



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1085179
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

- Deepening Re-perf. Conv. to ENHR Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite: _____

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested
Date: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____

1085179

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ Producing Method:
 Flowing Pumping Gas Lift Other *(Explain)* _____

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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DRILL STEM TEST REPORT

Prepared For: **TDI Inc**

1310 Bison Rd
Hays KS 67601

ATTN: Tom Denning

Werth #1

5-13s-20w Ellis,KS

Start Date: 2012.05.06 @ 15:16:16

End Date: 2012.05.06 @ 22:00:46

Job Ticket #: 44787 DST #: 1

Trilobite Testing, Inc
PO Box 362 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2012.05.08 @ 16:20:26

TDI Inc
5-13s-20w Ellis,KS
Werth #1
DST # 1
Arbuckle
2012.05.06



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TDI Inc
1310 Bison Rd
Hays KS 67601
ATTN: Tom Denning

5-13s-20w Ellis,KS
Werth #1
Job Ticket: 44787 **DST#: 1**
Test Start: 2012.05.06 @ 15:16:16

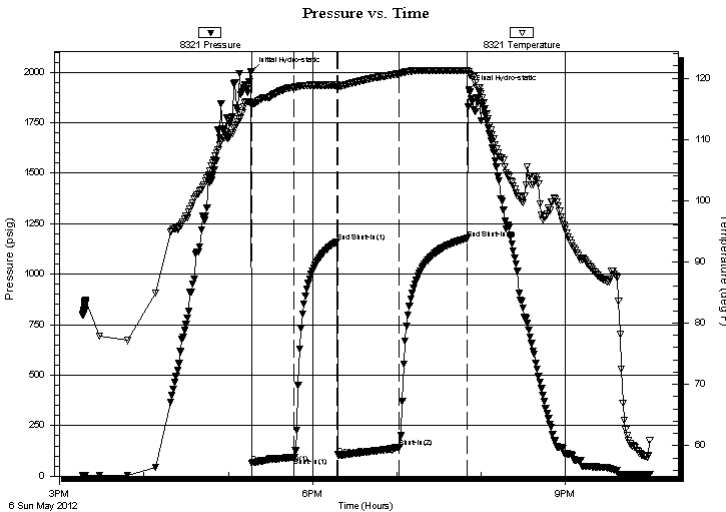
GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 17:16:46
Time Test Ended: 22:00:46
Interval: 3742.00 ft (KB) To 3820.00 ft (KB) (TVD)
Total Depth: 3901.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Test Type: Inflate Straddle (Initial)
Tester: Jeff Brown
Unit No: 44
Reference Elevations: 2162.00 ft (KB)
2152.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8321 Inside
Press @ Run Depth: 144.60 psig @ 3811.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.05.06 End Date: 2012.05.06 Last Calib.: 2012.05.06
Start Time: 15:16:17 End Time: 21:59:46 Time On Btm: 2012.05.06 @ 17:16:16
Time Off Btm: 2012.05.06 @ 19:51:16

TEST COMMENT: IFP-Good blow BOB in 22 min
ISI-Weak surface blow back
FFP-Good blow BOB in 19 1/2 min
FSI-Weak surface blow back died out in 20 min

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2005.09	115.85	Initial Hydro-static
1	64.76	115.57	Open To Flow (1)
31	94.59	118.50	Shut-In(1)
61	1160.04	118.90	End Shut-In(1)
62	105.69	118.65	Open To Flow (2)
106	144.60	120.74	Shut-In(2)
154	1177.78	121.26	End Shut-In(2)
155	1913.31	120.65	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
63.00	V SOCGM 10%G 3%O 87%M	0.88
46.00	HO CM 25%G 75%O	0.65
126.00	Gassy Oil 20%G 80%O	1.77

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI Inc
1310 Bison Rd
Hays KS 67601
ATTN: Tom Denning

5-13s-20w Ellis,KS
Werth #1
Job Ticket: 44787 **DST#: 1**
Test Start: 2012.05.06 @ 15:16:16

Tool Information

Drill Pipe:	Length: 3745.00 ft	Diameter: 3.80 inches	Volume: 52.53 bbl	Tool Weight:	2200.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	22000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	54000.00 lb
			<u>Total Volume: 52.53 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial	44000.00 lb
Depth to Top Packer:	3742.00 ft			Final	46000.00 lb
Depth to Bottom Packer:	3820.00 ft				
Interval between Packers:	78.00 ft				
Tool Length:	179.00 ft				
Number of Packers:	2	Diameter:	6.75 inches		
Tool Comments:					

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			3723.00	
Shut In Tool	5.00			3728.00	
Hydraulic tool	5.00			3733.00	
Packer	4.00			3737.00	20.00 Bottom Of Top Packer
Packer	5.00			3742.00	
Stubb	1.00			3743.00	
Perforations	6.00			3749.00	
Change Over Sub	1.00			3750.00	
Drill Pipe	60.00			3810.00	
Change Over Sub	1.00			3811.00	
Recorder	0.00	8321	Inside	3811.00	
Recorder	0.00	8737	Outside	3811.00	
Perforations	5.00			3816.00	
Blank Off Sub	1.00			3817.00	
Stubb	3.00			3820.00	78.00 Tool Interval
Packer	1.00			3821.00	
Stubb	1.00			3822.00	
Perforations	11.00			3833.00	
Change Over Sub	1.00			3834.00	
Recorder	0.00	8679	Below	3834.00	
Drill Pipe	63.00			3897.00	
Change Over Sub	1.00			3898.00	
Bullnose	3.00			3901.00	81.00 Bottom Packers & Anchor
Total Tool Length:		179.00			



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI Inc
1310 Bison Rd
Hays KS 67601
ATTN: Tom Denning

5-13s-20w Ellis,KS
Werth #1
Job Ticket: 44787 **DST#: 1**
Test Start: 2012.05.06 @ 15:16:16

Mud and Cushion Information

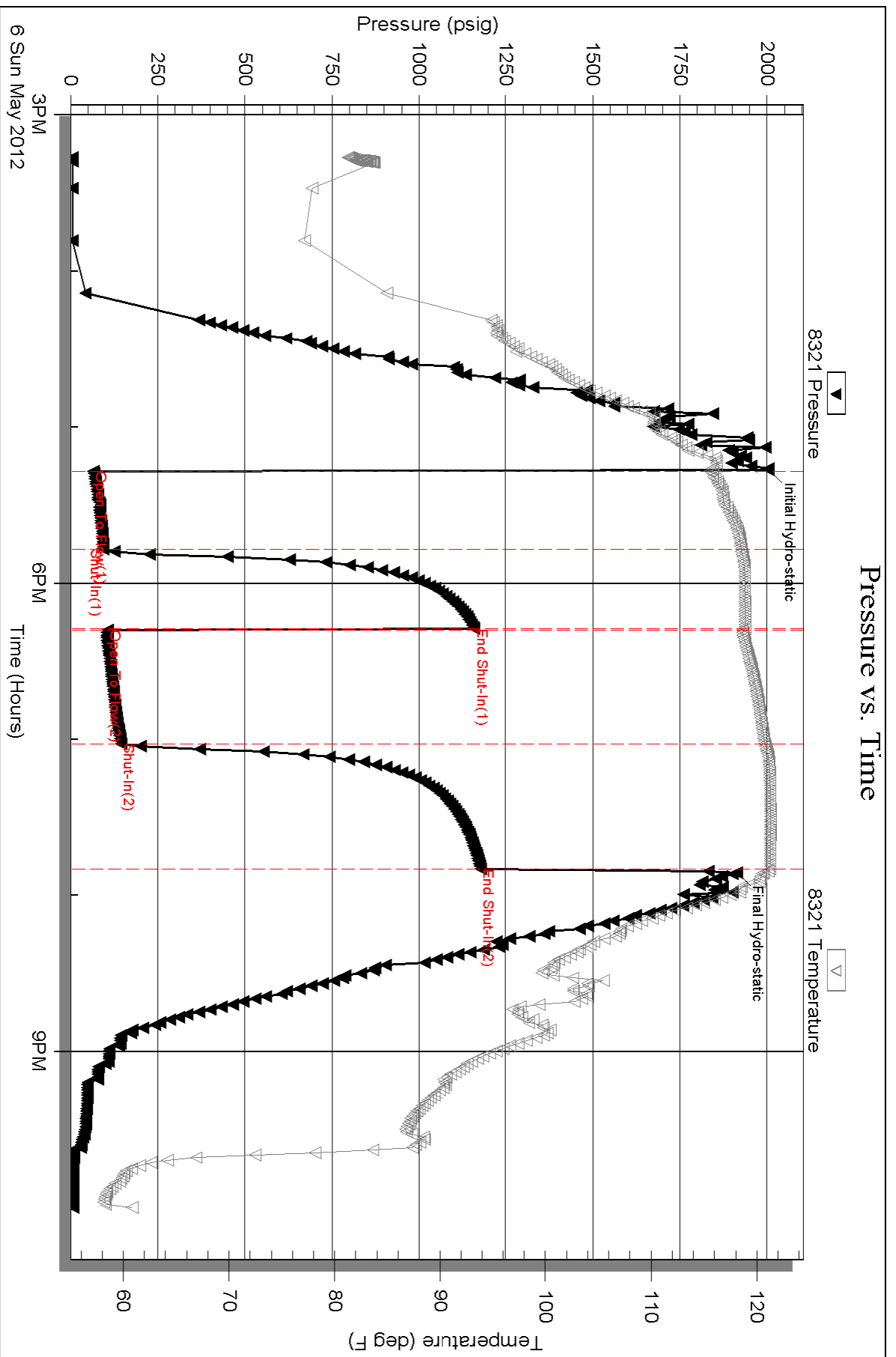
Mud Type: Gel Chem	Cushion Type:	Oil API: 34 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 59.00 sec/qt	Cushion Volume: bbl	
Water Loss: 6.79 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 1900.00 ppm		
Filter Cake: inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	VSOCGM 10%G 3%O 87%M	0.884
46.00	HOCM 25%G 75%O	0.645
126.00	Gassy Oil 20%G 80%O	1.767

Total Length: 235.00 ft Total Volume: 3.296 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

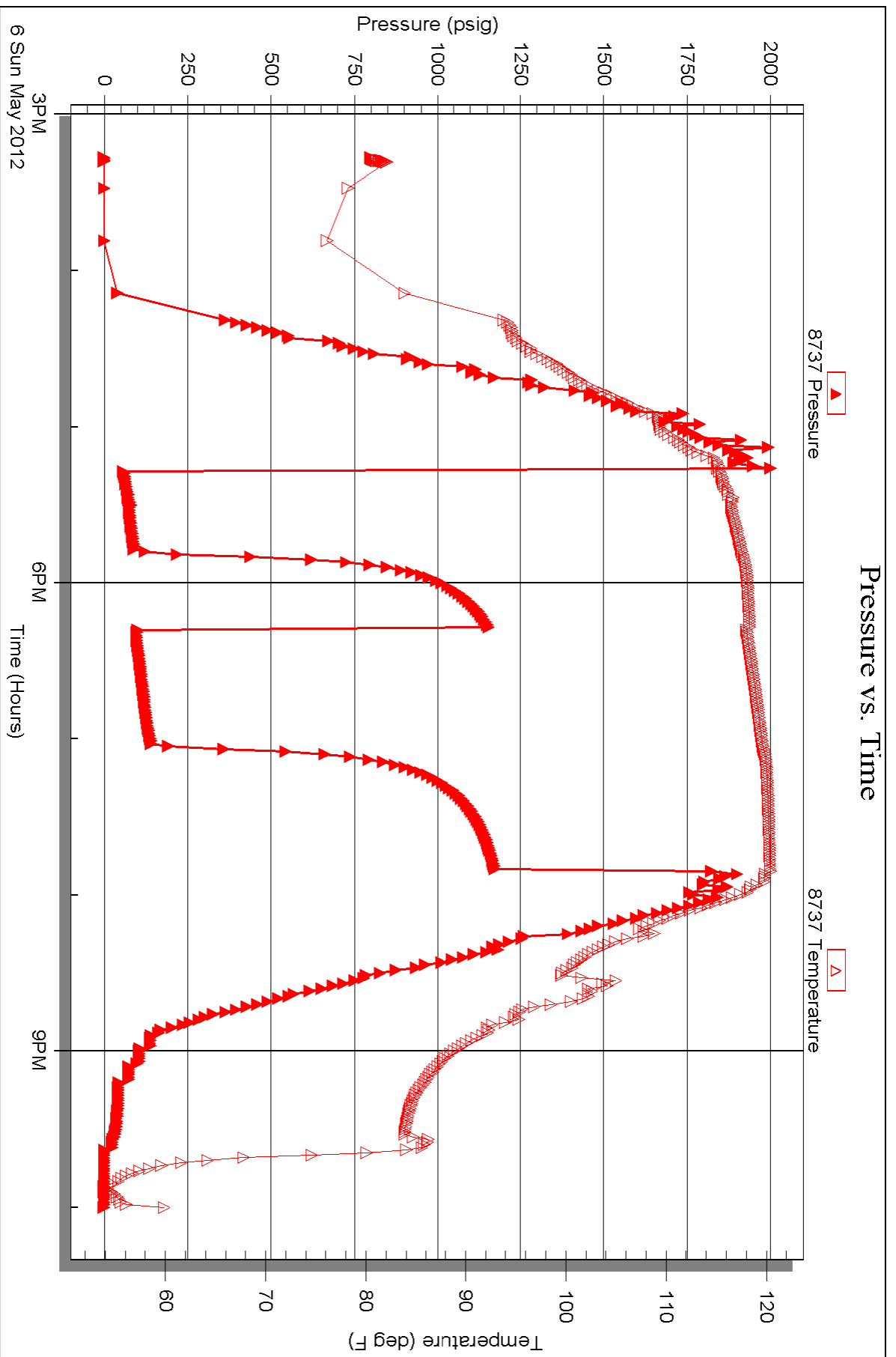


Serial #: 8737

Outside TDI Inc

Merth #1

DST Test Number: 1

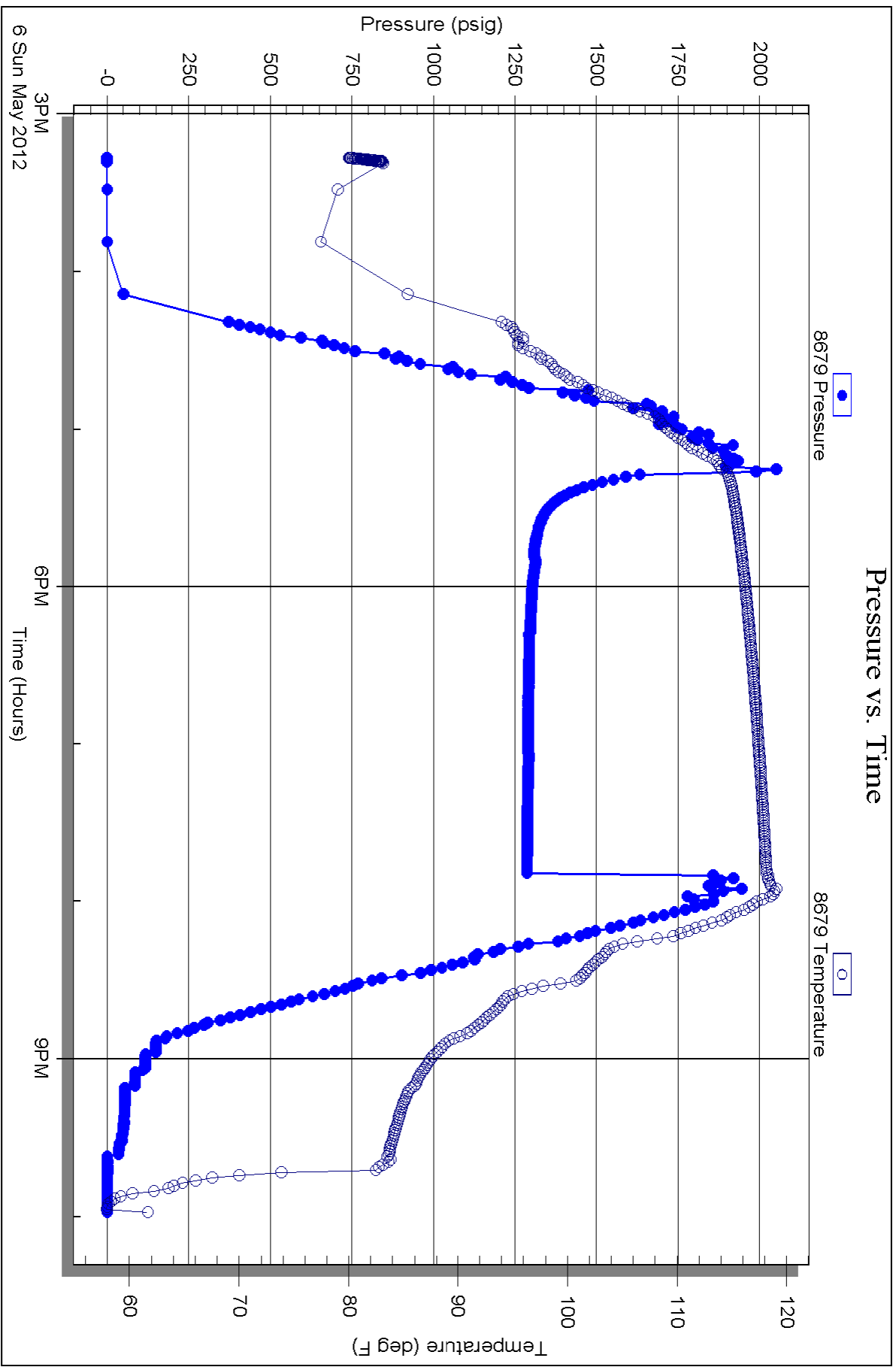


Serial #: 8679

Below (Straddling)

Month #1

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 44787

Printed: 2012.05.08 @ 16:20:30



TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 44787

Well Name & No. Werth #1 Test No. 1 Date 5-20-12
 Company TDI INC Elevation 2142 KB 2152 GL
 Address 1310 BISON RD Hays KS 67601 + 92694
 Co. Rep / Geo. Herb Deines Rig SOUTHWIND #2
 Location: Sec. 5 Twp. 13 S Rge. 20 W Co. ELLIS State KS

Interval Tested 3742-3820 Zone Tested Arbuckle
 Anchor Length 78-Anchor 81-Tail Drill Pipe Run 3745 Mud Wt. 9.3
 Top Packer Depth ~~373~~ 3737 Drill Collars Run 0 Vis 59
 Bottom Packer Depth 3742 Wt. Pipe Run 0 WL 4.8
 Total Depth 3901 Chlorides 1900 ppm System LCM 2

Blow Description FFP-GOOD BLOW BOB IN 22 min
ESI-weak Surface Blow Back died out IN 20 min
FFP-GOOD BLOW BOB IN 19 1/2 min
ESI Weak Surface Blow Back

Rec	Feet of	%gas	%oil	%water	%mud
<u>603</u>	<u>USOC Gcm</u>	<u>10</u>	<u>3</u>	<u>87</u>	<u>0</u>
<u>440</u>	<u>HOCm</u>	<u>25</u>	<u>75</u>	<u>0</u>	<u>0</u>
<u>126</u>	<u>GASSY oil</u>	<u>20</u>	<u>80</u>	<u>0</u>	<u>0</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 235 BHT 121 Gravity 34 API RW @ ° F Chlorides ppm

(A) Initial Hydrostatic 2005 Test 1150 T-On Location 14:24
 (B) First Initial Flow 65 Jars _____ T-Started 15:16
 (C) First Final Flow 95 Safety Joint _____ T-Open 17:18
 (D) Initial Shut-In 1160 Circ Sub _____ T-Pulled 19:48
 (E) Second Initial Flow 1040 Hourly Standby _____ T-Out 22:00
 (F) Second Final Flow 145 Mileage 36 RT 55.80 Comments _____
 (G) Final Shut-In 1178 Sampler _____
 (H) Final Hydrostatic 1913 Straddle 600 Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1805.80
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1805.80

Approved By _____ Our Representative Jeff Brown

TriLOBite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.



