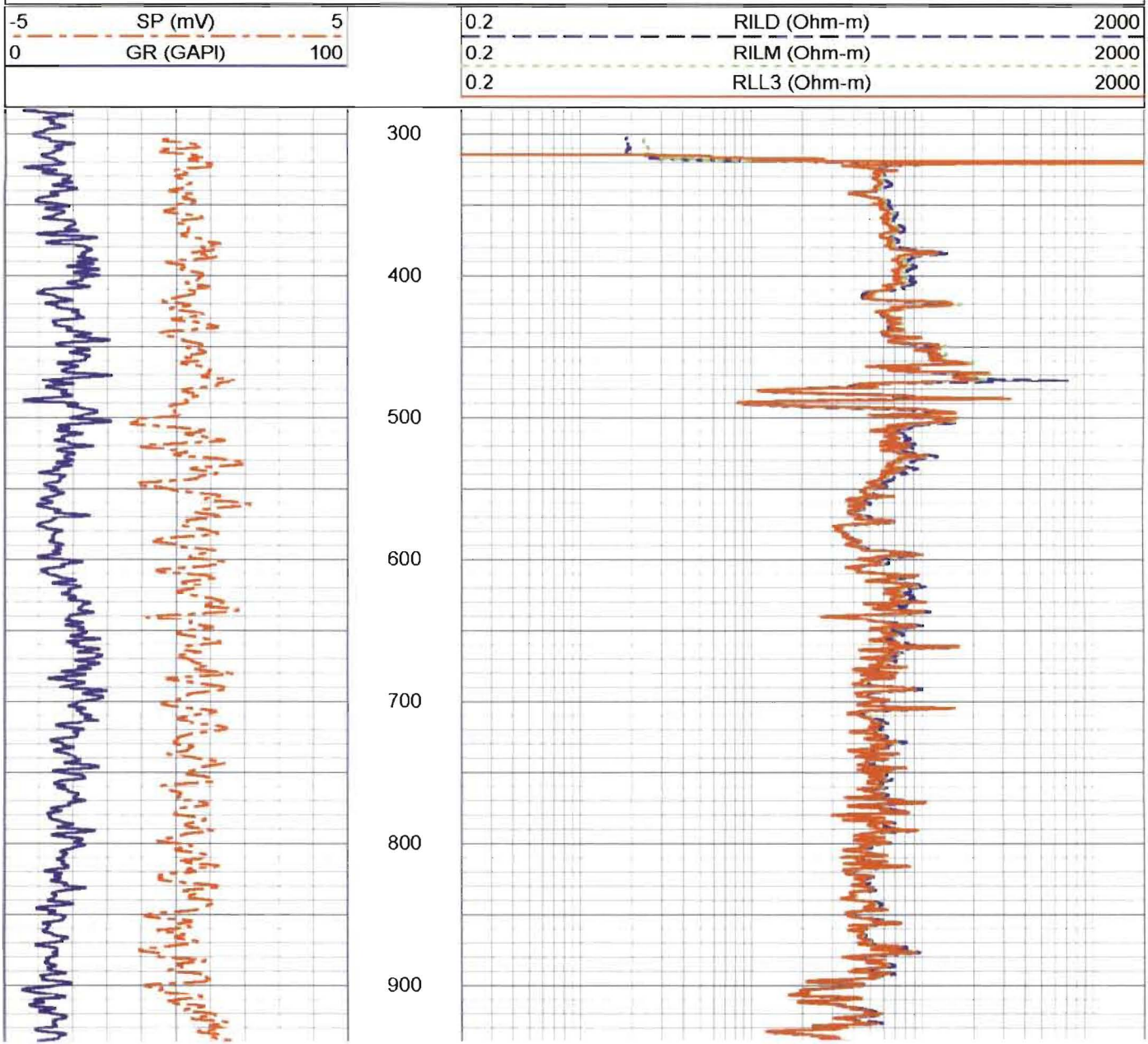
Comments

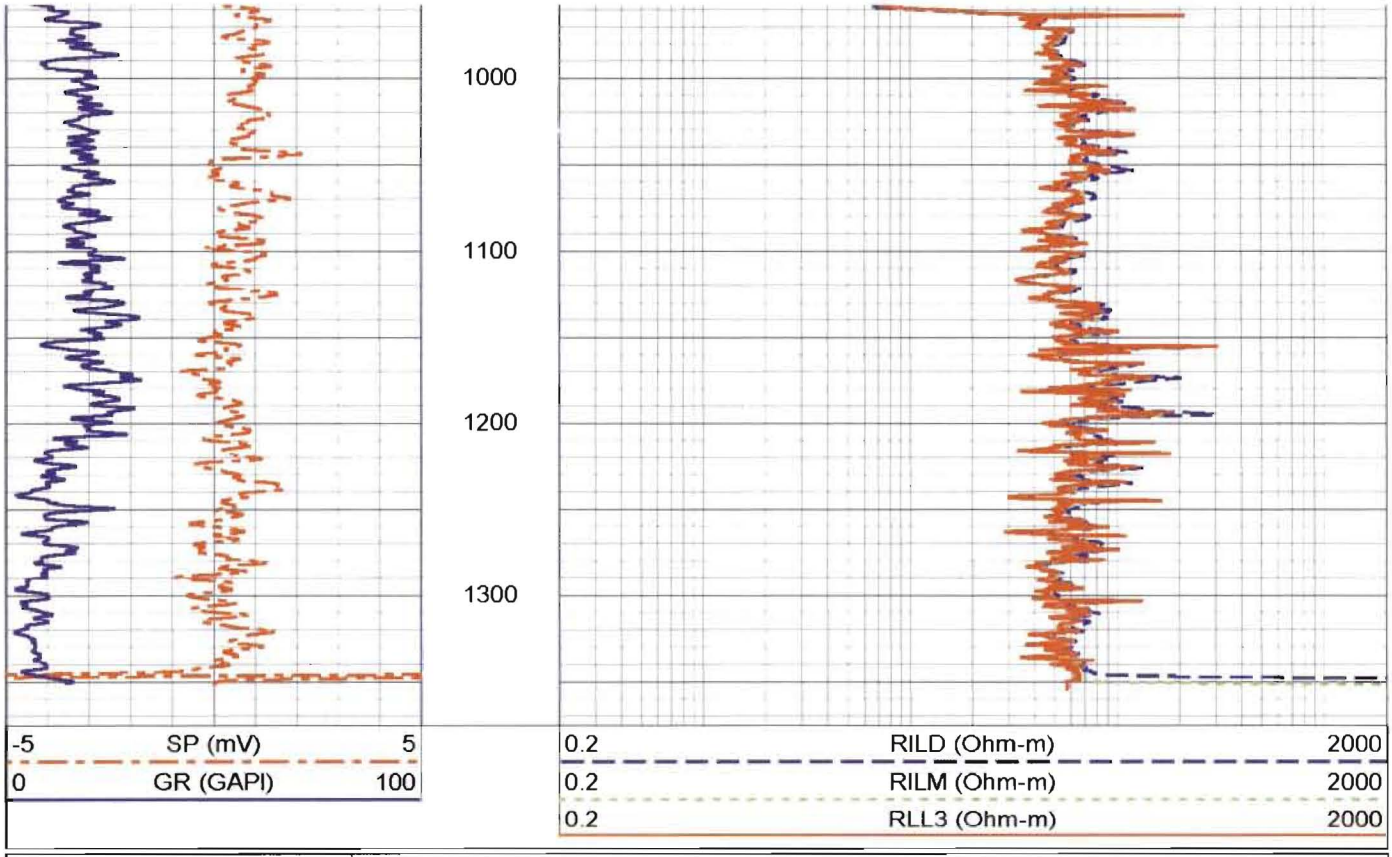
Rw=4.281 ohm-m @ 82.2 degF

MV Geophysical

MAIN PASS

Database File:	rlakeaj1.db
Dataset Pathname:	MAIN
Presentation Format:	DIL-1
Dataset Creation:	Thu Apr 23 11:05:52 2009
Charted by:	Depth in Feet scaled 1:1200

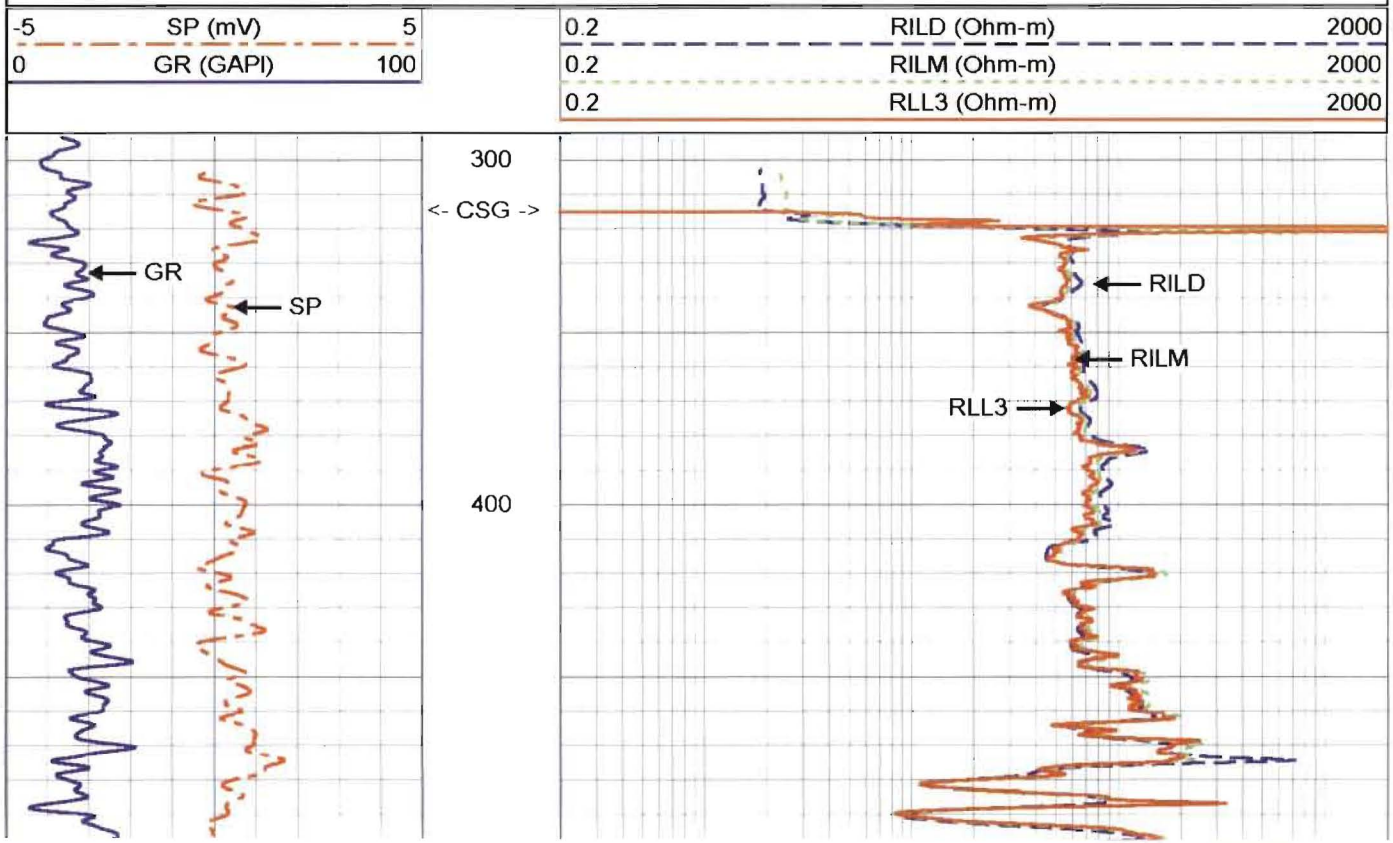


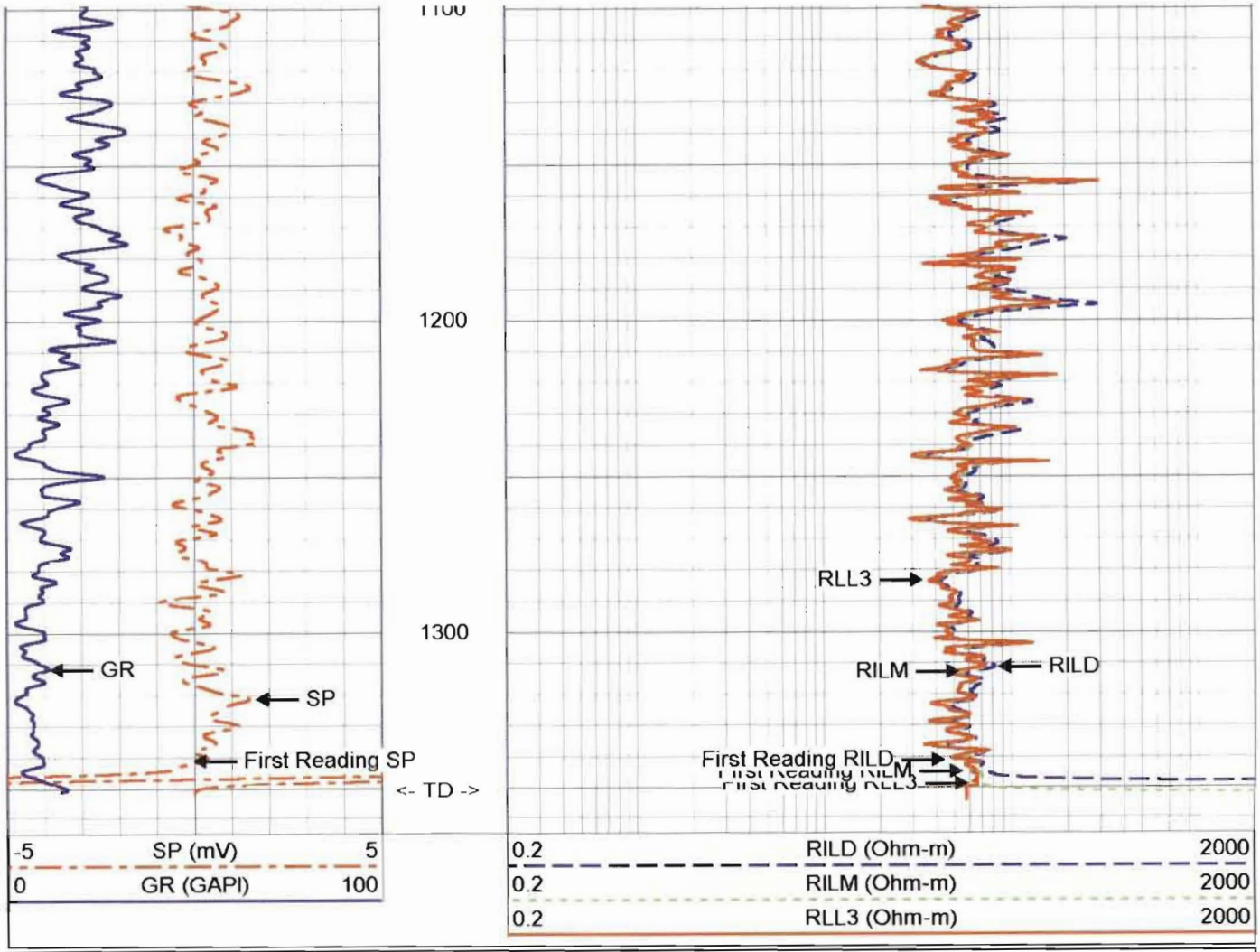


MV Geophysical

MAIN PASS

Database File:	rlakeaj1.db
Dataset Pathname:	MAIN
Presentation Format:	DIL-5
Dataset Creation:	Thu Apr 23 11:05:52 2009
Charted by:	Depth in Feet scaled 1:600

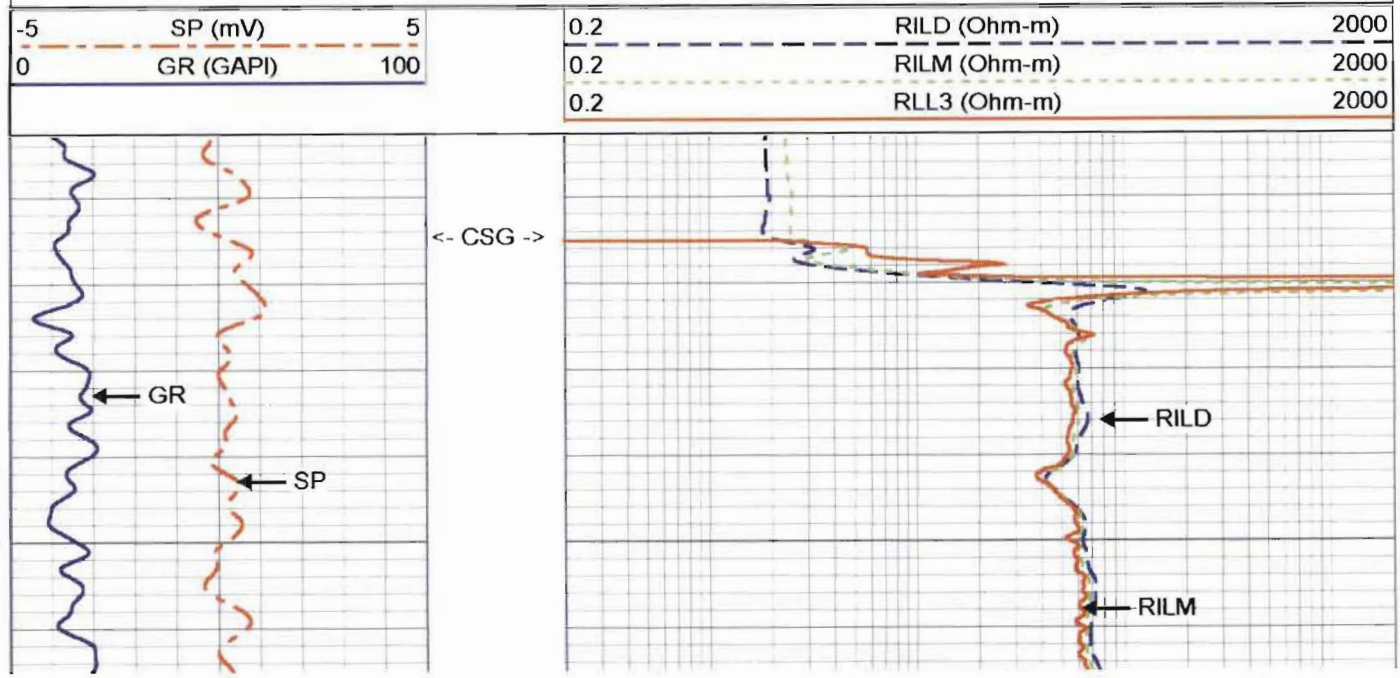


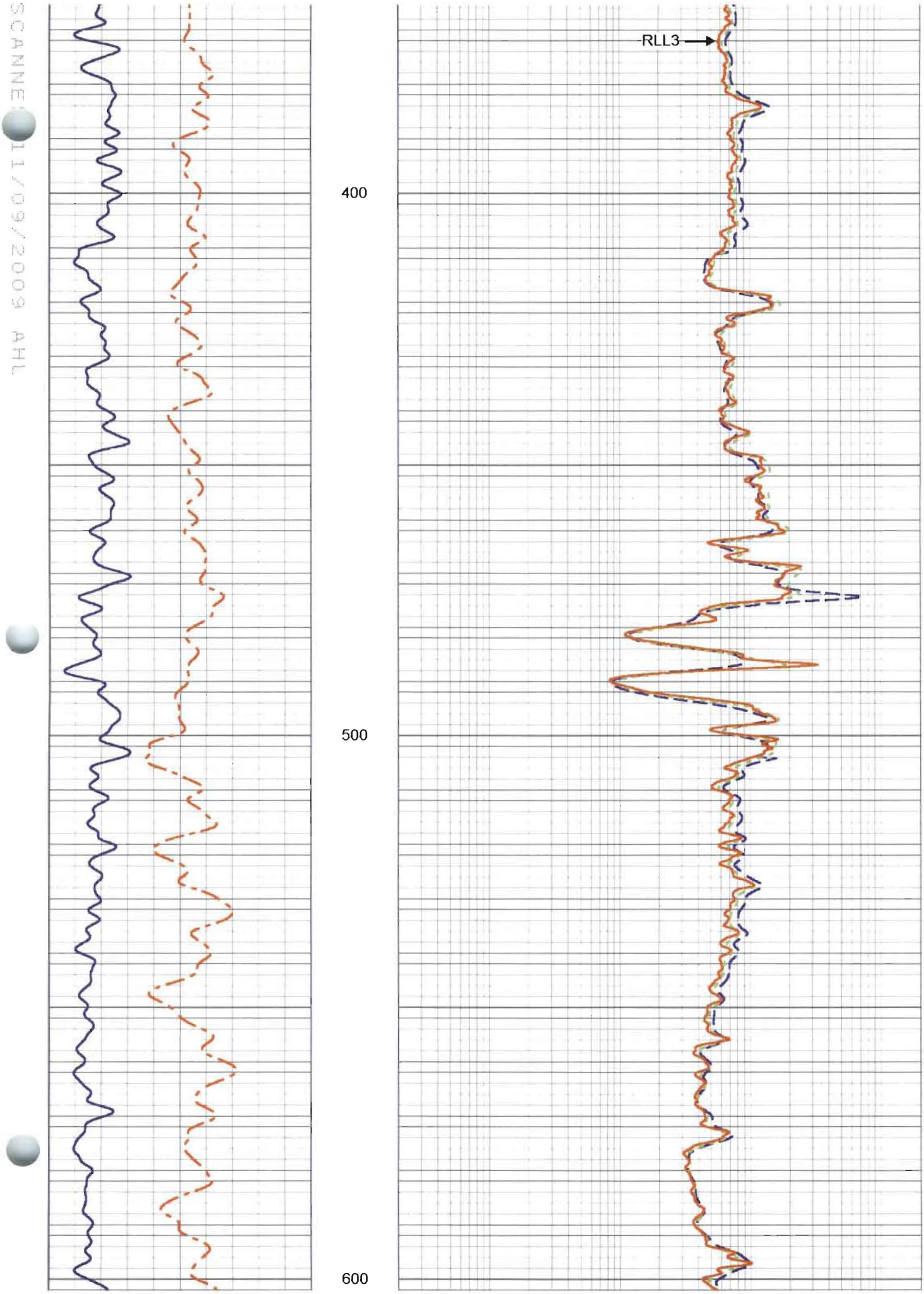


MV Geophysical

MAIN PASS

Database File:	rlakeaj1.db
Dataset Pathname:	MAIN
Presentation Format:	DIL-5
Dataset Creation:	Thu Apr 23 11:05:52 2009
Charted by:	Depth in Feet scaled 1:240

