

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

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

Gas DH EOR

OG GSW

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 EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

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 Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

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 Geologist Report / Mud Logs <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				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
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)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____			
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) (Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Richland Oil Investments, LLC
Well Name	CLARK/OCHS 28-1
Doc ID	1439993

Tops

Name	Top	Datum
Anhydrite	2612	+530
Base Anhydrite	2632	+508
Heebner	4043	-901
Lansing	4084	-942
B/KC	4377	-1235
Pawnee	4516	-1374
Johnson	4646	-1504
Miss	4734	-1592



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Richland Oil Investments LLC
 608 E. 1st. P.O. Box 166
 Palco KS
 67657
 ATTN: Stw ve Murphy

28-12s-33w Logan Co KS

Clark-Ochs #28-1

Job Ticket: 64853 **DST#: 1**
 Test Start: 2019.01.13 @ 05:32:15

GENERAL INFORMATION:

Formation: **LKC H**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:34:15
 Time Test Ended: 10:49:00
 Interval: **4228.00 ft (KB) To 4266.00 ft (KB) (TVD)**
 Total Depth: 4266.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 3142.00 ft (KB)
 3132.00 ft (CF)
 KB to GR/CF: 10.00 ft

Serial #: 8374

Inside

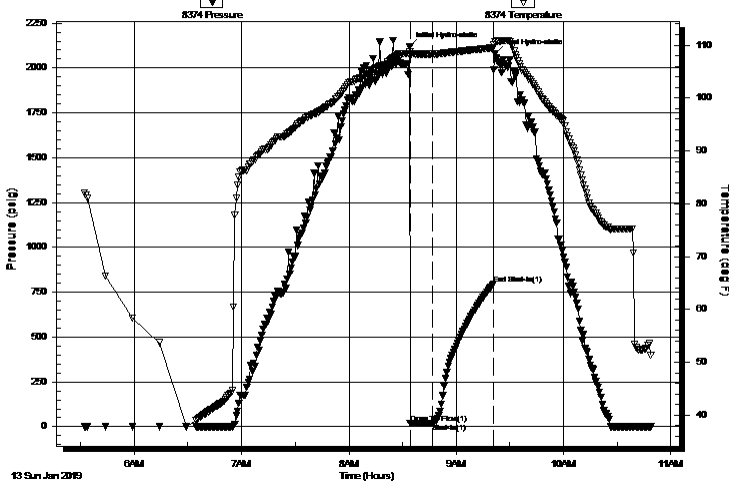
Press@RunDepth: 18.94 psig @ 4229.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.13 End Date: 2019.01.13 Last Calib.: 2019.01.13
 Start Time: 05:32:15 End Time: 10:49:00 Time On Btm: 2019.01.13 @ 08:34:00
 Time Off Btm: 2019.01.13 @ 09:21:45

TEST COMMENT: IF:Weak surface blow that died
 IS:No return blow
 FF:PULLED TEST
 FS:

PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2118.42	108.78	Initial Hydro-static
1	18.20	107.83	Open To Flow (1)
13	18.94	108.31	Shut-In(1)
47	796.24	109.49	End Shut-In(1)
48	2079.76	110.59	Final Hydro-static

Pressure vs. Time



Recovery

Length (ft)	Description	Volume (bbl)
3.00	mud 100% m	0.04

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Richland Oil Investments LLC

28-12s-33w Logan Co KS

608 E. 1st. P.O. Box 166
Palco KS
67657
ATTN: Stw ve Murphy

Clark-Ochs #28-1

Job Ticket: 64853

DST#: 1

Test Start: 2019.01.13 @ 05:32:15

GENERAL INFORMATION:

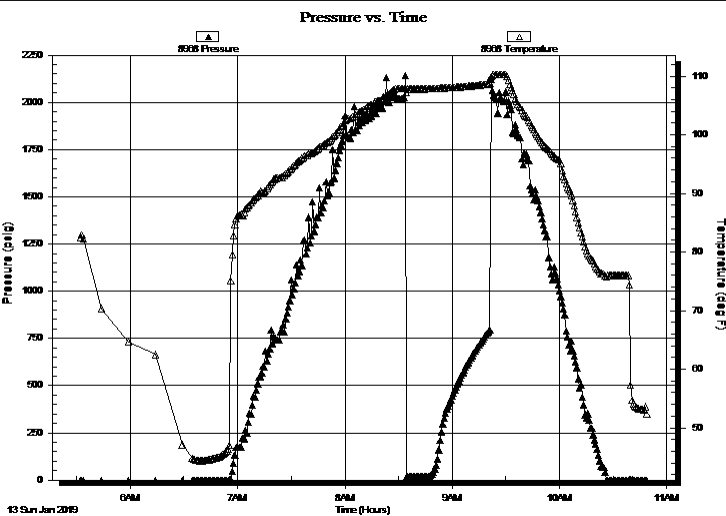
Formation:	LKC H		
Deviated:	No Whipstock:	ft (KB)	Test Type: Conventional Bottom Hole (Initial)
Time Tool Opened:	08:34:15		Tester: Mike Roberts
Time Test Ended:	10:49:00		Unit No: 81
Interval:	4228.00 ft (KB) To 4266.00 ft (KB) (TVD)	Reference Elevations:	3142.00 ft (KB)
Total Depth:	4266.00 ft (KB) (TVD)		3132.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition:	Fair
		KB to GR/CF:	10.00 ft

Serial #: 8968

Outside

Press@RunDepth:	psig @	4229.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2019.01.13	End Date:	2019.01.13	Last Calib.:	2019.01.13
Start Time:	05:32:15	End Time:	10:49:15	Time On Btm:	
				Time Off Btm:	

TEST COMMENT: IF:Weak surface blow that died
IS:No return blow
FF:PULLED TEST
FS:



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
3.00	mud 100% m	0.04

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Richland Oil Investments LLC

28-12s-33w Logan Co KS

608 E. 1st. P.O. Box 166

Clark-Ochs #28-1

Palco KS

Job Ticket: 64853

DST#: 1

67657

Test Start: 2019.01.13 @ 05:32:15

ATTN: Stw ve Murphy

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.59 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
3.00	mud 100% m	0.042

Total Length: 3.00 ft Total Volume: 0.042 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

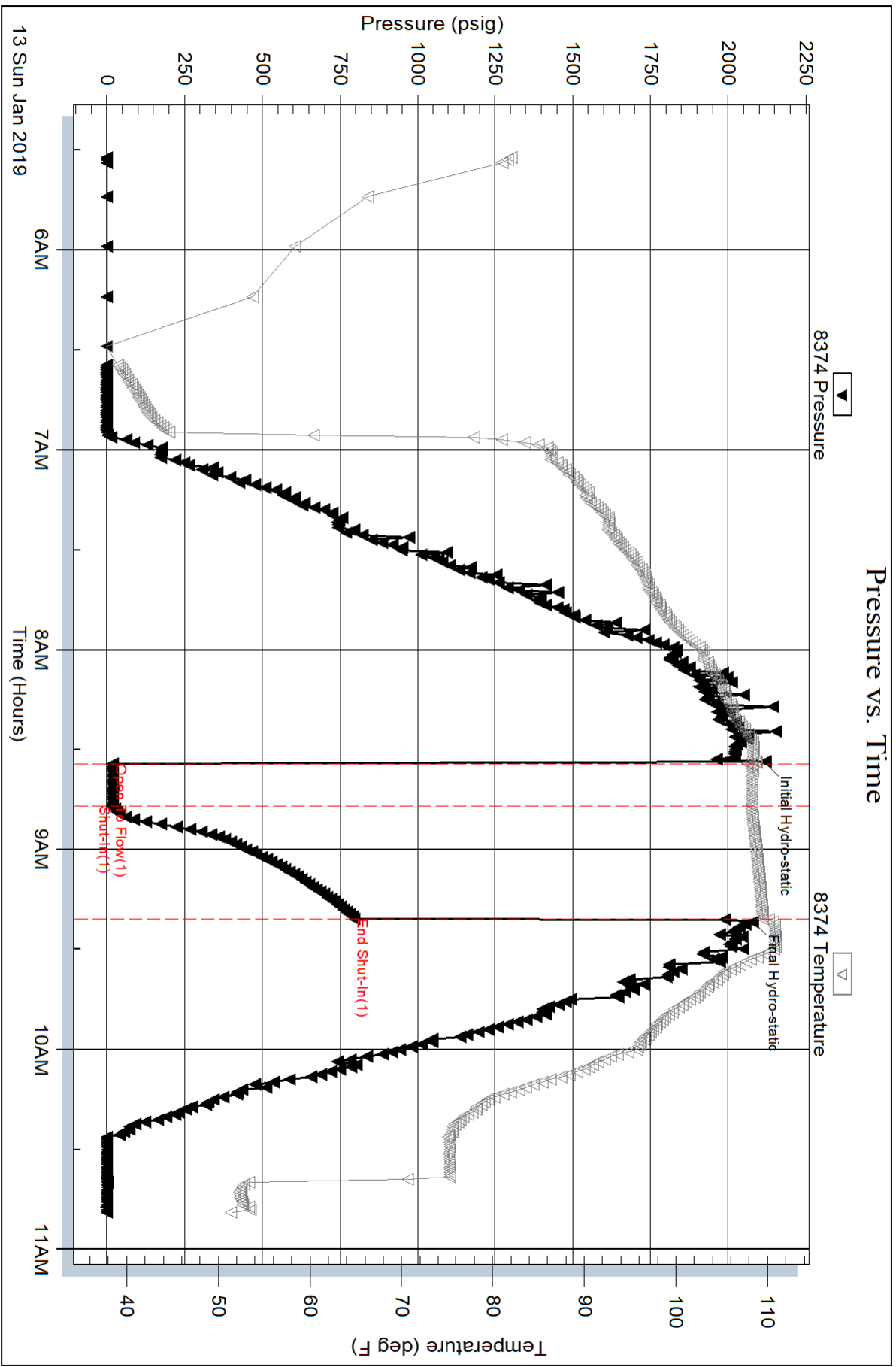
Serial #: 8374

Inside

Richland Oil Investments LLC

Clark-Ochs #28-1

DST Test Number: 1

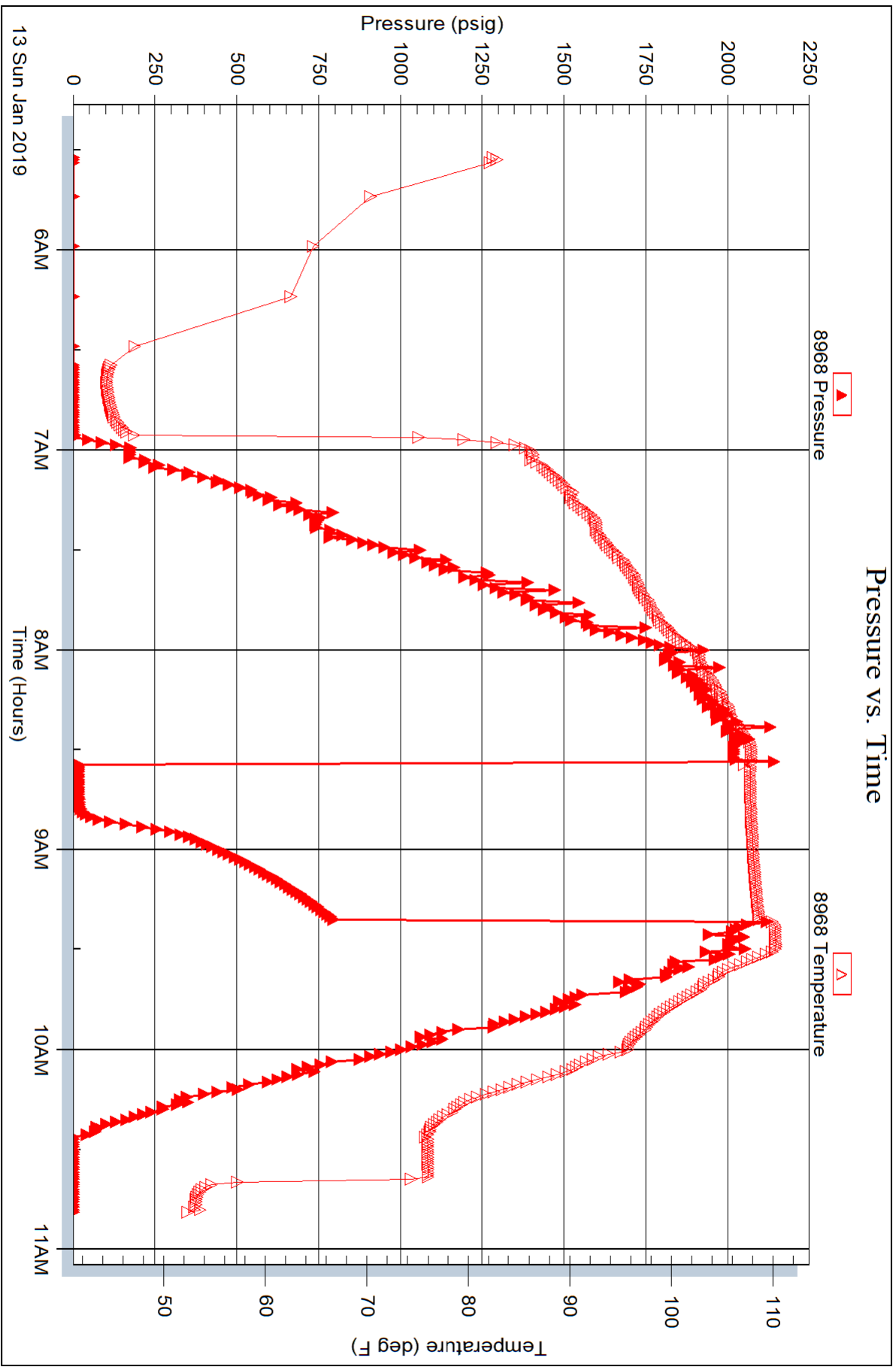


Serial #: 8968

Outside Richland Oil Investments LLC

Clark-Ochs #28-1

DST Test Number: 1





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Richland Oil Investments LLC
 608 E. 1st. P.O. Box 166
 Palco KS
 67657
 ATTN: Stw ve Murphy

28-12s-33w Logan Co KS

Clark-Ochs #28-1

Job Ticket: 54854

DST#: 2

Test Start: 2019.01.13 @ 20:23:15

GENERAL INFORMATION:

Formation: **LKC J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 22:27:15
 Time Test Ended: 00:46:15
 Interval: **4284.00 ft (KB) To 4314.00 ft (KB) (TVD)**
 Total Depth: 4314.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 3142.00 ft (KB)
 3132.00 ft (CF)
 KB to GR/CF: 10.00 ft

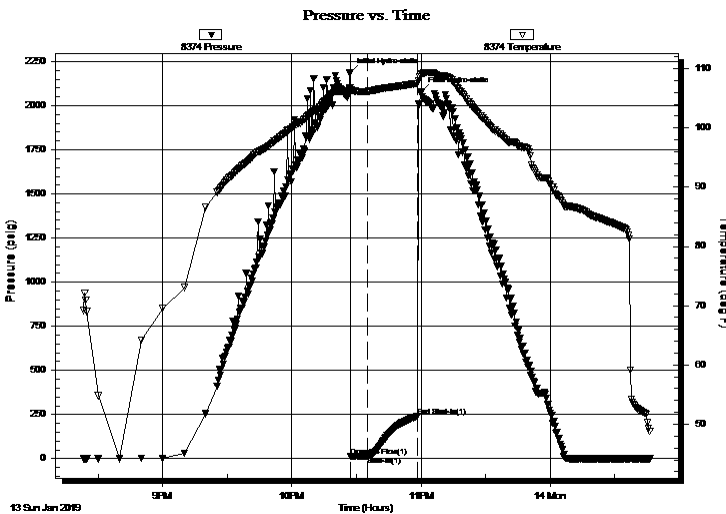
Serial #: 8374

Inside

Press@RunDepth: 15.50 psig @ 4285.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.13 End Date: 2019.01.14 Last Calib.: 2019.01.14
 Start Time: 20:23:15 End Time: 00:46:15 Time On Btm: 2019.01.13 @ 22:27:00
 Time Off Btm: 2019.01.13 @ 23:00:15

TEST COMMENT: IF:Weak surface blow died in 7 min.
 IS:No return blow
 FF:PULLED TEST
 FS:

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2188.21	106.80	Initial Hydro-static
1	13.58	105.93	Open To Flow (1)
8	15.50	106.17	Shut-In(1)
32	240.65	107.50	End Shut-In(1)
34	2077.19	109.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud 100%m	0.01

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Richland Oil Investments LLC

28-12s-33w Logan Co KS

608 E. 1st. P.O. Box 166
Palco KS
67657
ATTN: Stw ve Murphy

Clark-Ochs #28-1

Job Ticket: 54854

DST#: 2

Test Start: 2019.01.13 @ 20:23:15

GENERAL INFORMATION:

Formation: **LKC J**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 22:27:15
 Tester: Mike Roberts
 Time Test Ended: 00:46:15
 Unit No: 81
 Interval: **4284.00 ft (KB) To 4314.00 ft (KB) (TVD)**
 Reference Elevations: 3142.00 ft (KB)
 Total Depth: 4314.00 ft (KB) (TVD)
 3132.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 10.00 ft

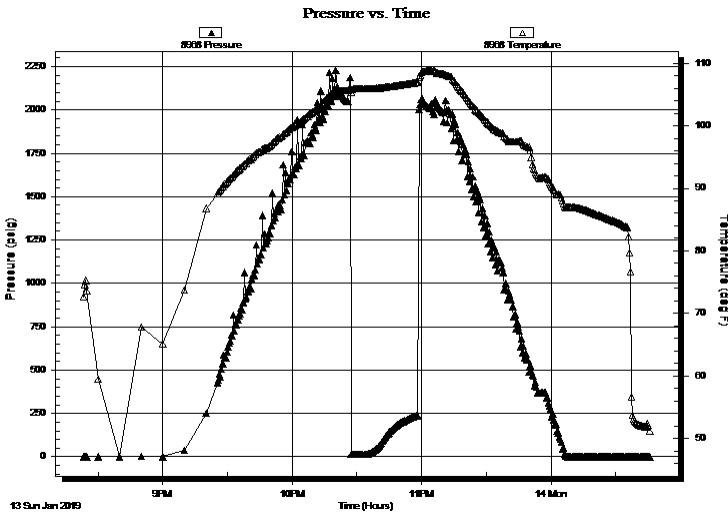
Serial #: 8968

Outside

Press@RunDepth: psig @ 4285.00 ft (KB)
 Capacity: 8000.00 psig
 Start Date: 2019.01.13 End Date: 2019.01.14 Last Calib.: 2019.01.14
 Start Time: 20:23:15 End Time: 00:46:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF:Weak surface blow died in 7 min.
 IS:No return blow
 FF:PULLED TEST
 FS:

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud 100%m	0.01

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Richland Oil Investments LLC

28-12s-33w Logan Co KS

608 E. 1st. P.O. Box 166
Palco KS
67657

Clark-Ochs #28-1

Job Ticket: 54854

DST#: 2

ATTN: Stw ve Murphy

Test Start: 2019.01.13 @ 20:23:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
1.00	mud 100% _m	0.014

Total Length: 1.00 ft Total Volume: 0.014 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8374

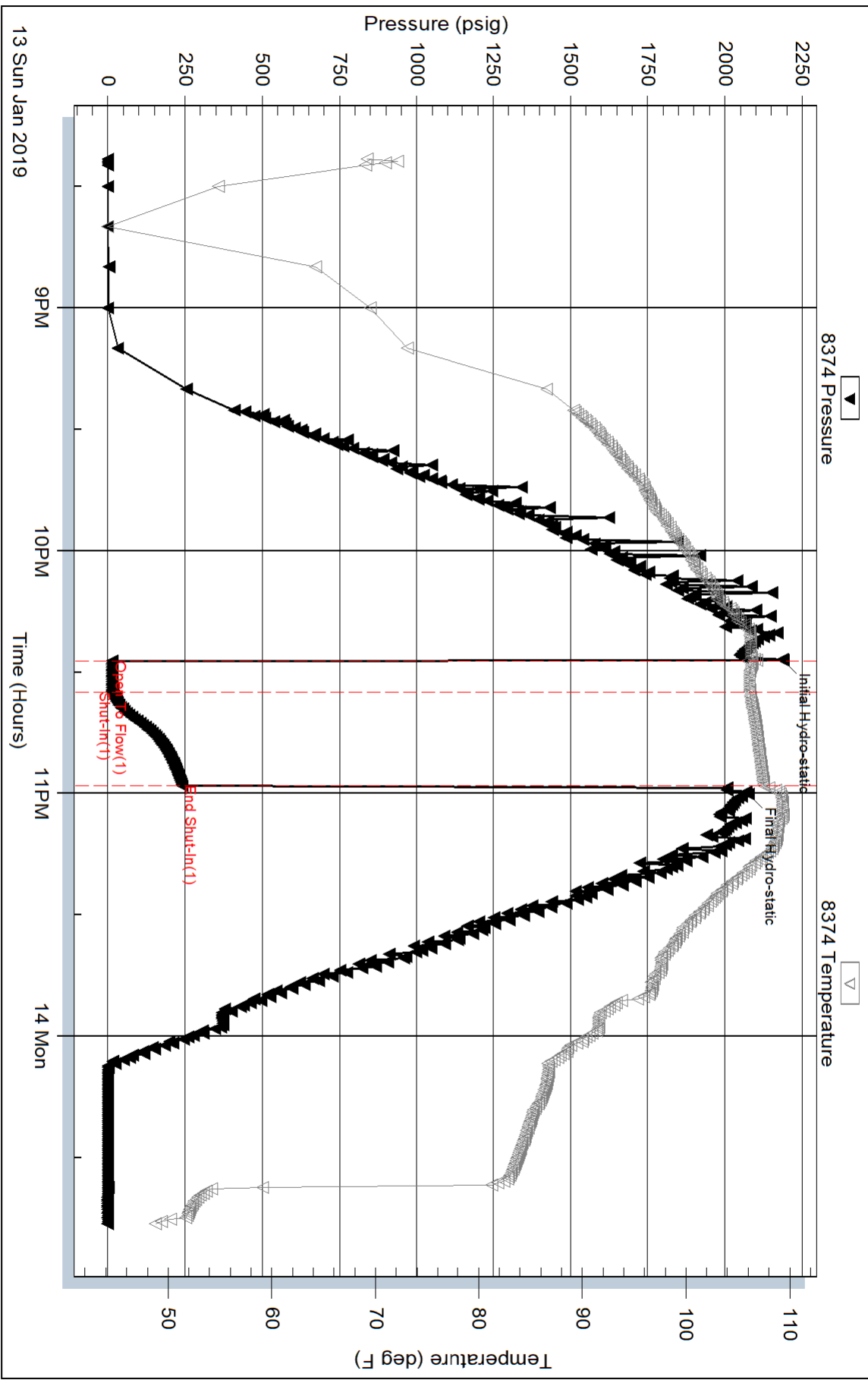
Inside

Richland Oil Investments LLC

Clark-Ochs #28-1

DST Test Number: 2

Pressure vs. Time



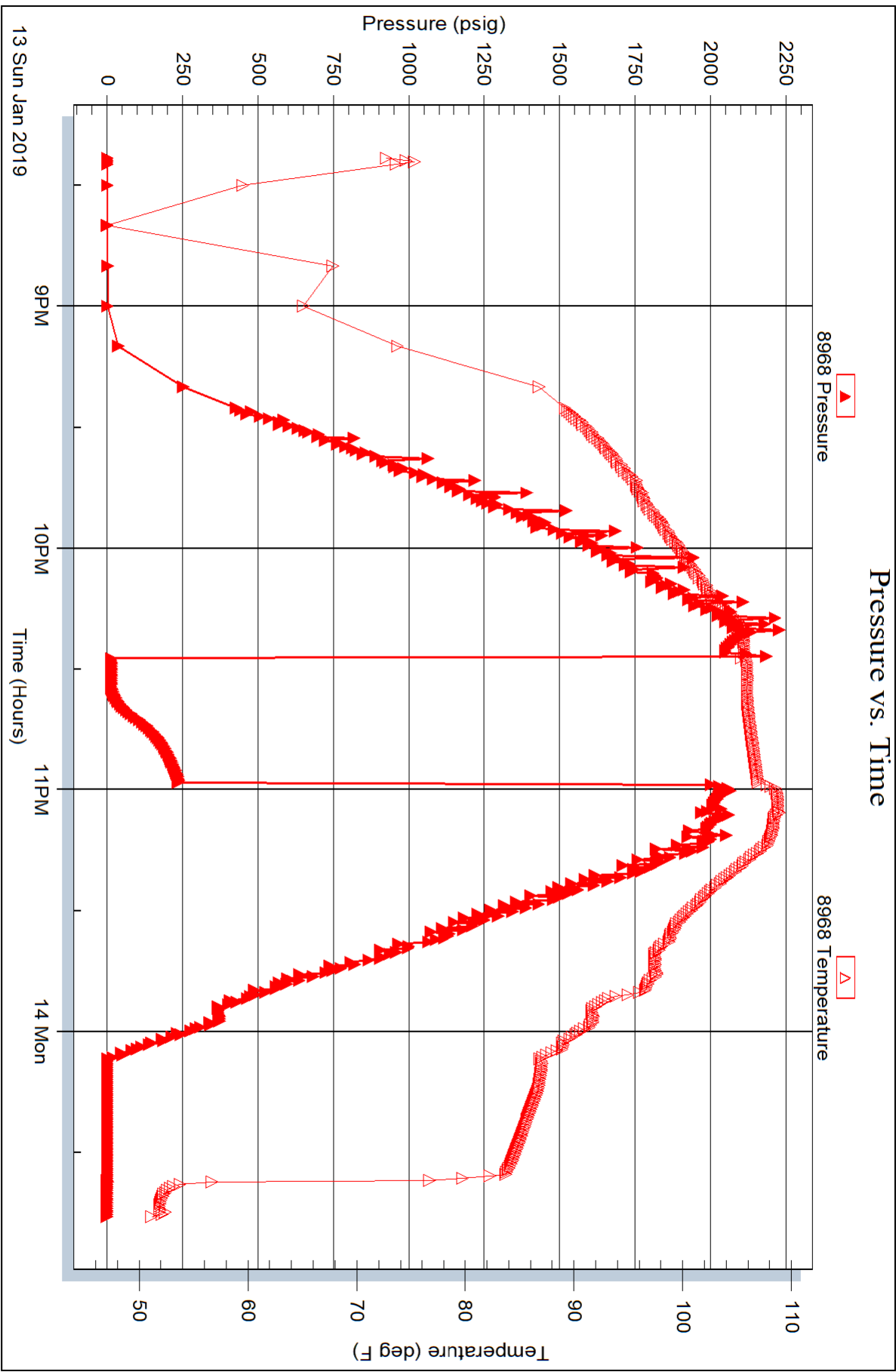
Serial #: 8968

Outside

Richland Oil Investments LLC

Clark-Ochs #28-1

DST Test Number: 2





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Richland Oil Investments LLC

28-12s-33w Logan Co KS

608 E. 1st. P.O. Box 166
 Palco KS
 67657
 ATTN: Stw ve Murphy

Clark-Ochs #28-1

Job Ticket: 64855

DST#: 3

Test Start: 2019.01.15 @ 12:26:15

GENERAL INFORMATION:

Formation: **Johnson**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 14:11:00
 Time Test Ended: 16:50:45
 Interval: **4620.00 ft (KB) To 4674.00 ft (KB) (TVD)**
 Total Depth: 4674.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 3142.00 ft (KB)
 3132.00 ft (CF)
 KB to GR/CF: 10.00 ft

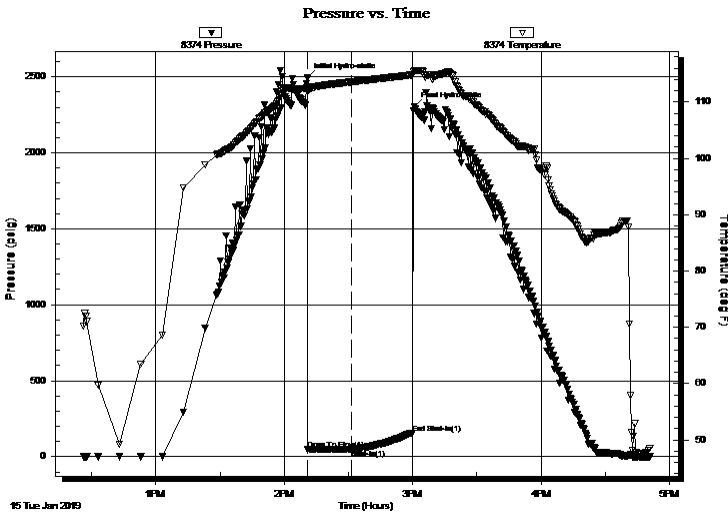
Serial #: 8374

Inside

Press@RunDepth: 49.19 psig @ 4659.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.01.15 End Date: 2019.01.15 Last Calib.: 2019.01.15
 Start Time: 12:26:15 End Time: 16:50:45 Time On Btm: 2019.01.15 @ 14:10:45
 Time Off Btm: 2019.01.15 @ 15:00:45

TEST COMMENT: IF:Weak surface blow that died in 19 min.
 IS:No return blow
 FF:PULLED TEST
 FS:

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2492.32	112.64	Initial Hydro-static
1	48.59	111.83	Open To Flow (1)
21	49.19	113.59	Shut-In(1)
49	153.76	114.81	End Shut-In(1)
50	2305.27	115.61	Final Hydro-static