DIGITAL LOG (785) 625-3858

Dual Induction Log

15-051-26,272-00-00

API No.

Company TDI, Inc.

Well Werth #1

Field Ellis

County Ellis

State

Kansas

Location 1650' FNL & 800' FWL

Sec: 5 Twp: 13 S Rge: 20 W

Permanent Datum Ground Level Elevation 2137

Log Measured From Kelly Bushing 9 Ft. Above Perm. Datum

Drilling Measured From Kelly Bushing

Other Services

CNL/CDL

MEL

Elevation

K.B. 2146

D.F. 2137

G.L. 2137

Date 5/06/2012

Run Number One

Depth Driller 3900

Depth Logger 3901

Bottom Logged Interval 3900

Top Log Interval 200

Casing Driller 8.625 @ 212

Casing Logger 210

Bit Size 7.875

Type Fluid in Hole Chemical

Salinity,ppm CL 1,900

Density / Viscosity 9.3 59

pH / Fluid Loss 10.5 6.8

Source of Sample Flowline

Rm @ Meas. Temp .95 @ 60

Rmf @ Meas. Temp .71 @ 60

Rmc @ Meas. Temp 1.28 @ 60

Source of Rmf / Rmc Charts

Rm @ BHT .49 @ 117

Operating Rig Time 4 1/2 Hours

Max Rec. Temp. F 117

Equipment Number 91

Location Hays

Recorded By K. Bange

Witnessed By Herb Deines

<<< Fold Here >>>

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

Comments

Thank you for using Log-Tech, Inc. (785) 625-3858

Ellis & I-70, 1/2 N to Emmeram rd, 7/8 W, S into

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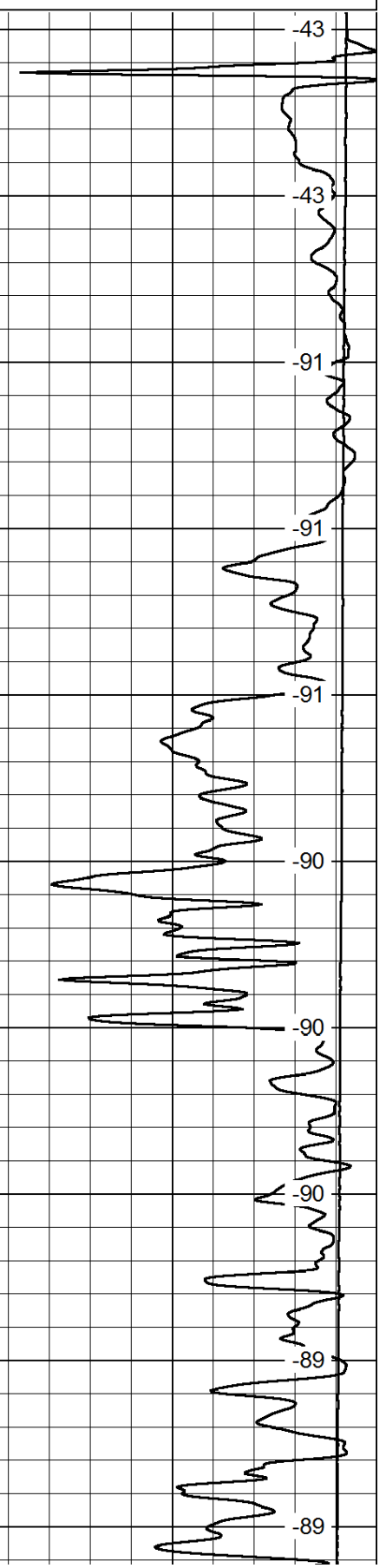
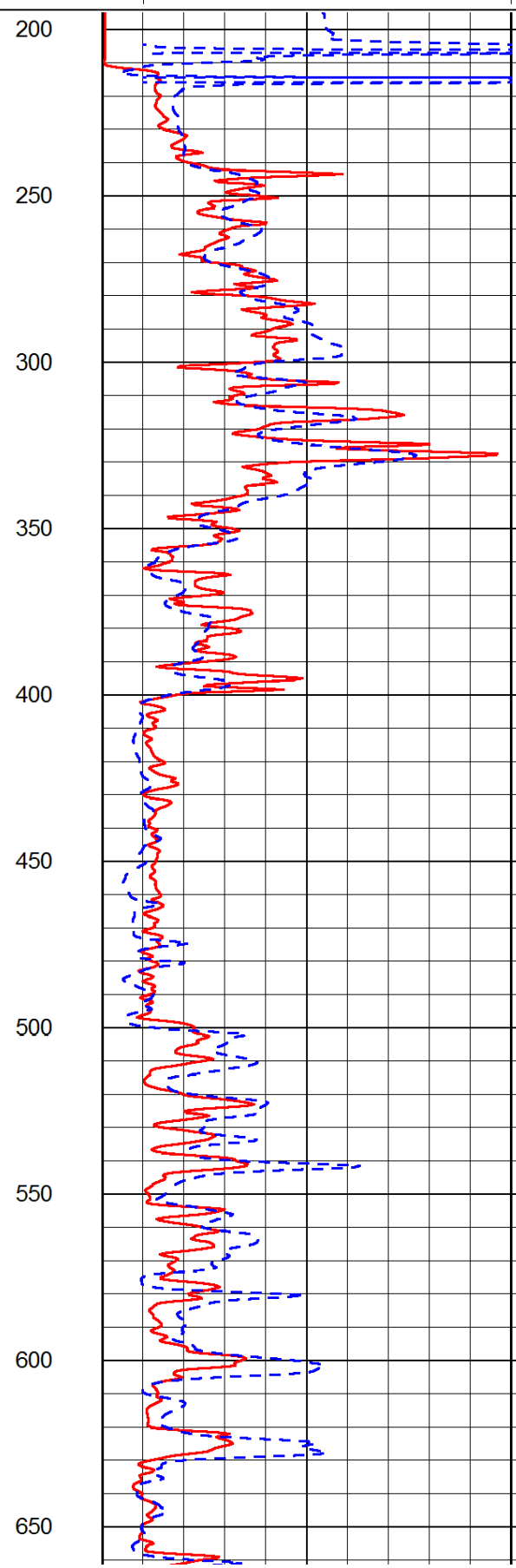
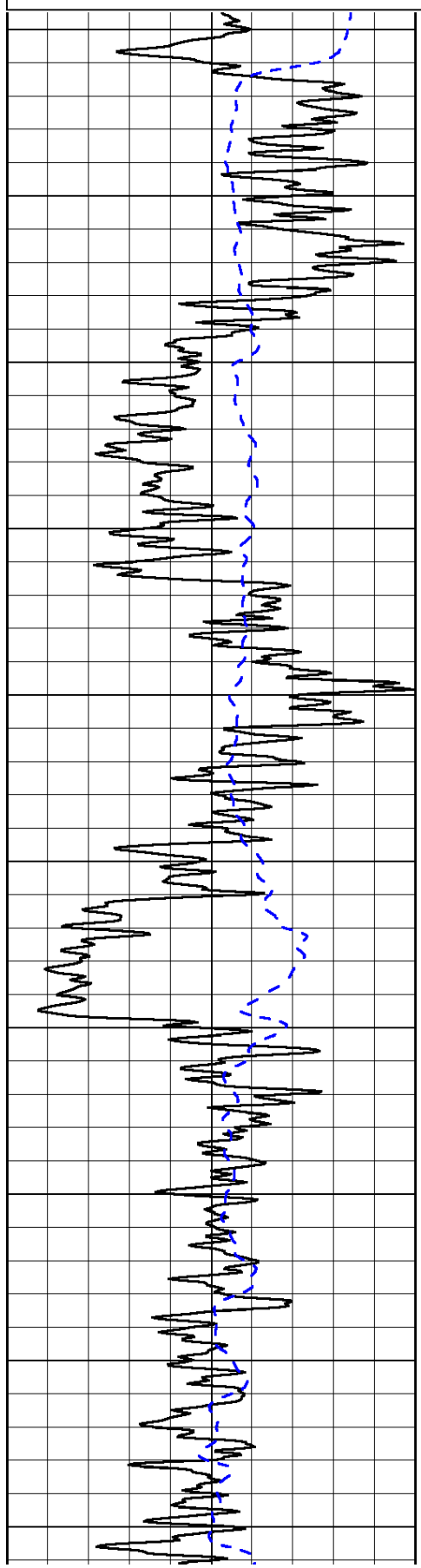
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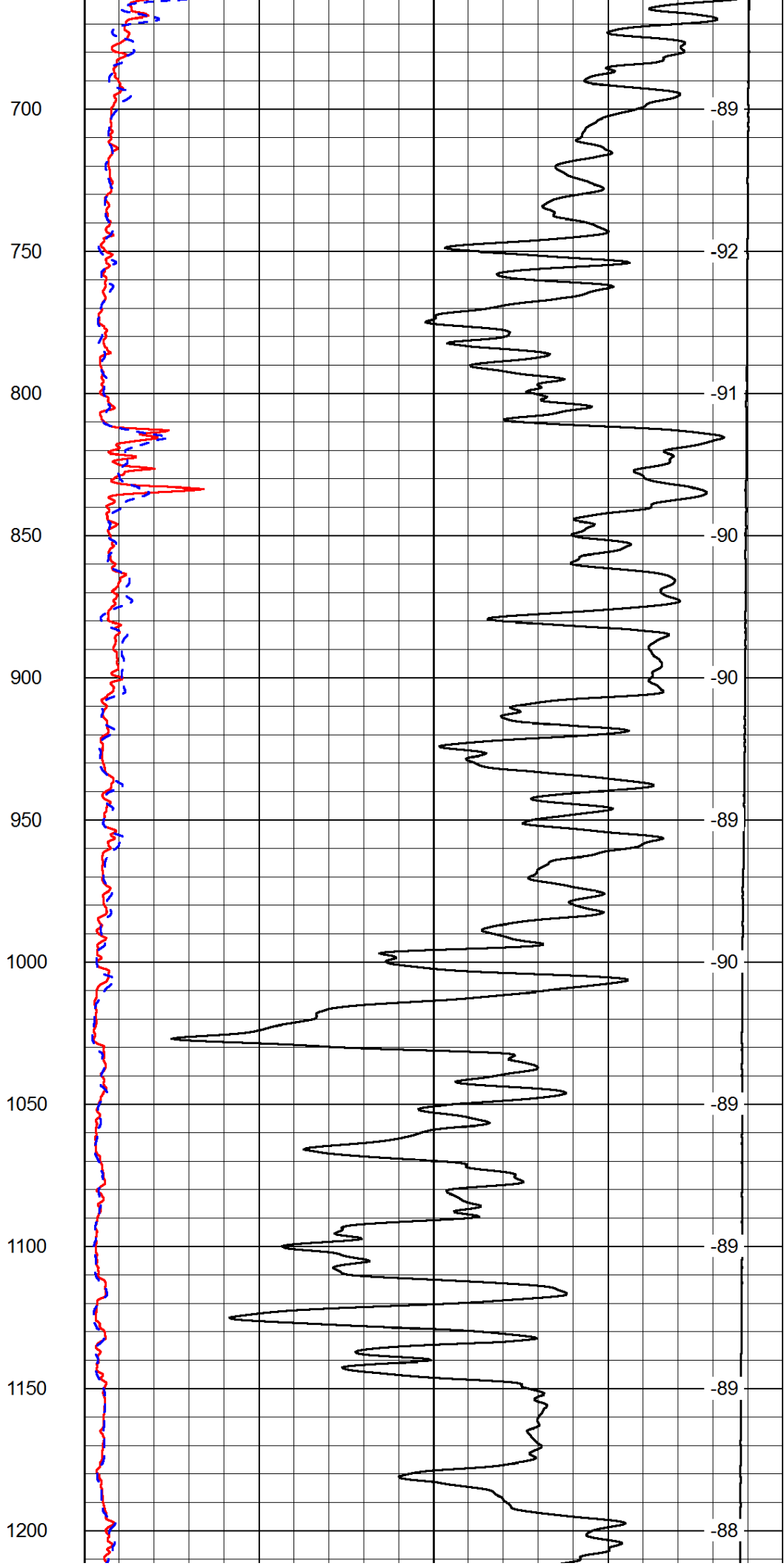
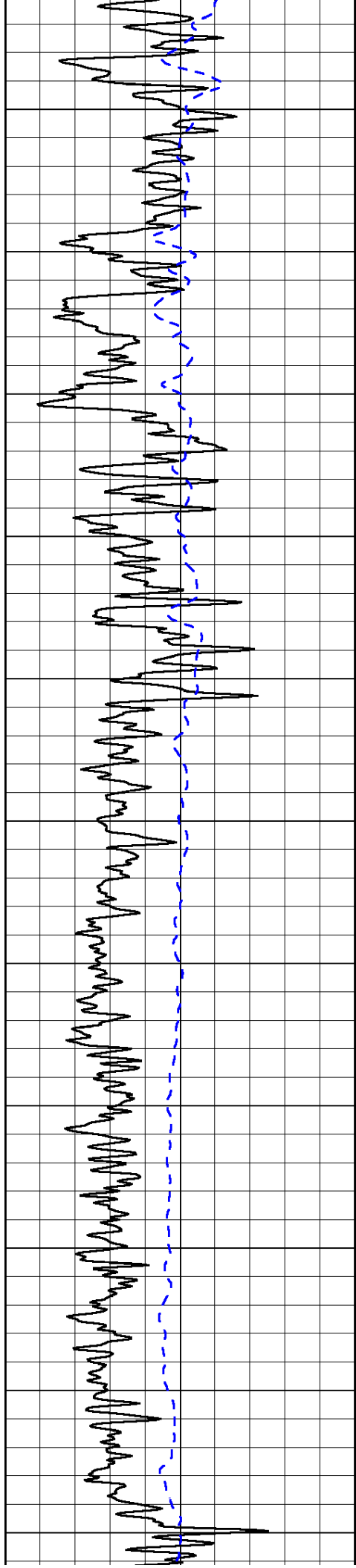
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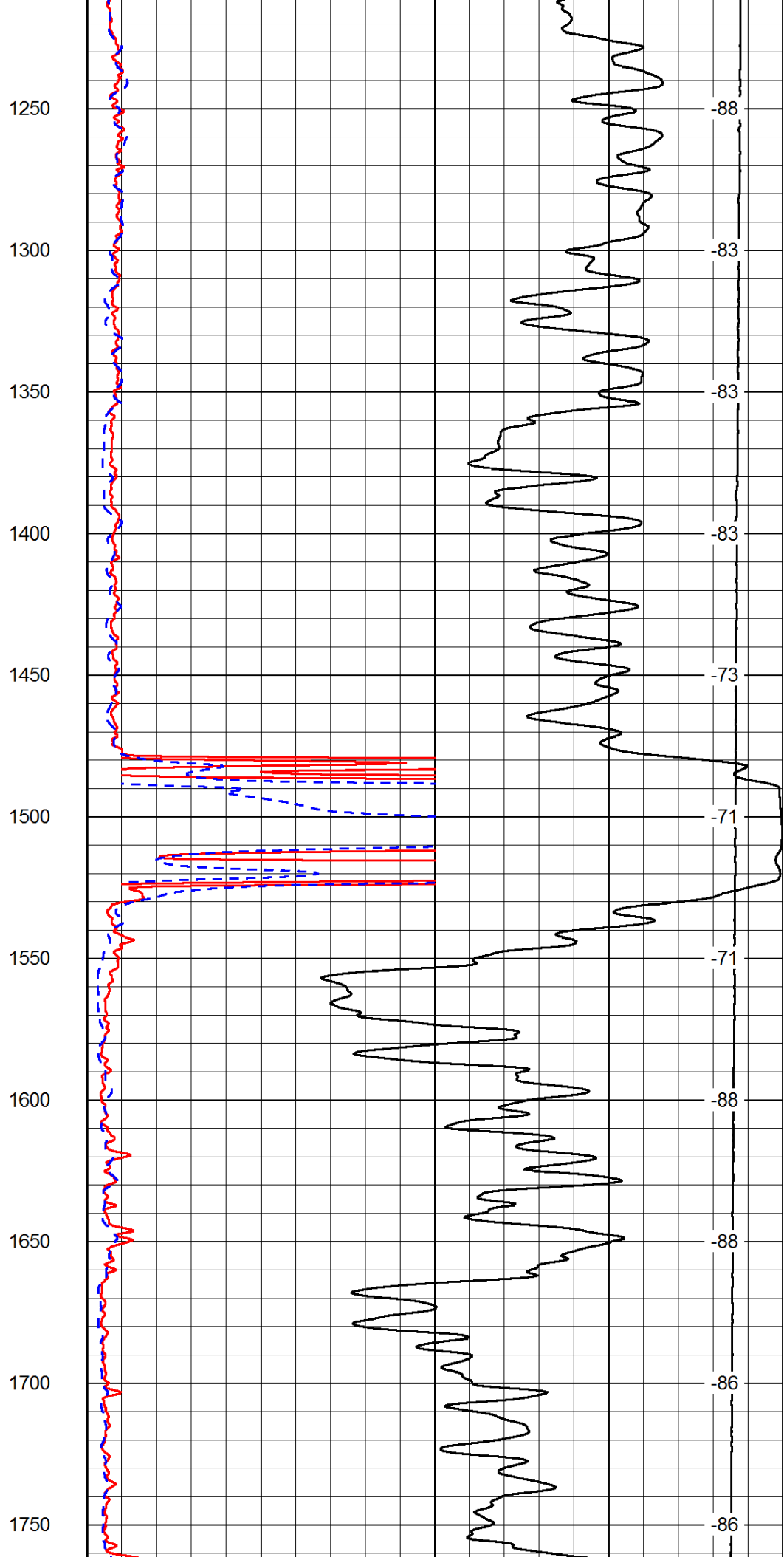
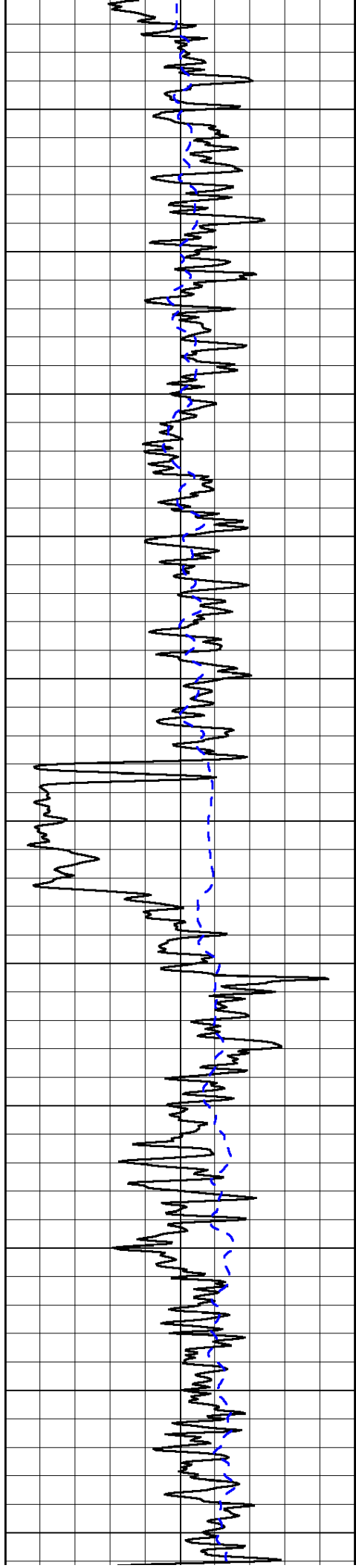
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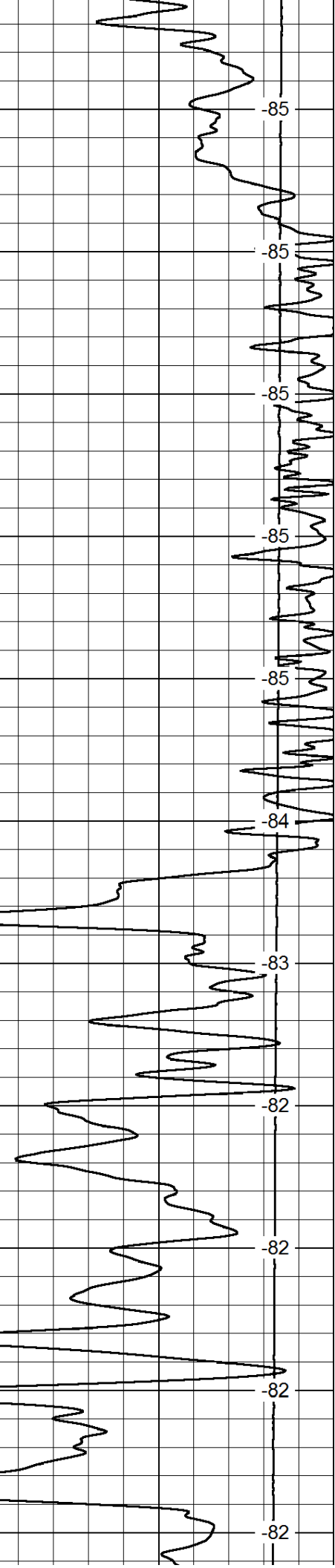
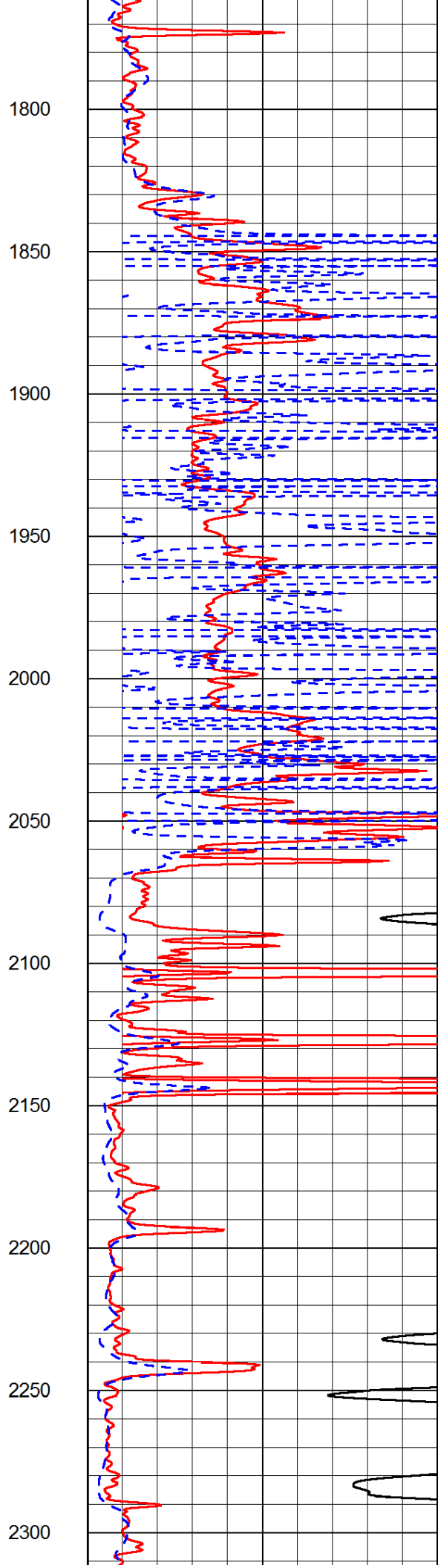
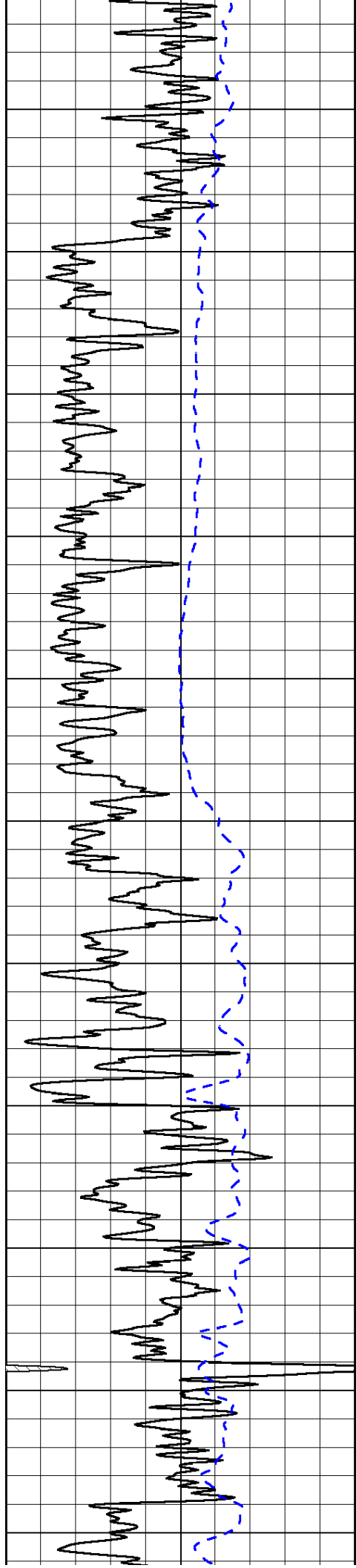
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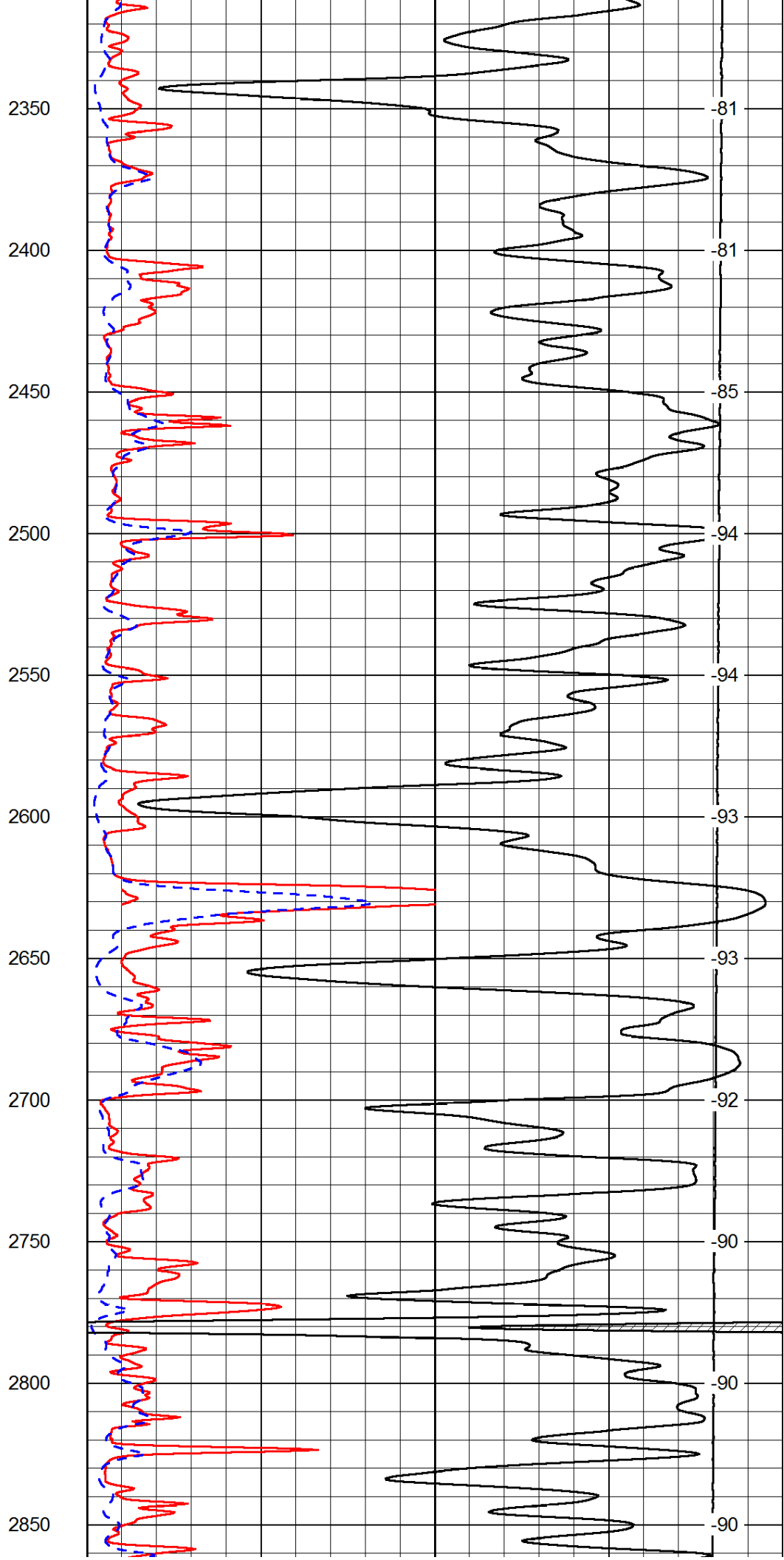
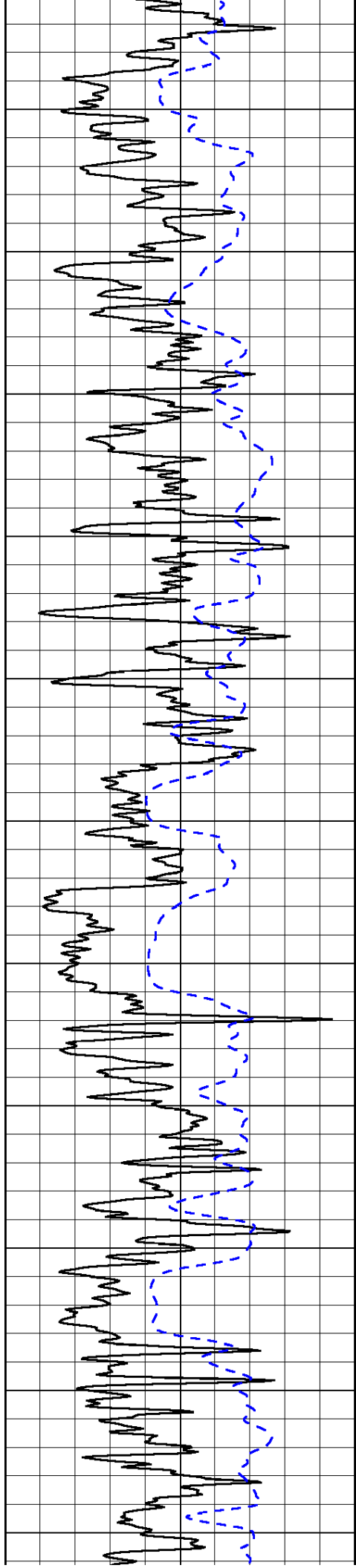
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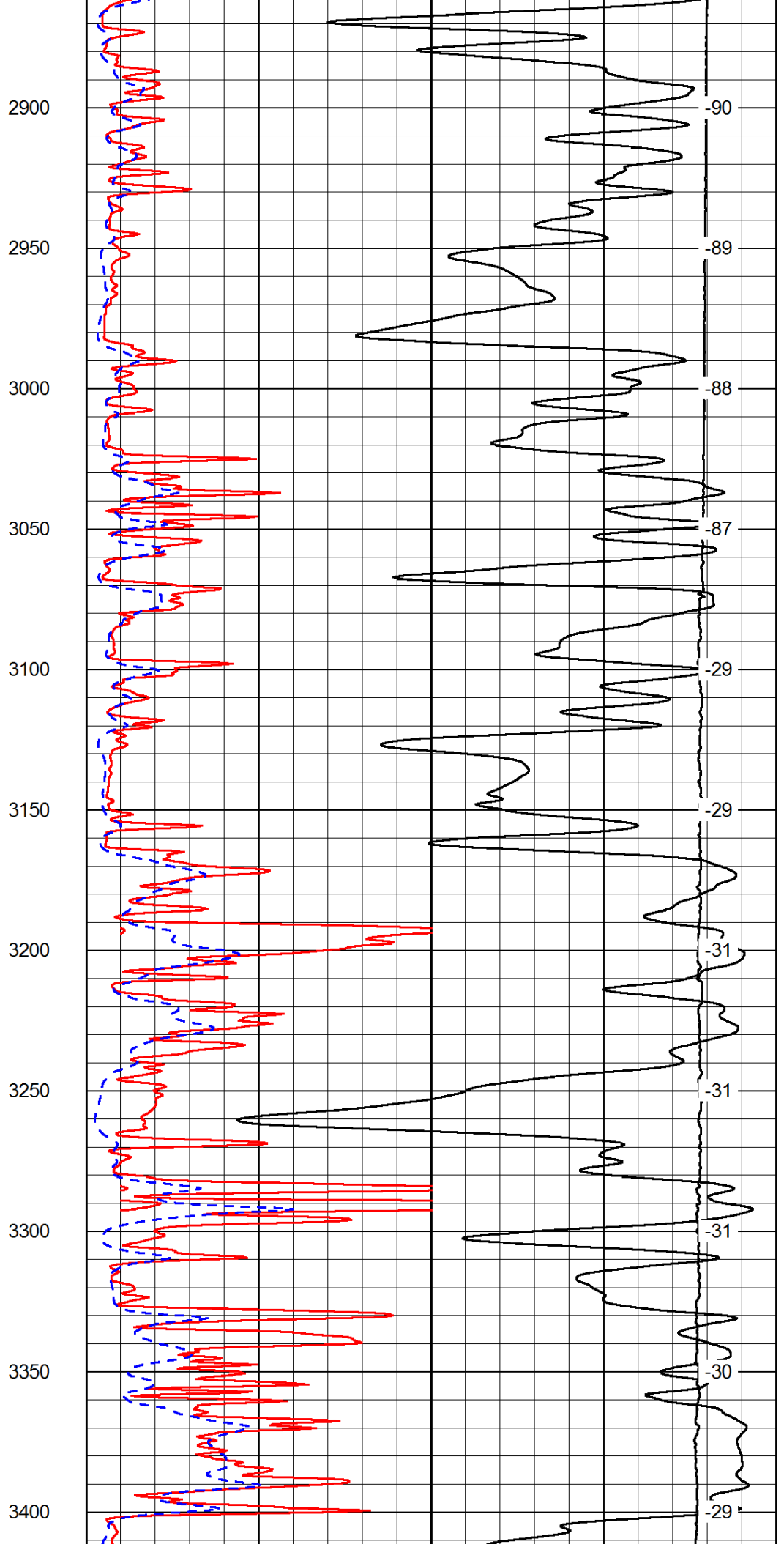
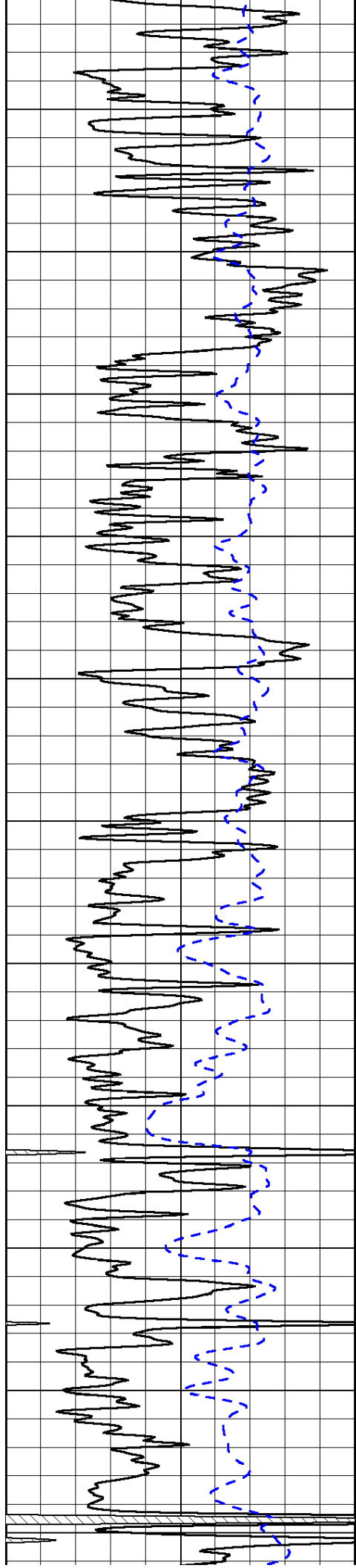