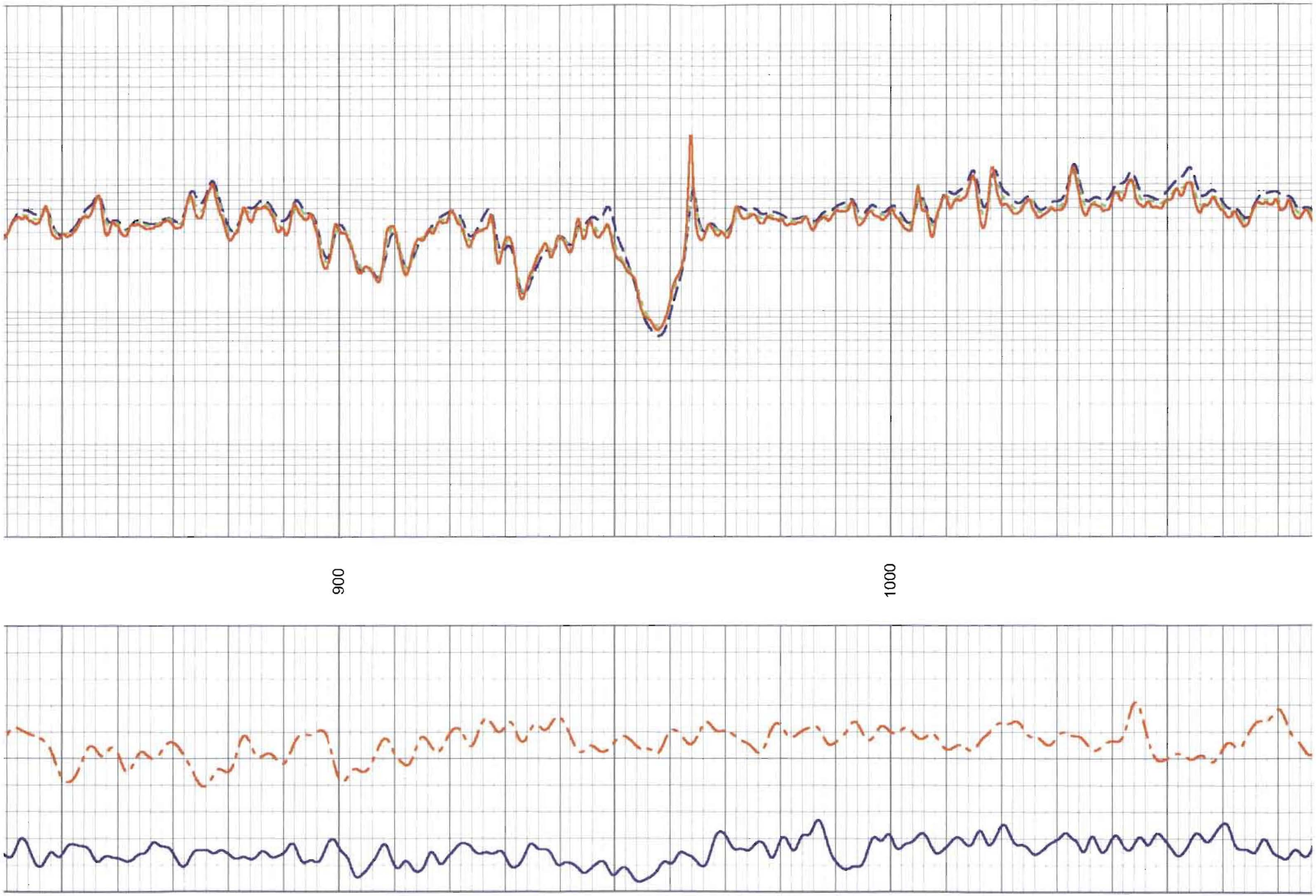


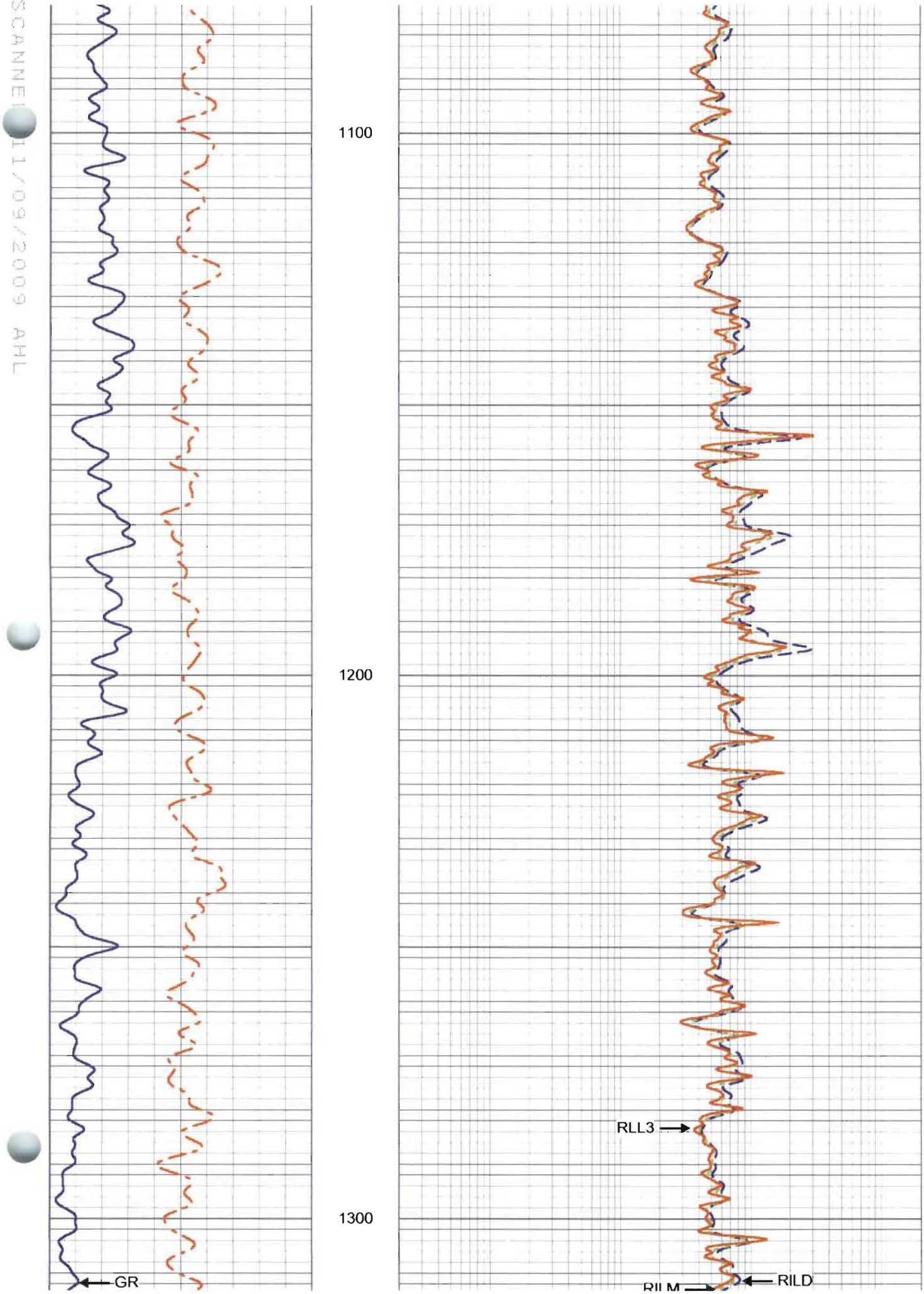

SCANNED 11/09/2009 AHL
RLL3
400
500
600

SCANNED 11/09/2009 AHL

700

800


900
1000
SCANNE
11/09/2009 AHL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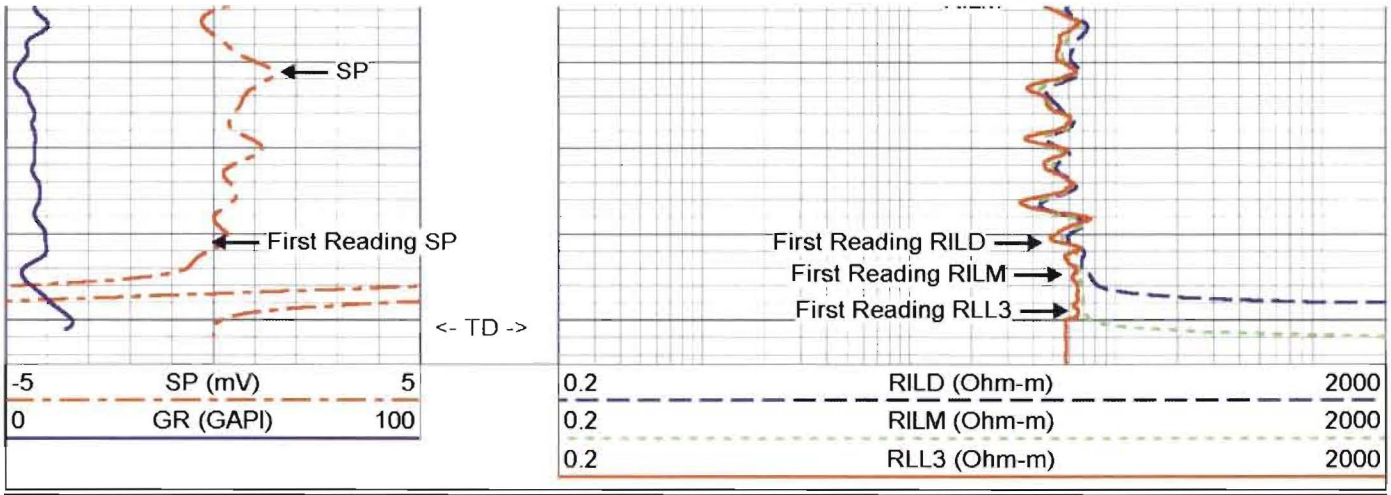
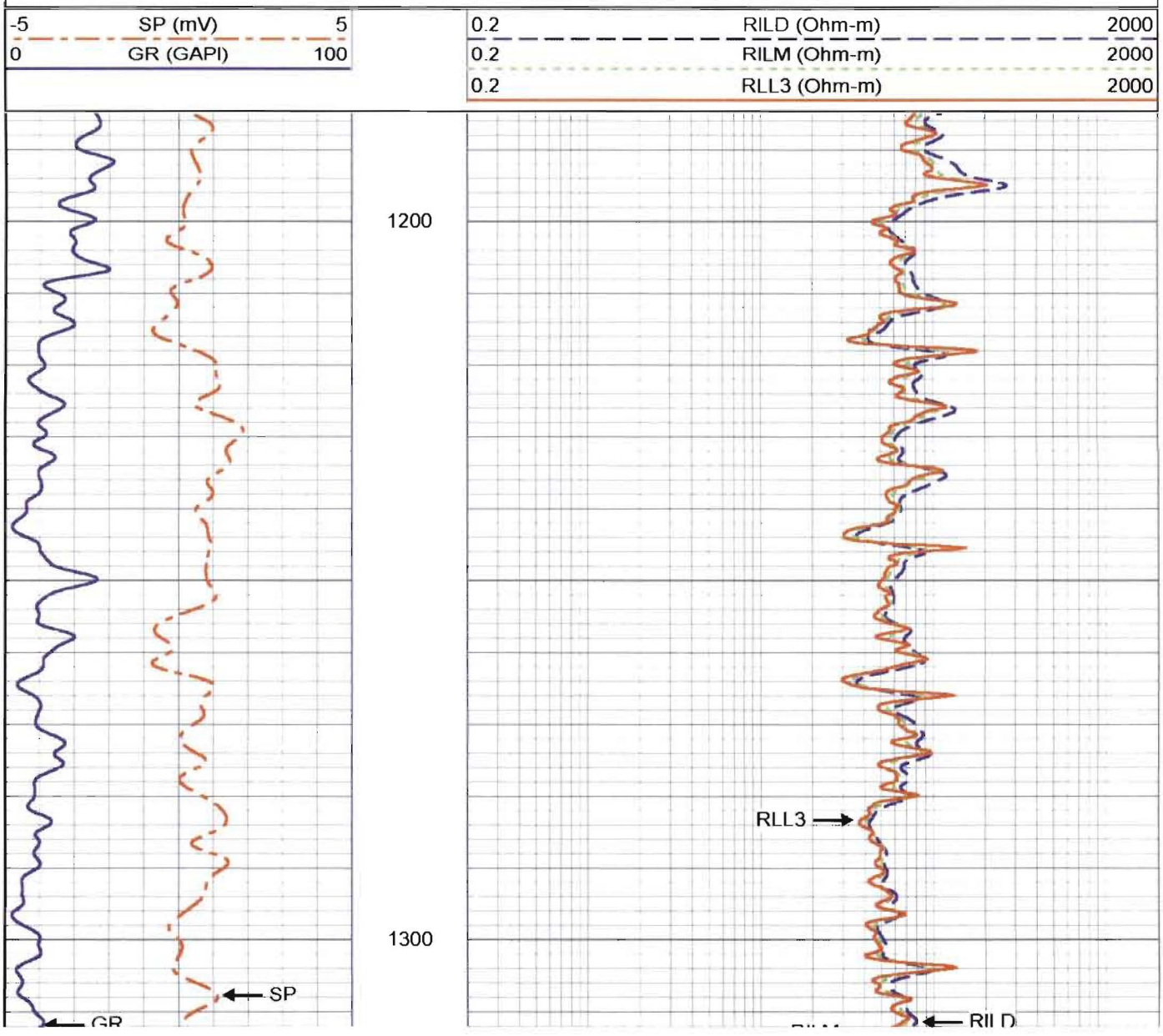
1100
1200
1300
GR
RLL3
RILD

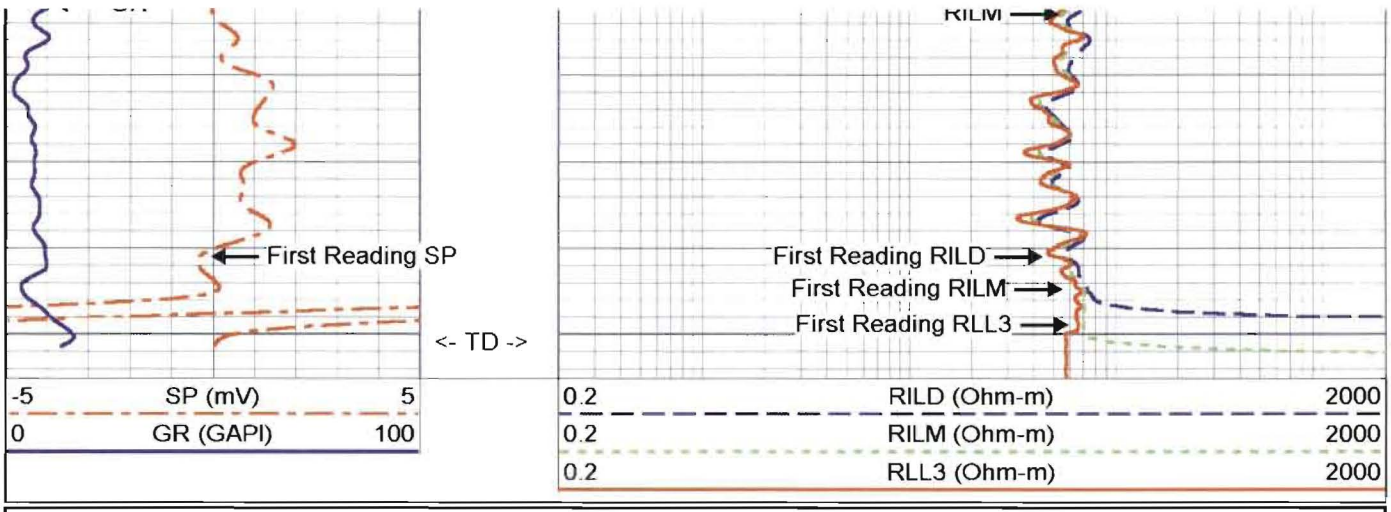


MV Geophysical

REPEAT SECTION

Database File:	rlakeaj1.db
Dataset Pathname:	REPEAT
Presentation Format:	DIL-5
Dataset Creation:	Thu Apr 23 10:34:40 2009
Charted by:	Depth in Feet scaled 1:240





Dual Induction Calibration Report

Serial-Model:	5390-R
Surface Cal Performed:	Thu Nov 15 11:21:40 2007
Downhole Cal Performed:	Wed Mar 15 11:08:57 2006
After Survey Verification Performed:	Thu Nov 15 11:21:50 2007

Surface Calibration

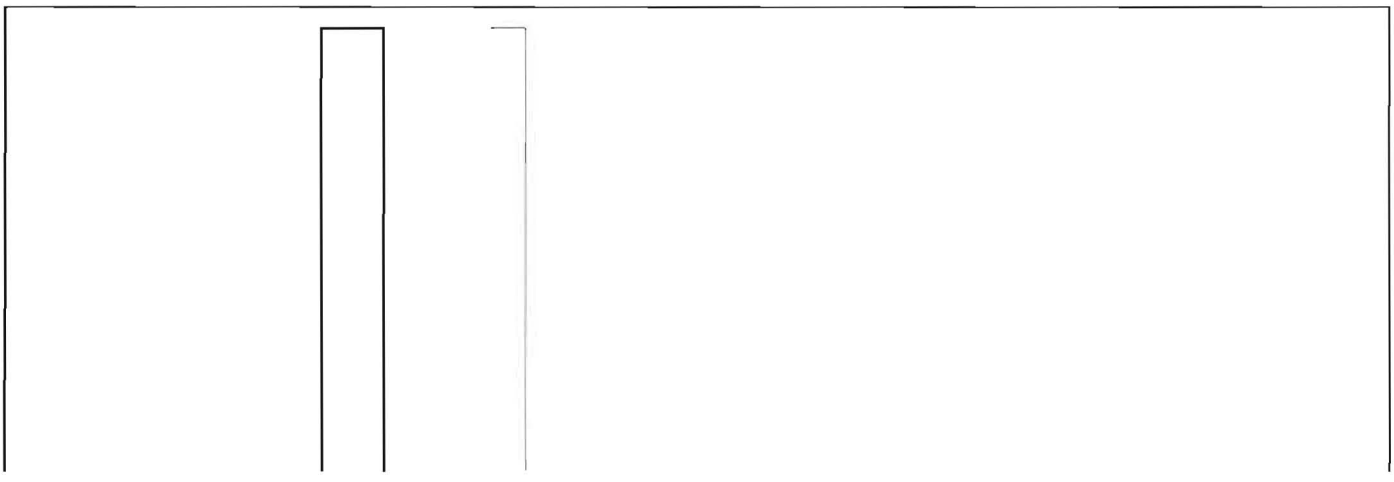
	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.050	0.646	V	0.000	400.000	mmho-m	671.771	-33.646
Medium	0.001	0.732	V	0.000	464.000	mmho-m	634.710	-0.492
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.641	V	0.000	400.000	mmho-m	634.996	-7.104
Medium	-0.009	0.738	V	0.000	464.000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

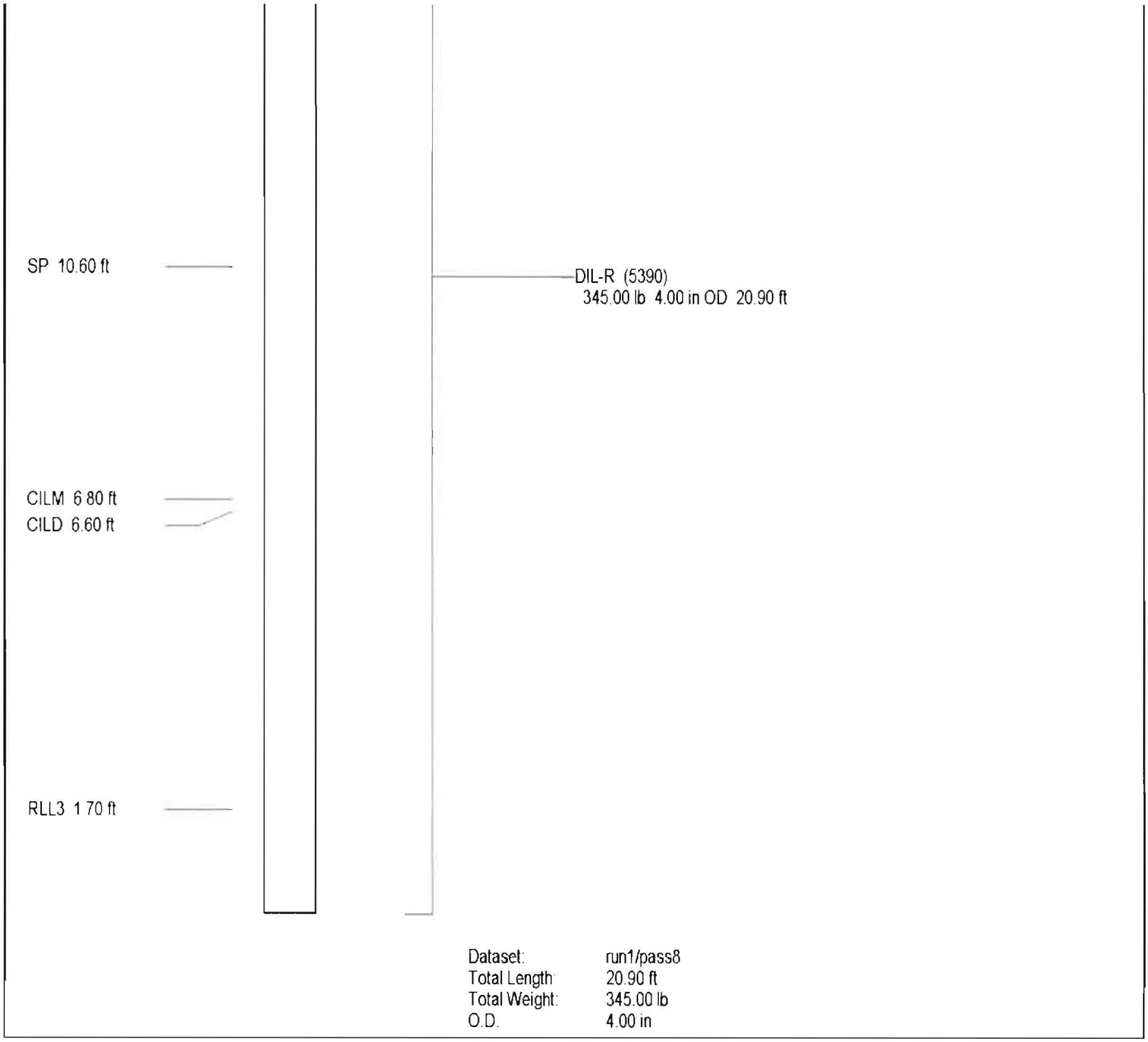
Downhole Calibration

	Readings			References			Results	
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	-26.499	398.282	mmho-m	-26.130	397.036	mmho-m	0.996	0.268
Medium	-5.803	469.733	mmho-m	-6.353	467.967	mmho-m	0.997	-0.565
Shallow	2.502	0.010	V	494.500	2.000	Ohm-m	197.599	0.047

After Survey Verification

	Readings			Targets			Results	
Internal:	Zero	Cal		Zero	Cal		m'	b'
Deep	-26.151	398.470	mmho-m	-26.499	398.282	mmho-m	0.996	0.268
Medium	-5.737	470.303	mmho-m	-5.803	469.733	mmho-m	0.997	-0.565
Shallow	567.058	128.961	Ohm-m	494.500	2.000	Ohm-m	1.124	-142.975





MV Geophysical

FLOWMETER LOG

Company Rowe Well Drilling Co.
Well Lake Ajay LFA MW
Field Narcoossee
County Osceola
State/Prv Florida

Company Rowe Well Drilling Co.
Well Lake Ajay LFA MW
Field Narcoossee
County Osceola State/Prv . Florida

Location
Ajay Lake Lower Floridan Aquifer
Monitor Well Project
Parsons Brinckerhoff

Other Services
XY/GR,DIL
FCT,FLO

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

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

Date	28-APR-2009		
Run Number	ONE-b		
Depth Driller	1351'		
Depth Logger	1351'		
Bottom Logged Interval	1351'		
Top Log Interval	SURFACE		
Open Hole Size	9.875"		
Type Fluid	H2O		
Density / Viscosity	NA/NA		
Max. Recorded Temp.	See FCT log		
Estimated Cement Top	NA		
Time Well Ready	13:00 4/28/2009		
Time Logger on Bottom	13:00 4/28/2009		
Equipment Number	MVGS-1		
Location	Ft. Myers		
Recorded By	S.Miller/C.Miller		T.Toy (RWD)
Witnessed By	G.Schlutermann (PB)	Mark (PB)	D.Williamson (RWD)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	9.875"	315'	1350'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	16"	0.375" WT	SURFACE	315'
Prot. String				
Production String				
Liner				rdcsedew.db
Invoice No.	2009058	P.O. #:	Job No.:	* FIELD PRINT *

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Comments

STATIC and DYNAMIC down passes were made at 50 fpm.

ZERO (0x) stations performed (lack of disposal).

Q =~1000 gpm

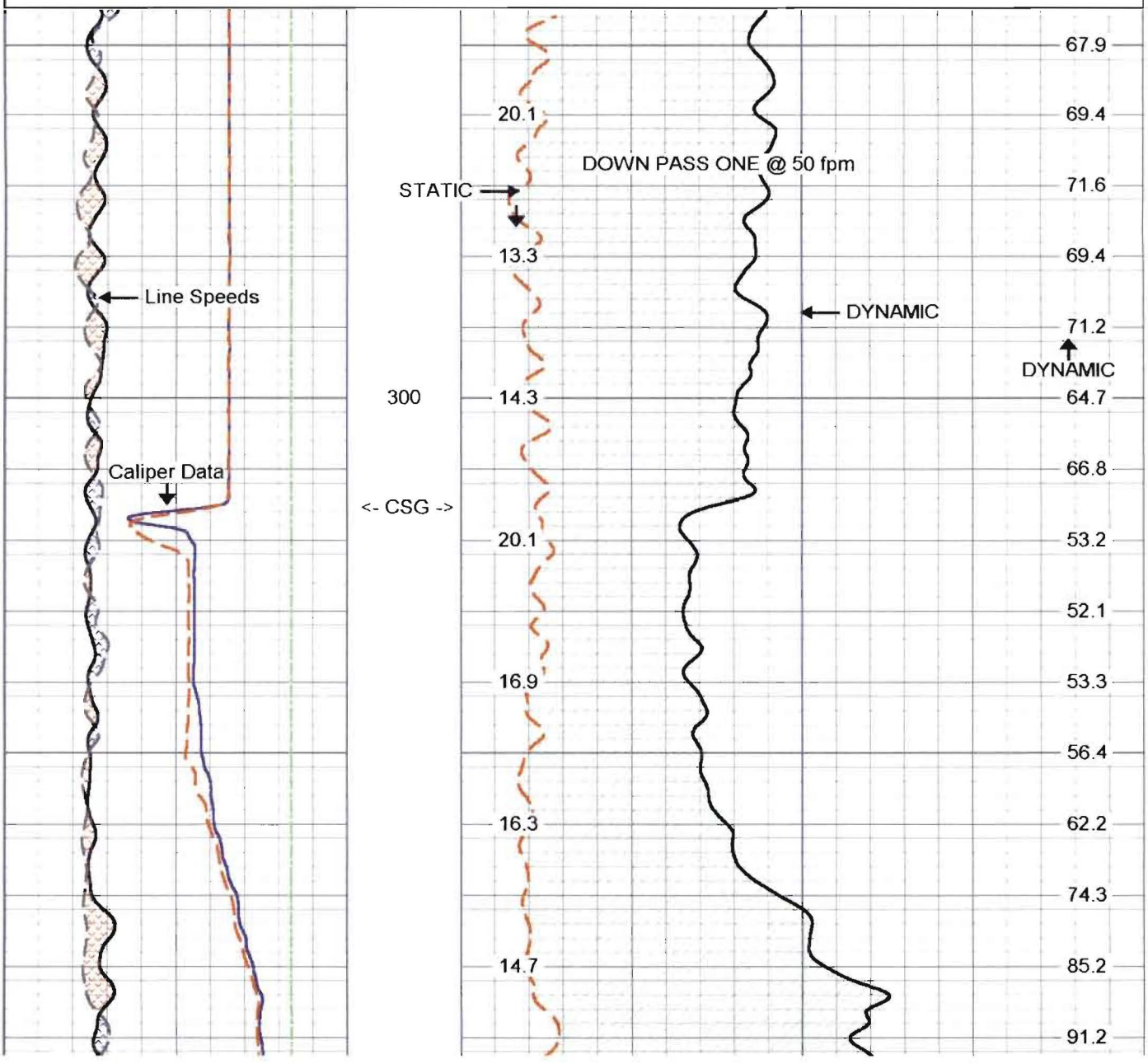
MV Geophysical

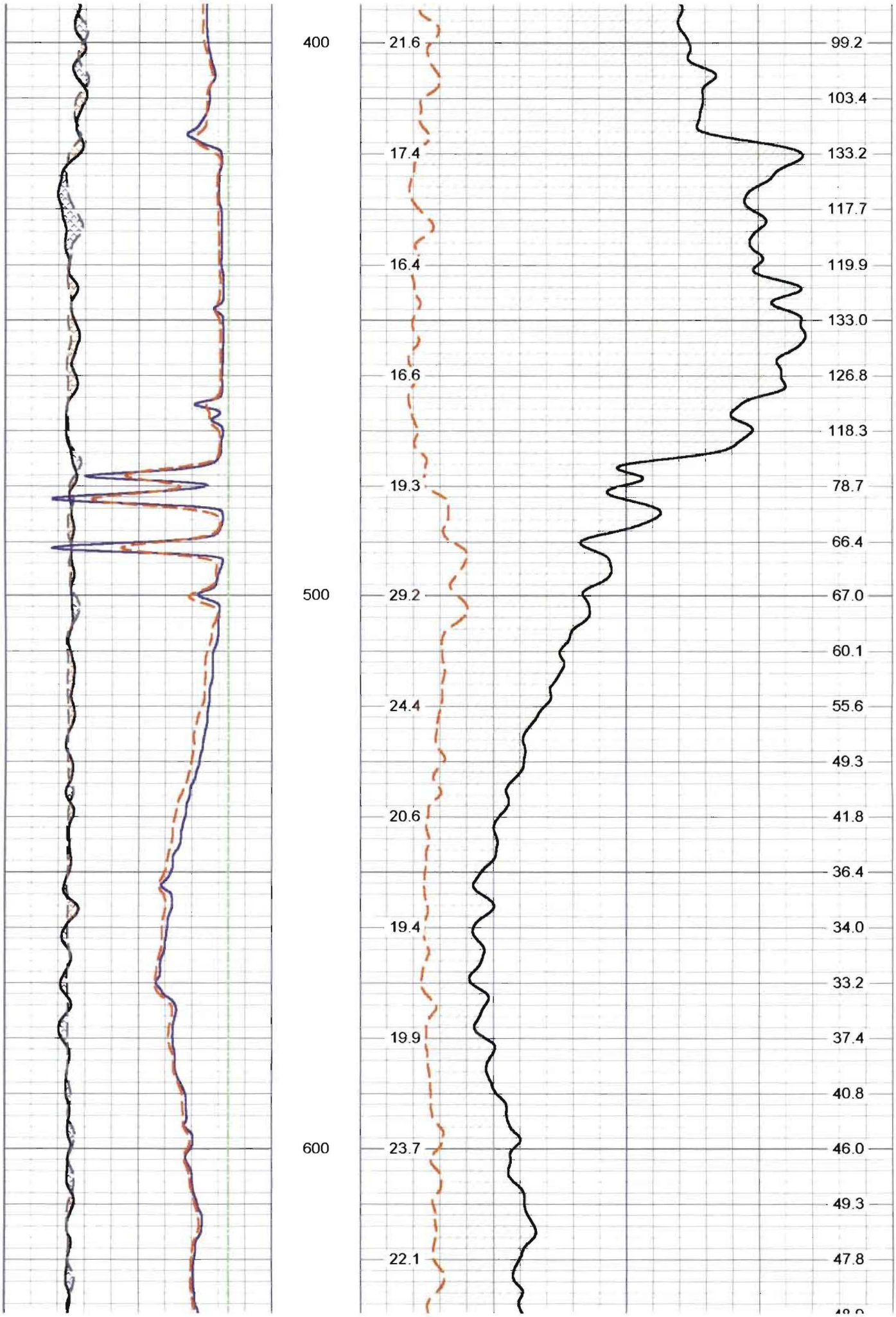
S/D DOWN @ 50 fpm

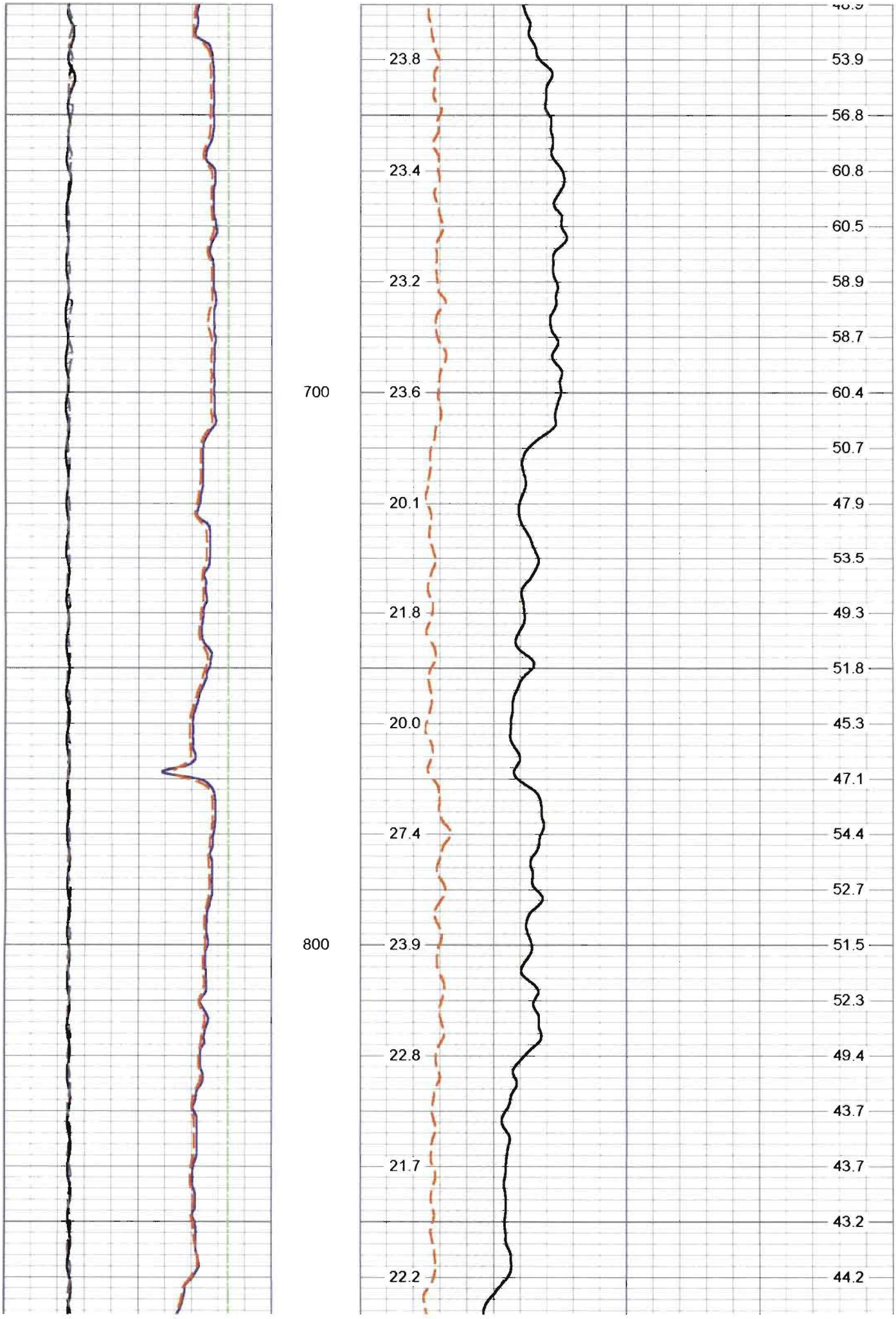
Database File:	rlakeaj1.db
Dataset Pathname:	run2/sd50
Presentation Format:	QAJAY1
Dataset Creation:	Tue Apr 28 13:55:52 2009
Charted by:	Depth in Feet scaled 1:240