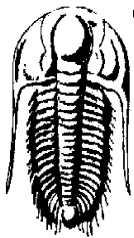
Recovery

Length (ft)	Description	Volume (bbl)
20.00	mud 100% _m	0.28

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Richland Oil Investments LLC

28-12s-33w Logan Co KS

608 E. 1st. P.O. Box 166
 Palco KS
 67657
 ATTN: Stw ve Murphy

Clark-Ochs #28-1

Job Ticket: 64855

DST#: 3

Test Start: 2019.01.15 @ 12:26:15

GENERAL INFORMATION:

Formation: **Johnson**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:11:00

Time Test Ended: 16:50:45

Test Type: Conventional Bottom Hole (Reset)

Tester: Mike Roberts

Unit No: 81

Interval: 4620.00 ft (KB) To 4674.00 ft (KB) (TVD)

Reference Elevations: 3142.00 ft (KB)

Total Depth: 4674.00 ft (KB) (TVD)

3132.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 10.00 ft

Serial #: 8968 Outside

Press@RunDepth: psig @ 4659.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.01.15 End Date: 2019.01.15

Last Calib.: 2019.01.15

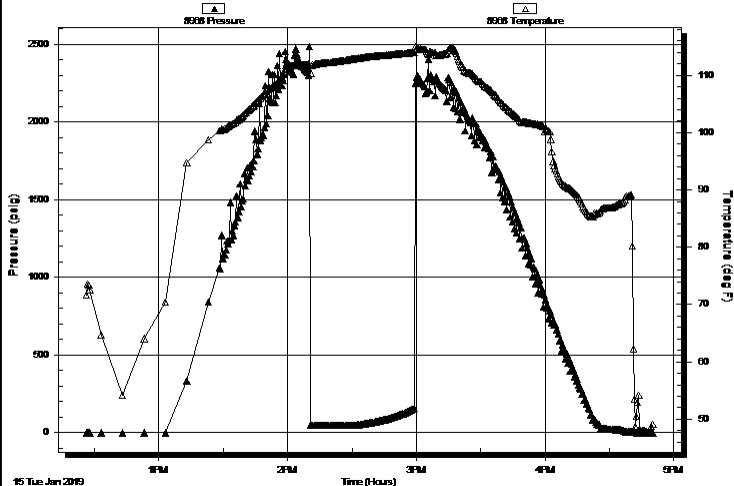
Start Time: 12:26:15 End Time: 16:50:30

Time On Btm:

Time Off Btm:

TEST COMMENT: IF:Weak surface blow that died in 19 min.
 IS:No return blow
 FF:PULLED TEST
 FS:

Pressure vs. Time



PRESSURE SUMMARY

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

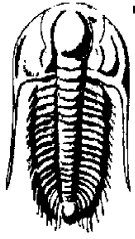
Recovery

Length (ft)	Description	Volume (bbl)
20.00	mud 100%m	0.28

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Richland Oil Investments LLC

28-12s-33w Logan Co KS

608 E. 1st. P.O. Box 166
Palco KS
67657

Clark-Ochs #28-1

Job Ticket: 64855

DST#: 3

ATTN: Stw ve Murphy

Test Start: 2019.01.15 @ 12:26:15

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.78 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 9000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	mud 100%m	0.281

Total Length: 20.00 ft Total Volume: 0.281 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

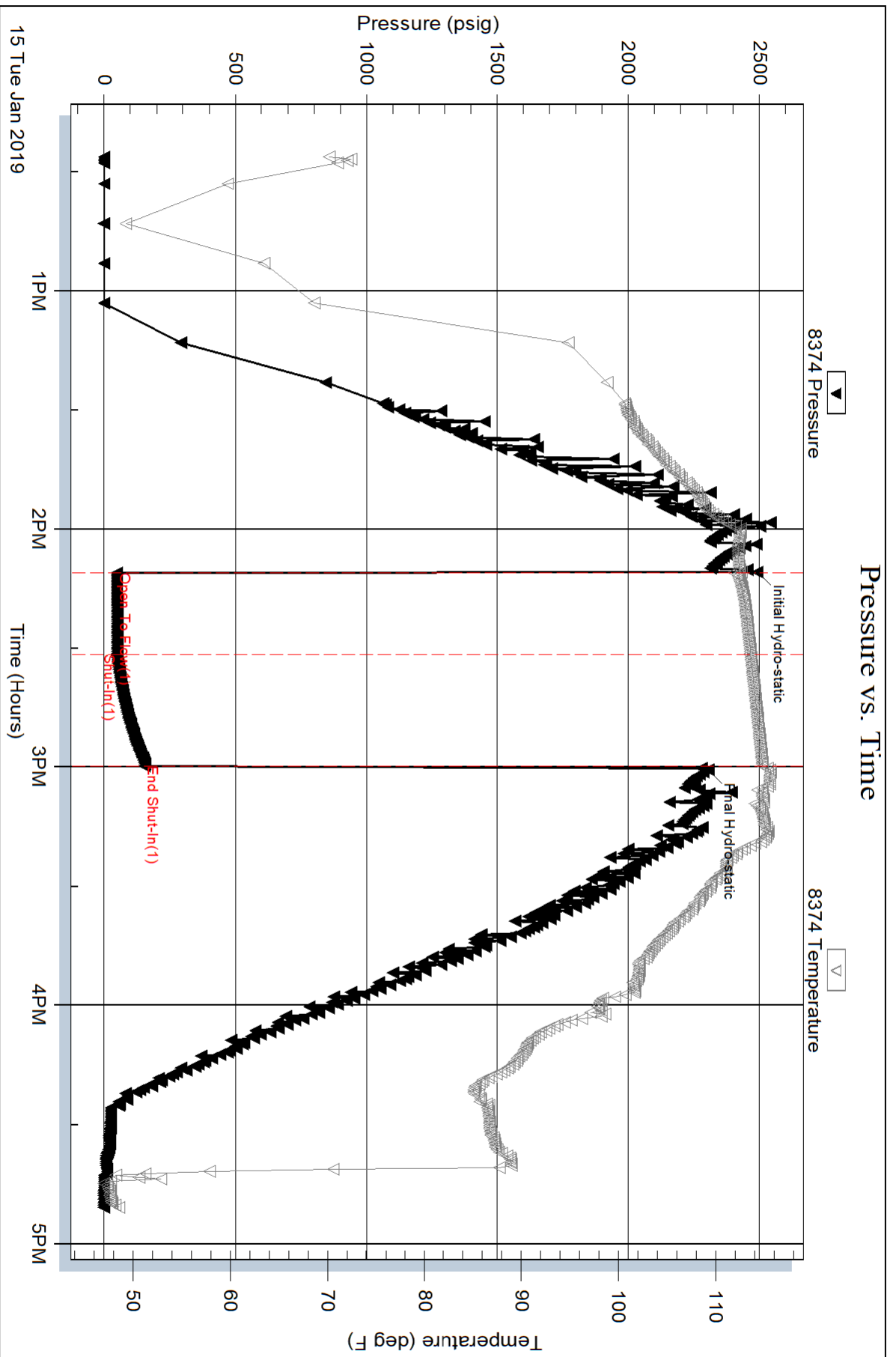
Serial #: 8374

Inside

Richland Oil Investments LLC

Clark-Ochs #28-1

DST Test Number: 3

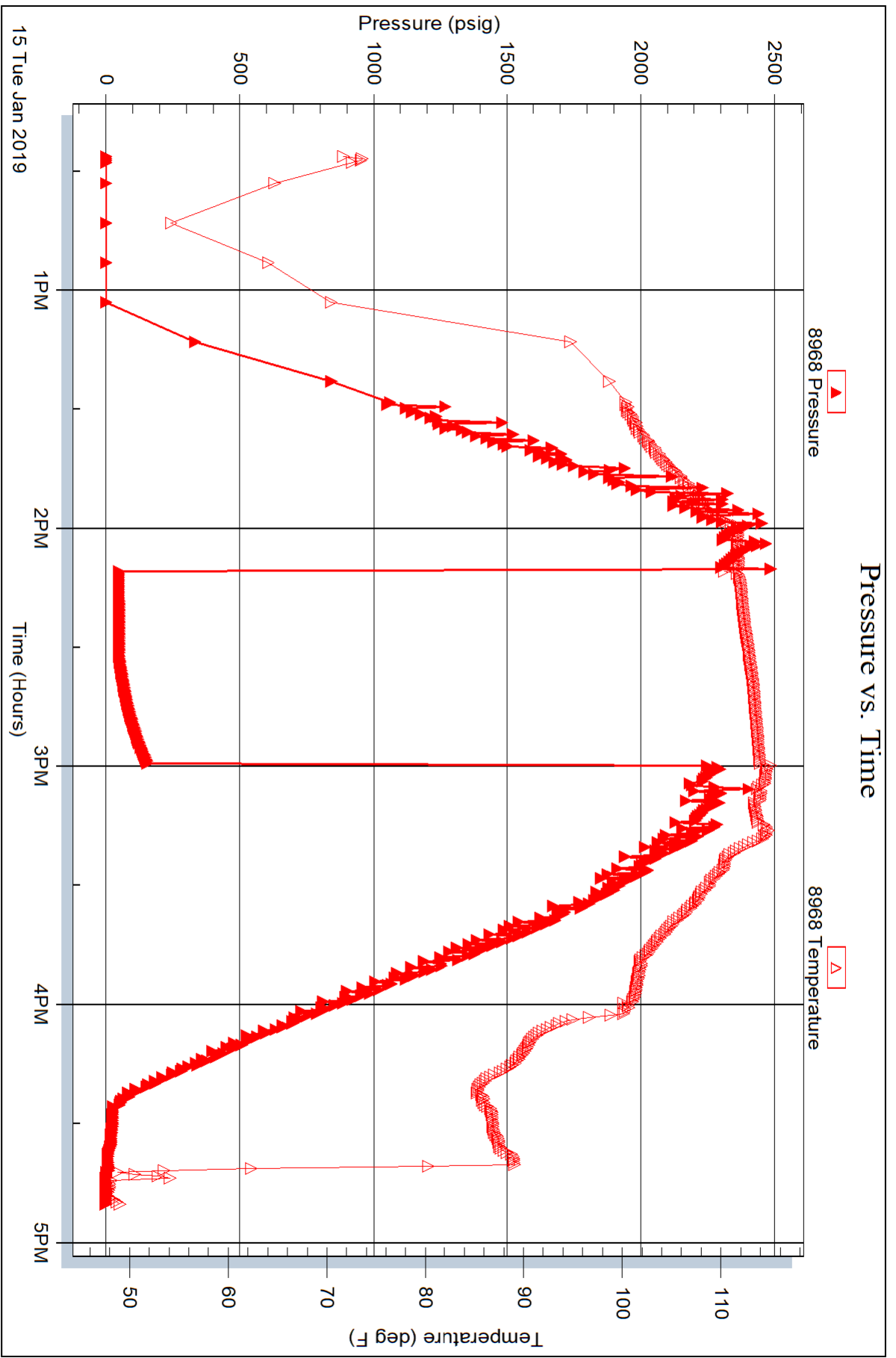


Serial #: 8968

Outside Richland Oil Investments LLC

Clark-Ochs #28-1

DST Test Number: 3



STEVEN P. MURPHY
2501 ZAVAYAS DRIVE
Great Bend, KS 67530
620-639-3030

GEOLOGIST'S REPORT
DRILLING TIME AND SAMPLE LOG

OPERATOR: **Richard Oil Investments, LLC**
LEASE: **Clark-Ochs** WELL NO: **28-1**

FIELD: **3132'**
REVISION: **207**

LOCATION: **Land Felt 340' EEL (SWSENE)**
SEC: **2B** TWP: **12S** RNG: **33W**

COUNTY: **Logan** STATE: **KS**

CORRELATION: **Southwind** Rig #1
CONTRACT: **4-775** COMPANY: **4-775**
LITHOLOGY: **TD** TD
ELEVATION: **3850'** TD
LITHOLOGY: **TD** TD
ELEVATION: **3850'** TD
LITHOLOGY: **TD** TD
ELEVATION: **3850'** TD

ANALYSIS: **3800'** TD
ANALYSIS: **3800'** TD
ANALYSIS: **3800'** TD

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ANALYSIS: **3800'** TD

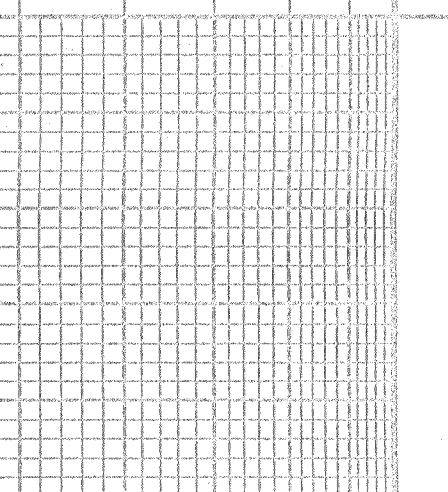
ANALYSIS: **3800'** TD
ANALYSIS: **3800'** TD
ANALYSIS: **3800'** TD

DRILL STEM TESTS

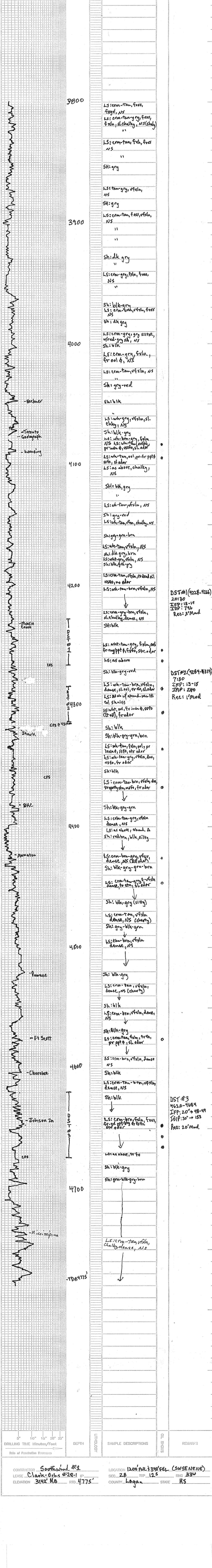
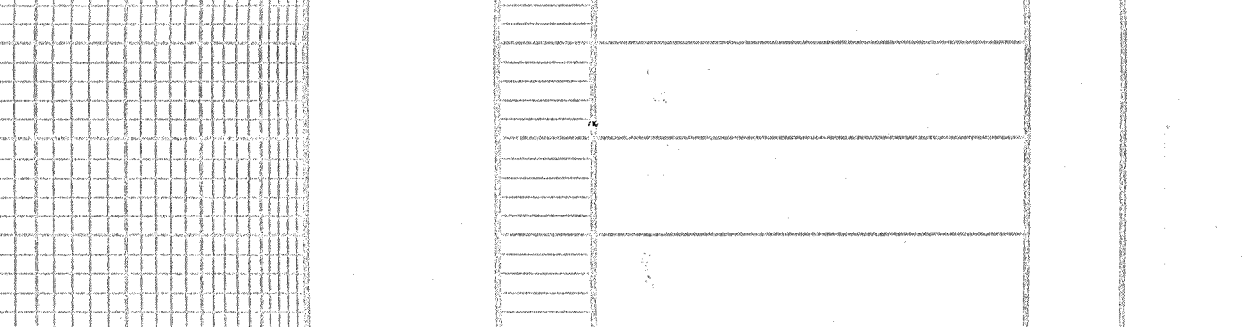
No.	Interval	Depth	Direction	Remarks
1	4228 - 4286	14' 11" / 30"	↓	Failed 3' Mud
2	4314 - 4372	1" / 30"	↓	1' Mud
3	4674 - 4932	28" / 30"	↓	20' Mud

Based on DST results & log analysis, it was recommended that the well be plugged.

Steven P. Murphy
Geologist



LEGEND



DST #1 (4228-4286)
20:30
IFP: 18-19
ISP: 796
Rec: 3' Mud

DST #2 (4284-4314)
7:30
IFP: 13-15
ISP: 240
Rec: 1' Mud

DST #3
4620-4684
IFP: 20" → 48-49
ISP: 30" → 153
Rec: 20' Mud

CONTRACTOR: Southwind #4	LOCATION: 1200 PAL 340' EEL (SWSENE)
LEASE: Clark-Ochs #28-1	SEC: 2B TWP: 12S RNG: 33W
ELEVATION: 3142' KB	COUNTY: Logan STATE: KS
IP: 4775'	



PIONEER
Pioneer Energy Services

**DUAL INDUCTION
LOG**

Company **RICHLAND OIL INVESTMENTS, LLC**
Well **CLARK/OCHS #28-1**
Field **UNKNOWN**
County **LOGAN**
State **KANSAS**

Company **RICHLAND OIL INVESTMENTS, LLC**
Well **CLARK/OCHS #28-1**
Field **UNKNOWN**
County **LOGAN** State **KANSAS**

Location: **API #: 15-109-21578-00-00**
1200' FNL & 340' FEL
SW - SE - NE - NE
SEC 28 TWP 12S RGE 33W
Permanent Datum **GROUND LEVEL Elevation 3132'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**
Other Services
CNL/CDL
MEL
Elevation
K.B. **3142'**
D.F. **N/A**
G.L. **3132'**

Date	1/16/2019
Run Number	ONE
Depth Driller	4775'
Depth Logger	4772'
Bottom Logged Interval	4771'
Top Log Interval	200'
Casing Driller	8.625" @ 215'
Casing Logger	218'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	8000
Density / Viscosity	9.5 54
pH / Fluid Loss	10.0 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.55 @ 69
Rmt @ Meas. Temp	0.41 @ 69
Rmc @ Meas. Temp	0.74 @ 69
Source of Rmf/ Rmc	CHARTS
Rm @ BHT	0.31 @ 124
Operating Rig Time	3 HOURS
Max Rec. Temp. F	124
Equipment Number	108
Location	HAYS
Recorded By	IAN MABB
Witnessed By	STEVE MURPHY

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

OAKLEY, KS.
SOUTH 7 MILES TO UTE RD.,
WEST 7 MILES TO RD 307, SOUTH 1/4
WEST INTO

Log Measured From: KELLY BUSHING 10 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

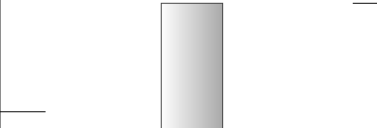
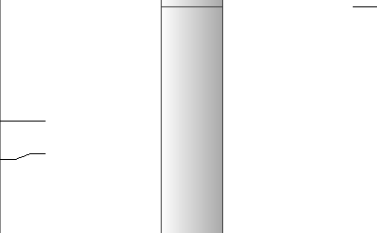
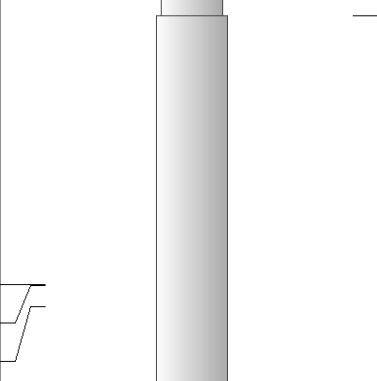
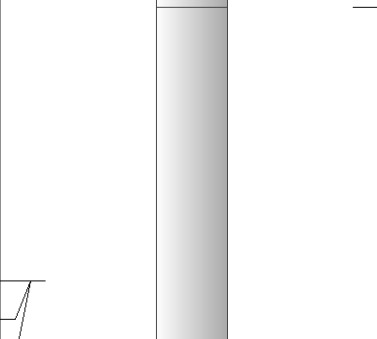
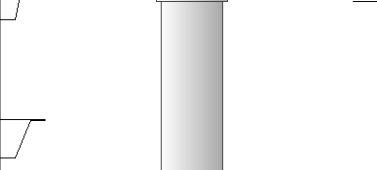
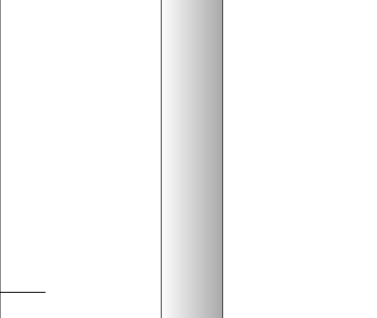
Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: IAN MABB	Primary Witness: STEVE MURPHY
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\richland_oil_clark_ochs_28_1.db
 Dataset field/well/stackmel/pass4.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	124	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	2	2	78	32	Off	4772

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (934-5002)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSI STKBL ML (PSI-01) Stackable Microlog Tools	7.58	4.00	65.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 988)	18.50	3.50	220.00

CILM 4.70

SP 0.20

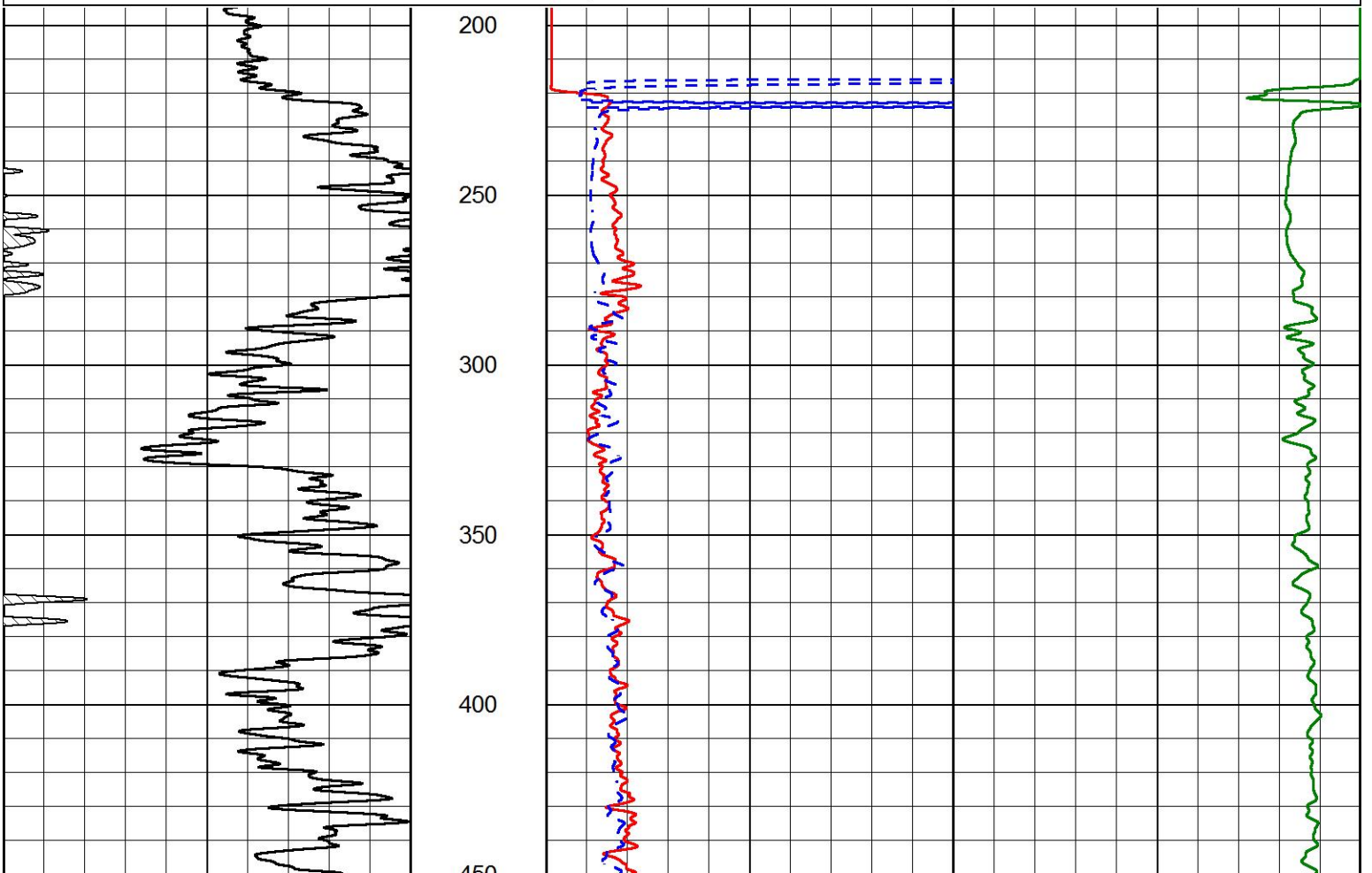
Dataset: richland_oil_clark_ochs_28_1.db: field/well/stackmel/pass4.1
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

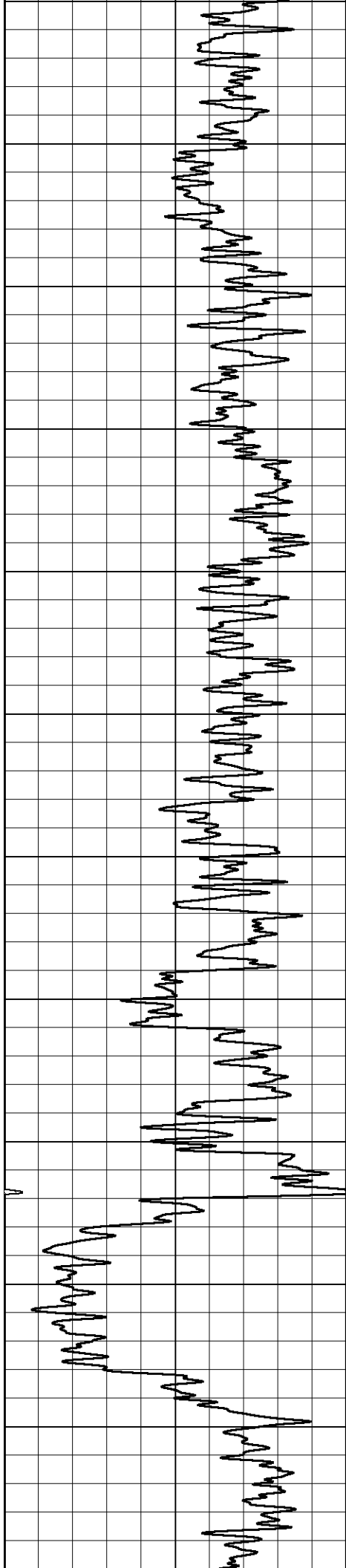


MAIN PASS

Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass5.1
 Presentation Format dil2in
 Dataset Creation Wed Jan 16 20:05:02 2019
 Charted by Depth in Feet scaled 1:600

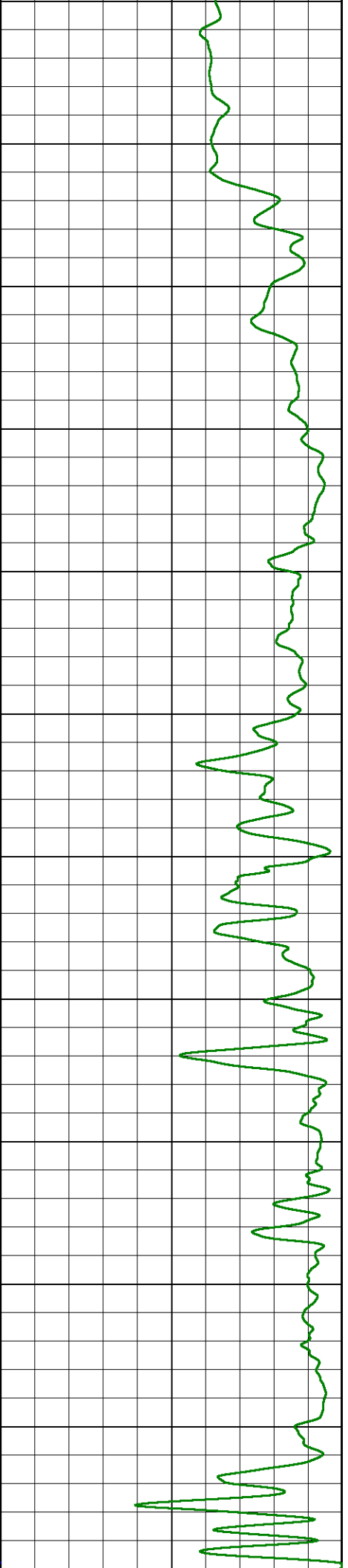
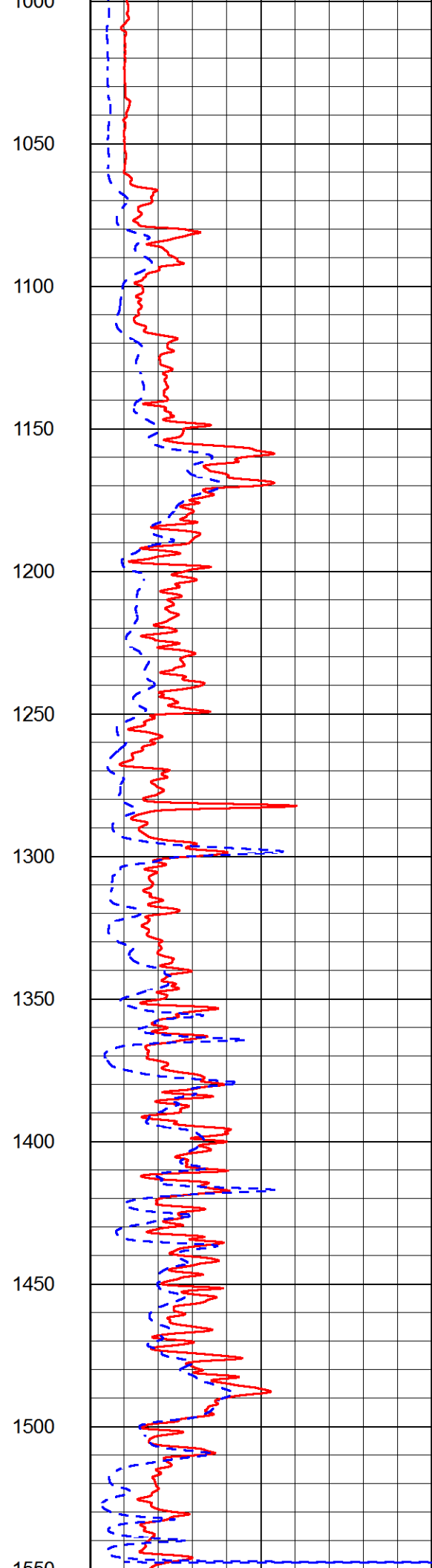
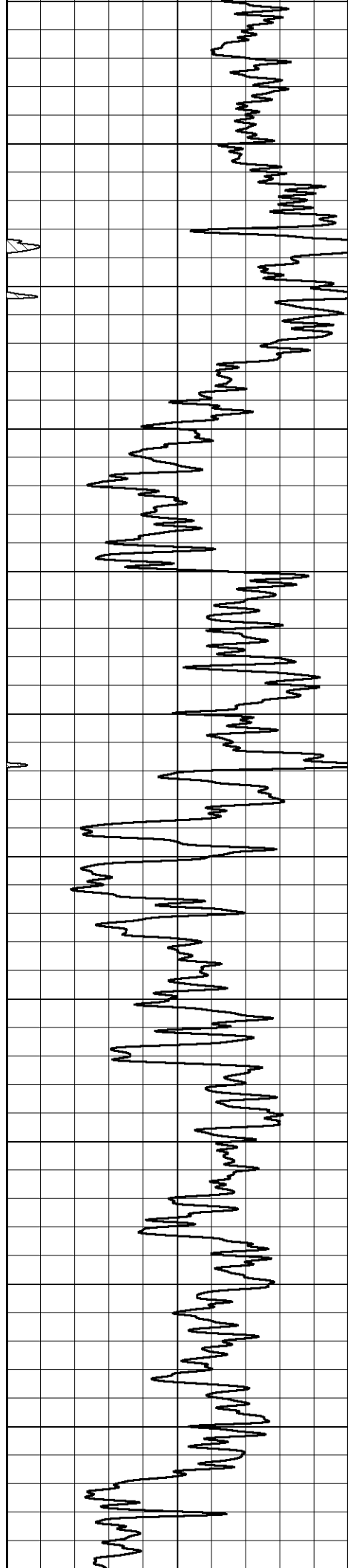
0	GAMMA RAY (GAPI)	150	2000	CILD (mmho/m)	0
			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	200
			50	RILD (Ohm-m)	200