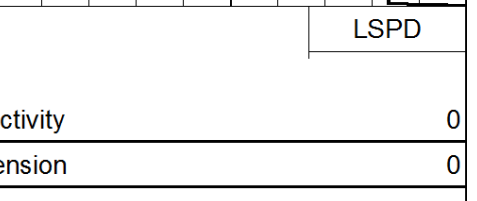
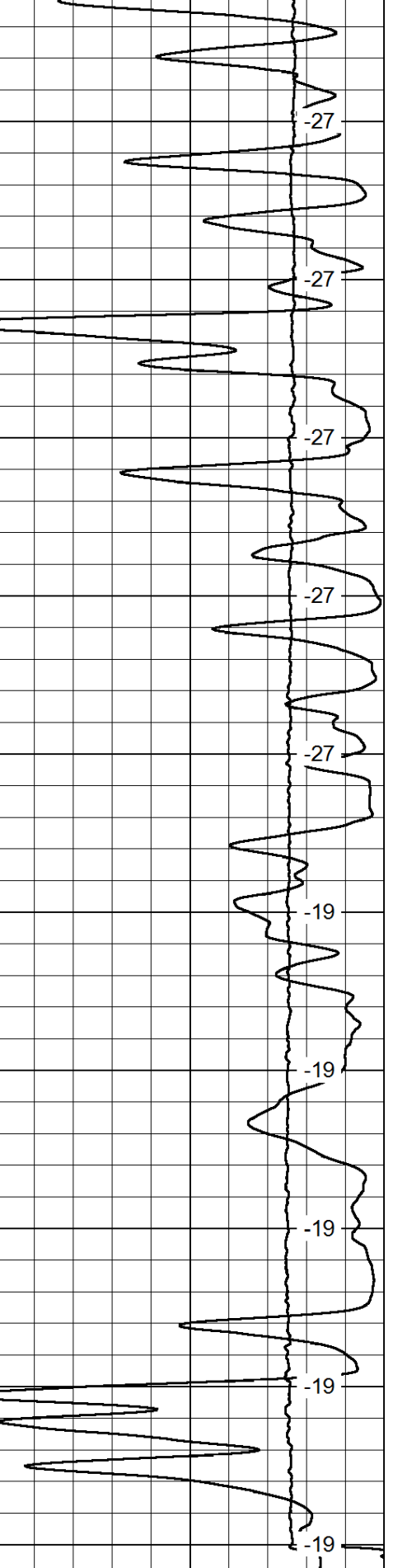
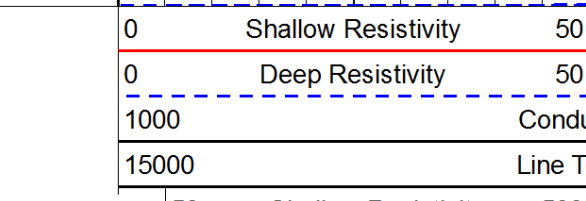
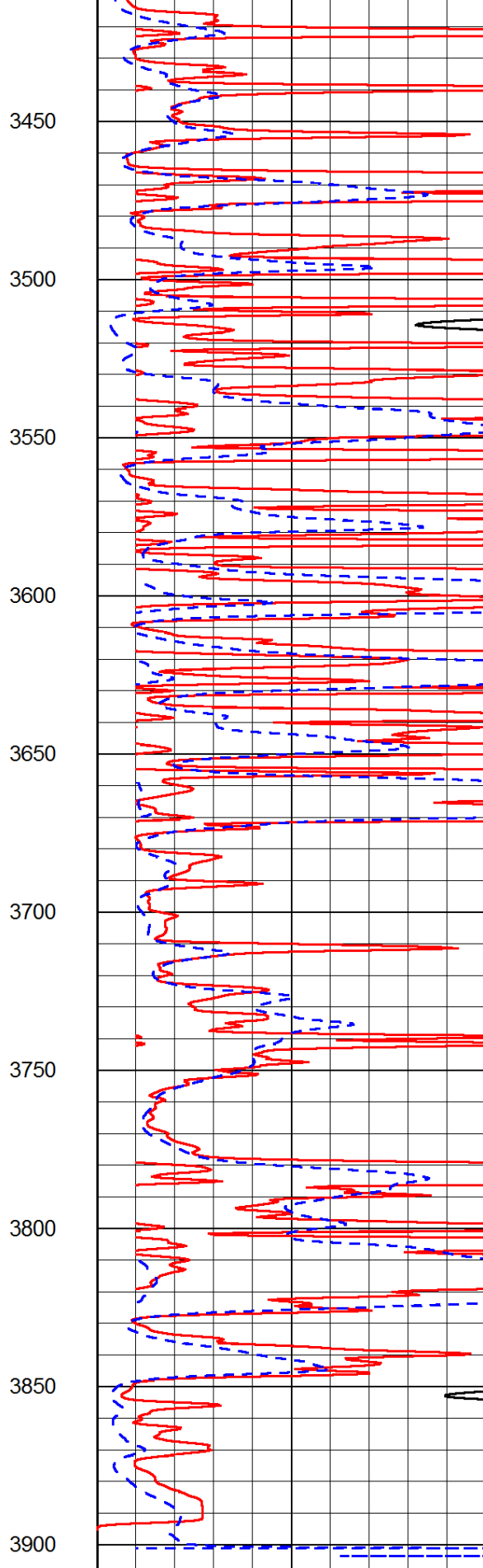
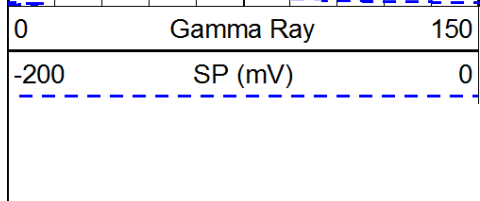
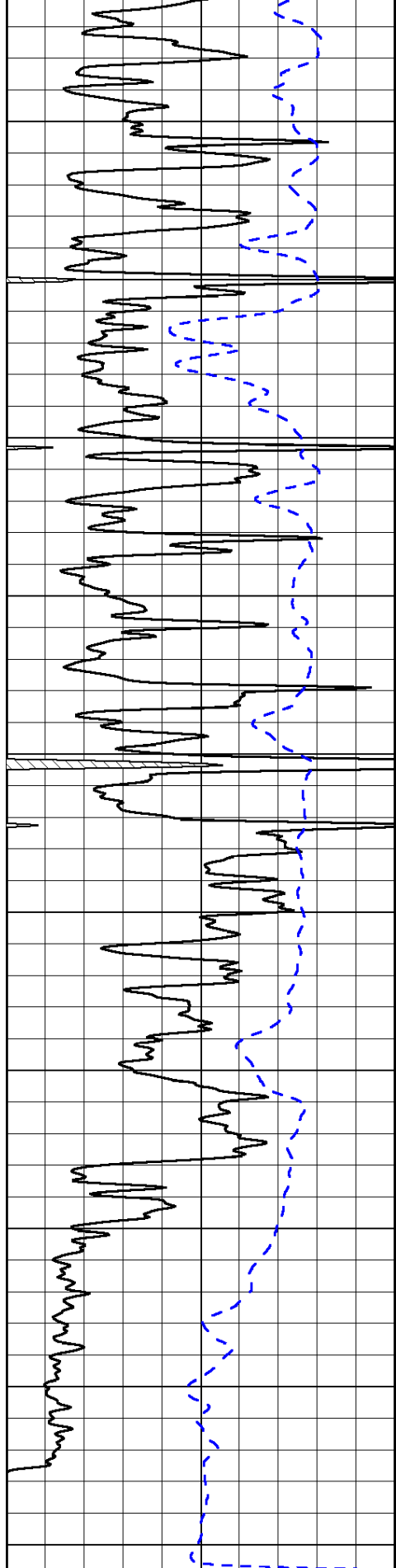












