



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1105833
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: _____



1105833

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> _____ <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: Herb Deines

Kraus Unit #1

10-15s-19w Ellis,KS

Start Date: 2012.11.19 @ 09:27:05

End Date: 2012.11.19 @ 16:02:09

Job Ticket #: 50757 DST #: 1

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

Printed: 2012.11.26 @ 14:29:27

TDI inc
10-15s-19w Ellis,KS
Kraus Unit #1
DST # 1
LKC"A-C"
2012.11.19



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

10-15s-19w Ellis,KS
Kraus Unit #1
 Job Ticket: 50757 **DST#: 1**
 Test Start: 2012.11.19 @ 09:27:05

GENERAL INFORMATION:

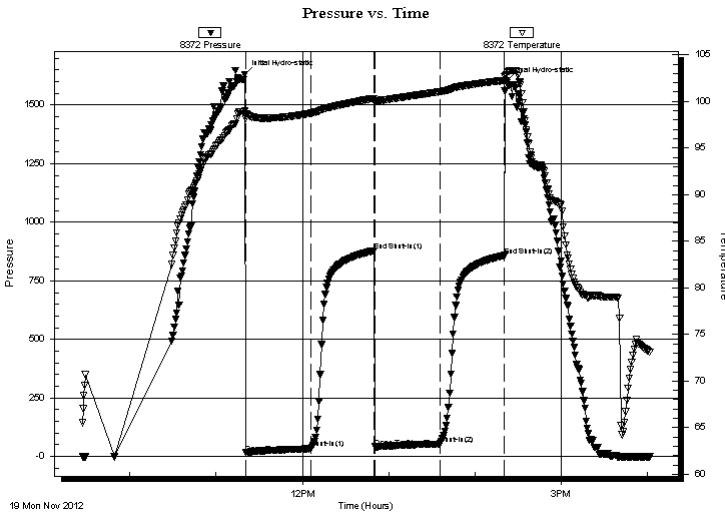
Formation: **LKC"A-C"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 11:20:30
 Time Test Ended: 16:02:09
 Interval: **3322.00 ft (KB) To 3375.00 ft (KB) (TVD)**
 Total Depth: 3375.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2046.00 ft (KB)
 2036.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8372 Outside

Press @ Run Depth: 53.79 psig @ 3329.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.11.19 End Date: 2012.11.19 Last Calib.: 2012.11.19
 Start Time: 09:27:05 End Time: 16:02:10 Time On Btm: 2012.11.19 @ 11:19:50
 Time Off Btm: 2012.11.19 @ 14:21:50

TEST COMMENT: IF:(45min) 2" Blow in 12 min. 3" in 23 min. 4" in 42 min.
 ISl:(45min) No Return
 FF:(45min) 1" blow in 15 min. 2" blow in 26 min. built to 2.5"
 FSl:(45min) No Return

PRESSURE SUMMARY



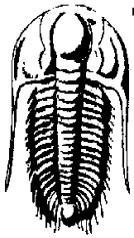
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1630.55	98.96	Initial Hydro-static
1	15.38	98.16	Open To Flow (1)
47	33.89	98.73	Shut-In(1)
91	878.66	100.32	End Shut-In(1)
91	40.80	99.89	Open To Flow (2)
136	53.79	101.03	Shut-In(2)
181	858.23	102.25	End Shut-In(2)
182	1600.31	102.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OSWM o=tr w=40% m=60%	0.84
25.00	OSM o=tr m=100%	0.35

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TDI inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

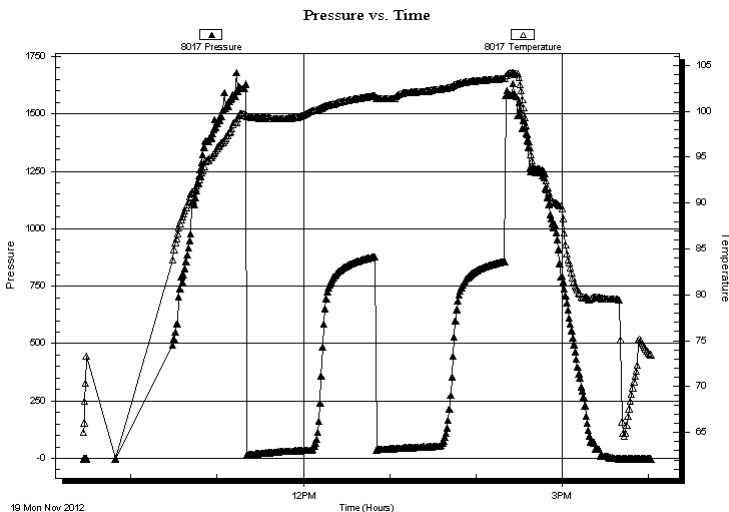
10-15s-19w Ellis, KS
Kraus Unit #1
Job Ticket: 50757 **DST#: 1**
Test Start: 2012.11.19 @ 09:27:05

GENERAL INFORMATION:

Formation: **LKC"A-C"**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Initial)
Time Tool Opened: 11:20:30 Tester: Andy Carreira
Time Test Ended: 16:02:09 Unit No: 39
Interval: 3322.00 ft (KB) To 3375.00 ft (KB) (TVD) Reference Elevations: 2046.00 ft (KB)
Total Depth: 3375.00 ft (KB) (TVD) 2036.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Poor KB to GR/CF: 10.00 ft

Serial #: 8017 Inside
Press @ Run Depth: psig @ 3329.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.11.19 End Date: 2012.11.19 Last Calib.: 2012.11.19
Start Time: 09:27:05 End Time: 16:02:10 Time On Btm:
Time Off Btm:

TEST COMMENT: IF:(45min) 2" Blow in 12 min. 3" in 23 min. 4" in 42 min.
ISl:(45min) No Return
FF:(45min) 1" blow in 15 min. 2" blow in 26 min. built to 2.5"
FSl:(45min) No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OSWM o=tr w=40% m=60%	0.84
25.00	OSM o=tr m=100%	0.35

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: Herb Deines

10-15s-19w Ellis,KS
Kraus Unit #1
Job Ticket: 50757 **DST#: 1**
Test Start: 2012.11.19 @ 09:27:05

Tool Information

Drill Pipe:	Length: 3320.00 ft	Diameter: 3.80 inches	Volume: 46.57 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	34000.00 lb
			<u>Total Volume: 46.57 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	18.00 ft			String Weight: Initial	28000.00 lb
Depth to Top Packer:	3322.00 ft			Final	28000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	53.00 ft				
Tool Length:	73.00 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			3303.00	
Shut In Tool	5.00			3308.00	
Hydraulic tool	5.00			3313.00	
Packer	5.00			3318.00	20.00 Bottom Of Top Packer
Packer	4.00			3322.00	
Stubb	1.00			3323.00	
Perforations	5.00			3328.00	
Change Over Sub	1.00			3329.00	
Recorder	0.00	8017	Inside	3329.00	
Recorder	0.00	8372	Outside	3329.00	
Drill Pipe	32.00			3361.00	
Change Over Sub	1.00			3362.00	
Perforations	10.00			3372.00	
Bullnose	3.00			3375.00	53.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc **10-15s-19w Ellis,KS**
 1310 Bison Rd **Kraus Unit #1**
 Hays KS 67601 Job Ticket: 50757 **DST#: 1**
 ATTN: Herb Deines Test Start: 2012.11.19 @ 09:27:05

Mud and Cushion Information

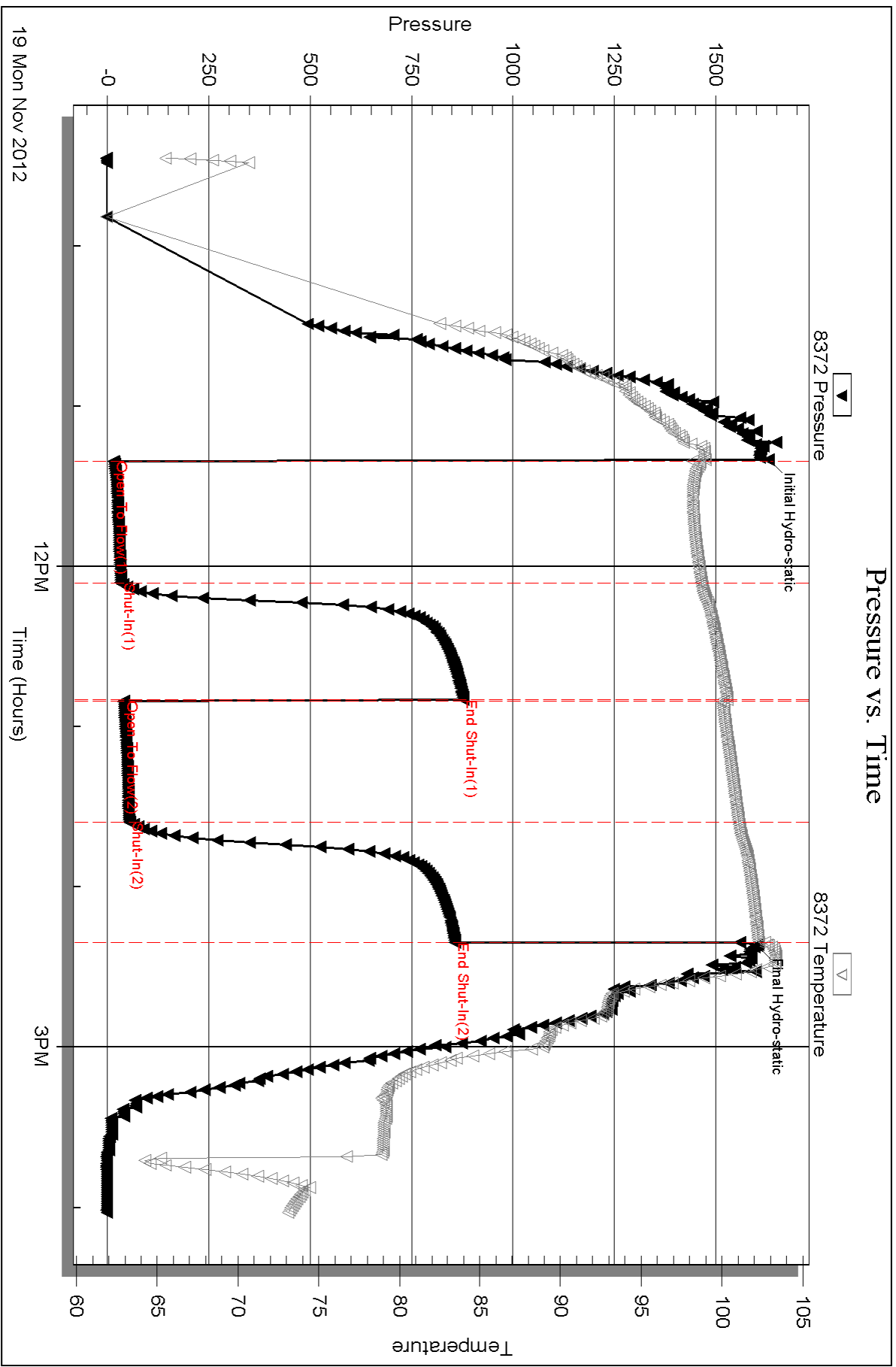
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	19000 ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.76 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6800.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	OSWM o=tr w =40% m=60%	0.842
25.00	OSM o=tr m=100%	0.351

Total Length: 85.00 ft Total Volume: 1.193 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:



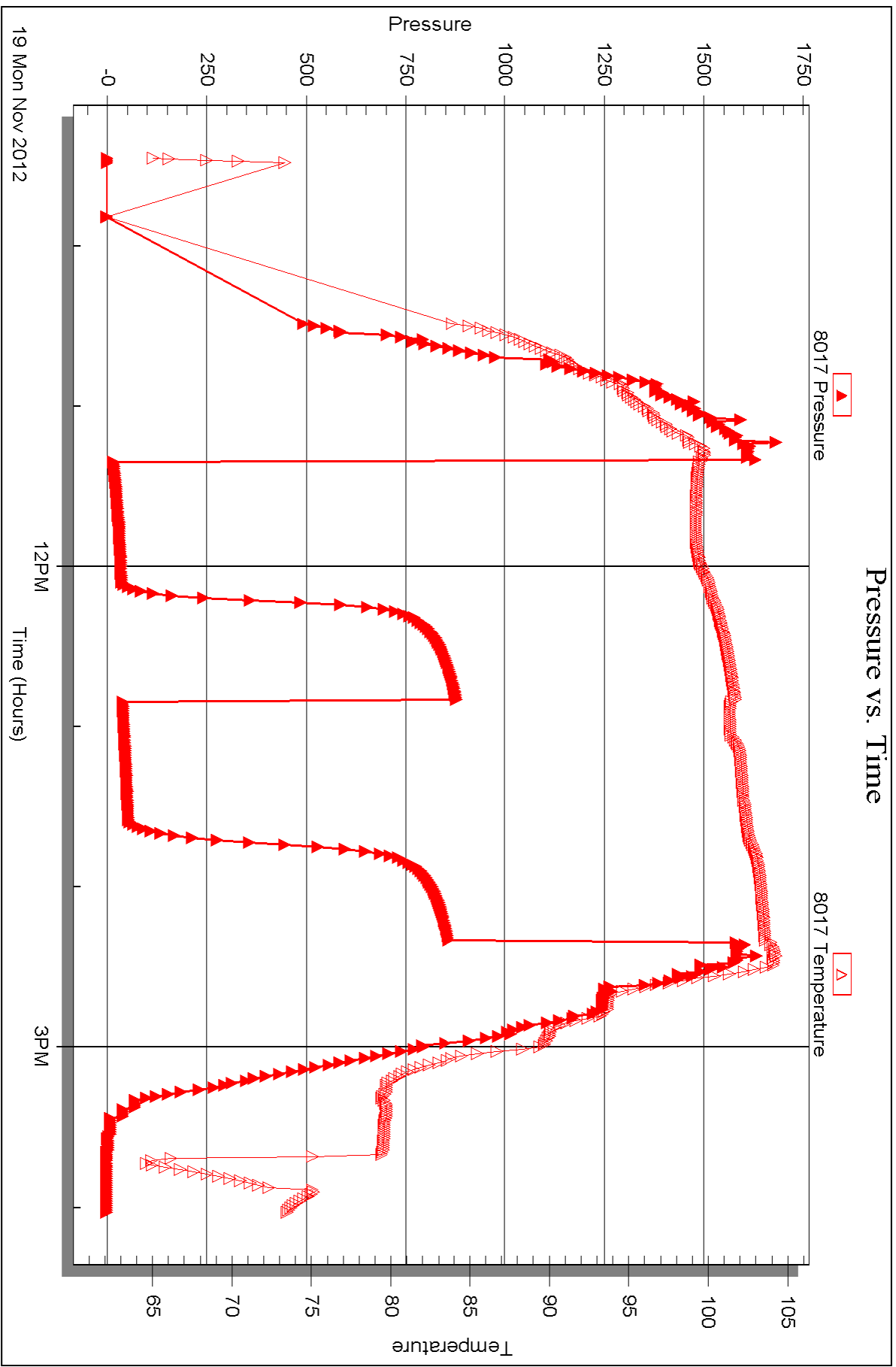
Serial #: 8017

Inside

TD/Inc

Kraus Unit #1

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 50757

Printed: 2012.11.26 @ 14:29:32



DRILL STEM TEST REPORT

Prepared For: **TDI inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Kraus Unit #1

10-15s-19w Ellis,KS

Start Date: 2012.11.20 @ 04:33:05

End Date: 2012.11.20 @ 11:01:20

Job Ticket #: 50758 DST #: 2

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

Printed: 2012.11.26 @ 14:31:26

TDI inc
10-15s-19w Ellis,KS
Kraus Unit #1
DST # 2
LKC "H,I,J"
2012.11.20



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

10-15s-19w Ellis,KS
Kraus Unit #1
 Job Ticket: 50758 **DST#: 2**
 Test Start: 2012.11.20 @ 04:33:05

GENERAL INFORMATION:

Formation: **LKC "H,I,J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 06:15:20
 Time Test Ended: 11:01:20
 Interval: **3445.00 ft (KB) To 3535.00 ft (KB) (TVD)**
 Total Depth: 3535.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2046.00 ft (KB)
 2036.00 ft (CF)
 KB to GR/CF: 10.00 ft

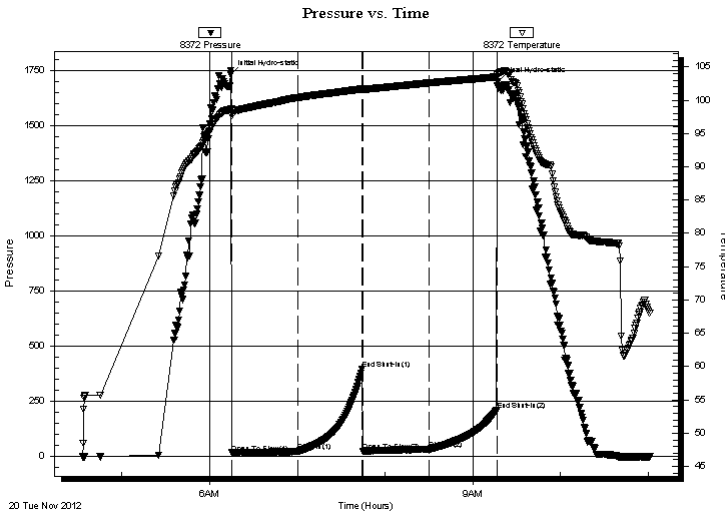
Serial #: 8372

Outside

Press @ RunDepth: 31.68 psig @ 3452.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.11.20 End Date: 2012.11.20 Last Calib.: 2012.11.20
 Start Time: 04:33:05 End Time: 11:01:20 Time On Btm: 2012.11.20 @ 06:14:30
 Time Off Btm: 2012.11.20 @ 09:16:59

TEST COMMENT: IF:(45min) 1" in 6 min. 2" in 15 min. 4" in 43 min.
 IS:(45min) No Return
 FF:(45min) 2" in 4 min. 4" in 18 min. 6" in 39 min.
 FS:(45min) No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1731.69	98.67	Initial Hydro-static
1	16.02	97.70	Open To Flow (1)
46	22.78	100.38	Shut-In(1)
90	394.65	101.67	End Shut-In(1)
91	22.91	101.59	Open To Flow (2)
136	31.68	102.58	Shut-In(2)
182	208.81	103.48	End Shut-In(2)
183	1699.32	103.81	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
45.00	OCGM g=10% o=10% m=80%	0.63
0.00	GIP= 75 ft	0.00

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

10-15s-19w Ellis,KS
Kraus Unit #1
 Job Ticket: 50758 **DST#: 2**
 Test Start: 2012.11.20 @ 04:33:05

GENERAL INFORMATION:

Formation: **LKC "H,I,J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 06:15:20
 Time Test Ended: 11:01:20
Interval: 3445.00 ft (KB) To 3535.00 ft (KB) (TVD)
 Total Depth: 3535.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2046.00 ft (KB)
 2036.00 ft (CF)
 KB to GR/CF: 10.00 ft

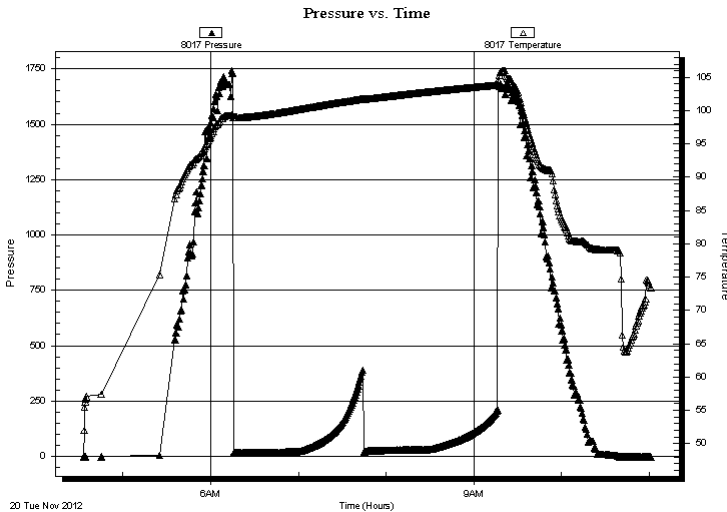
Serial #: 8017

Inside

Press @ Run Depth: psig @ 3452.00 ft (KB)
 Start Date: 2012.11.20 End Date: 2012.11.20
 Start Time: 04:33:05 End Time: 11:01:10
 Capacity: 8000.00 psig
 Last Calib.: 2012.11.20
 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:(45min) 1" in 6 min. 2" in 15 min. 4" in 43 min.
 IS:(45min) No Return
 FF:(45min) 2" in 4 min. 4" in 18 min. 6" in 39 min.
 FS:(45min) No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
45.00	OCGM g=10% o=10% m=80%	0.63
0.00	GIP= 75 ft	0.00

* Recovery from multiple tests

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: Herb Deines

10-15s-19w Ellis,KS
Kraus Unit #1
Job Ticket: 50758 **DST#: 2**
Test Start: 2012.11.20 @ 04:33:05

Tool Information

Drill Pipe:	Length: 3453.00 ft	Diameter: 3.80 inches	Volume: 48.44 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer:	24000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose:	42000.00 lb
			<u>Total Volume: 48.44 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	30000.00 lb
Depth to Top Packer:	3445.00 ft			Final	30000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	90.00 ft				
Tool Length:	110.00 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			3426.00	
Shut In Tool	5.00			3431.00	
Hydraulic tool	5.00			3436.00	
Packer	5.00			3441.00	20.00 Bottom Of Top Packer
Packer	4.00			3445.00	
Stubb	1.00			3446.00	
Perforations	5.00			3451.00	
Change Over Sub	1.00			3452.00	
Recorder	0.00	8017	Inside	3452.00	
Recorder	0.00	8372	Outside	3452.00	
Drill Pipe	64.00			3516.00	
Change Over Sub	1.00			3517.00	
Perforations	15.00			3532.00	
Bullnose	3.00			3535.00	90.00 Bottom Packers & Anchor

Total Tool Length: 110.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc **10-15s-19w Ellis,KS**
 1310 Bison Rd **Kraus Unit #1**
 Hays KS 67601 Job Ticket: 50758 **DST#: 2**
 ATTN: Herb Deines Test Start: 2012.11.20 @ 04:33:05

Mud and Cushion Information

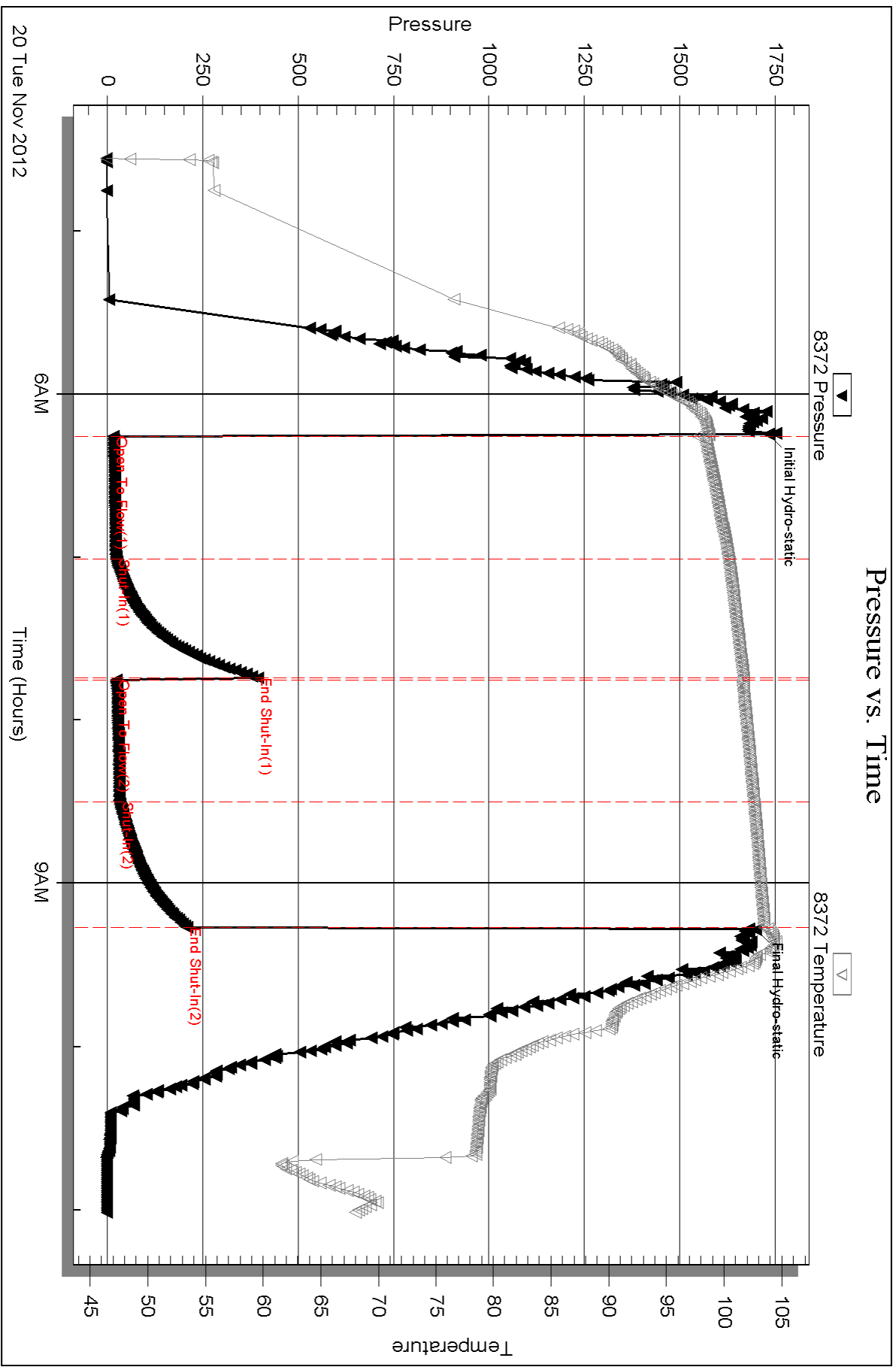
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.75 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6800.00 ppm			
Filter Cake: inches			