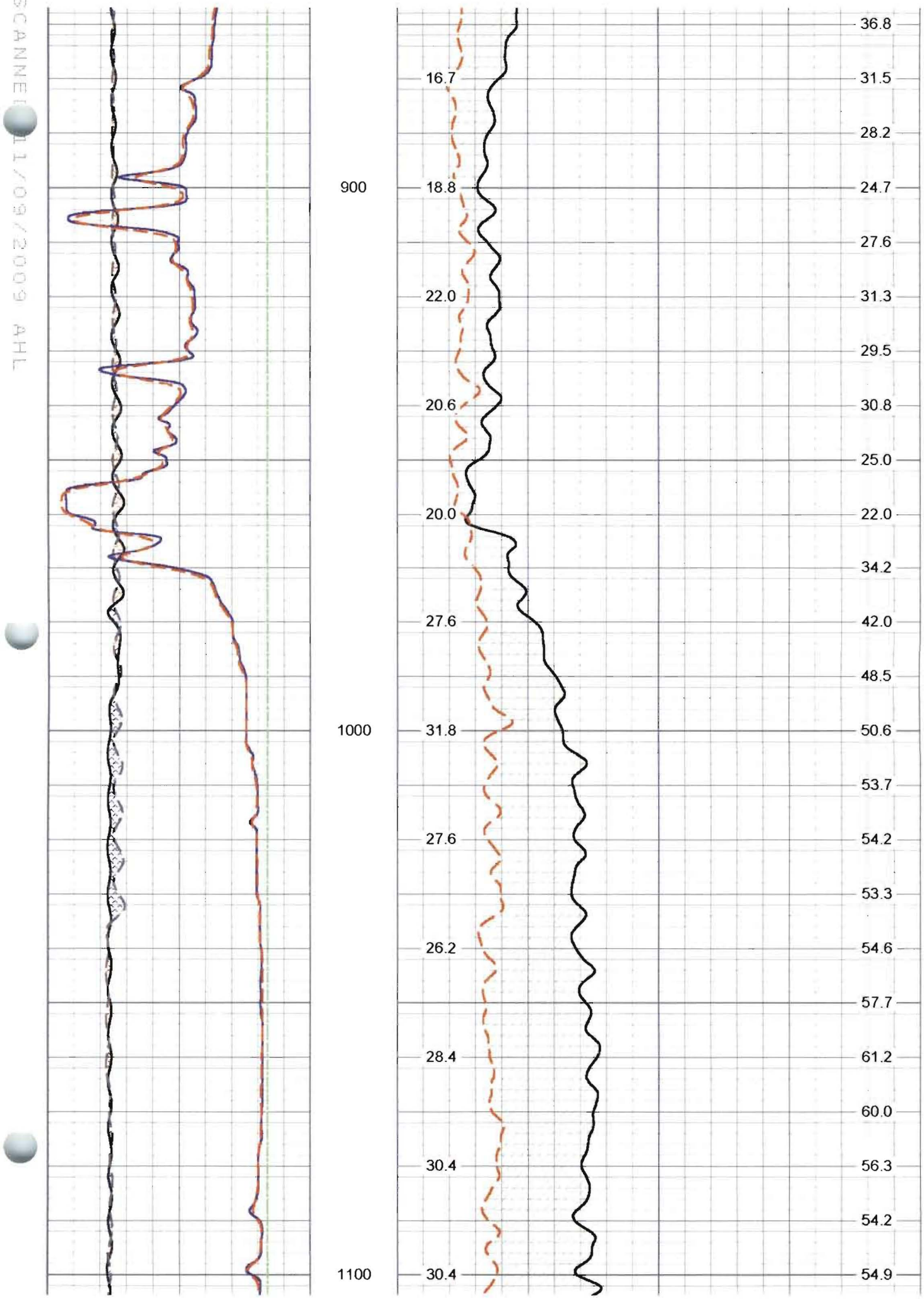
0 DYNAMIC LINE SPEED (ft/min)		00
0 STATIC LINE SPEED (ft/min)		200
35	X-CALIPER (in)	5
35	Y CALIPER (in)	5
35	BIT SIZE (in)	5

0	DYNAMIC (cps)	160
0	STATIC (cps)	160








SCANNED 11/09/2006 AHL
900
1000
1100
16.7
18.8
22.0
20.6
20.0
27.6
31.8
27.6
26.2
28.4
30.4
30.4
36.8
31.5
28.2
24.7
27.6
31.3
29.5
30.8
25.0
22.0
34.2
42.0
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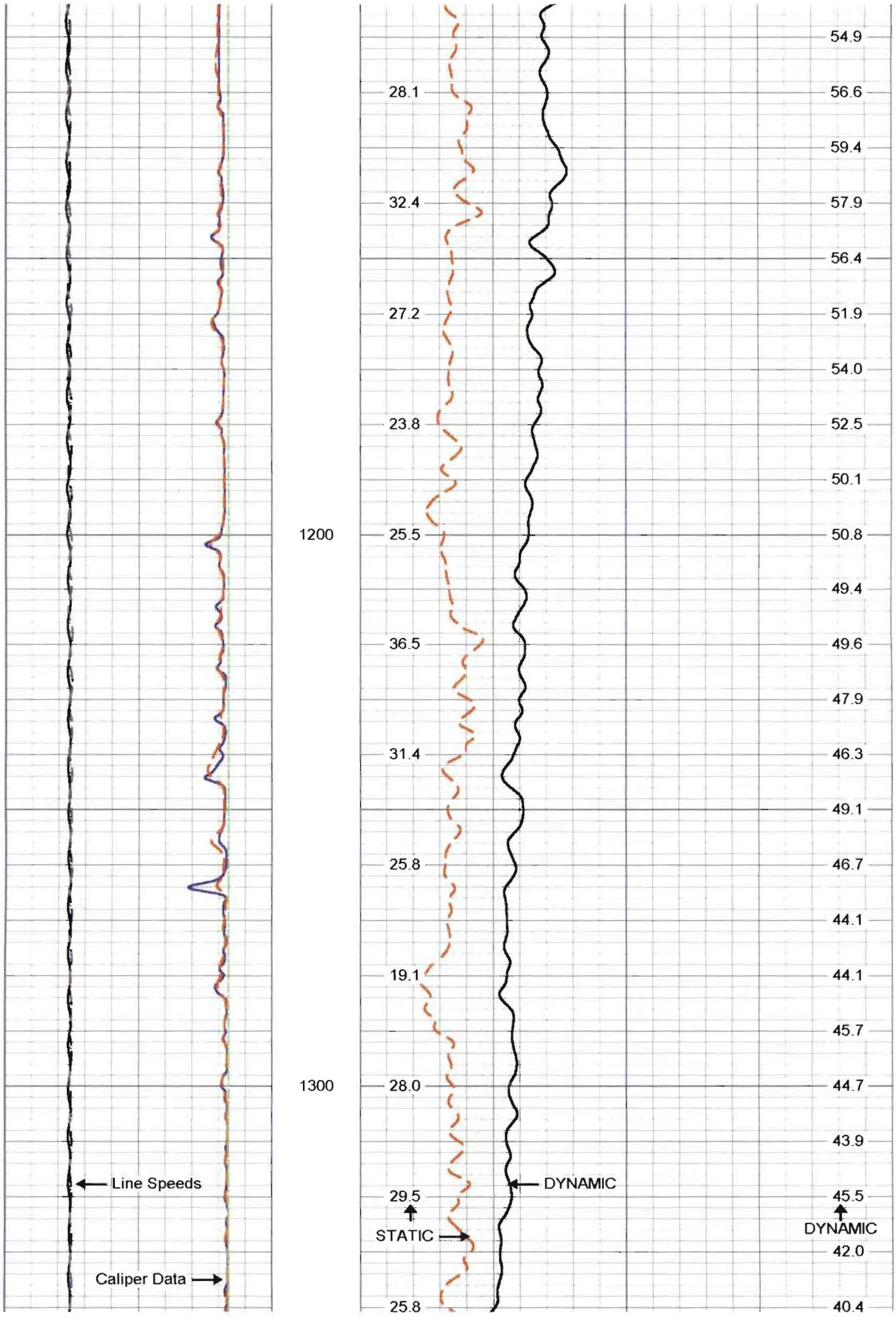
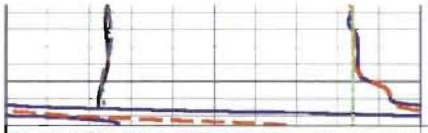
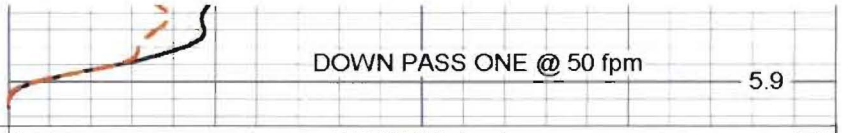
61.2
60.0
56.3
54.2
54.9





<- TD ->



0	DYNAMIC LINE SPEED (ft/min)	00
0	STATIC LINE SPEED (ft/min)	200
35	X-CALIPER (in)	5
35	Y CALIPER (in)	5
35	BIT SIZE (in)	5

0	DYNAMIC (cps)	160
0	STATIC (cps)	160

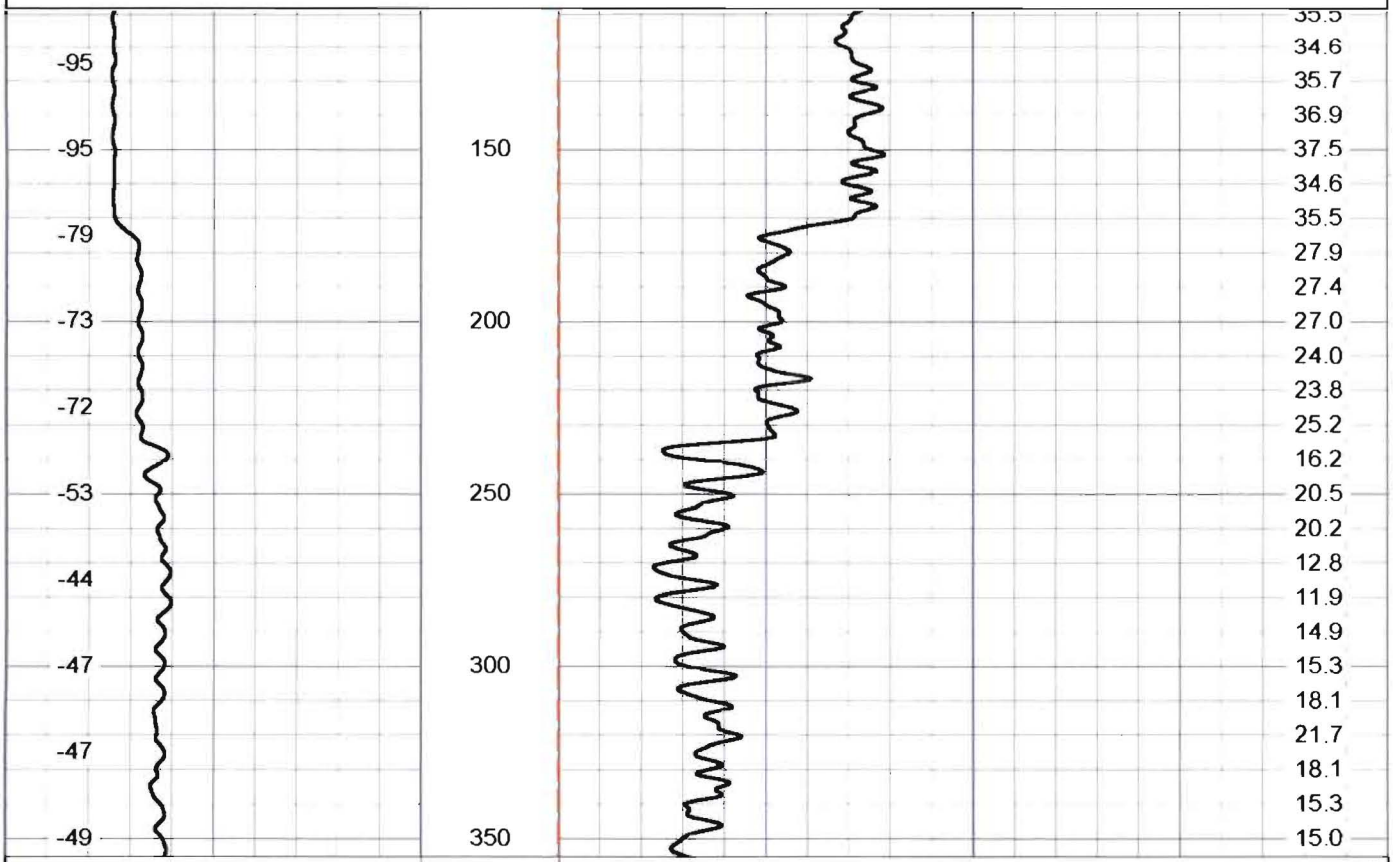
MV Geophysical

Q Calibration Down

Database File:	rlakeaj1.db
Dataset Pathname:	run2/pass1
Presentation Format:	FLOW
Dataset Creation:	Tue Apr 28 09:23:14 2009 by Log VER_5.3
Charted by:	Depth in Feet scaled 1:600

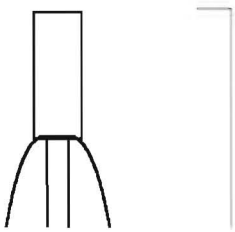
-200	LINE SPEED (ft/min)	200
30	BOREID (in)	100

0	CCW Spin (cps)	100
0	CW Spin (cps)	100



-200	LINE SPEED (ft/min)	200
30	BOREID (in)	100

0	CCW Spin (cps)	100
0	CW Spin (cps)	100



CENT-5FOOTSB (5FTSB)
50.00 lb 1.69 in OD 5.00 ft

FLOW-LARGE (65)
35.00 lb 3.75 in OD 4.80 ft

FLOWP 0.00 ft
FLOWN 0.00 ft

Dataset:	run1/pass11
Total Length:	9.80 ft
Total Weight:	85.00 lb
O.D.	3.75 in

MV Geophysical

FLUID CONDUCTIVITY TEMPERATURE LOG

Company Rowe Well Drilling Co.
Well Lake Ajay LFA MW
Field Narcoossee
County Osceola State/Prv Florida

Company Rowe Well Drilling Co.
Well Lake Ajay LFA MW
Field Narcoossee
County Osceola
State/Prv . Florida

Location
Ajay Lake Lower Floridan Aquifer
Monitor Well Project
Parsons Brinckerhoff

Other Services
XY/GR,DIL
FCT,FLO

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

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

Date	23-APR-2009	28-APR-2009	
Run Number	ONE-a	ONE-b	
Depth Driller	1351'		
Depth Logger	1351'		
Bottom Logged Interval	1351'		
Top Log Interval	SURFACE		
Open Hole Size	9.875"		
Type Fluid	H2O		
Density / Viscosity	NA/NA		
Max. Recorded Temp.	See FCT log		
Estimated Cement Top	NA		
Time Well Ready	08:45 4/23/2009	13:00 4/28/2009	
Time Logger on Bottom	10:00 4/23/2009 S	13:00 4/28/2009 D	
Equipment Number	MVGS-1		
Location	Ft. Myers		
Recorded By	S.Miller/C.Miller		T.Toy (RWD)
Witnessed By	G.Schlutermann (PB)	Mark (PB)	D.Williamson (RWD)

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	9.875"	315'	1350'				

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	16"	0.375" WT	SURFACE	315'
Prot. String				
Production String				
Liner				rdcsedew.db
Invoice No.	2009054/058	P.O. #:	Job No.:	* FIELD PRINT *

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Comments

STATIC and DYNAMIC DOWN passes were performed.
Cw=2188 uS/cm @ 81.9 degF (Dynamic Sample). Q =~1,000 gpm.
FLUID RESISTIVITY CALIBRATION REPORT (Performed: 12-APR-09 14:45)

uS/cm	CPS
2023.6	2985.71
4402.1	2702.45
8828.1	2403.14

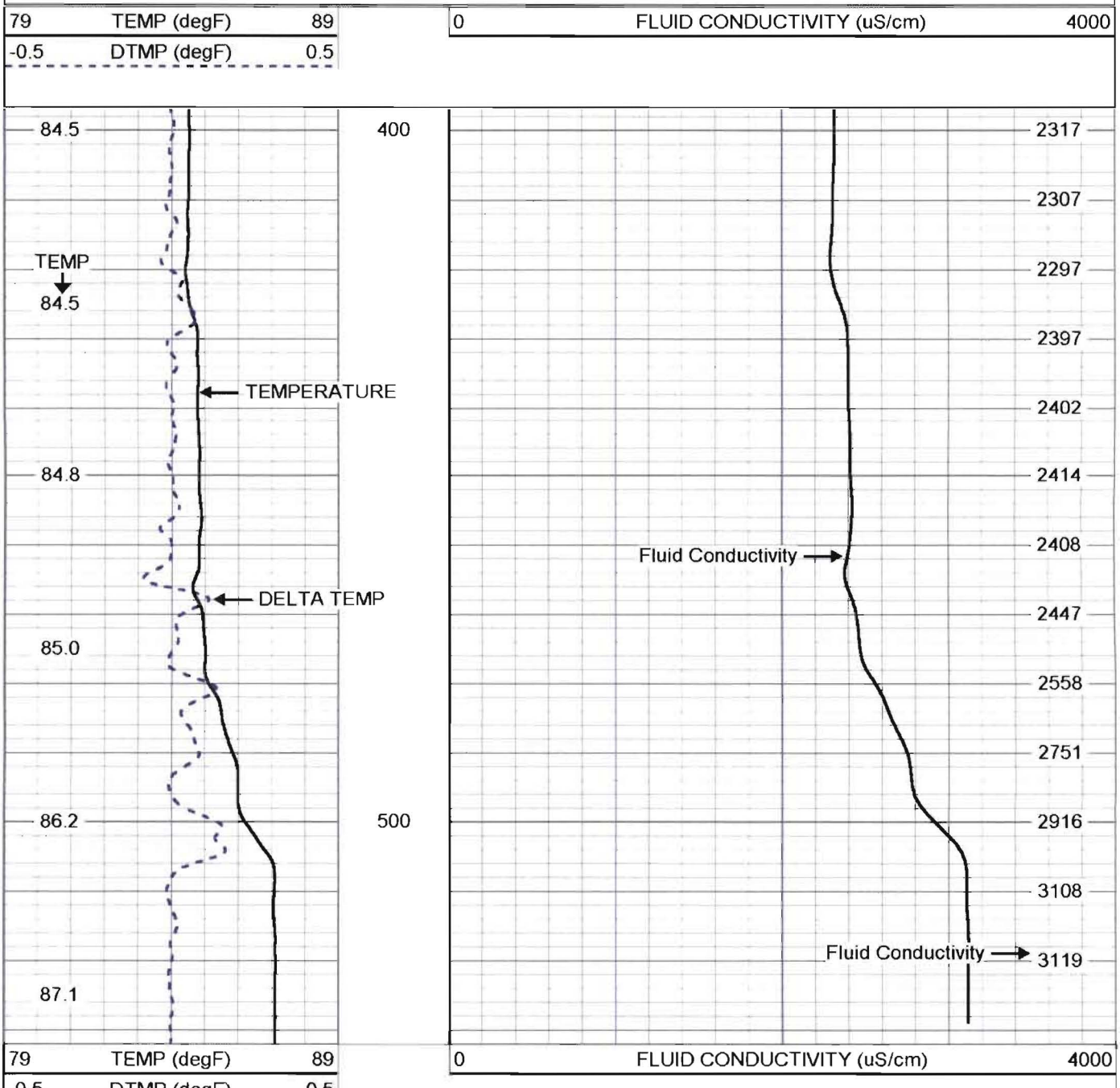
TEMPERATURE CALIBRATION REPORT (Performed: 12-APR-09 14:30)

DEG-F	CPS
38.5	147.851
148.8	2690.21

MV Geophysical

Dynamic FCT Down

Database File: rlakeaj1.db
Dataset Pathname: run2/DFCT2
Presentation Format: FCTLAJ1
Dataset Creation: Tue Apr 28 18:57:16 2009
Charted by: Depth in Feet scaled 1:240



MV Geophysical

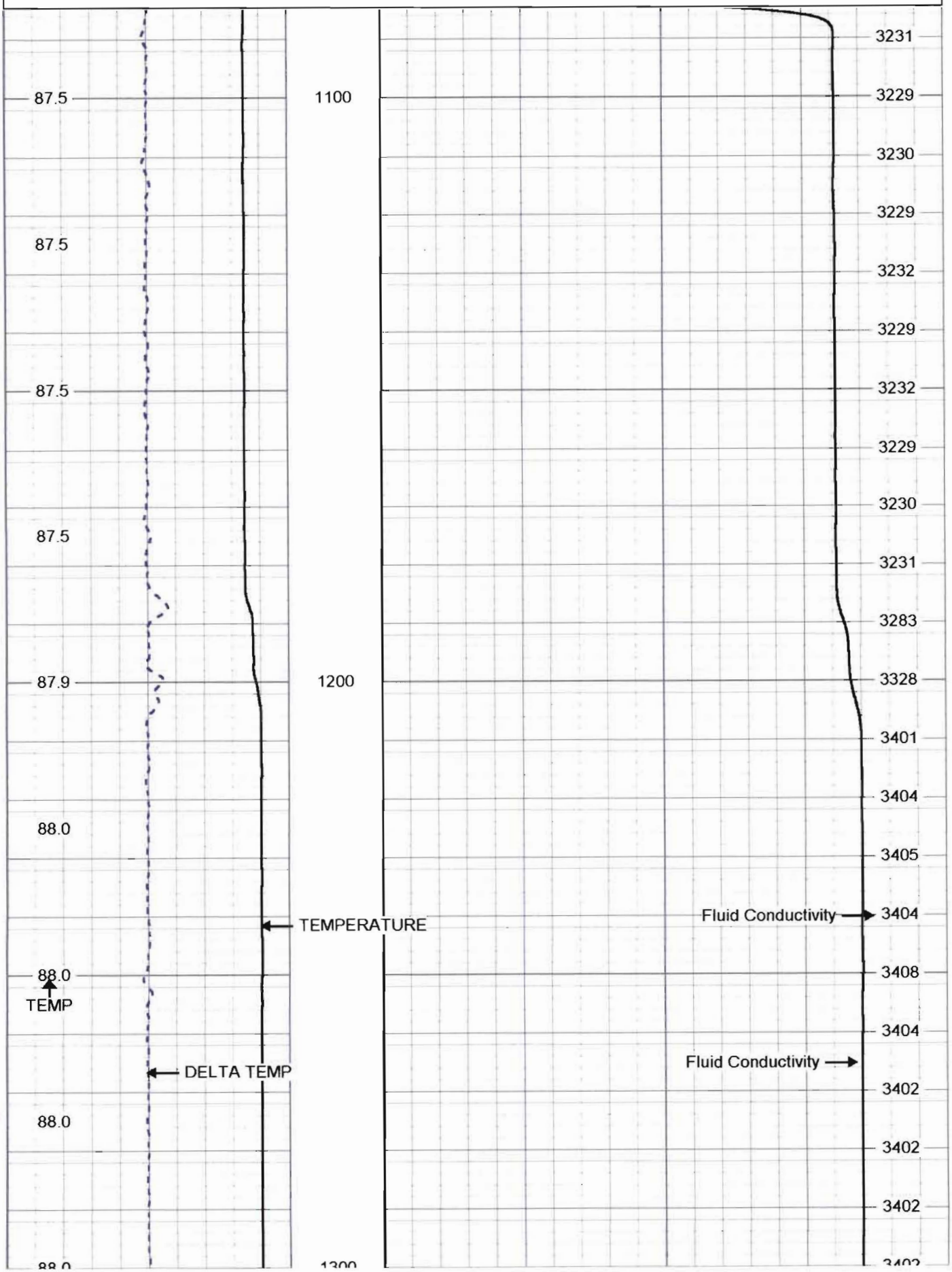
Dynamic FCT Down

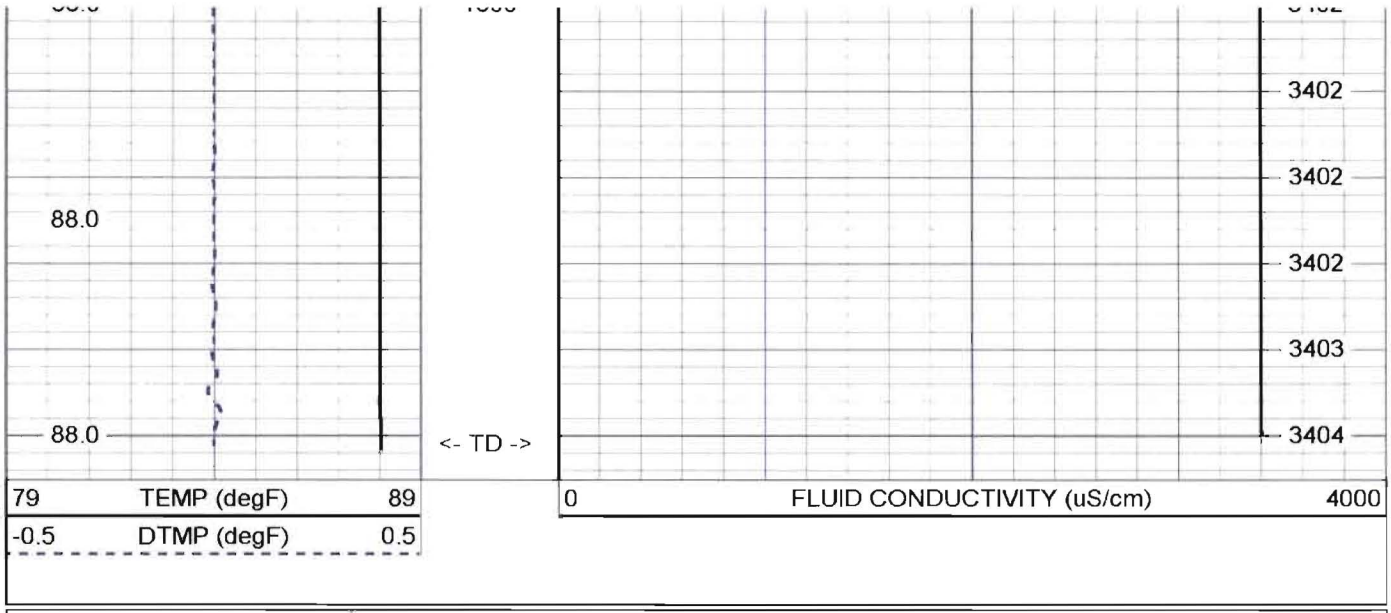
Database File: rlakeaj1.db
Dataset Pathname: run2/DFCT1
Presentation Format: FCTLAJ1

Dataset Creation: Tue Apr 28 19:00:28 2009
Charted by: Depth in Feet scaled 1:240