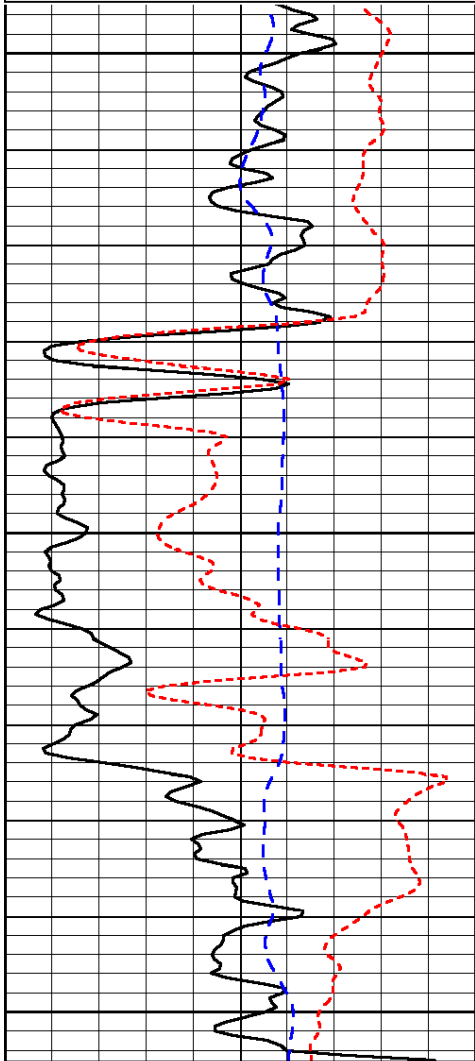
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50	Deep Resistivity	500

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-200	SP (mV)	0
-160	Rxo / Rt	40

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0.2	Medium Resistivity	2000
0.2	Shallow Resistivity	2000
15000	Line Tension	0

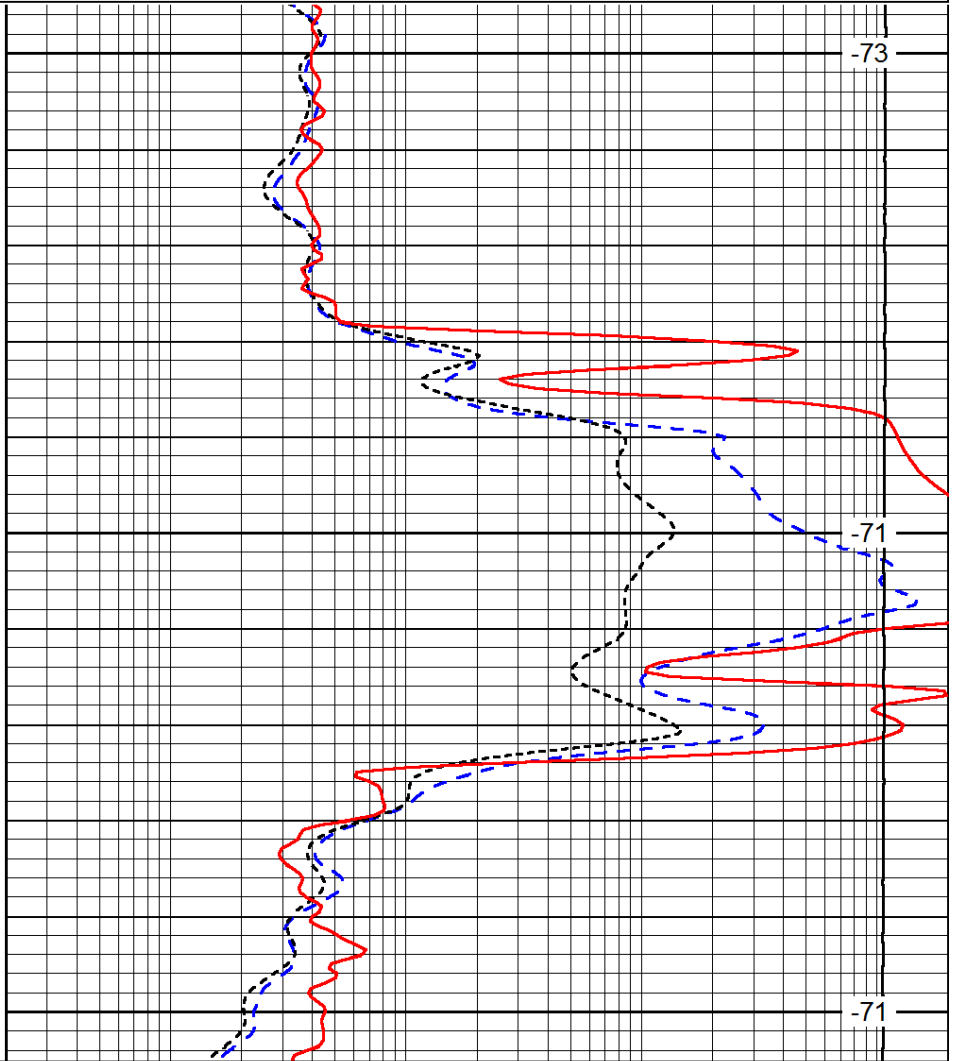
LSPD



1450

1500

1550



-73

-71

-71

0	Gamma Ray	150
-200	SP (mV)	0
-160	Rxo / Rt	40

0.2	Deep Resistivity	2000
0.2	Medium Resistivity	2000
0.2	Shallow Resistivity	2000
15000	Line Tension	0

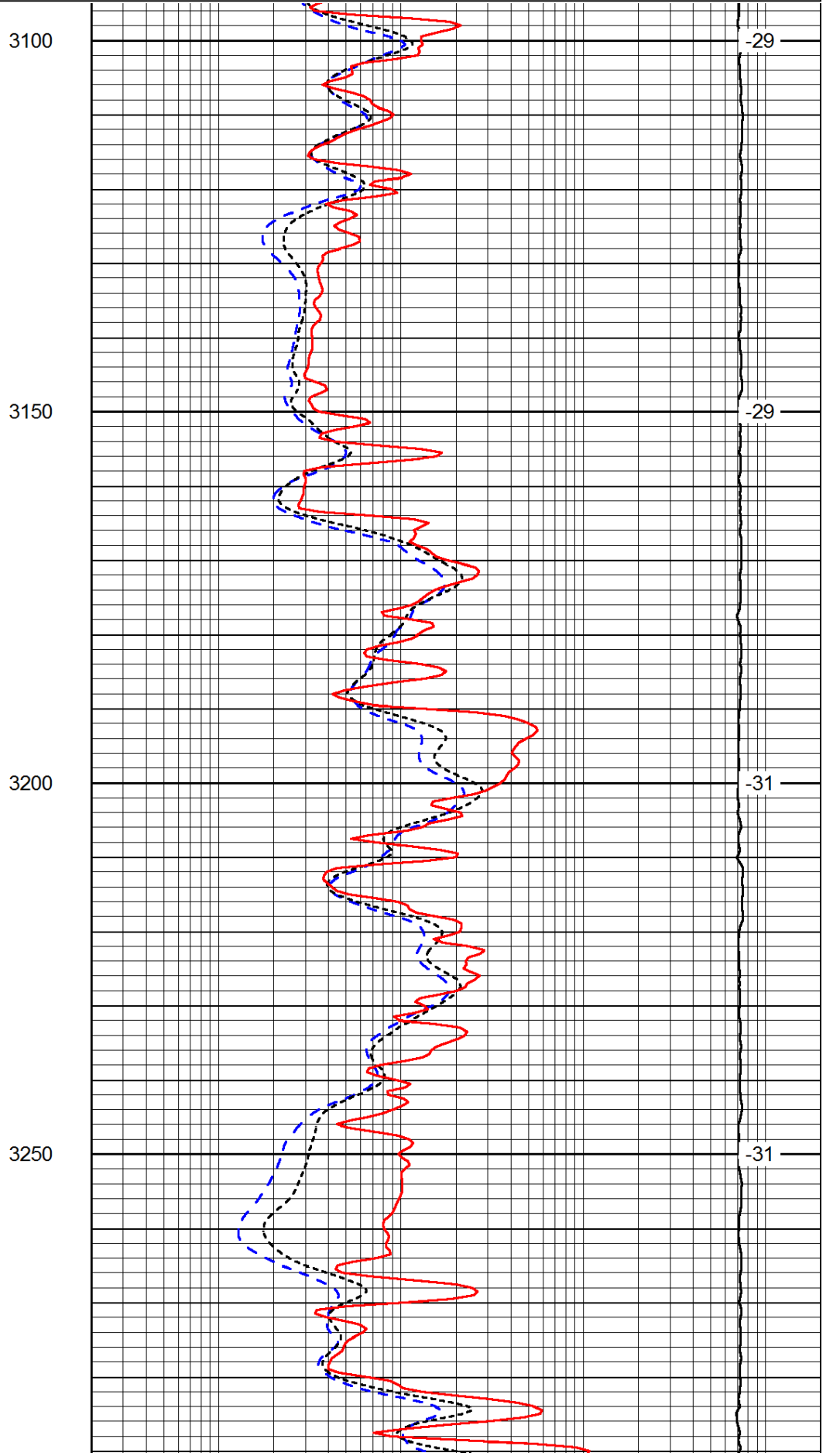
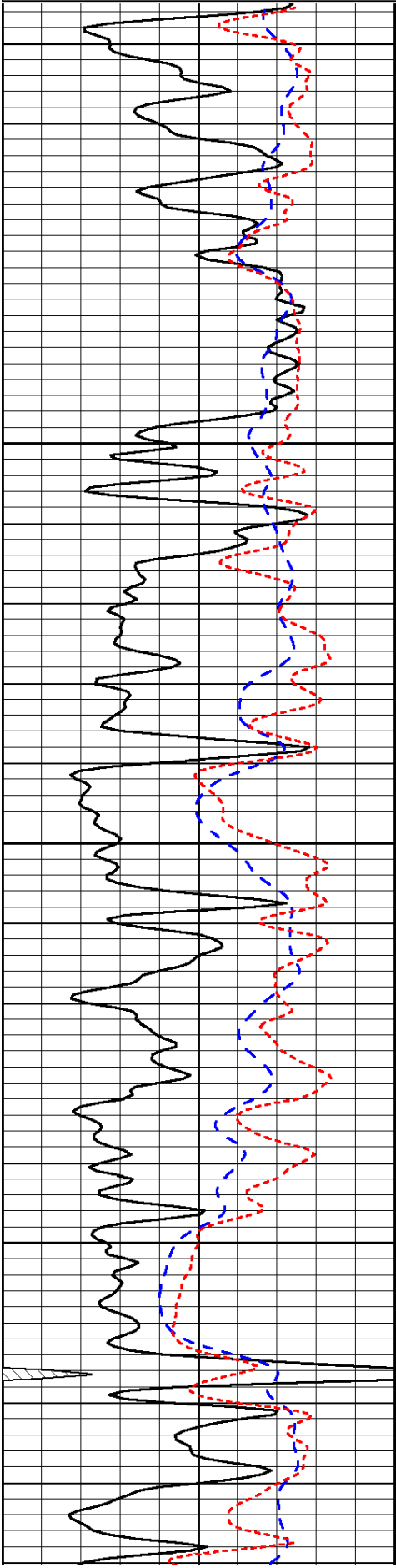
LSPD

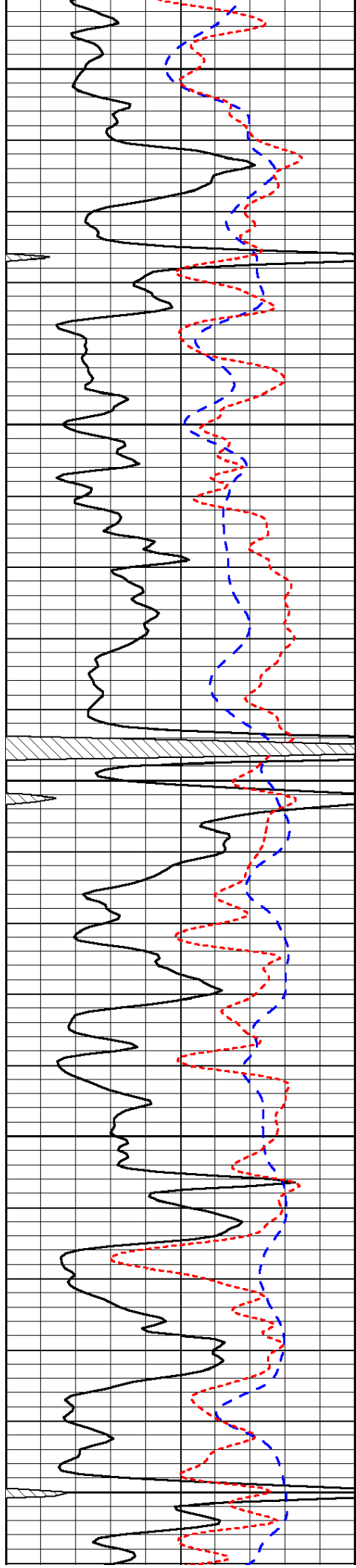
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 Dataset Pathname: dil/tdistack
 Presentation Format: dil
 Dataset Creation: Sun May 06 13:33:15 2012
 Charted by: Depth in Feet scaled 1:240