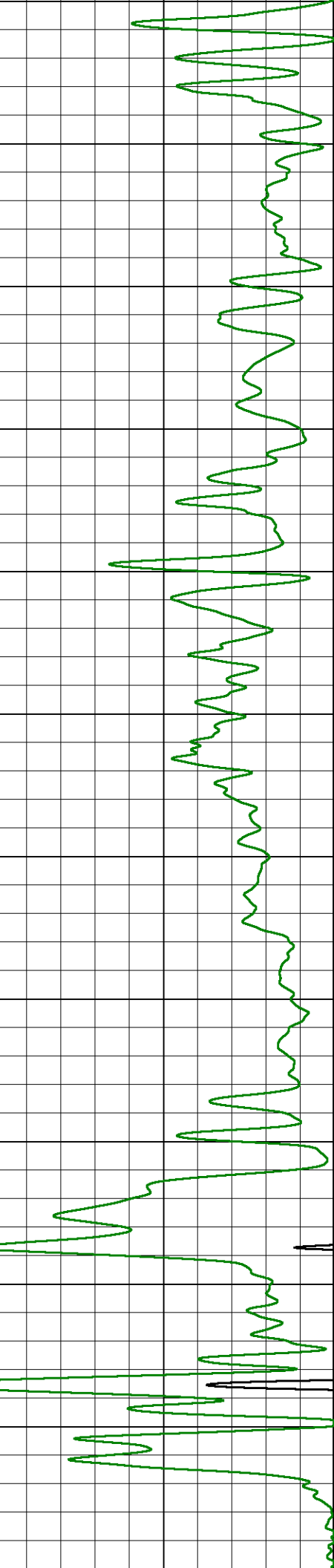
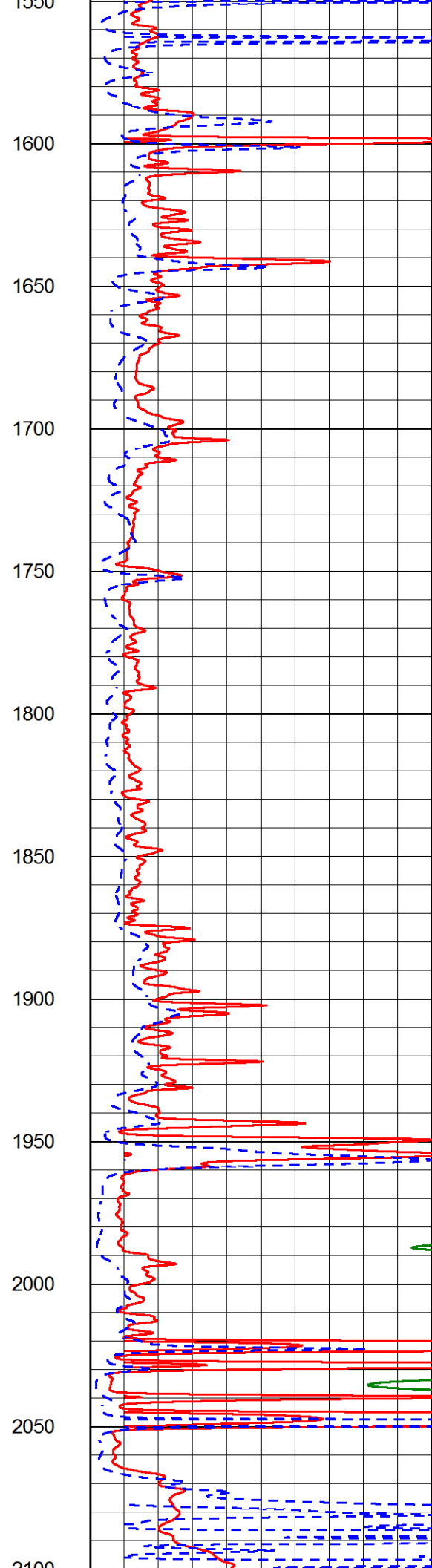
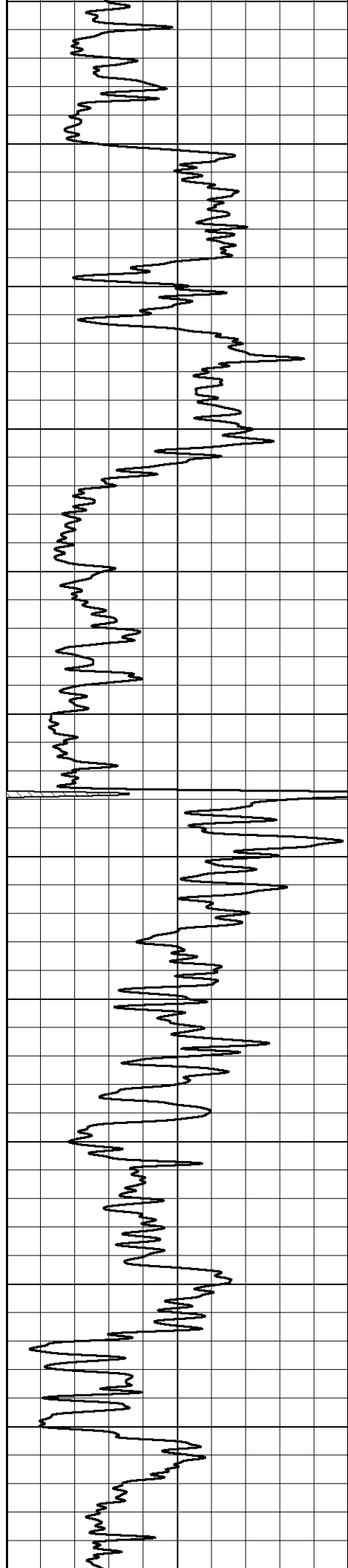


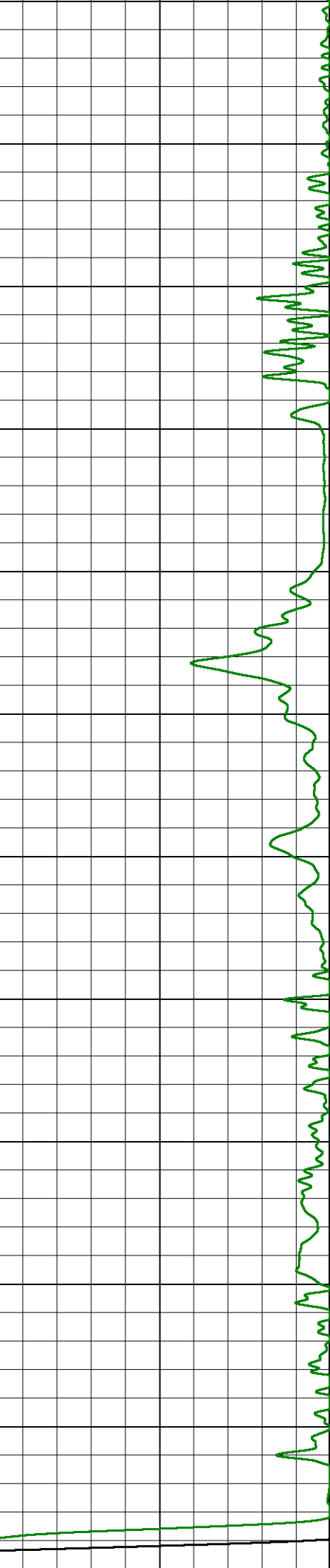
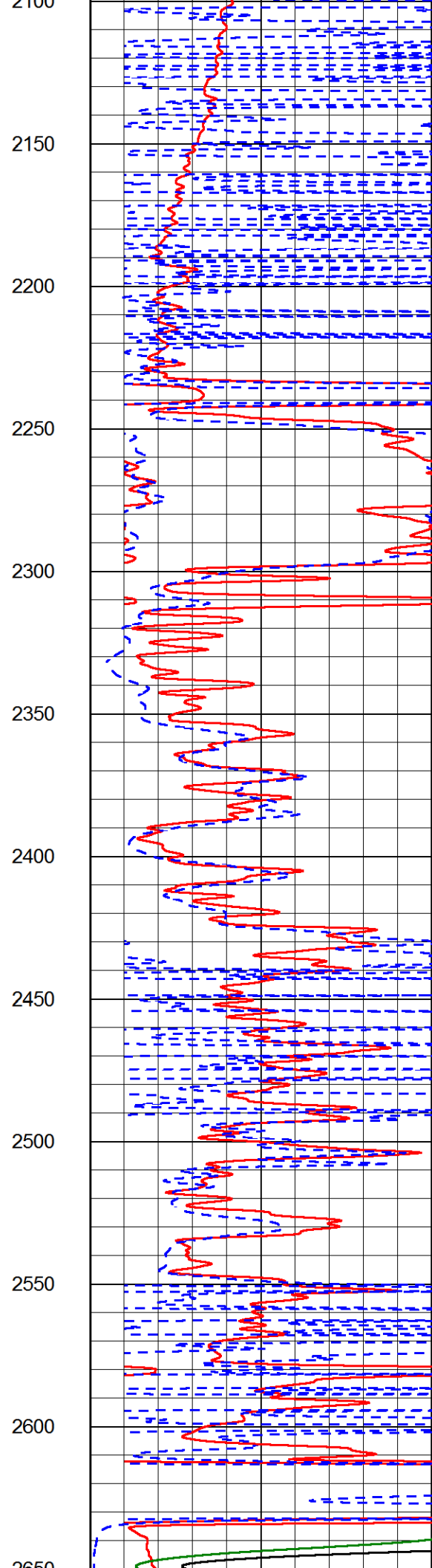
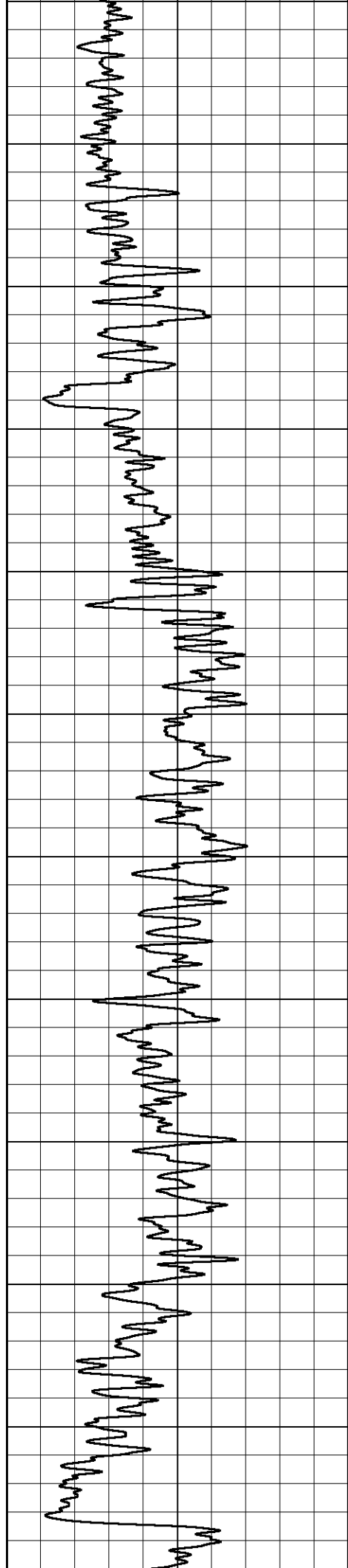


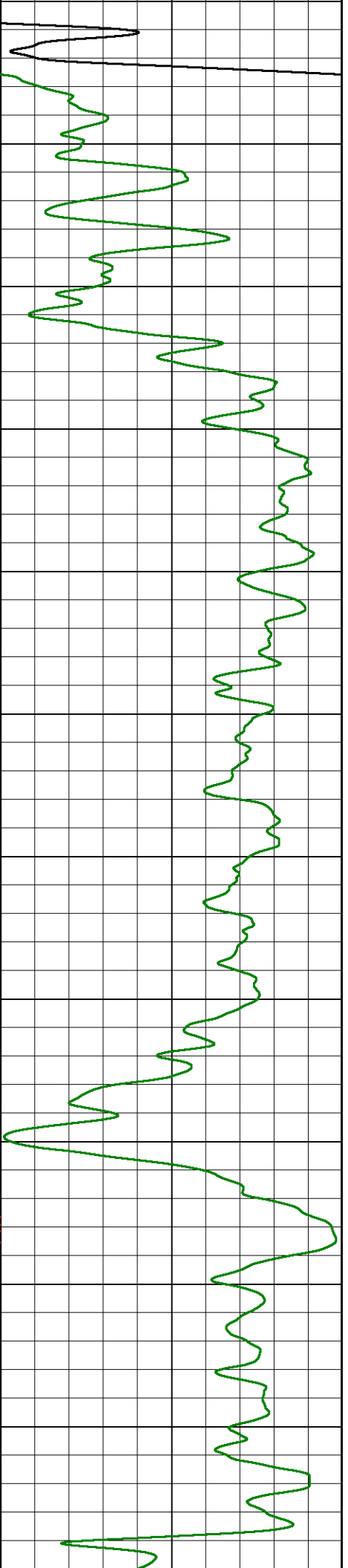
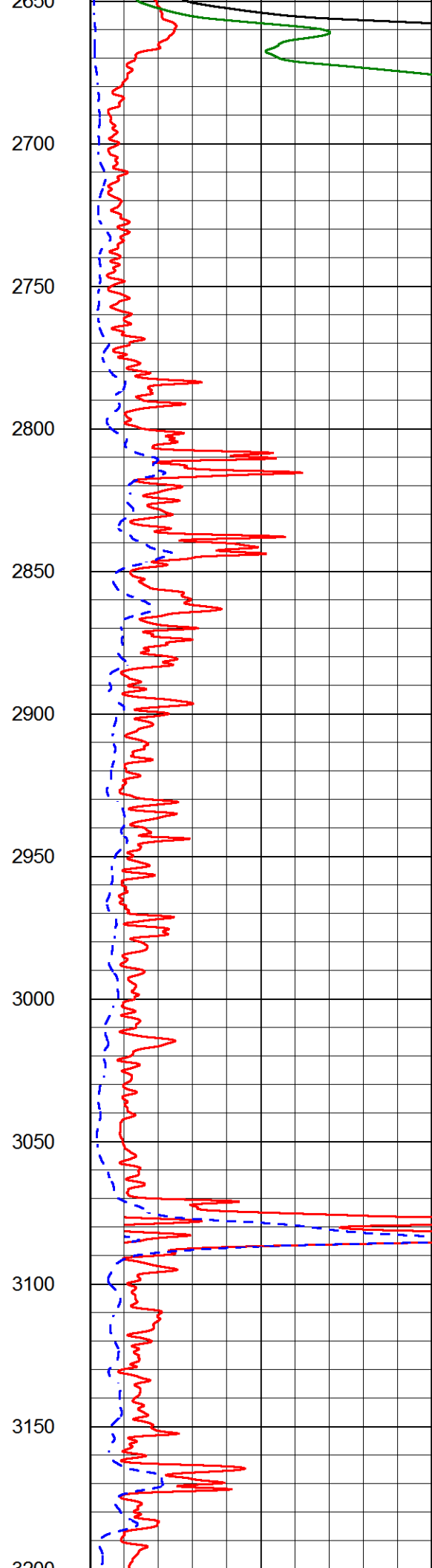
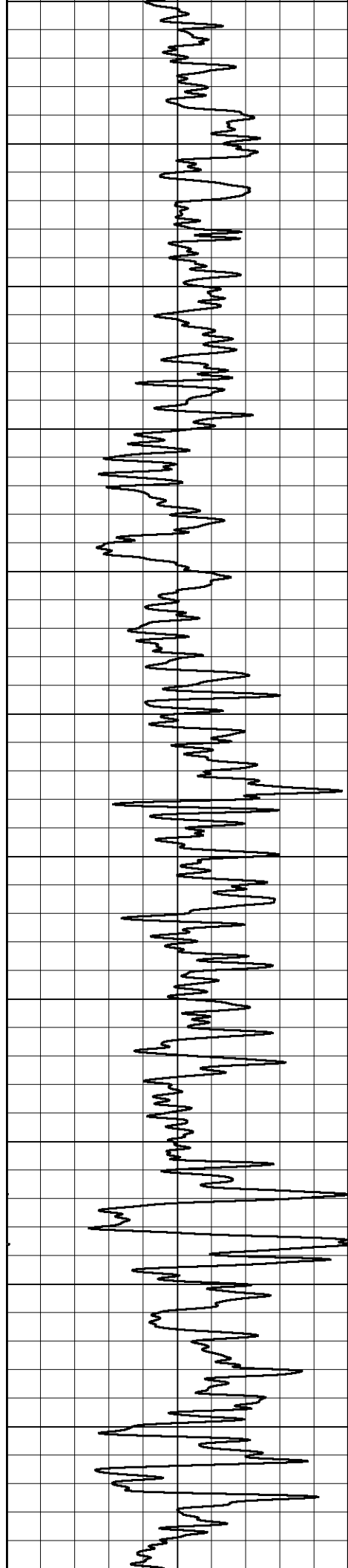
450
500
550
600
650
700
750
800
850
900
950
1000

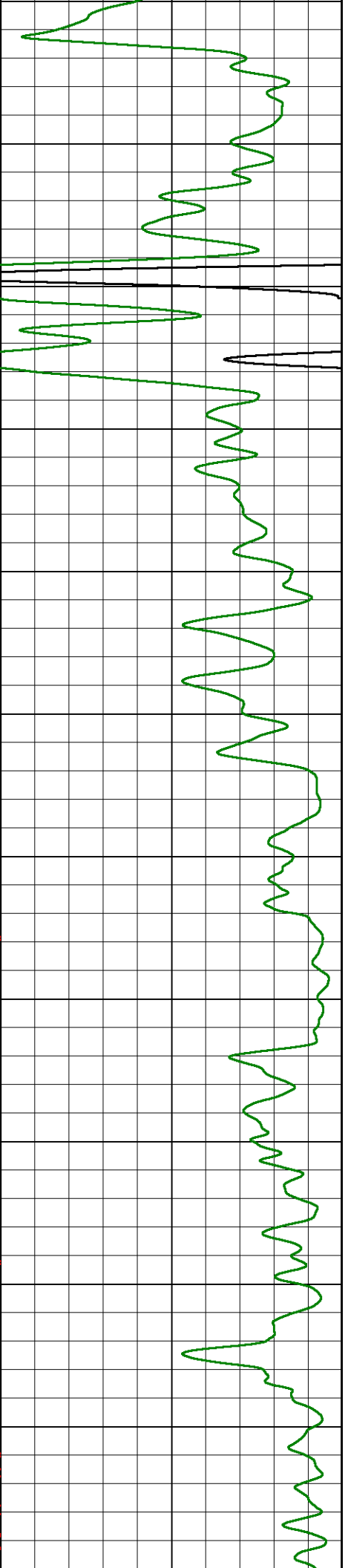
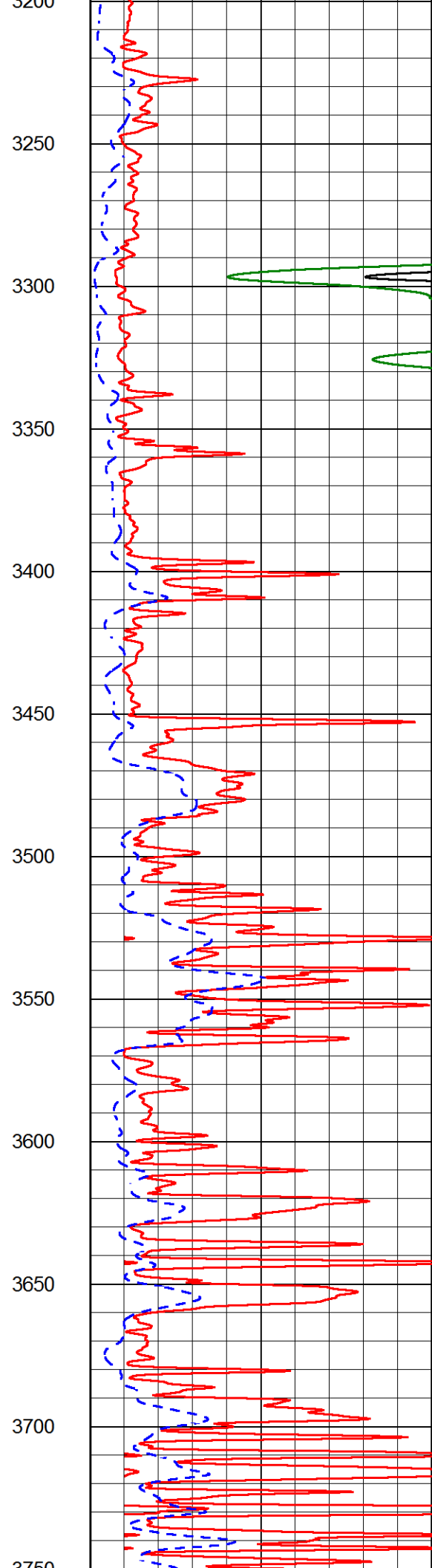
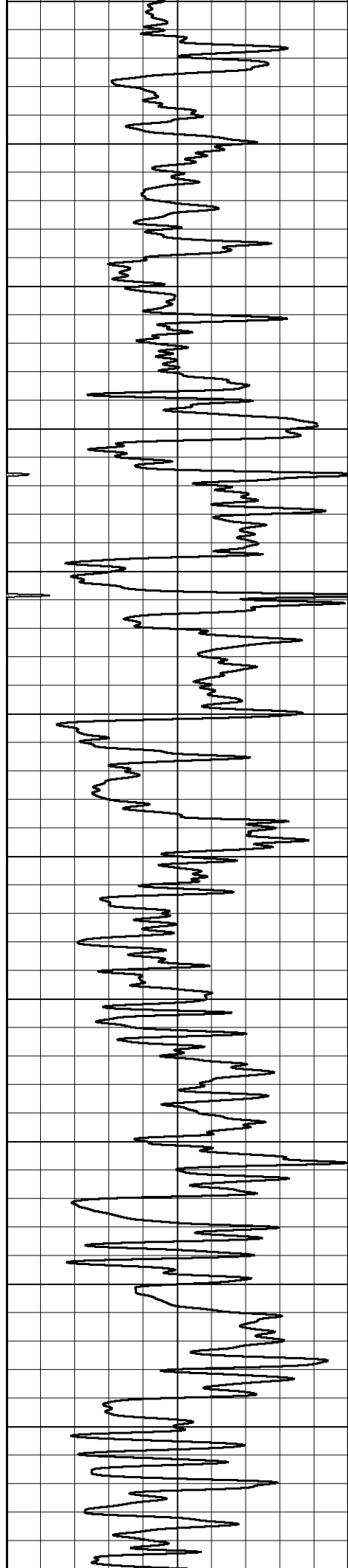


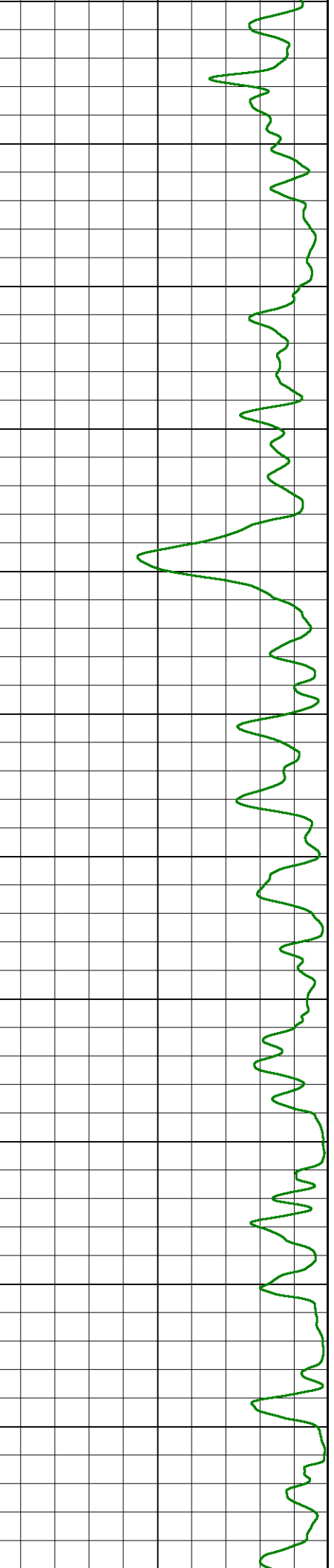
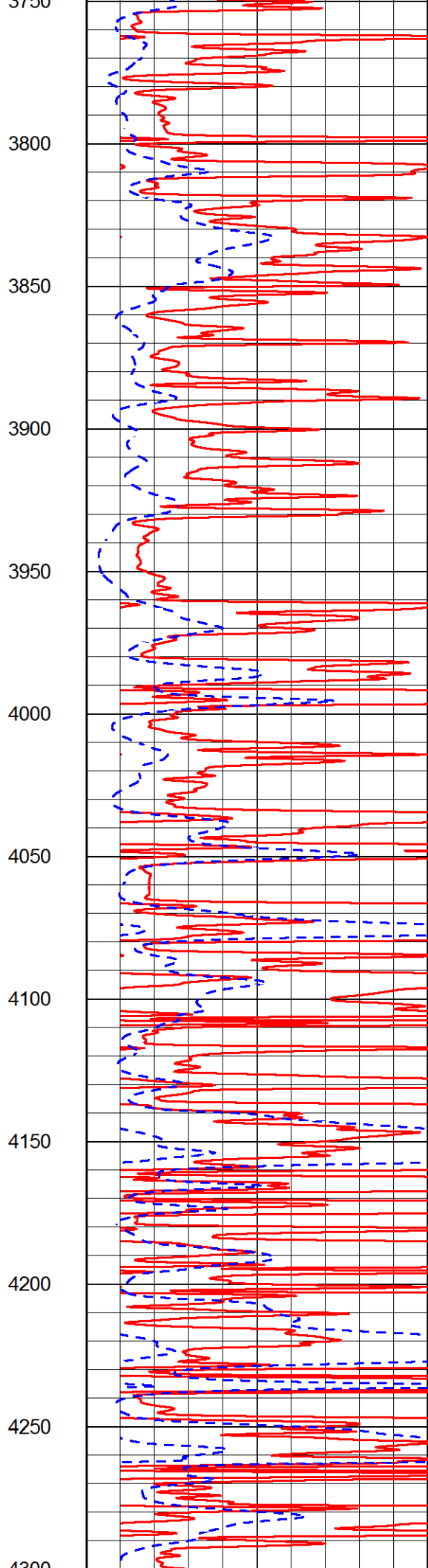
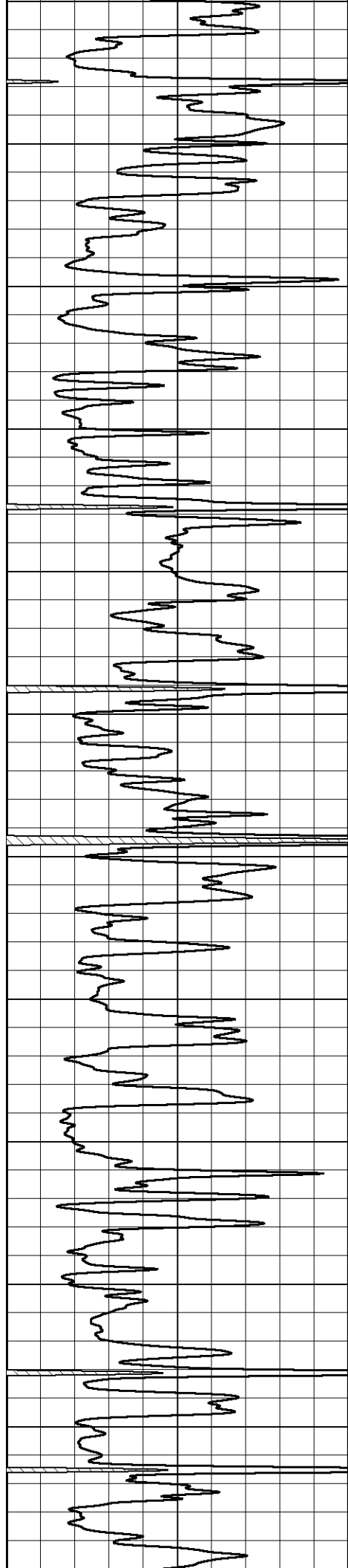