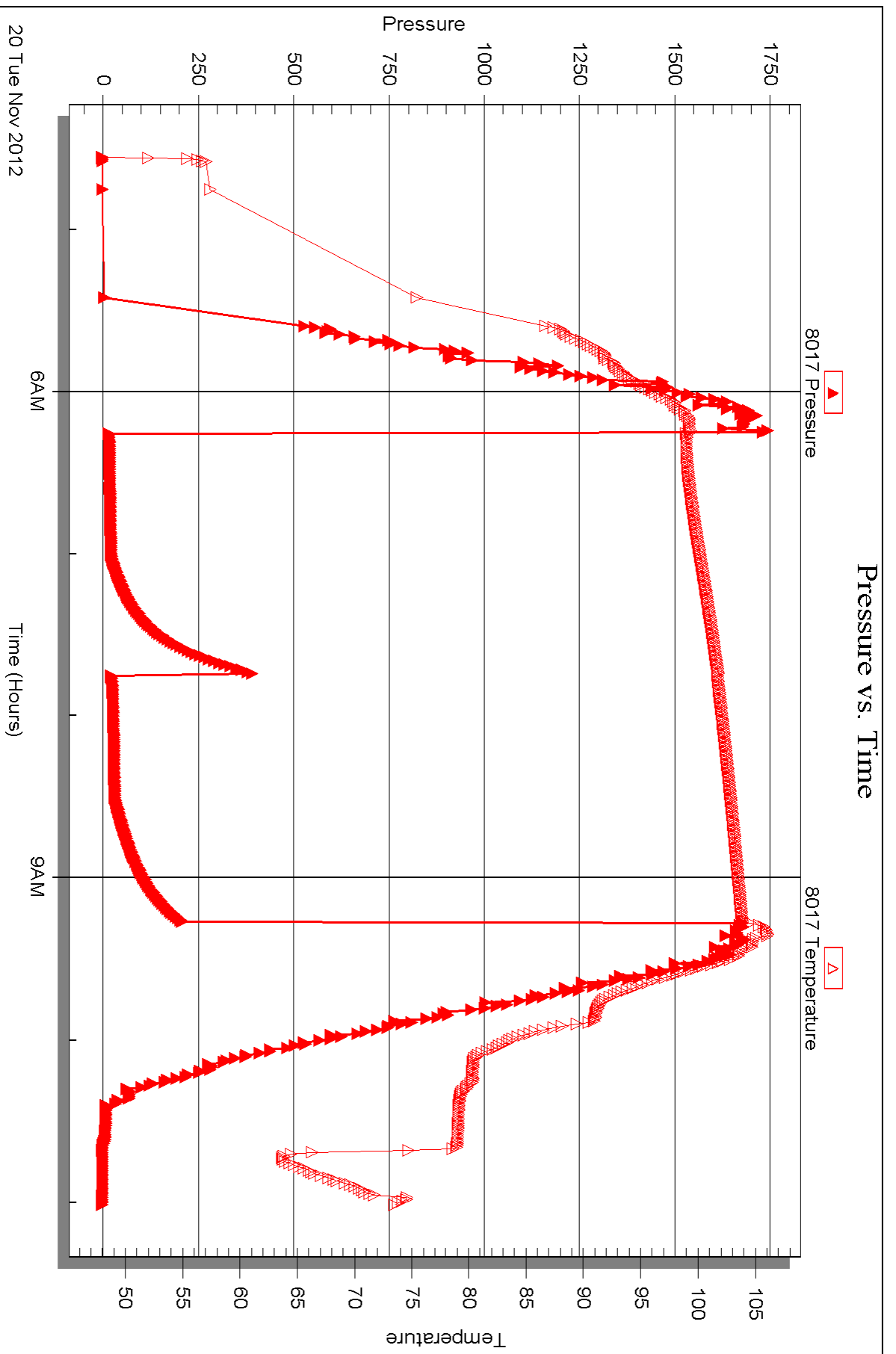
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
45.00	OCGM g=10% o=10% m=80%	0.631
0.00	GIP= 75 ft	0.000

Total Length: 45.00 ft Total Volume: 0.631 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **TDI inc**

1310 Bison Rd
Hays KS 67601

ATTN: Herb Deines

Kraus Unit #1

10-15s-19w Ellis,KS

Start Date: 2012.11.21 @ 07:16:05

End Date: 2012.11.21 @ 11:09:20

Job Ticket #: 50759 DST #: 3

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

Printed: 2012.11.26 @ 14:24:14

TDI inc
10-15s-19w Ellis,KS
Kraus Unit #1
DST # 3
Conglomerate
2012.11.21



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TDI inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

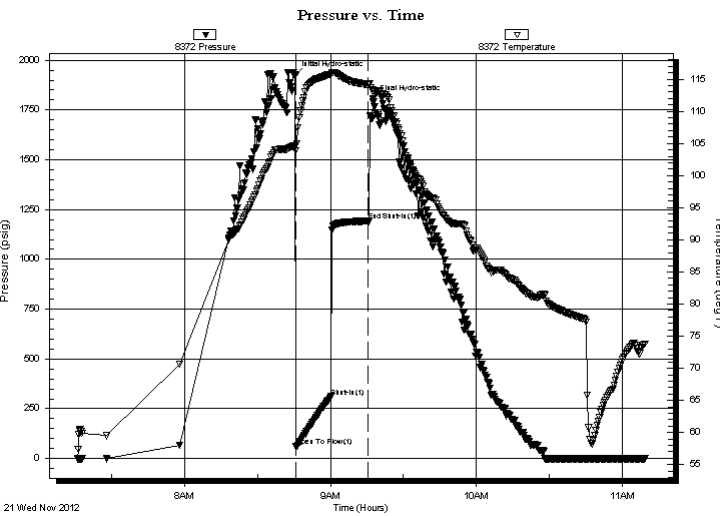
10-15s-19w Ellis,KS
Kraus Unit #1
Job Ticket: 50759 **DST#: 3**
Test Start: 2012.11.21 @ 07:16:05

GENERAL INFORMATION:

Formation: **Conglomerate**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:45:50
 Time Test Ended: 11:09:20
 Interval: **3635.00 ft (KB) To 3680.00 ft (KB) (TVD)**
 Total Depth: 3752.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor
 Test Type: Conventional Straddle (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2046.00 ft (KB)
 2036.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8372 Outside
 Press @ RunDepth: 310.22 psig @ 3638.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.11.21 End Date: 2012.11.21 Last Calib.: 2012.11.21
 Start Time: 07:16:05 End Time: 11:09:20 Time On Btm: 2012.11.21 @ 08:45:30
 Time Off Btm: 2012.11.21 @ 09:17:30

TEST COMMENT: IF:(15min) BOB in 2 min.
 IS:(15min) Return surface blow .
 Pulled tool



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1922.99	104.67	Initial Hydro-static
1	60.79	103.85	Open To Flow (1)
15	310.22	115.75	Shut-In(1)
30	1192.00	114.13	End Shut-In(1)
32	1803.76	113.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
610.00	MW w / oil spks in tool	8.56

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

10-15s-19w Ellis,KS
Kraus Unit #1
 Job Ticket: 50759 **DST#: 3**
 Test Start: 2012.11.21 @ 07:16:05

GENERAL INFORMATION:

Formation: **Conglomerate**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:45:50
 Time Test Ended: 11:09:20
Interval: 3635.00 ft (KB) To 3680.00 ft (KB) (TVD)
 Total Depth: 3752.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor

Test Type: Conventional Straddle (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2046.00 ft (KB)
 2036.00 ft (CF)
 KB to GR/CF: 10.00 ft

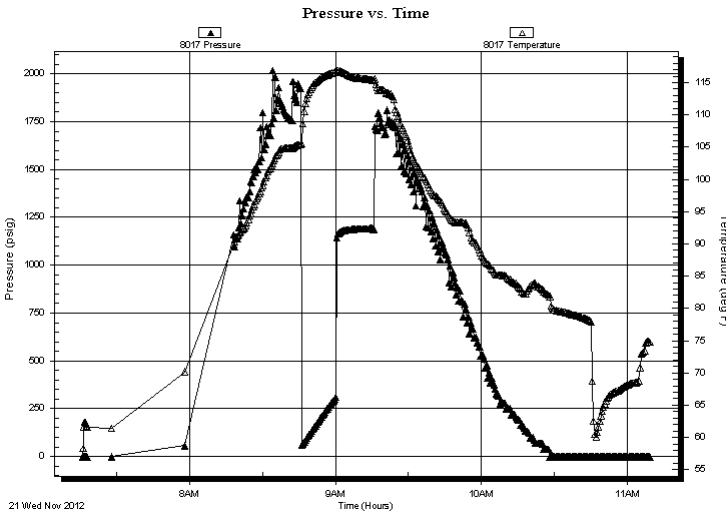
Serial #: 8017

Inside

Press @ Run Depth: psig @ 3638.00 ft (KB)
 Start Date: 2012.11.21 End Date: 2012.11.21
 Start Time: 07:16:05 End Time: 11:09:20
 Capacity: 8000.00 psig
 Last Calib.: 2012.11.21
 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:(15min) BOB in 2 min.
 IS:(15min) Return surface blow .
 Pulled tool

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
610.00	MW w / oil spks in tool	8.56

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
 1310 Bison Rd
 Hays KS 67601
 ATTN: Herb Deines

10-15s-19w Ellis,KS
Kraus Unit #1
 Job Ticket: 50759 **DST#: 3**
 Test Start: 2012.11.21 @ 07:16:05

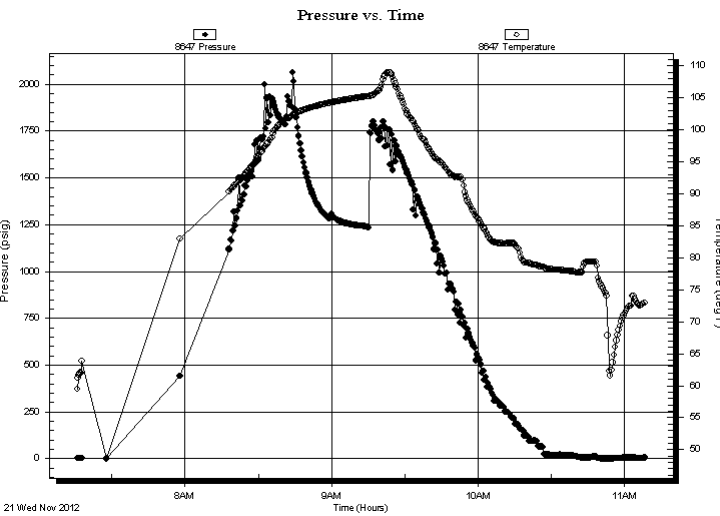
GENERAL INFORMATION:

Formation: **Conglomerate**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:45:50
 Time Test Ended: 11:09:20
 Interval: **3635.00 ft (KB) To 3680.00 ft (KB) (TVD)**
 Total Depth: 3752.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Poor

Test Type: Conventional Straddle (Reset)
 Tester: Andy Carreira
 Unit No: 39
 Reference Elevations: 2046.00 ft (KB)
 2036.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8647 Below (Straddle)
 Press @ Run Depth: psig @ 3688.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2012.11.21 End Date: 2012.11.21 Last Calib.: 2012.11.21
 Start Time: 07:16:05 End Time: 11:08:10 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:(15min) BOB in 2 min.
 IS:(15min) Return surface blow.
 Pulled tool



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
610.00	MW w / oil spks in tool	8.56

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

TDI inc
1310 Bison Rd
Hays KS 67601
ATTN: Herb Deines

10-15s-19w Ellis,KS
Kraus Unit #1
Job Ticket: 50759 **DST#: 3**
Test Start: 2012.11.21 @ 07:16:05

Tool Information

Drill Pipe:	Length: 3615.00 ft	Diameter: 3.80 inches	Volume: 50.71 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.70 inches	Volume: 0.00 bbl	Weight set on Packer: 26000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 40000.00 lb
			<u>Total Volume: 50.71 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	8.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3635.00 ft			Final 36000.00 lb
Depth to Bottom Packer:	3680.00 ft			
Interval between Packers:	45.00 ft			
Tool Length:	149.00 ft			
Number of Packers:	3	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3608.00	
Shut In Tool	5.00			3613.00	
Hydraulic tool	5.00			3618.00	
Jars	5.00			3623.00	
Safety Joint	3.00			3626.00	
Packer	5.00			3631.00	28.00 Bottom Of Top Packer
Packer	4.00			3635.00	
Stubb	1.00			3636.00	
Perforations	1.00			3637.00	
Change Over Sub	1.00			3638.00	
Recorder	0.00	8017	Inside	3638.00	
Recorder	0.00	8372	Outside	3638.00	
Drill Pipe	32.00			3670.00	
Change Over Sub	1.00			3671.00	
Perforations	4.00			3675.00	
Blank Off Sub	1.00			3676.00	
Blank Spacing	4.00			3680.00	45.00 Tool Interval
Packer	4.00			3684.00	
Stubb	1.00			3685.00	
Perforations	2.00			3687.00	
Change Over Sub	1.00			3688.00	
Recorder	0.00	8647	Below	3688.00	
Drill Pipe	64.00			3752.00	
Change Over Sub	1.00			3753.00	
Bullnose	3.00			3756.00	76.00 Bottom Packers & Anchor

Total Tool Length: 149.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

TDI inc

10-15s-19w Ellis,KS

1310 Bison Rd
Hays KS 67601

Kraus Unit #1

Job Ticket: 50759

DST#: 3

ATTN: Herb Deines

Test Start: 2012.11.21 @ 07:16:05

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

33000 ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.37 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 6900.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
610.00	MW w / oil spks in tool	8.557

Total Length: 610.00 ft

Total Volume: 8.557 bbl

Num Fluid Samples: 0

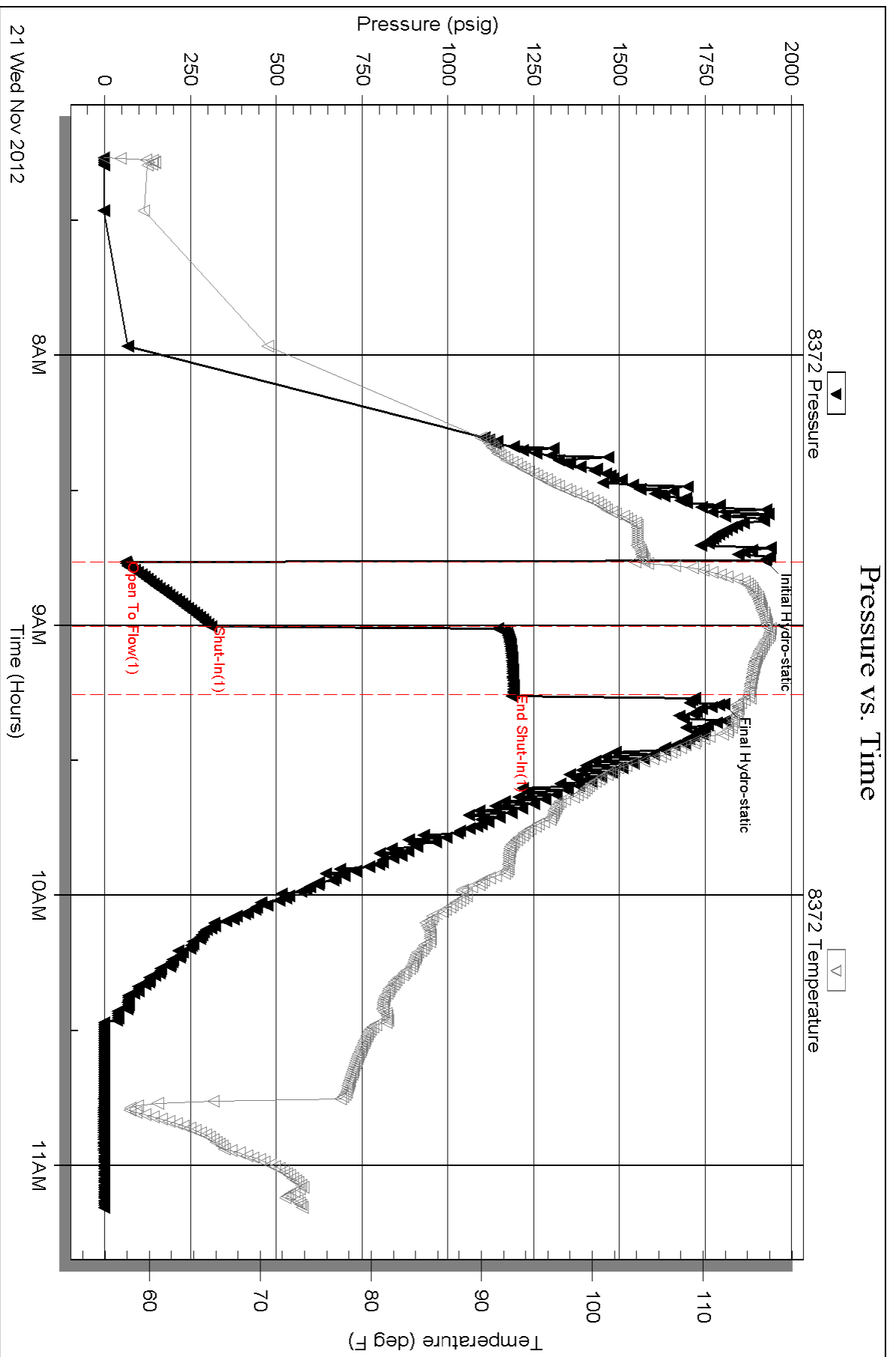
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



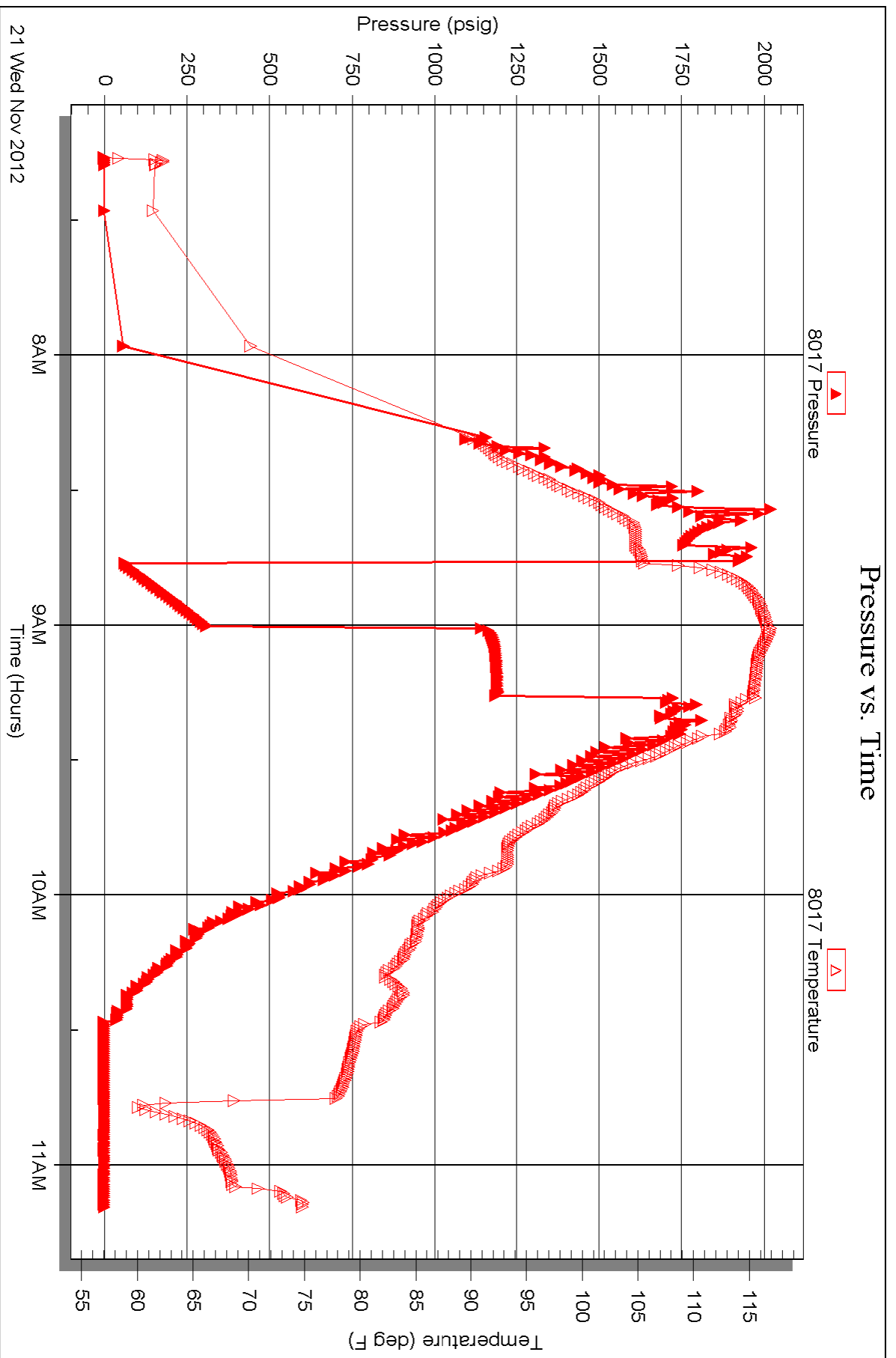
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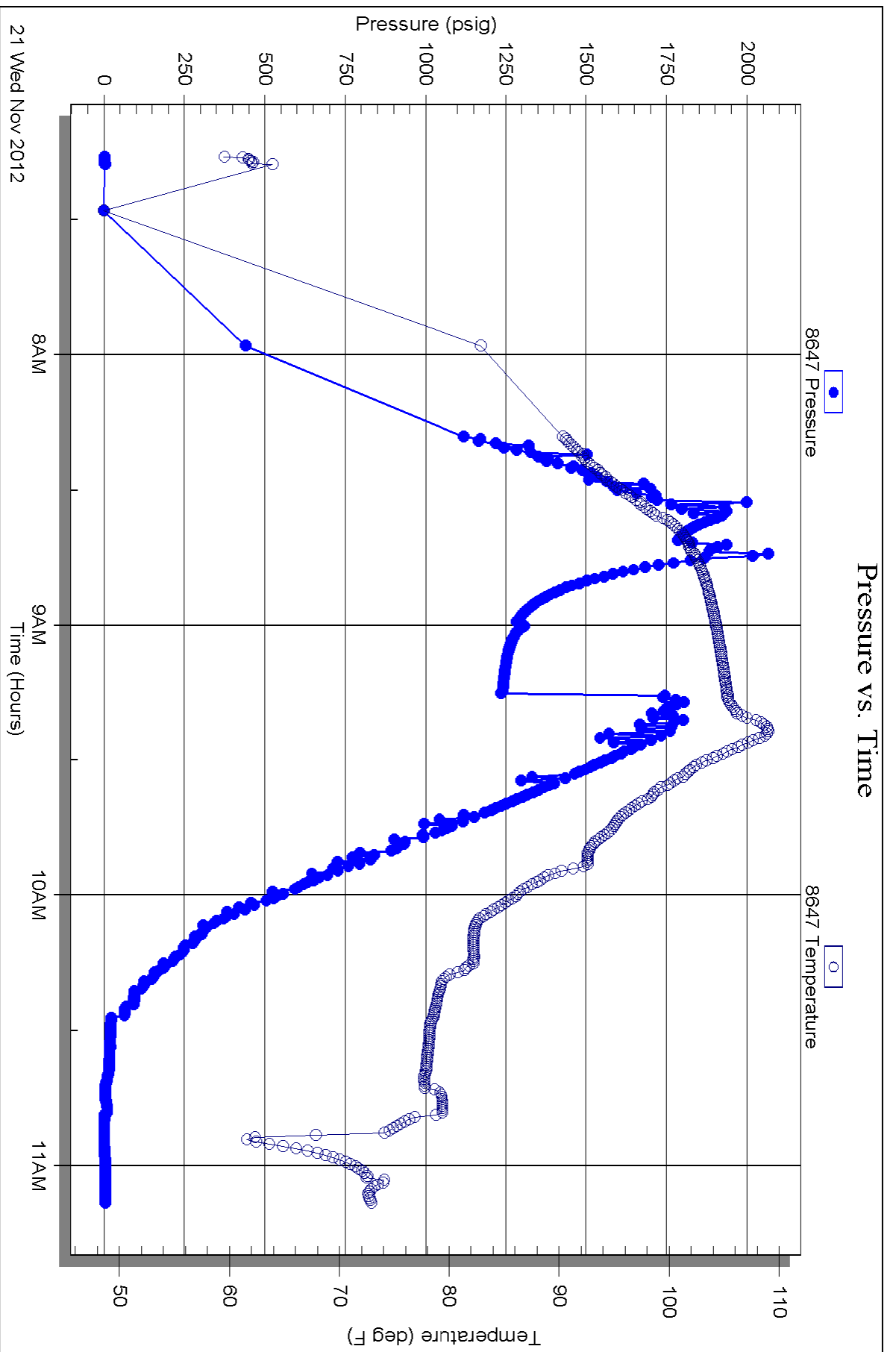
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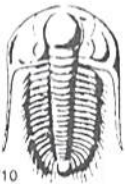
TD/Inc

Kraus Unit #1

DST Test Number: 3







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50757

4/10

Well Name & No. KRAUS UNIT #1 Test No. 1 Date 11-19-12
 Company TDI INC. Elevation 2046 KB 2036 GL
 Address 1310 BISON RD Hays, Ks 67601
 Co. Rep / Geo. Herb Deines Rig Southwind 1
 Location: Sec. 10 Twp. 15S Rge. 19W Co. Ellis State Ks

Interval Tested 3322-3375 Zone Tested LKC "A-C"
 Anchor Length 53 Drill Pipe Run 3320 Mud Wt. 9.2
 Top Packer Depth 3317 Drill Collars Run 0 Vis 57
 Bottom Packer Depth 3322 Wt. Pipe Run 0 WL 8.8
 Total Depth 3375 Chlorides 6800 ppm System LCM TR

Blow Description IF: 2" blow in 12min. 3" in 23min. 4" in 42min
FSI NO Return
FP: 1" blow in 15min 2" in 26min built to 2 1/2"
FSI: NO Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>25</u>	<u>05m</u>				
<u>60</u>	<u>05 W M</u>		<u>TR</u>	<u>40</u>	<u>60</u>
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

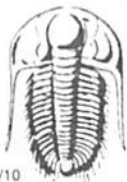
Rec Total 85 BHT Gravity API RW .386 @ 66 ° F Chlorides 19000 ppm

(A) Initial Hydrostatic 1630 Test 1150 T-On Location 07:53
 (B) First Initial Flow 15 Jars T-Started 09:27
 (C) First Final Flow 33 Safety Joint T-Open 11:20
 (D) Initial Shut-In 878 Circ Sub T-Pulled 14:20
 (E) Second Initial Flow 40 Hourly Standby T-Out 16:02
 (F) Second Final Flow 53 Mileage 49.60 Comments
 (G) Final Shut-In 858 Sampler
 (H) Final Hydrostatic 1600 Straddle Ruined Shale Packer
 Shale Packer Ruined Packer
 Extra Packer Extra Copies

Initial Open 45
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 45
 Day Standby
 Accessibility
 Sub Total 1199.60

Approved By _____ Our Representative [Signature]

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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

50758

NO.