0	Gamma Ray	150
-200	SP (mV)	0
-160	Rxo / Rt	40

0.2	Deep Resistivity	2000
0.2	Medium Resistivity	2000
0.2	Shallow Resistivity	2000
15000	Line Tension	0

LSPD





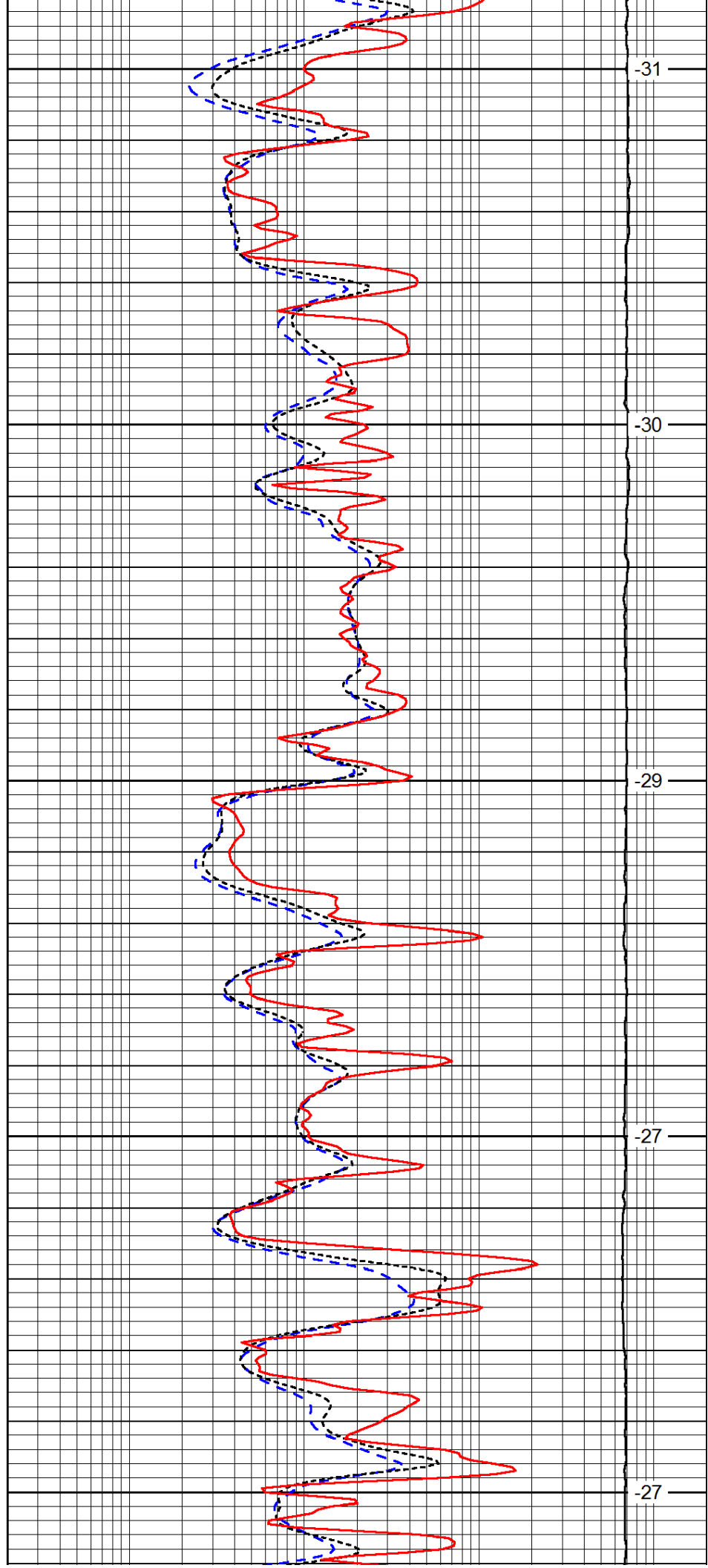
3300

3350

3400

3450

3500



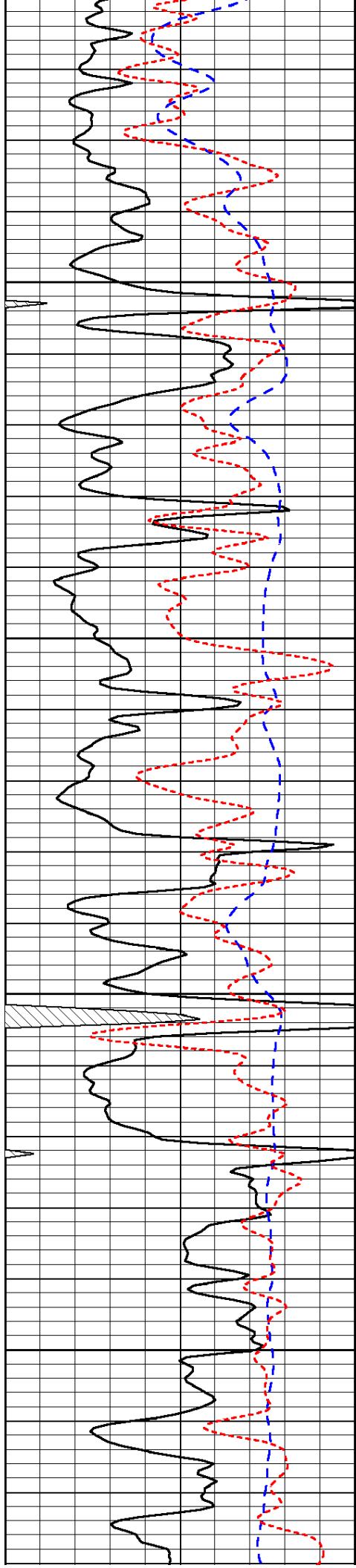
-31

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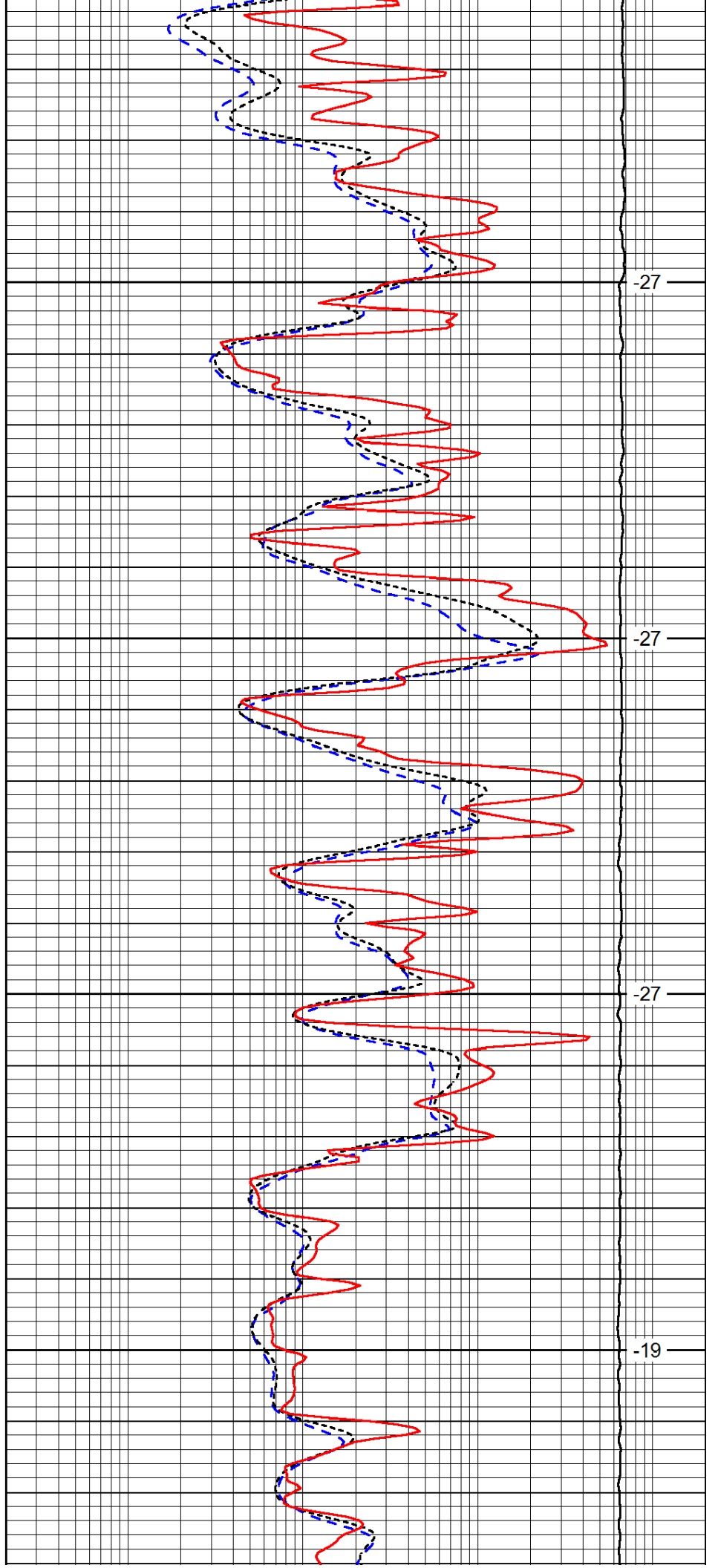


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3600

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3700

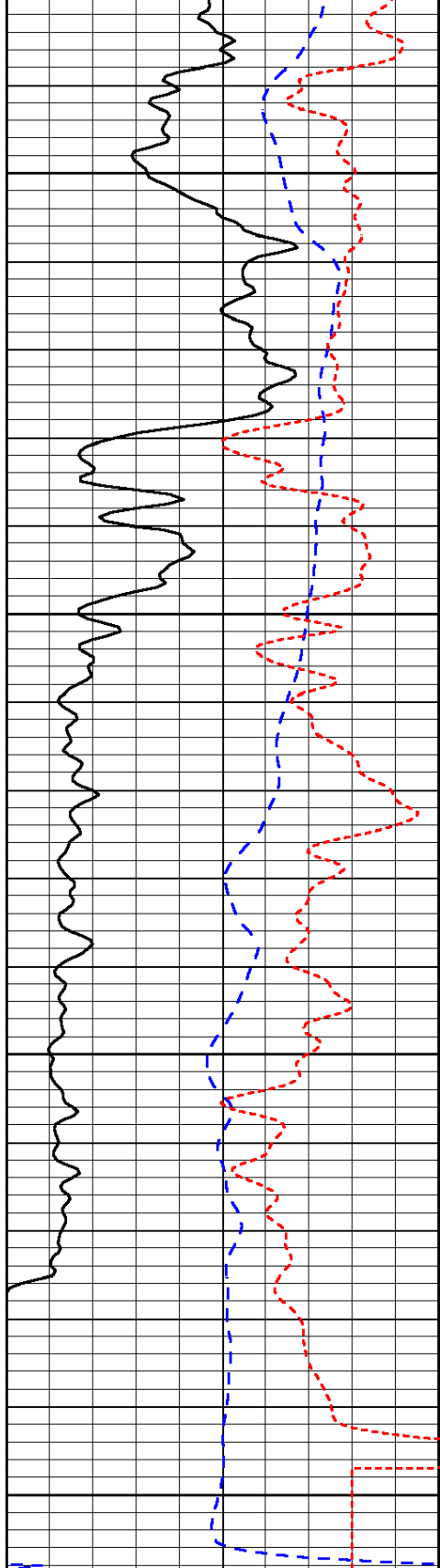


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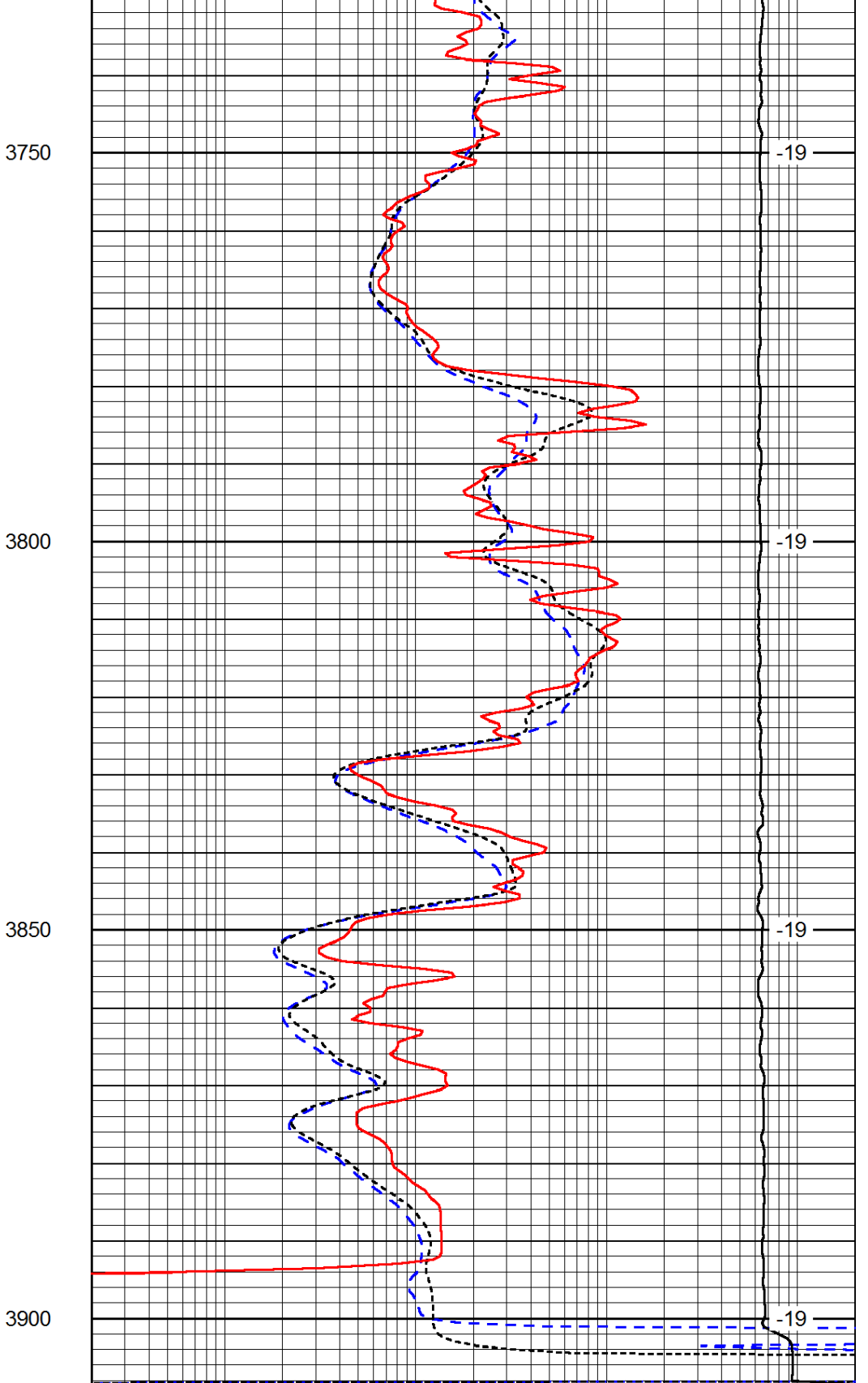
-27

-27

-19



0	Gamma Ray	150
-200	SP (mV)	0
-160	Rxo / Rt	40



0.2	Deep Resistivity	2000
0.2	Medium Resistivity	2000
0.2	Shallow Resistivity	2000
15000	Line Tension	0

LSPD



DIGITAL LOG (785) 625-3858

Dual Compensated Porosity Log

15-051-26,272-00-00

API No. 15-051-26,272-00-00

Company TDI, Inc.
 Well Werth #1
 Field Eliis
 County Eliis
 State Kansas

Location 1650' FNL & 800' FWL

Sec: 5 Twp: 13 S Rge: 20 W

Other Services
 DIL
 MEL

Permanent Datum Ground Level Elevation 2137
 Log Measured From Kelly Bushing 9 Ft. Above Perm. Datum
 Drilling Measured From Kelly Bushing

K.B. 2146
 D.F.
 G.L. 2137

Date	5/06/2012	
Run Number	One	
Type Log	CNL / CDL	
Depth Driller	3900	
Depth Logger	3901	
Bottom Logged Interval	3880	
Top Logged Interval	3100	
Type Fluid In Hole	Chemical	
Salinity, PPM CL	1,900	
Density	9.3	
Level	Full	
Max. Rec. Temp. F	117	
Operating Rig Time	4 1/2 Hours	
Equipment -- Location	91 Hays	
Recorded By	K. Bange	
Witnessed By	Herb Deines	

Borehole Record		Casing Record					
Run No.	Bit	From	To	Size	Wgt.	From	To
1	12.25	00	212	8.625	24#	00	212
2	7.875	212	3900				

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

Comments

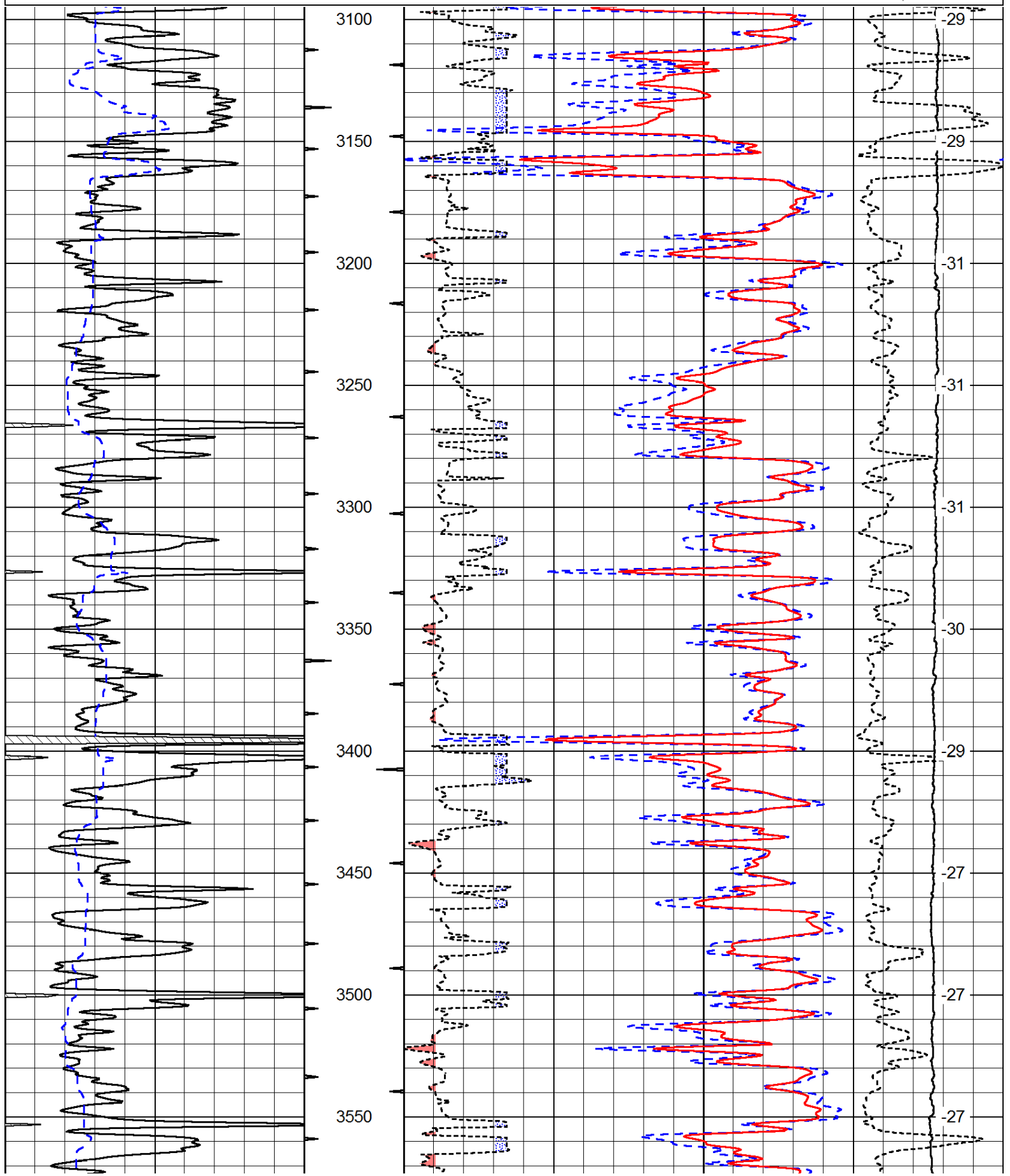
Thank you for using Log-Tech, Inc.
 (785) 625-3858