79	TEMP (degF)	89
-0.5	DTMP (degF)	0.5

0	FLUID CONDUCTIVITY (uS/cm)	4000

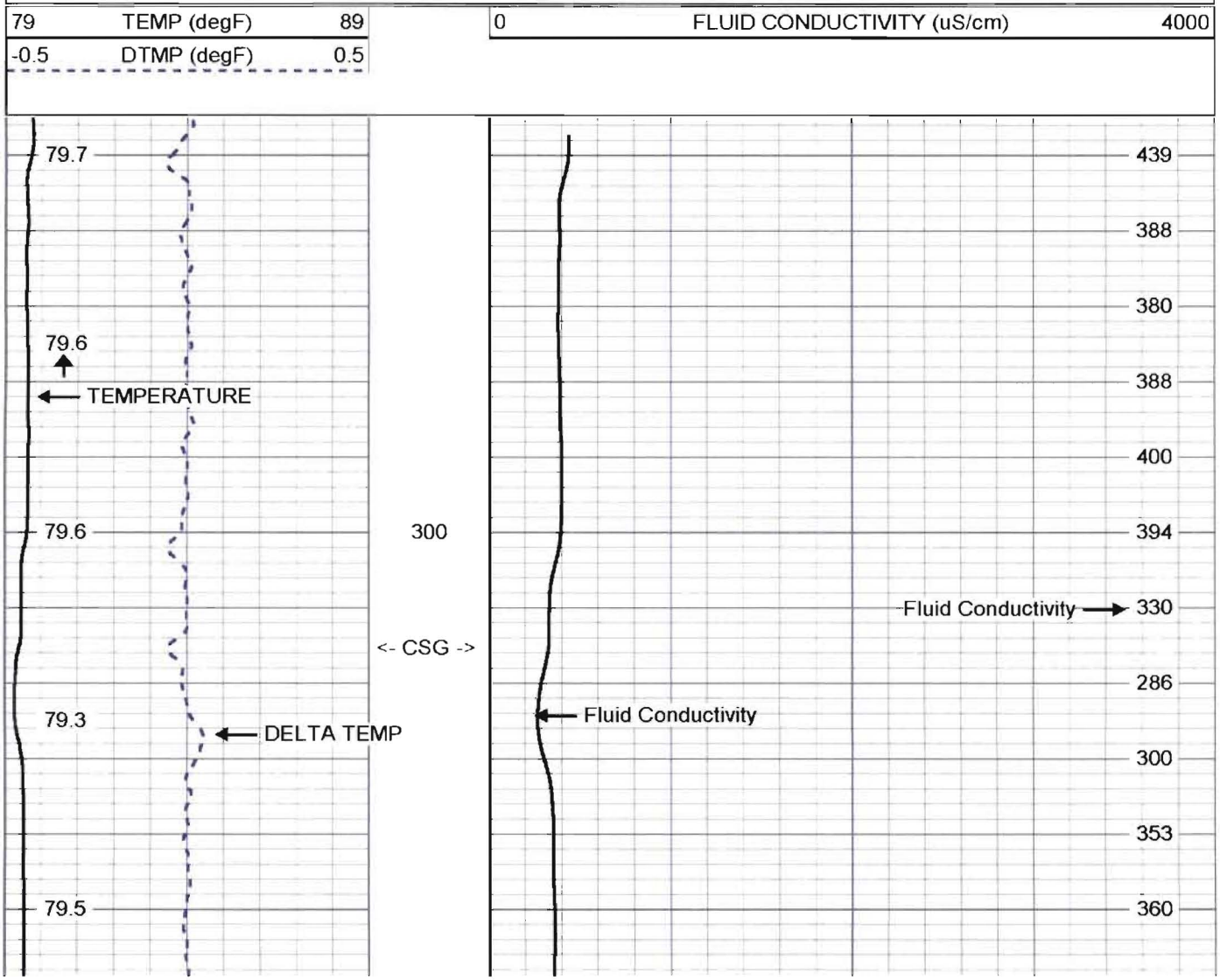


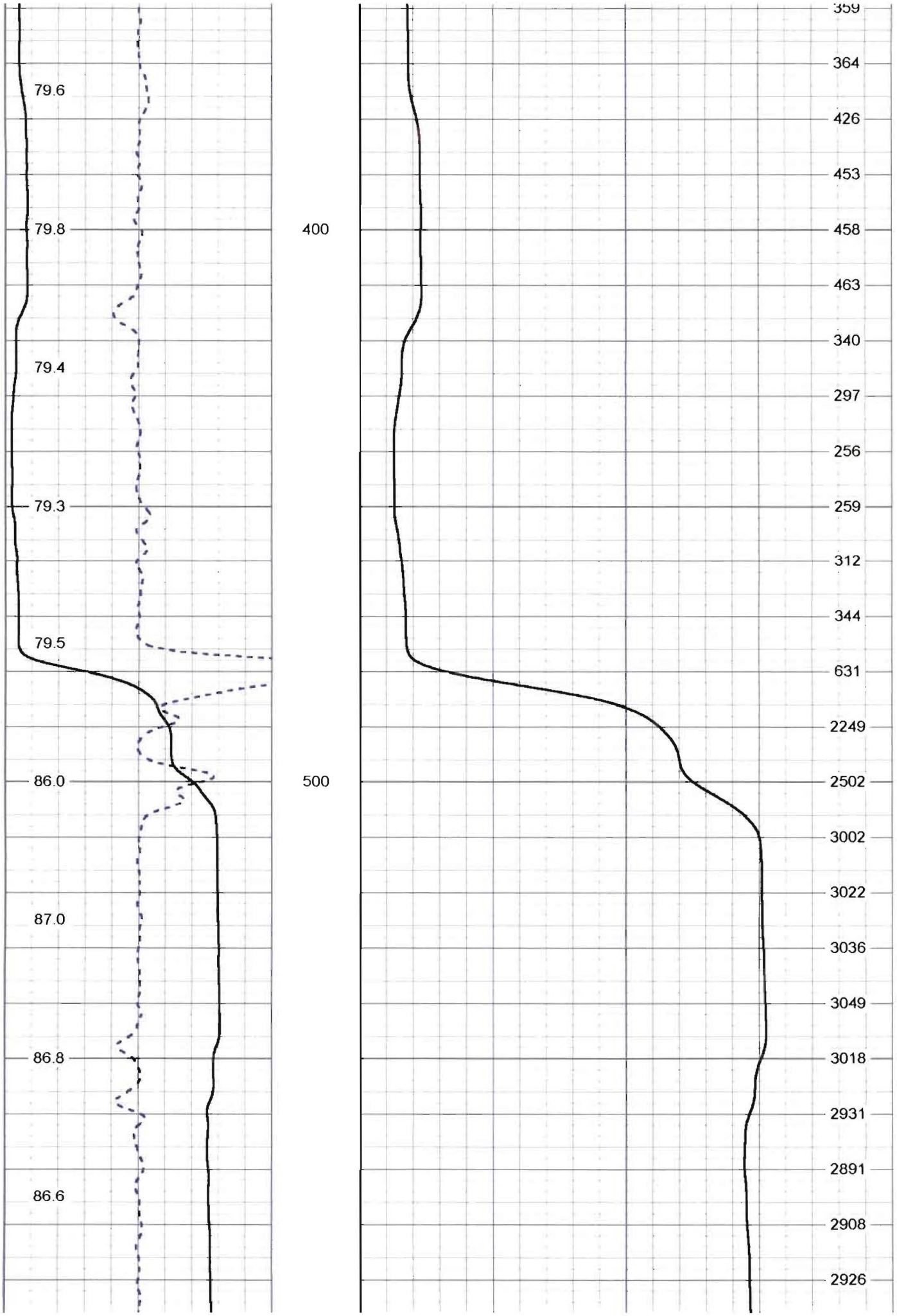


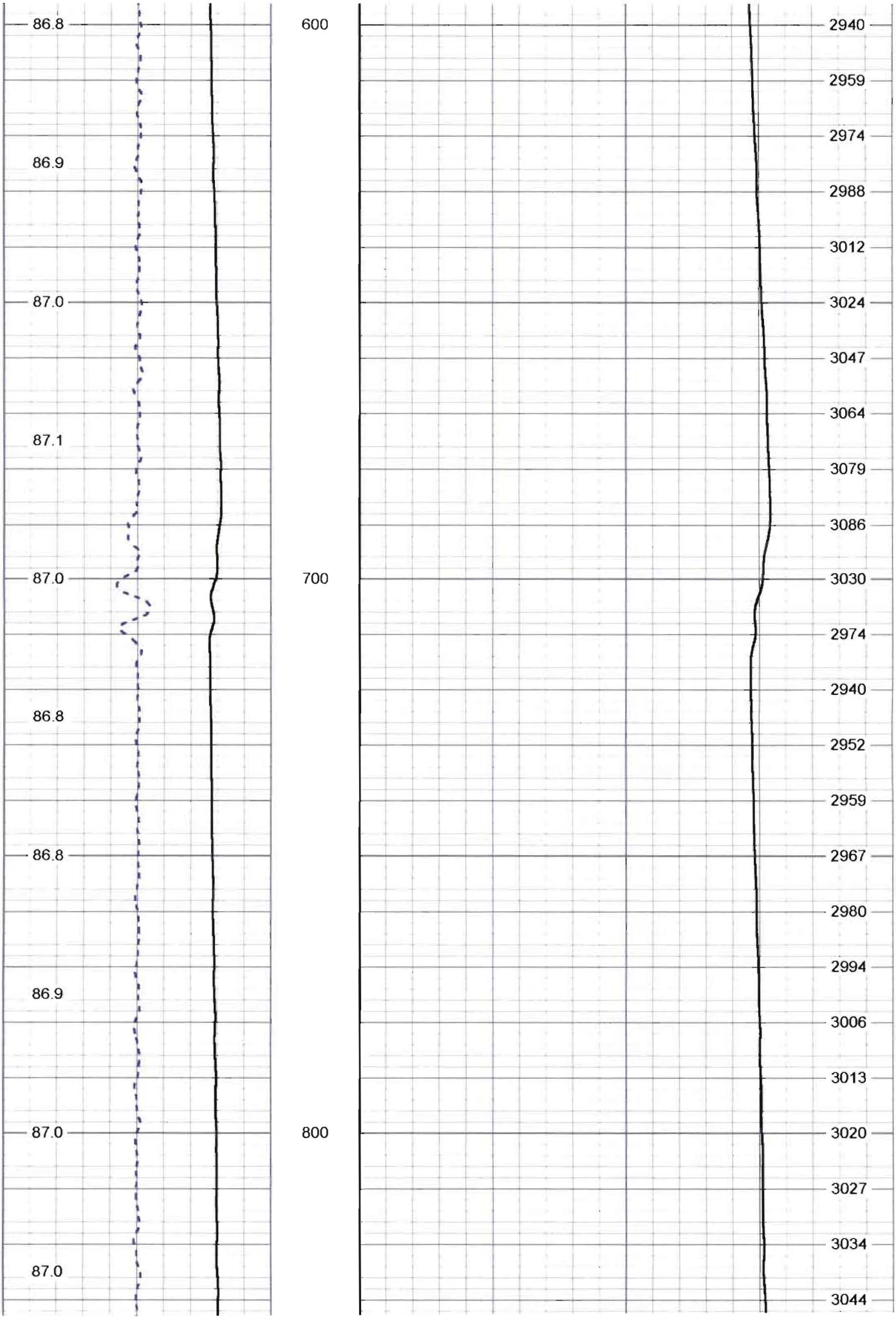
MV Geophysical

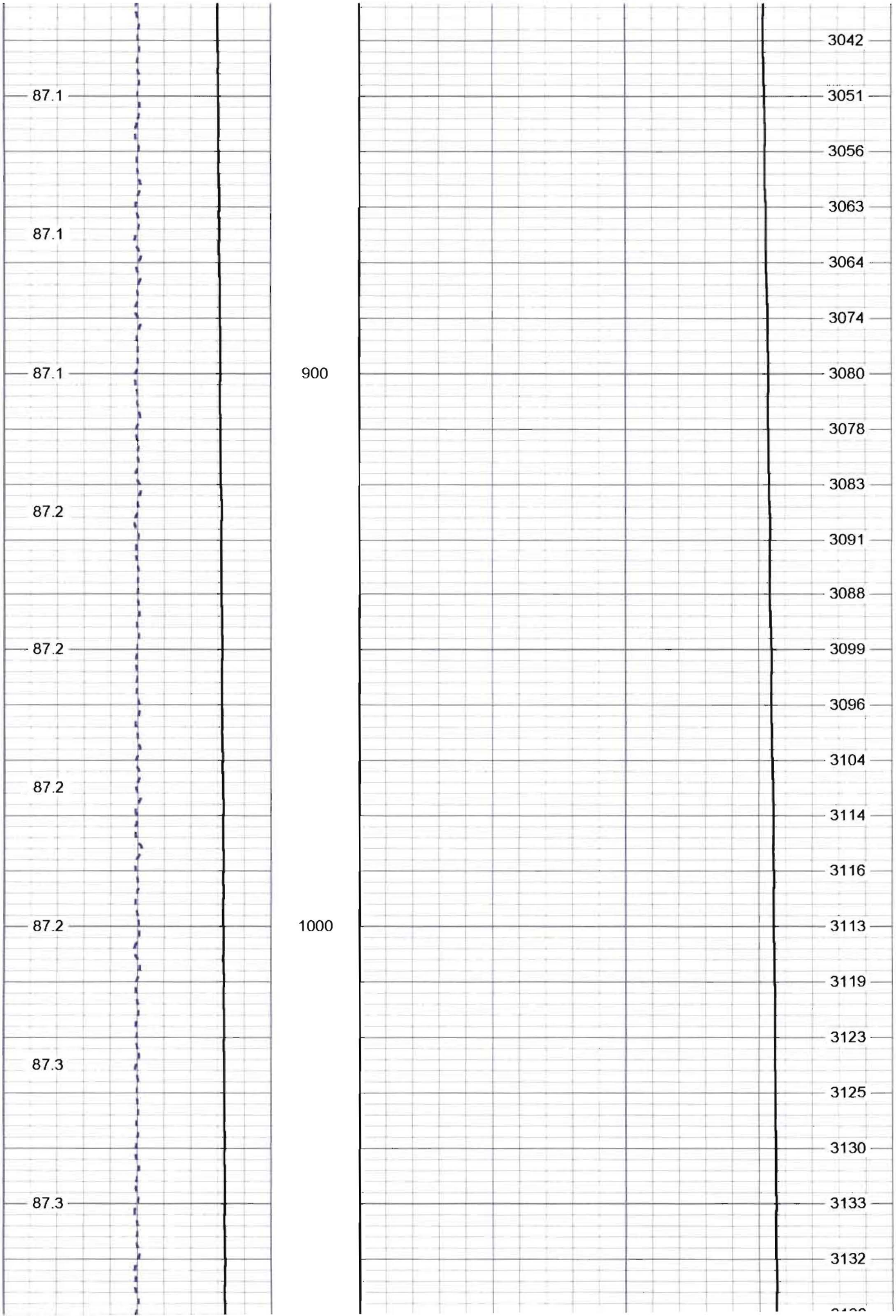
Static FCT Down

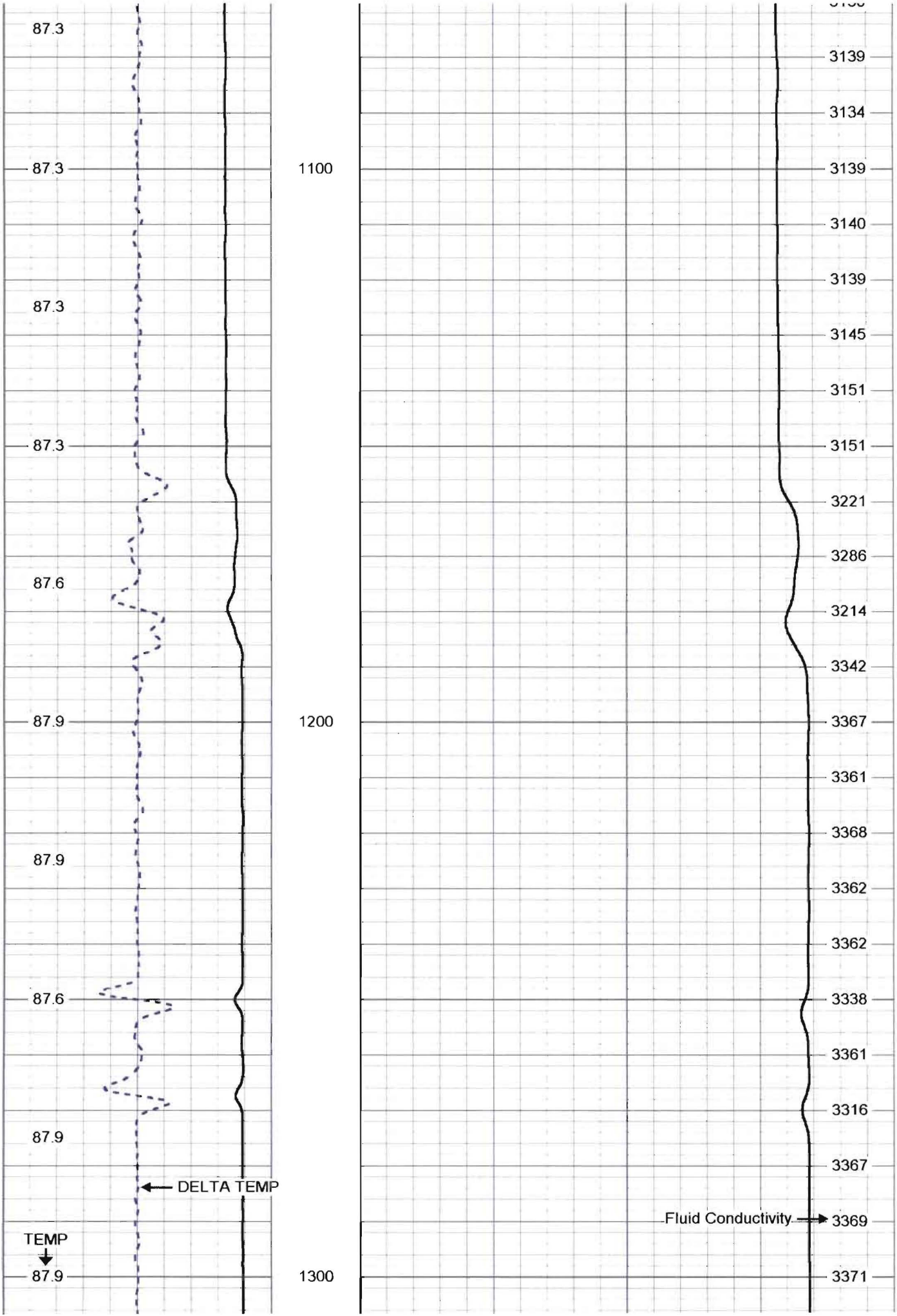
Database File: rlakeaj1.db
Dataset Pathname: run2/SFCT
Presentation Format: FCTLAJ1
Dataset Creation: Tue Apr 28 18:52:29 2009
Charted by: Depth in Feet scaled 1:240

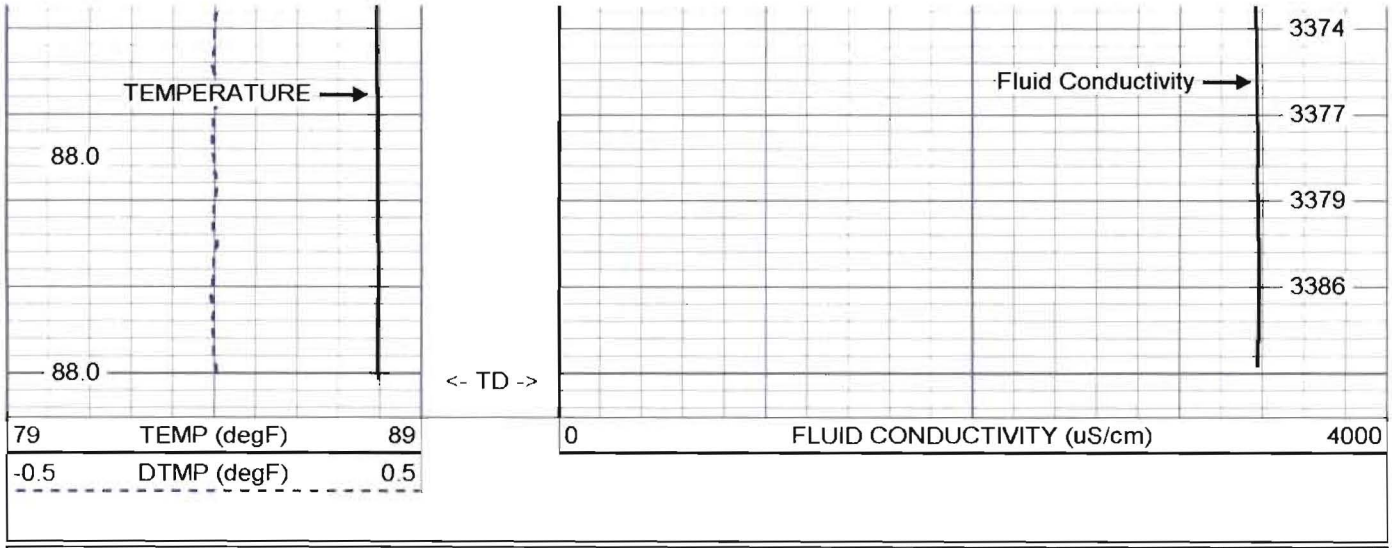


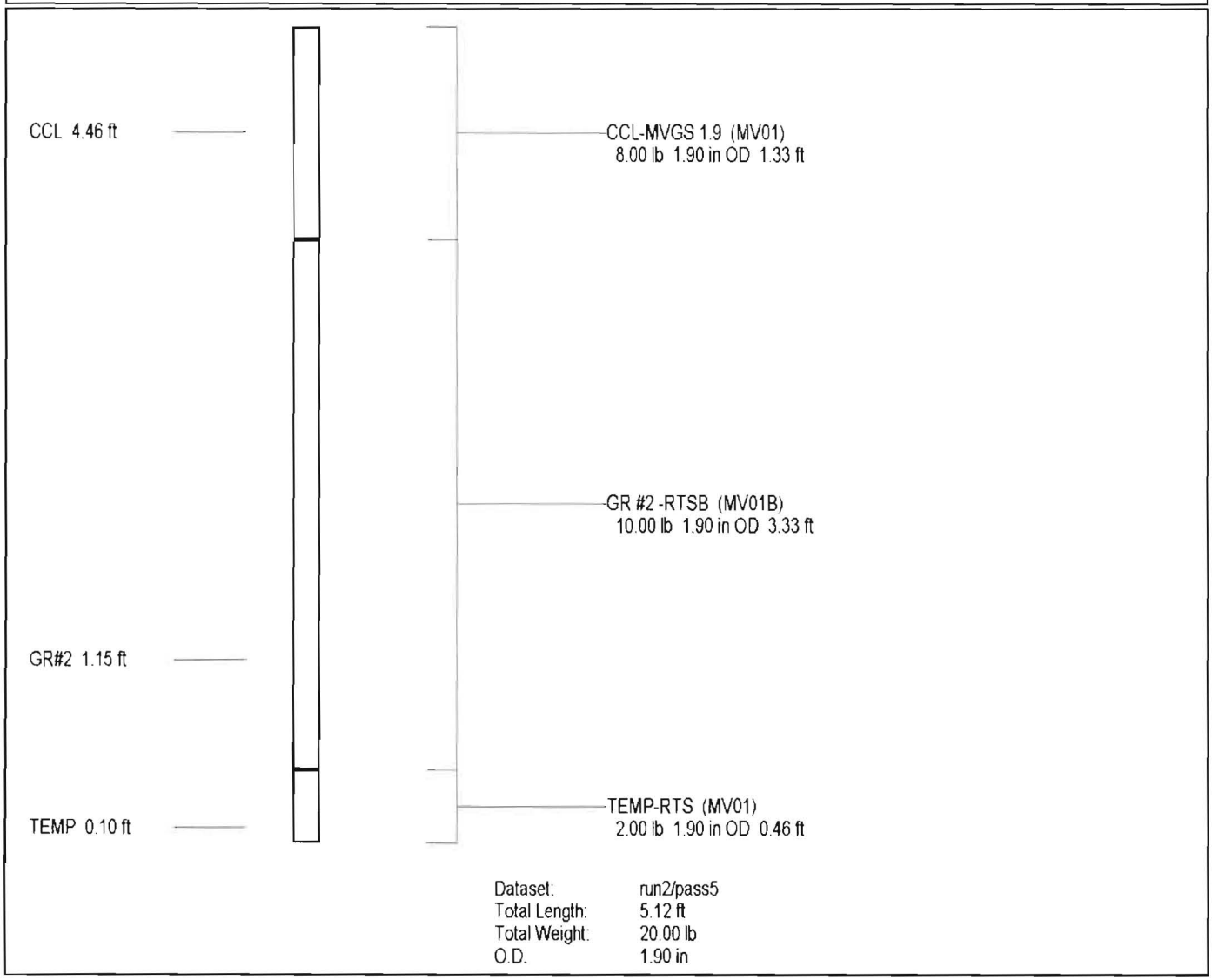












Appendix E
Packer Testing Water Level and Water Quality Data

PACKER TESTING

PB
100 East Pine Street, Suite 500
Orlando, Florida 32801

Location: Lake Ajay **Packer Test Depth:** 1,286 ft (bls)

Well Number: Lake Ajay – Lower Floridan Aquifer Monitoring Well

TIME			WATER LEVEL			DISCHARGE			WATER QUALITY					OTHER
			☐ CHALKED TAPE ☐ ELECT.TAPE			☐ Fill Drum ☐ Weir								
Measured By	YEAR Date	Hour	Static (feet-bls)	Pumping (feet - bls)	Depth to Water MP = TOC	☐ Gallons ☐ Depth	Seconds	Discharge (gpm)	pH	Turbidity (NTU)	Total Chlorides (mg/l)	Field Specific Conductance	Temp C	Description
MJ	5/19/2009	11:10 AM	24.21											
		11:25 AM						50						Start Pumping
		11:28 AM		36.56				50						
		11:31 AM		36.22				50						
		11:35 AM		36.06				50						
		11:40 AM						50			320			Field water quality sample collected
		11:45 AM		35.76				50						
		11:50 AM		35.68				50						
		12:00 PM		35.60				50						
		12:10 PM		35.52				50						
		12:20 PM		35.48				50						
		12:30 PM		35.47				50						
		12:40 PM		35.42				50	7.91	24.9	320	2.24	27.2	Field and lab water quality sample collected
		12:43 PM												Stop Pumping
		12:45 PM	31.20											
		12:47 PM	28.22											
		12:48 PM	23.77											
		12:50 PM	23.83											
		12:51 PM	23.87											
		12:52 PM	23.89											
		12:53 PM	23.95											
		1:00 PM	23.95											

Sheet 1 of 1 | Approved By: | Date:

ORANGE COUNTY GOVERNMENT
FLORIDA

Orange County Utilities Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Telephone: 407-254-9550 FAX: 407-254-9558

June 19, 2009

Mr. Mark Johnston
PB Americas
100 East Pine Street
Suite 500
Orlando, FL 32801

RE: Lake Ajay Site sampled 051909

Dear Mark:
Attached is the report of analysis for the chloride sample you collected on 06/09/09.

Please let me know if you need anything else.

Thanks,
Kim

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

CERTIFICATE OF ANALYSIS

June 9, 2009

Luisa Maria Gomez
PB Water
100 East Pine Street
Suite 500
Orlando, FL 32801

RE: Workorder ID: O905236
Project ID: Lake Ajay Well 051909

Dear Luisa Gomez:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, May 19, 2009. The results in this report relate only to the samples listed on page 2. The chain of custody is included as part of the Certificate of Analysis for the above referenced Workorder ID and should be retained as a permanent record thereof. Estimated uncertainties, in the form of quality control limits, are available in the laboratory's Quality Manual. Precision, in the form of relative percent difference (RPD), is not calculated for results that are less than four times the method detection limit (MDL) and are labeled as 'N/A' (not applicable). If reported, results for radionuclides (Gross Alpha, Radium-226 and Radium-228) were analyzed by NELAP-certified laboratory ID E83033. The results contained in this report meet all requirements of the National Environmental Laboratory Accreditation Conference (NELAC) standards, where applicable.

If you have any questions concerning this report, please feel free to contact me.

Certified By:

Kimberly A. Kunihiro, Water Quality Manager

Enclosures

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

SAMPLE SUMMARY

Workorder: O905236
Project ID: Lake Ajay Well 051909

Lab ID	Sample ID	Matrix	Date/Time Collected	Date/Time Received
O90523601	Lake Ajay Well	Surface Water	5/19/2009 12:40	5/19/2009 13:40

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

ANALYTICAL RESULTS

Workorder: O905236
Project ID: Lake Ajay Well 051909
Results reported on a wet weight basis.