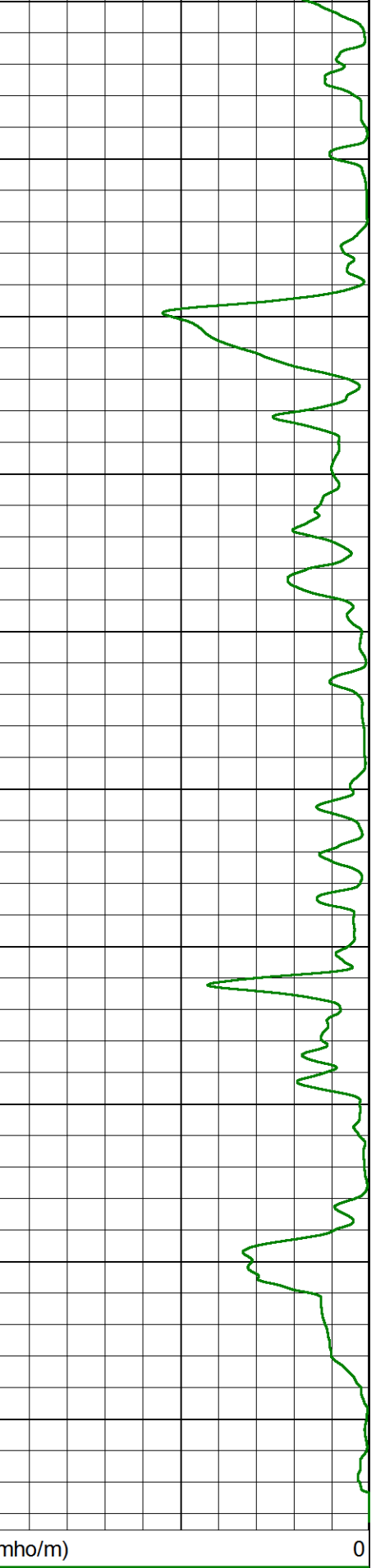
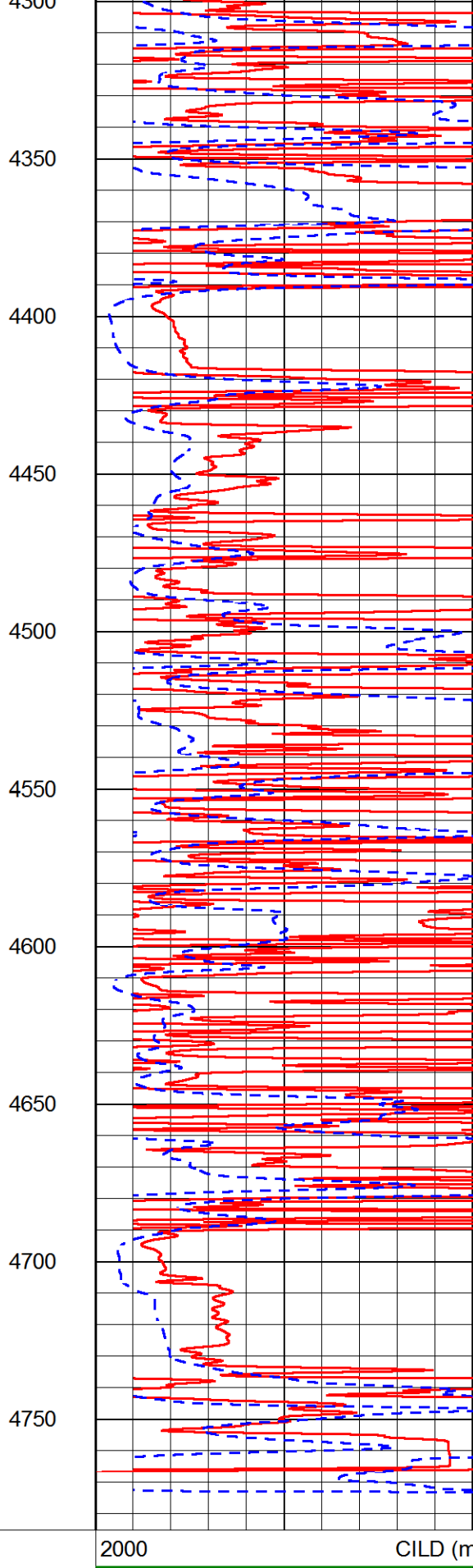
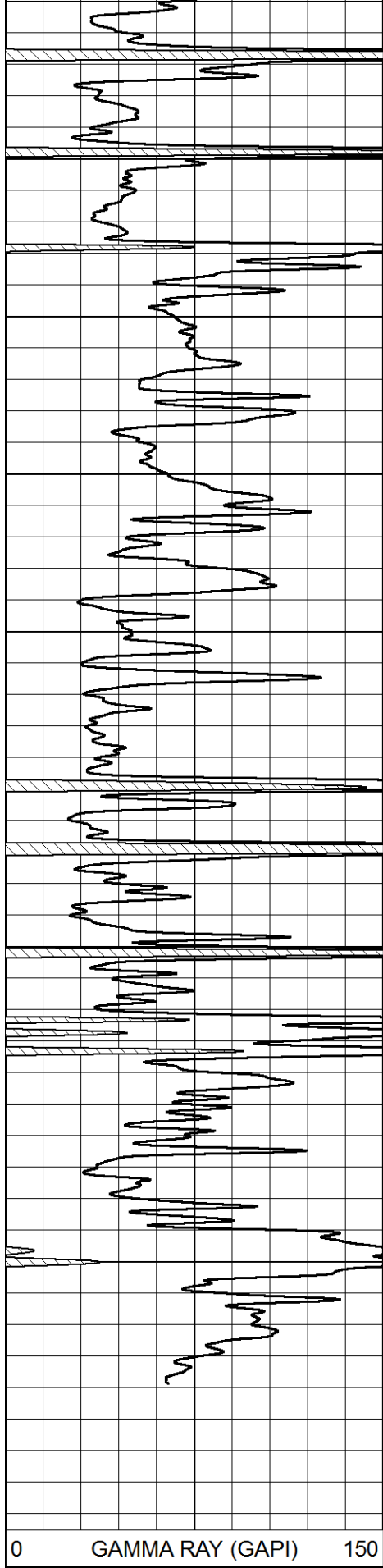












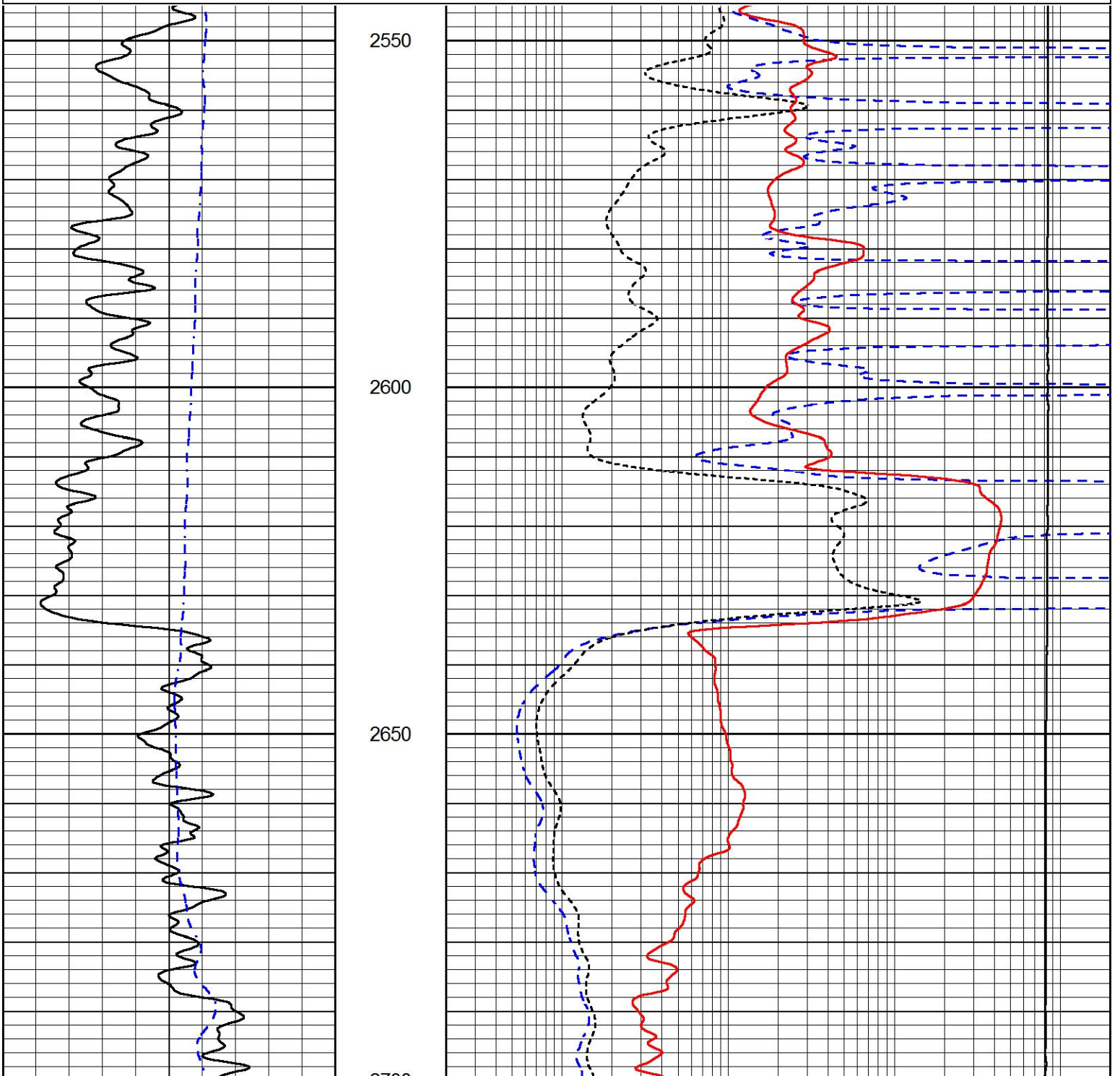
0	RLL3 (Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
50	RLL3 (Ohm-m)	200
50	RILD (Ohm-m)	200

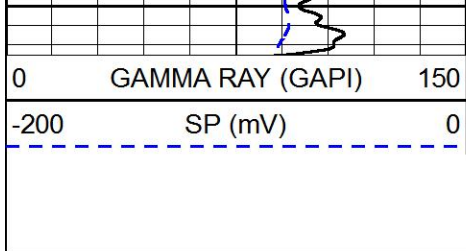
MAIN PASS

Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass5.1
 Presentation Format dil
 Dataset Creation Wed Jan 16 20:05:02 2019
 Charted by Depth in Feet scaled 1:240

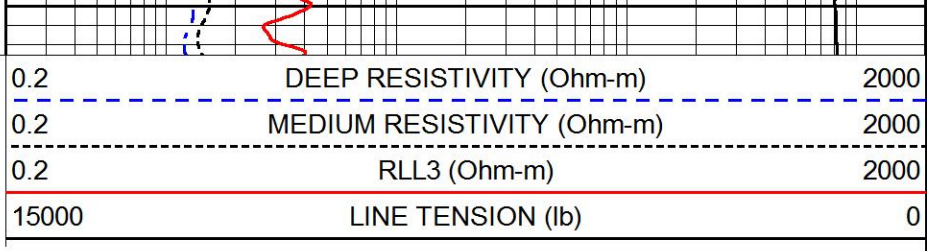
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0



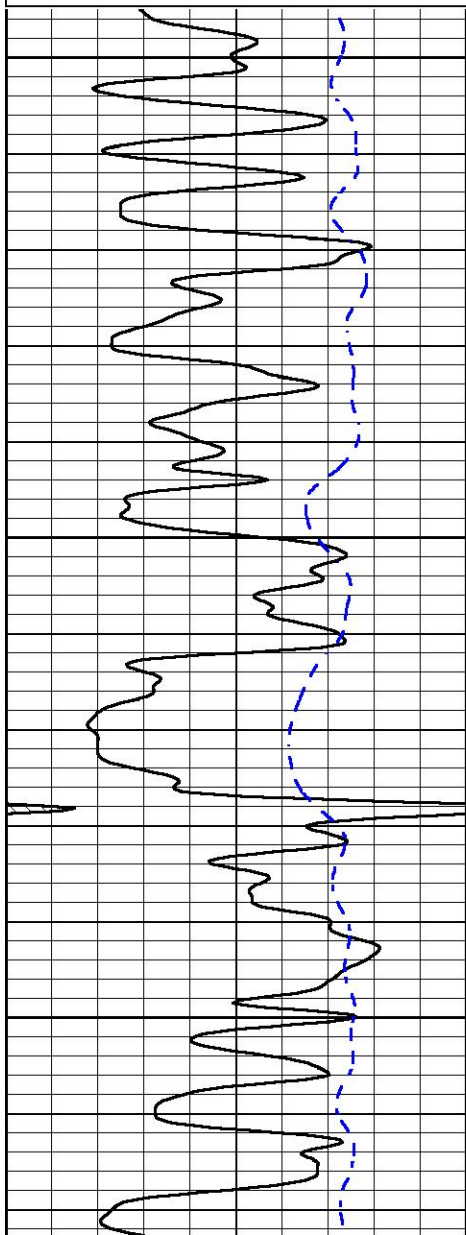
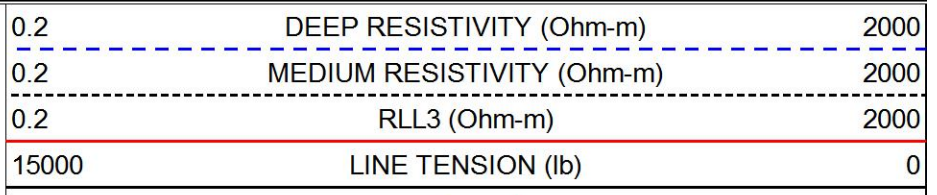
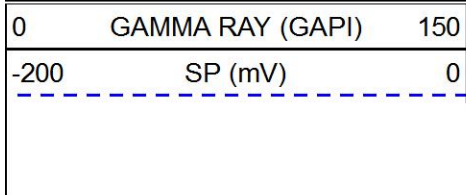


2700



MAIN PASS

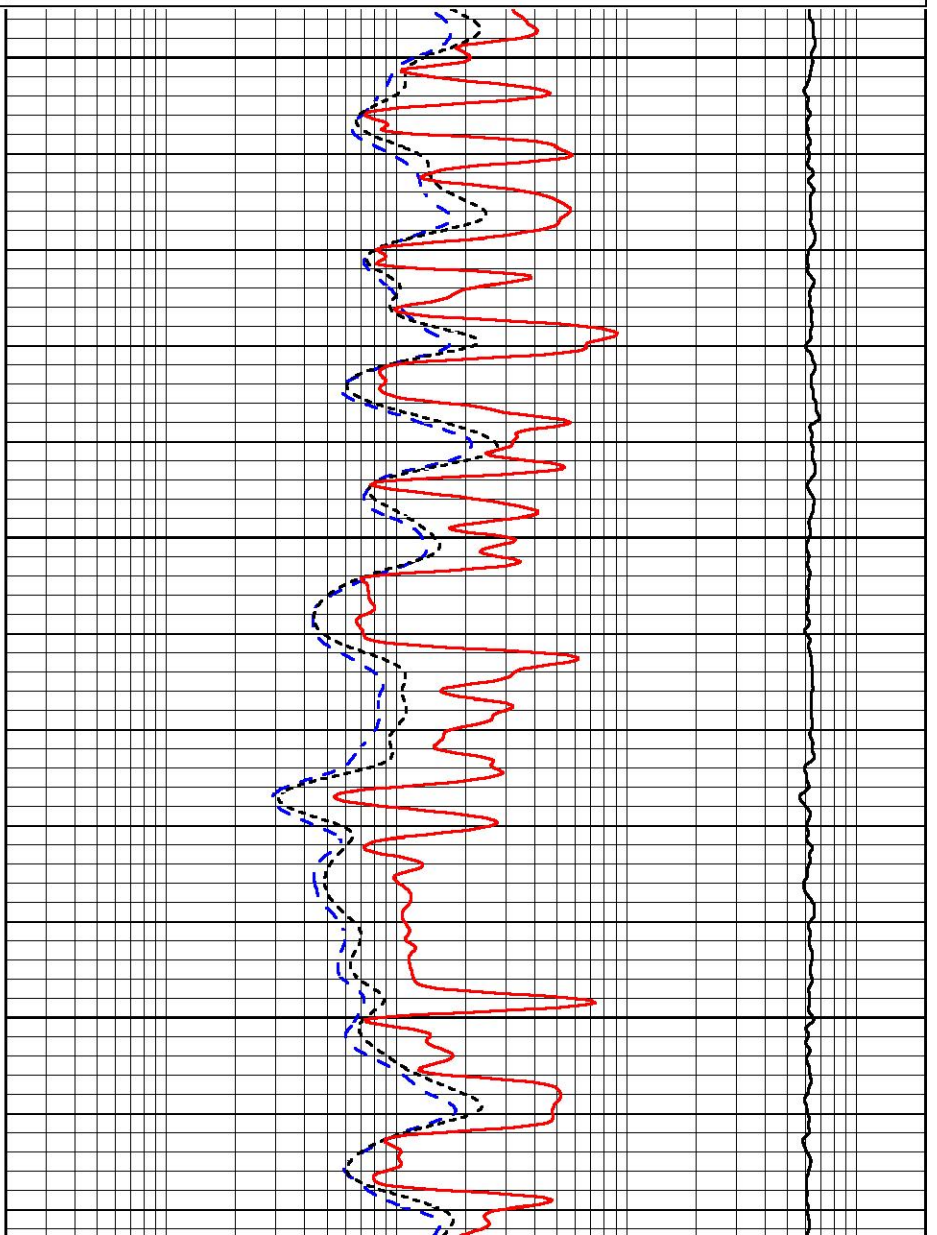
Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass4.1
 Presentation Format dil
 Dataset Creation Wed Jan 16 19:32:16 2019
 Charted by Depth in Feet scaled 1:240