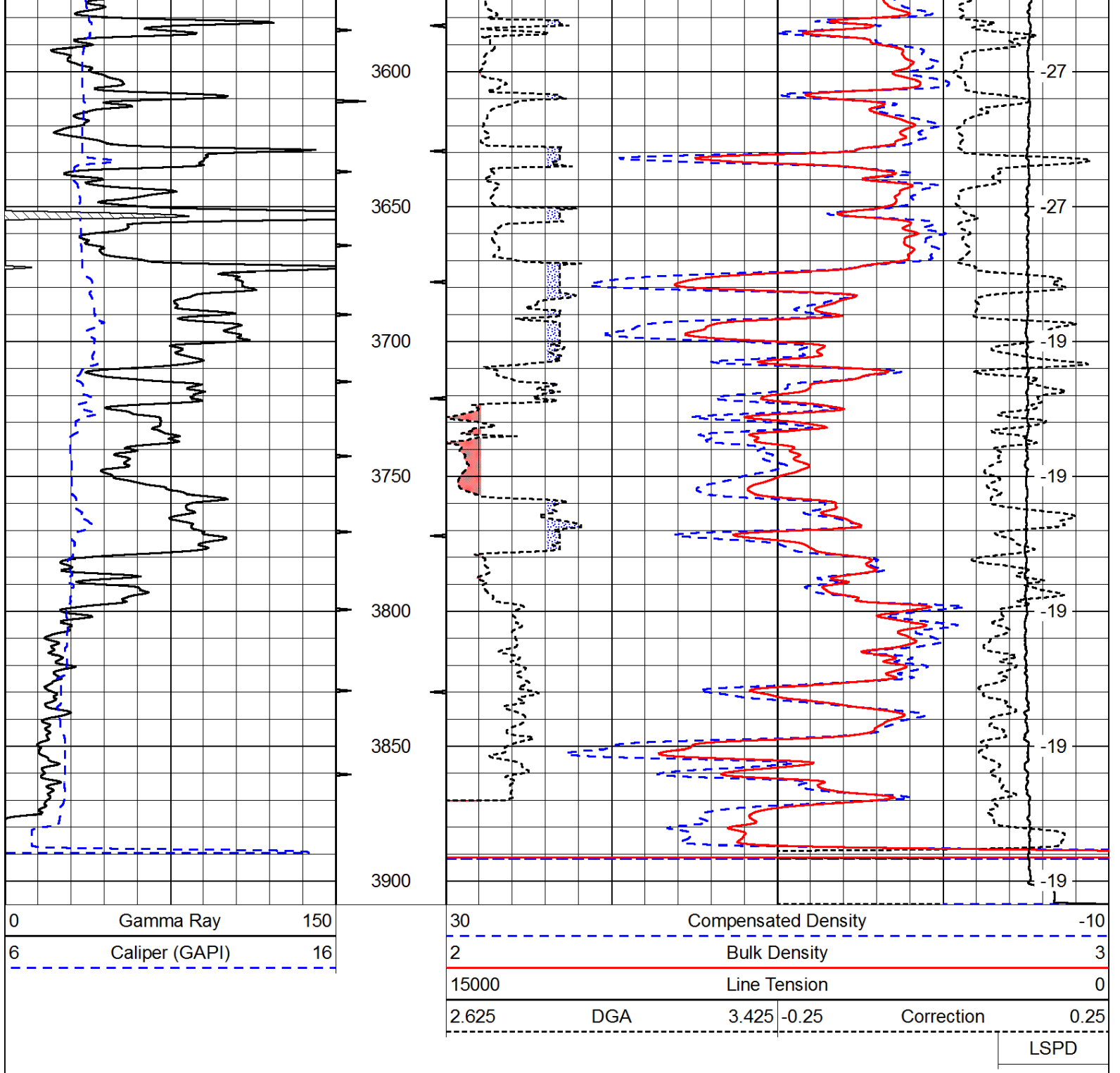
Ellis & I-70, 1/2 N to Emmeram rd,
 7/8 W, S into

Database File: c:\warrior\data\tdi_werth #1\tdi050612hd.db
 Dataset Pathname: dil/tdistack
 Presentation Format: cdl
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 Charted by: Depth in Feet scaled 1:600

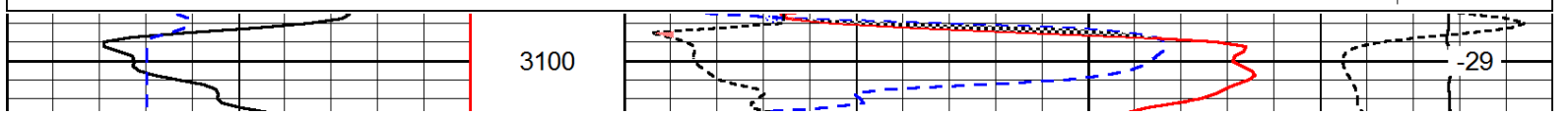
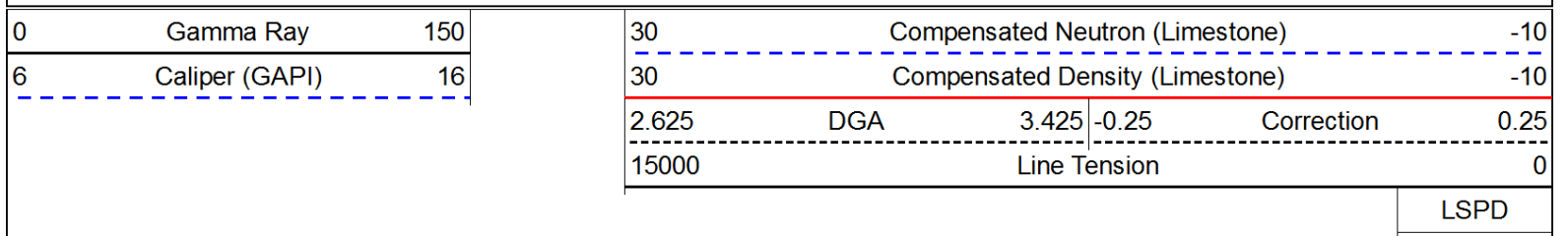
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6	Caliper (GAPI)	16

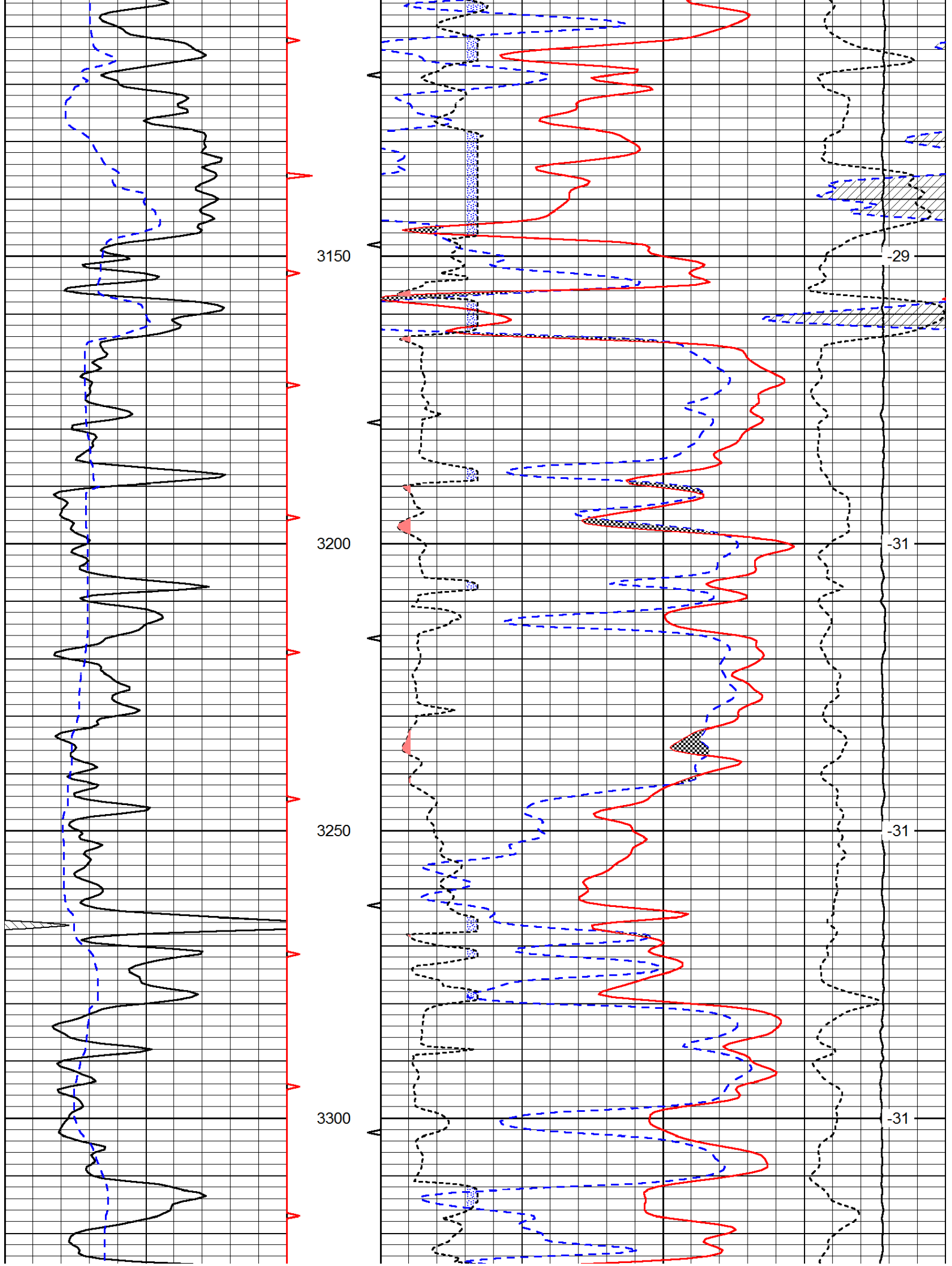
30	Compensated Density		-10
2	Bulk Density		3
15000	Line Tension		0
2.625	DGA	3.425	-0.25
			Correction
			0.25
LSPD			

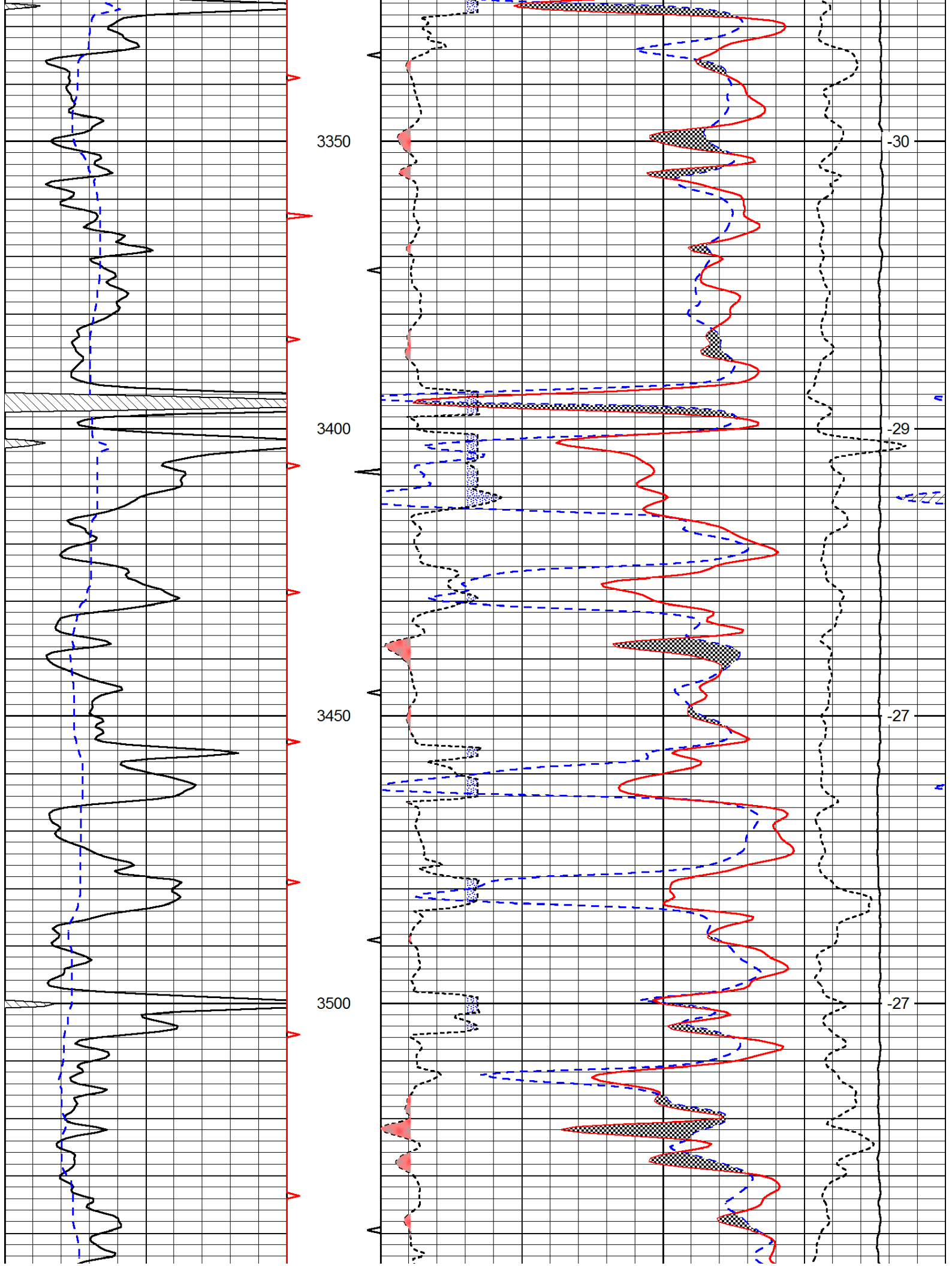


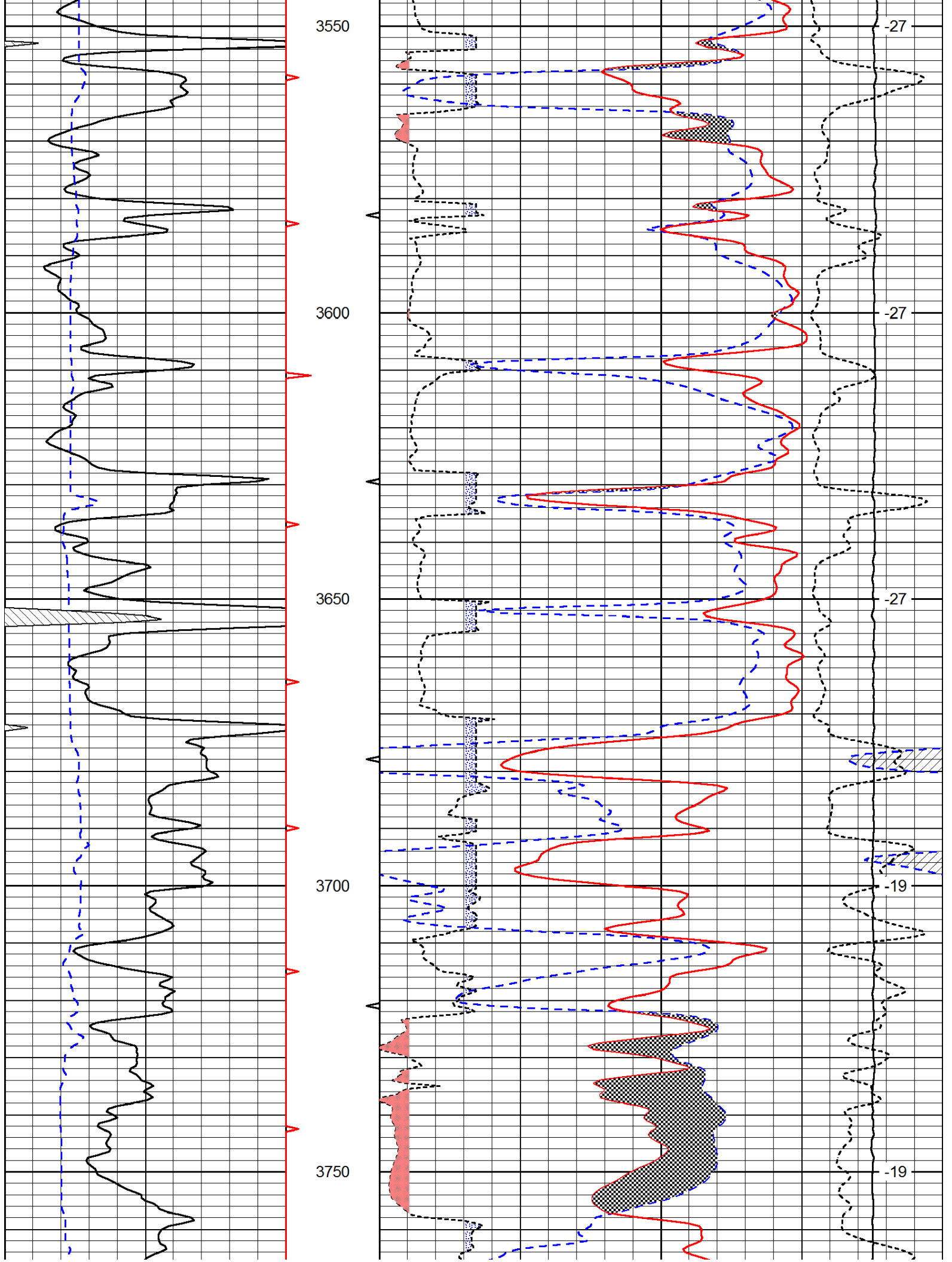


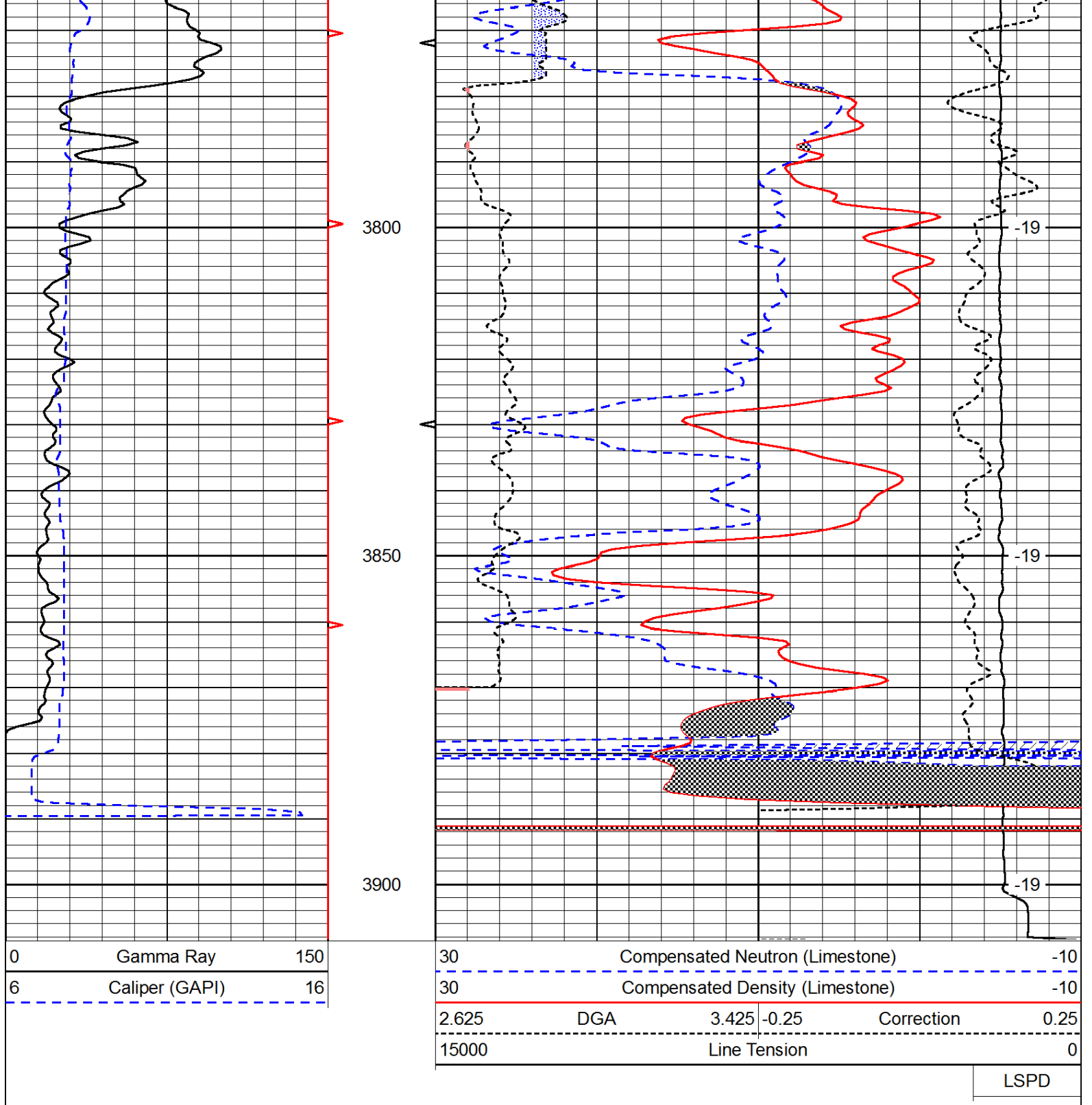
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 Dataset Creation: Sun May 06 13:33:15 2012
 Charted by: Depth in Feet scaled 1:240













DIGITAL LOG (785) 625-3858

Microresistivity Log

15-051-26,272-00-00

API No.