Lab ID: **O90523601** Date Collected: 5/19/2009 12:40 Matrix: Surface Water
Sample ID: **Lake Ajay Well** Date Received: 5/19/2009 13:40

Parameters	Results	Units	Qualifier	RDL	MDL	Prep Date	By	Analysis Date	By
Wet Chemistry									
Analysis Desc: EPA 120.1	Dilution Factor: 1								
Conductivity	2386	umhos/cm		1	1			05/19/09 14:05	BP
Analysis Desc: EPA 180.1	Dilution Factor: 1								
Turbidity	22	NTU		0.1	0.1			05/19/09 15:41	LV
Analysis Desc: SM4500CL E	Dilution Factor: 1								
Chloride	226	mg/L		0.632	0.632			05/20/09 10:14	LV
Analysis Desc: SM4500H+ B	Dilution Factor: 1								
pH	7.61	SU		0.01	0.01			05/19/09 14:45	LV

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

QUALITY CONTROL DATA

Workorder: O905236
Project ID: Lake Ajay Well 051909

QC Batch: GEWC/34401 Analysis Method: EPA 120.1
QC Batch Method: EPA 120.1

SAMPLE DUPLICATE: 859919 Original: O90523114

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Qualifiers
Conductivity	umhos/cm	676	678	0.3	20	

SAMPLE DUPLICATE: 860172 Original: O90523601

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Qualifiers
Conductivity	umhos/cm	2386	2380	0.25	20	

QC Batch: GEWC/34407 Analysis Method: EPA 180.1
QC Batch Method: EPA 180.1

SAMPLE DUPLICATE: 860302 Original: O90508211

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Qualifiers
Turbidity	NTU	3	3	0	20	

SAMPLE DUPLICATE: 860303 Original: O90523601

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Qualifiers
Turbidity	NTU	22	22	0	20	

QC Batch: GEWC/34408 Analysis Method: SM4500H+ B
QC Batch Method: SM4500H+ B

SAMPLE DUPLICATE: 860239 Original: O90523601

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Qualifiers
pH	SU	7.61	7.63	0.26	20	

Orange County Utilities Central Laboratory
9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 254-9550
Fax: (407) 254-9558
NELAP ID#: E53398

QUALITY CONTROL DATA

Workorder: O905236
Project ID: Lake Ajay Well 051909

QC Batch:	GEWC/34410	Analysis Method:	SM4500CL E
QC Batch Method:	SM4500CL E		

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 860331 860332 Original: O90523601

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Chloride	mg/L	226	200	396	394	85	84	80-120	0.51	20	

9124 Curry Ford Road
Orlando, FL 32825
Phone: (407) 836-6950
Fax: (407) 249-4522
NELAP ID # E53398
nelac

ORANGE COUNTY GOVERNMENT FLORIDA

Utilities Central Laboratory
Chain of Custody Record

U8485

For Laboratory Use Only
Workorder #: _____
____ Standard Turn Around Time
____ Expedited Turn Around Time
Report Due Date: _____

Client Name:
Address:
City, State, Zip: Phone #:
Project I.D.:
Project Manager: P.O. Number:
Collected By:

Lab ID	Date	Time	Sample Location	Grab (G) / Composite (C)	Matrix: Aqueous	Matrix: Solid	Matrix: Other ____	Generals (½ Gallon - Plastic)	Generals (Squat Quart - Plastic)	Generals (250 mL - Plastic)	Nutrients (250 mL - Plastic)	Microbiologicals	Metals (Squat Quart - Plastic)	Metals (250 mL - Plastic)	VOAs (40 mL Vial)	VOAs (60 mL Vials)	Semi-Volatiles (1 L - Amber Glass)	Semi-Volatiles (Other	Cyanides (250 mL - Plastic)	Phenols (1 L - Amber Glass)	Oil & Grease (1 L - Amber Glass)	Hydrogen Sulfides (1 L - Amber Glass)	Other ____	Other ____
				Number Of Sample Containers Submitted																				
090523601								1																

Custody Transfers:

	Relinquished By:	Received By:	Date:	Time:
1.	[signature]	[signature]	5/19/09	1410
2.				
3.				

For Laboratory Use Only

Sample Containers Prepared By: _____ Date: _____
(Signature)
Samples Received In Cooler?: ____ Yes ____ No Temperature: _____ °C
pH Checked In Lab?: ____ Yes ____ No
Laboratory Recipient: [signature] Date: 5/19/09 Time: 1410
(Signature)

Laboratory Remarks: ORANGE VA CONDUCTIVITY TURBIDITY

REPORT COPY

PACKER TESTING

PB
100 East Pine Street, Suite 500
Orlando, Florida 32801

Location: Lake Ajay **Packer Test Depth:** 1,308 ft (bls)

Well Number: Lake Ajay – Lower Floridan Aquifer Monitoring Well

TIME			WATER LEVEL (☐ CHALKED TAPE ☐ ELECT.TAPE)			DISCHARGE (☐ Fill Drum ☐ Weir)			WATER QUALITY					OTHER
Measured By	YEAR Date	Hour	Static (feet-bls)	Pumping (feet - bls)	Deth to Water MP = TOC	☐ Gallons ☐ Depth	Seconds	Discharge (gpm)	pH	Turbidity (NTU)	Total Chlorides (mg/l)	Field Specific Conductance	Temp C	Description
MJ	5/21/2009		23.70											
		9:48 AM						50						Start Pumping
		9:50 AM		133.76				50						
		9:54 AM		125.65				50						
		9:55 AM		124.72				50						
		10:00 AM		123.70				50						
		10:04 AM		121.93				50						
		10:10 AM		118.19				50						
		10:18 AM		117.01				50						
		10:20 AM						50	8.59	10.4	340	2.39	27.3	Field water quality sample collected
		10:28 AM		115.69				50						
		10:40 AM						50	8.65	12.1	340	2.37	27.4	Field water quality sample collected
		10:42 AM		115.54				50						
		10:50 AM		115.43				50	8.42	12.7	340	2.41	26.3	Field water quality sample collected
		10:57 AM		115.99				50						
		10:58 AM												Stop Pumping
		11:00 AM	46.62											
		10:01 AM	42.75											
		11:02 AM	37.51											
		11:03 AM	34.93											
		11:04 AM	32.39											
		11:05 AM	28.10											
		11:06 AM	27.20											
		11:07 AM	26.25											
		11:08 AM	25.30											
		11:28 AM	24.36											
		11:30 AM	24.30											
		11:32 AM	23.34											

Sheet 1 of 1 | Approved By: | Date:

SOUTHERN ANALYTICAL LABORATORIES, INC.
110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

Rowe Drilling Company
PO Box 1098
Polk City, FL 33868-

May 27, 2009
Project No: 92210

Laboratory Report

Project Name	**Lake Ajay Packer Testing**
Sample Description	**#2**
Matrix	**Groundwater**
SAL Sample Number	**92210.01**
Date/Time Collected	**05/21/09 10:58**
Date/Time Received	**05/21/09 13:13**

Parameters	Units	Results	Method	Detection Limit	Date/Time Analyzed	Date/Time Prep	Analyst
Inorganics							
Bicarbonate Alkalinity as CaCO3	mg/l	110	SM 2320B	2	05/22/09 15:00		MTU
Carbonate Alkalinity as CaCO3	mg/l	6.7 I	SM 2320B	2	05/22/09 15:00		MTU
Chloride	mg/l	300	EPA 300.0	0.05	05/21/09 23:41		VWC
Specific Conductance	umhos/cm	2,390	SM 2510B	0.5	05/27/09 09:50		MEJ
pH	Units	8.5 Q5	EPA 150.1		05/21/09 14:45		MTU
Sulfate	mg/l	810	EPA 300.0	0.2	05/21/09 23:41		VWC
Total Dissolved Solids	mg/l	1,700	EPA 160.1	10	05/27/09 10:40	05/21/09 14:30	EPL
Metals							
Calcium	mg/l	260	EPA 200.7	0.01	05/26/09 14:17		HWS
Potassium	mg/l	6.5	EPA 200.7	0.01	05/26/09 14:17		HWS
Magnesium	mg/l	73	EPA 200.7	0.01	05/26/09 14:17		HWS
Sodium	mg/l	130	EPA 200.7	0.01	05/26/09 14:17		HWS

FDOH Laboratory No. E84129
NELAP Accredited

Francis I. Daniels, Laboratory Director
Leslie C. Boardman, Q. A. Manager

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Rowe Drilling Company
PO Box 1098
Polk City, FL 33868-

May 27, 2009
Project No: 92210

Laboratory Report

Footnotes

*	Test results presented in this report meet all the requirements of the NELAC standards.
**	A statement of estimated uncertainty of test results is available upon request.
***	For methods marked with ***, all QC criteria have been met for this method which is equivalent to a SAL certified method.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
Q5	Analysis should be performed "immediately" in the field. Lab analysis was performed at a later time.

FDOH Laboratory No. E84129
NELAP Accredited

Approved By: **Francis I. Daniels, Laboratory Director**
Leslie C. Boardman, Q. A. Manager

SOUTHERN ANALYTICAL LABORATORIES, INC.

110 BAYVIEW BOULEVARD, OLDSMAR, FL 34677 813-855-1844 fax 813-855-2218

SAL Project No. 92210

Client Name	Contact / Phone:
Rowe Drilling Company	
Project Name / Location: Lake Ajay Packer Testing	
Samplers: (Signature) Johnny P. Rucks	

Matrix Codes: DW-Drinking Water WW-Wastewater SW-SurfaceWater SL-Sludge SO-Soil GW-Groundwater SA-Saline Water O-Other R-Reagent Water

SAL Use Only Sample No.	Sample Description	Date	Time	Matrix	Composite	Grab	PARAMETER / CONTAINER DESCRIPTION: 1LP, Cool TDS, Conductivity, pH, Cl, SO_4, Bicarbonate alkalinity, Carbonate alkalinity	250mL P, HNO_3 Na, K, Ca, Mg	~~field temperature~~						No. of Containers (Total per each location)
01	#2	5/21/09	1058	GW		X	1	1							2

Page 3 of 3

Containers Prepared/ Relinquished:	Date/Time:	Received:	Date/Time:
Johnny Rucks	5-21-09 1:13PM	K Rudmann	5/21/09 1313
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:
Relinquished:	Date/Time:	Received:	Date/Time:

Seal intact? Y N (N/A)
Samples intact upon arrival? (Y) N N/A
Received on ice? Temp_____ (Y) N N/A
Proper preservatives indicated? (Y) N N/A
Rec'd within holding time? (Y) N N/A
Volatiles rec'd w/out headspace? Y N (N/A)
Proper containers used? (Y) N N/A

Instructions / Remarks

Appendix F
June 9, 2009 Correspondence with SFWMD

Schlutermann, George A.

From: Sweazy, Chris [csweazy@sfwmd.gov]
Sent: Tuesday, June 09, 2009 3:36 PM
To: Schlutermann, George A.; Ogden, George
Cc: Thomas, Mary Fickert; Johnston, Mark L
Subject: RE: STOPR - Lake Ajay LFA Monitoring Well - Final Construction & Results from Packer Testing
Importance: High

George,

I looked at what George S. sent to us and I think setting the casing to a depth of 1295 ft bls and leaving an open hole interval of 1295 – 1325 ft bls should work for the final construction.

He also mentioned in his email the target of removing three well volumes for the sampling routine – you might want to comment that the procedure we typical see for purging the well before sample collection is a demonstration that the WQ has stabilized from the well when grabbing a sample – I have used conductivity, pH or temperature as guides for this purpose. Likely George is just saying this as a guide to judge construction, but I did not want him to think that three volumes alone (while it might be sufficient) is our QA/QC on sample collection.

Chris

From: Schlutermann, George A. [mailto:Schluterma@pbworld.com]
Sent: Tuesday, June 09, 2009 3:17 PM
To: Ogden, George; Sweazy, Chris
Cc: Thomas, Mary Fickert; Johnston, Mark L
Subject: RE: STOPR - Lake Ajay LFA Monitoring Well - Final Construction & Results from Packer Testing

Good afternoon, George.

Good chatting with you today. As we discussed, we have slightly modified our proposed cased depth from 1,286 to 1,295 feet. This change better accommodates the installation of two (2) cement baskets above the cement shoe.

Please acknowledge the proposed construction of the monitoring well ASAP. Thank you.

George A. Schlutermann, P.G.

Senior Supervising Hydrogeologist

PB
100 East Pine Street, Suite 500
Orlando, FL 32801
USA

Direct: (407) 587-7814
Mobile: (407) 808-5124
Fax: (407) 587-7960
E-mail: schluterma@pbworld.com

www.pbworld.com

From: Schlutermann, George A.
Sent: Friday, June 05, 2009 9:05 AM
To: George Ogden; Chris Sweazy (csweazy@sfwmd.gov)
Cc: Thomas, Mary Fickert; Johnston, Mark L
Subject: STOPR - Lake Ajay LFA Monitoring Well - Final Construction & Results from Packer Testing
Importance: High

Good morning.

George, I enjoyed talking to you yesterday about the Lake Ajay monitoring well.

As we discussed, here is the information for you to review with Chris.

We have completed packer testing of the open borehole.

The current total depth is 1325 feet bls following the back plugging event discussed in the May 7, 2009 e-mail.

Packer Testing at 1286 feet bls

We installed a packer at 1286 feet bls. We pumped this 39 foot zone at 50 gpm and obtained laboratory chloride readings of 242 mg/L and 226 mg/L. Estimated drawdown is 12 feet at 50 gpm.

Packer Testing at 1308 feet bls

We installed a packer at 1308 feet bls. We pumped this 17 foot zone at 50 gpm and obtained a laboratory chloride reading of 300 mg/L. Estimated drawdown is 92 feet at 50 gpm.

We have estimated that the purge time at 50 gpm (using the FDEP sampling protocol of 3 volumes) is approximately 2 hours.

In order to minimize possible upconing we plan to install 6-inch casing to a depth of 1286 feet bls (this would allow for a 39 foot sampling zone) and reduce the sampling rate to about 25 gpm (drawdown of about 6 feet). Sampling from this zone should obtain reading below the 250 m/L isochlor. As stated previously on May 7, 2009, the 250 mg/L concentration is a target of the WUP requirement. PB believes that this proposed construction will provide a monitoring well that will safely provide water quality samples and address the permit requirements.

We request a hasty response from the District as the driller is currently reaming out the borehole to total depth and we need to order the casing for delivery to the site. Are there any concerns from the District about this proposed construction? Please respond by COB today. If today is not suitable, please let us know when you can provide us this feedback.

Also, we still await the earlier approval requested of May 7, 2009.

Thank you for your time.

George A. Schlutermann, P.G.

Senior Supervising Hydrogeologist

PB
100 East Pine Street, Suite 500

Orlando, FL 32801
USA

Direct: (407) 587-7814
Mobile: (407) 808-5124
Fax: (407) 587-7960
E-mail: schluterma@pbworld.com

www.pbworld.com

Appendix G
Geophysical Logs of Final Construction

RMBAKER LLC
www.rmbaker.com

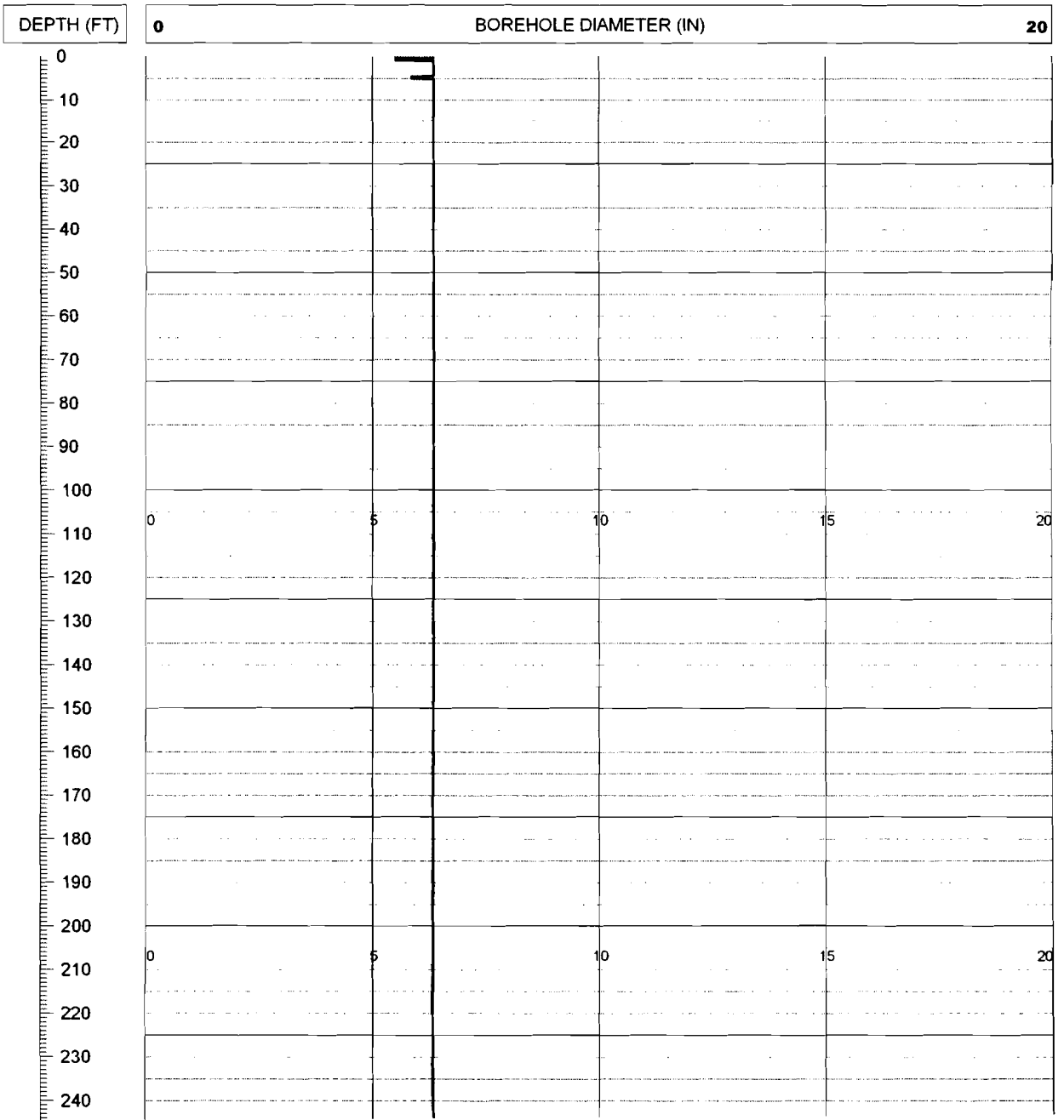
8600 Oldbridge Lane, Orlando, FL 32819
ph: 407-733-8958 fx: 407-370-4129
rob@rmbaker.com

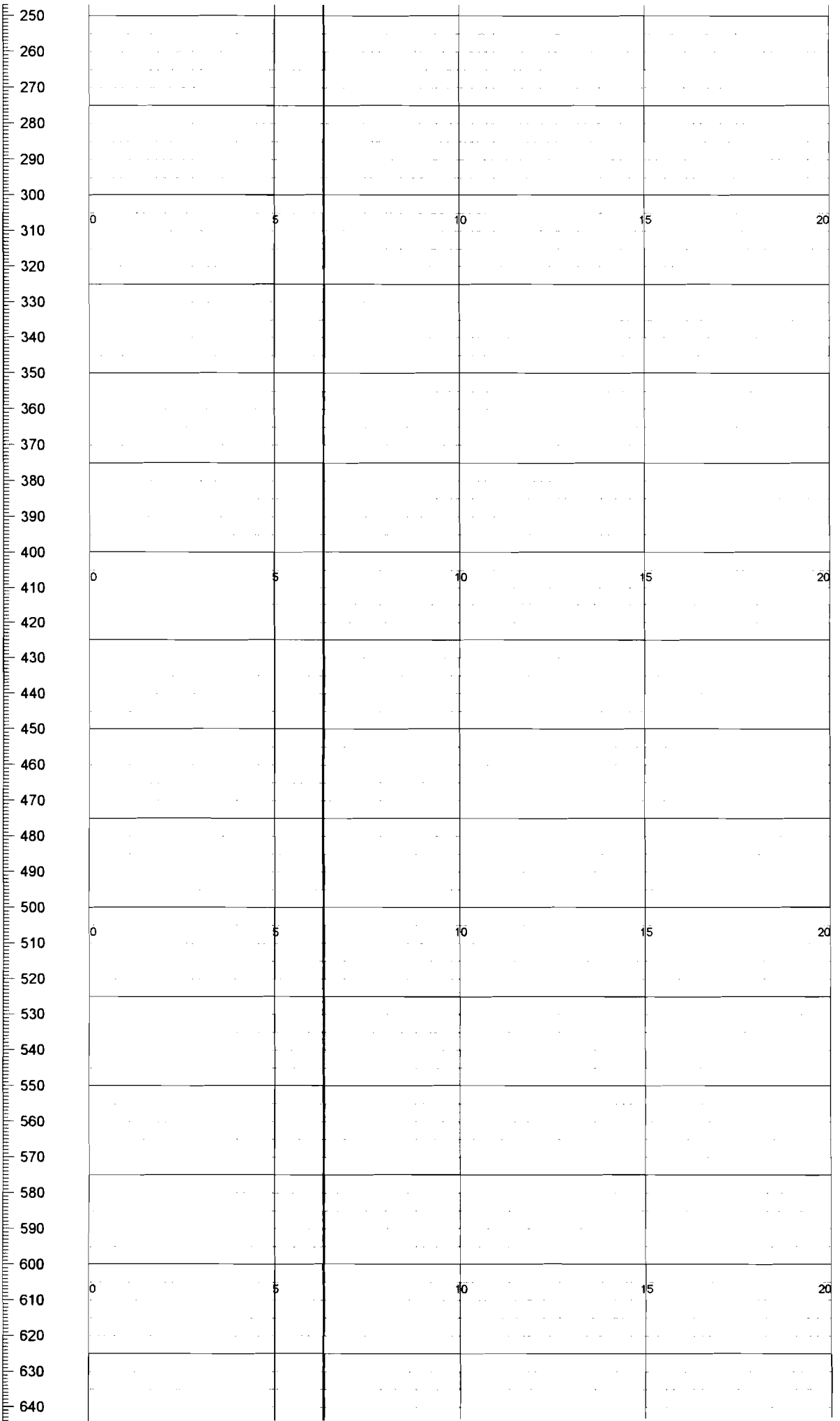
COMPANY:	RMBAKER LLC	DATE:	8/12/09	LOGGED BY:	RMB
PROJECT:	LAKE AJAY	LOG TYPE:	CALIPER	WITNESSED BY:	MLJ
WELL ID:	**LFSMW**	OTHER SERVICES:	ELOG:DUIN:SONIC:TCDS		
COUNTY:	OSCEOLA	LOG DATUM:	GROUND SURFACE	COORDINATES:	
STATE:	FLORIDA	ELEVATION:	N/A		
COUNTRY:	USA	FLUID TYPE:	WATER		

REMARKS

BOREHOLE DESCRIPTION

0-1295 FT 60 INCH STEEL CASING. 1295-1325 FT OPEN HOLE 12.25 INCH NOMINAL

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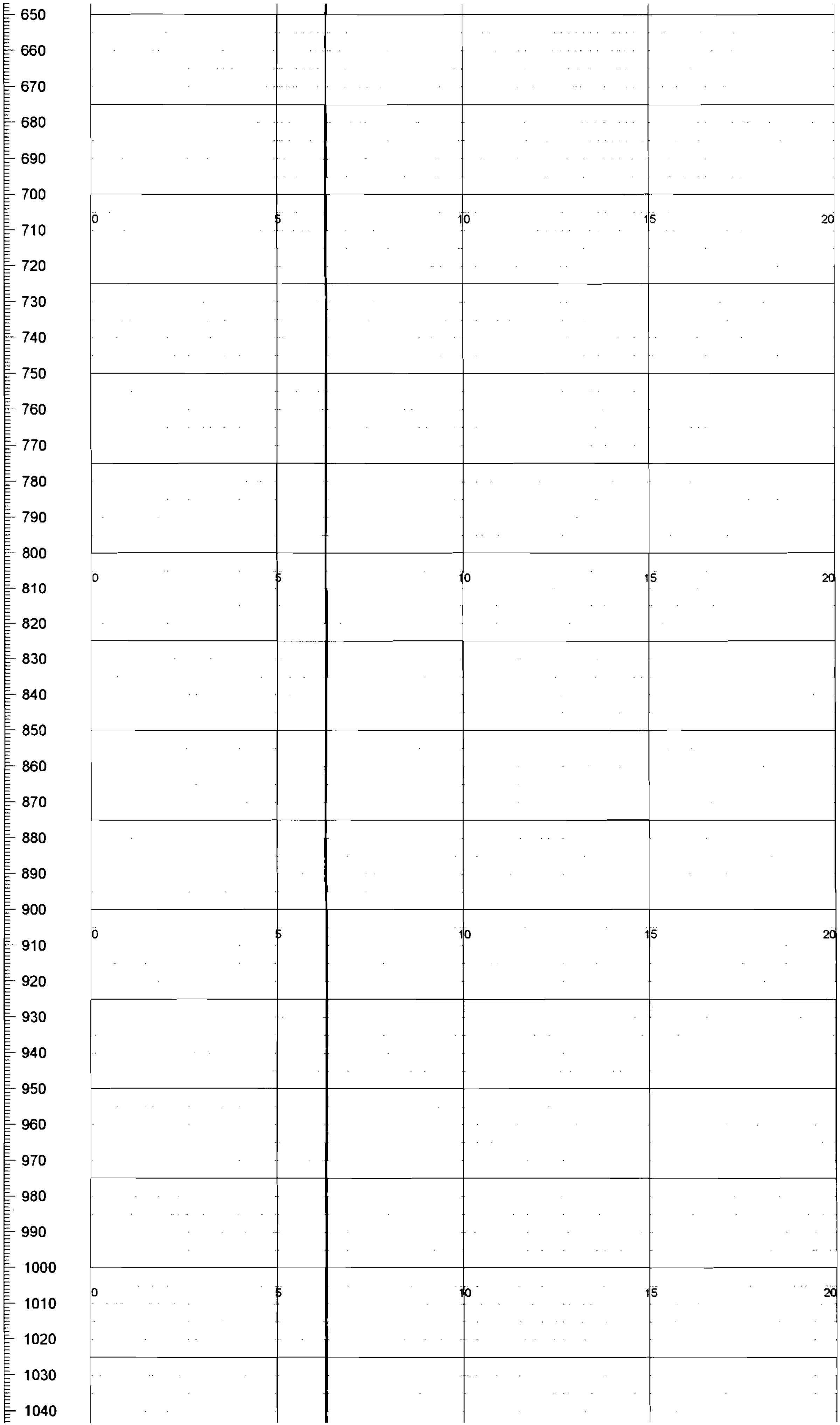
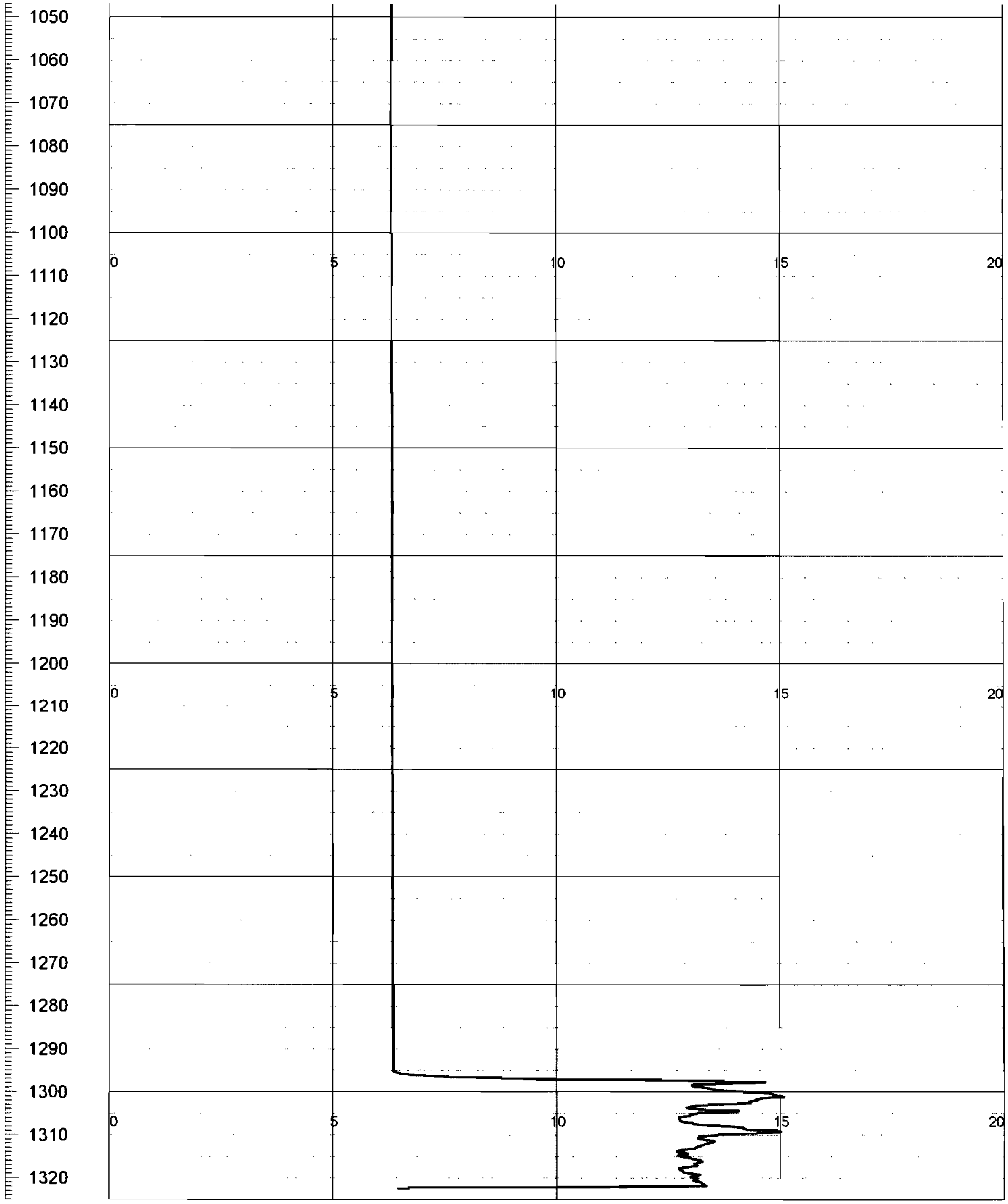
20

SLAMINE 11/09/2003 AHL





NOTES

While due care has been exercised in the performance of these measurements and observations, in accordance with methodologies utilized by the general practitioner RMBAKER LLC can make no representations, warranties, or guarantees with respect to latent or concealed conditions that may exist, which may be beyond the detection capabilities of the methodologies used or that may extend beyond the areas and depths surveyed.
The geophysical well logs show subsurface conditions as they existed at the dates and locations shown, and it is not warranted that they are representative of subsurface conditions at other locations and times. If, at any time different subsurface conditions from those observed are determined to be present we must be advised and allowed to review and revise our observations if necessary.