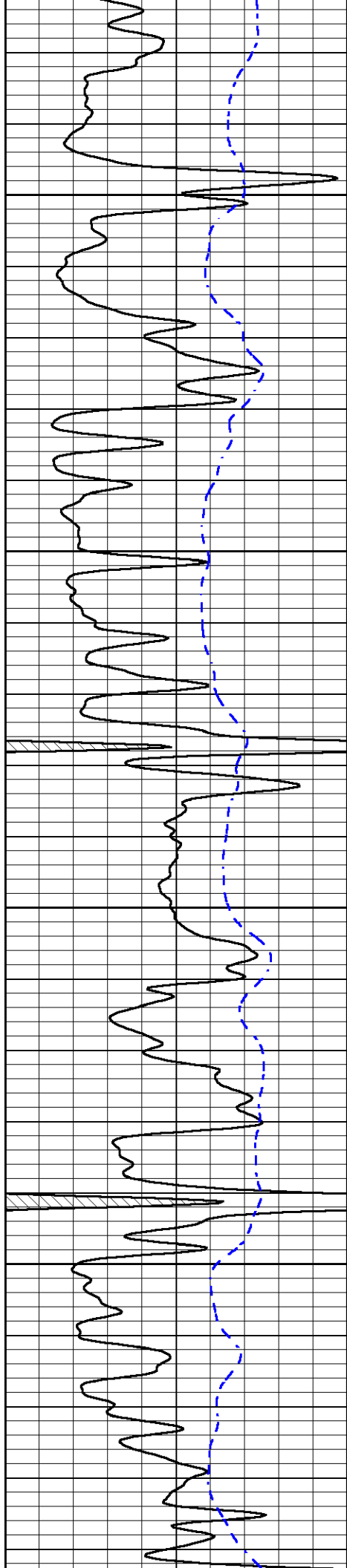


3700

3750

3800



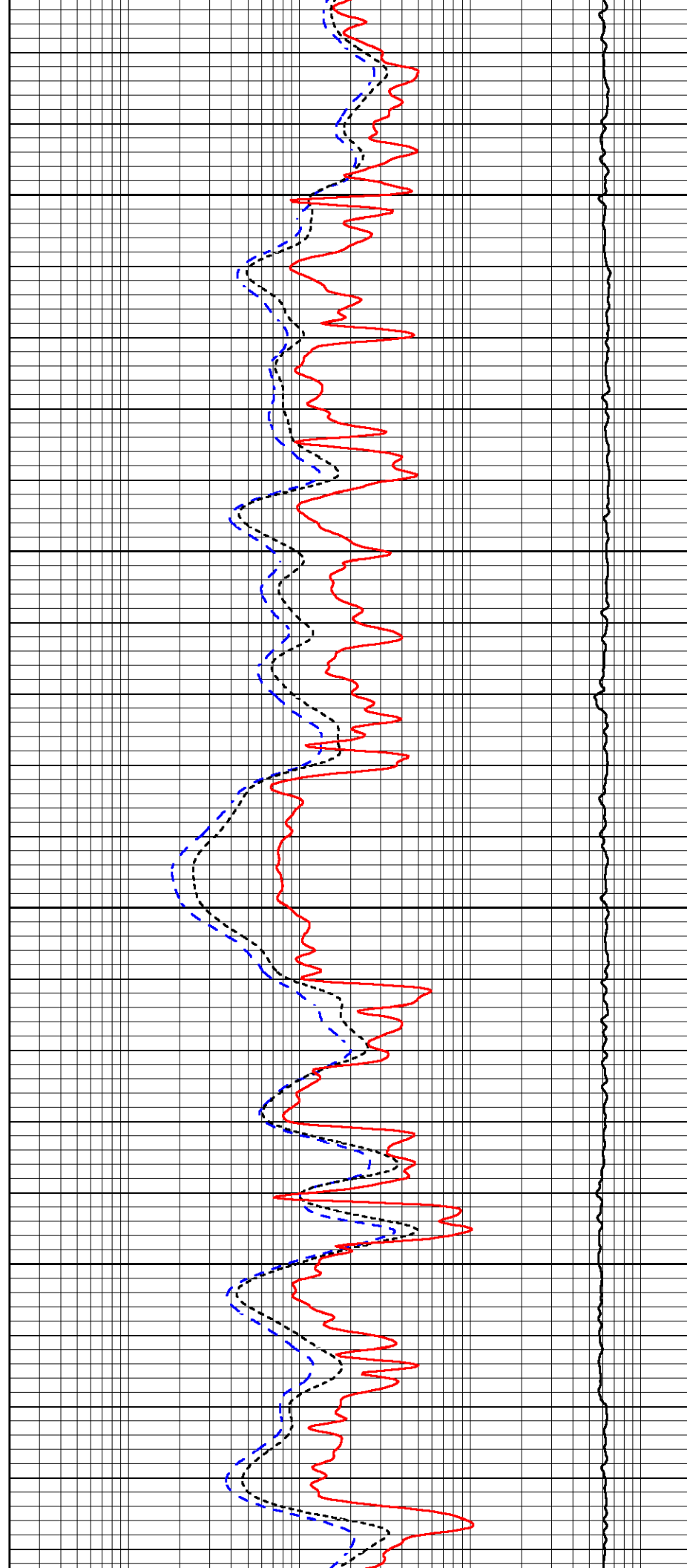


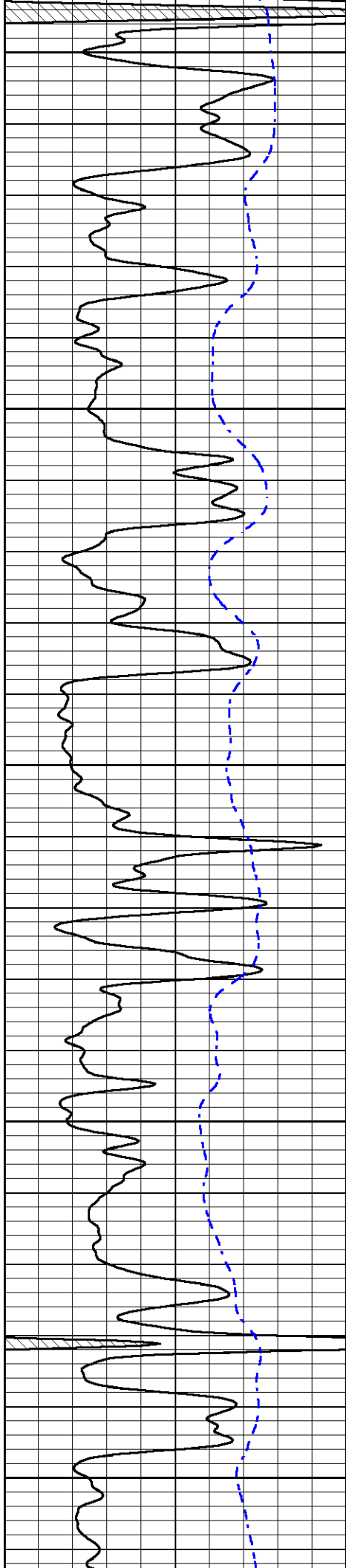
3850

3900

3950

4000





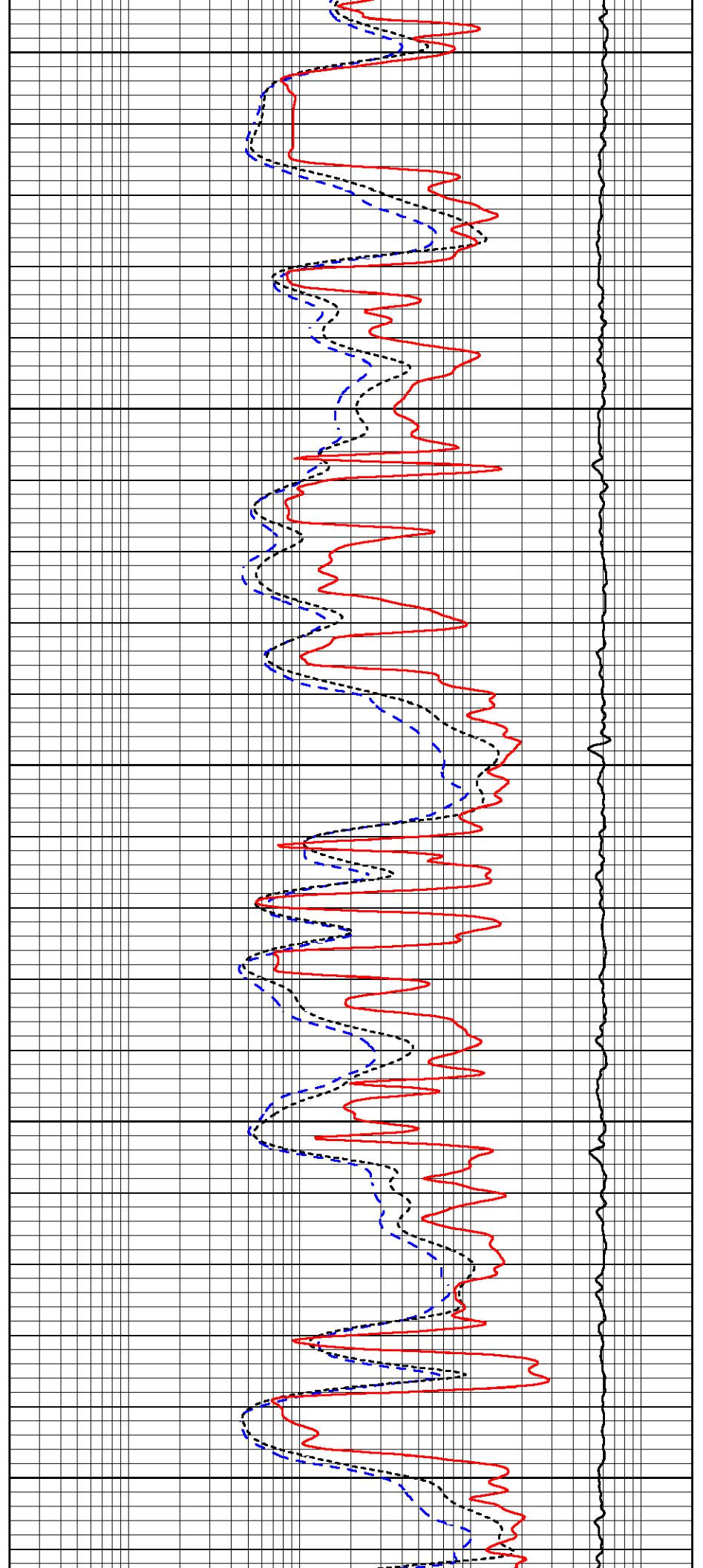
4050

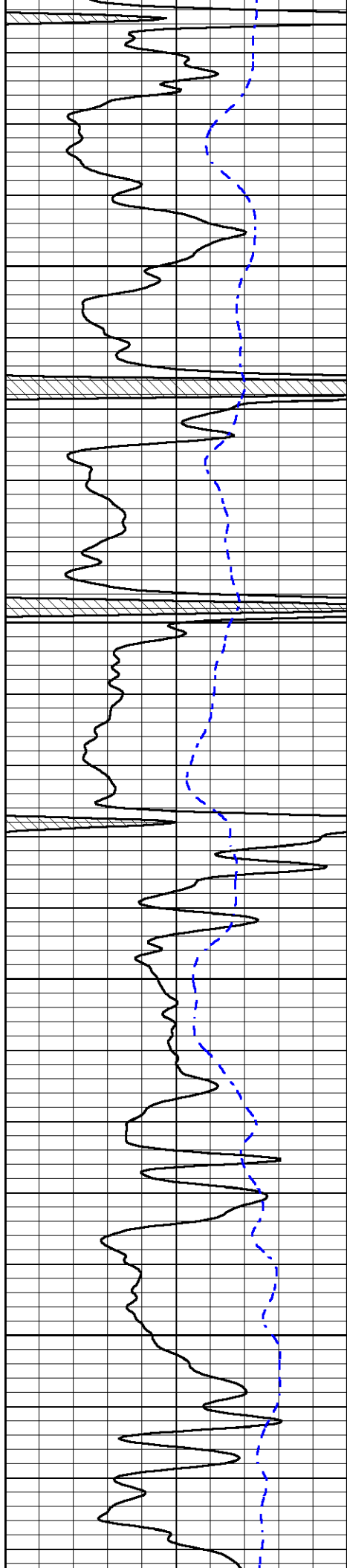
4100

4150

4200

4250



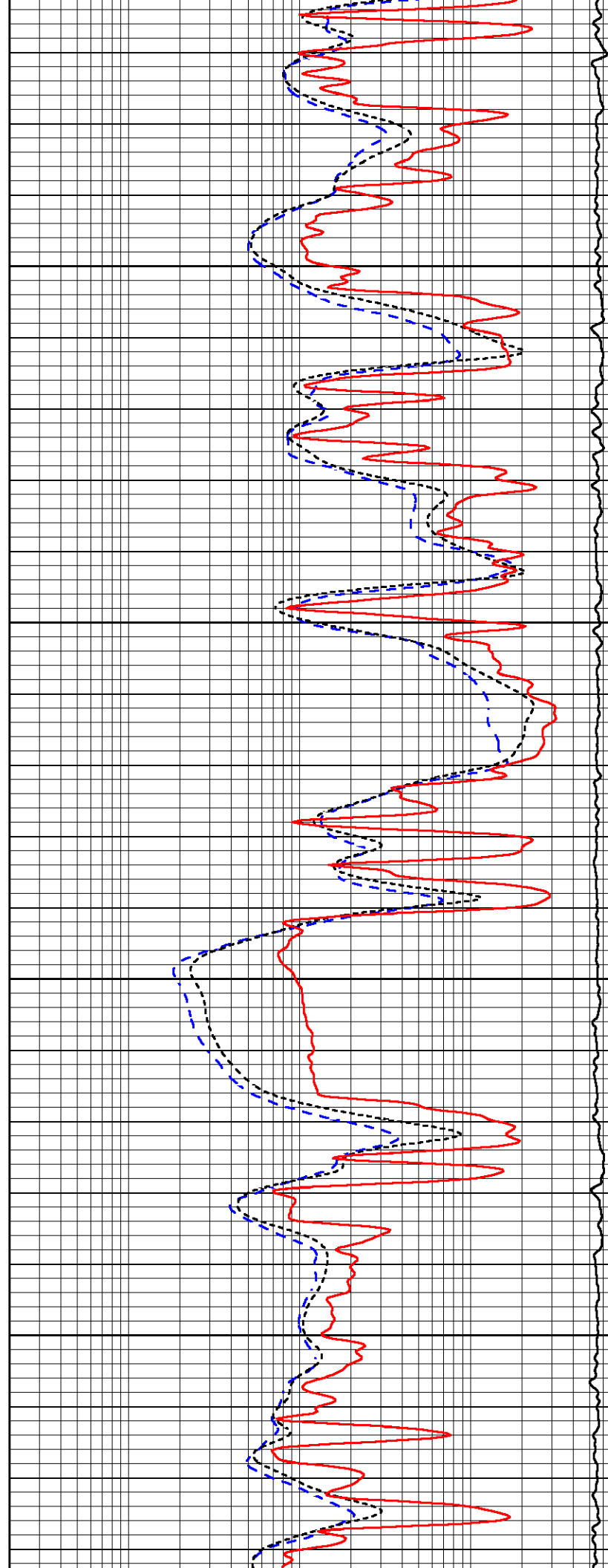


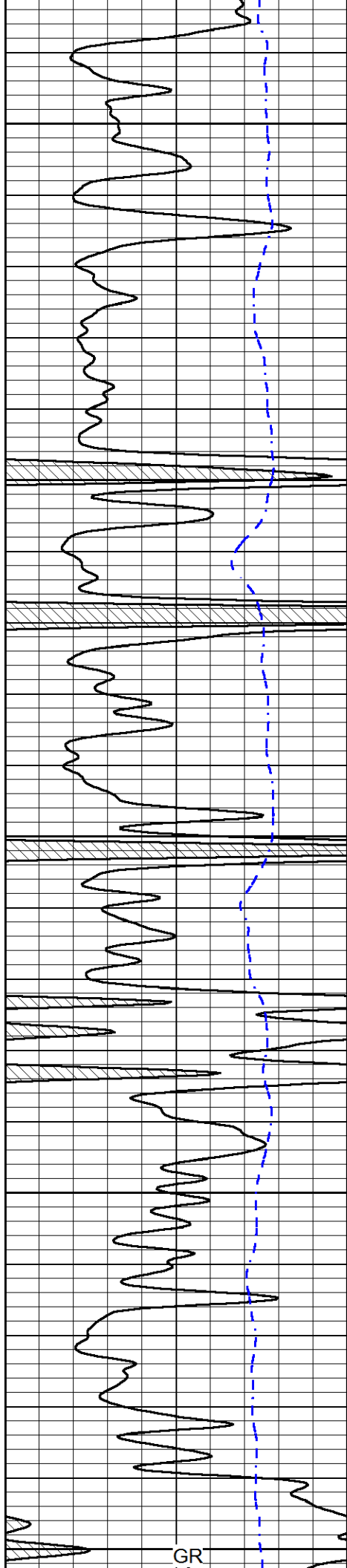
4300

4350

4400

4450





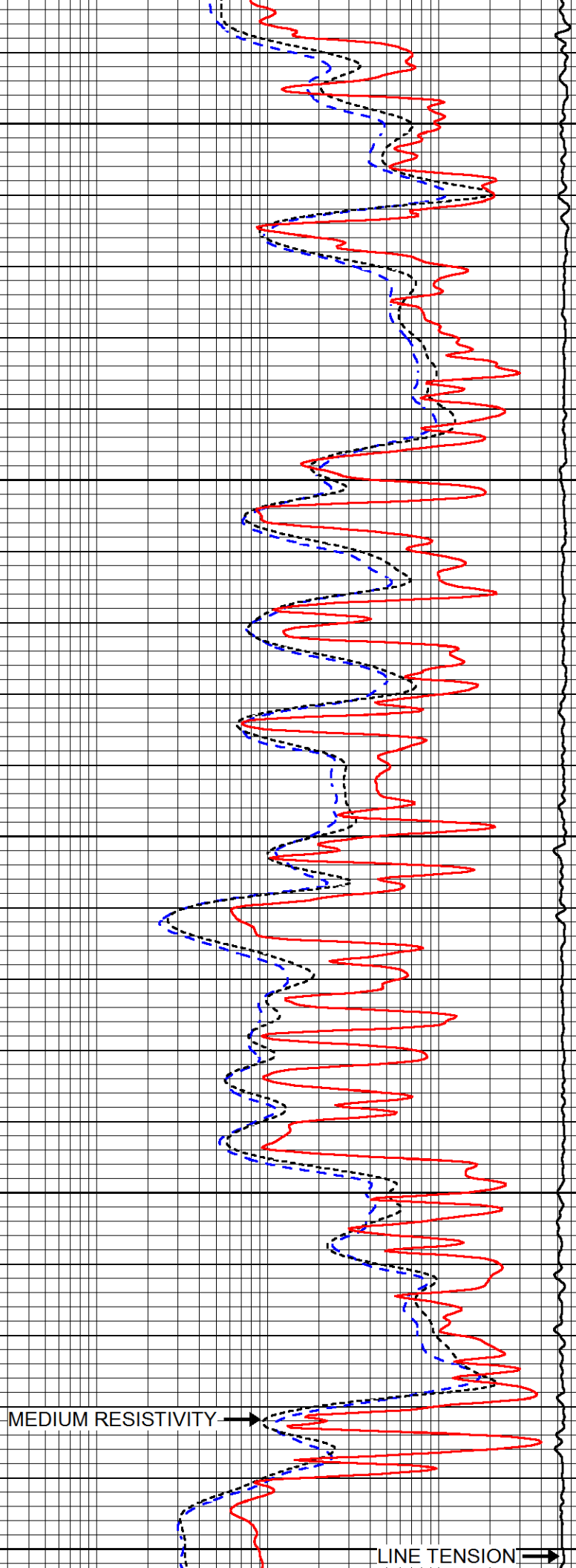
4500

4550

4600

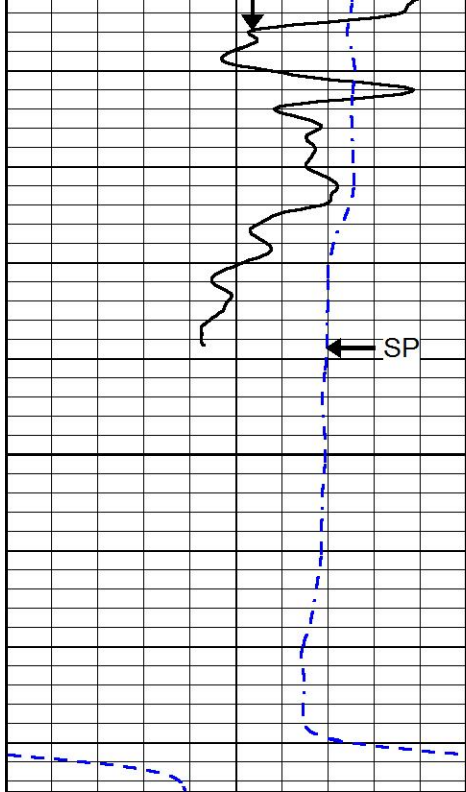
4650

4700



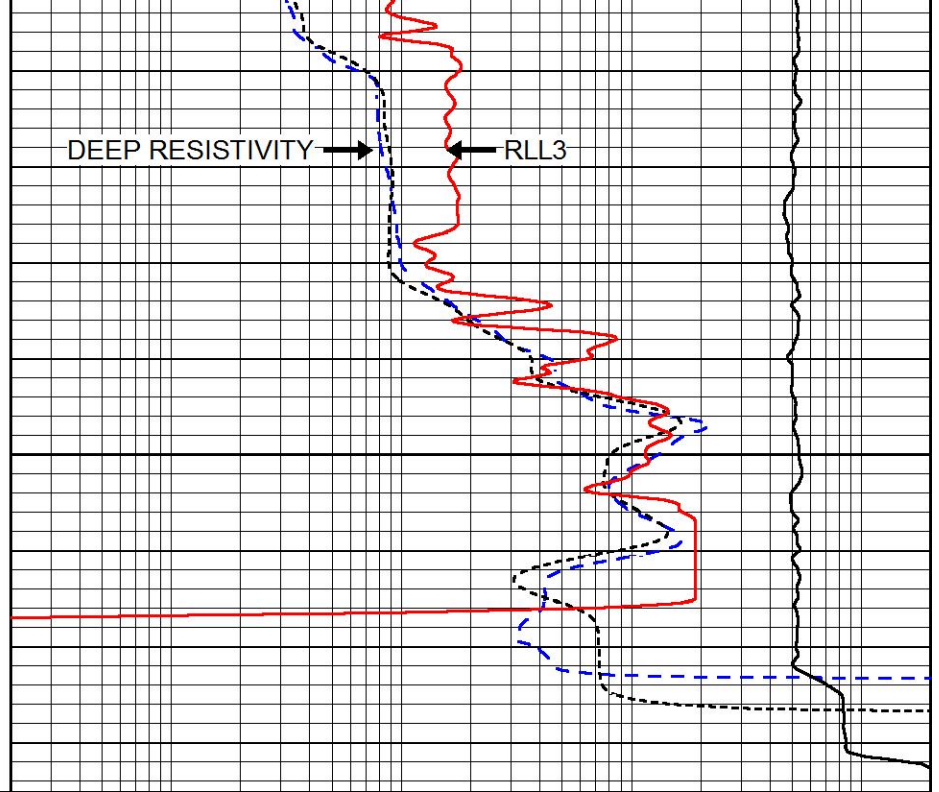
MEDIUM RESISTIVITY →

LINE TENSION →



4750

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0



0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

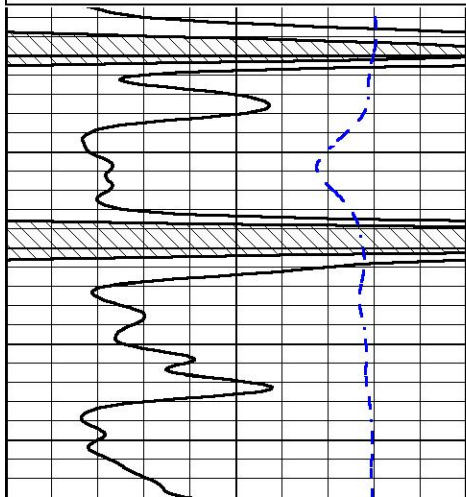


REPEAT SECTION

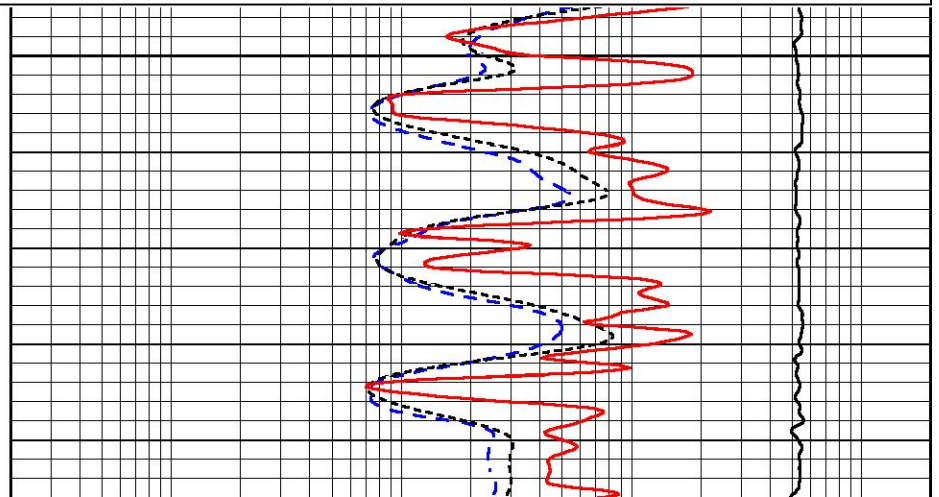
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 Presentation Format dil
 Dataset Creation Wed Jan 16 19:03:00 2019
 Charted by Depth in Feet scaled 1:240

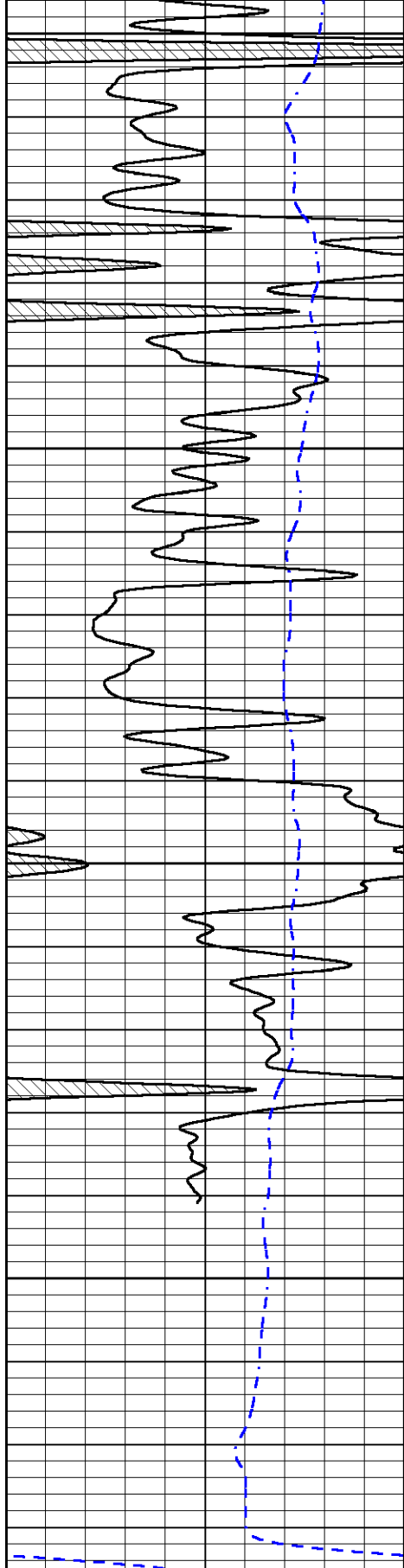
0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0



4550





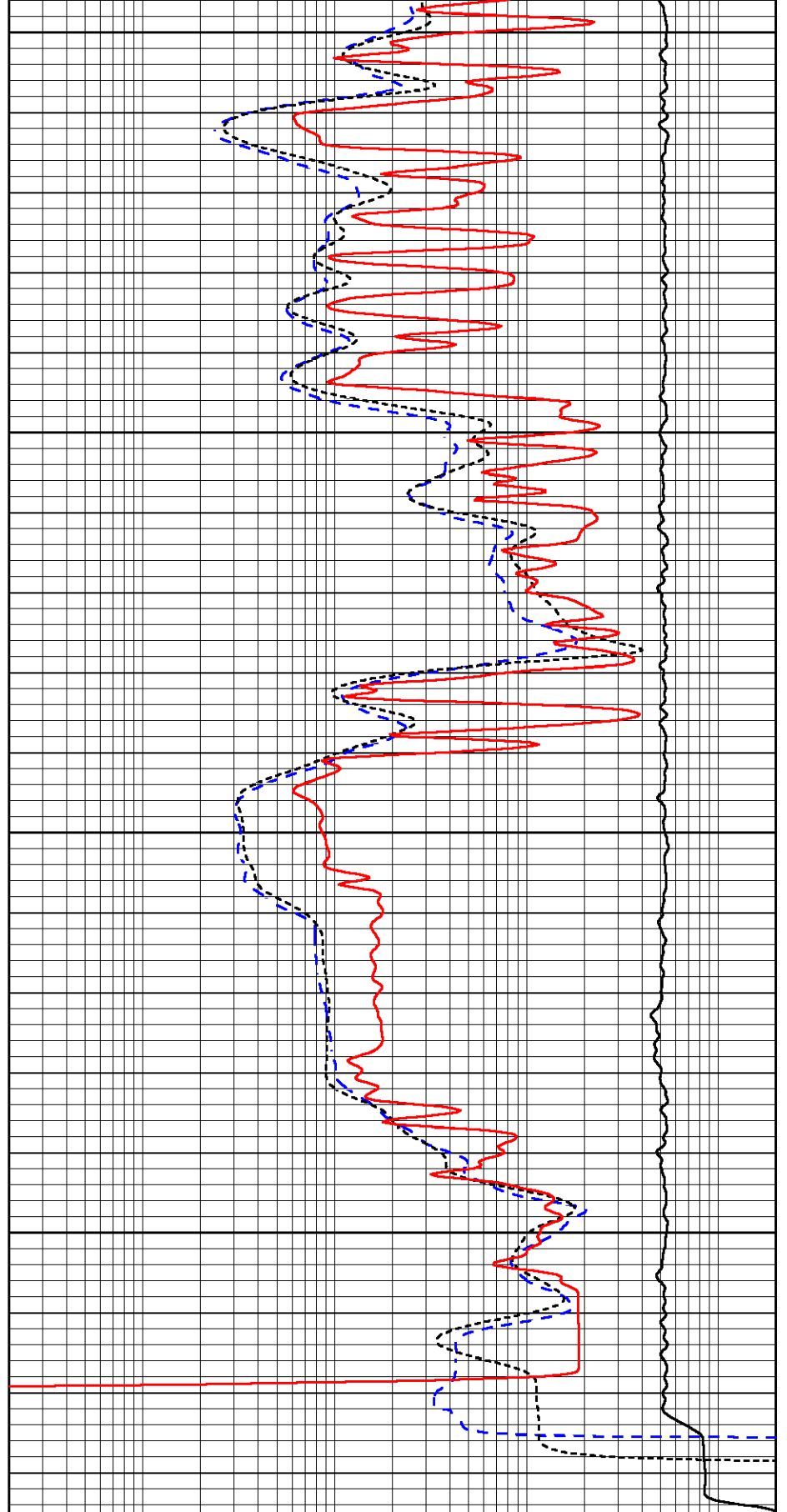
4600

4650

4700

4750

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0



0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass4.1
 Dataset Creation Wed Jan 16 19:32:16 2019

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
 Calibration Performed: Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.380	-17.000

Microlog Calibration Report

Serial-Model: PSI-01-PSI STKBL ML
 Performed: Thu Mar 31 18:14:32 2016

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	32500.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	39500.0000	-1.0000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-82.4800

Compensated Density Calibration Report

Serial-Model: 934-5002-M&W
 Source / Verifier: /
 Master Calibration Performed: Wed Aug 29 11:03:55 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3720.16	2661.79	cps
Aluminum	2.675	g/cc	696.57	1725.83	cps
Spine Angle = 75.50			Density/Spine Ratio = 0.532		
	Size		Reading		
Small Ring	4.00	in	1.16		
Large Ring	14.00	in	1.01		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
 Tool Model: M&W
 Calibration Performed: Wed Nov 16 11:21:36 2016

Detector	Readings	Target	Normalization
Short Space	6240.00 cps	1000.00 cps	1.6025
Long Space	460.00 cps	1000.00 cps	1.9500

Gamma Ray Calibration Report

Serial Number:	89-M&W
Tool Model:	M&W
Calibration Performed:	Tue Apr 11 17:08:01 2017

Calibrator Value:	1000.0	GAPI
-------------------	--------	------

Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps

Sensitivity:	0.5200	GAPI/cps
--------------	--------	----------



PIONEER

Pioneer Energy Services

Company	RICHLAND OIL INVESTMENS, LLC
Well	CLARK/OCHS #28-1
Field	UNKNOWN
County	LOGAN
State	KANSAS



DUAL COMP POROSITY LOG

Company RICHLAND OIL INVESTMENTS, LLC
 Well CLARK/OCHS #28-1
 Field UNKNOWN
 County LOGAN
 State KANSAS

Company RICHLAND OIL INVESTMENTS, LLC
 Well CLARK/OCHS #28-1
 Field UNKNOWN
 County LOGAN State KANSAS

Location: API #: 15-109-21578-00-00
 1200' FNL & 340' FEL
 SW - SE - NE - NE
 SEC 28 TWP 12S RGE 33W
 Permanent Datum GROUND LEVEL Elevation 3132'
 Log Measured From KELLY BUSHING
 Drilling Measured From KELLY BUSHING
 Other Services DIL/MEL
 K.B. 3142'
 D.F. N/A
 G.L. 3132'

Date	1/16/2019
Run Number	ONE
Type Log	CNL/CDL
Depth Driller	4775'
Depth Logger	4772'
Bottom Logged Interval	4743'
Top Logged Interval	3700'
Type Fluid In Hole	CHEMICAL
Salinity, PPM CL	8000
Density	9.5
Level	FULL
Max. Rec. Temp. F	124
Operating Rig Time	3 HOURS
Equipment -- Location	108 HAYS
Recorded By	IAN MABB
Witnessed By	STEVE MURPHY

Run No.	Bit	Borehole Record		Casing Record	
		From	To	From	To
ONE	12.25"	0'	215'	8.625"	23#
TWO	7.875"	215'		TD	

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

OAKLEY, KS.
 SOUTH 7 MILES TO UTE RD.,
 WEST 7 MILES TO RD 307, SOUTH 1/4
 WEST INTO

Log Measured From: KELLY BUSHING 10 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: IAN MABB	Primary Witness: STEVE MURPHY
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\richland_oil_clark_ochs_28_1.db
 Dataset field/well/stackmel/pass4.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	124	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	2	2	78	32	Off	4772

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (934-5002)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSI STKBL ML (PSI-01) Stackable Microlog Tools	7.58	4.00	65.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 988)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: richland_oil_clark_ochs_28_1.db: field/well/stackmel/pass4.1
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

