KOLAR Document ID: 1670430

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 # 31142
Name: Petroleum Property Services, Inc.
Address 1: 125 N MARKET SUITE 1251
Address 2:
City: WICHITA State: KS Zip: 67202 + 1719
Contact Person: DEBRA CLINGAN
Phone: (316) 265-3351
CONTRACTOR: License # 35589
Name: Lighthouse Drilling, LLC
Wellsite Geologist: CURTIS COVEY
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 #:

10/03/2022 Spud Date or Recompletion Date
10/11/2022 Date Reached TD
10/11/2022 Completion Date or Recompletion Date

API No.: 15-131-20248-00-00
Spot Description:
SW - SE - NW - SE Sec. 7 Twp. 4 S. R. 14 ☑ East ☐ West
1436 Feet from ☐ North / ☑ South Line of Section
1958 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☐ NE ☐ NW ☑ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Nemaha
Lease Name: RICHARDS-FUND A Well #: 4
Field Name: MCCLAIN
Producing Formation: NA
Elevation: Ground: 1241 Kelly Bushing: 1249
Total Vertical Depth: 3740 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 389 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: 1500 ppm Fluid volume: 300 bbls
Dewatering method used: Evaporated
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: 01/31/2023
☐ **Confidential Release Date:** 01/30/2025
☑ **Wireline Log Received** ☑ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☑ **I** ☐ **II** ☐ **III** **Approved by:** David Befort **Date:** 02/02/2023

Operator Name: Petroleum Property Services, Inc. Lease Name: RICHARDS-FUND A Well #: 4

Sec. 7 Twp. 4 S. R. 14 ☑ East ☐ West County: Nemaha

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 *(Attach Additional Sheets)*	☑ Yes	☐ No
Samples Sent to Geological Survey	☐ Yes	☑ No
Cores Taken	☐ Yes	☑ No
Electric Log Run	☑ Yes	☐ No
Geologist Report / Mud Logs	☑ Yes	☐ No

List All E. Logs Run:
Attached

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
MISS	2516	-1267
KINDERHOOK	2534	-1285
VIOLA	3436	-2187
SIMPSON	3658	-2409
GRANITE	3726	-2477

CASING RECORD ☑ New ☐ 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
Surface	12.25	8.625	24	389	CLASS A	220	see ticket
Production	7.875	5.5	15.5	3455	THICK SET	150	see ticket

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ 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: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)*

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

DISPOSITION OF GAS:	METHOD OF COMPLETION:	PRODUCTION INTERVAL:
☐ Vented ☐ Sold ☐ Used on Lease *(If vented, Submit ACO-18.)*	☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*	Top / Bottom

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*

TUBING RECORD: Size: Set At: Packer At:

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Petroleum Property Services, Inc.
Well Name	RICHARDS-FUND A 4
Doc ID	1670430

All Electric Logs Run

Gamma Ray
Neutron Density
Dual Induction
Sonic
Microlog

Form	ACO1 - Well Completion
Operator	Petroleum Property Services, Inc.
Well Name	RICHARDS-FUND A 4
Doc ID	1670430

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	24	389	CLASS A	220	see ticket
Production	7.875	5.5	15.5	3455	THICK SET	150	see ticket

810 E 7TH
PO Box 92
EUREKA, KS 67045
(620) 583-5561

ELITE CEMENTING & ACID SERVICE, LLC

Cement or Acid Field Report
Ticket No. **6699**
Foreman David Gardner
Camp Eureka

API # 15-131-20248

Date	Cust. ID #	Lease & Well Number	Section	Township	Range	County	State
10-3-22	1440	Richards-Fund A #4	7	4 S.	14 E.	Nemaha	KS

Customer: Petroleum Property Services, Inc.
Mailing Address: 125 N. Market St., Suite 1251
City: Wichita | State: KS | Zip Code: 67202

Safety Meeting: DG JH SM

Unit #	Driver	Unit #	Driver
105	Jason		
114	Steve		

Job Type Surface | Hole Depth 394' K.B. | Slurry Vol. 59 Bbl | Tubing
Casing Depth 379.74' G.L. | Hole Size 12¼" | Slurry Wt. 15# | Drill Pipe
Casing Size & Wt. 8 5/8" | Cement Left in Casing 20' +/- | Water Gal/SK | Other
Displacement 23½ Bbl | Displacement PSI | Bump Plug to | BPM

Remarks: Safety Meeting: Rig drilled through water zone @ approximately 275'. Recondition drilling mud. Finished Drilling w/ good circulation. Rig up to 8 5/8" casing. Break circulation w/ 2 Bbl fresh water. Mixed 220 sks Class 'A' Cement w/ 3% Cacl2, 4% Gel, ¼# Floseal/SK, 1# Cedar Fiber/SK @ 15#/gal, yield 1.50 = 59 Bbl slurry. Displace w/ 23½ Bbl fresh water. Shut down. Close casing in. Good cement returns to surface = 17 Bbl slurry to pit. Job complete. Rig down.