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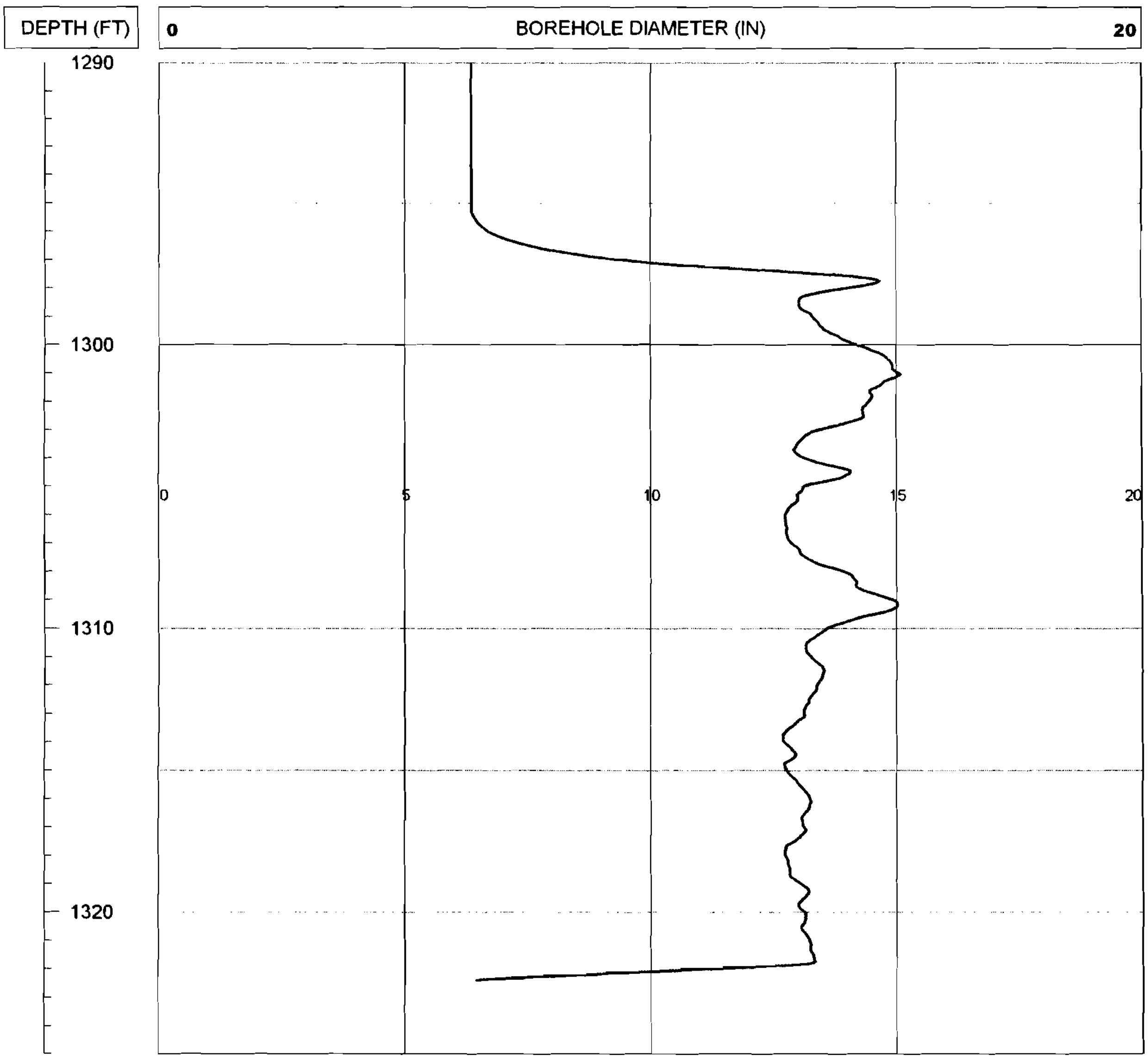
rob@rmbaker.com

COMPANY:	RMBAKER LLC	DATE:	8/12/09	LOGGED BY:	RMB
PROJECT:	LAKE AJAY	LOG TYPE:	CALIPER	WITNESSED BY:	MLJ
WELL ID:	**LFSMW**	OTHER SERVICES:	ELOG:DUIN:SONIC:TCDS	COORDINATES:	
COUNTY:	OSCEOLA	LOG DATUM:	GROUND SURFACE		
STATE:	FLORIDA	ELEVATION:	N/A		
COUNTRY:	USA	FLUID TYPE:	WATER		

REMARKS

BOREHOLE DESCRIPTION

0-1295 FT 60 INCH STEEL CASING: 1295-1325 FT OPEN HOLE 12.25 INCH NOMINAL



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SCANNE 11/09/2004 AHL

RMBAKER LLC
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ph: 407-733-8958 fx. 407-370-4129
rob@rmbaker.com

COMPANY: RMBAKER LLC
PROJECT: LAKE AJAY
WELL ID: **LFSMW**

COUNTY: OSCEOLA
STATE: FLORIDA
COUNTRY: USA

DATE: 8/12/09
LOG TYPE: ELECTRIC LOG
ALL SERVICES: ELOG:DUIN:SONIC:TCDS

LOG DATUM: GROUND SURFACE
ELEVATION: N/A
FLUID TYPE: WATER

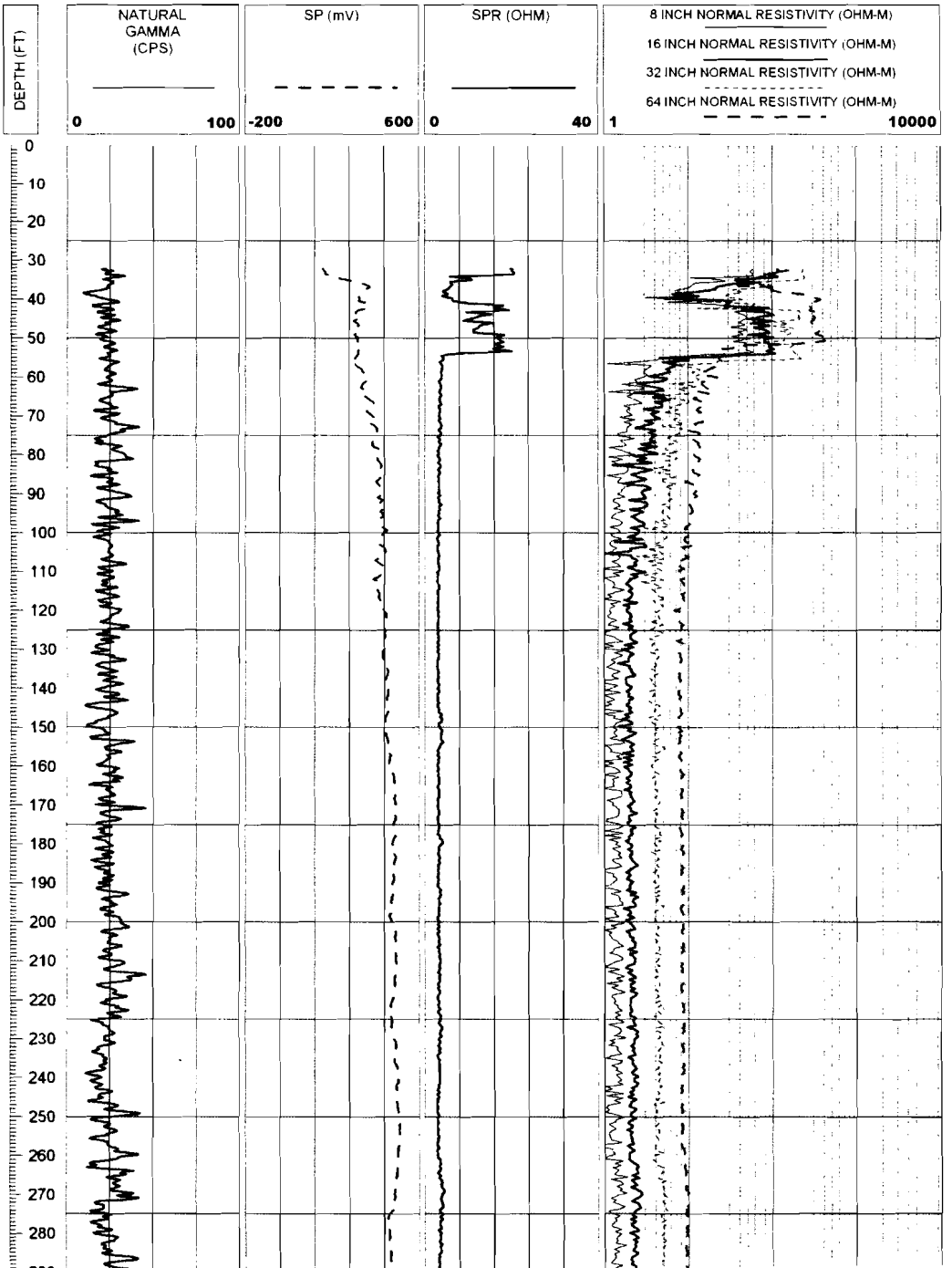
LOGGED BY: RMB
WITNESSED BY: MLJ

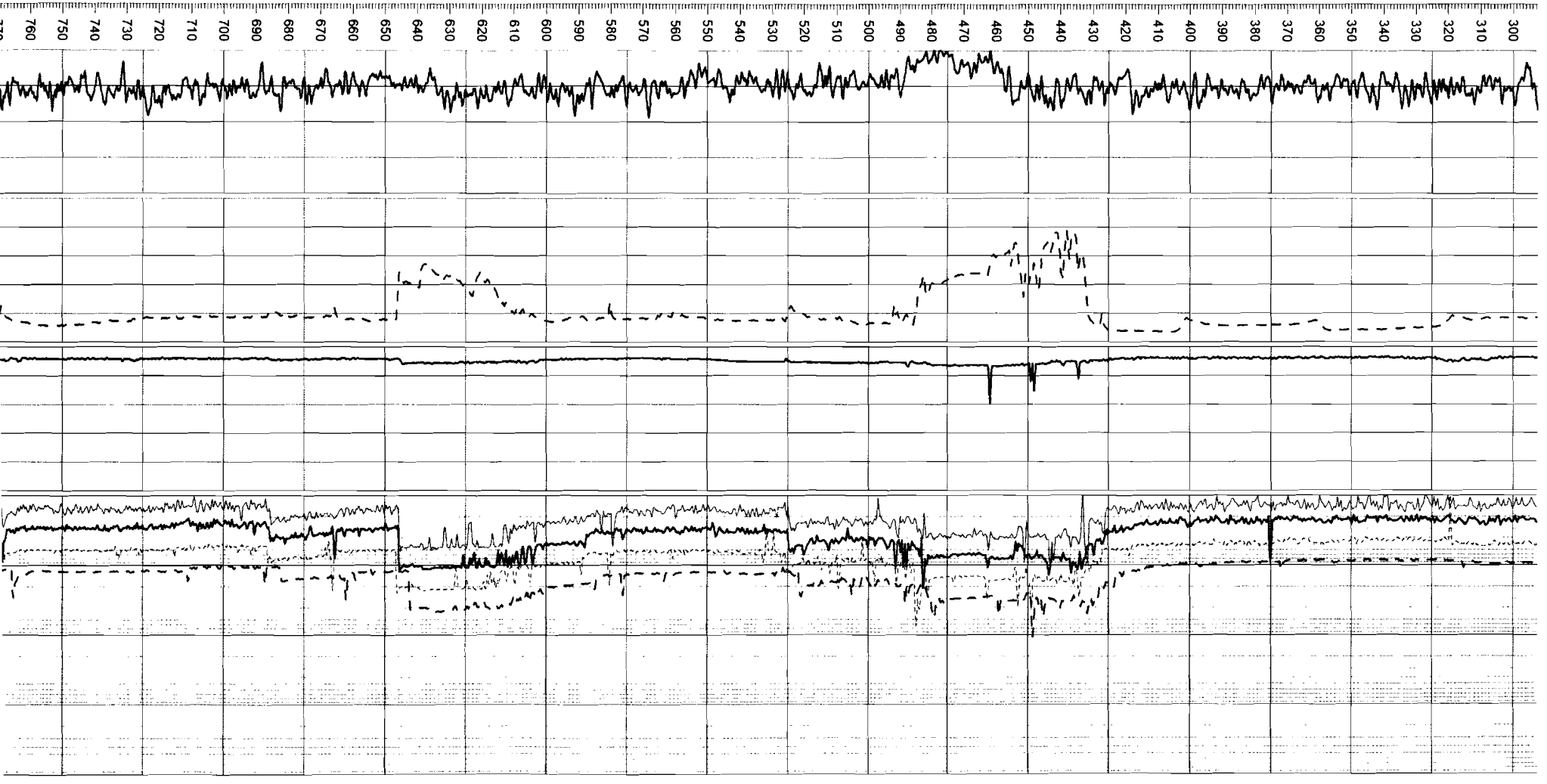
COORDINATES:

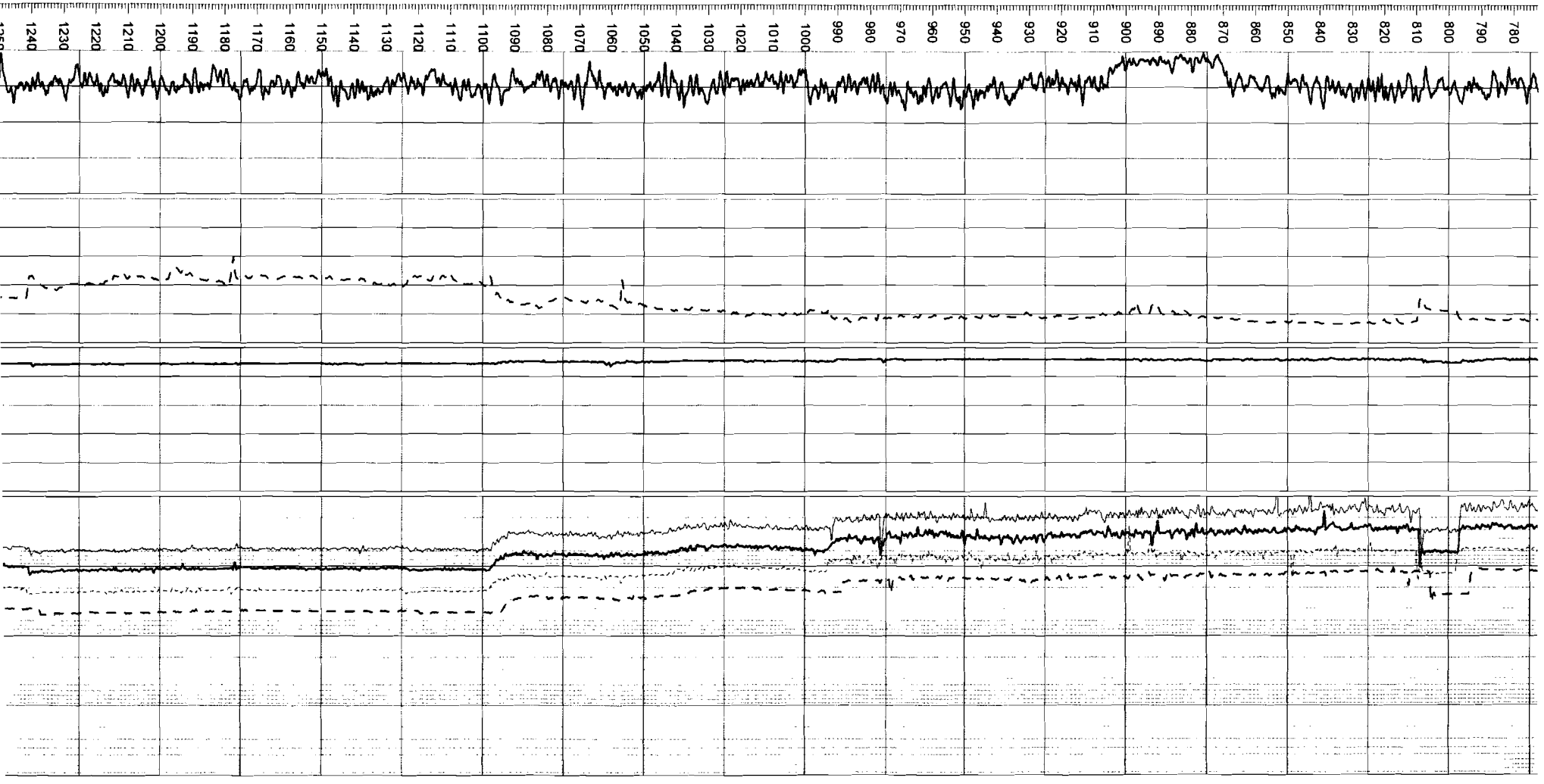
REMARKS

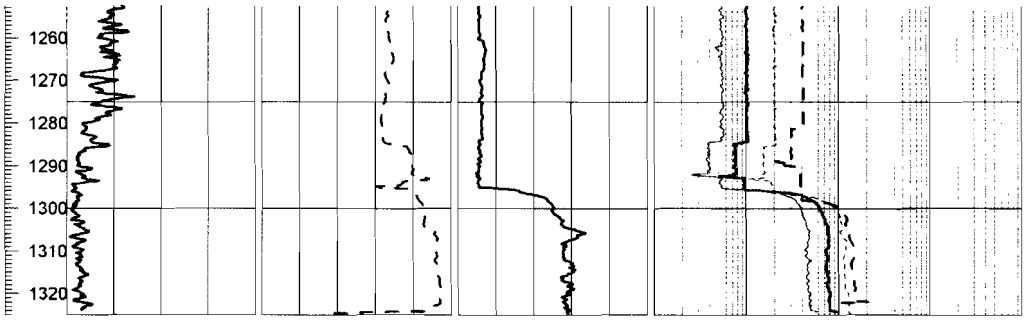
BOREHOLE DESCRIPTION

0-1295 FT 6 INCH STEEL CASING; 1295-1325 FT OPEN HOLE 12.25 INCH NOMINAL









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RMBAKER LLC
www.rmbaker.com

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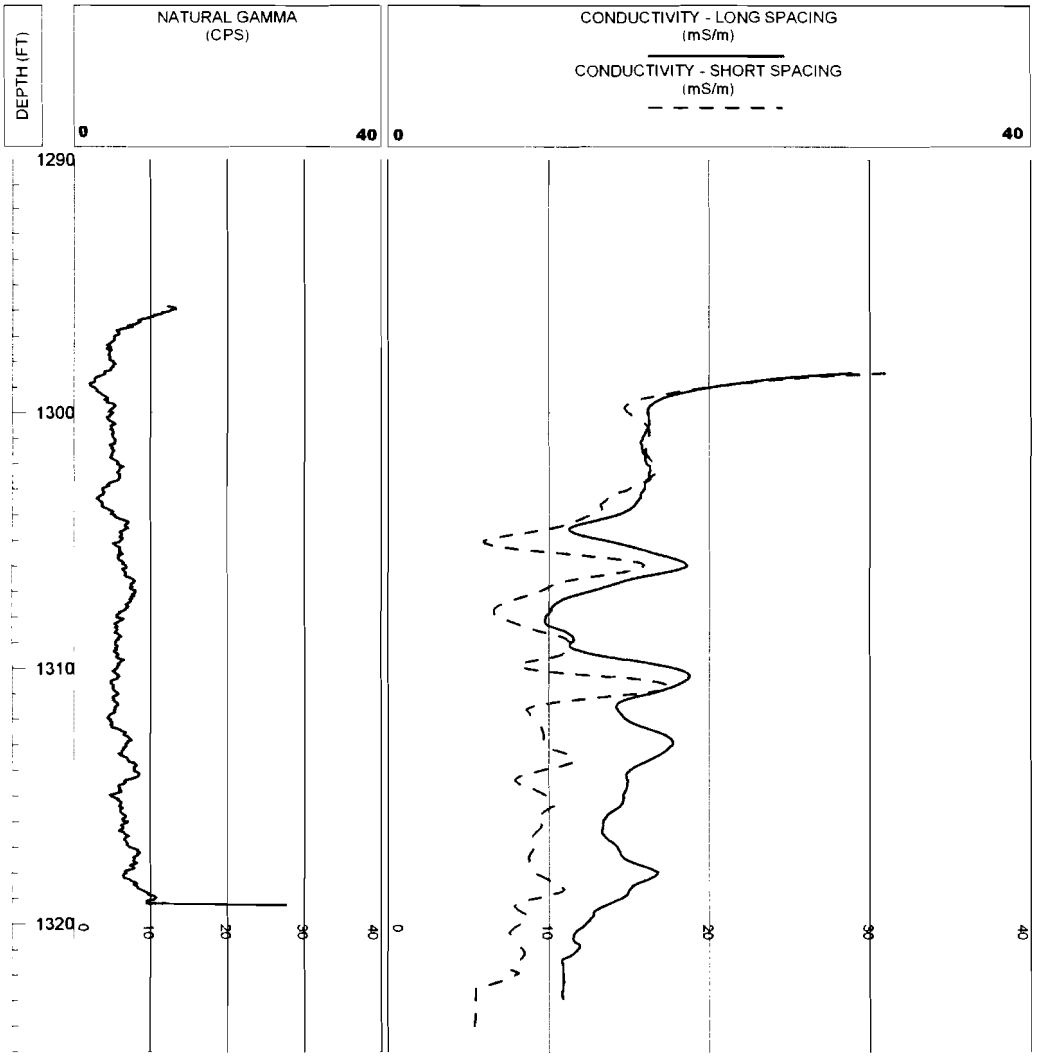
ph: 407-733-8958 fx: 407-370-4129
rob@rmbaker.com

COMPANY	RMBAKER LLC	DATE	8/12/09	LOGGED BY	RMB
PROJECT	LAKE AJAY	LOG TYPE	DUAL INDUCTION	WITNESSED BY	MLJ
WELL ID	**LFSMW**	ALL SERVICES	ELOG;DUIN;SONIC;TCDS	COORDINATES	
COUNTY	OSCEOLA	LOG DATUM	GROUND SURFACE		
STATE	FLORIDA	ELEVATION	N/A		
COUNTRY	USA	FLUID TYPE	WATER		

REMARKS

BOREHOLE DESCRIPTION

0-1295 FT 6 INCH STEEL CASING; 1295-1325 FT OPEN HOLE 12.25 INCH NOMINAL



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rob@rmbaker.com

COMPANY: RMBAKER LLC
PROJECT: LAKE AJAY
WELL ID: **LFSMW**
COUNTY: OSCEOLA
STATE: FLORIDA
COUNTRY: USA

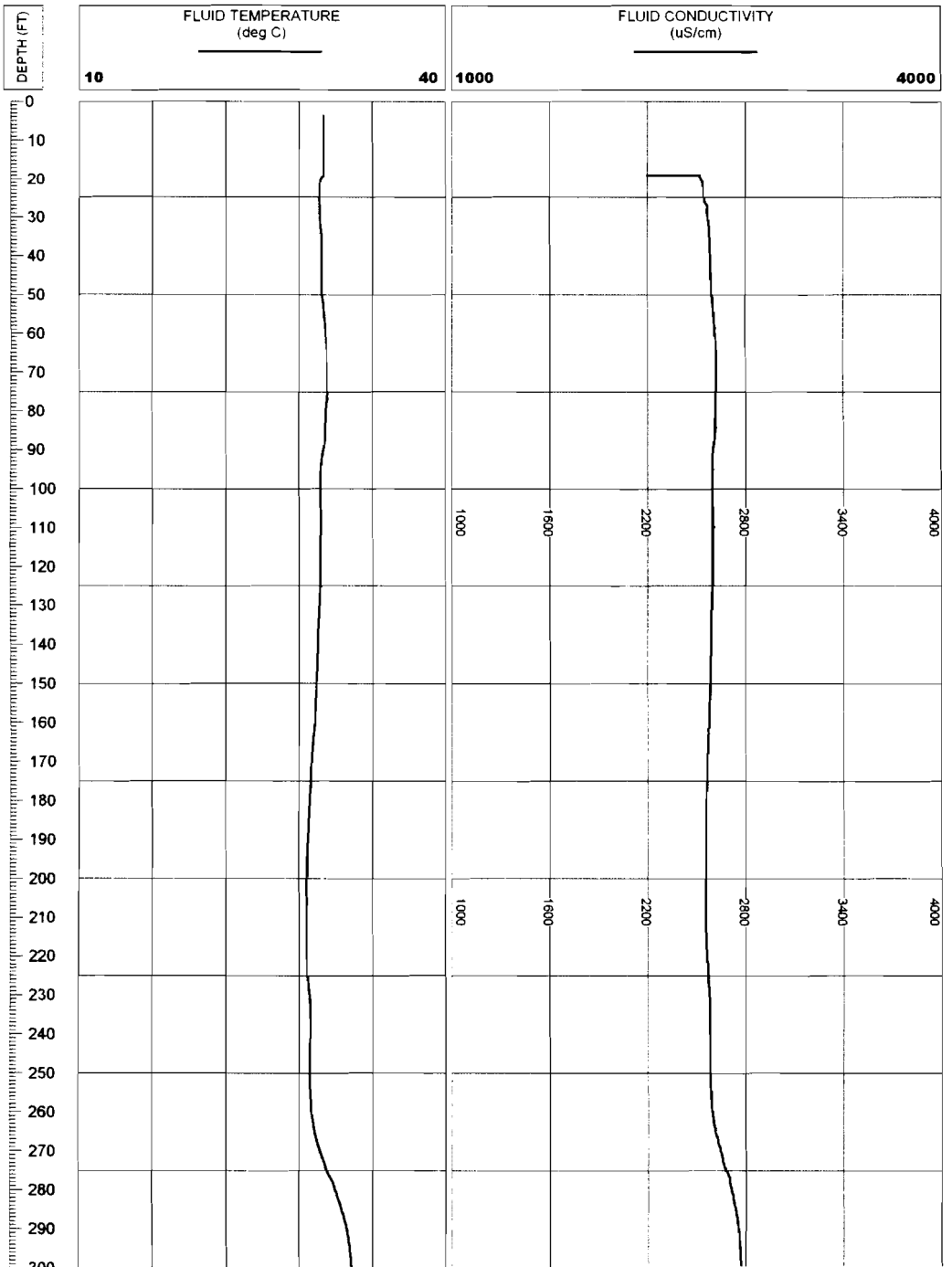
DATE: 8/12/09
LOG TYPE: FLUID TEMP & COND
ALL SERVICES: ELOG:DUIN:SONIC:TCDS
LOG DATUM: GROUND SURFACE
ELEVATION: N/A
FLUID TYPE: WATER