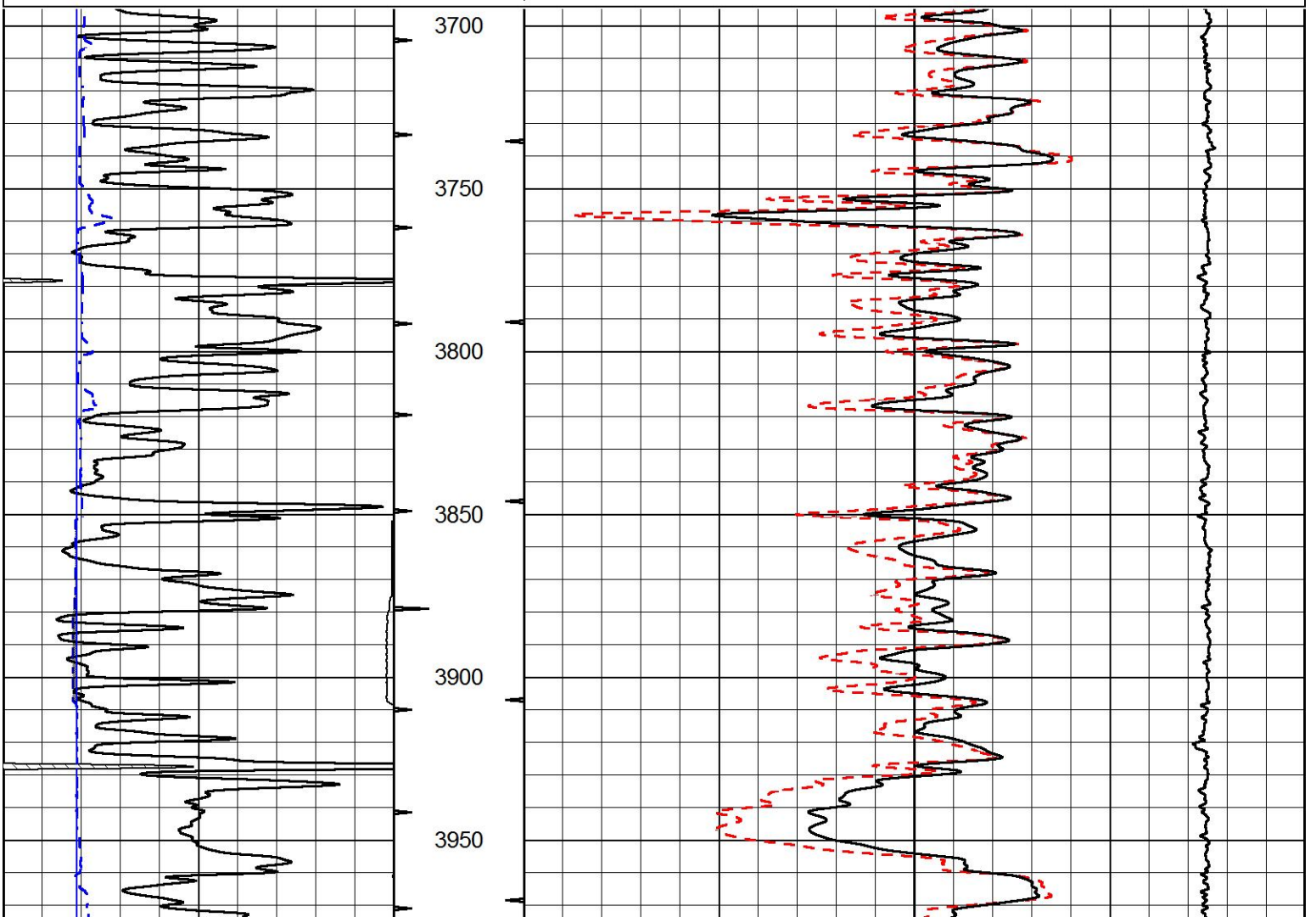


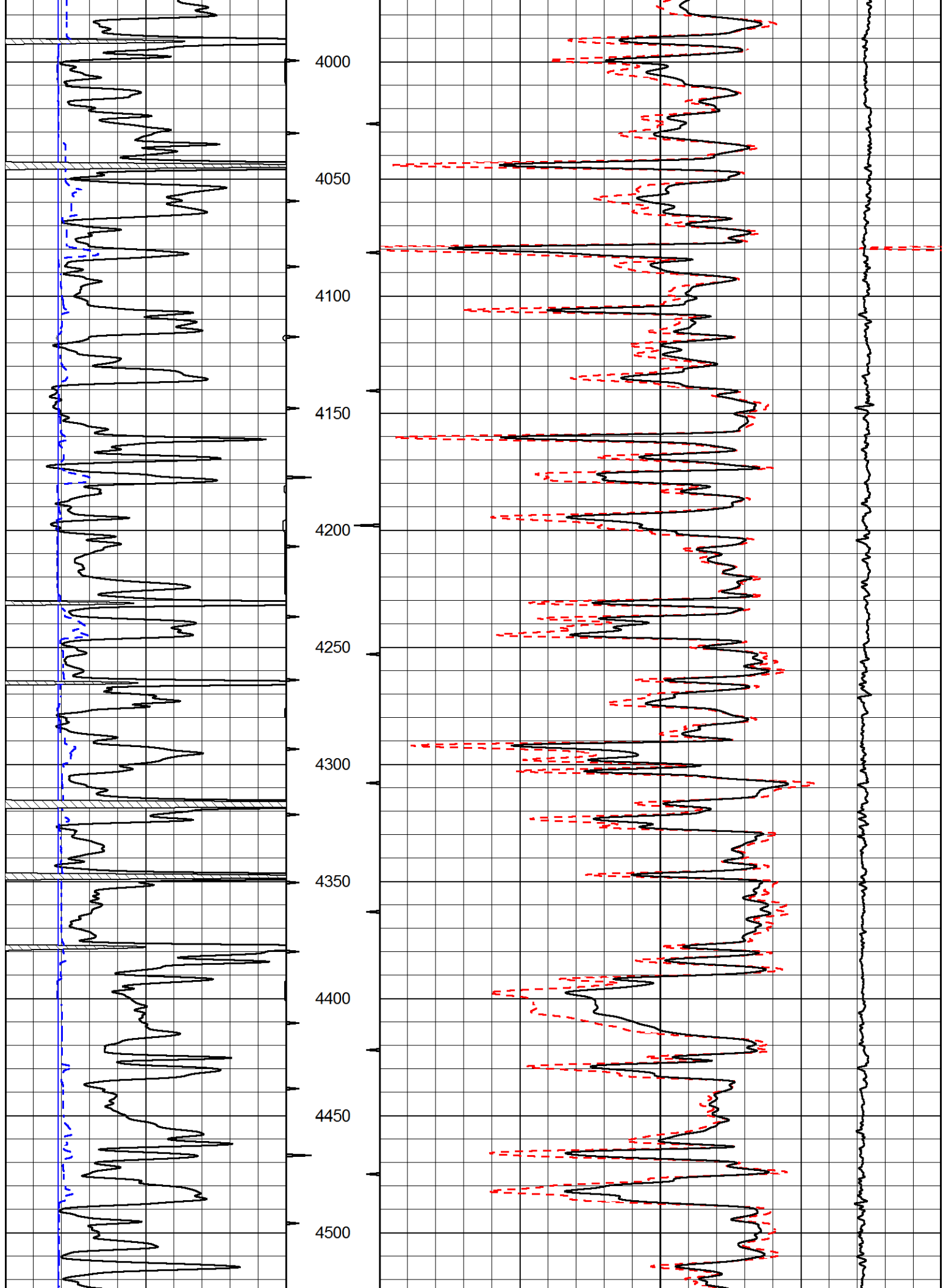
MAIN PASS

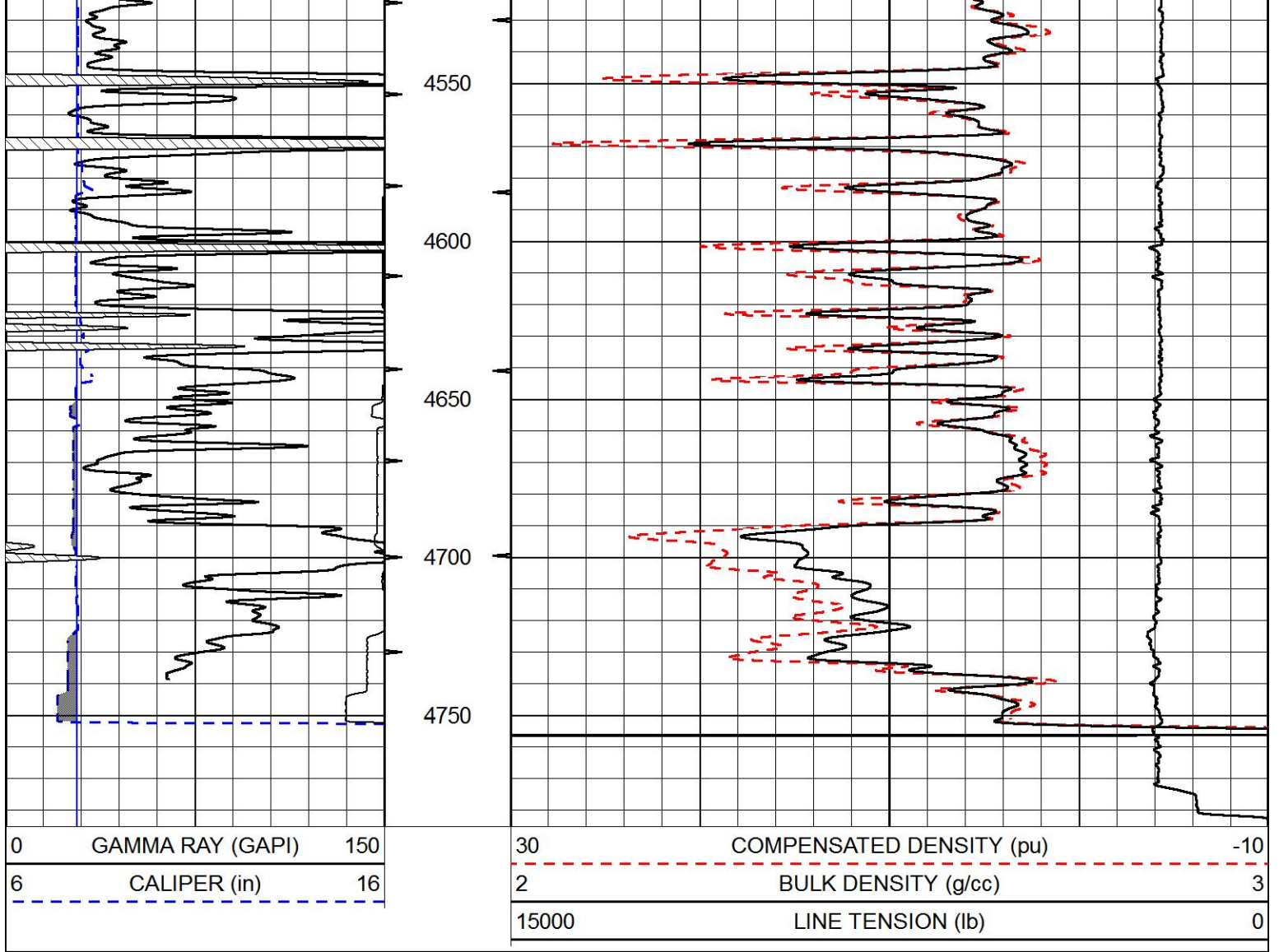
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 Dataset Pathname stackmel/pass4.1
 Presentation Format cdl
 Dataset Creation Wed Jan 16 19:32:16 2019
 Charted by Depth in Feet scaled 1:600

0	GAMMA RAY (GAPI)	150
6	CALIPER (in)	16

30	COMPENSATED DENSITY (pu)	-10
2	BULK DENSITY (g/cc)	3
15000	LINE TENSION (lb)	0

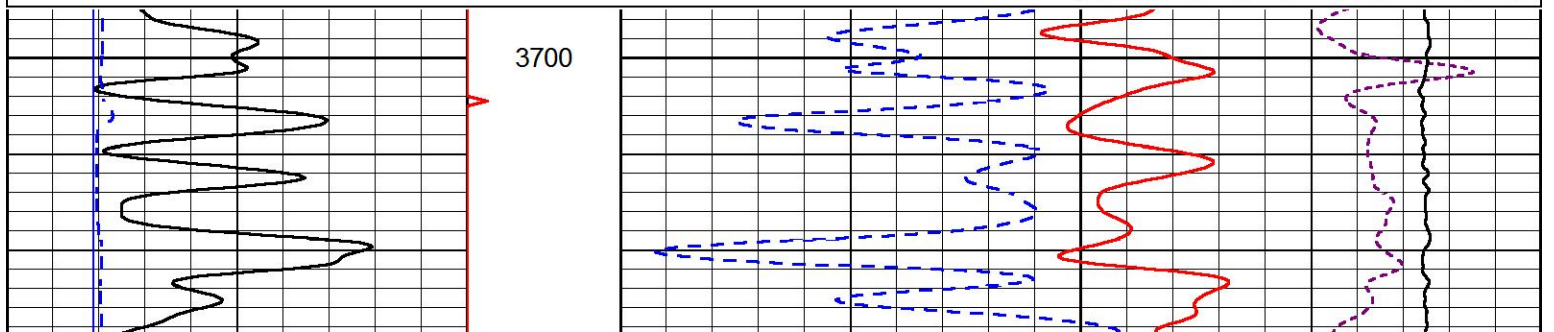
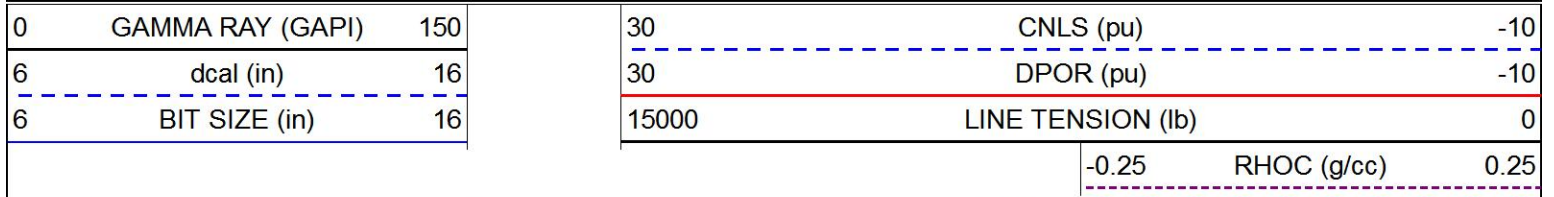


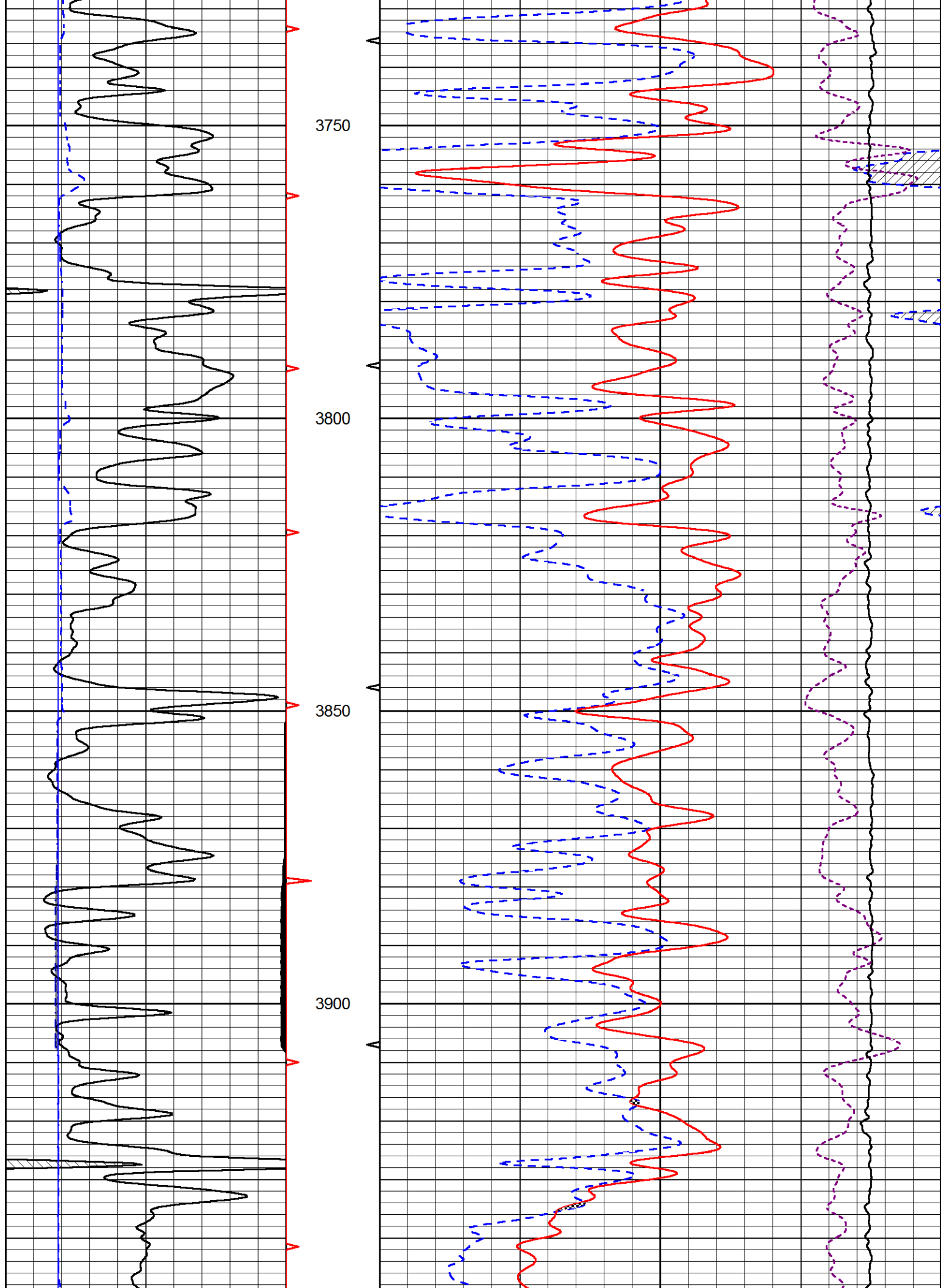


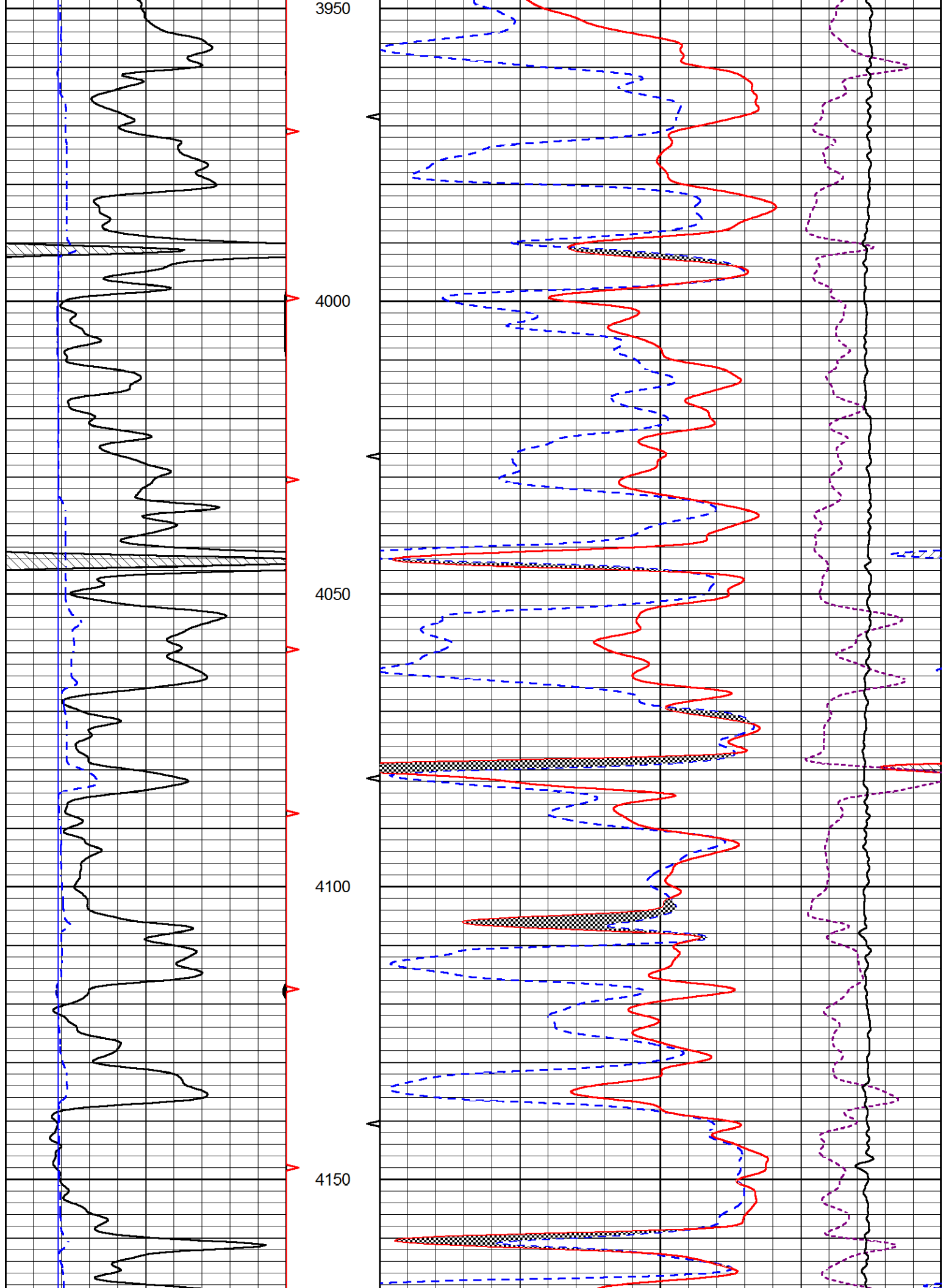


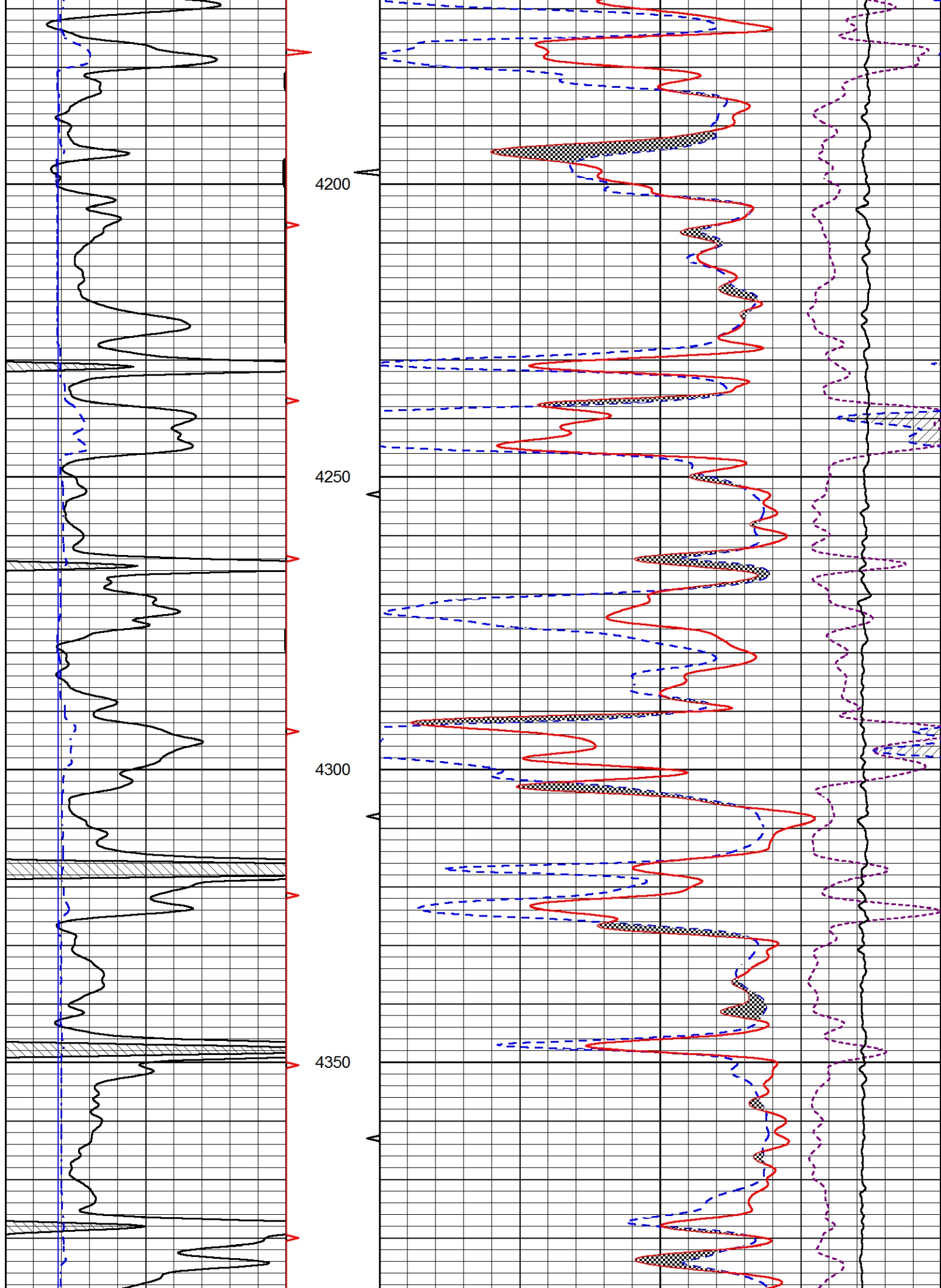
MAIN PASS

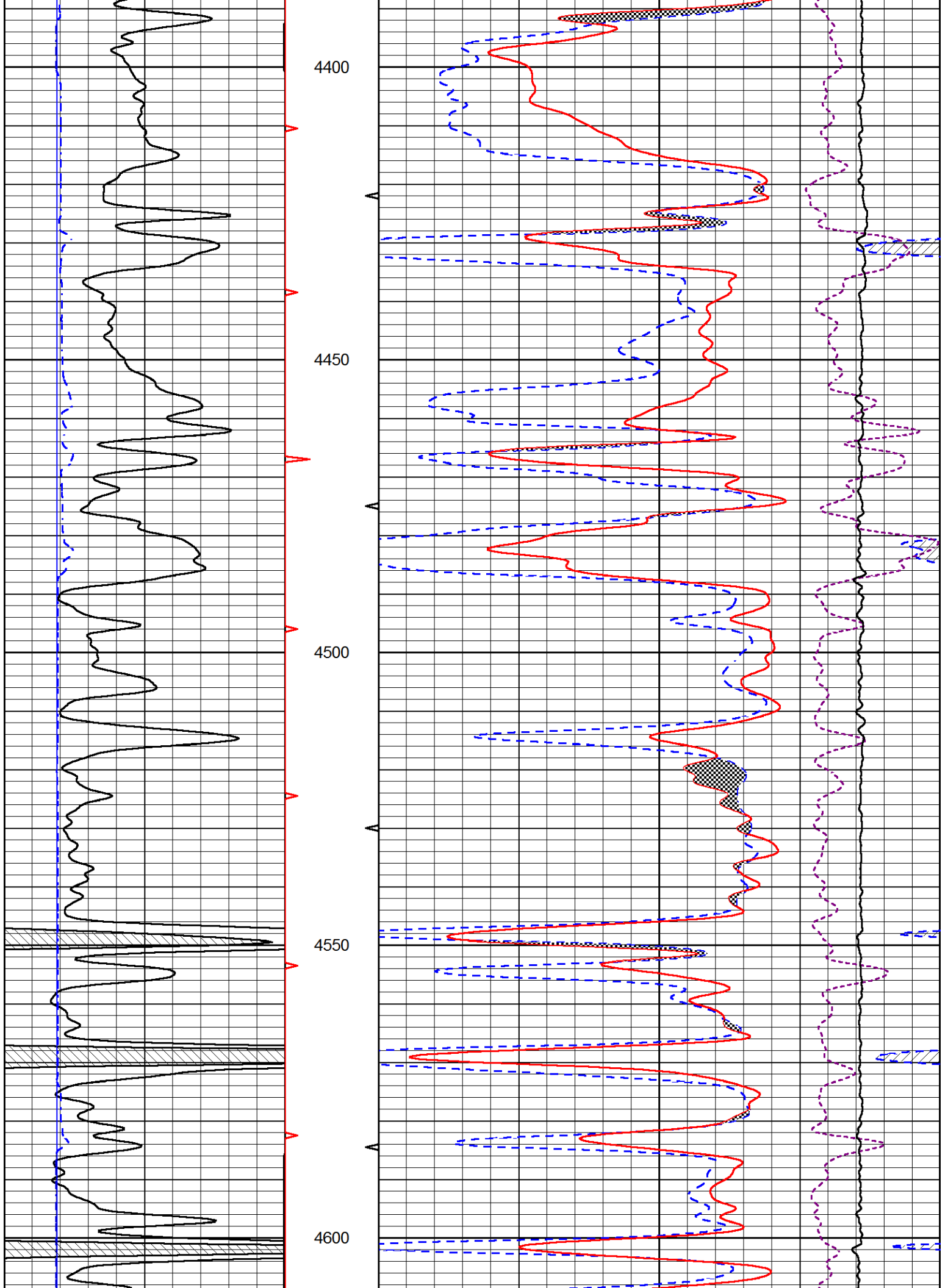
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 Dataset Pathname stackmel/pass4.1
 Presentation Format cndlspec
 Dataset Creation Wed Jan 16 19:32:16 2019
 Charted by Depth in Feet scaled 1:240