4/10

Well Name & No. KRAUS Unit #1 Test No. 2 Date 11-20-12
 Company TDI INC. Elevation 2046 KB 2036 GL
 Address 1310 BISON RD HAYS KS. 67601
 Co. Rep / Geo. Herb DEINES Rig Southwind #1
 Location: Sec. 10 Twp. 15S Rge. 19W Co. Ellis State Ks

Interval Tested 3445-3535 Zone Tested LKC "HIS"
 Anchor Length 90 Drill Pipe Run 3453 Mud Wt. 9.2
 Top Packer Depth 3440 Drill Collars Run 0 Vis 57
 Bottom Packer Depth 3445 Wt. Pipe Run 0 WL 8.8
 Total Depth 3535 Chlorides 6800 ppm System LCM TR.

Blow Description BF: 1" IN 6min, 2" IN 15min, 4" IN 43min
ESI: NO RETURN
FF: 2" IN 4min, 4" IN 18min, 6" IN 39min
FSD: NO RETURN

Rec	Feet of	%gas	%oil	%water	%mud
<u>45</u>	<u>OCBM</u>	<u>10</u>	<u>10</u>		<u>80</u>
Rec	Feet of	%gas	%oil	%water	%mud
<u>75</u>	<u>GIP</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

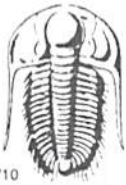
Rec Total 45 BHT 103' Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1731 Test 1150 T-On Location 04:12
 (B) First Initial Flow 16 Jars _____ T-Started 04:33
 (C) First Final Flow 22 Safety Joint _____ T-Open 06:15
 (D) Initial Shut-In 394 Circ Sub _____ T-Pulled 09:15
 (E) Second Initial Flow 22 Hourly Standby _____ T-Out 11:02
 (F) Second Final Flow 31 Mileage 32RT 49.60 Comments _____
 (G) Final Shut-In 208 Sampler _____
 (H) Final Hydrostatic 1699 Straddle _____ Ruined Shale Packer _____

Initial Open 45 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 45 Extra Packer _____ Extra Copies _____
 Final Flow 45 Extra Recorder _____ Sub Total 0
 Final Shut-In 45 Day Standby _____ Total 1199.60
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1199.60

Approved By _____ Our Representative [Signature]

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.



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50759

4/10

Well Name & No. KRAUS UNIT #1 Test No. 3 Date 11-21-12
 Company TDI INC Elevation 2046 KB 2036 GL
 Address 1310 BISON RD Hays, Ks. 67601
 Co. Rep / Geo. HERB DEINES Rig Southwind #1
 Location: Sec. 10 Twp. 15S Rge. 19W Co. Ellis State Ks.

Interval Tested 3635-3680 Zone Tested CONG
 Anchor Length 45' Drill Pipe Run 3615' Mud Wt. 9.2
 Top Packer Depth 3635' Drill Collars Run 0 Vis 56
 Bottom Packer Depth 3680' Wt. Pipe Run 0 WL 8.4
 Total Depth 3752' Chlorides 6900 ppm System LCM 2

Blow Description IF: BOB, 2min
ISI: Return surface blow
FP: — Pulled Tool
FST: —

Rec	Feet of	%gas	%oil	%water	%mud
<u>610</u>	<u>Feet of MW w/oil spks in Tool</u>				
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 610' BHT 114° Gravity _____ API RW, 30 @ 47 °F Chlorides 33000 ppm

(A) Initial Hydrostatic <u>1922</u>	<input checked="" type="checkbox"/> Test ← 1150	T-On Location <u>06:15</u>
(B) First Initial Flow <u>60</u>	<input checked="" type="checkbox"/> Jars ← 250	T-Started <u>07:16</u>
(C) First Final Flow <u>310</u>	<input checked="" type="checkbox"/> Safety Joint ← 75	T-Open <u>08:46</u>
(D) Initial Shut-In <u>1192</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>09:16</u>
(E) Second Initial Flow <u>—</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>11:10</u>
(F) Second Final Flow <u>—</u>	<input checked="" type="checkbox"/> Mileage ← <u>320</u> 49.60	Comments _____
(G) Final Shut-In <u>—</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1803</u>	<input checked="" type="checkbox"/> Straddle ← 600	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>15'</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>15'</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>Pulled Tool</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>—</u>	<input type="checkbox"/> Day Standby	Total <u>2124.60</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't _____
	Sub Total <u>2124.60</u>	

Approved By _____ Our Representative [Signature]

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.

OPERATOR

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

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: KRAUS UNIT # 1
 Location: NE SE NE SW Sec.10-15s-19w
 Pool: IN FIELD
 State: KANSAS

API: 15-051-26,416-00-00
 Field: REICHERT
 Country: USA



TDI, Inc.
 1310 BISON ROAD
 HAYS, KANSAS 67601
 (785) 628-2593

Scale 1:240 Imperial

Well Name: KRAUS UNIT # 1
 Surface Location: NE SE NE SW Sec.10-15s-19w
 Bottom Location:
 API: 15-051-26,416-00-00
 License Number: 4787
 Spud Date: 11/15/2012 Time: 1:30 PM
 Region: ELLIS COUNTY
 Drilling Completed: 11/20/2012 Time: 10:14 PM
 Surface Coordinates: 1890' FSL & 2515' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2036.00ft
 K.B. Elevation: 2046.00ft
 Logged Interval: 2900.00ft To: 3750.00ft
 Total Depth: 3750.00ft
 Formation: LANSING- KANSAS CITY
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: Latitude:
 N/S Co-ord: 1890' FSL
 E/W Co-ord: 2515' FWL

LOGGED BY

Company: SOLUTIONS CONSULTING
 Address: 108 W 35TH
 HAYS, KS 67601

Phone Nbr: (785) 639-1337
 Logged By: Geologist Name: HERB DEINES

CONTRACTOR

Contractor: SOUTHWIND DRILLING, INC.
 Rig #: 1
 Rig Type: MUD ROTARY

Rig Type: MUD ROTARY
Spud Date: 11/15/2012
TD Date: 11/20/2012
Rig Release: 11/21/2012

Time: 1:30 PM
Time: 10:14 PM
Time: 8:00 PM

ELEVATIONS

K.B. Elevation: 2046.00ft
K.B. to Ground: 10.00ft

Ground Elevation: 2036.00ft

NOTES

DECISION TO PLUG AND ABANDON WELL BASED ON NEGATIVE RESULTS OF THREE DSTS AND LOW STRUCTURE.

OPEN HOLE LOGGING BY PIONEER ENERGY SERVICES: DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG, MICRORESISTIVITY LOG.

DRILL STEM TESTING BY TRILOBITE TESTING INC: THREE (3) TESTS-TWO CONVENTIONAL AND ONE STRADDLE TEST

FORMATION TOPS SUJMMARY AND CHRONOLOGY OF DAILY ACTIVITY

KRAUS UNIT # 1

1890' FSL & 2515' FWL, SW/4

Sec.10-15s-19w

2036' GL 2046' KB

<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1263+783	1262+ 784
B-Anhydrite	1299+ 747	1299+ 747
Topeka	3025- 979	3027- 981
Heebner Shale	3293-1247	3295-1249
Toronto	3314-1268	3315-1269
LKC	3337-1291	3340-1294
BKC	3580-1534	3584-1538
Conglomerate Sand	3644-1598	3650-1604
Arbuckle	3671-1625	3678-1632
RTD	3750-1704	
LTD		3754-1708


SUMMARY OF DAILY ACTIVITY

11-15-12 RU, Spud 1:30 PM, set 8 5/8" surface casing to 223.65' w/ 150 sxs
Common, 2%Gel, 3%CC, plug down 6:15 PM, slope ¼ degree

11-16-12 536', drilling

- 11-17-12 2025', drilling
- 11-18-12 2827', drilling, displace 2765'- 2777'
- 11-19-12 3375', drilling, short trip, CCH, DST # 1 3322'-75 LKC- A-C, pipe strap 3392.78', board 3393.66'
- 11-20-12 3535', drilling, DST # 2 3445'-3535' LKC-H-J, RTD 3750' @10:26PM, mini short trip, CCH
- 11-21-12 3750', logging, DST # 3 straddle test 3635'-80 Conglomerate Sand, plug and abandon well.

DST # 1 TEST SUMMARY A-C

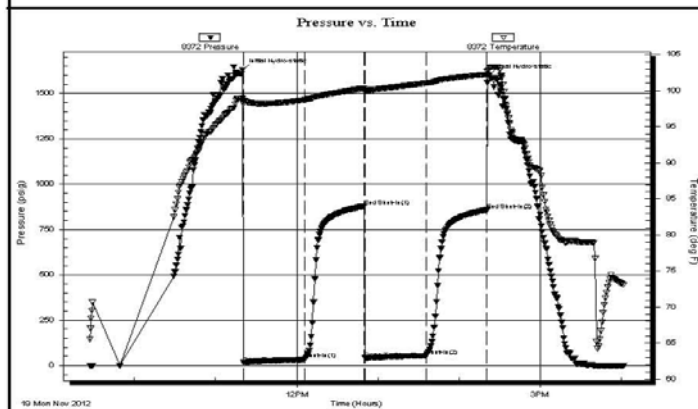
	DRILL STEM TEST REPORT		
	TDI inc 1310 Bison Rd Hays Ks. 67601 ATTN: Herb Deines	10-15s-19w Ellis Kraus Unit #1 Job Ticket: 50757 DST#: 1 Test Start: 2012.11.19 @ 09:27:05	

GENERAL INFORMATION:

Formation: LKC"A-C" Deviated: No Whipstock ft (KB) Time Tool Opened: 11:20:30 Time Test Ended: 16:02:09 Interval: 3322.00 ft (KB) To 3375.00 ft (KB) (TVD) Total Depth: 3375.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Poor	Test Type: Conventional Bottom Hole (Initial) Tester: Andy Carreira Unit No: 39 Reference Elevations: 2046.00 ft (KB) 2036.00 ft (CF) KB to GR/CF: 10.00 ft
---	--

Serial #: 8372	Outside		
Press@RunDepth: 53.79 psig @ 3329.00 ft (KB)	Capacity: 8000.00 psig		
Start Date: 2012.11.19	End Date: 2012.11.19	Last Calib.: 2012.11.19	
Start Time: 09:27:05	End Time: 16:02:10	Time On Btm: 2012.11.19 @ 11:19:50	
		Time Off Btm: 2012.11.19 @ 14:21:50	

TEST COMMENT: IF:(45min) 2" Blow in 12 min. 3" in 23 min. 4" in 42 min.
 ISl:(45min) No Return
 FF:(45min) 1" blow in 15 min. 2" blow in 26 min. built to 2.5"
 FS:(45min) No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1630.55	98.96	Initial Hydro-static
1	15.38	98.16	Open To Flow (1)
47	33.89	98.73	Shut-In(1)
91	878.66	100.32	End Shut-In(1)
91	40.80	99.89	Open To Flow (2)
136	53.79	101.03	Shut-In(2)
181	858.23	102.25	End Shut-In(2)
182	1600.31	102.87	Final Hydro-static


Recovery

Length (ft)	Description	Volume (bbl)
60.00	OSVM o=tr w =40% m=60%	0.84
25.00	OSM o=tr m=100%	0.35

Gas Rates

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

DST # 2 TEST SUMMARY H-J

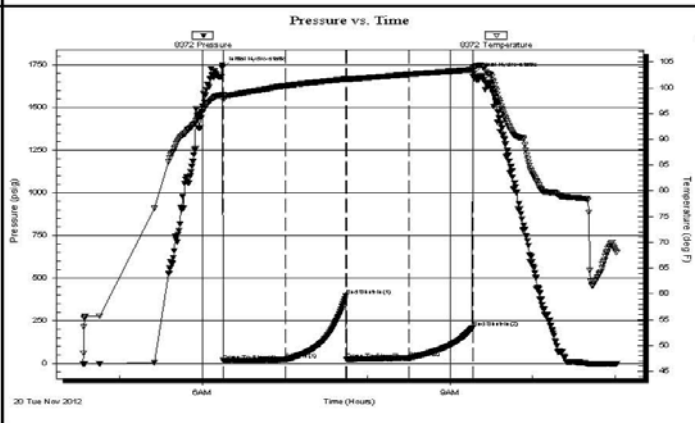
 TRILOBITE TESTING, INC.	DRILL STEM TEST REPORT	
	TDI inc 1310 Bison Rd Hays Ks. 67601 ATTN: Herb Deines	10-15s-19w Ellis Kraus Unit #1 Job Ticket: 50758 DST#: 2 Test Start: 2012.11.20 @ 04:33:05

GENERAL INFORMATION:

Formation: LKC"H,I,J"	Test Type: Conventional Bottom Hole (Reset)
Deviated: No Whipstock ft (KB)	Tester: Andy Carreira
Time Tool Opened: 06:15:20	Unit No: 39
Time Test Ended: 11:01:20	Reference Elevations: 2046.00 ft (KB)
Interval: 3445.00 ft (KB) To 3535.00 ft (KB) (TVD)	2036.00 ft (CF)
Total Depth: 3535.00 ft (KB) (TVD)	KB to GR/CF: 10.00 ft
Hole Diameter: 7.88 inches	Hole Condition: Poor

Serial #: 8372 Outside	Capacity: 8000.00 psig
Press@RunDepth: 31.68 psig @ 3452.00 ft (KB)	Last Calib.: 2012.11.20
Start Date: 2012.11.20 End Date: 2012.11.20	Time On Btm: 2012.11.20 @ 06:14:30
Start Time: 04:33:05 End Time: 11:01:20	Time Off Btm: 2012.11.20 @ 09:16:59

TEST COMMENT: IF:(45min) 1" in 6 min. 2" in 15 min. 4" in 43 min.
 ISl:(45min) No Return
 FF:(45min) 2" in 4 min. 4" in 18 min. 6" in 39 min.
 FS:(45min) No Return



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1731.69	98.67	Initial Hydro-static
1	16.02	97.70	Open To Flow (1)
46	22.78	100.38	Shut-In(1)
90	394.65	101.67	End Shut-In(1)
91	22.91	101.59	Open To Flow (2)
136	31.68	102.58	Shut-In(2)
182	208.81	103.48	End Shut-In(2)
183	1699.32	103.81	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
45.00	OCGM g=10% o=10% m=80%	0.63
0.00	GIP= 75 ft	0.00

* Recovery from multiple tests

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

DST # 3 STRADDLE TEST CONGLOMERATE SAND



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TDI inc
1310 Bison Rd
Hays Ks. 67601
ATTN: Herb Deines

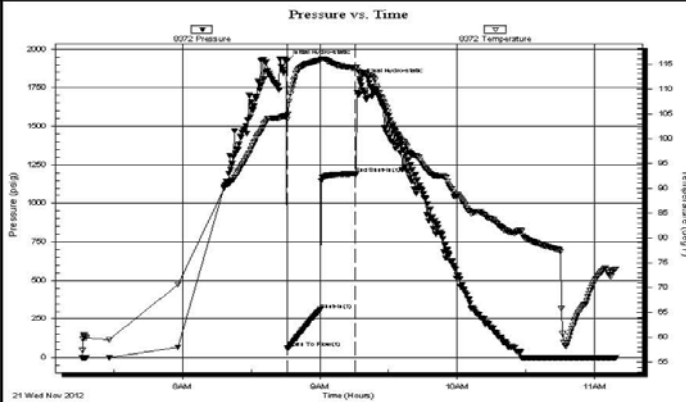
10-15s-19w Ellis
Kraus Unit #1
Job Ticket: 50759 **DST#: 3**
Test Start: 2012.11.21 @ 07:16:05

GENERAL INFORMATION:

Formation: **Conglomerate**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 08:45:50
Time Test Ended: 11:09:20
Interval: **3635.00 ft (KB) To 3680.00 ft (KB) (TVD)**
Total Depth: 3752.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor
Test Type: Conventional Straddle (Reset)
Tester: Andy Carreira
Unit No: 39
Reference Elevations: 2046.00 ft (KB)
2036.00 ft (CF)
KB to GR/CF: 10.00 ft

Serial #: 8372 Outside
Press@RunDepth: 310.22 psig @ 3638.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2012.11.21 End Date: 2012.11.21 Last Calib.: 2012.11.21
Start Time: 07:16:05 End Time: 11:09:20 Time On Btm: 2012.11.21 @ 08:45:30
Time Off Btm: 2012.11.21 @ 09:17:30

TEST COMMENT: IF:(15min) BOB in 2 min.
ISl:(15min) Return surface blow.
Pulled tool



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1922.99	104.67	Initial Hydro-static
1	60.79	103.85	Open To Flow (1)
15	310.22	115.75	Shut-In(1)
30	1192.00	114.13	End Shut-In(1)
32	1803.76	113.13	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
610.00	MVW / oil spks in tool	8.56

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

* Recovery from multiple tests

Trilobite Testing, Inc

Ref. No: 50759

Printed: 2012.11.21 @ 16:22:47

ROCK TYPES

- Dolprim
- shale, grn
- shale, red
- Dol Lime
- Lmst fw<7
- shale, gry
- Ss
- Arg/Shale
- Lmst fw>7
- Carbon Sh

ACCESSORIES

- MINERAL**

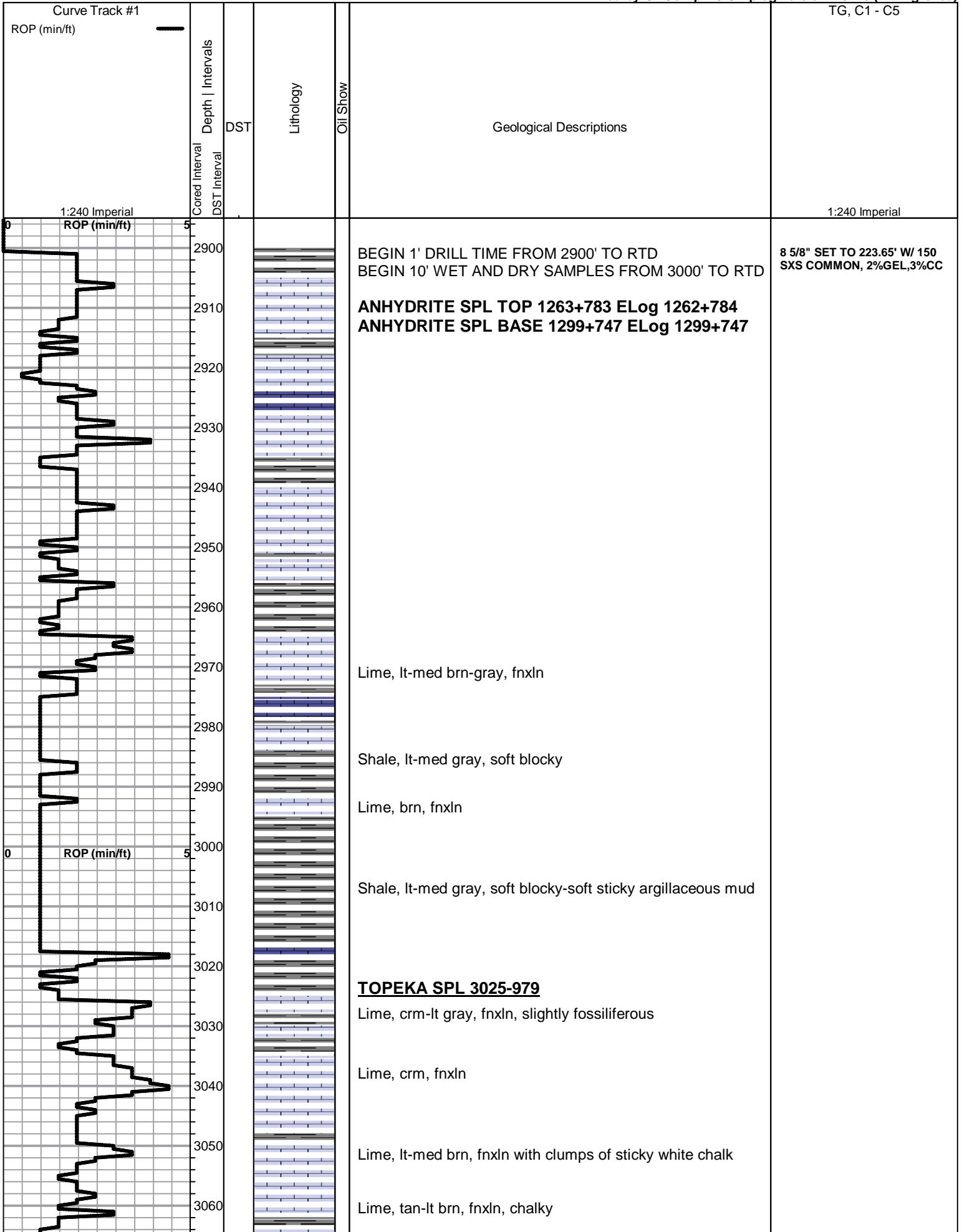
 - ▲ Chert, dark
 - ◆ Varicolored chert
- FOSSIL**