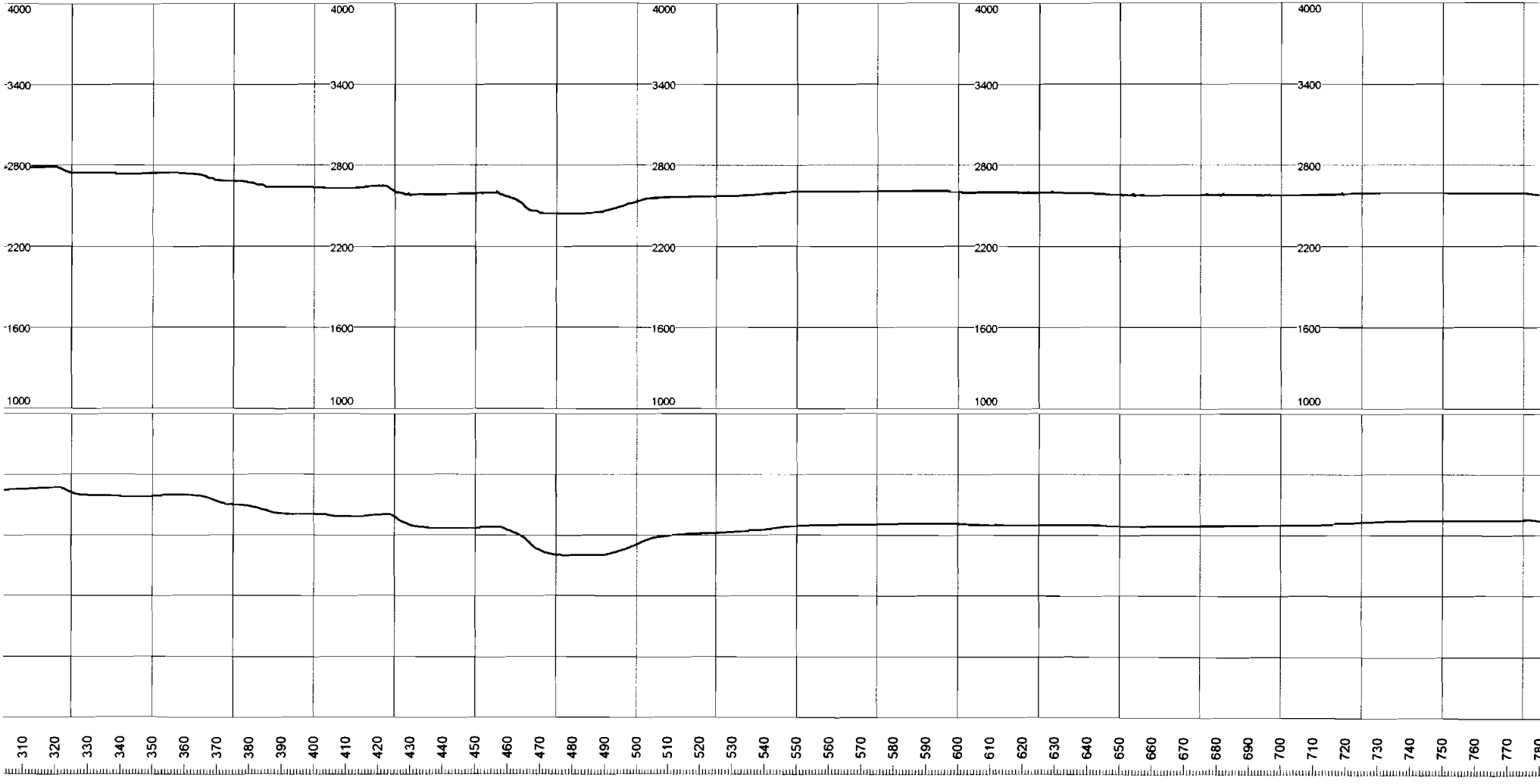
LOGGED BY: RMB
WITNESSED BY: MLJ
COORDINATES:

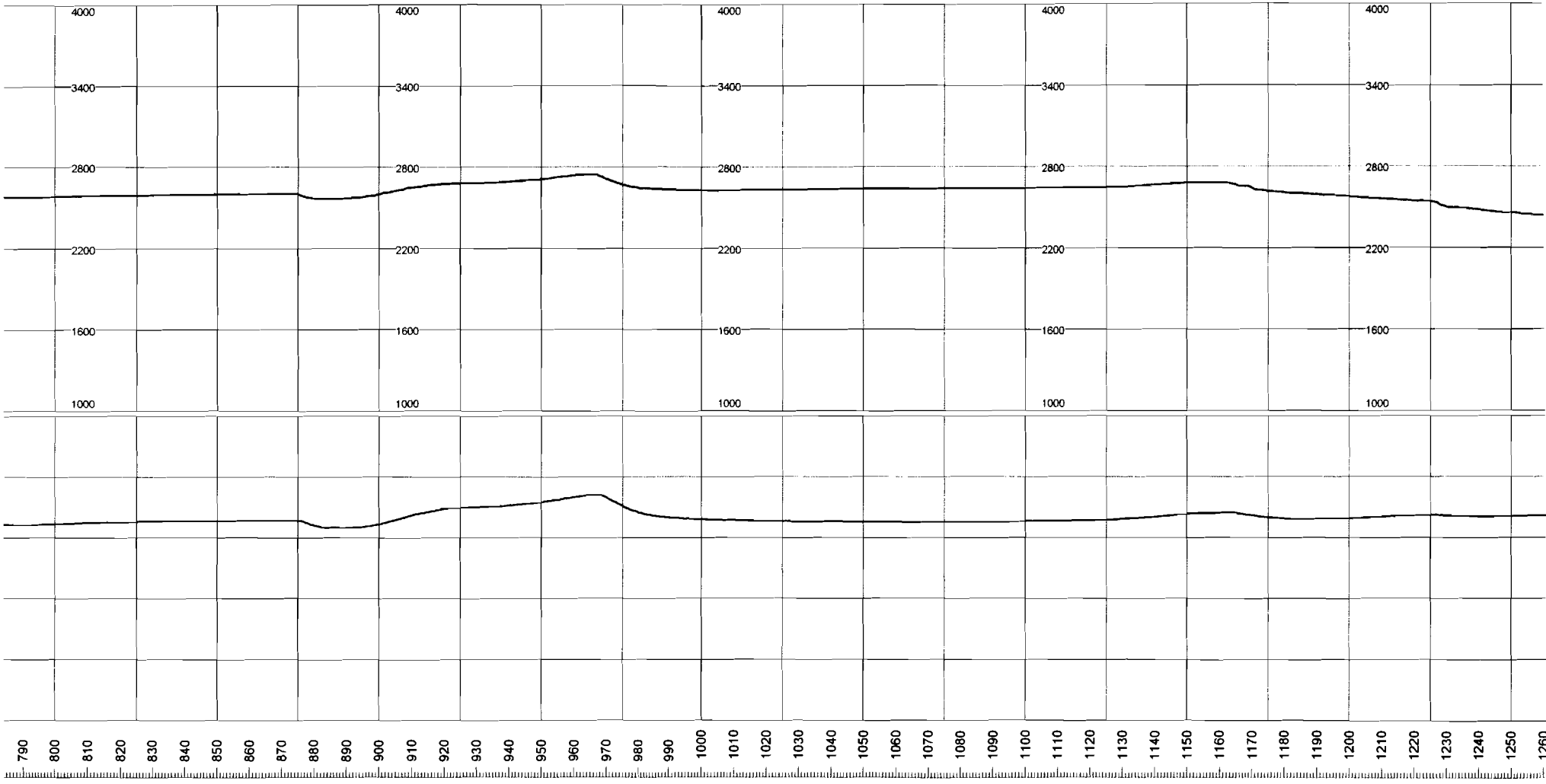
REMARKS

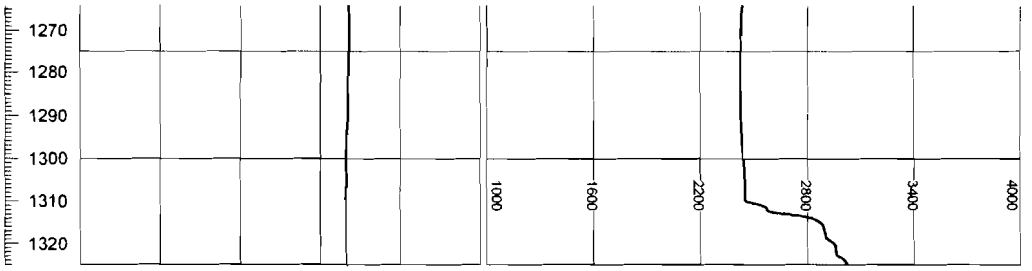
BOREHOLE DESCRIPTION

0-1295 FT 6 INCH STEEL CASING; 1295-1325 FT OPEN HOLE 12.25 INCH NOMINAL









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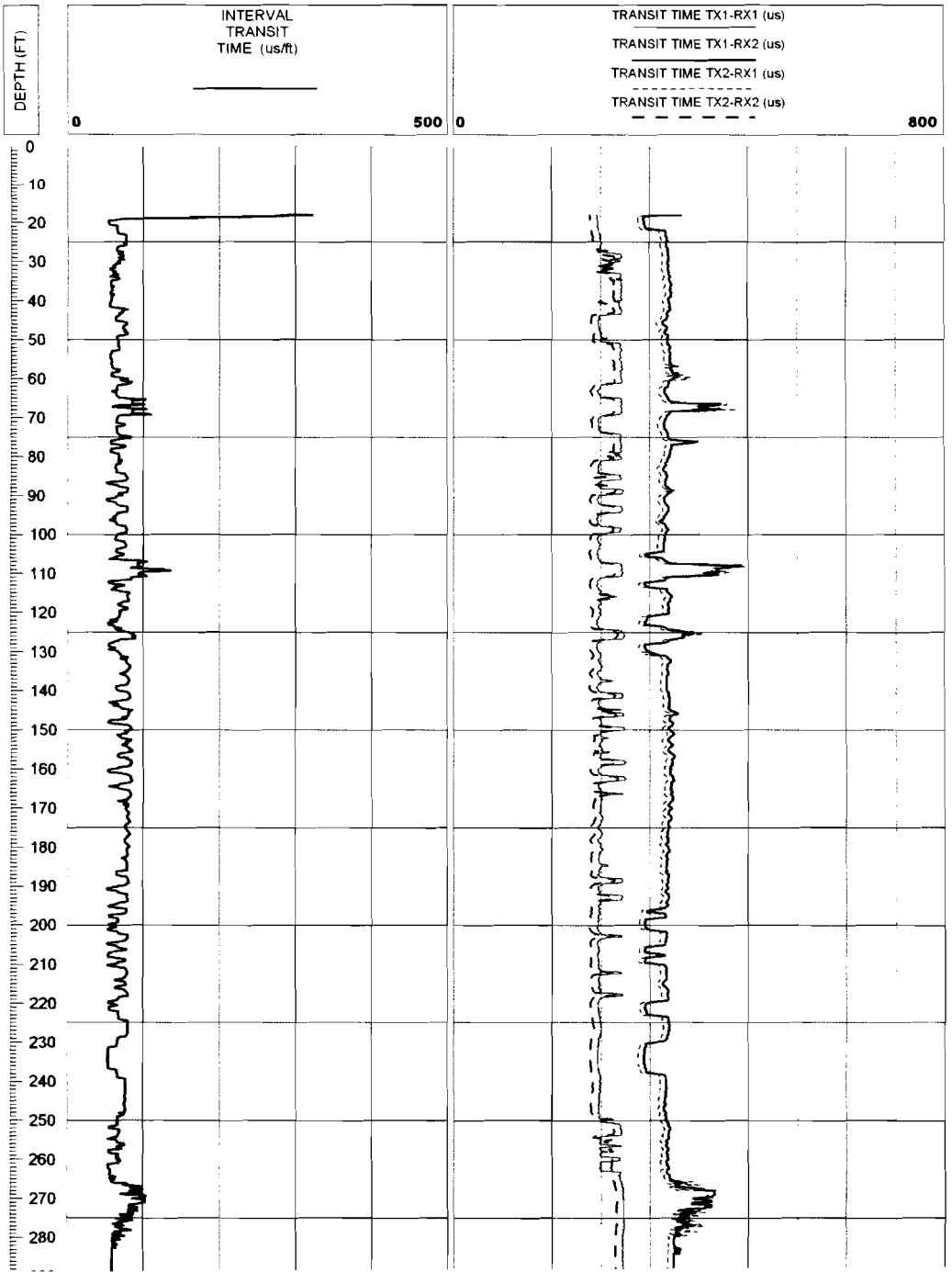
COMPANY: RMBAKER LLC
PROJECT: LAKE AJAY
WELL ID: **LFSMW**
COUNTY: OSCEOLA
STATE: FLORIDA
COUNTRY: USA

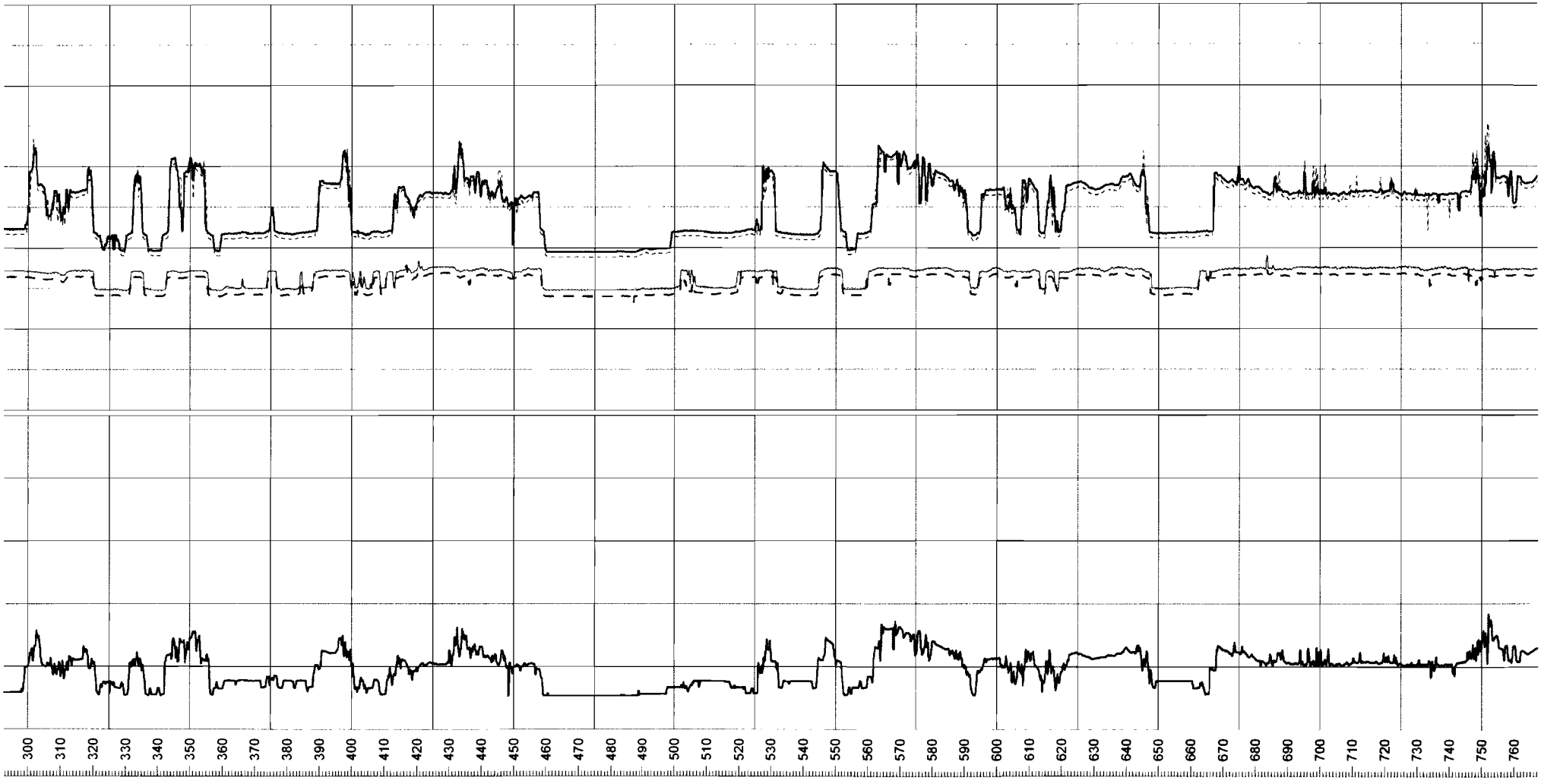
DATE: 8/12/09
LOG TYPE: SONIC
ALL SERVICES: ELOG;DUIN;SONIC;TCDS
LOG DATUM: GROUND SURFACE
ELEVATION: N/A
FLUID TYPE: WATER

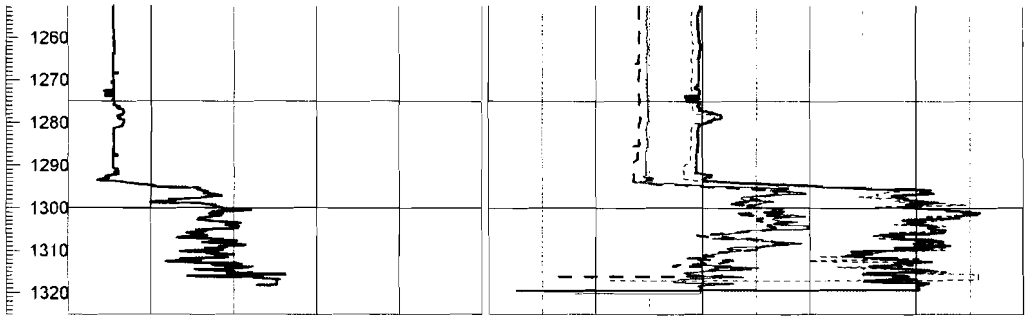
LOGGED BY: RMB
WITNESSED BY: MLJ
COORDINATES:

REMARKS
us = MICRO-SECONDS

BOREHOLE DESCRIPTION
0-1295 FT 6 INCH STEEL CASING; 1295-1325 FT OPEN HOLE 12.25 INCH NOMINAL







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rob@rmbaker.com

COMPANY: RMBAKER LLC
PROJECT: LAKE AJAY
WELL ID: **LFSMW**
COUNTY: OSCEOLA
STATE: FLORIDA
COUNTRY: USA

DATE: 8/12/09
LOG TYPE: SONIC
ALL SERVICES: ELOG;DUIN;SONIC;TCDS
LOG DATUM: GROUND SURFACE
ELEVATION: N/A
FLUID TYPE: WATER

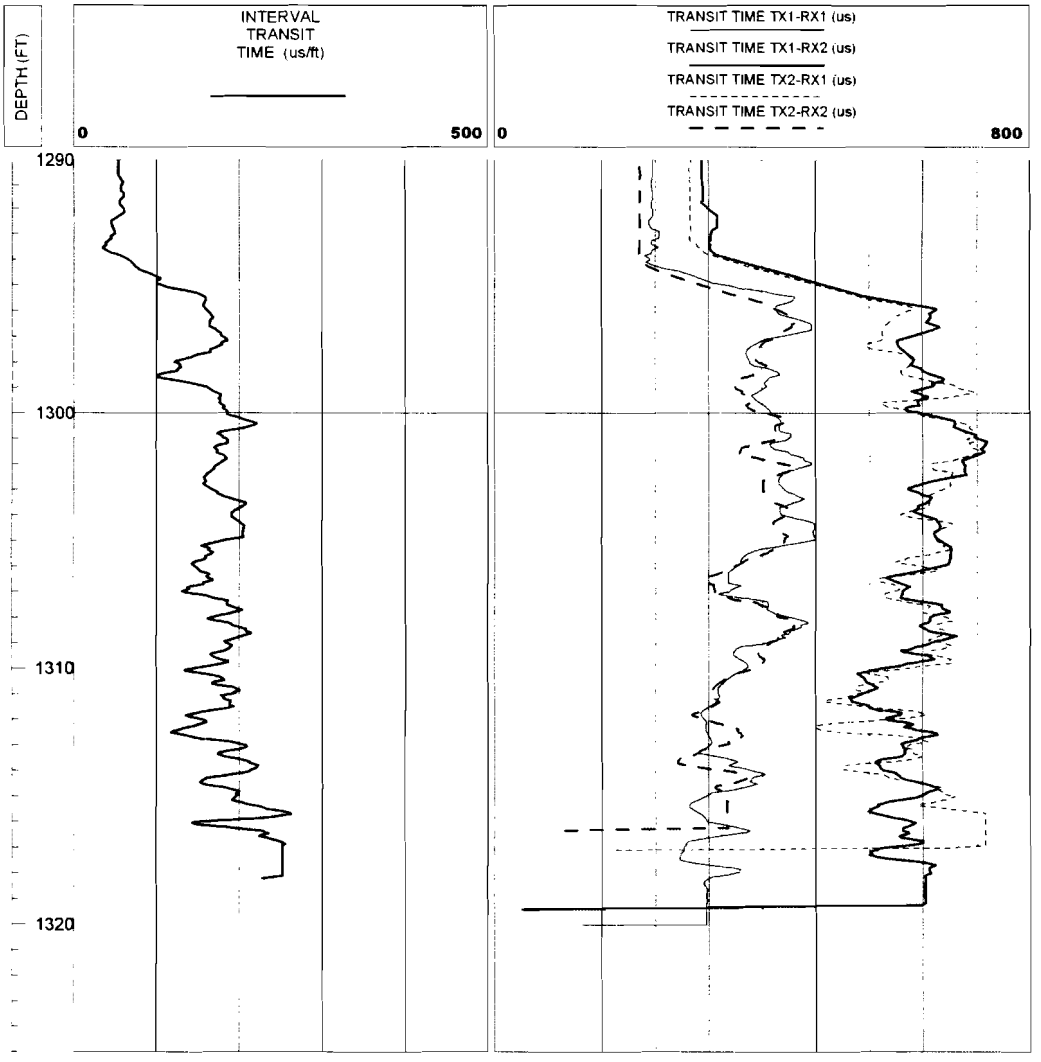
LOGGED BY: RMB
WITNESSED BY: MLJ
COORDINATES:

REMARKS

us = MICRO-SECONDS

BOREHOLE DESCRIPTION

0-1295 FT 6 INCH STEEL CASING; 1295-1325 FT OPEN HOLE 12.25 INCH NOMINAL



NOTES

While due care has been exercised in the performance of these measurements and observations in accordance with methodologies utilized by the general practioner, RMBAKER LLC can make no representations, warranties, or guarantees with respect to latent or concealed conditions that may exist, which may be beyond the detection capabilities of the methodologies used, or that may extend beyond the areas and depths surveyed.
The geophysical well logs show subsurface conditions as they existed at the dates and locations shown, and it is not warranted that they are representative of subsurface conditions at other locations and times. If at any time different subsurface conditions from those observed are determined to be present, we must be advised and allowed to review and revise our observations, if necessary.

Certificate of Authorization: GB 458

Appendix H
Well Development Data

PB

WELL DEVELOPMENT FIELD DATA SHEET

Project Number: 173690A
Client: STOPR
Location: Lake Ajay
Performed By: Mark Johnston
Date: 08/13/2009
Well ID: Lake Ajay – Lower Floridan Aquifer Monitoring Well

Casing Diameter: 2 inch ___ 3 inch ___ 4 inch ___ 4.5 inch ✓ 6 inch ___ Other ___

Depth Water Level (feet): 17.8 **End** 21.70
Well Total Depth (feet): 1,325 **End** ___
One Casing Volume (gal): 2,052 **Total Volume Purged (gal):** 11,340

DEVELOPMENT METHOD

___ Centrifugal Pump ___ Bailer (Teflon ®) ___ Other ___
✓ Submersible Pump ___ Bailer (PVC) ___ Pneumatic ___
Displacement Pump

FIELD INSTRUMENTS

✓ pH, EC, Temp. Meter ✓ NTU Meter ___ Imhoff Cone ___ Colorimeter ___ Other ___

Purge Water Disposal Method: ___

Date	Time	Discharge Rate (gpm)	Field Temp (°C)	E.C. @ Field Temp. (µmhos/cm)	pH (Stnd)	Turbidity		Color		Odor	Settleable Solids (%)	Total Chloride mg/l
						Visual (Heavy Moderate Light Trace)	NTU Scale = 0 to 100	Visual (Clear Cloudy Yellow Brown)	Cobalt Scale = 0 to 100			
08/13/09	9:00 AM	54	29.3	2030	6.93	Trace	12.88	Clear	-	-	-	280
08/13/09	9:10 AM	54	29.4	2038	6.97	Trace	15.01	Clear	-	-	-	-
08/13/09	9:20 AM	54	29.2	1999	6.98	Trace	14.99	Clear	-	-	-	280
08/13/09	9:30 AM	54	29.8	2040	7.01	Trace	13.39	Clear	-	-	-	-
08/13/09	9:50 AM	54	28.9	2018	7.00	Trace	13.88	Clear	-	-	-	-
08/13/09	10:10 AM	54	28.7	2011	6.99	Trace	13.91	Clear	-	-	-	-
08/13/09	10:30 AM	54	29.4	2014	6.99	Trace	14.08	Clear	-	-	-	-
08/13/09	10:45 AM	54	29.7	2017	7.02	Trace	12.99	Clear	-	-	-	-

WELL INTEGRITY: Excellent **LOCK #:** N/A

REMARKS:

SIGNATURE: ___ **Page** 1 **of** 2

PB

WELL DEVELOPMENT FIELD DATA SHEET

Project Number: 173690A
Client: STOPR
Location: Lake Ajay
Performed By: Mark Johnston
Date: 08/13/2009
Well ID: Lake Ajay – Lower Floridan Aquifer Monitoring Well

Casing Diameter: 2 inch ___ 3 inch ___ 4 inch ___ 4.5 inch ✓ 6 inch ___ Other ___

Depth Water Level (feet): 17.8 **End** 21.70
Well Total Depth (feet): 1,325 **End** ___
One Casing Volume (gal): 2,052 **Total Volume Purged (gal):** 11,340

DEVELOPMENT METHOD

___ Centrifugal Pump ___ Bailer (Teflon ®) ___ Other ___
✓ Submersible Pump ___ Bailer (PVC) ___ Pneumatic ___
Displacement Pump

FIELD INSTRUMENTS

✓ pH, EC, Temp. Meter ✓ NTU Meter ___ Imhoff Cone ___ Colorimeter ___ Other ___

Purge Water Disposal Method: ___

Date	Time	Discharge Rate (gpm)	Field Temp (°C)	E.C. @ Field Temp. (µmhos/cm)	pH (Stnd)	Turbidity Visual (Heavy Moderate Light Trace)	Turbidity NTU Scale = 0 to 100	Color Visual (Clear Cloudy Yellow Brown)	Color Cobalt Scale = 0 to 100	Odor	Settleable Solids (%)	Total Chloride mg/l
08/13/09	11:00 AM	54	29.7	2018	7.04	Trace	10.71	Clear	-	-	-	280
08/13/09	11:15 AM	54	29.5	2009	7.01	Trace	9.73	Clear	-	-	-	-
08/13/09	11:30 AM	54	29.5	2018	7.04	Trace	9.44	Clear	-	-	-	-
08/13/09	11:45 AM	54	29.7	2029	7.02	Trace	8.01	Clear	-	-	-	-
08/13/09	12:00 PM	54	28.6	2040	7.04	Trace	7.01	Clear	-	-	-	280
08/13/09	12:15 PM	54	29.1	2033	7.01	Trace	9.8	Clear	-	-	-	-
08/13/09	12:30 PM	54	29.9	2028	7.06	Trace	8.98	Clear	-	-	-	280

WELL INTEGRITY: Excellent **LOCK #:** N/A

REMARKS: ___

SIGNATURE: ___

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

8/26/2009 11:35:19AM

Client:	PB Americas Inc. 100 East Pine Street, Suite 500 Orlando, FL 32801	Work Order: Project Name: Project Number: Date Received:	NSH1162 STOPR Lake Ajay 08/14/09
Attn:	Mark Johnston		

SAMPLE IDENTIFICATION	LAB NUMBER	COLLECTION DATE AND TIME
Lake Ajay	NSH1162-01	08/13/09 12:45

Samples were received into laboratory at a temperature of 0.20 °C.

Comments: 08/26/09 Revised Report to change Ajuy to Ajay.

An executed copy of the chain of custody, the project quality control data, and the sample receipt form are also included as an addendum to this report. If you have any questions relating to this analytical report, please contact your Laboratory Project Manager. Any opinions, if expressed, are outside the scope of the Laboratory's accreditation.