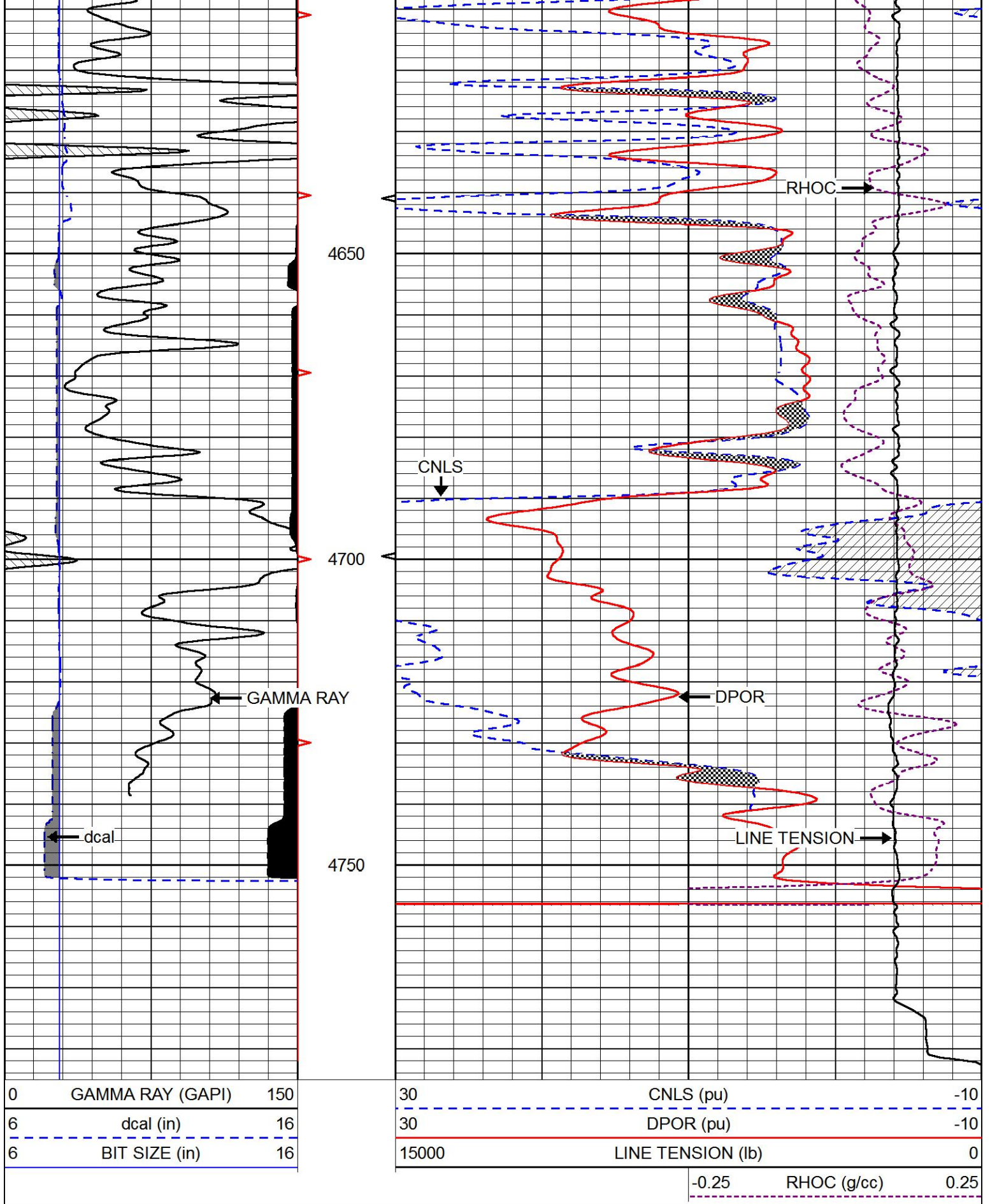










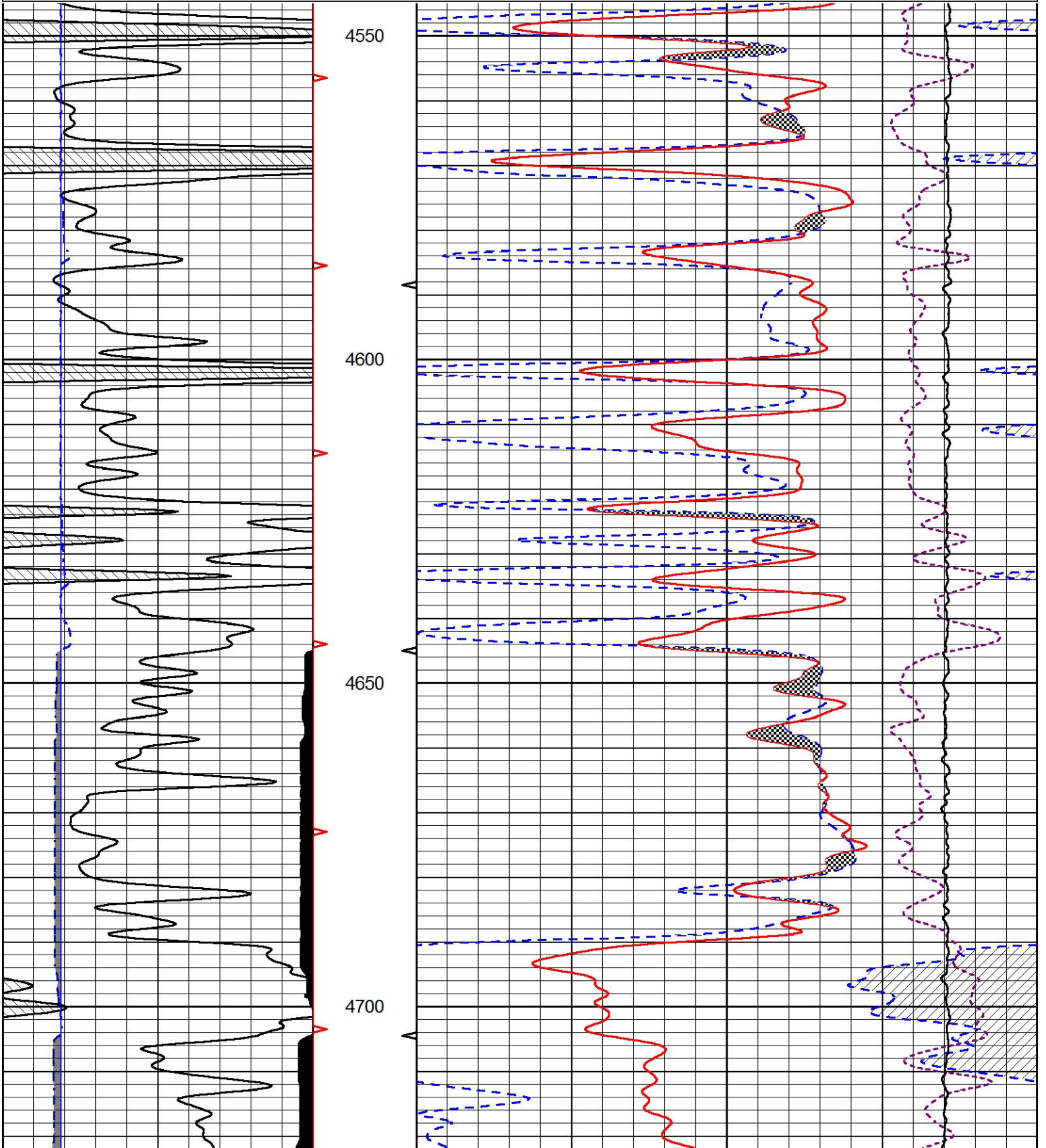


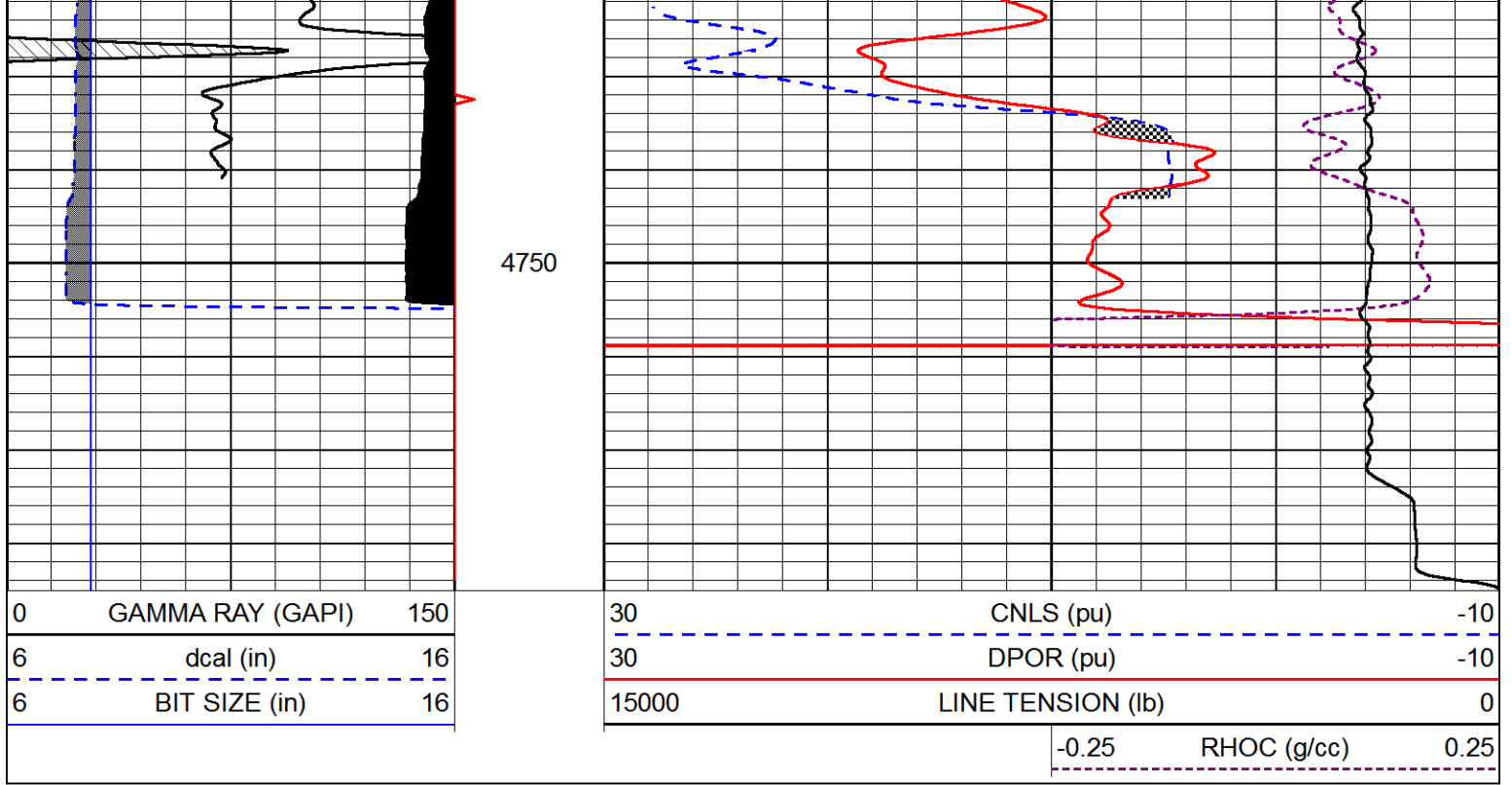
REPEAT SECTION

Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass3.1
 Presentation Format cndlspec
 Dataset Creation Wed Jan 16 19:03:00 2019
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	dcal (in)	16
6	BIT SIZE (in)	16

30	CNLS (pu)	-10
30	DPOR (pu)	-10
15000	LINE TENSION (lb)	0
	RHOC (g/cc)	0.25





Calibration Report

Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass4.1
 Dataset Creation Wed Jan 16 19:32:16 2019

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
 Calibration Performed: Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.380	-17.000

Microlog Calibration Report

Serial-Model: PSI-01-PSI STKBL ML
 Performed: Thu Mar 31 18:14:32 2016

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	32500.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	39500.0000	-1.0000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-82.4800

Compensated Density Calibration Report

Serial-Model: 934-5002-M&W
 Source / Verifier: /
 Master Calibration Performed: Wed Aug 29 11:03:55 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3720.16	2661.79	cps
Aluminum	2.675	g/cc	696.57	1725.83	cps
Spine Angle = 75.50			Density/Spine Ratio = 0.532		
	Size		Reading		
Small Ring	4.00	in	1.16		
Large Ring	14.00	in	1.01		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
 Tool Model: M&W
 Calibration Performed: Wed Nov 16 11:21:36 2016

Detector	Readings	Target	Normalization
Short Space	6240.00 cps	1000.00 cps	1.6025
Long Space	460.00 cps	1000.00 cps	1.9500

Gamma Ray Calibration Report

Serial Number: 89-M&W
 Tool Model: M&W
 Calibration Performed: Tue Apr 11 17:08:01 2017

Calibrator Value: 1000.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 6.2 cps

Sensitivity: 0.5200 GAPI/cps



PIONEER
 Pioneer Energy Services

Company RICHLAND OIL INVESTMENTS, LLC
 Well CLARK/OCHS #28-1
 Field UNKNOWN
 County LOGAN
 State KANSAS



PIONEER
Pioneer Energy Services

**MICRORESISTIVITY
LOG**

Company **RICHLAND OIL INVESTMENTS, LLC**
Well **CLARK/OCHS #28-1**
Field **UNKNOWN**
County **LOGAN**
State **KANSAS**

Company **RICHLAND OIL INVESTMENTS, LLC**
Well **CLARK/OCHS #28-1**
Field **UNKNOWN**
County **LOGAN** State **KANSAS**

Location: **API # : 15-109-21578-00-00**
1200' FNL & 340' FEL
SW - SE - NE - NE
SEC 28 TWP 12S RGE 33W
Permanent Datum **GROUND LEVEL Elevation 3132'**
Log Measured From **KELLY BUSHING**
Drilling Measured From **KELLY BUSHING**
Other Services
**CNL/CDL
DIL**
Elevation
K.B. 3142'
D.F. N/A
G.L. 3132'

Date	1/16/2019
Run Number	ONE
Depth Driller	4775'
Depth Logger	4772'
Bottom Logged Interval	4771'
Top Log Interval	3700'
Casing Driller	8.625" @ 215'
Casing Logger	218'
Bit Size	7.875"
Type Fluid in Hole	CHEMICAL
Salinity, ppm CL	8000
Density / Viscosity	9.5 54
pH / Fluid Loss	10.0 8.8
Source of Sample	FLOWLINE
Rm @ Meas. Temp	0.55 @ 69
Rmt @ Meas. Temp	0.41 @ 69
Rmc @ Meas. Temp	0.74 @ 69
Source of Rmf / Rmc	CHARTS
Rm @ BHT	0.31 @ 124
Operating Rig Time	3 HOURS
Max Rec. Temp. F	124
Equipment Number	108
Location	HAYS
Recorded By	IAN MABB
Witnessed By	STEVE MURPHY

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

**OAKLEY, KS.
SOUTH 7 MILES TO UTE RD.,
WEST 7 MILES TO RD 307, SOUTH 1/4
WEST INTO**

Log Measured From: KELLY BUSHING 10 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

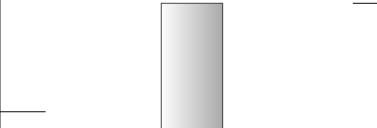
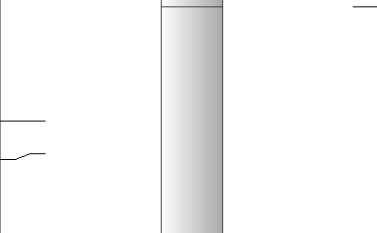
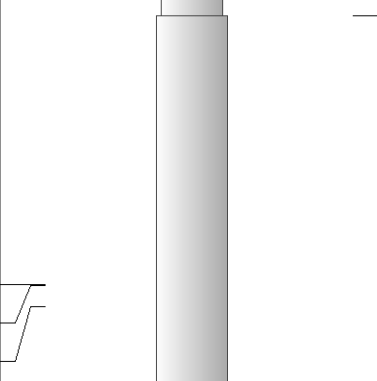
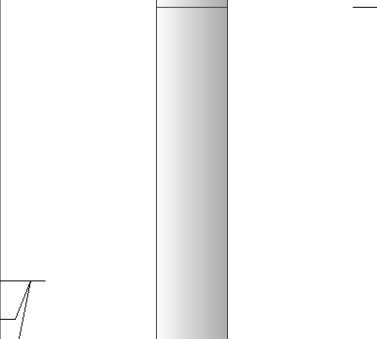
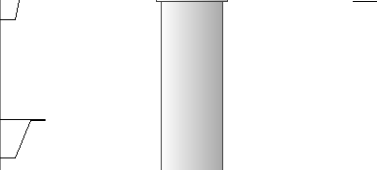
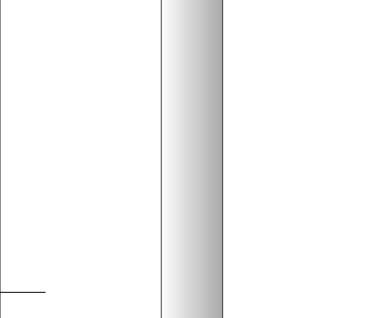
Your Pioneer Energy Services Crew	This Log Record Was Witnessed By
Engineer: IAN MABB	Primary Witness: STEVE MURPHY
Operator:	Secondary Witness:
Operator:	Secondary Witness:
Operator:	Secondary Witness:

Log Variables

DatabaseC:\ProgramData\Warrior\Data\richland_oil_clark_ochs_28_1.db
 Dataset field/well/stackmel/pass4.1/_vars_

Top - Bottom

A	BOREID in	BOTTEMP degF	CASEOD in	CASETHCK in	FLUIDDEN g/cc	M	MATRXDEN g/cc
1	7.875	124	5.5	0	1	2	2.71
NPORSEL	PERFS	SNDERR mmho/m	SNDERRM mmho/m	SPSHIFT mV	SRFTEMP degF	SZCOR	TDEPTH ft
Limestone	0	2	2	78	32	Off	4772

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
GR	40.58		GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	37.48 36.73		CNT-M&W (tk10-MW)	5.50	3.50	100.00
LSD DCAL SSD	28.43 28.42 27.93		CDL-M&W (934-5002)	8.50	4.00	250.00
MCAL MI MN	19.83 19.83 19.83		ML-PSI STKBL ML (PSI-01) Stackable Microlog Tools	7.58	4.00	65.00
RLL3 RLL3F	15.80 15.79					
CILD	8.00		DIL-M&W (PSI 988)	18.50	3.50	220.00

CILM 4.70

SP 0.20

Dataset: richland_oil_clark_ochs_28_1.db: field/well/stackmel/pass4.1
 Total length: 43.08 ft
 Total weight: 685.00 lb
 O.D.: 4.00 in

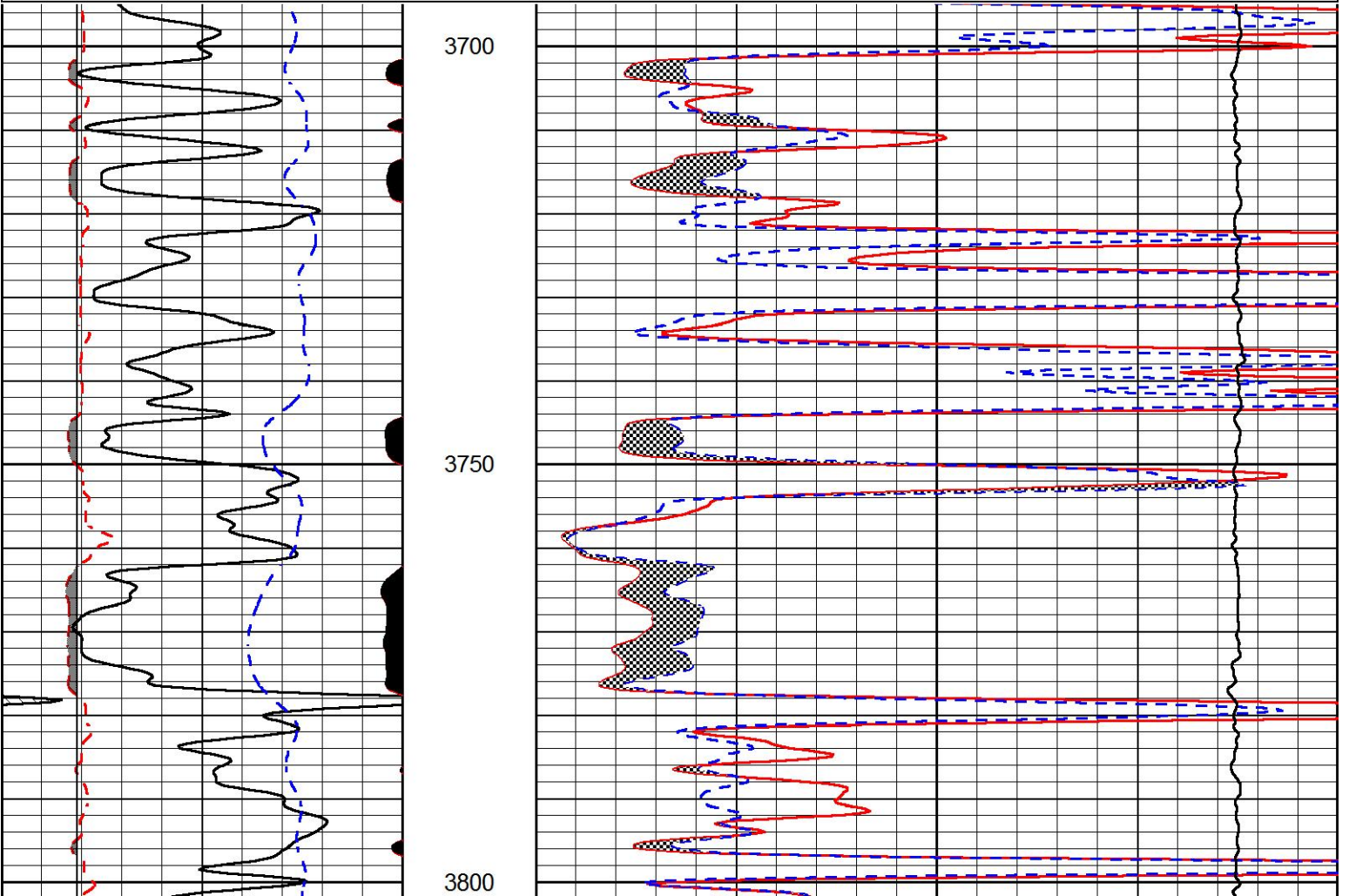


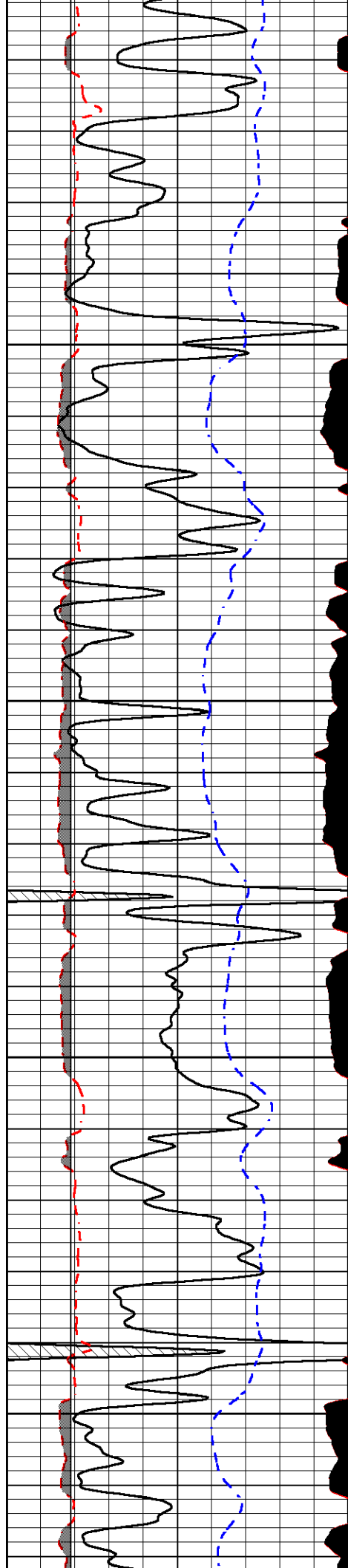
MAIN PASS

Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass4.1
 Presentation Format micro
 Dataset Creation Wed Jan 16 19:32:16 2019
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
6	MICRO CALIPER (in)	16
6	BIT SIZE (in)	16
-200	SP (mV)	0