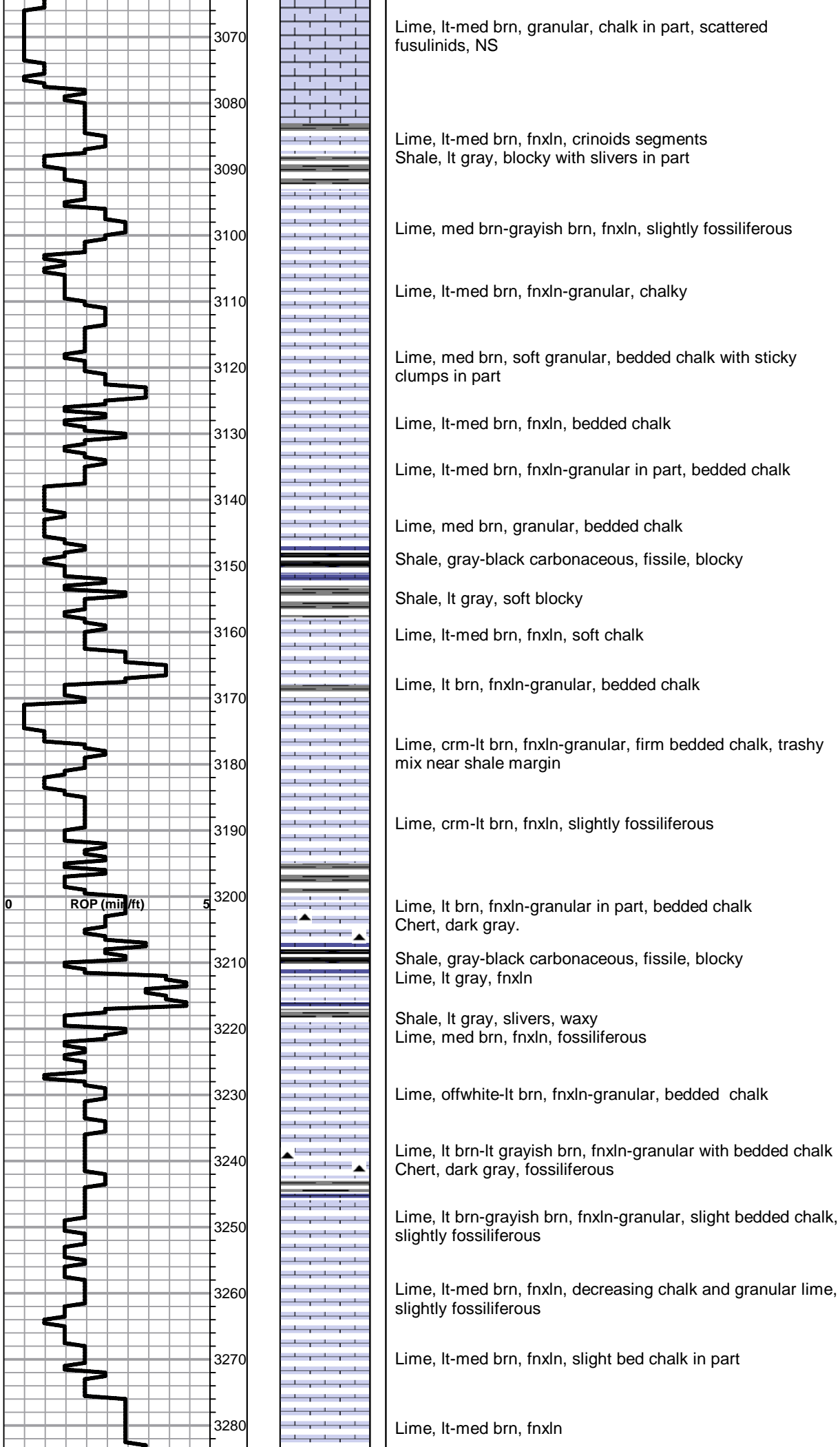
 - Oolite
 - ⊕ Oomoldic

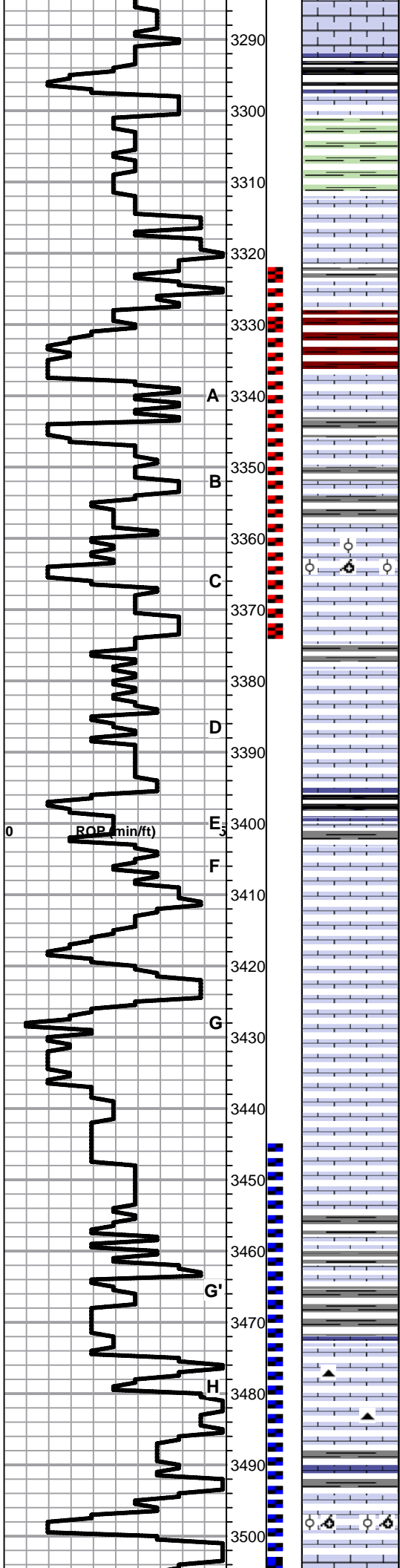
OTHER SYMBOLS

DST

DST
 DST Int
 DST alt
 Core







HEEBNER SHALE SPL 3293-1247

Shale, black carbonaceous, fissile, blocky
 Lime, med brn, fnxln, hard on crush
 Shale, med green, blocky grading into lime green soft mud

TORONTO SPL 3314-1268

Lime, white-crm, fn-vfxln, bedded chalk in part NS

Lime, crm-lt brn, fn-vfxln, slight chalk, NS

Shale, red, soft with lt red wash

LKC SPL 3337-1291

Lime, lt-dark brn, fn-vfxln, slightly fossiliferous, NS
 Shale, grayish green, soft blocky

Lime, lt-med brn, fnxln with trashy lime/shale boundary

Shale, lt gray, soft sticky argillaceous mud clumps

Lime, lt-med brn, fnxln grading into oolitic/oolmoldic zone with scattered-saturated lt staining, lt odor, VMSFO on break

Lime, crm-lt brn, mostly fnxln. Thin fossil fragment bed with lt scattered staining, NFO,

Lime, crm-tan, fnxln

Shale, gray-black carbonaceous, fissile, blocky
 Lime, pale gray, fnxln
 Shale, lt gray, soft, sticky, argillaceous

Lime, crm-tan, fnxln, lot of bedded chalk, NS

Lime, crm-tan, fnxln, granular, lot of bedded chalk, NS

Lime, crm-tan, fnxln with continued high volume of bedded chalk, NS

Lime, crm-lt brn, fnxln, bedded chalk

Lime, crm-lt brn, fnxln, bedded chalk

Lime, pale gray, fnxln
 Shale, med gray, blocky, calcareous in part

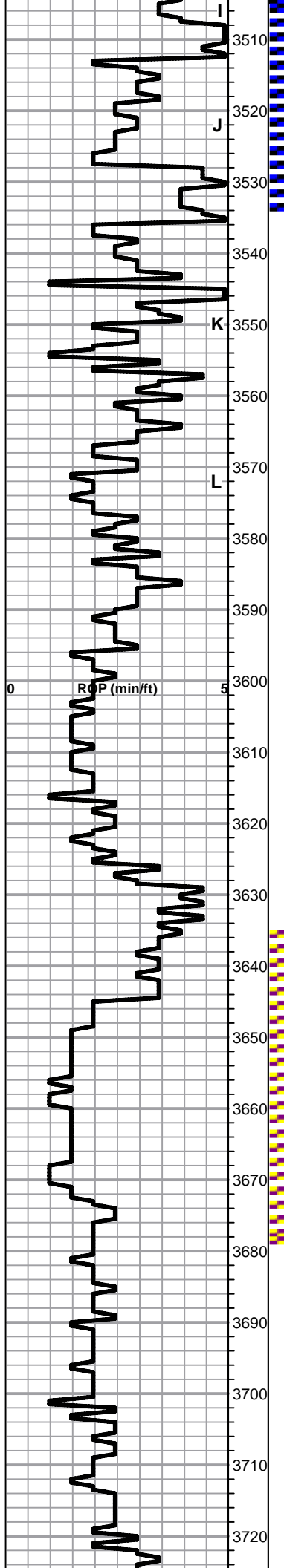
Shale, med gray, blocky, calcareous in lime/shale transition zones

Lime, crm-lt brn, fn-vfxln, NS noted
 Chert, tan, fresh, sharp

Lime, lt-med brn, fn-vfxln

Lime, lt-med brn, fn-vfxln with few oolitic/oolmoldic chips with lt scattered to saturated staining, NFO, No Odor

DST # 2 3445' TO 3535' SEE HEADER FOR TEST SUMMARY



Lime, lt brn, fnxln

Shale, dove gray, soft, argillaceous mud clumps
 Lime, crm-tan, fnxln with scattered fine, honey comb vuggy porosity with lt scattered staining, NFO, VLT Odor

Lime, crm-tan, fnxln, bedded chalk in part

Lime, crm-tan, fnxln, bed chalk, NS

Lime, crm-lt brn, fn-vfxln, slight bed chalk in part

Lime, crm-lt brn, fnxln, sticky white chalk in party

Lime, crm-lt brn, fnxln, bed chalk in part, NS

Lime, crm-lt brn, fnxln, bedded chalk, NS

BKC SPL 3580-1534

Shale, red, soft blocky with lt red wash

Lime, crm-tan, fnxln, chalky

Shale, red, red wash with argillaceous, sticky clumps

Shale, red, red wash with soft, argillaceous sticky clumps

MARMATION SPL 3625-1579

Lime, crm-tan, fnxln, hard on crush with scattered orange chert fragments, NS

CONGLOMERATE SAND SPL 3644-1598

Sandstone, quartz, friable, subrounded, polished fine-coarse grains, very lt odor. Few cemented clusters noted at top of sequence with no clusters throughout most of zone. One of the best developed and cleanest sands noted in the area but too low to be productive.

ARBUCKLE SPL 3671-1625

Dolomite, ivory-crm, fnxln-granular, scattered specks of free oil and flaky residue, No Odor

Dolomite, ivory-crm, fnxln, chalky white wash, NS

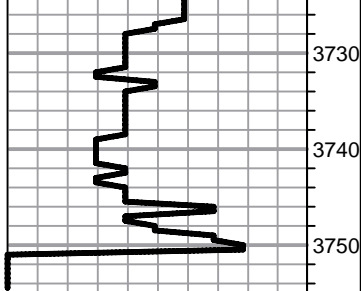
Dolomite, crm, granular, NS

Dolomite, ivory-crm, fnxln-granular

Dolomite, ivory-crm, fnxln-granular

Dolomite, ivory-crm, fnxln-granular

DST # 3 STRADDLE TEST
 3535' - 3580' SEE HEADER
 FOR TEST SUMMARY



Dolomite, crm, fxlIn-granular

RTD 3750-1704 LTD 3754-1708

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

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

No. 6204

Date	11.15.12	Sec.	10	Twp.	15	Range	19	County	Ellis	State	KS	On Location	Finish	6:15 p.m.
------	----------	------	----	------	----	-------	----	--------	-------	-------	----	-------------	--------	-----------

Location Antonio Lu252w Vinto

Lease <u>Kraus Unit</u>	Well No. <u>1</u>	Owner 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.
Contractor <u>Southwind #1</u>		
Type Job <u>Surface</u>		
Hole Size <u>12 1/4</u>	T.D. <u>225</u>	Charge To <u>TDI</u>
Csg. <u>8 5/8</u>	Depth <u>223</u>	Street
Tbg. Size	Depth	City
Tool	Depth	State
Cement Left in Csg. <u>15'</u>	Shoe Joint	The above was done to satisfaction and supervision of owner agent or contractor.
		Cement Amount Ordered <u>150 Gm. 34000 Jockey</u>

Meas Line	Displace <u>13 1/4 BCL</u>	Common <u>150</u>
EQUIPMENT		
Pumptrk <u>15</u>	No. Cementer <u>Craig</u> Helper	Poz. Mix
Bulktrk	No. Driver <u>Nick</u>	Gel. <u>3</u>
Bulktrk <u>8</u>	No. Driver <u>Louise W.</u>	Calcium <u>5</u>

JOB SERVICES & REMARKS	Hulls
Remarks:	Salt
Rat Hole	Flowseal
Mouse Hole	Kol-Seal
Centralizers	Mud CLR 48
Baskets	CFL-117 or CD110 CAF 38
D/V or Port Collar	Sand
<u>8 5/8 on bottom Est Circulation</u>	Handling <u>158</u>
<u>Mix 150 Gm. Displace.</u>	Mileage
<u>Cement Circulated,</u>	FLOAT EQUIPMENT
	Guide Shoe
	Centralizer <u>8 5/8 Swage</u>
	Baskets
	AFU Inserts
	Float Shoe
	Latch Down

Pumptrk Charge <u>Surface</u>	
Mileage <u>13</u>	
	Tax
	Discount
	Total Charge

X Signature Ruby L

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025

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

No. 6197

Cell 785-324-1041

Date	11-21-12	Sec.	10	Twp.	15	Range	19	County	Ellis	State	Ks	On Location		Finish	5:30 PM
------	----------	------	----	------	----	-------	----	--------	-------	-------	----	-------------	--	--------	---------

Lease **Kraus Unit** Location **Antonino, Ks - 1W, 2S, 1/2W**

Well No. **1** Owner **PHHO**

Contractor **Southwind #1** 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.

Type Job **Plug** Charge To **TDI Inc.**

Hole Size **7 7/8"** T.D. **3750'** Street

Csg. Depth **3650'** City State

Tbg. Size **4 1/2" D.P.** Depth **3650'** The above was done to satisfaction and supervision of owner agent or contractor.

Tool Depth Cement Amount Ordered **245 SX 60/40 4% Gel**

Cement Left in Csg. Shoe Joint Cement Amount Ordered

Meas Line Displace **H2O / mud** **1/4" B Flo seal**

EQUIPMENT Common

Pumptrk	5	No.	Cementer	Brett	Poz. Mix
			Helper		
Bulktrk	13	No.	Driver	Lonnie M.	Gel.
			Driver		
Bulktrk	p.u.	No.	Driver	Rick	Calcium
			Driver		

JOB SERVICES & REMARKS Hulls

Remarks: Salt

Rat Hole Flowseal

Mouse Hole Kol-Seal

Centralizers Mud CLR 48

Baskets CFL-117 or CD110 CAF 38

D/V or Port Collar Sand

3650' - 25 SX Handling

1280' - 25 SX Mileage

550' - 80 SX

275' - 40 SX

40' - 10 SX w/ Plug

Rathole w/ 30 SX

Max hole w/ 15 SX

Cement did Circulate

1 - Dry hole plug

Pumptrk Charge Mileage Tax Discount Total Charge

X Signature *[Signature]*

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
Thomas E. Wright, Commissioner
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

November 28, 2012

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

Re: ACO1
API 15-051-26416-00-00
Kraus Unit 1
SW/4 Sec.10-15S-19W
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,
Tom Denning



Pioneer Energy Services

Dual Induction Log

API No.	15-051-26,416-00-00	
Company	TDL, Inc.	
Well	Kraus-Unit No.1	
Field	Reichert	
County	Ellis	State
		Kansas
Location	1890' FSL & 2515' FWL	
Sec: 10	Twp: 15S	Rge: 19W
Permanent Datum	Ground Level	Elevation 2036
Log Measured From	Kelly Bushing	10 Ft. Above Perm. Datum
Drilling Measured From	Kelly Bushing	
		Other Services CNL/CDL MEL
		Elevation K.B. 2046 D.F. 2036 G.L. 2036

Date	11/21/2012
Run Number	One
Depth Driller	3750
Depth Logger	3754
Bottom Logged Interval	3753
Top Log Interval	200
Casing Driller	8.625 @ 223.65
Casing Logger	222
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	6,900
Density / Viscosity	9.3 58
pH / Fluid Loss	10.5 8.0
Source of Sample	Flowline
Rm @ Meas. Temp	.65 @ 54
Rmf @ Meas. Temp	.49 @ 54
Rmc @ Meas. Temp	.88 @ 54
Source of Rmf / Rmc	Charts
Rm @ BHT	.31 @ 114
Operating Rig Time	3 1/2 Hours
Max Rec. Temp. F	114
Equipment Number	17
Location	Hays
Recorded By	C. Desaire
Witnessed By	Tom Denning
	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
 Antonino KS, 2 S,
 1 1/2 W, N Into

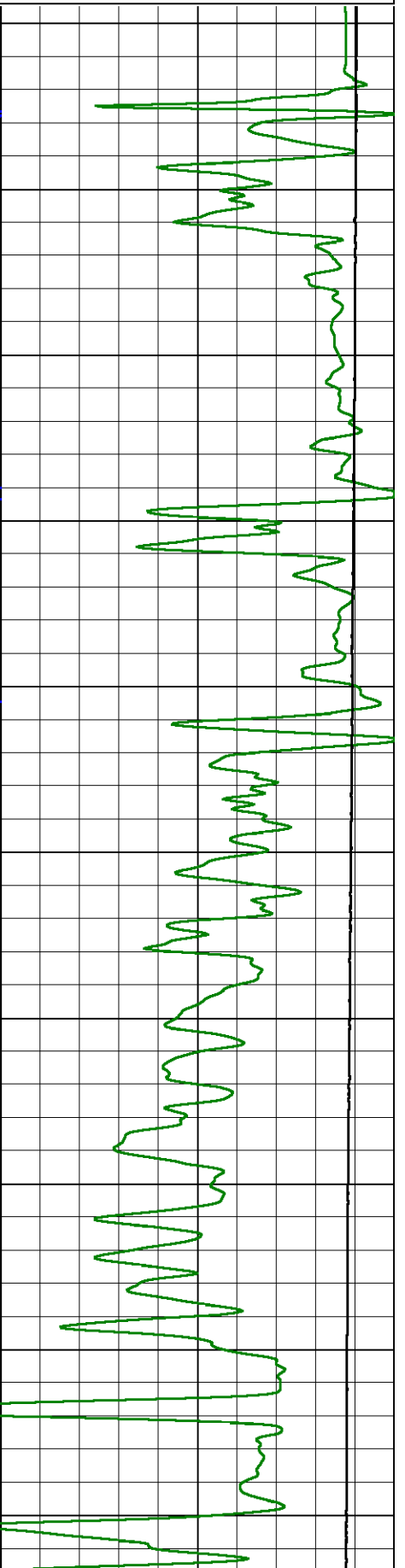
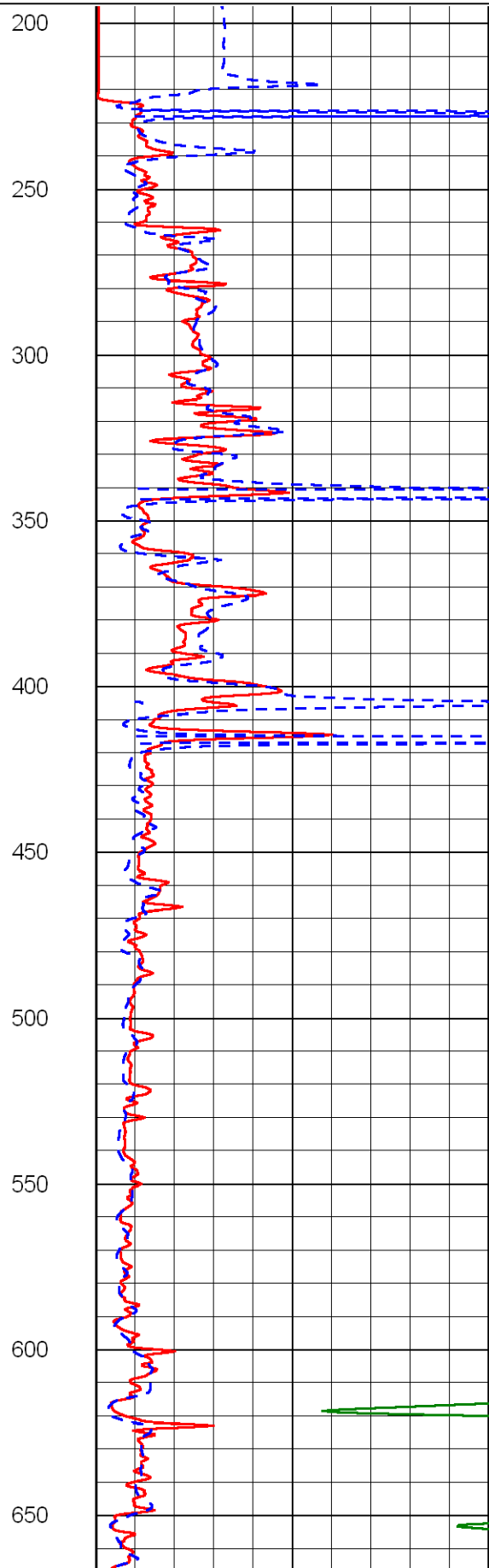
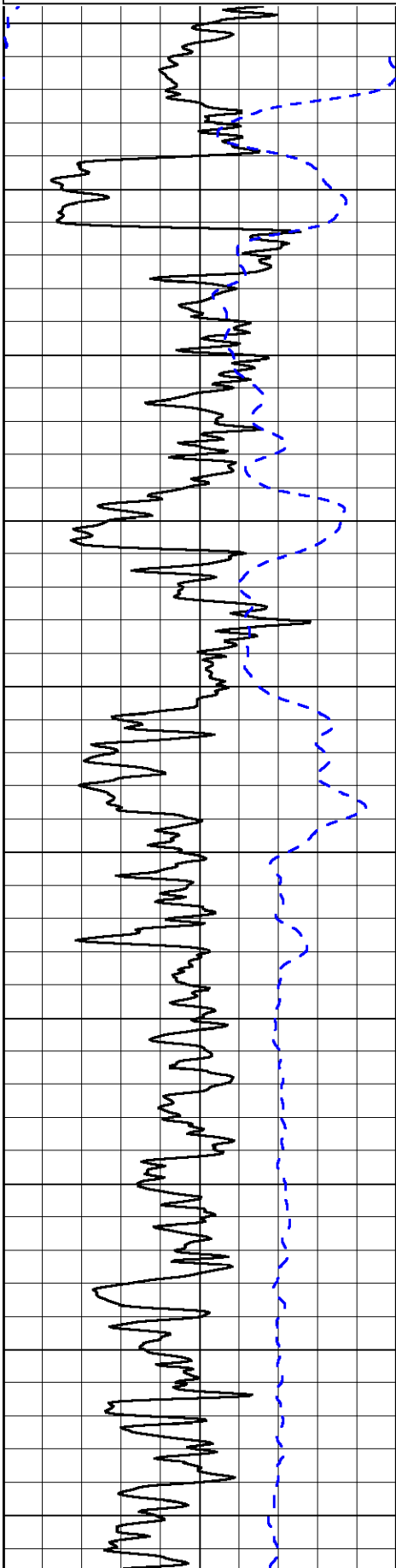
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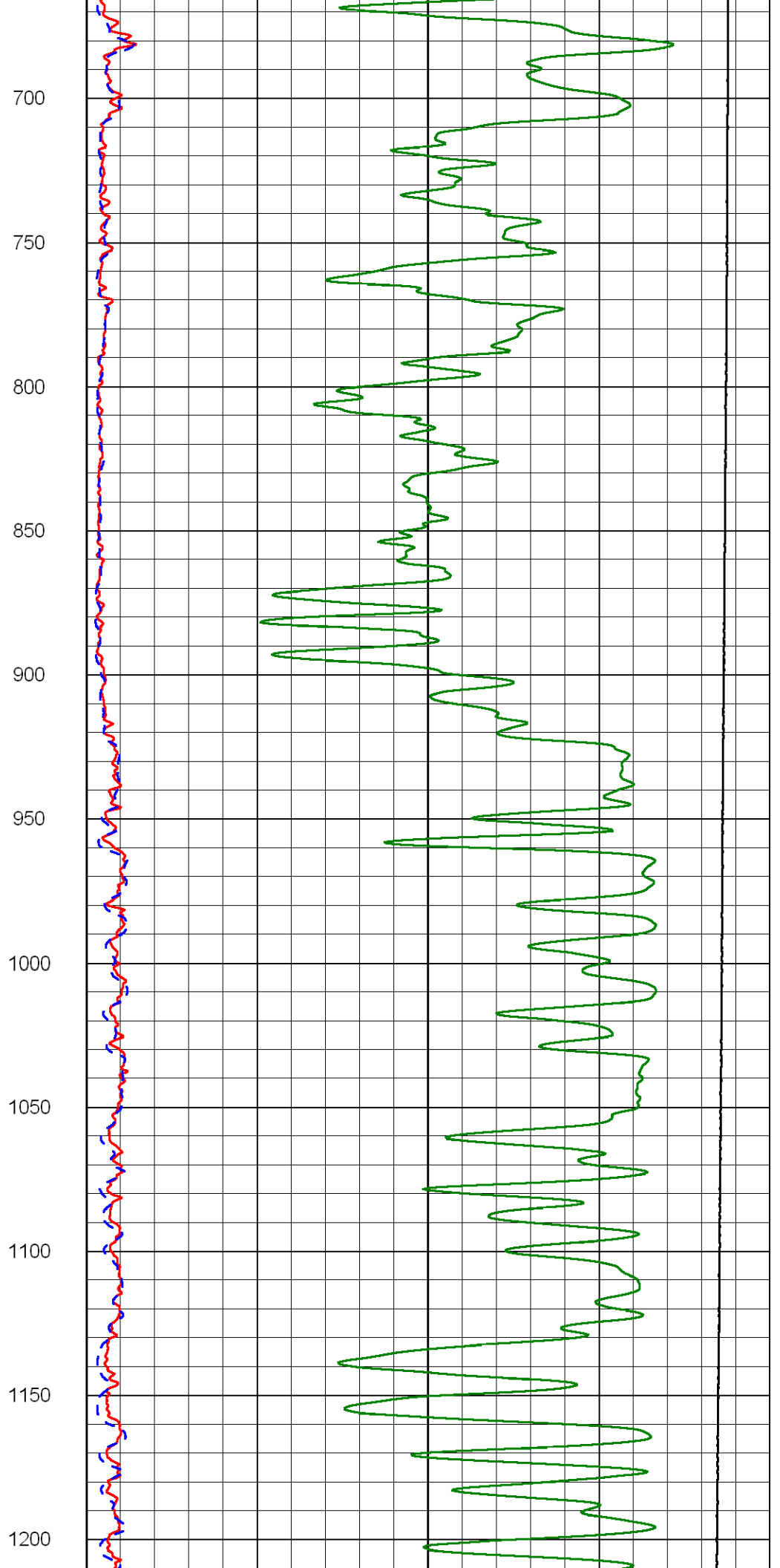
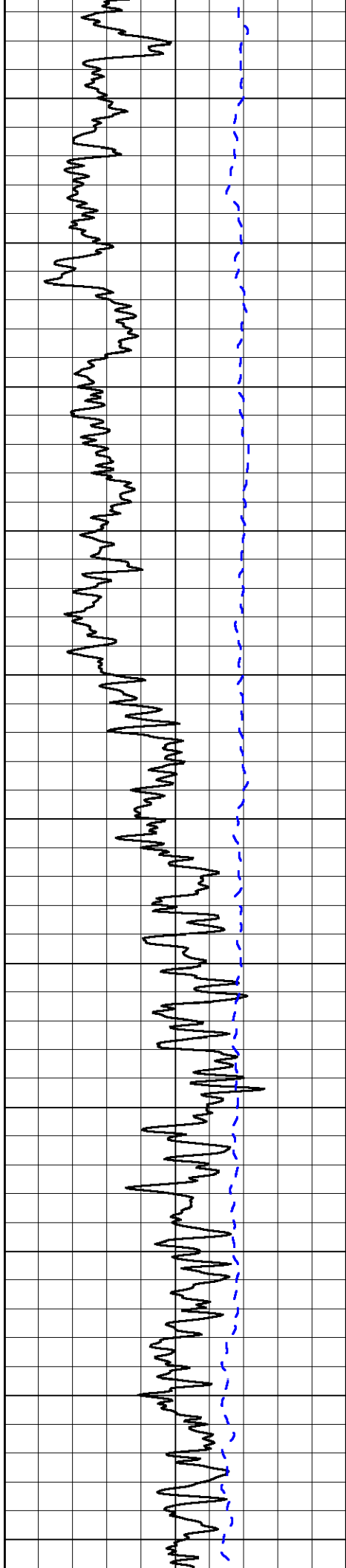
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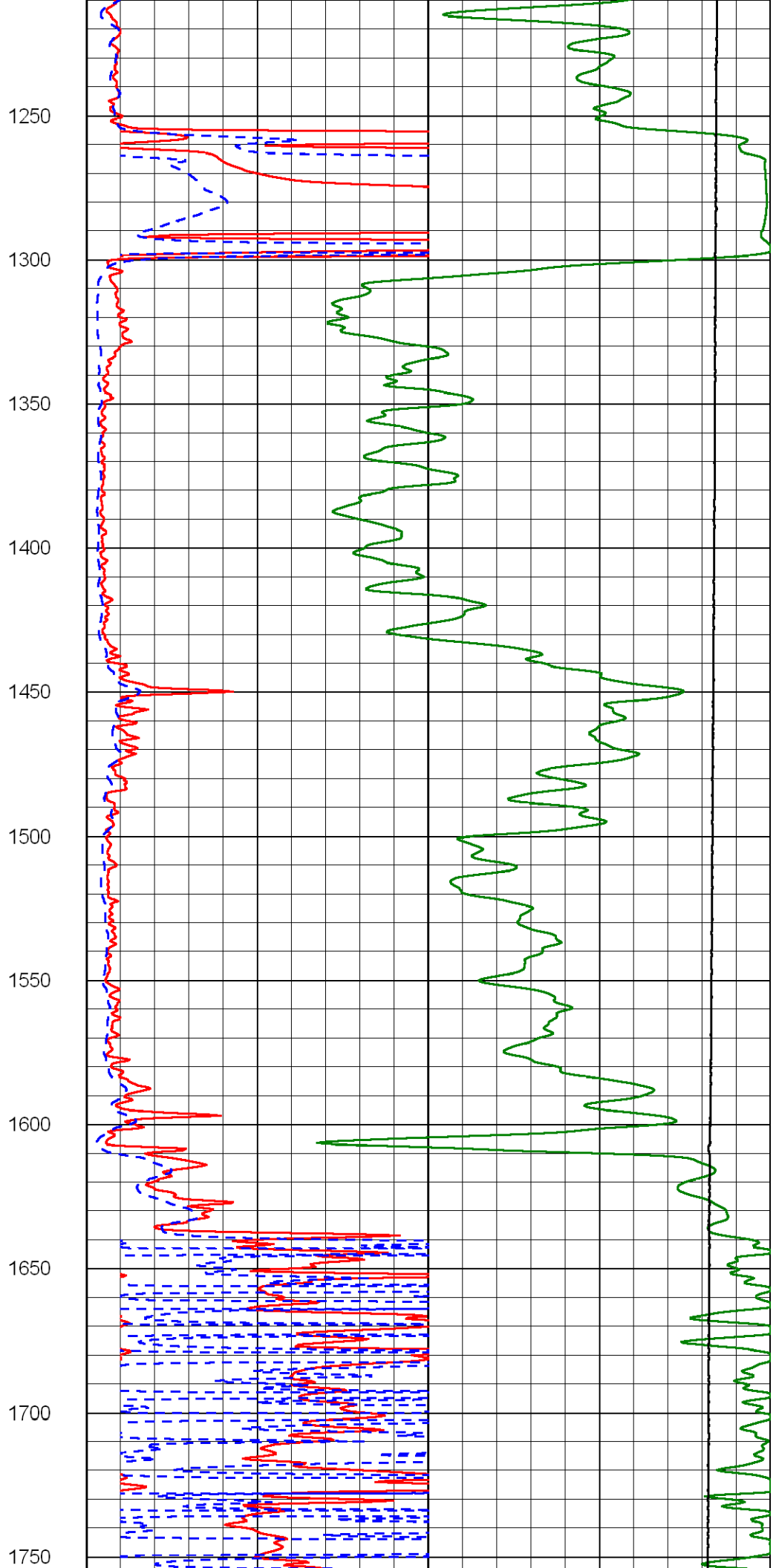
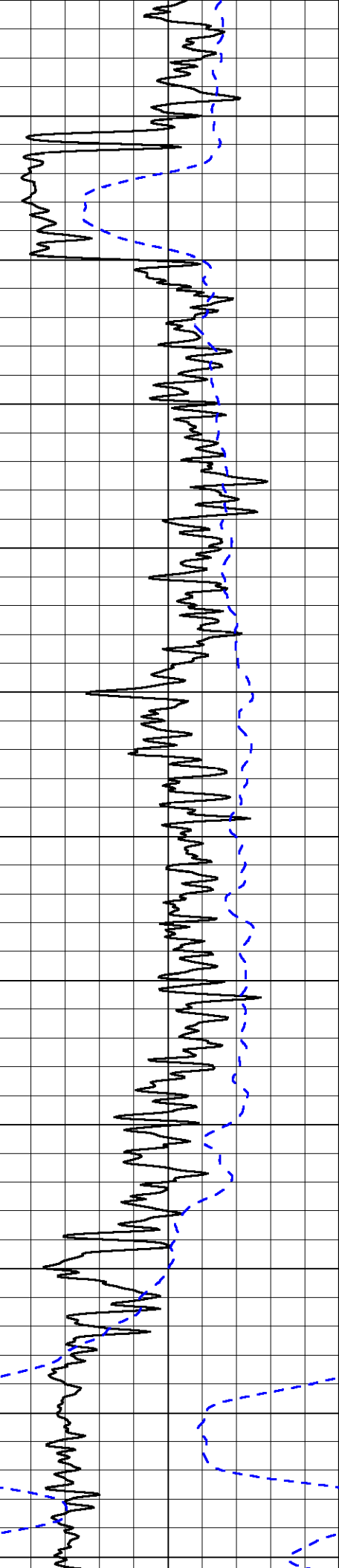
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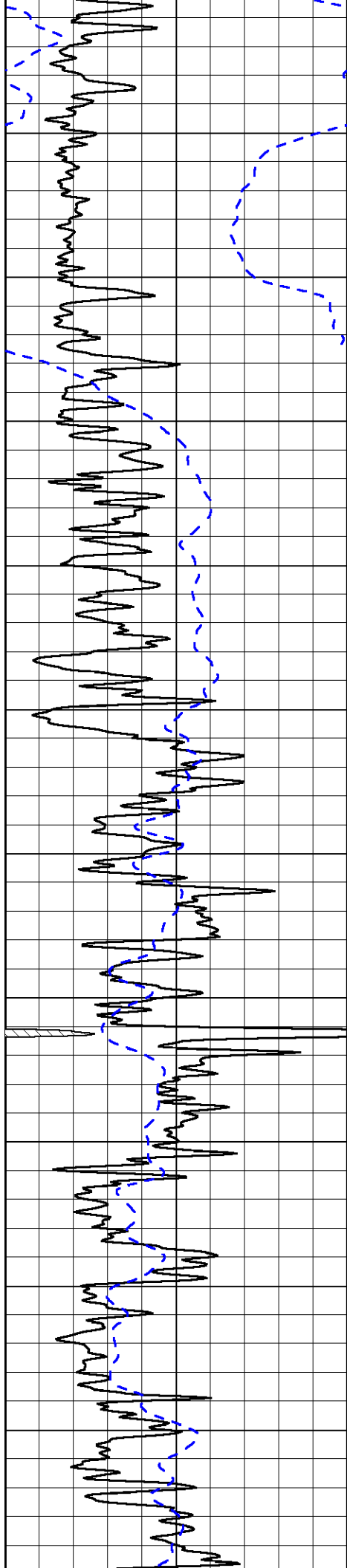
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15000	Line Tension	0