Company TDI, Inc.

Well Werth #1

Field Eliis

County Eliis

State

Kansas

Location

1650' FNL & 800' FWL

Other Services
CNL/CDL
DIL

Sec: 5 Twp: 13 S Rge: 20 W

Permanent Datum Ground Level Elevation 2137
Log Measured From Kelly Bushing 9 Ft. Above Perm. Datum

Drilling Measured From Kelly Bushing

Elevation
K.B. 2146
D.F. 2137
G.L. 2137

Date 5/06/2012

Run Number Two

Depth Driller 3900

Depth Logger 3901

Bottom Logged Interval 3900

Top Log Interval 3100

Casing Driller 8.625 @ 212

Casing Logger 210

Bit Size 7.875

Type Fluid in Hole Chemical

Salinity, ppm CL 1,900

Density / Viscosity 9.3 59

pH / Fluid Loss 10.5 6.8

Source of Sample Flowline

Rm @ Meas. Temp .95 @ 60

Rmf @ Meas. Temp .71 @ 60

Rmc @ Meas. Temp 1.28 @ 60

Source of Rmf / Rmc Charts

Rm @ BHT .49 @ 117

Operating Rig Time 4 1/2 Hours

Max Rec. Temp. F 117

Equipment Number 91

Location Hays

Recorded By K. Bange

Witnessed By Herb Deines

Tom Denning

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

Comments

Thank you for using Log-Tech, Inc.
(785) 625-3858

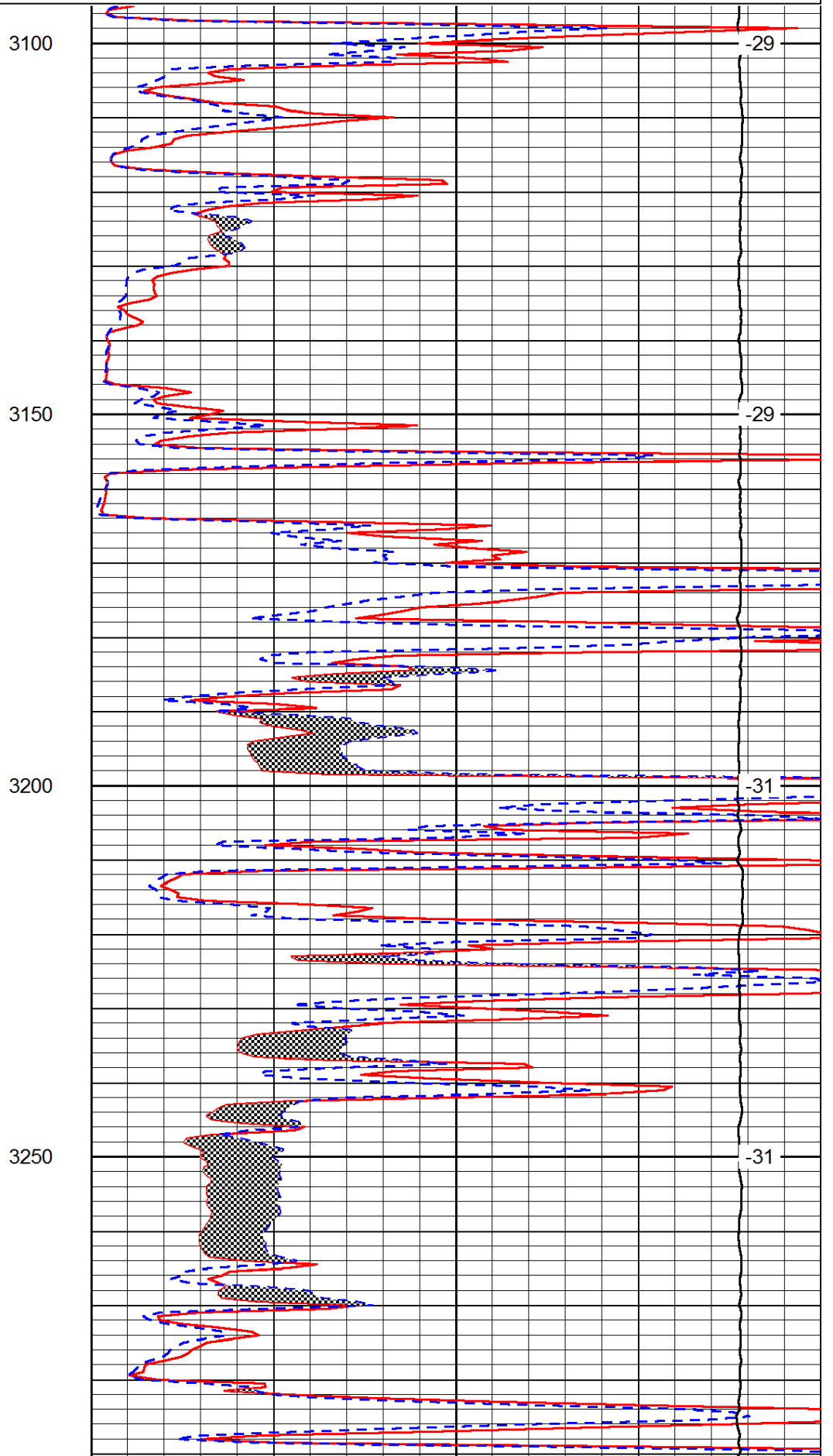
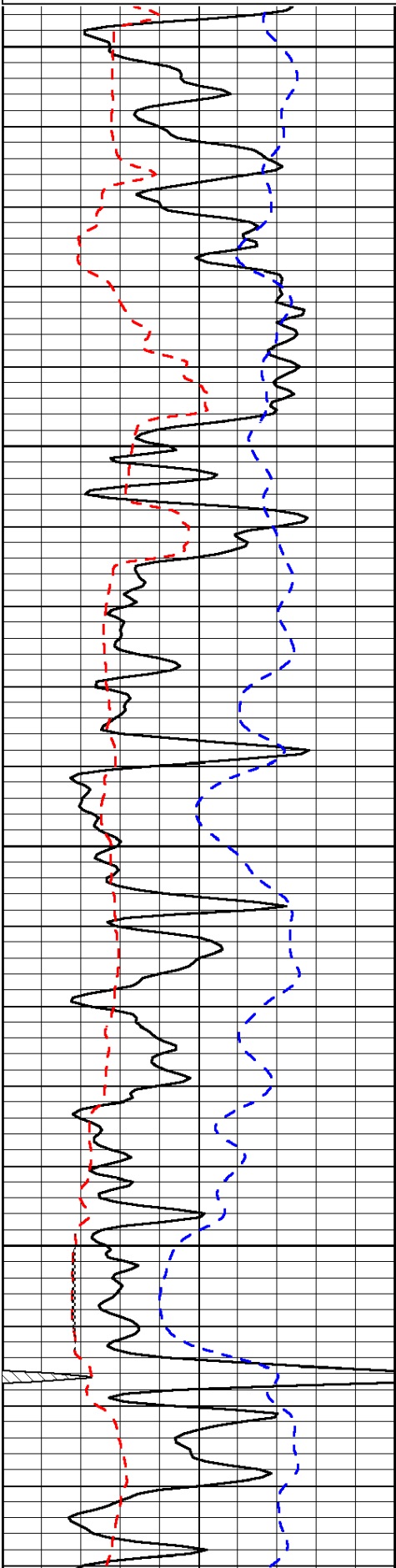
Ellis & I-70, 1/2 N to Emmeram rd,
7/8 W, S into

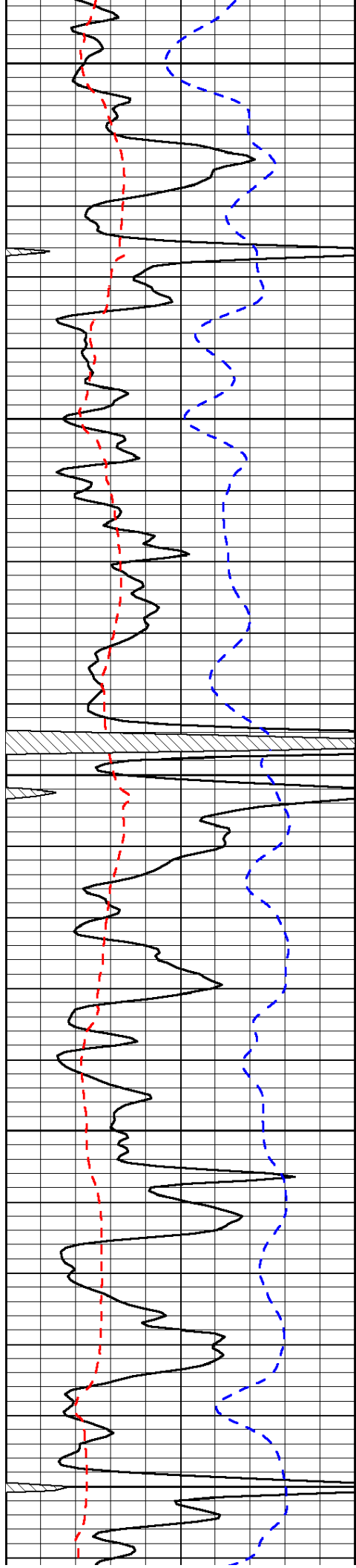
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Dataset Creation: Sun May 06 13:33:15 2012
Charted by: Depth in Feet scaled 1:240

0	Gamma Ray	150
6	Micro Log Caliper (GAPI)	16
-200	SP (mV)	0

0	Micro Inverse 1 X 1	40
0	Micro Normal 2"	40
15000	Line Weight	0

LSPD





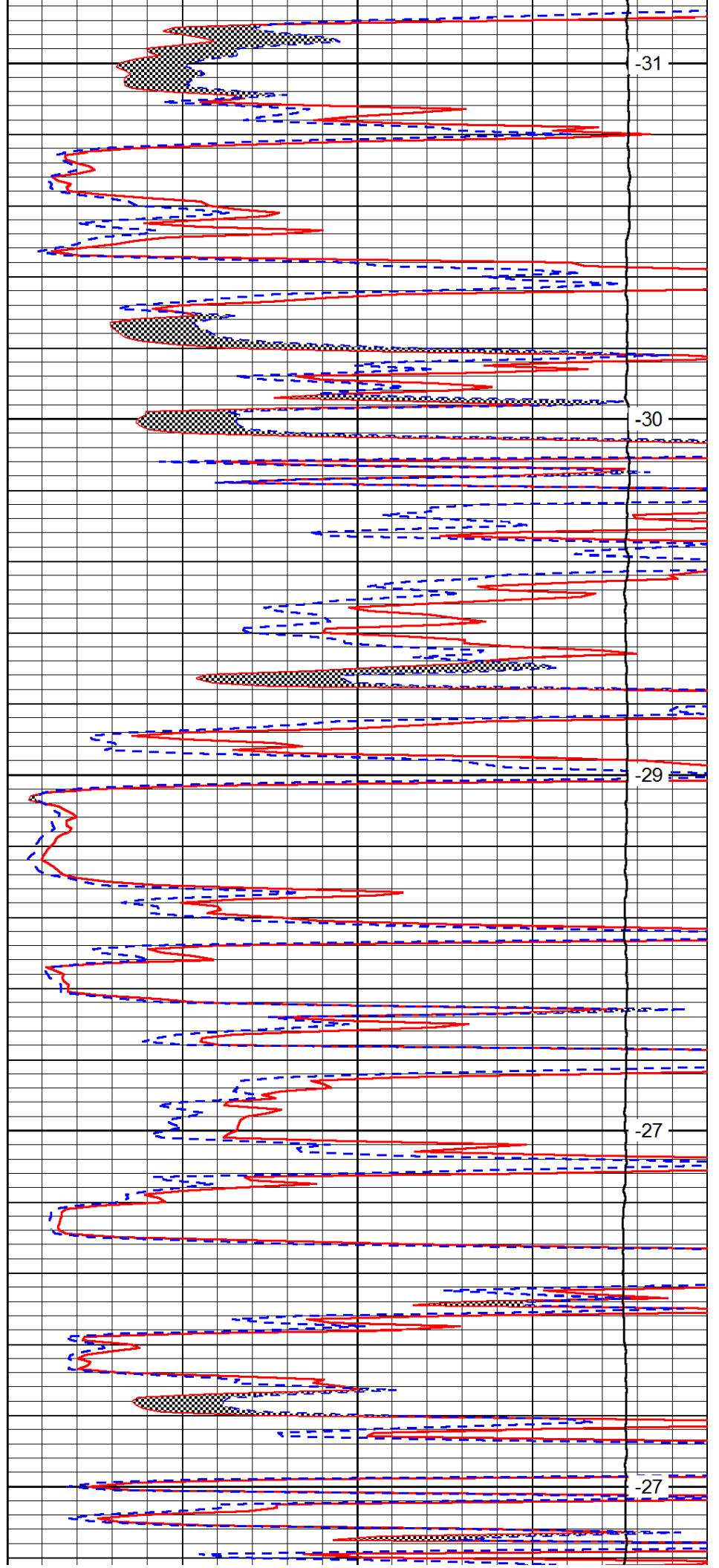
3300

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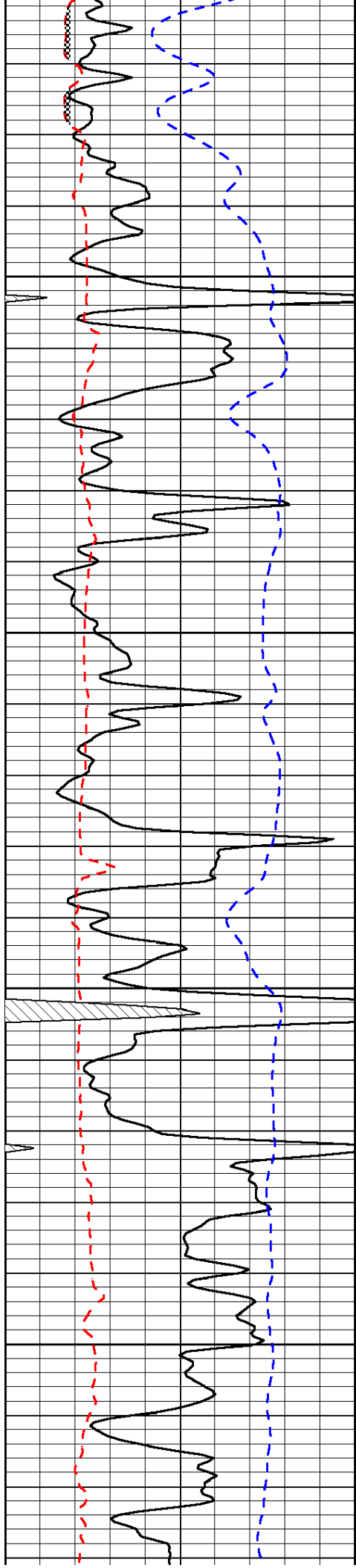
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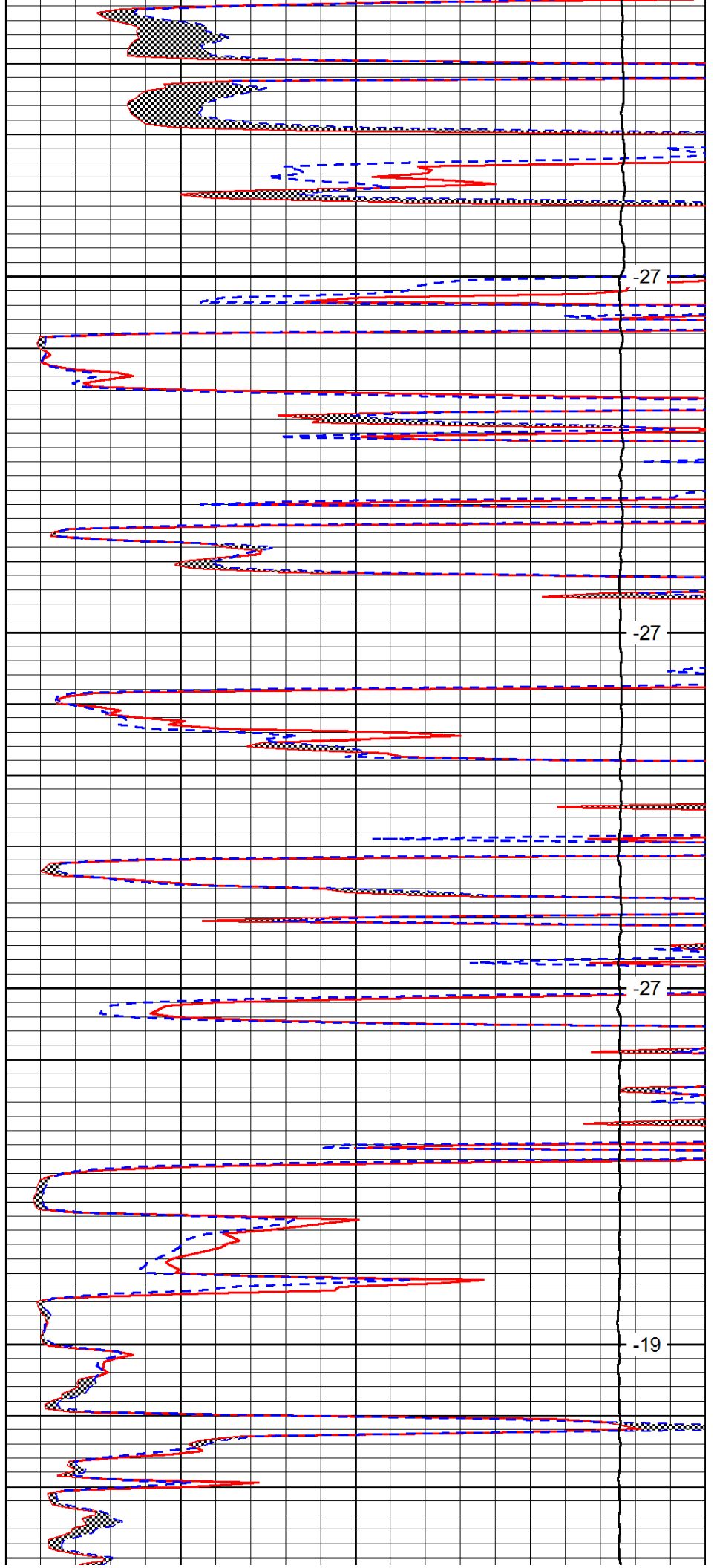