0	MICRO INVERSE 1 X 1 (Ohm-m)	40
0	MICRO NORMAL 2" (Ohm-m)	40
15000	LINE TENSION (lb)	0



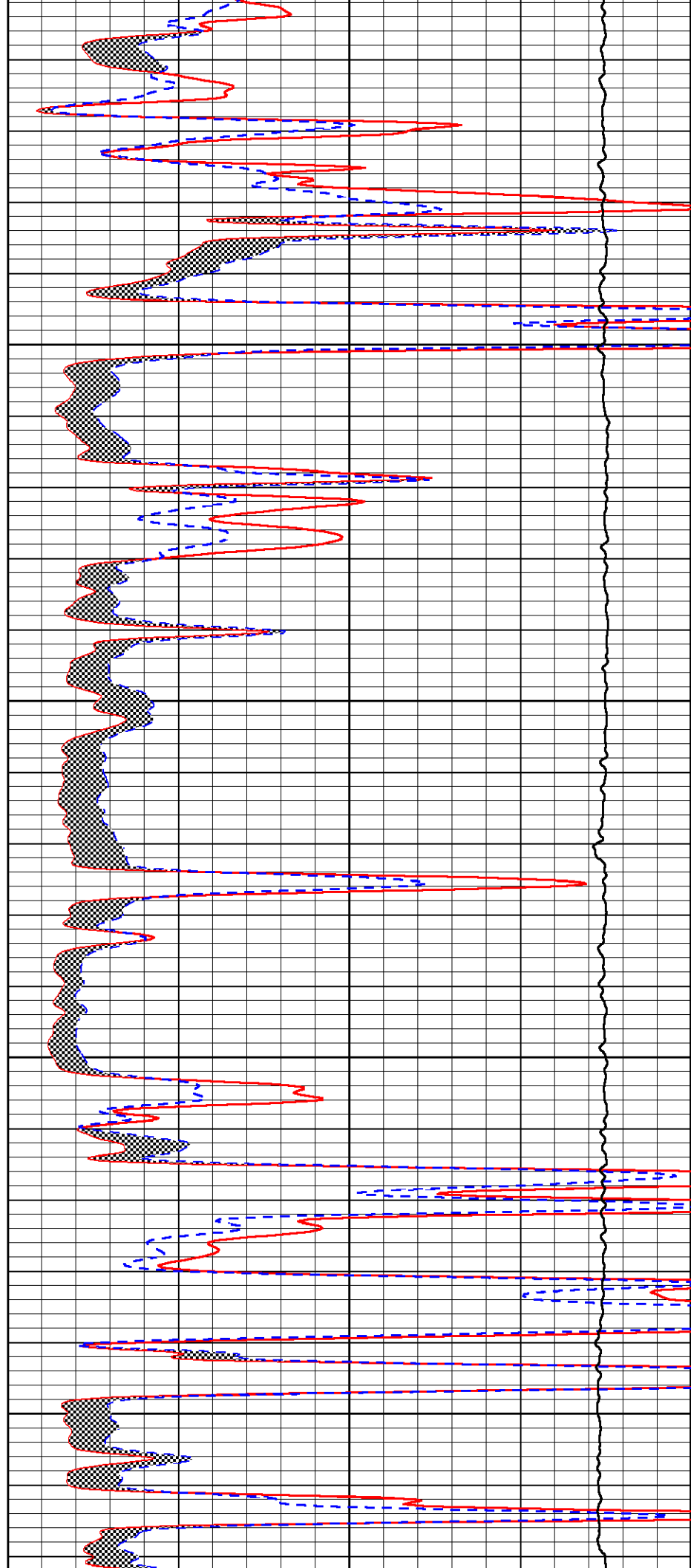


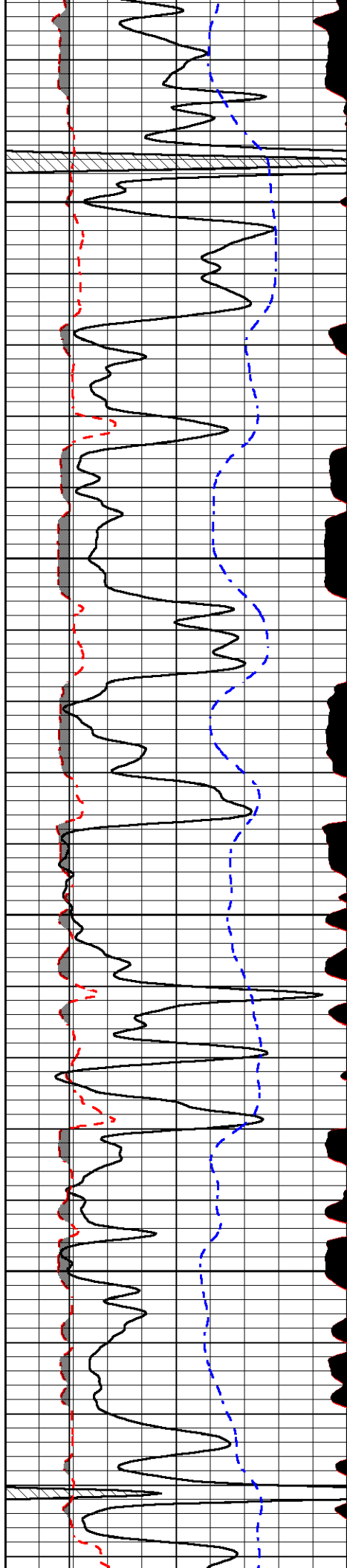
3850

3900

3950

4000



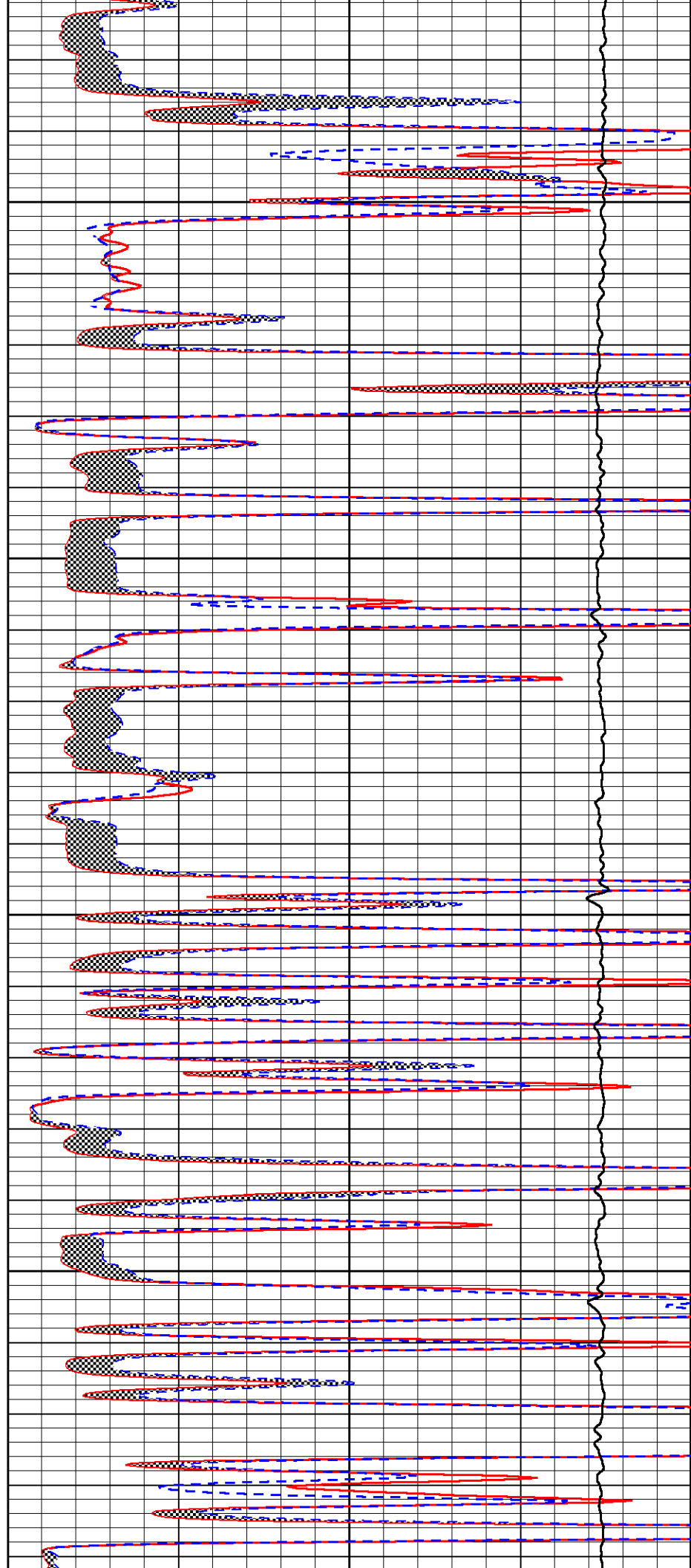


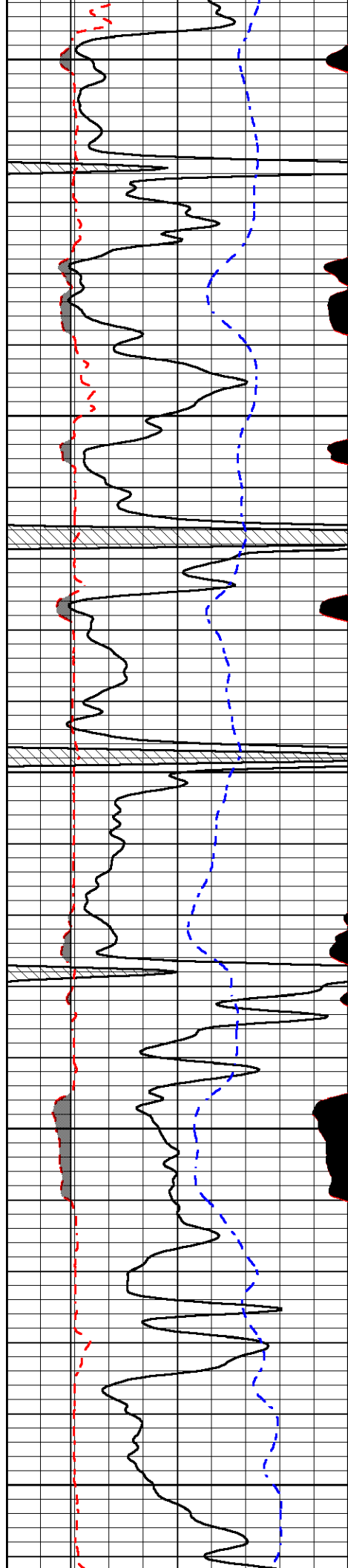
4050

4100

4150

4200





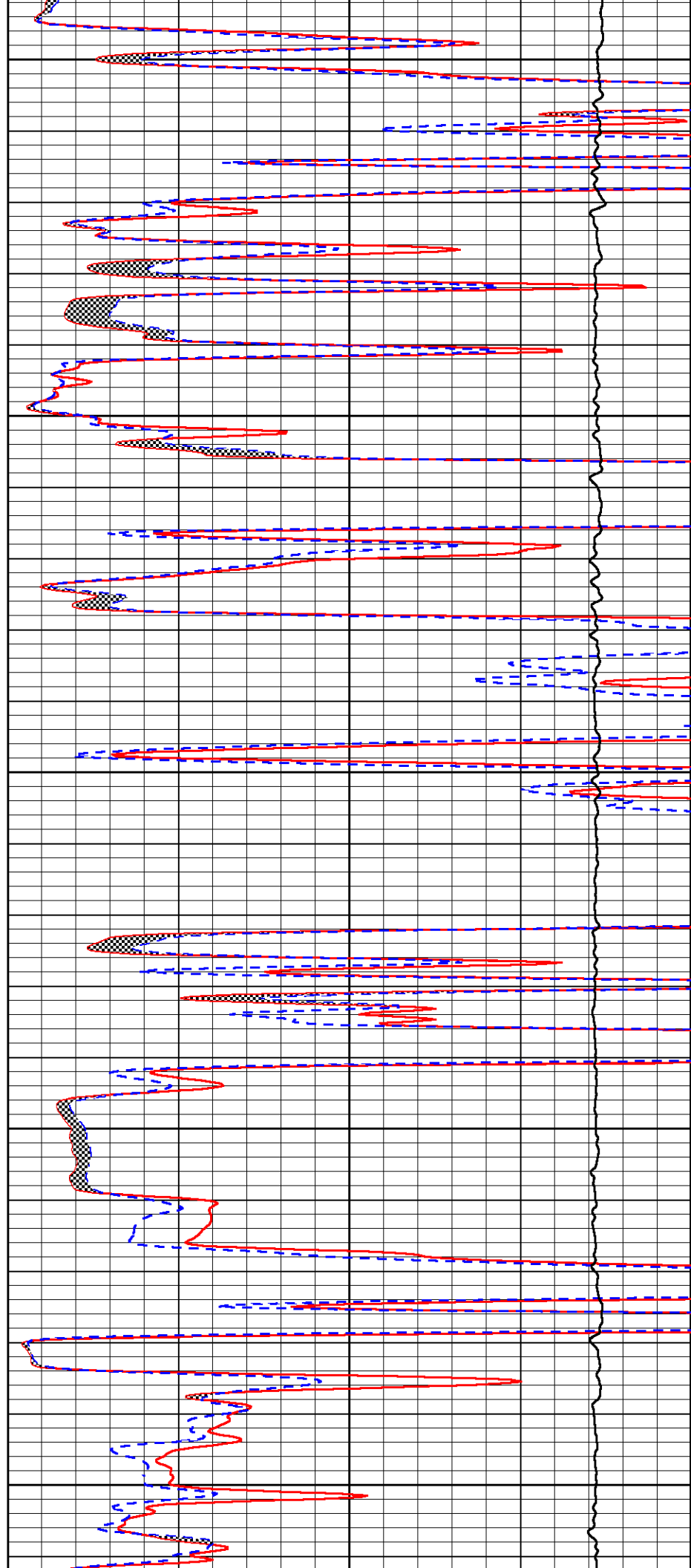
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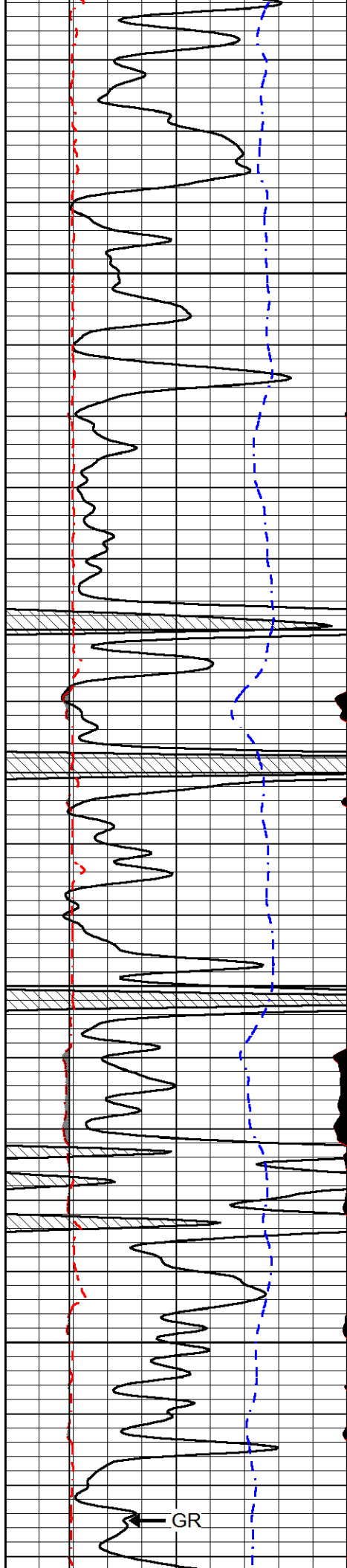
4300

4350

4400

4450



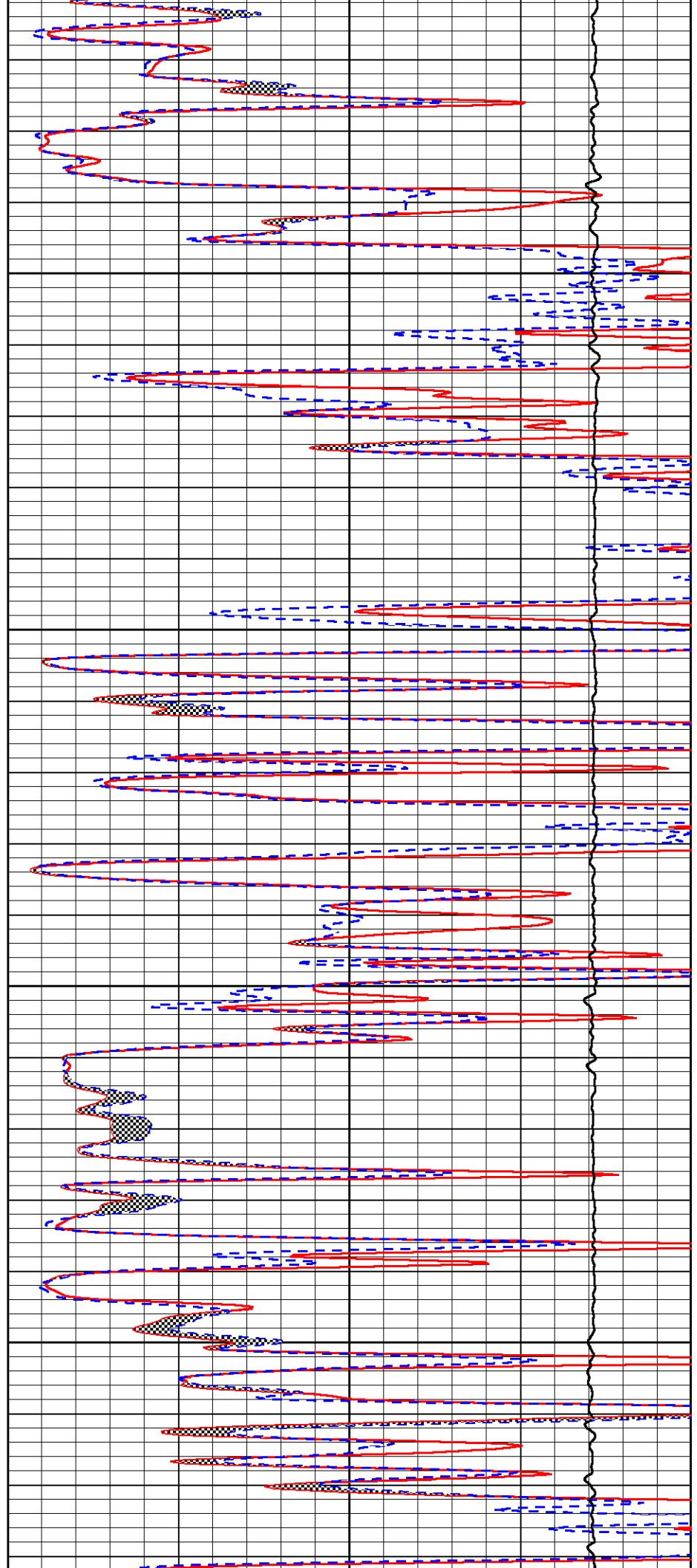


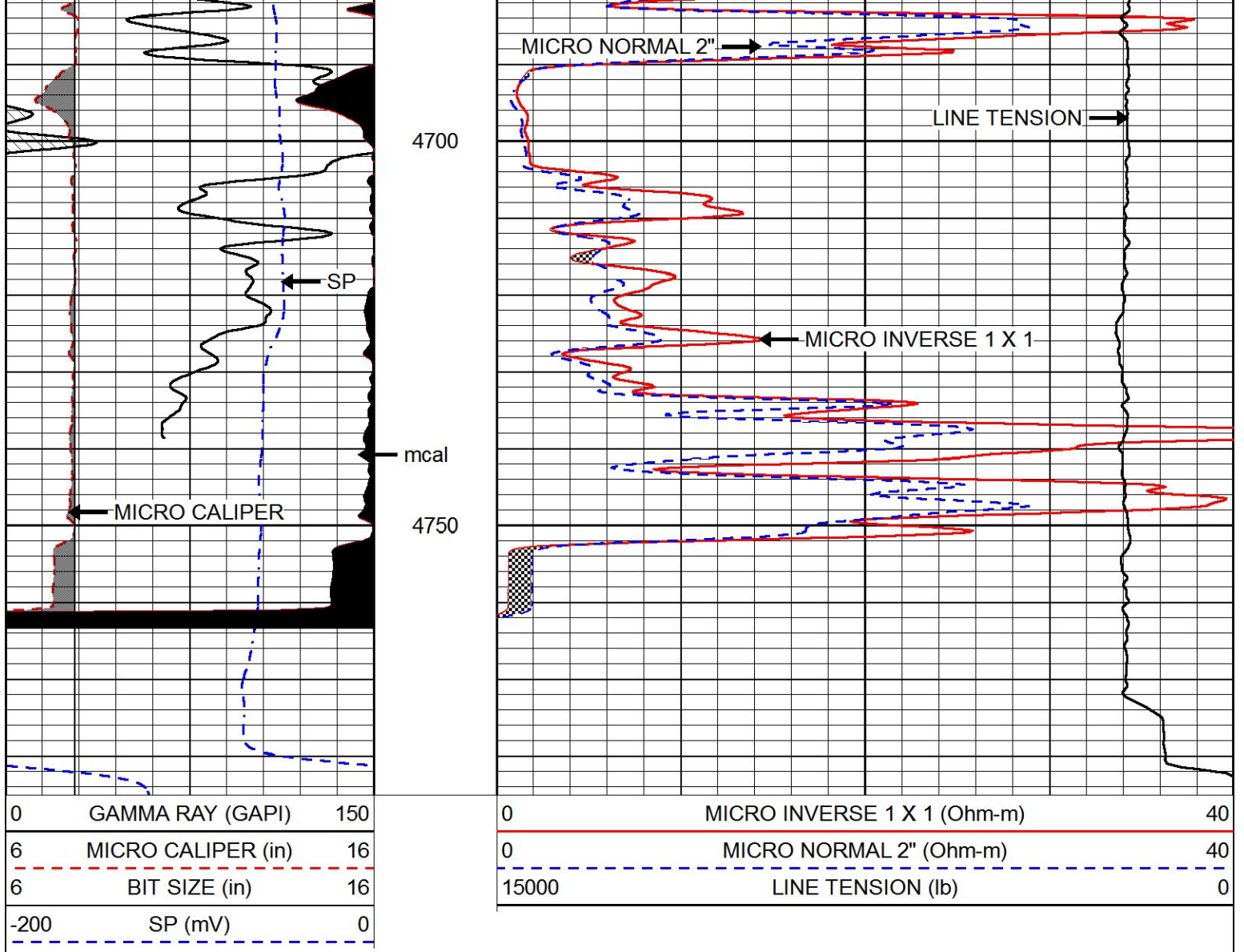
4500

4550

4600

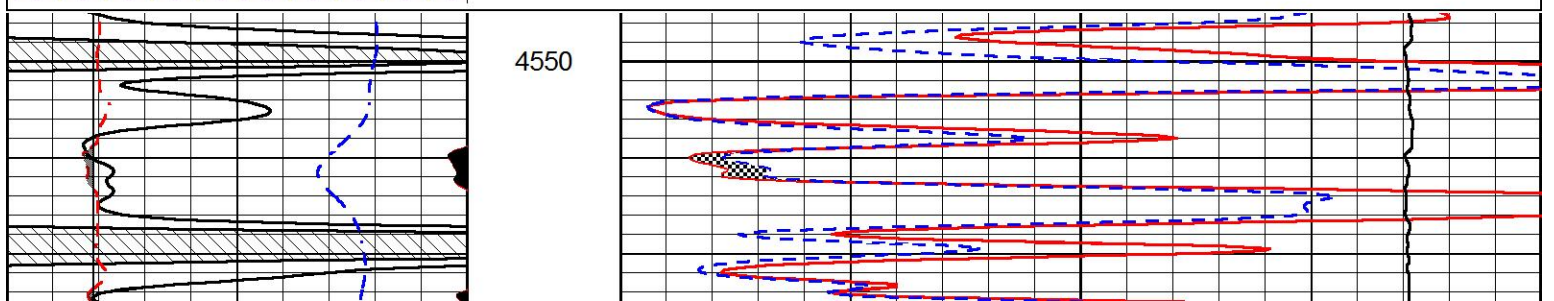
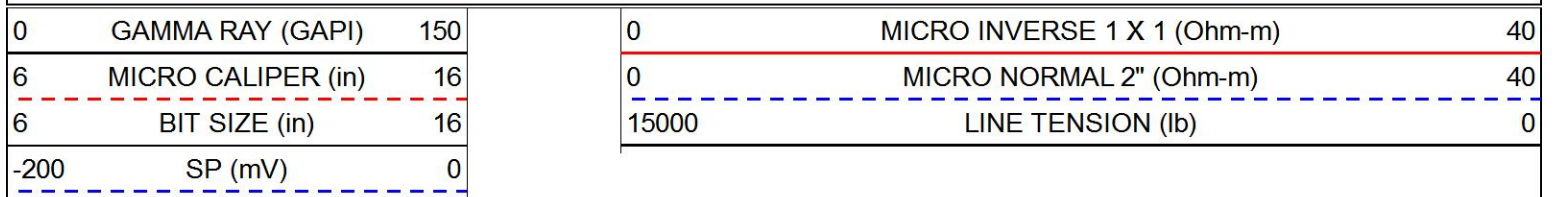
4650

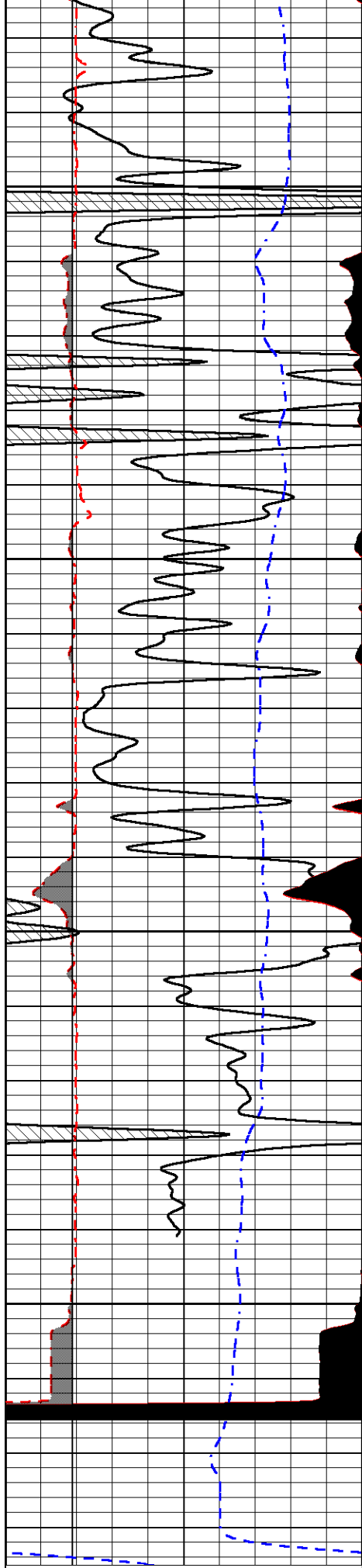




REPEAT SECTION

Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass3.1
 Presentation Format micro
 Dataset Creation Wed Jan 16 19:03:00 2019
 Charted by Depth in Feet scaled 1:240





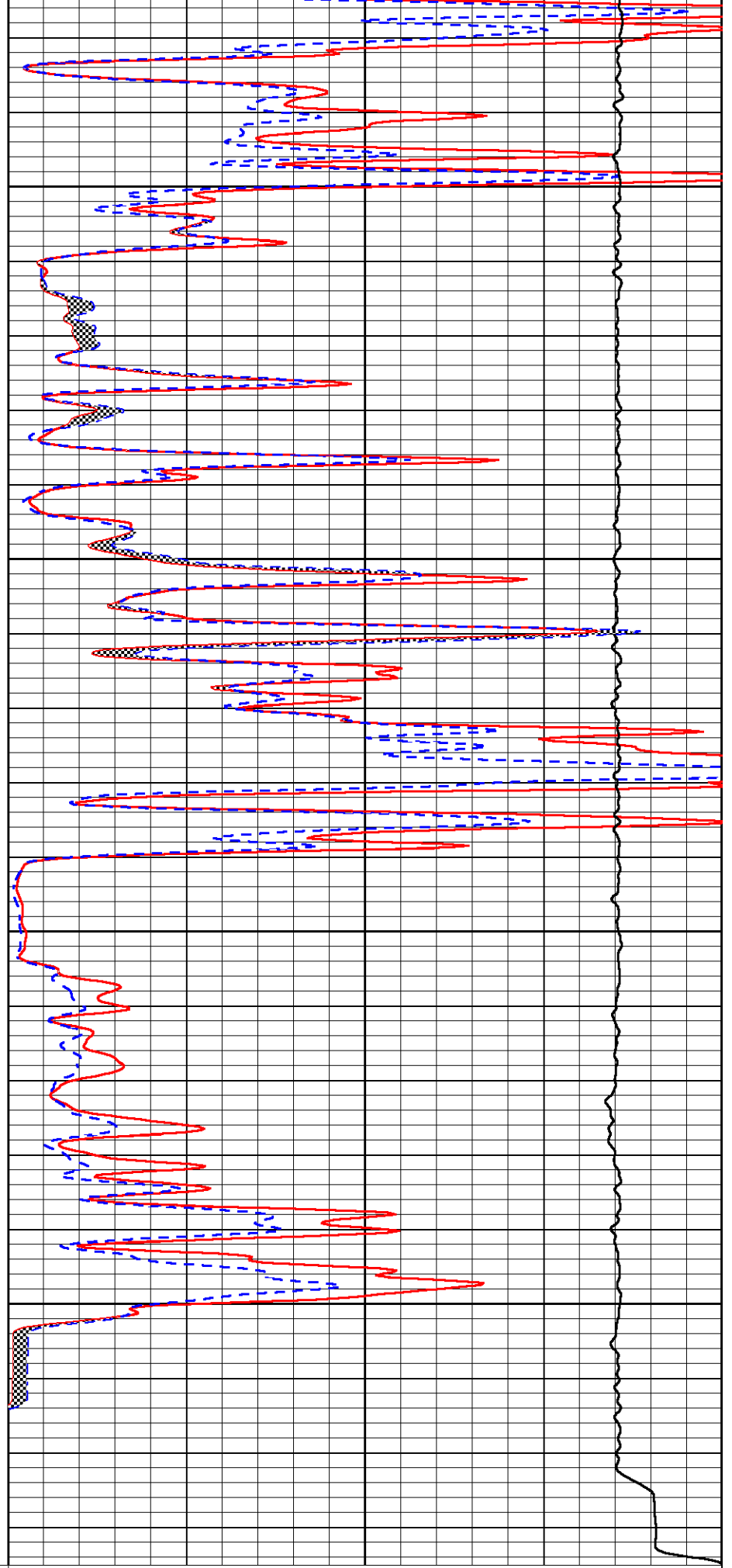
0 GAMMA RAY (GAPI) 150
 6 MICRO CALIPER (in) 16

4600

4650

4700

4750



0 MICRO INVERSE 1 X 1 (Ohm-m) 40
 0 MICRO NORMAL 2" (Ohm-m) 40

6	BIT SIZE (in)	16	15000	LINE TENSION (lb)	0
-200	SP (mV)	0			

Calibration Report

Database File richland_oil_clark_ochs_28_1.db
 Dataset Pathname stackmel/pass4.1
 Dataset Creation Wed Jan 16 19:32:16 2019

Dual Induction Calibration Report

Serial-Model: PSI 988-M&W
 Calibration Performed: Tue Nov 20 10:50:19 2018

Loop:	Readings		References			Results	
	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.525	-44.000
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.380	-17.000

Microlog Calibration Report

Serial-Model: PSI-01-PSI STKBL ML
 Performed: Thu Mar 31 18:14:32 2016

	Readings		References			Results	
	Zero	Cal	Zero	Cal		m	b
Normal	0.0000	1.0000	0.0000	1.0000	Ohm-m	32500.0000	-1.0000
Inverse	0.0000	1.0000	0.0000	1.0000	Ohm-m	39500.0000	-1.0000
Caliper	1.0001	1.1397	6.5000	18.5000	in	86.0000	-82.4800

Compensated Density Calibration Report

Serial-Model: 934-5002-M&W
 Source / Verifier: /
 Master Calibration Performed: Wed Aug 29 11:03:55 2018

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.755	g/cc	3720.16	2661.79	cps
Aluminum	2.675	g/cc	696.57	1725.83	cps
Spine Angle = 75.50			Density/Spine Ratio = 0.532		
	Size		Reading		
Small Ring	4.00	in	1.16		
Large Ring	14.00	in	1.01		

Compensated Neutron Calibration Report

Serial Number: tk10-MW
 Tool Model: M&W
 Calibration Performed: Wed Nov 16 11:21:36 2016

Detector	Readings	Target	Normalization
Short Space	6240.00 cps	1000.00 cps	1.6025
Long Space	460.00 cps	1000.00 cps	1.9500

Gamma Ray Calibration Report

Serial Number:	89-M&W		
Tool Model:	M&W		
Calibration Performed:	Tue Apr 11 17:08:01 2017		
Calibrator Value:	1000.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	6.2	cps	
Sensitivity:	0.5200	GAPI/cps	

 <p>PIONEER Pioneer Energy Services</p>	Company	RICHLAND OIL INVESTMENTS, LLC
	Well	CLARK/OCHS #28-1
	Field	UNKNOWN
	County	LOGAN
	State	KANSAS

GLOBAL OIL FIELD SERVICES, LLC

0013311

REMIT TO 24 S. Lincoln
Russell, KS 67665

SERVICE POINT: Russell KS

DATE <u>8-19</u>	SEC. <u>28</u>	TWP. <u>12 S</u>	RANGE <u>33 W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <u>1:00 PM</u>
LEASE <u>Clark/Ochs</u>		WELL# <u>20-1</u>		LOCATION <u>9 South of Oakley, KS to UTERD</u>		COUNTY <u>Logan</u>	STATE <u>KS</u>
OLD OR NEW (CIRCLE ONE) <u>NEW</u>			7W to 370 RD. vs. west into				

CONTRACTOR <u>Southwind Drilling Rig #1</u>	OWNER <u>Richland Oil</u>
TYPE OF JOB <u>Surface</u>	
HOLE SIZE <u>12 1/4</u>	T.D.
CASING SIZE <u>5 5/8</u>	DEPTH <u>223'</u>
TUBING SIZE	DEPTH
DRILL PIPE	DEPTH
TOOL	DEPTH
PRES. MAX	MINIMUM
MEAS. LINE	SHOE JOINT
CEMENT LEFT IN CSG. <u>25'</u>	
PERFS	
DISPLACEMENT	

CEMENT AMOUNT ORDERED <u>1755x 60/40 Poz</u>
<u>3% CC 2% Gel</u>
COMMON _____ @ _____
POZMIX _____ @ _____
GEL _____ @ _____
CHLORIDE _____ @ _____
ASC _____ @ _____
_____ @ _____
_____ @ _____
_____ @ _____
_____ @ _____
_____ @ _____
_____ @ _____
_____ @ _____
HANDLING _____ @ _____
MILEAGE _____ @ _____
TOTAL _____

EQUIPMENT	
PUMP TRUCK # <u>409</u>	CEMENTER <u>Cody</u>
	HELPER <u>Tony</u>
BULK TRUCK # <u>511</u>	DRIVER <u>Tom</u>
BULK TRUCK # _____	DRIVER _____

REMARKS:
Run 515 of 8 1/2 casing + Ljt hooked to Rig + broke circulation hooked to Pump truck + pumped 1755x of cement + displaced 125 Hbls of H2O + shut IN.

Cement + D.D circulate to surface

CHARGE TO: Richland Oil

STREET _____

CITY _____ STATE _____ ZIP _____

Global Oil Field Services, LLC
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Wesley P. Hoff

SIGNATURE Wesley P. Hoff

SERVICE	
DEPTH OF JOB _____	
PUMP TRUCK CHARGE _____	
EXTRA FOOTAGE _____ @ _____	
MILEAGE _____ @ _____	
MANIFOLD _____ @ _____	
_____ @ _____	
_____ @ _____	
TOTAL _____	

PLUG & FLOAT EQUIPMENT	
_____ @ _____	
_____ @ _____	
_____ @ _____	
_____ @ _____	
_____ @ _____	
TOTAL _____	

SALES TAX (If Any) _____

TOTAL CHARGES _____

DISCOUNT _____ IF PAID IN 30 DAYS

GLOBAL OIL FIELD SERVICES, LLC

0013317

REMIT TO 24 S. Lincoln
Russell, KS 67665

SERVICE POINT: Russell KS

DATE <u>1-17-19</u>	SEC <u>28</u>	TWP. <u>12S</u>	RANGE <u>33W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <u>8:15 am</u>
LEASE <u>Clark - Oak</u>	WELL# <u>28-1</u>	LOCATION <u>South of Oakley KS to Ute</u>			COUNTY <u>Logan</u>	STATE <u>KS</u>	
OLD OR NEW (CIRCLE ONE)			<u>7 West to south west side</u>				

CONTRACTOR Southwind Drilling Rig #1

TYPE OF JOB Rotary Plug

HOLE SIZE 4 1/2 T.D. 4775

CASING SIZE DEPTH

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX MINIMUM

MEAS. LINE SHOE JOINT

CEMENT LEFT IN CSG.

PERFS

DISPLACEMENT

OWNER Richland Oil

CEMENT AMOUNT ORDERED 2555x 60/40 Poz 4 1/2 6d
1" port - low seal

EQUIPMENT

PUMP TRUCK CEMENTER Cody

409 HELPER Tom

BULK TRUCK DRIVER Tom

410

BULK TRUCK DRIVER

#

COMMON @

POZMIX @

GEL @

CHLORIDE @

ASC @

HANDLING @

MILEAGE @

TOTAL

REMARKS:

2646' 505x

1575' 1005x

752' 505x

40' 105x wiper plug

Morse 15 Rat 305x

CHARGE TO: Richland Oil

STREET

CITY STATE ZIP

SERVICE

DEPTH OF JOB

PUMP TRUCK CHARGE

EXTRA FOOTAGE @

MILEAGE @

MANIFOLD @

TOTAL

Global Oil Field Services, LLC

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PLUG & FLOAT EQUIPMENT

@

@

@

@

@

TOTAL

PRINTED NAME Wesley Pfaff

SIGNATURE Wesley Pfaff

SALES TAX (If Any)

TOTAL CHARGES

DISCOUNT IF PAID IN 30 DAYS