50	Shallow Resistivity	500
50	Deep Resistivity	500









1800

1850

1900

1950

2000

2050

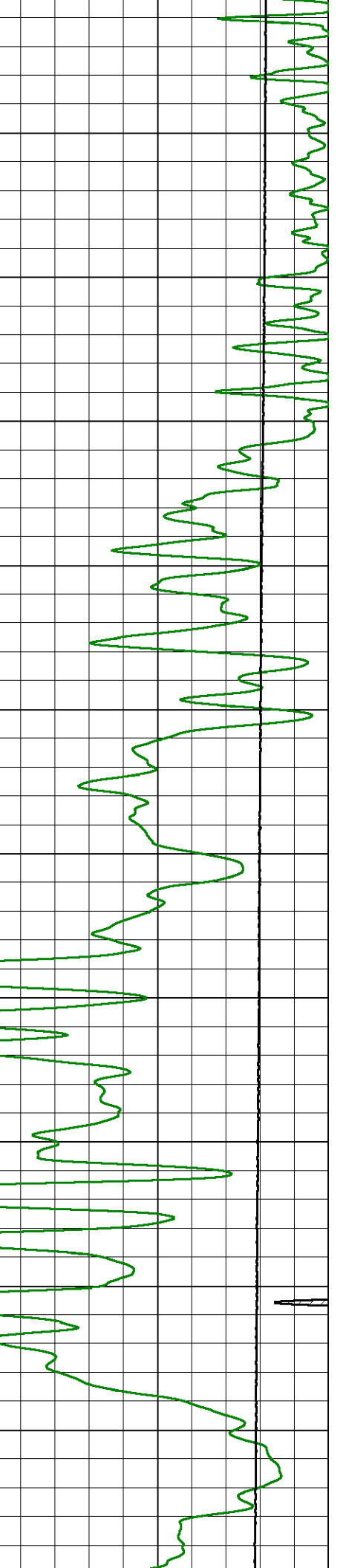
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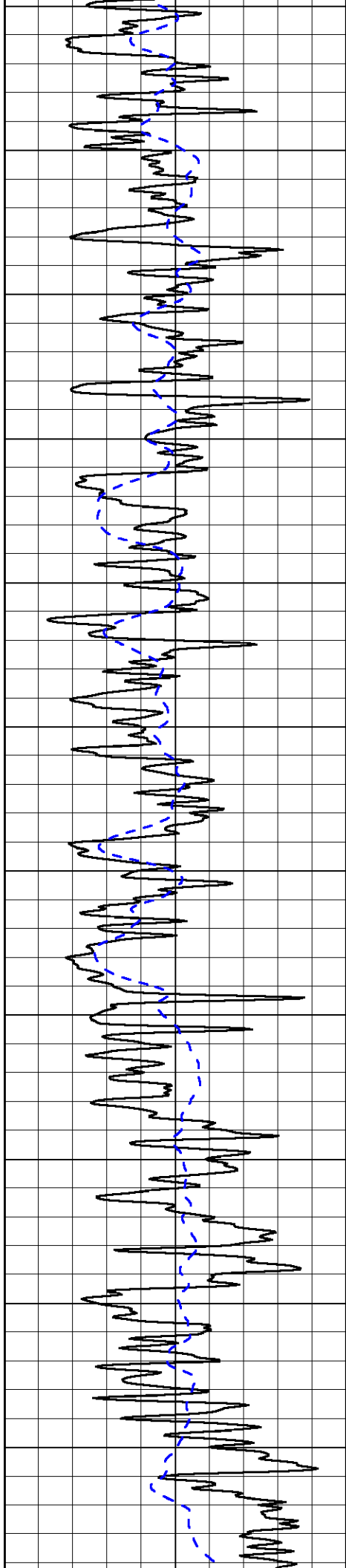
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2200

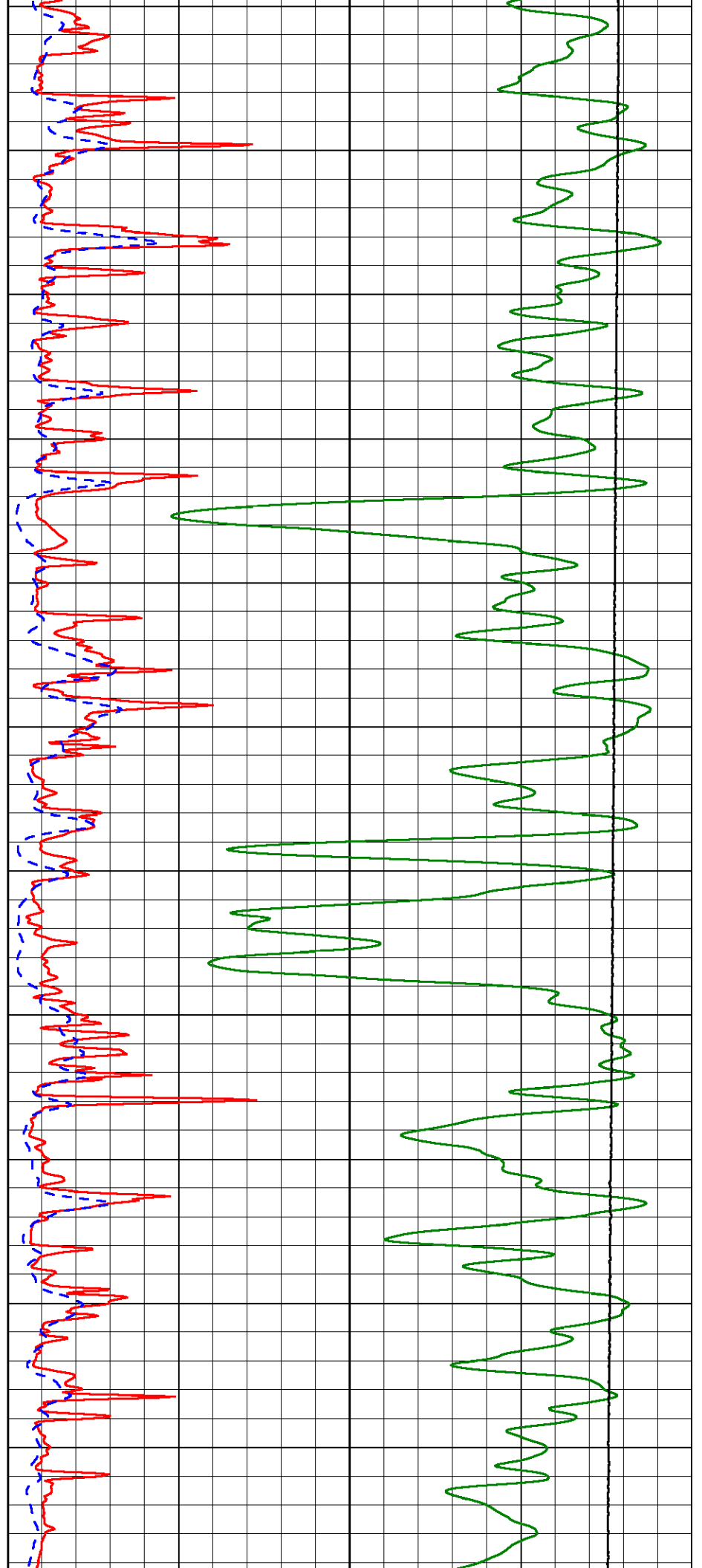
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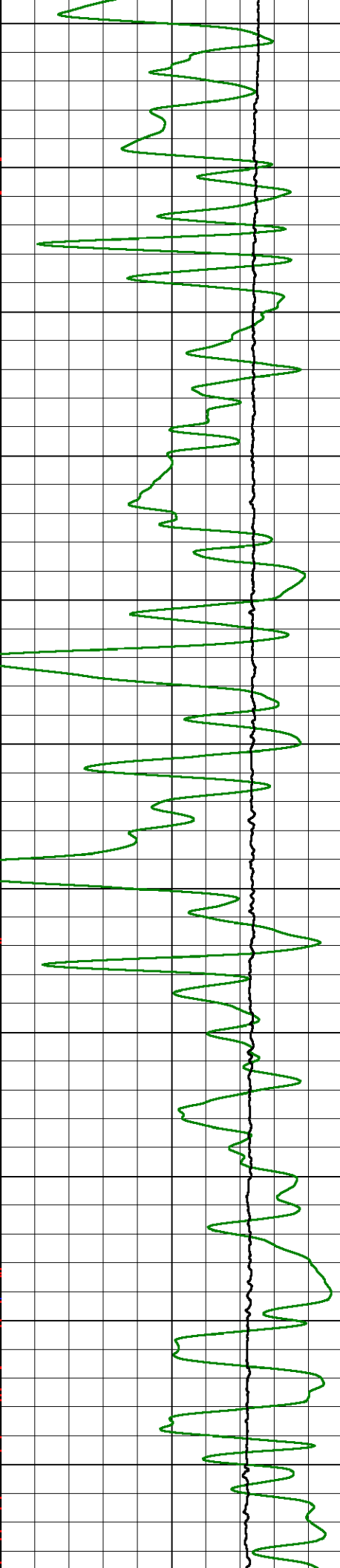
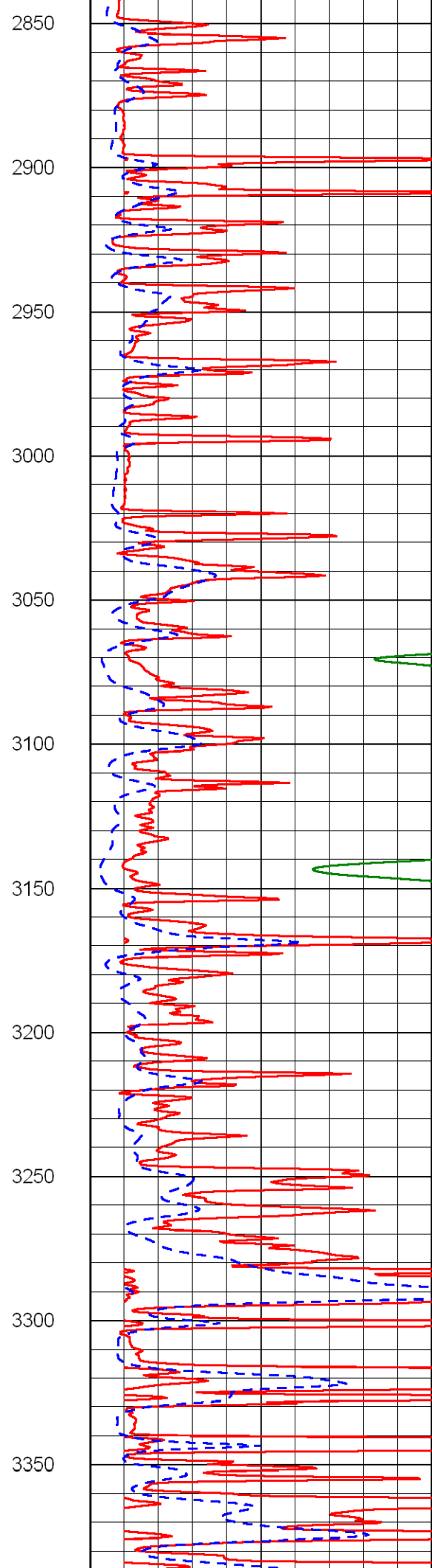
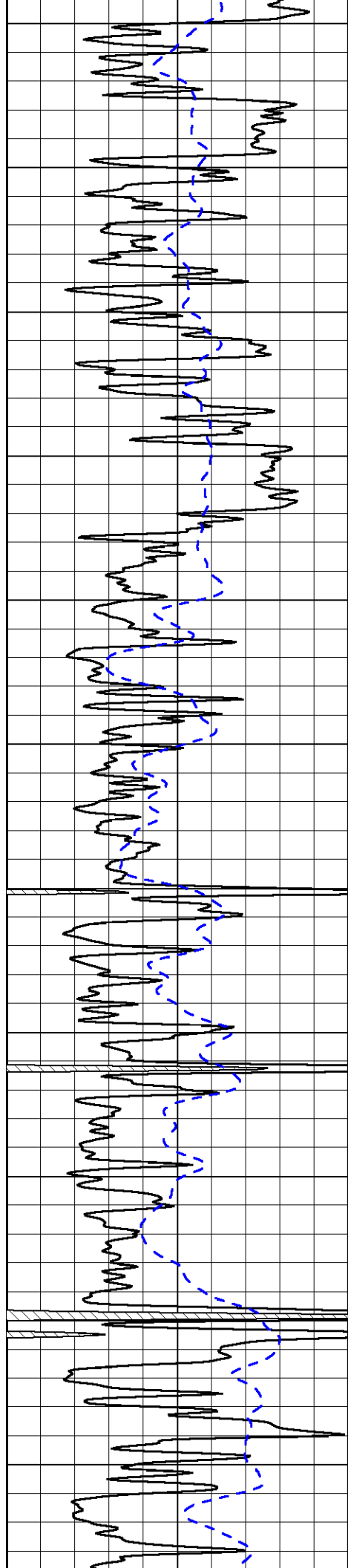
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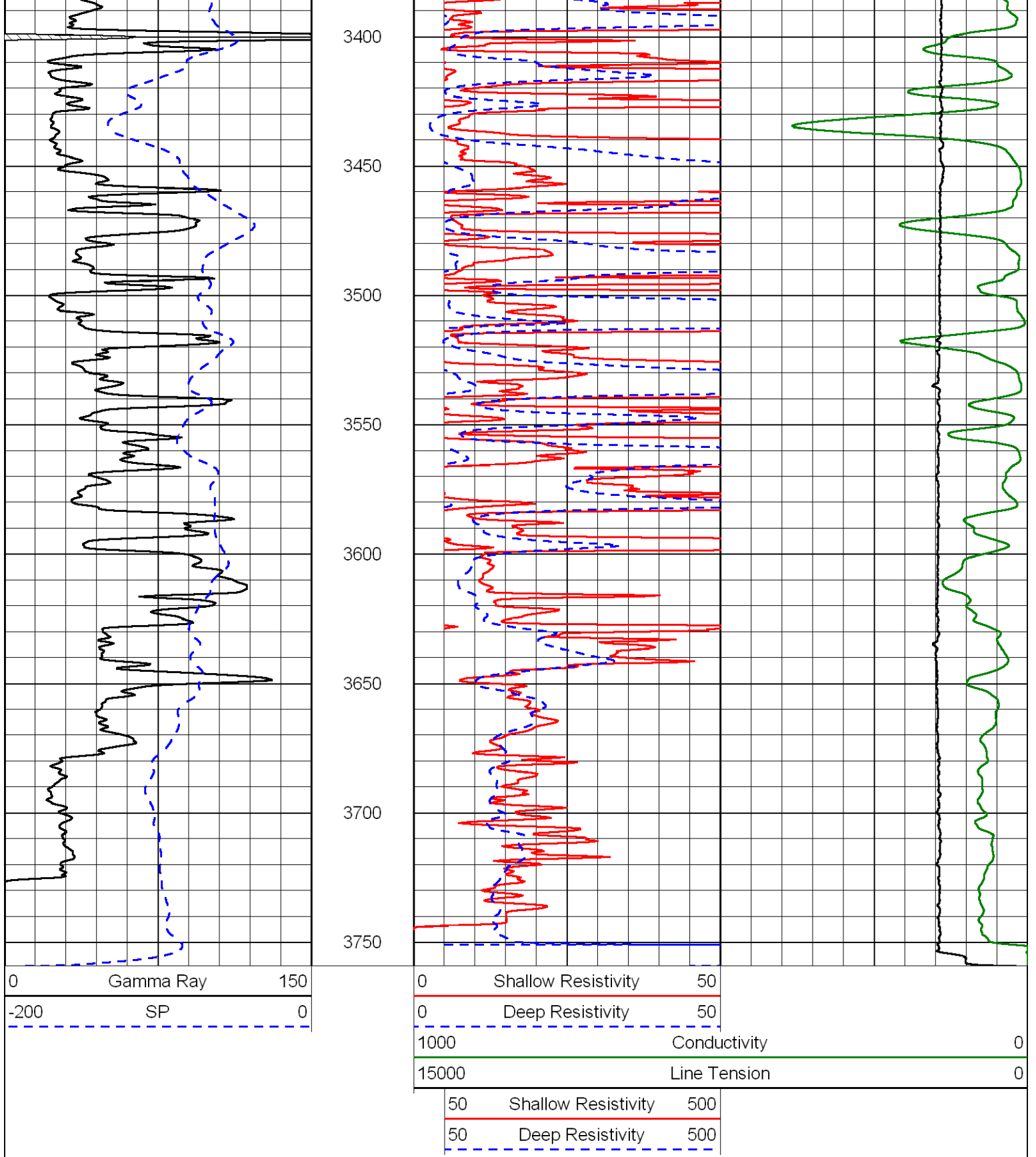