Results are reported on a wet weight basis unless otherwise noted

The reported results were obtained in compliance with 2003 NELAC standards unless otherwise noted.

These results relate only to the items tested

Estimated uncertainty is available upon request.

Florida Certification Number: E87358

This report has been electronically signed.

Approved By:

TestAmerica Nashville
Shali Brown
Project Manager

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client:	PB Americas Inc.	Work Order:	NSH1162	Sampled:	08/13/09
	100 East Pine Street, Suite 500	Project:	STOPR	Received:	08/14/09
	Orlando, FL 32801	Project Number:	Lake Ajay		
Attn:	Mark Johnston				

LABORATORY REPORT

Sample ID: Lake Ajay - Lab Number: NSH1162-01 - Matrix: Water

CAS #	Analyte	Result	Q	Units	MDL	PQL	Dil Factor	Analyzed Date/Time	By	Method	Batch
General Chemistry Parameters											
Bicarb	**Bicarbonate Alkalinity as CaCO3**	**142**		mg/L	5.00	10.0	1	08/14/09 23:03	BMC	SM 2320B	9082242
3812-32-6	Carbonate as CaCO3	5.00	U	mg/L	5.00	10.0	1	08/14/09 23:03	BMC	SM 2320B	9082243
16887-00-6	**Chloride**	**292**		mg/L	15.0	50.0	50	08/20/09 14:42	JHS	EPA 300.0	9082825
Specificcond	**Specific conductance**	**2340**		umho/cm	10.0	10.0	1	08/18/09 12:01	MLM	SM2510 B	9082714
TDS	**Total Dissolved Solids**	**1720**		mg/L	5.00	10.0	1	08/14/09 20:04	BMC	SM2540 C	9082251
14808-79-8	**Sulfate**	**741**		mg/L	5.50	50.0	50	08/20/09 14:42	JHS	EPA 300.0	9082825
Total Metals by EPA Method 200.7											
7440-70-2	**Calcium**	**265**		mg/L	0.100	1.00	1	08/18/09 21:06	LTB	EPA 200.7	9082488
7439-95-4	**Magnesium**	**69.6**		mg/L	0.0660	1.00	1	08/18/09 21:06	LTB	EPA 200.7	9082488
7440-09-7	**Potassium**	**7.17**		mg/L	0.100	1.00	1	08/18/09 21:06	LTB	EPA 200.7	9082488
7440-23-5	**Sodium**	**156**		mg/L	0.820	1.00	1	08/18/09 21:06	LTB	EPA 200.7	9082488

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client: PB Americas Inc.
100 East Pine Street, Suite 500
Orlando, FL 32801
Attn: Mark Johnston

Work Order: NSH1162
Project: STOPR
Project Number: Lake Ajay

Sampled: 08/13/09
Received: 08/14/09

SAMPLE EXTRACTION DATA

Parameter	Lab Number	Wt/Vol Extracted	Extracted Vol	Date	Analyst	Method
Total Metals by EPA Method 200.7	NSH1162-01	50.0 mL	50.0 mL	08/18/2009	BTS	EPA 200.7
Total Metals by EPA Method 200.7	NSH1162-01	50.0 mL	50.0 mL	08/18/2009	BTS	EPA 200.7
Total Metals by EPA Method 200.7	NSH1162-01	50.0 mL	50.0 mL	08/18/2009	BTS	EPA 200.7
Total Metals by EPA Method 200.7	NSH1162-01	50.0 mL	50.0 mL	08/18/2009	BTS	EPA 200.7
General Chemistry Parameters	NSH1162-01	10.0 mL	10.0 mL	08/18/2009	JHS	NO PREP
General Chemistry Parameters	NSH1162-01	25.0 mL	25.0 mL	08/18/2009	MLM	NO PREP
General Chemistry Parameters	NSH1162-01	10.0 mL	10.0 mL	08/18/2009	JHS	NO PREP
General Chemistry Parameters	NSH1162-01	1.0 mL	1.0 g	08/14/2009	BMC	SOLIDS
General Chemistry Parameters	NSH1162-01	50.0 mL	50.0 g	08/14/2009	BMC	SOLIDS
General Chemistry Parameters	NSH1162-01	50.0 mL	50.0 g	08/14/2009	BMC	SOLIDS

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client: PB Americas Inc
100 East Pine Street, Suite 500
Orlando, FL 32801
Attn: Mark Johnston

Work Order: NSH1162
Project: STOPR
Project Number: Lake Ajay

Sampled: 08/13/09
Received: 08/14/09

PROJECT QUALITY CONTROL DATA
Blank

Analyte	Blank Value	Q	Units	Q.C. Batch	Lab Number
General Chemistry Parameters					
Bicarbonate Alkalinity as CaCO3	5.00	U	mg/L	9082242	9082242-BLK1
Carbonate as CaCO3	5.00	U	mg/L	9082243	9082243-BLK1
Chloride	0.300	U	mg/L	9082825	9082825-BLK1
Specific conductance	10.0	U	umho/cm	9082714	9082714-BLK1
Sulfate	0.110	U	mg/L	9082825	9082825-BLK1
Total Dissolved Solids	5.00	U	mg/L	9082251	9082251-BLK1
Total Metals by EPA Method 200.7					
Calcium	0.377	I	mg/L	9082488	9082488-BLK1
Magnesium	0.0660	U	mg/L	9082488	9082488-BLK1
Potassium	0.100	U	mg/L	9082488	9082488-BLK1
Sodium	0.820	U	mg/L	9082488	9082488-BLK1

PROJECT QUALITY CONTROL DATA
Duplicate

Analyte	Orig. Val.	Duplicate	Q	Units	RPD	RPD Limit	Q.C. Batch	Sample Duplicated
General Chemistry Parameters								
Bicarbonate Alkalinity as CaCO3	142	142		mg/L	0.6	20	9082242	NSH1162-01
Carbonate as CaCO3	<5.00	5.00	U	mg/L		20	9082243	NSH1162-01
Chloride	292	308		mg/L	5	20	9082825	NSH1162-01
Specific conductance	1730	1730		umho/cm	0	10	9082714	NSH1199-01
Sulfate	741	787		mg/L	6	20	9082825	NSH1162-01
Total Dissolved Solids	108	118		mg/L	9	20	9082251	NSH1064-10
Total Dissolved Solids	122	127		mg/L	4	20	9082251	NSH1183-03

PROJECT QUALITY CONTROL DATA
LCS

Analyte	Known Val	Analyzed Val	Q	Units	% Rec	Target Range	Q.C. Batch
General Chemistry Parameters							
Chloride	3.00	3.11		mg/L	104	90 - 110	9082825
Specific conductance	1410	1420		umho/cm	100	90 - 110	9082714
Sulfate	15.0	15.5		mg/L	104	90 - 110	9082825
Total Dissolved Solids	100	95.0		mg/L	95	90 - 110	9082251
Total Metals by EPA Method 200.7							
Calcium	5.00	4.97		mg/L	99	85 - 115	9082488
Magnesium	5.00	4.99		mg/L	100	85 - 115	9082488
Potassium	5.00	5.06		mg/L	101	85 - 115	9082488
Sodium	5.00	5.27		mg/L	105	85 - 115	9082488

TestAmerica Nashville
Shali Brown
Project Manager

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

2960 Foster Creighton Road Nashville, TN 37204 * 800-765-0980 * Fax 615-726-3404

Client: PB Americas Inc.
100 East Pine Street, Suite 500
Orlando, FL 32801
Attn. Mark Johnston

Work Order: NSH1162
Project: STOPR
Project Number: Lake Ajay

Sampled: 08/13/09
Received: 08/14/09

PROJECT QUALITY CONTROL DATA
LCS Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec.	RPD	RPD Limit	Q.C. Batch	Sample Duplicated
General Chemistry Parameters										
Total Dissolved Solids		97.0		mg/L	100	97	2	20	9082251	
Total Metals by EPA Method 200.7										
Calcium		4.95		mg/L	5.00	99	0.4	20	9082488	
Magnesium		4.99		mg/L	5.00	100	0.02	20	9082488	
Potassium		5.03		mg/L	5.00	101	0 6	20	9082488	
Sodium		5.30		mg/L	5.00	106	0.5	20	9082488	

PROJECT QUALITY CONTROL DATA
Matrix Spike

Analyte	Orig. Val.	MS Val	Q	Units	Spike Conc	% Rec.	Target Range	Batch	Sample Spiked
General Chemistry Parameters									
Chloride	292	0.300	MHA,	mg/L	3.00	-9750	80 - 120	9082825	NSH1162-01
Sulfate	741	0.110	MHA,	mg/L	15.0	-4940	80 - 120	9082825	NSH1162-01
Total Metals by EPA Method 200.7									
Calcium	21.3	25.8		mg/L	5.00	91	70 - 130	9082488	NSH1171-01
Magnesium	1.82	6.72		mg/L	5.00	98	70 - 130	9082488	NSH1171-01
Potassium	1.06	6.14		mg/L	5.00	102	70 - 130	9082488	NSH1171-01
Sodium	3.06	8.27		mg/L	5.00	104	70 - 130	9082488	NSH1171-01

PROJECT QUALITY CONTROL DATA
Matrix Spike Dup

Analyte	Orig. Val.	Duplicate	Q	Units	Spike Conc	% Rec	RPD	RPD Limit	Q.C. Batch	Sample Duplicated
General Chemistry Parameters										
Chloride	292	0.300	MHA,	mg/L	3.00	-9750		20	9082825	NSH1162-01
Sulfate	741	0.110	MHA,	mg/L	15.0	-4940		20	9082825	NSH1162-01
Total Metals by EPA Method 200.7										
Calcium	21.3	26 4		mg/L	5.00	102	2	20	9082488	NSH1171-01
Magnesium	1.82	6 77		mg/L	5.00	99	0.8	20	9082488	NSH1171-01
Potassium	1.06	6.19		mg/L	5.00	103	0 8	20	9082488	NSH1171-01
Sodium	3 06	8.31		mg/L	5 00	105	0 4	20	9082488	NSH1171-01

TestAmerica Nashville
Shali Brown
Project Manager

Client:	PB Americas Inc.	Work Order:	NSH1162	Sampled:	08/13/09
	100 East Pine Street, Suite 500	Project:	STOPR	Received:	08/14/09
	Orlando, FL 32801	Project Number:	Lake Ajay		
Attn:	Mark Johnston				

CERTIFICATION SUMMARY

TestAmerica Nashville

Method	Matrix	A2LA	AIHA	Nelac	Florida
EPA 200.7	Water		N/A	X	X
EPA 300.0	Water		N/A	X	X
SM 2320B	Water		N/A		X
SM2510 B	Water			X	X
SM2540 C	Water		N/A	X	X

DATA QUALIFIERS AND DEFINITIONS

I	The reported value is between the laboratory method detection limit and method reporting limit.
MHA	Due to high levels of analyte in the sample, the MS/MSD calculation does not provide useful spike recovery information. See Blank Spike (LCS).
U	The compound was analyzed for but not detected

ADDITIONAL COMMENTS

When insufficient sample volume is received for Matrix Spike and Matrix Spike Duplicate, Laboratory Control Spike and Laboratory Control Spike Duplicate data is used for batch QC.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

COOLER RECEIP

NSH1162

Cooler Received/Opened On 8/13/09 @ 08:10

1. Tracking # 7096 (last 4 digits, FedEx)

   Courier: FedEx IR Gun ID 94660220

2. Temperature of rep. sample or temp blank when opened: 0.2 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES NO NA

   If yes, how many and where: _____

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) _____

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence # _____

I certify that I unloaded the cooler and answered questions 7-14 (intial) _____

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES..NO..NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) _____

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) _____

I certify that I attached a label with the unique LIMS number to each container (intial) _____

21. Were there Non-Conformance issues at login? YES...NO Was a PIPE generated? YES...NO #_____

Bottles list:
Chloride
Sulfate
TDS
Conductivity
Alk
Bicarbonate
200.7 Ca, Mg, K, Na

BIS = Broken in shipment
Cooler Receipt Form doc

FF-1
End of Form

Revised 6/24/09

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Orlando Division
4310 East Anderson Road
Orlando, FL 32812

Phone 407-851-2560 or 800-851-2560
Fax 407-856-0886

To assist us in using the proper analytical methods, is this work being conducted for regulatory purposes?
Compliance Monitoring: yes (WUP)

Client Name: PB Americas Inc Client #:
Address: 100 East Pine Street
City/State/Zip Code: Orlando, Fl 32801
Project Manager: Mark Johnston
Telephone Number: 407 587-7824 Fax:
Sampler Name: (Print Name) Mark Johnston
Sampler Signature: Mark L Johnston

Project Name: STOPR
Project #: Lake Ajay
Site/Location ID: Lake Ajay State: Fl
Report To: Mark Johnston
Invoice To: PB Americas Inc
Quote #: PO#:

TAT: X Standard; ___ Rush (surcharges may apply)
Date Needed:
Fax Results: Y N

SAMPLE ID	Date Sampled	Time Sampled	G = Grab, C = Composite	Field Filtered	Matrix (SL - Sludge DW - Drinking Water GW - Groundwater S - Soil/Solid WW - Wastewater Specify Other)	HNO_3	HCl	NaOH	H_2SO_4	Methanol	None	Other (Specify)	See Bottle Set	*plus add turb*								REMARKS
Lake Ajay	8/13/09	1245	G		GW	1					1											

QC Deliverables: ___ None; ___ Level 2 (Batch QC); ___ Level 3; ___ Level 4; Other: ___

NSH1162
08/25/09 23:59

Special Instructions:

Relinquished By	Date	Time	Received By	Date	Time
Mark Johnston	8/13/09	2:34	Debbie Lagerhaust	8/13/09	14:38
			[signature]	8.13.09	0816

LABORATORY COMMENTS:
Init Lab Temp:
Rec Lab Temp: 0.2
Custody Seals: Y N N/A
Bottles Supplied by TestAmerica: Y N
Method of Shipment:

Appendix I
Driller Well Completion Report Provided to SFWMD

September 15, 2009

Fed Ex # 7979 3186 7567

Supervising Hydrogeologist – Post-Permit Compliance
Water Use Regulation Division (4320)
South Florida Water Management District
P.O. Box 24680
West Palm Beach, FL 33416-4680

Re: South Florida Water Management District Water Use Permit:

Tohopekaliga Water Authority: 49-00103-W

Lake Ajay Saline Monitoring Well Completion Report Update

Dear sir / madam,

The Tohopekaliga Water Authority (TWA) is pleased to submit two copies of an updated well completion report for the Lake Ajay Saline monitoring well to the South Florida Water Management District (SFWMD) for the above referenced Water Use Permit (WUP). This updated well completion information for the Lake Ajay Saline Groundwater Monitoring Well is being submitted in accordance with Condition 31 of the above referenced WUP issued on August 24, 2007. This updated report is being submitted since upon reviewing the original submission it was determined that some information had been omitted from the original report. If you have any questions or require additional information please contact me at (407) 518-2256 or email me at SFICK@TOHOWATER.COM.

Respectfully submitted,

S A Fick

Scott A. Fick
Environmental Specialist – Tohopekaliga Water Authority

Attachments: A/S

cc: Ms. Deb Beatty, P.E., TWA
Mr. Brian Wheeler, P.E., TWA
Mr. Robert Pelham, P.E., TWA
Ms. Veronica Miller, City of St. Cloud
Mr. Todd Swingle, P.E., City of St. Cloud
File

Toho Water Authority

101 N Church Street • Kissimmee FL 34741-5054
407-518-2161 • Fax 407-847-7945 • www.tohowater.com

MUST BE COMPLETELY FILLED OUT OR FORM WILL BE RETURNED FOR NON-COMPLAINCE

Date Stamp
2ND PAGE REQ'D
Official Use Only

STATE OF FLORIDA WELL COMPLETION REPORT

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

PLEASE, FILL OUT ALL APPLICABLE FIELDS
(*Denotes Required Field)

*Permit Number 49-59-07505 CUP/WUP Number ______ DID Number ______
*Indicate the number of wells drilled 1 *Indicate remaining permitted wells to be cancelled 0
*Owner's Name Toho Water Authority *Completion Date 8-14-09 Florida Unique ID ______

WELL LOCATION
*Site Address, Road Name or Number, City, Zip 3194 Forest Breeze Way St. Cloud
*County Osceola *Section/Land Grant 4 *Township 25S *Range 31E 62-524 Delineation No. ______
Latitude ______ Longitude ______

*TYPE OF WORK: ___Construct ___Repair ___Abandonment ___Modify
*SPECIFY USES OF WELL :
___Domestic ___Landscape Irrigation ___Agricultural Irrigation X Monitor
___Bottled Water Supply ___Recreation Area Irrigation ___Livestock ___Test
___Aquacultural ___Recovery
___Public Water Supply (Limited Use/DOH) ___Nursery Irrigation ___Earth-Coupled Heat Pump
___Public Water Supply (Community or Non-Community/DEP) ___Commercial/Industrial ___HVAC Supply
___Golf Course Irrigation ___HVAC Return
___Class I Injection
___Class V Injection (___Recharge ___Commercial/Industrial Disposal ___Aquifer Storage and Recovery ___Drainage)
___Other ______ (Note: Not all types of wells are permitted by a given permitting authority)

*DRILL METHOD (Check One): ___Auger ___Cable Tool ___Combination (Two or More Methods)
___Horizontal Drilling ___Jetted X Rotary ___Hand Driver (Well Point, Sand Point)
___Sonic ___Hydraulic Point (Direct Push) ___Other ______
Measured Static Water Level 17.8 Ft Measured Pumping Water Level 21.7 Ft After 1 Hours at 54 GPM
Measuring Point (Describe): Top of 16-inch casing Which is 2.15 ft. ✓ Above ___ Below Land Surface
*Casing Material: X Black Steel ___Galvanized ___PVC ___Stainless Steel ___Fiberglass
___Not Cased ___Other ______
*Total Well Depth: 1325 ft. *Open Hole: from 1295 to 1325 ft. *Screen: from ___ to ___ ft. *Slot Size ___

*ABANDONMENT ___ OTHER(Explain) ______

From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___

*SURFACE CASING DIAMETER AND DEPTH

Dia 16 in.	From 0 ft.	To 315 ft.	No. of Bags 440	Seal Material (Check One): X Neat Cement	___Bentonite	___Other___
Dia 24 in.	From 0 ft.	To 285 ft.	No. of Bags 430	Seal Material (Check One): X Neat Cement	___Bentonite	___Other___

SEE ATTACHED SHEET FOR STAGES AND MAT DIA.

*PRIMARY CASING DIAMETER AND DEPTH

Dia 6 in.	From 0 ft.	To 1295 ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___

*LINER CASING DIAMETER AND DEPTH

Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___

*TELESCOPE CASING DIAMETER AND DEPTH

Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___
Dia___in.	From___ft.	To___ft.	No. of Bags___	Seal Material (Check One):___Neat Cement	___Bentonite	___Other___

PUMP TYPE (If Known):
___Centrifugal ___Jet ✓ Submersible ___Turbine
Horsepower 1 Pump Capacity (GPM) 72
Pump Depth 65 ft. Intake Depth 64 ft.

CHEMICAL ANALYSIS (When Required):
Iron___ppm Sulfate___ppm Chloride___ppm
___Laboratory Test ___Field Test Kit

WATER WELL CONTRACTOR
*Contractor Name Tom Salter *License Number 3206 E-mail Address tts@cowedrilling.com
*Contractor's Signature T. Salter *Driller's Name (Print or Type) David Williamson
(I certify that the information provided in this report is accurate and true.)

FORM: 62-532.900(2) EFFECTIVE DATE: December 1, 2008

RECD JAN 20 2009

Sealing of the 6-inch Casing

Depth (feet below land surface)	Description of Material Used to Fill Annulus
0 to 468	530 sacks of cement
468 to 490	52 cubic feet of gravel & 1 sack of bentonite hole plug
490 to 884	616 sacks of cement
884 to 907	69 cubic feet of gravel
907 to 1275	881 sacks of cement
1275 to 1289	6 sacks of cement & 6.7 cubic feet of sand
1289 to 1295	10 cubic feet of sand & 1 cubic feet of gravel & 1 sack of bentonite hole plug

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

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

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

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

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

DRILL CUTTINGS LOG (Examine cuttings every 20 ft. or at formation changes. Note cavities and depth to producing zones.

From (ft.)	To (ft.)	Color	Grain Size (F, M, C)	Material

COMMENTS

DETAILED SITE PLAN REQUIRED OF AS DRILLED/ABANDONED

Detailed Site Map of Well Location

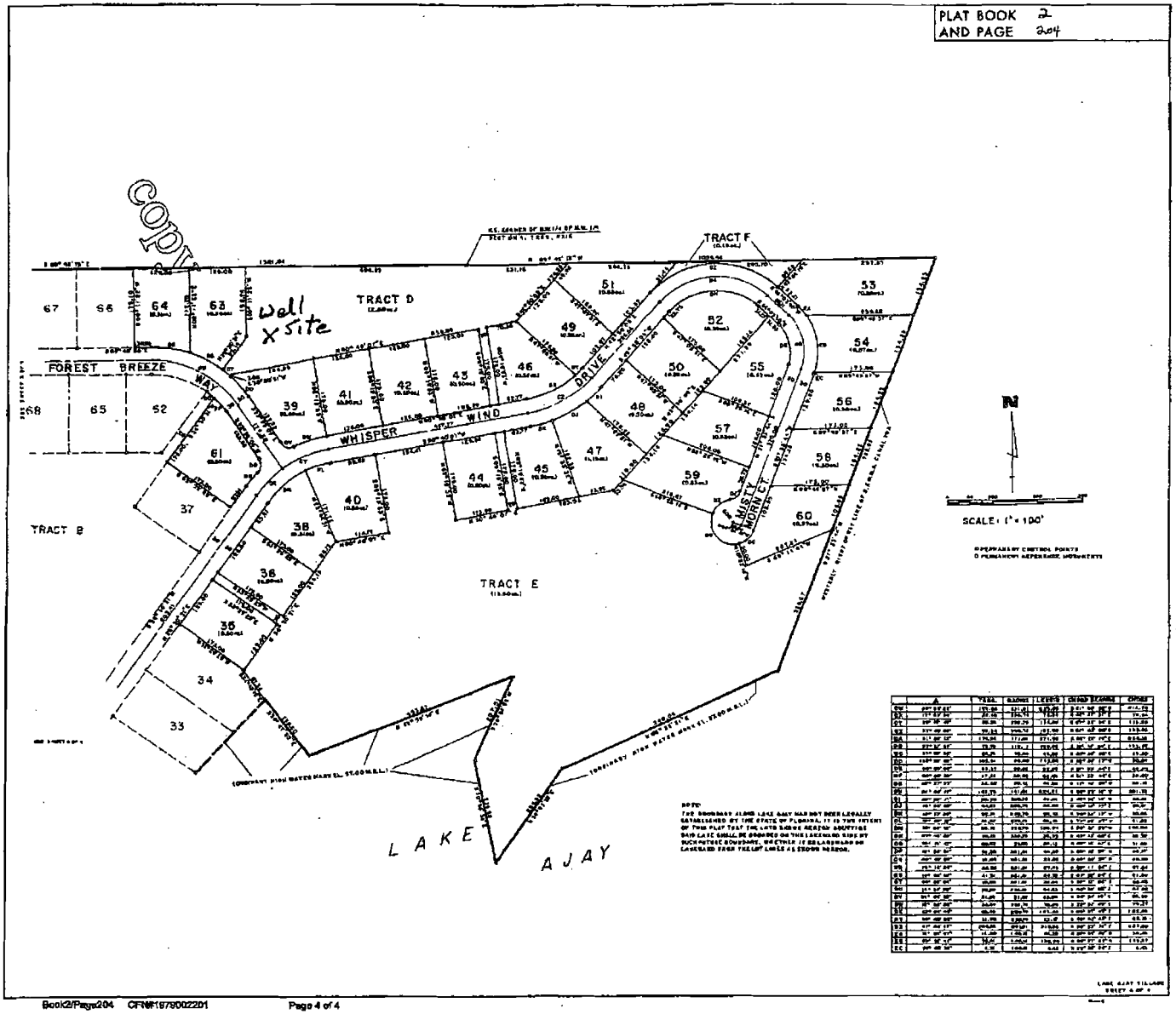
N

Give distances from all reference points or structures, septic systems, sanitary hazards, and contamination sources within 500 ft. of well.

FORM :62.532.900(2) EFFECTIVE DATE: December 1, 2008

REC'D JAN 20 2009

PLAT BOOK 2
AND PAGE 204



Appendix J
Driller Formation Log

Lake Ajay Formation Log

0-35	Sand
35-67	Sand with some gravel and clay
67-110	Soft Sandy Clay
110-170	Sand briddle clay and Pea gravel
170-220	Sand briddle clay and Pea gravel and Quartz Sand
220-230	Limestone with a little Clay and Shell
230-250	Tan Limestone with a little Clay and Shell
250-375	Tan Limestone
375-405	Soft to Medium Tan Limestone
405-417	Tan Limestone with a little Clay
417-480	Darker Tan Limestone with Dolistone and Dolimite Hard to Medium
480-482	Fine Brown Limestone Like Sand, Soft
482-505	Dolistone Brown and Gray, Very Hard and Dredging
505-690	Soft Tan Limestone
690-706	Medium Hard Tan Limestone
706-727	Soft Tan Limestone
727-830	Medium Tan Limestone
830-840	Soft Tan Limestone
840-910	Really Soft Tan Limestone
910-930	Medium Tan Limestone
930-957	Soft Tan Limestone
957-973	Medium Tan Limestone, Dredging from 957-973
973-1025	Soft to Medium Tan Limestone
1025-1060	Medium Tan Limestone and Dolistone
1060-1150	Medium to Hard Tan Limestone and Dolistone
1150-1170	Hard Dark Tan Limestone and Dolimite
1170-1210	Hard Dark Tan Limestone and Dolimite with Gray Rock
1210-1350	Hard Dark Tan Limestone and Dolimite with Gray Rock

The hole was drilled to 1350 and back plugged to 1325

Appendix K
June 17, 2009 Correspondence with SFWMD

Schlutermann, George A.

From: Sweazy, Chris [csweazy@sfwmd.gov]
Sent: Wednesday, June 17, 2009 4:28 PM
To: Schlutermann, George A.
Cc: gogden@sfwmd.gov
Subject: FW: STOPR Saline Monitor Well Compliance

George,

George Ogden consulted with me on your question last week – attached is my response. He has indicated he concurs with my opinion and asked that I forward this to you. He thought I had already sent this on to your attention – looks like my bad. I hope this addresses your question.

Chris

From: Sweazy, Chris
Sent: Tuesday, June 09, 2009 5:38 PM
To: Ogden, George
Subject: STOPR Saline Monitor Well Compliance

George,

Below is the condition from the STOPR permits that refers to the saline monitoring well network. The well being constructed at Lake Ajay represents well #5 on the list of wells. As we had indicated to the geologists at PB Water, the goal for the Lake Ajay well is to collect isolated water samples at or near the 250 mg/l concentration level which is, for purposes of the permit condition, interpreted as the location of the saline/freshwater interface. What we are looking for is the ability to monitor of long term trends in water quality changes near this interface.
I believe the consultant has done his best to demonstrate by packer testing of the well that the proposed open-hole interval of 1295-1325 ft bls will result in the collection of samples having chloride concentrations reasonably near the 250 mg/l target level and that will, in compliance with the permit condition, allow us to meet our real goal of monitoring water quality trends near the interface. While regulatory has the final call on this, my opinion is that we should accept the well pending submittal of the completion report and sampled water quality data (last part of the condition).

Chris

Condition Wording:

The Permittee shall, in partnership with other Permittees or by itself, collect water quality samples from the following wells on a quarterly basis to be analyzed for specific conductance, TDS, and chloride concentration:

1. *Orange County Utilities SRWSF TP-2*
2. *SFWMD Well OSF-0081*
3. *ER-LFMW Eastern Regional Lower Floridan*
4. *OR0676 SJRWMD Lower Floridan*
5. *Proposed well within T25S, R31 E or within T26S, R31E*

The proposed saline monitoring well shall be installed within 18 months of permit issuance by the Permittee, in partnership with other Permittees or by itself, at a District-approved location within Township 25 South, Range 31 East or within Township 26 South, Range 31 East. This well must be completed within portions of the Floridan aquifer where the saline water interface exists (chloride concentration greater than 250 mg/l). Well construction and specific site testing information gathered during the well installation shall be submitted to the District as part of a completion report no later than two years from permit issuance.

Chris Sweazy, P.G.
Kissimmee Basin Water Supply Plan Coordinator
South Florida Water Management District
1707 Orlando Central Pky., Suite 200
Orlando, Florida 32809
ph: 407-858-6100, ext 3822
cell: 407-738-9259