3550

3600

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3700

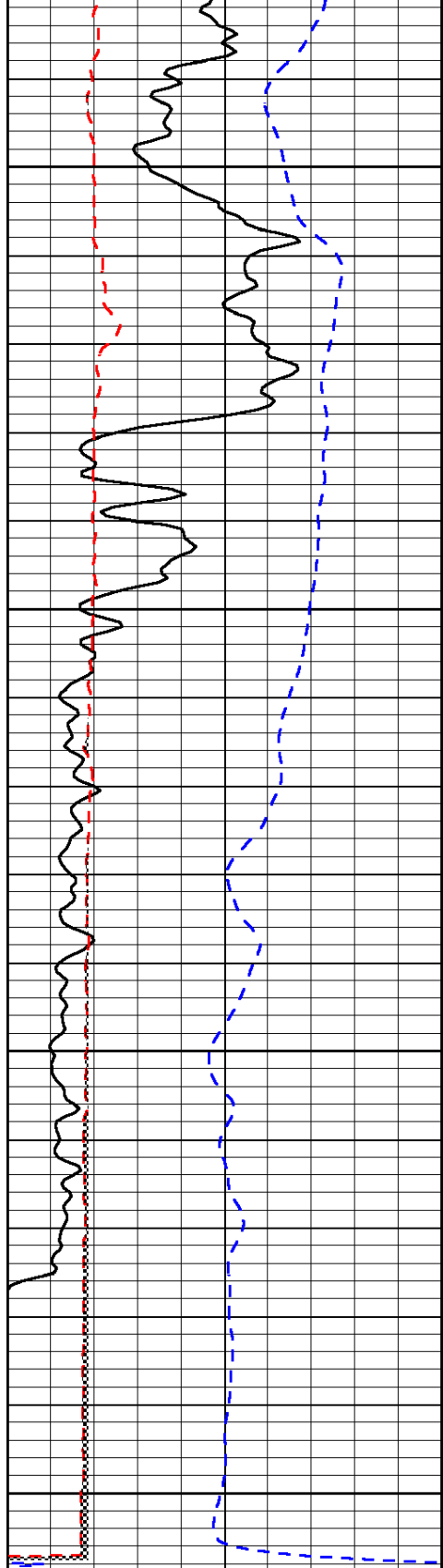


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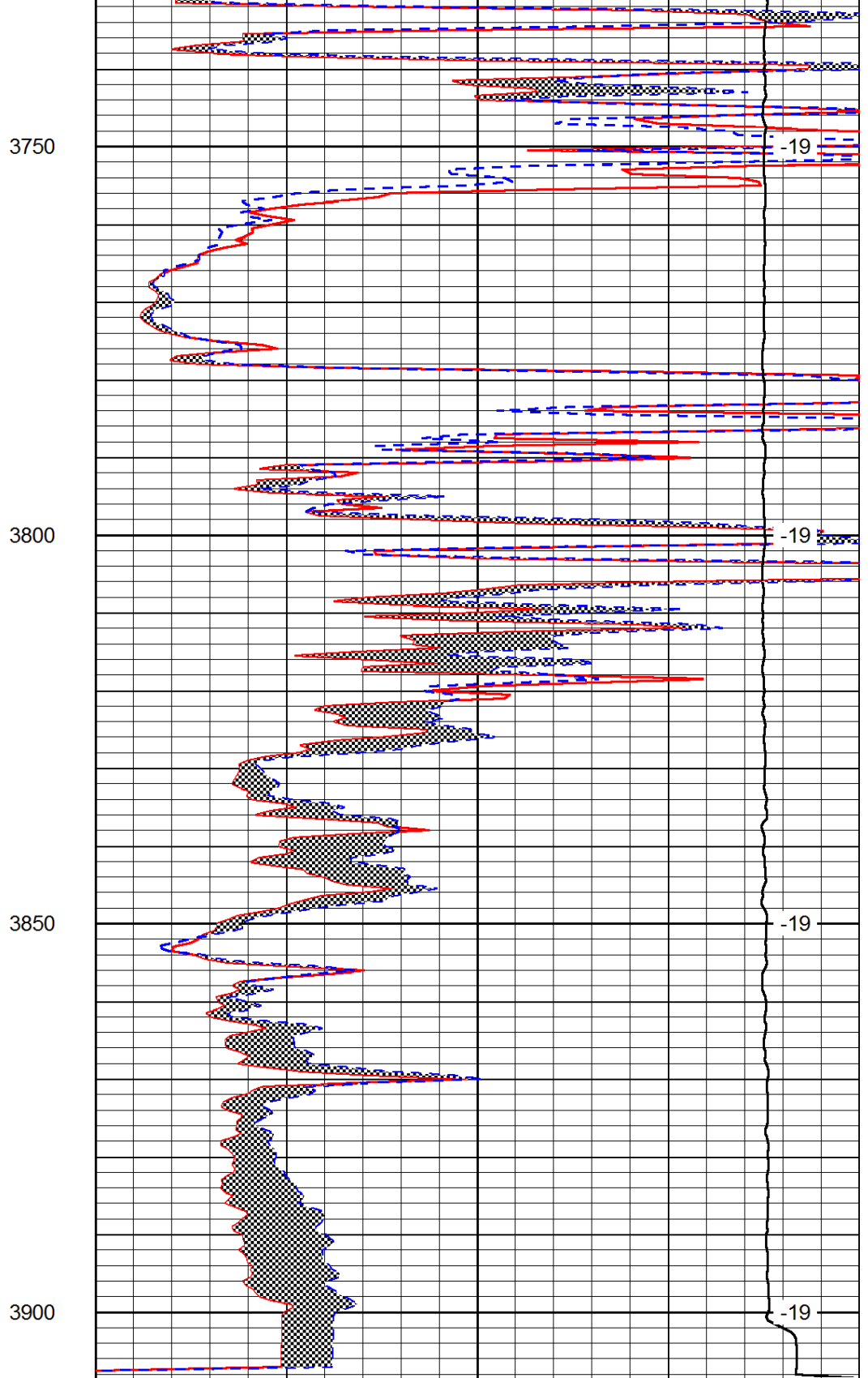
-27

-27

-19



0	Gamma Ray	150
6	Micro Log Caliper (GAPI)	16
-200	SP (mV)	0



0	Micro Inverse 1 X 1	40
0	Micro Normal 2''	40
15000	Line Weight	0

LSPD

OPERATOR

Company: TDI, INC.
 Address: 1310 BISON ROAD
 HAYS, KANSAS 67601

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-259-3141
 Well Name: WERTH # 1
 Location: W2 NE SW NW
 Pool: IN FIELD
 State: KANSAS

API: 15-051-26,272-00-00
 Field: ELLIS
 Country: USA



Scale 1:240 Imperial

Well Name: WERTH # 1
 Surface Location: W2 NE SW NW
 Bottom Location:
 API: 15-051-26,272-00-00
 License Number: 4787
 Spud Date: 4/30/2012 Time: 8:00 AM
 Region: ELLIS COUNTY
 Drilling Completed: 5/6/2012 Time: 5:25 AM
 Surface Coordinates: 1650' FNL & 800' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2137.00ft
 K.B. Elevation: 2146.00ft
 Logged Interval: 3100.00ft To: 390000.00ft
 Total Depth: 3900.00ft
 Formation: ARBUCKLE
 Drilling Fluid Type: GEL/CHEMICAL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude:
 N/S Co-ord: 1650' FNL
 E/W Co-ord: 800' FWL
 Latitude:

LOGGED BY

Company: SOLUTIONS CONSULTING
 Address: 108 W 35TH
 HAYS, KS 67602

Phone Nbr: (785) 259-1337
 Logged By: Geologist Name: HERB DEINES

CONTRACTOR

Contractor: SOUTHWIND DRILLING INC.
 Rig #: 2
 Rig Type: MUD ROTARY
 Spud Date: 4/30/2012 Time: 8:00 AM
 TD Date: 5/6/2012 Time: 5:25 AM
 Rig Release: 5/7/2012 Time: 12:00 AM

ELEVATIONS

K.B. Elevation: 2146.00ft
 K.B. to Ground: 9.00ft
 Ground Elevation: 2137.00ft

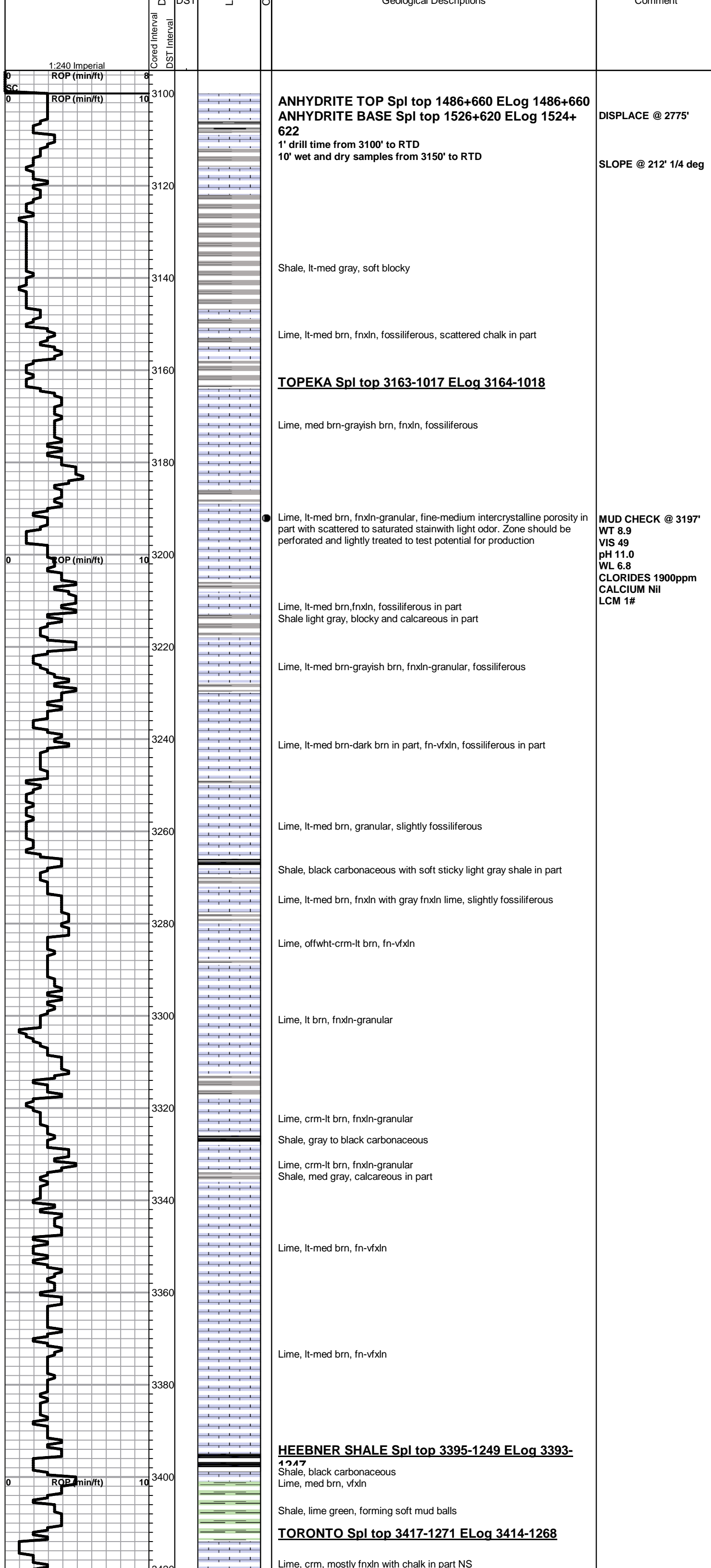
NOTES

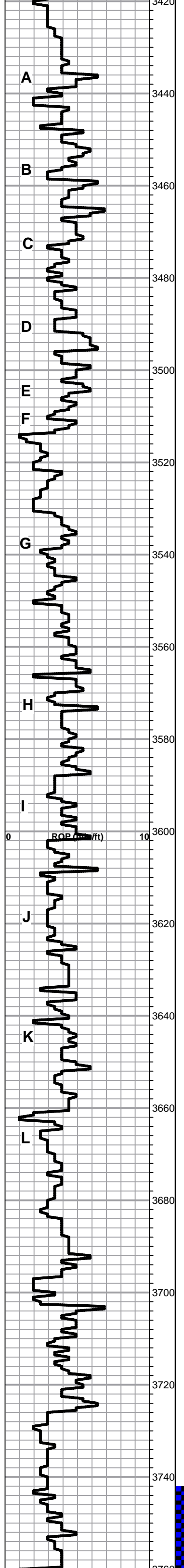
RECOMMENDATION TO RUN PRODUCTION CASING TO TEST ARBUCKLE, LKC AND TOPEKA-30' BREAK BASED ON FAVORABLE STRUCTURE AND POSITIVE RESULTS OF DST # 1

FORMATION TOPS AND DAILY PROGRESS REPORT OF DEPTH AND ACTIVITY

WERTH # 1
 1650' FNL & 800' FWL, NW/4 SEC.5-13s-20w
 ELLIS COUNTY, KANSAS
 GL ELEVATION=2137' KB ELEVATION=2146'

FORMATION**SAMPLE TOP****LOG TOP**





LKC Spl top 3435-1289 ELog 3432-1286

Lime, crm-lt brn, fnxn with chalk in part, NS

Lime, crm-lt brn, fnxn-granular in part, NS

Lime, crm-dark brn, fnxn, slightly fossiliferous in part, NS

Lime, crm-lt brn, mostly fnxn with few pieces of oolitic with scattered staining, NFO, No odor

Shale, gray-black carbonaceous
Lime, lt-med brn, fnxn

Lime, crm, fnxn-granular with chalk in part, few pieces with very light scattered stain, NFO, No Odor

Lime, wht-crm, fnxn-granular, bedded chalk in part, NS

Lime, crm-lt brn, fnxn

Lime, crm-lt brn, fnxn, chalk in part

Lime, crm, fnxn-granular with chalk in part, NS

Lime, lt-med brn, fn-vfxln NS

Lime, crm-lt brn, fnxn NS

Lime, crm-lt brn, mostly fnxn, few pieces with scattered vuggy porosity with scattered staining, No odor. Sample shows lagged back to this interval.

Lime, crm-lt brn, fnxn

BKC Spl top 3681-1535 ELog 3672-1526

Shale, reddish brn, blocky with gray pyritic shale in part

Lime, crm, fnxn

Shale, red,brn, maroon mix of clastic lime and shale in part

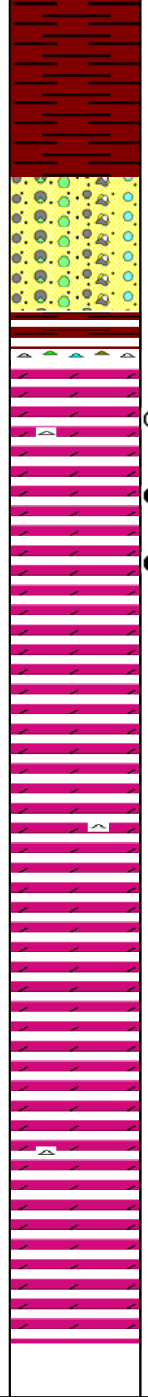
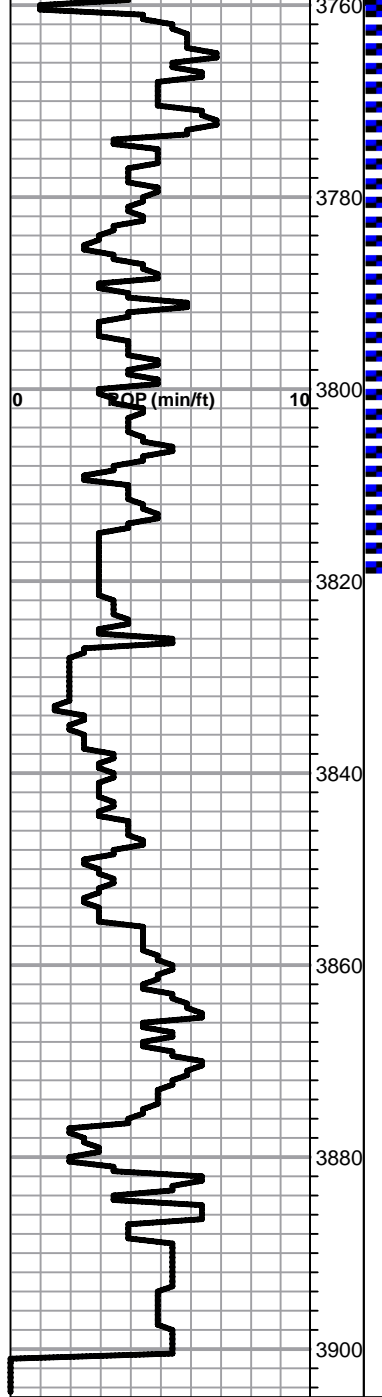
Clastic lime mix

MARMATON Spl top 3723-1577 ELog 3723-1577

Dolomitic lime, fn-med crystalline, with scattered orange chert with much light brn chert, fresh, sharp. Light odor noted in sample with good wet cut on break, NFO noted.

Dolomitic lime, crm-med brn, fn-med xln

MUD CHECK 3592'
WT 9.2
VIS 49
pH 10.5
WL 6.4
CHLORIDES 1900 ppm
CALCIUM TRACE
LCM 1#



Shale, reddish brn, soft, sticky in part

Shale, vari colored, with fresh, sharp chert in part

Cherts, vari colored mixed with reworked dolomite, NS

ARBUCKLE Spl top 3794-1648 ELog 3798-1652

Dolomite, ivory-crm, fnxn-sucrosic in part, very light odor, scattered to saturated staining.

Dolomite, ivory-crm, fn-cxln, fair odor, MSFO, scattered to saturated staining. Good intercrystalline porosity in part with mix of fine crystalline to coarse with good rhombic crystalline development in part. Zones of porosity thin but well developed with coarse crystalline dolomite.

Dolomite, crm-ivory, fnxln to fine grained granular, NS, No odor

Dolomite, crm-ivory, fn-cxln in part, scattered specks of glauconite, qtz grains with clear dolomite crystals in part

Dolomite, Ivory-lt brn, fn-cxln in part

Dolomite, crm-ivory, fnxln

Dolomite, crm-ivory, fn-cxln sucrosic in part

Dolomite, crm-ivory, fnxln

RTD 3900-1754 LTD 3901-1755

DST #1 STRADDLE
3742'-3820'
30-30-45-45
Rec: 63' VSOCGM
46'HOCM-25%OIL
126' GASSY OIL
GRAVITY 34
ISIP: 1160#
FSIP: 1178#
FP: 65-95, 106-145
BHT: 121 DEGREES
1st OPEN: BOB 22 min
BLOW BACK-WK 20"
2nd OPEN: BOB 19.5"
BLOW BACK-WK

MUD CHECK @ 3900'
WT 9.3
VIS 59
pH 10.5
WL 6.8
CHLORIDES 1900ppm
CALCIUM Trace
LCM 2#

SLOPE 1 1/4 DEGREES

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

Home Office P.O. Box 32 Russell, KS 67665

No. 498

Cell 785-324-1041

Date	4-30-12	Sec.	5	Twp.	13	Range	20	County	Ellis	State	Kansas	On Location		Finish	2:30 PM
Lease	Worth	Well No.	1		Location		Ellis NW 34 Sinto								
Contractor	Southwind Drilling Rig 2							Owner							
Type Job	Surface							To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.							
Hole Size	12 1/4		T.D.		212		Charge To								
Csg.	8 3/8 23 1/2		Depth				To TDI								
Tbg. Size			Depth				Street								
Tool			Depth				City				State				
Cement Left in Csg.	10-15		Shoe Joint		The above was done to satisfaction and supervision of owner agent or contractor.										
Meas Line			Displace		12 1/2 Bbl		Cement Amount Ordered				150 Common 30 CL 28 Gnl				

EQUIPMENT

Pumptrk	5	No.	Cementer		Common	150
			Helper	Steve		
Bulktrk	8	No.	Driver		Poz. Mix	
			Driver	Bratt		
Bulktrk		No.	Driver		Gel.	3
			Driver	Len		

JOB SERVICES & REMARKS

Remarks:	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38

Cement did Circulate

Sand	
Handling	158
Mileage	

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	

SLUDGE

Pumptrk Charge	Surface
Mileage	17

Tax	
Discount	
Total Charge	

X Signature *William Sanders*

Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802



Phone: 316-337-6200
Fax: 316-337-6211
<http://kcc.ks.gov/>

Mark Sievers, Chairman
Ward Loyd, Commissioner
Thomas E. Wright, Commissioner

Sam Brownback, Governor

June 20, 2012

TDI, Inc.
1310 BISON RD
HAYS, KS 67601-9696

Re: ACO1
API 15-051-26272-00-00
Werth 1
NW/4 Sec.05-13S-20W
Ellis County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,