2300
2350
2400
2450
2500
2550
2600
2650
2700
2750
2800







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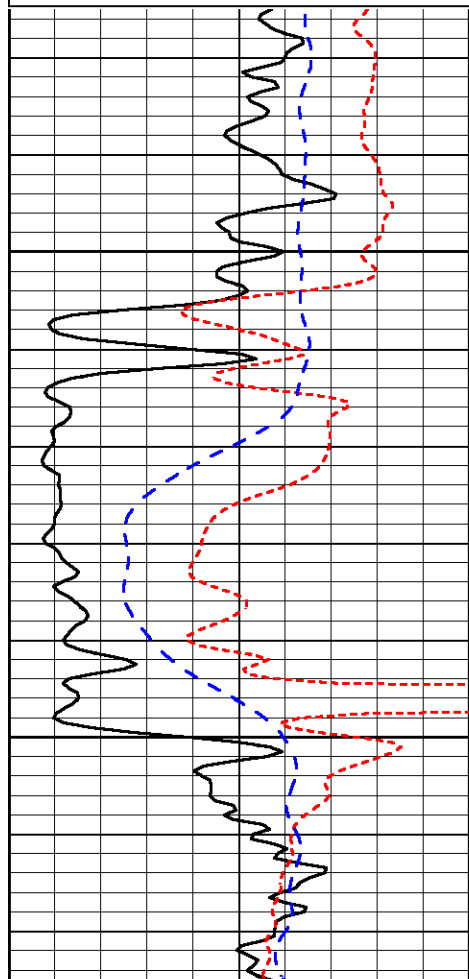


10000

Line Tension

0

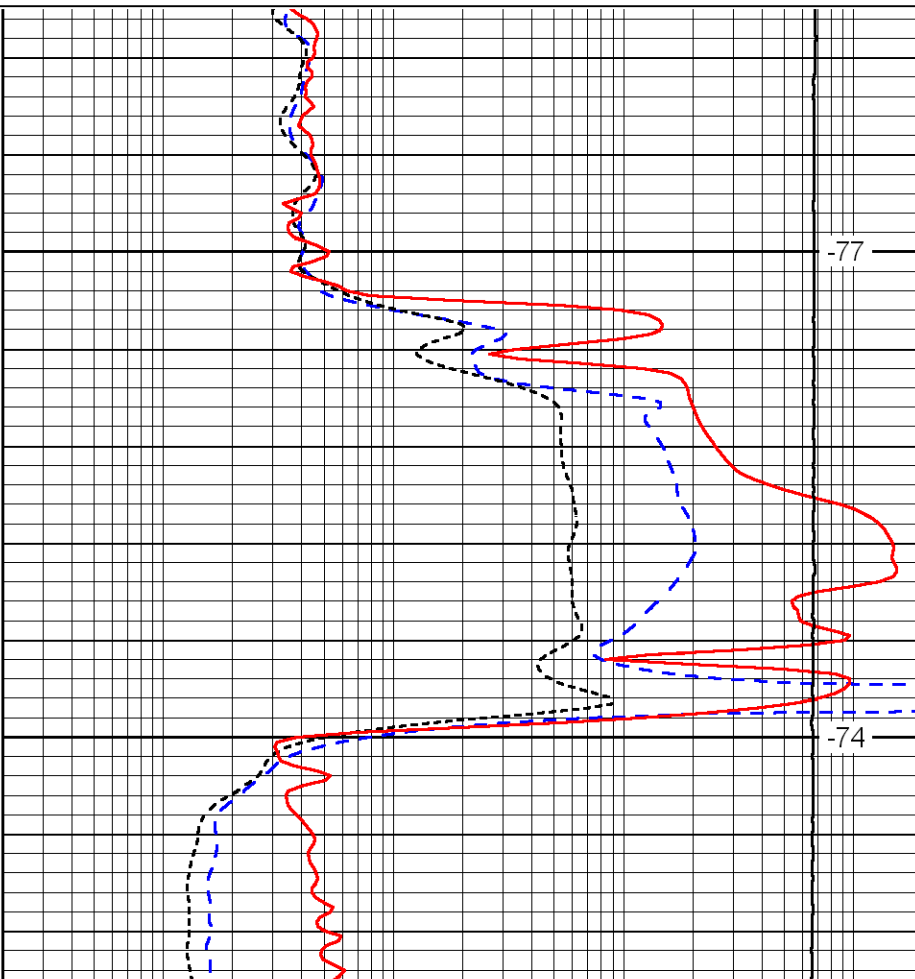
LSPD



1250

1300

0	Gamma Ray	150
-160	RXO/RT	40
-200	SP	0



-77

-74

0.2	Deep Resistivity	2000
0.2	Medium Resistivity	2000
0.2	Shallow Resistivity	2000
10000	Line Tension	0

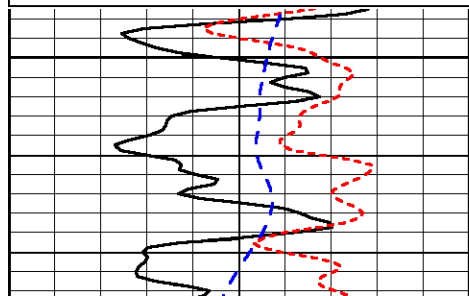
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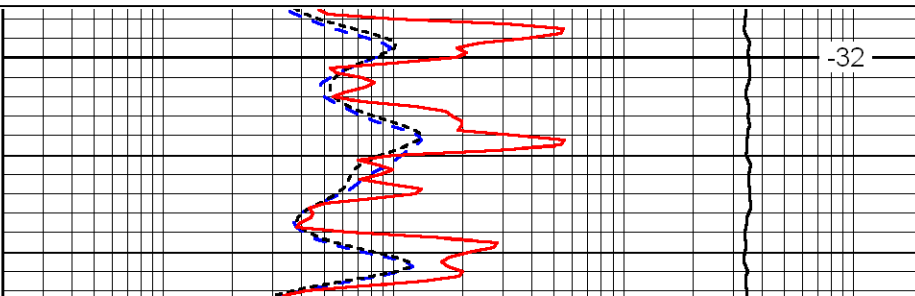
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-160	RXO/RT	40
-200	SP	0

0.2	Deep Resistivity	2000
0.2	Medium Resistivity	2000
0.2	Shallow Resistivity	2000
10000	Line Tension	0

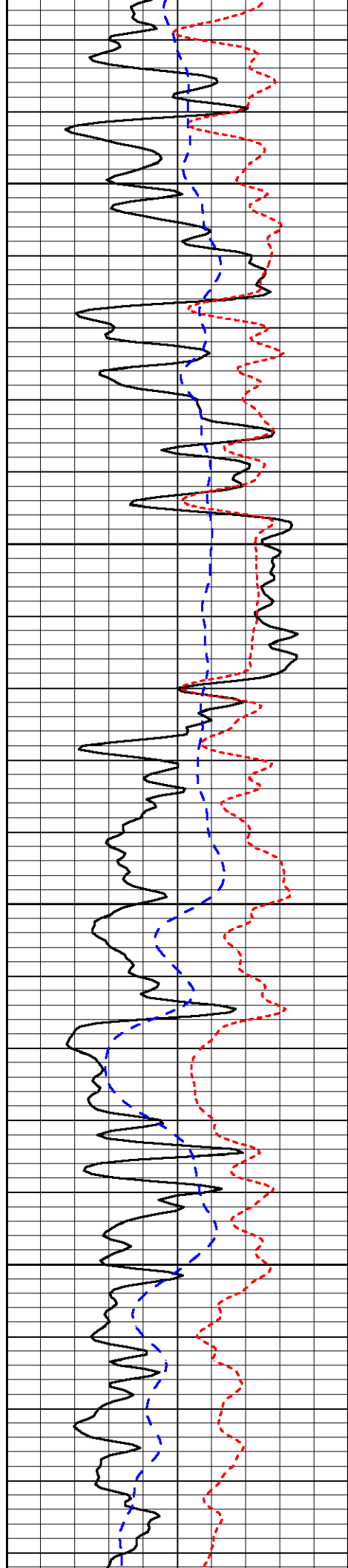
LSPD



2900



-32

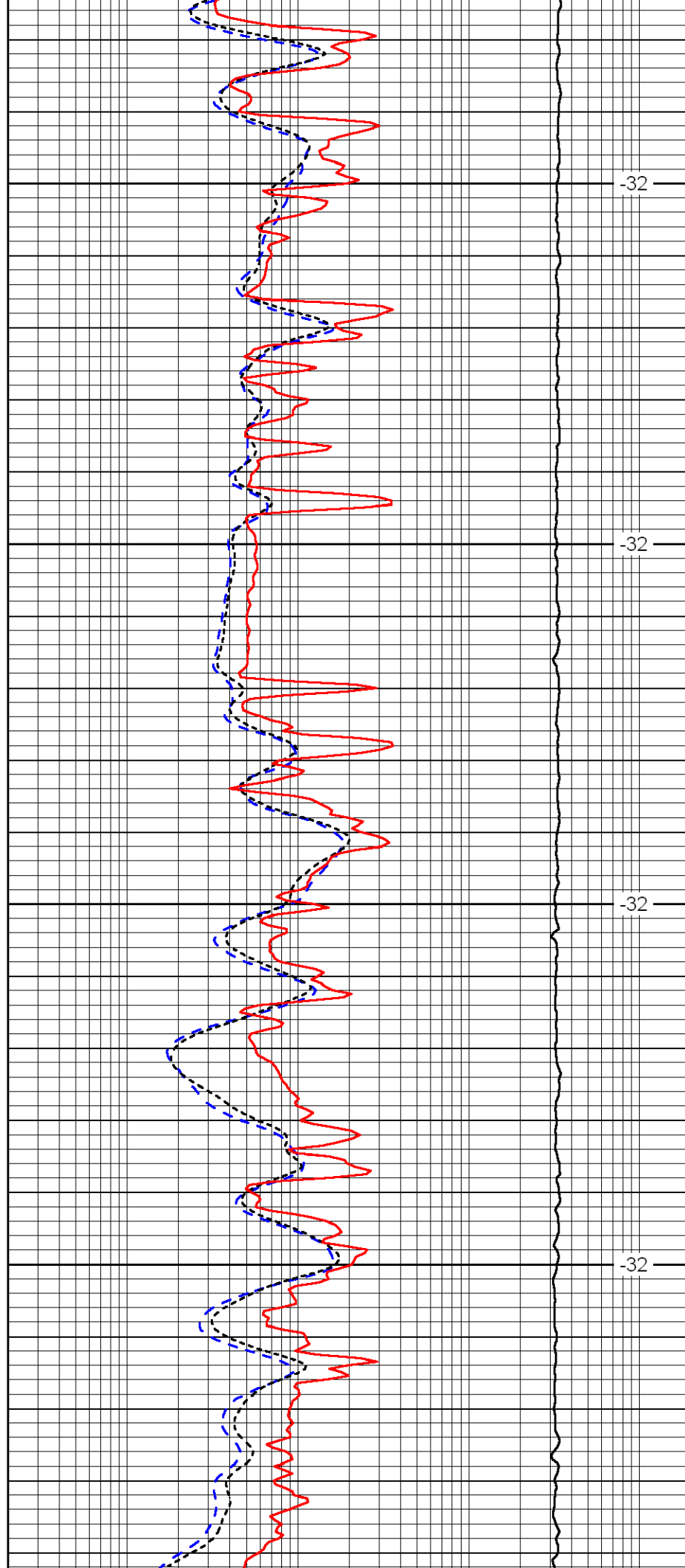


2950

3000

3050

3100

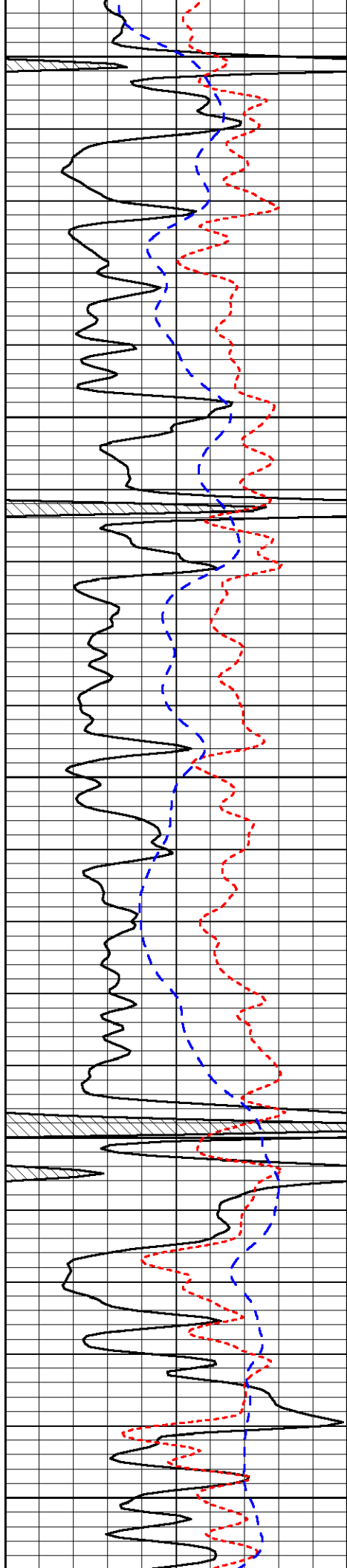


-32

-32

-32

-32



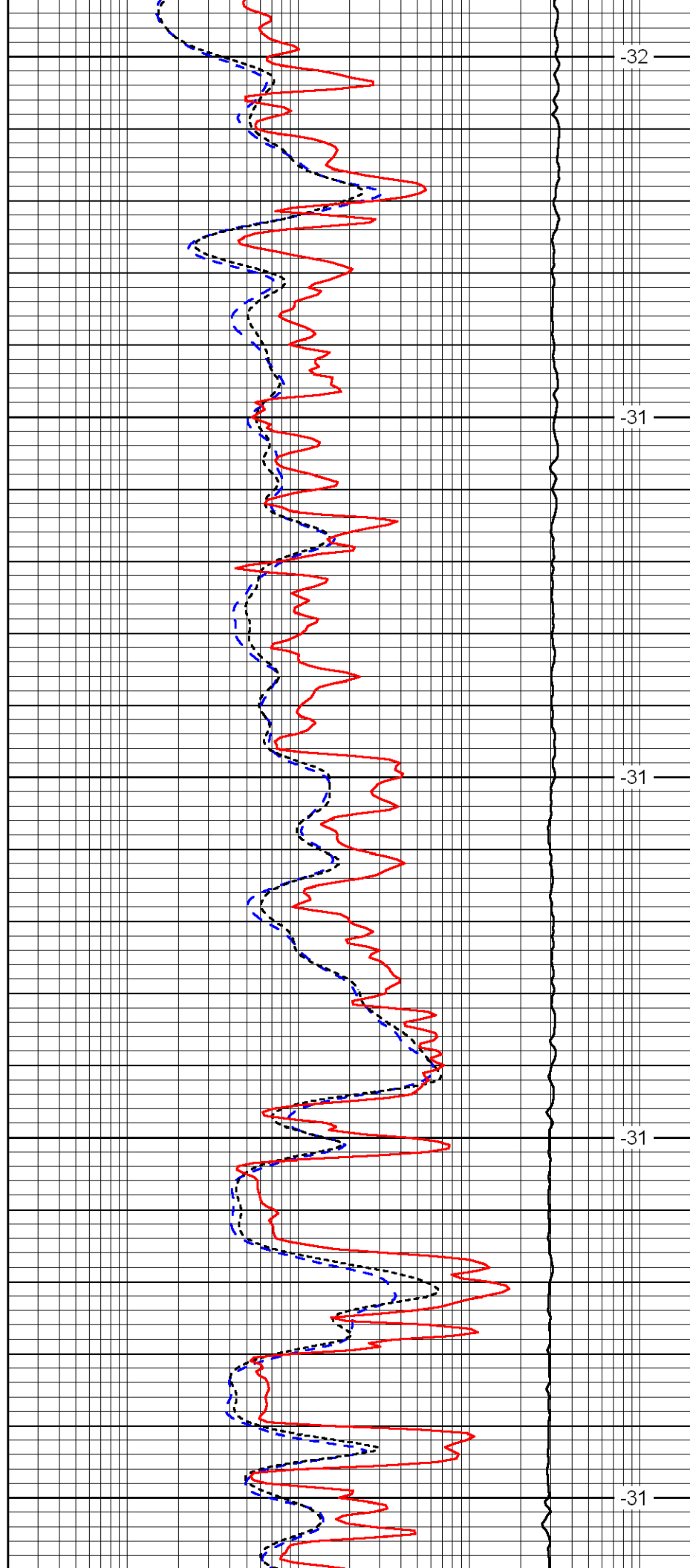
3150

3200

3250

3300

3350



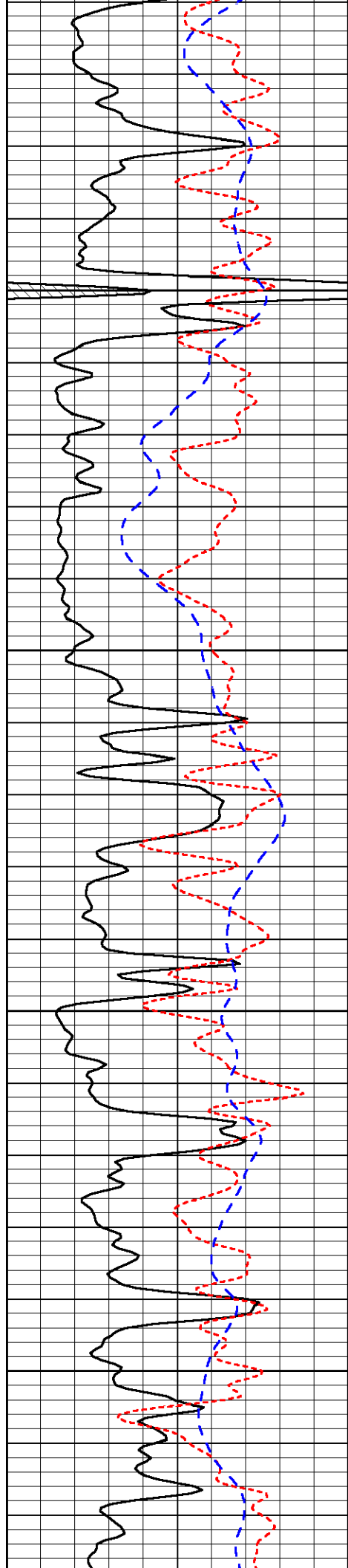
-32

-31

-31

-31

-31

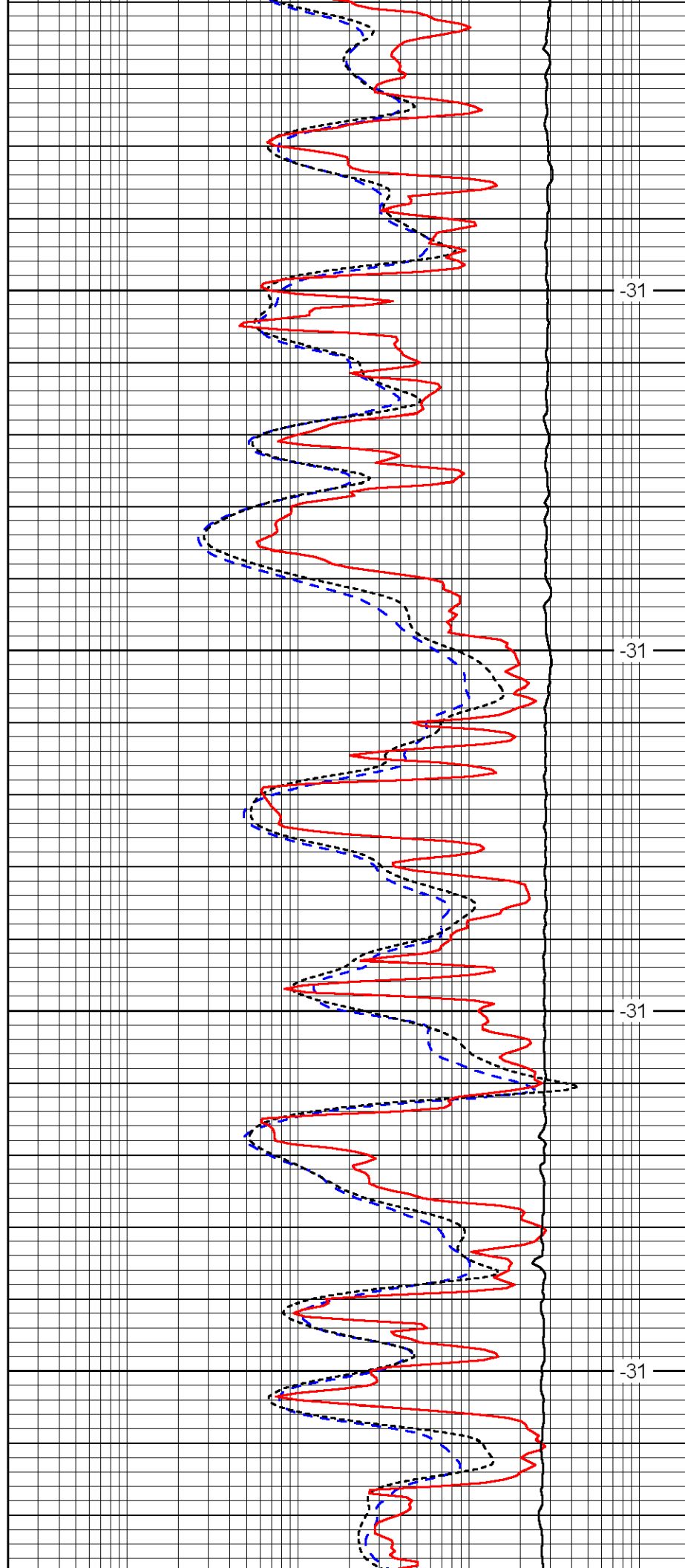


3400

3450

3500

3550

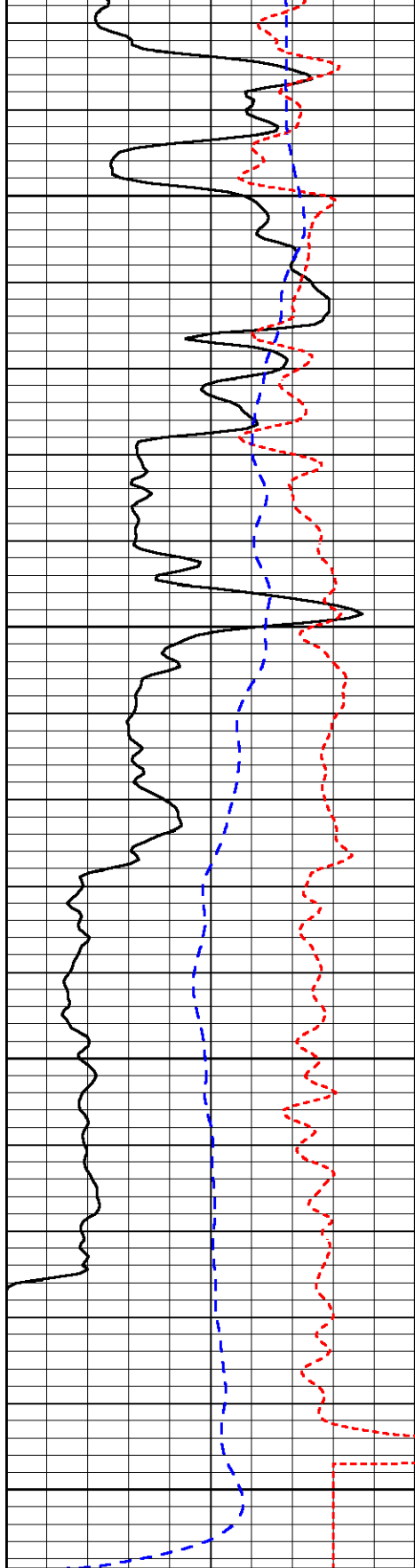


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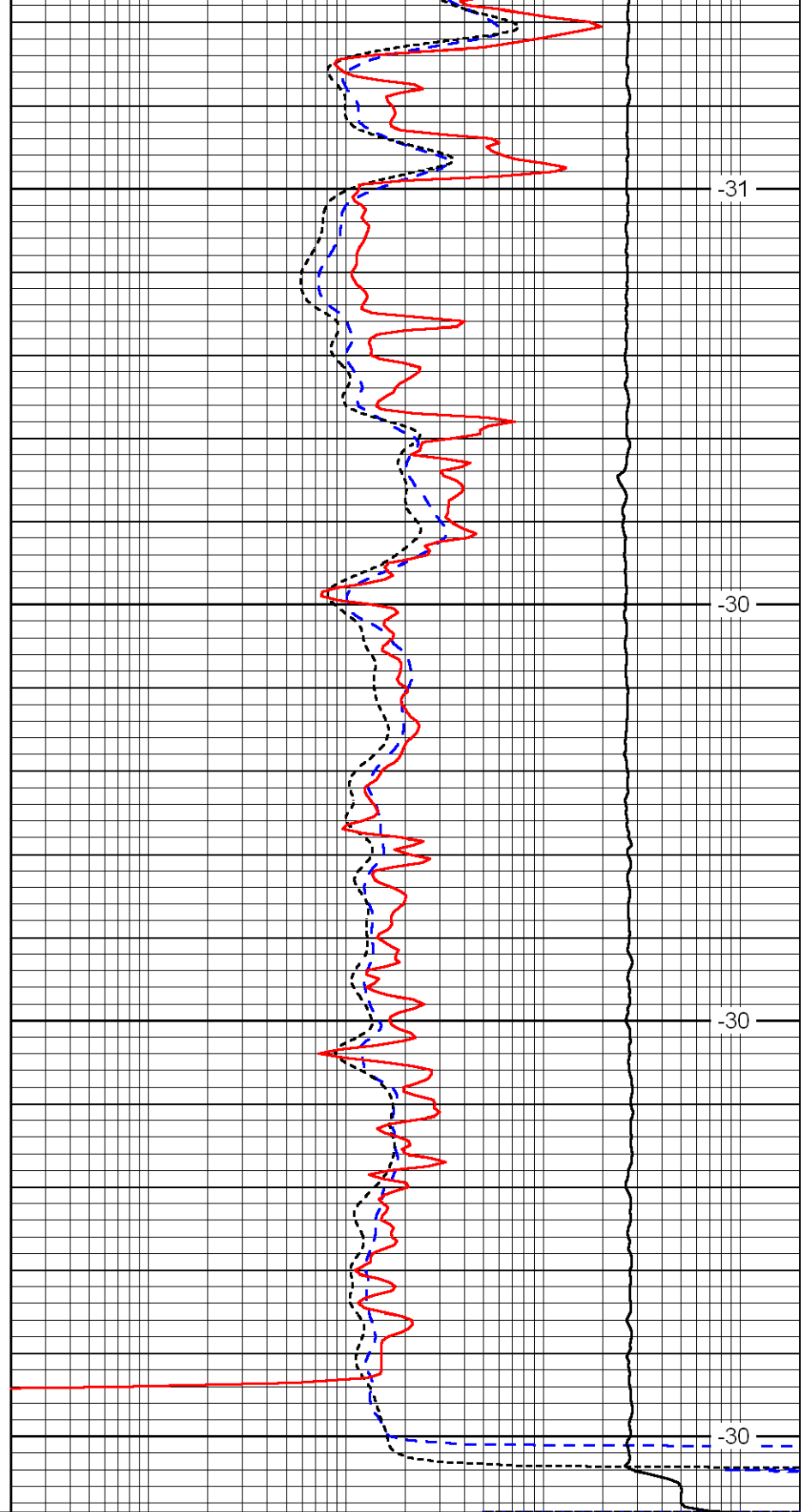
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0	Gamma Ray	150
-160	RXO/RT	40
-200	SP	0

3600
3650
3700
3750



0.2	Deep Resistivity	2000
0.2	Medium Resistivity	2000
0.2	Shallow Resistivity	2000
10000	Line Tension	0

LSPD



Pioneer Energy Services

Dual Compensated Porosity Log

API No.	15-051-26,416-00-00		
Company	TDL, Inc.		
Well	Kraus-Unit No.1		
Field	Reichert		
County	Ellis		
State	Kansas		
Location	1890' FSL & 2515' FWL		
Sec: 10	Twp: 15S	Rge: 19W	Elevation DILMEL
Permanent Datum	Ground Level	Elevation 2036	K.B. 2046
Log Measured From	Kelly Bushing	10 Ft. Above Perm. Datum	D.F. 2036
Drilling Measured From	Kelly Bushing		
Date	11/21/2012		
Run Number	One		
Type Log	CNL / CDL		
Depth Driller	3750		
Depth Logger	3754		
Bottom Logged Interval	3733		
Top Logged Interval	2900		
Type Fluid In Hole	Chemical		
Salinity, PPM CL	6,900		
Density	9.3		
Level	Full		
Max. Rec. Temp. F	114		
Operating Rig Time	3 1/2 Hours		
Equipment -- Location	17 Hays		
Recorded By	C. Desaire		
Witnessed By	Tom Denning		

Borehole Record		Casing Record					
Run No	Bit	From	To	Size	Wgt.	From	To
One	12.25	00	223	8.625	23#	00	223
Two	7.875	223	TD				

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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

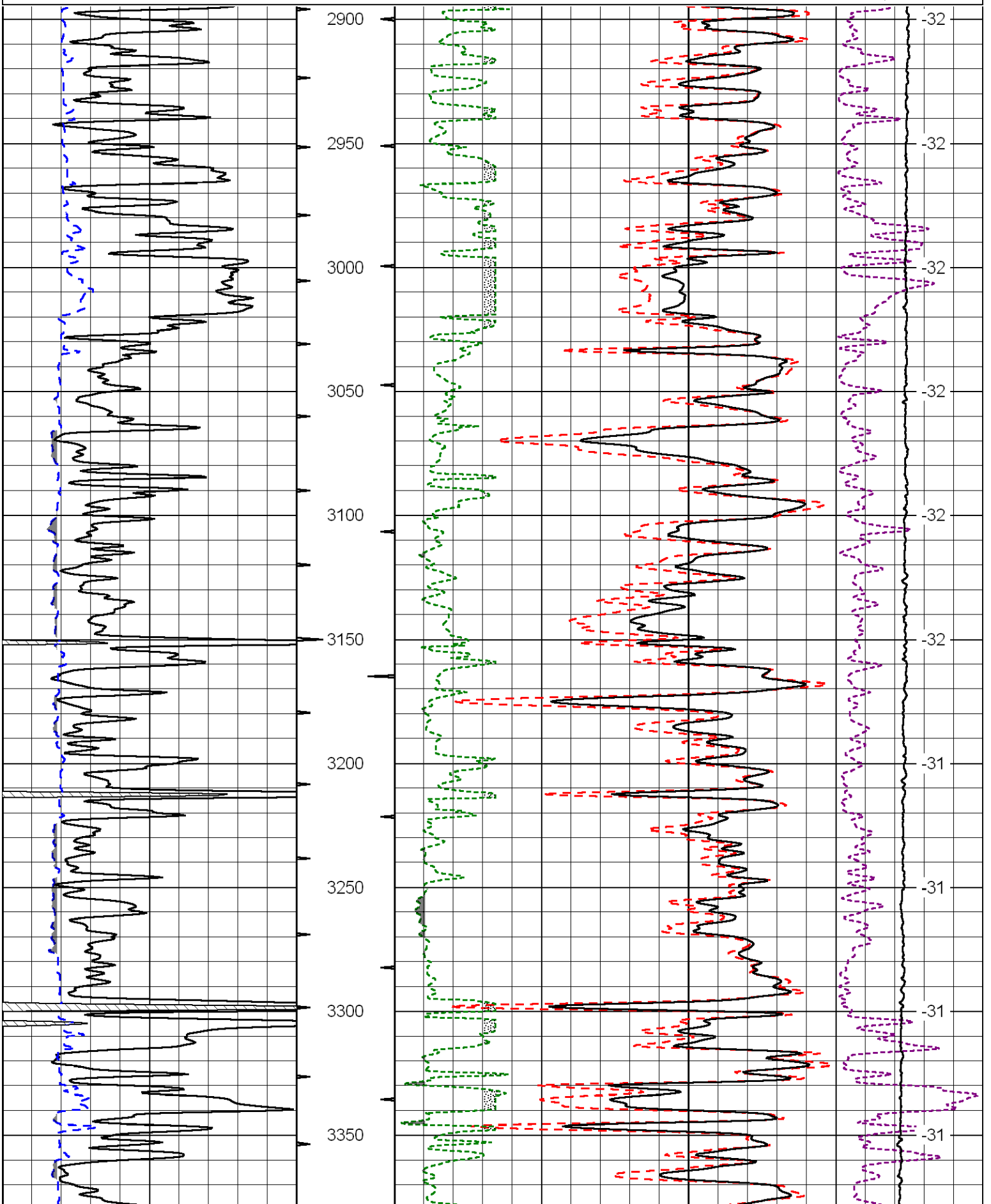
Thank you for using Log-Tech, Inc.
(785) 625-3858

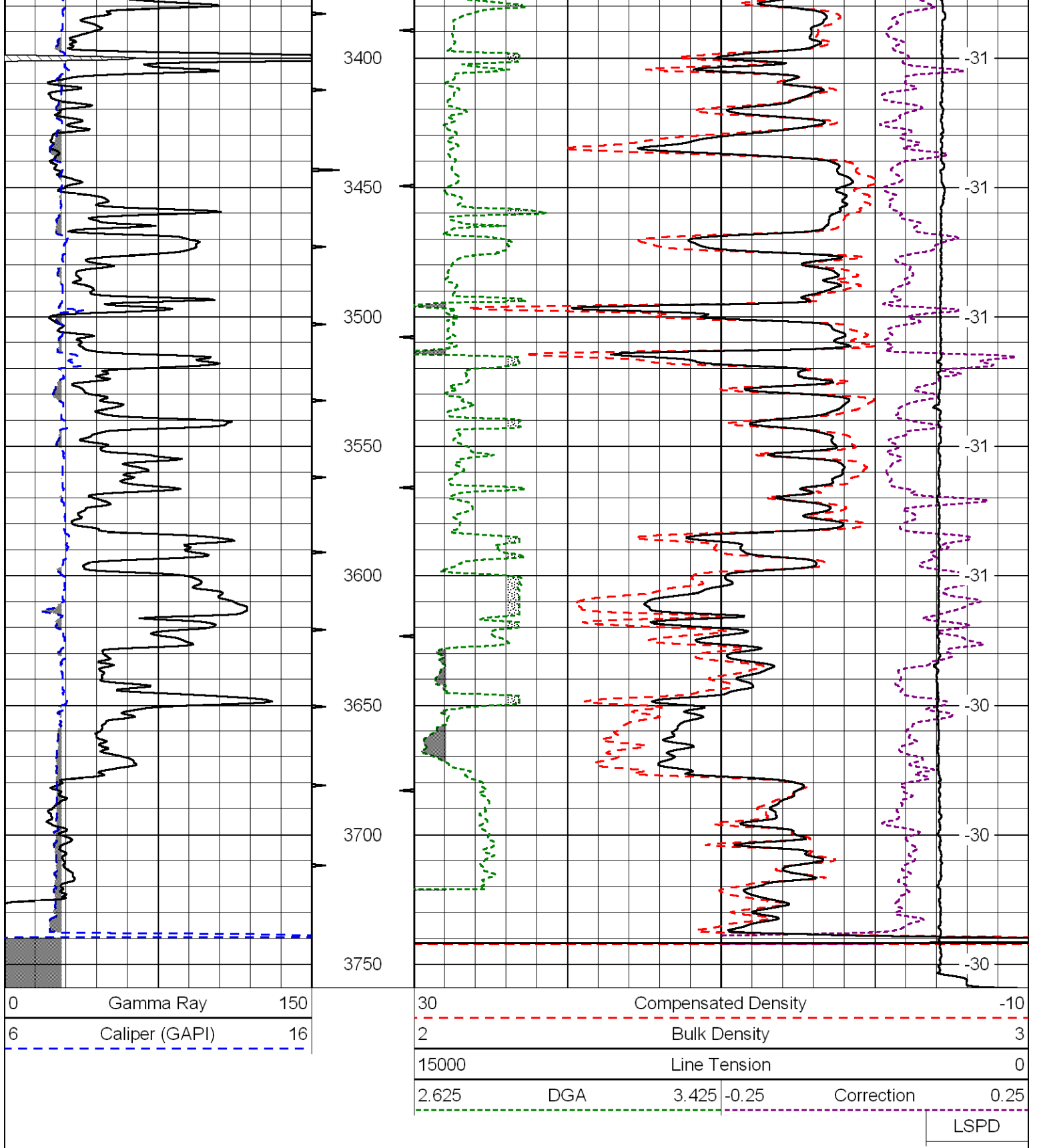
Antonino KS, 2 S,
1 1/2 W, N Into

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 Dataset Pathname: dil/tdistk
 Presentation Format: cdl
 Dataset Creation: Wed Nov 21 04:51:15 2012
 Charted by: Depth in Feet scaled 1:600

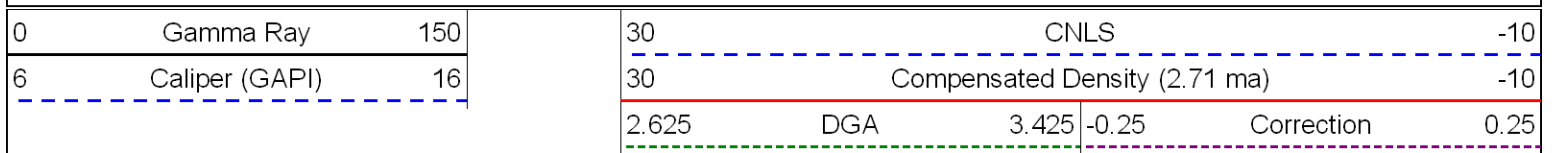
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6	Caliper (GAPI)	16

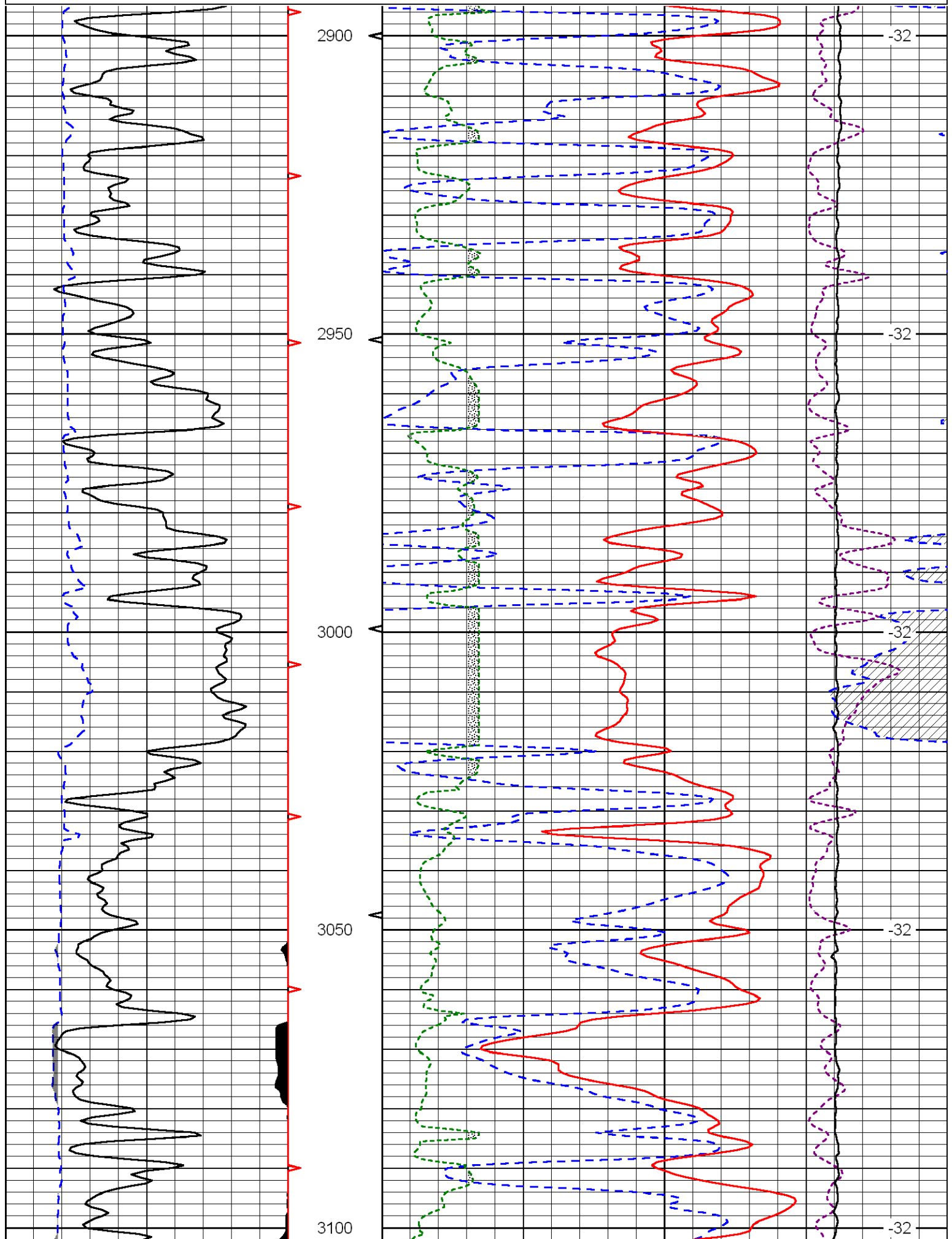
30	Compensated Density		-10
2	Bulk Density		3
15000	Line Tension		0
2.625	DGA	3.425	-0.25
Correction			0.25
LSPD			

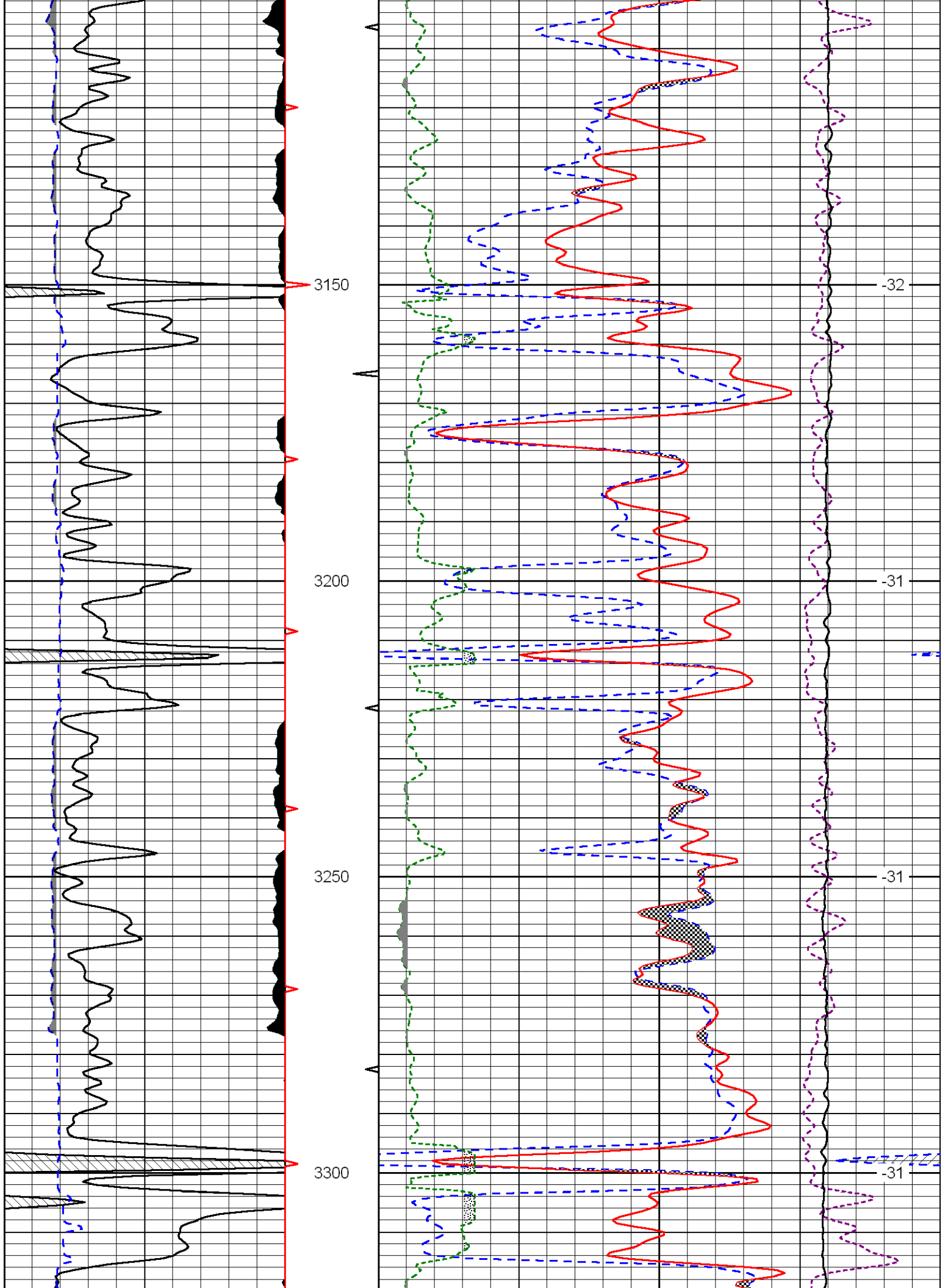


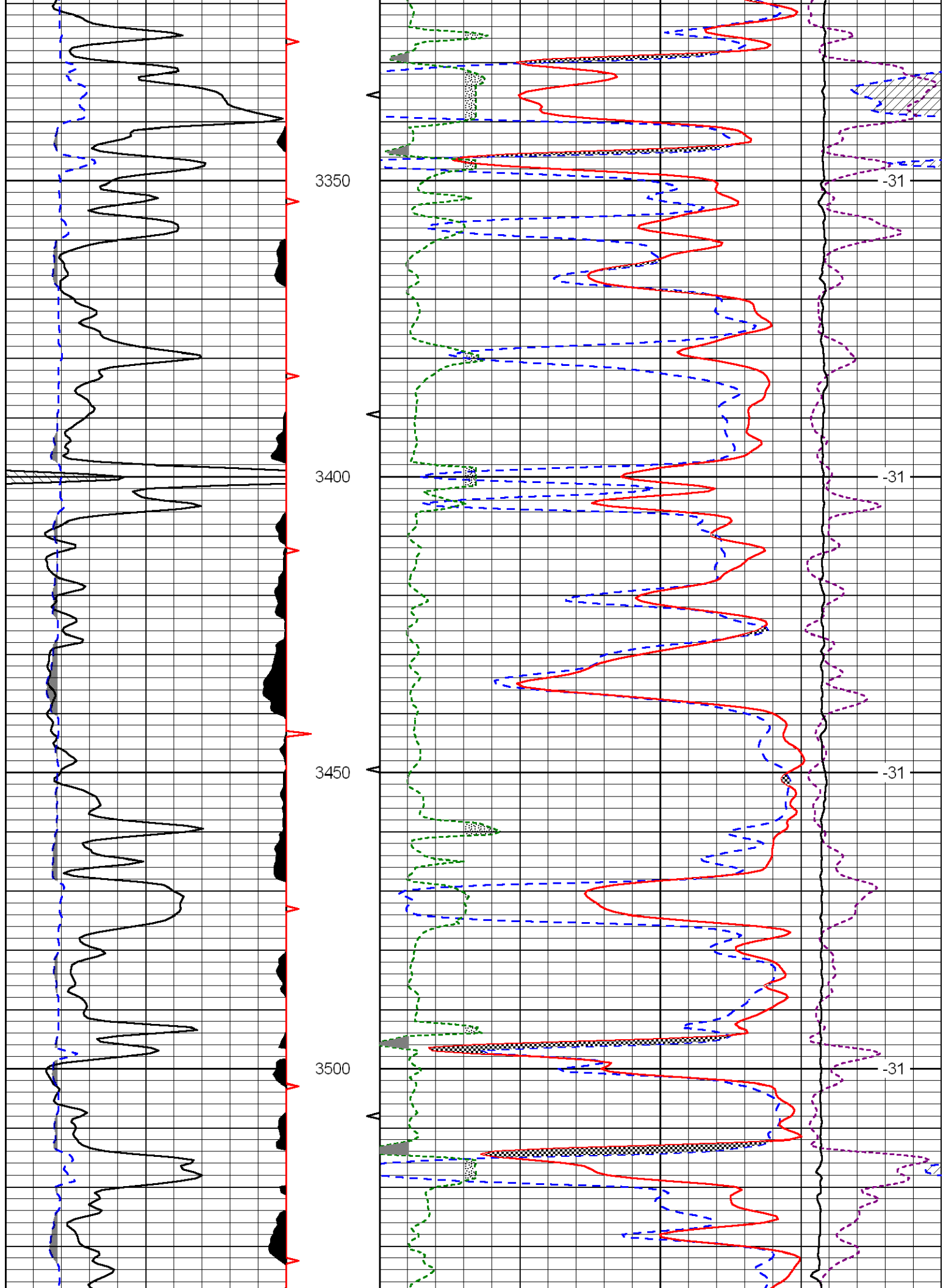


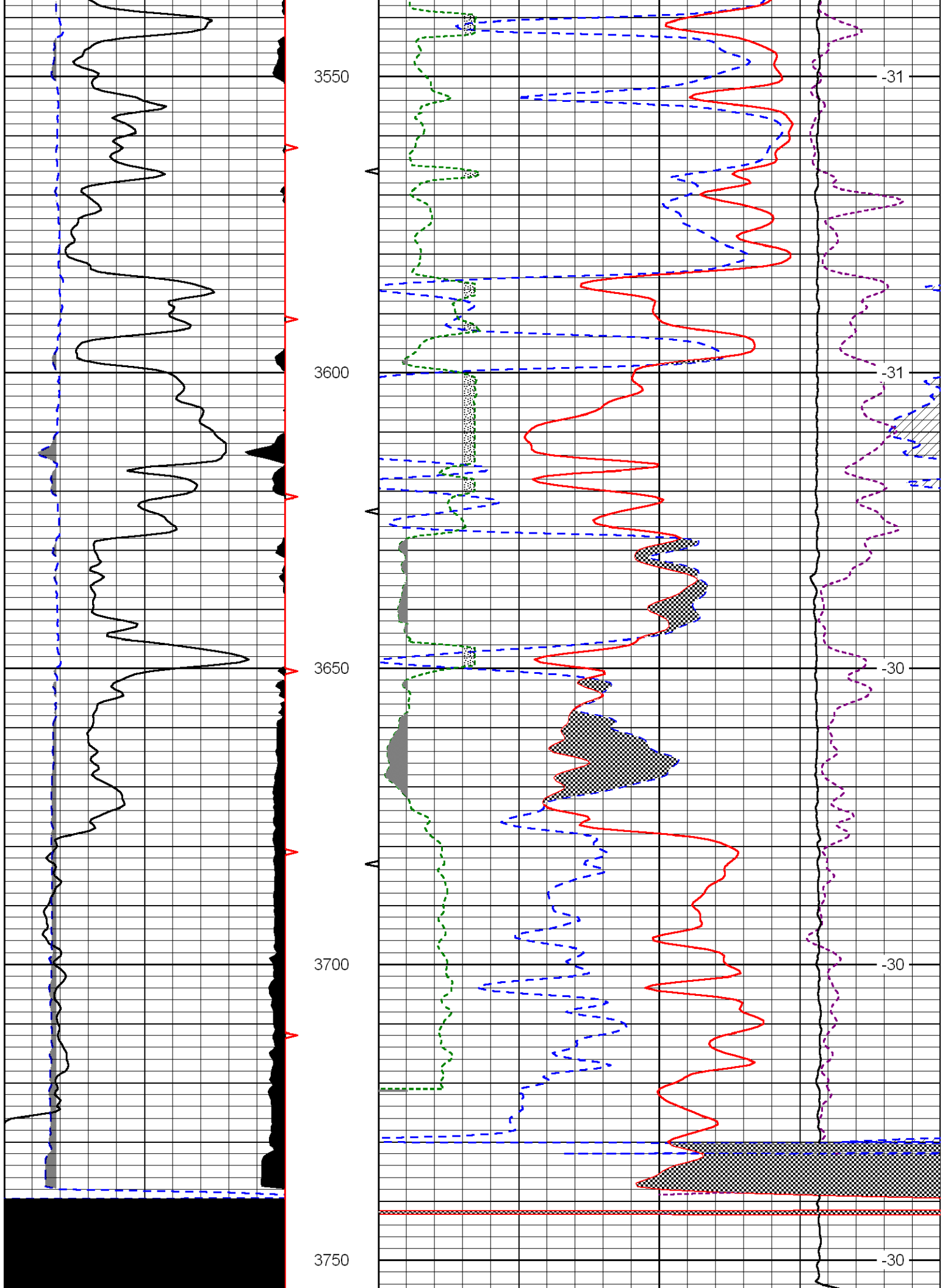
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 Dataset Creation: Wed Nov 21 04:51:15 2012
 Charted by: Depth in Feet scaled 1:240











0	Gamma Ray	150
6	Caliper (GAPI)	16

30	CNLS			-10	
30	Compensated Density (2.71 ma)			-10	
2.625	DGA	3.425	-0.25	Correction	0.25
10000	Line Tension			0	

LSPD



Pioneer Energy Services

Microresistivity Log

API No.	15-051-26,416-00-00	
Company	TDL, Inc.	
Well	Kraus-Unit No.1	
Field	Reichert	
County	Ellis	State
		Kansas
Location	1890' FSL & 2515' FWL	
Sec: 10	Twp: 15S	Rge: 19W
Permanent Datum	Ground Level	Elevation 2036
Log Measured From	Kelly Bushing	10 Ft. Above Perm. Datum
Drilling Measured From	Kelly Bushing	
		Other Services CNL/CDL DIL
		Elevation K.B. 2046 D.F. 2036 G.L. 2036

Date	11/21/2012
Run Number	Two
Depth Driller	3750
Depth Logger	3754
Bottom Logged Interval	3753
Top Log Interval	2900
Casing Driller	8.625 @ 223.65
Casing Logger	222
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	6,900
Density / Viscosity	9.3 58
pH / Fluid Loss	10.5 8.0
Source of Sample	Flowline
Rm @ Meas. Temp	.65 @ 54
Rmf @ Meas. Temp	.49 @ 54
Rmc @ Meas. Temp	.88 @ 54
Source of Rmf / Rmc	Charts
Rm @ BHT	.31 @ 114
Operating Rig Time	3 1/2 Hours
Max Rec. Temp. F	114
Equipment Number	17
Location	Hays
Recorded By	C. Desaire
Witnessed By	Tom Denning
	Herb Deines

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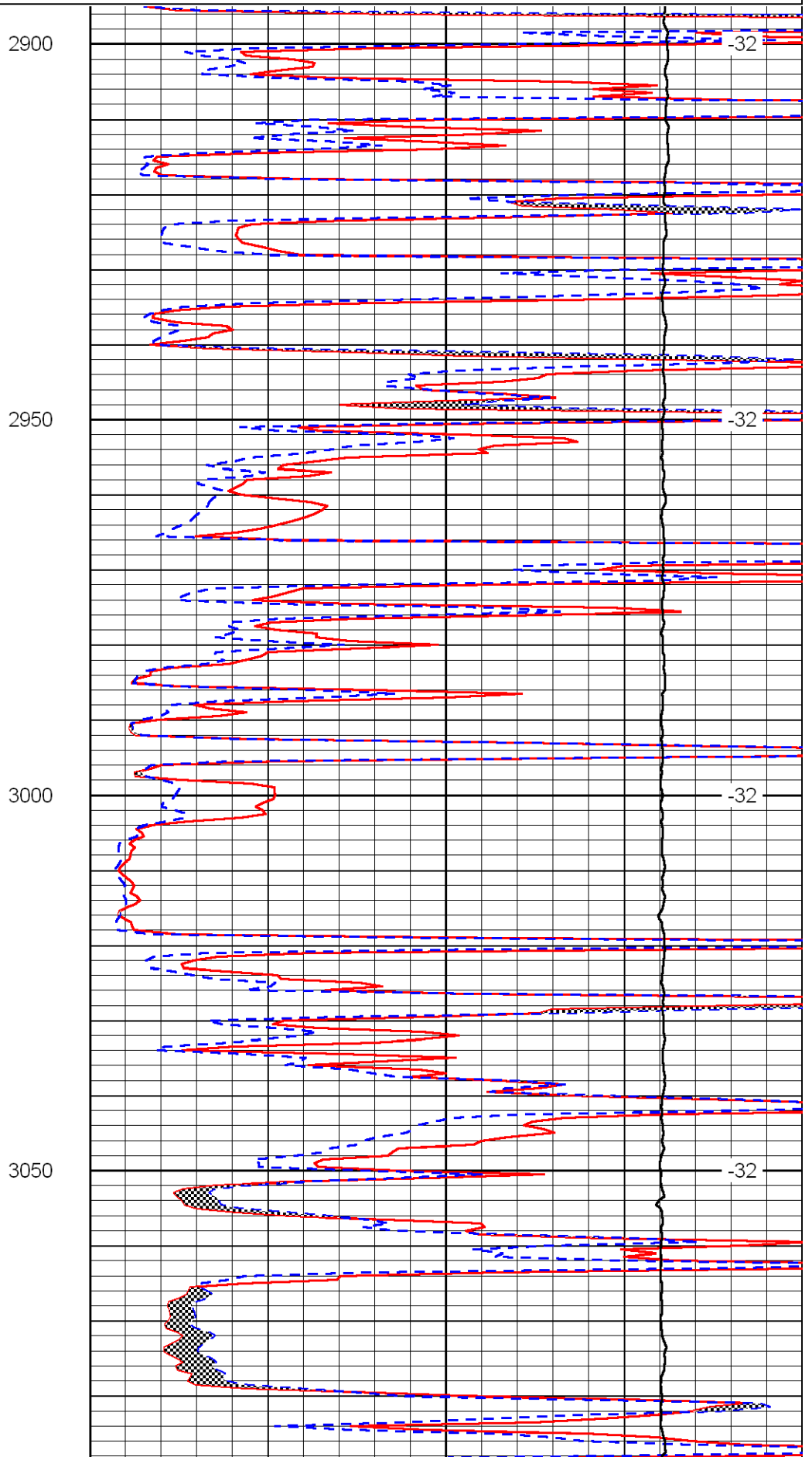
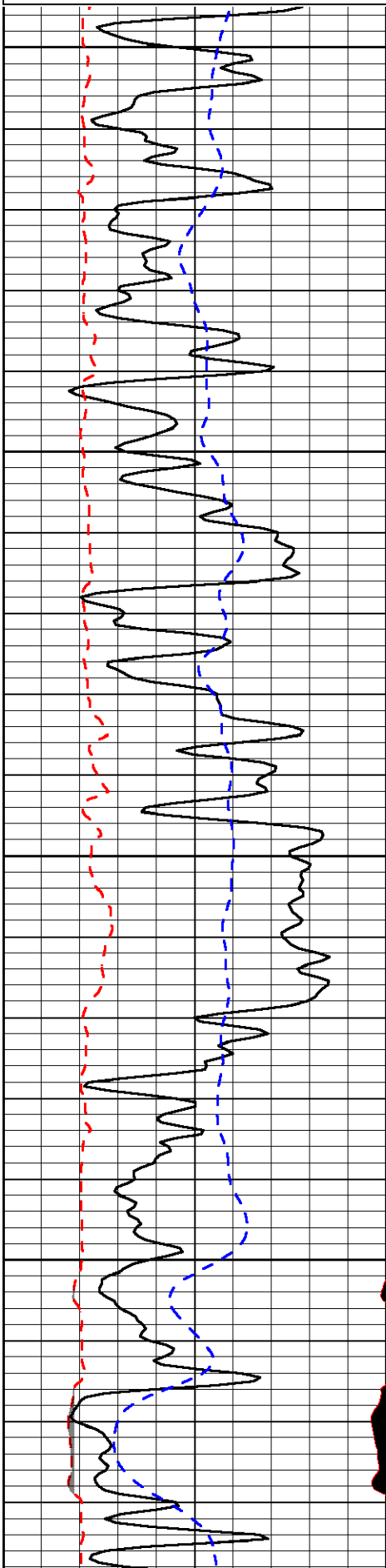
Comments

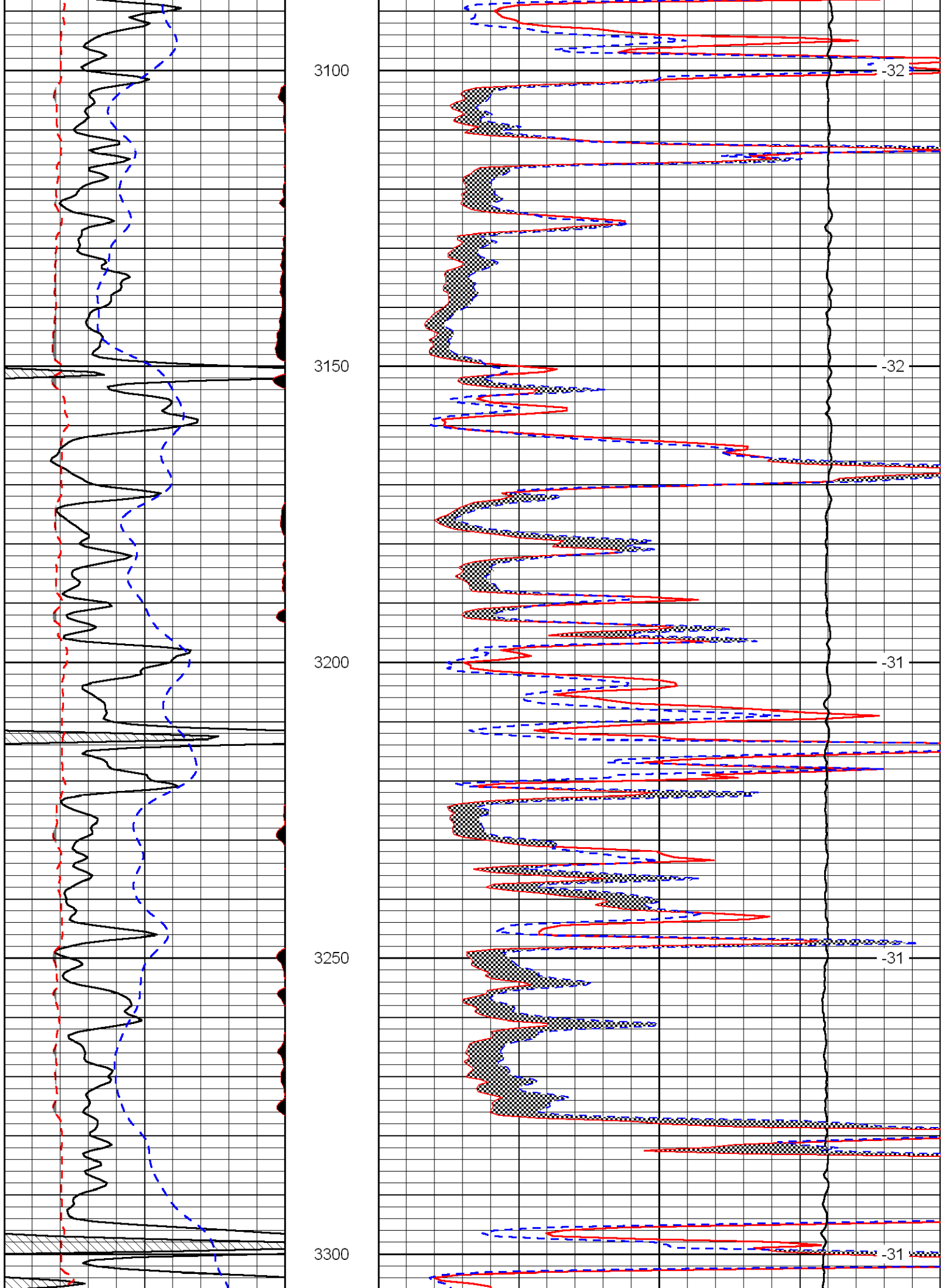
Thank you for using Log-Tech, Inc.
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 Antonino KS, 2 S,
 1 1/2 W, N Into

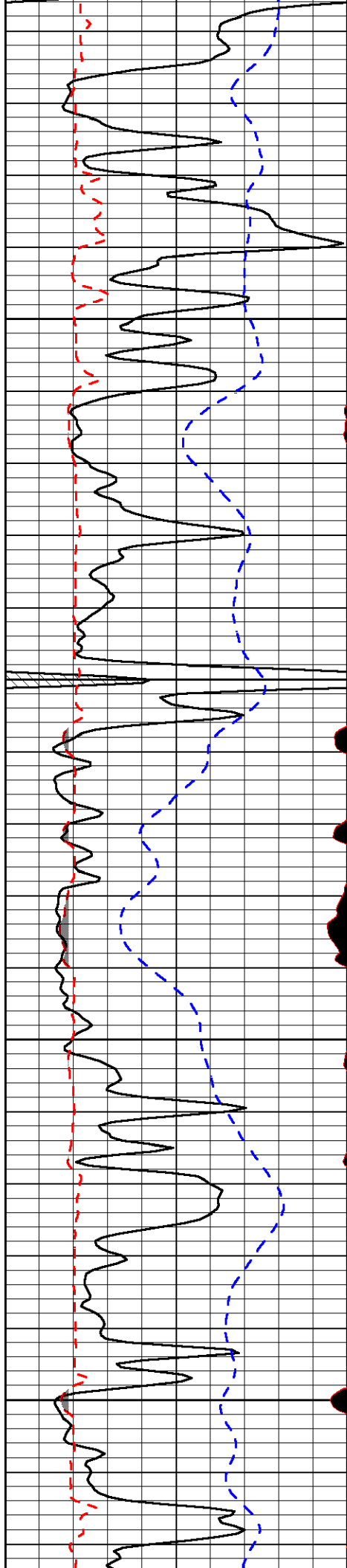
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 Dataset Pathname: dil/tdistk
 Presentation Format: micro
 Dataset Creation: Wed Nov 21 04:51:15 2012
 Charted by: Depth in Feet scaled 1:240

0	Gamma Ray	150
6	MCAL (GAPI)	16
2.875	Mud Cake (GAPI)	7.875
-200	SP	0

0	Micro Inverse 1 X 1	40
0	Micro Normal 2"	40
10000	Line Weight	0
		LSPD





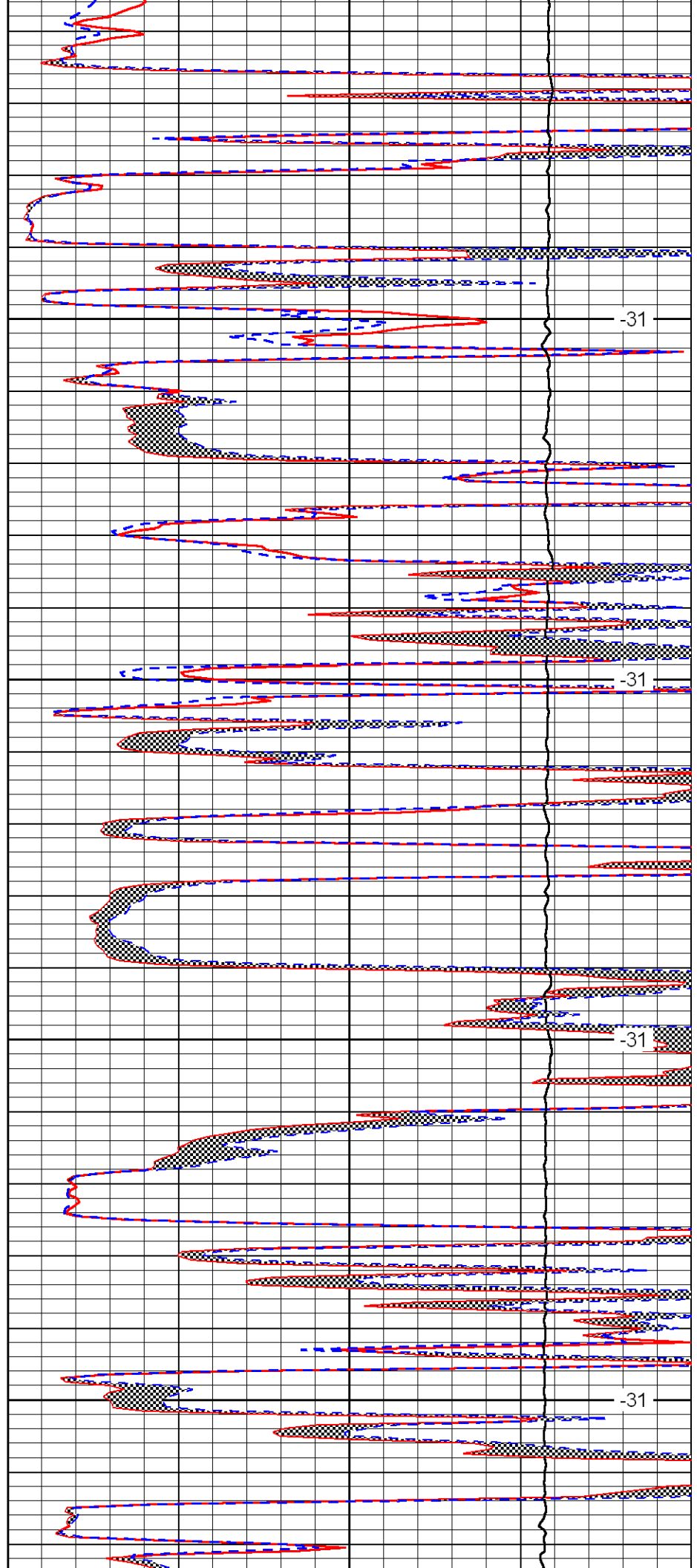


3350

3400

3450

3500

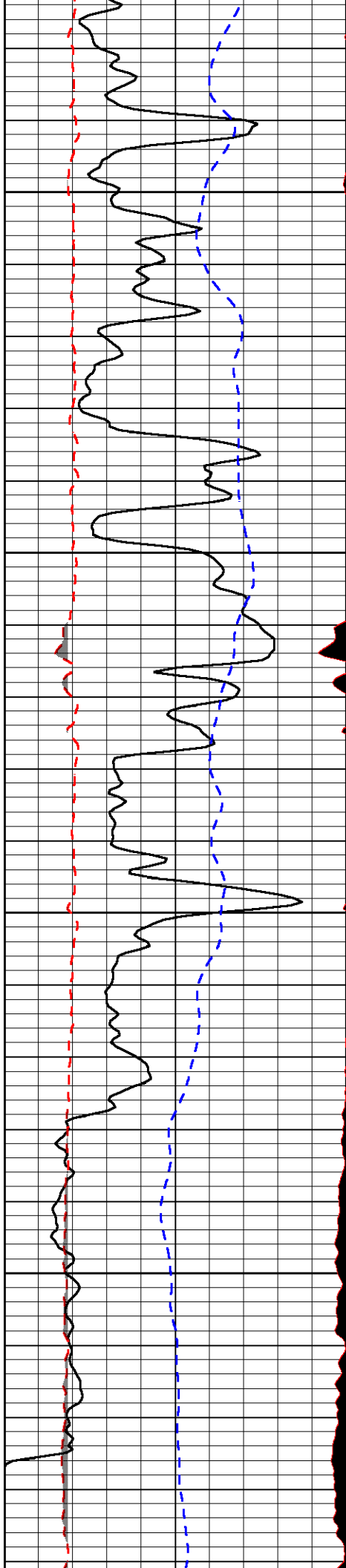


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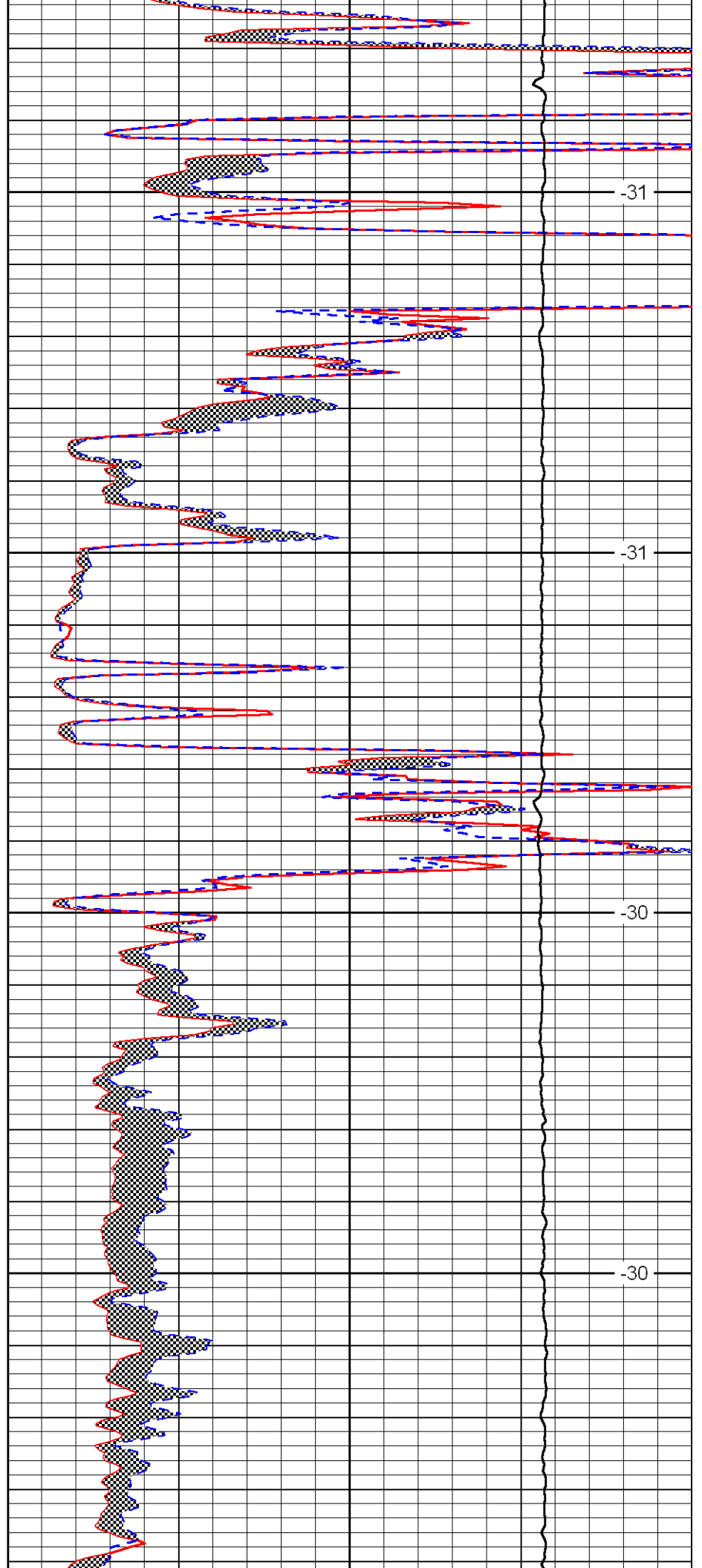


3550

3600

3650

3700

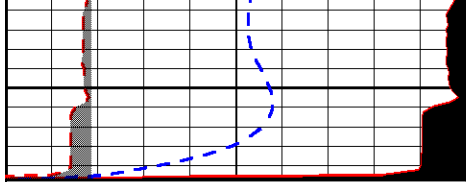


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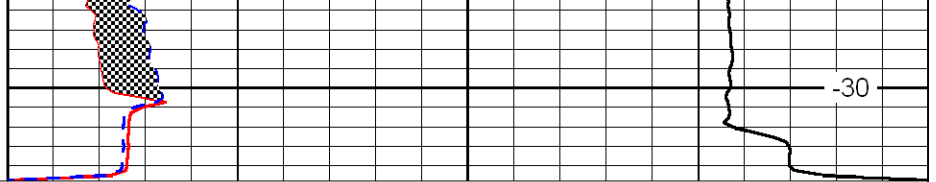
-31

-30

-30



3750



-30

0	Gamma Ray	150
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6	MCAL (GAPI)	16
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2.875	Mud Cake (GAPI)	7.875
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-200	SP	0
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0	Micro Inverse 1 X 1	40
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0	Micro Normal 2"	40
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10000	Line Weight	0
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LSPD