Note: Used Gel from Rig to make Cement 4% Gel + Added Cedar Fiber to make 1#/sk. Basket on top of #3.

Code	Qty or Units	Description of Product or Services	Unit Price	Total
C101	1	Pump Charge	950.00	950.00
C107	165	Mileage	5.00	825.00
C200	220 SKS	Class 'A' Cement	18.55	4081.00
C205	620#	Cacl2 3%	.75	465.00
C206	415#	Gel 2%	.30	124.50
C209	55#	Floseal ¼#/SK	2.80	154.00
C108B	10.34 Tons	Ton Mileage - 165 Miles	1.50	2559.15
C6006	1	8 5/8" Cement Basket	380.00	380.00
		Thank You	Sub Total	9,538.65
			Less 5%	497.75
		8.0%	Sales Tax	416.36
			Total	9,457.26

Authorization Don P. Williams Title Geologist/Operations

I agree to the payment terms and conditions of services provided on the back of this job ticket. Any amendments to payment terms must be in writing on the front of this job ticket or in the Customer's records at ELITE's office.

810 E 7TH
PO Box 92
EUREKA, KS 67045
(620) 583-5561

ELITE CEMENTING & ACID SERVICE, LLC

Cement or Acid Field Report
Ticket No. **6764**
Foreman David Gardner
Camp Eureka

API# 15-131-20248

Date	Cust. ID #	Lease & Well Number	Section	Township	Range	County	State
10-12-22	1440	Richards - Fund A #4	7	4 S.	14 E.	Nemaha	KS

Customer: Petroleum Property Services, INC.
Mailing Address: 125 N. Market St., Suite 1251
City: Wichita | State: KS | Zip Code: 67202

Safety Meeting: DG JH SF

Unit #	Driver	Unit #	Driver
105	Jason		
114	Shannon		

Job Type Longstring | Hole Depth 3740' K.B. | Slurry Vol. 50 Bbl | Tubing
Casing Depth 3447.57' G.L. | Hole Size 7 7/8" | Slurry Wt. 13.8# | Drill Pipe
Casing Size & Wt. 5½" 15.50# | Cement Left in Casing 21.54' S.J. | Water Gal/SK 9 | Other
Displacement 84 Bbl | Displacement PSI 850 | Bump Plug to 1350 PSI | BPM 5

Remarks: Safety Meeting: 5½" 15.50# casing set @ 3447.57' G.L. Circulate w/ Rig mud pump for 1 HR. Rig up to 5½" casing. Set Packer Shoe w/ fresh water @ 850 PSI. Pump additional 15 Bbl fresh water. Mixed 150 SKS Thick Set Cement w/ 5# Kolseal/SK, 2# Phenoseal/SK, 1/8% CFL-115 @ 13.8#/gal, yield 1.87=50 Bbl slurry. Shut down. Wash out pump & lines. Release Latch Down Plug. Displace plug to seat w/ 84 Bbl fresh water. Final pumping pressure of 850 PSI. Bump plug to 1350 PSI. Wait 2 mins. Release pressure. Float + Plug held good. Good circulation @ all times while cementing. Job complete. Rig down.

Plug R.H. w/ 20 SKS + M.H. w/ 15 SKS
Centralizers on #1, 4, 7, 11, 15, 20, 52, 64 Baskets on Top of #13 + 25

Code	Qty or Units	Description of Product or Services	Unit Price	Total
C102	1	Pump Charge	1180.00	1180.00
C107	165	Mileage	5.00	825.00
C201	185 SKS	Thick Set Cement ~ (150 SKS on Longstring)	24.25	4486.25
C207	925#	Kolseal 5#/SK	.56	518.00
C208	370#	Phenoseal 2#/SK	1.55	573.50
C211	20#	CFL-115 1/8%	12.95	259.00
C108B	10.18 Tons	Ton Mileage - 165 Miles	1.50	2519.55
C752	1	5½" Type A Packer Shoe	1730.00	1730.00
C681	1	5½" Float Collar w/ Inverted Latch Down Insert	254.00	254.00
C421	1	5½" Latch Down Plug	285.00	285.00
C504	8	5½" Centralizers	59.00	472.00
C604	2	5½" Cement Baskets	278.00	556.00
C222	2½ Gals.	KCL (In 1st 40 Bbl Displacement water)	32.00	80.00
		Thank You	Sub Total	13,738.30
			Less 5%	723.77
		8.0 %	Sales Tax	737.10
			Total	13,751.63

Authorization [signature] Title Total

I agree to the payment terms and conditions of services provided on the back of this job ticket. Any amendments to payment terms must be in writing on the front of this job ticket or in the Customer's records at ELITE's office.

DRILL STEM TEST REPORT

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69816 **DST#: 1**

Test Start: 2022.10.08 @ 20:30:00

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:03:57
Time Test Ended: 05:26:22

Test Type: Conventional Bottom Hole (Initial)
Tester: Spencer J Staab
Unit No: 84

Interval: 3395.00 ft (KB) To 3450.00 ft (KB) (TVD)
Total Depth: 3450.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

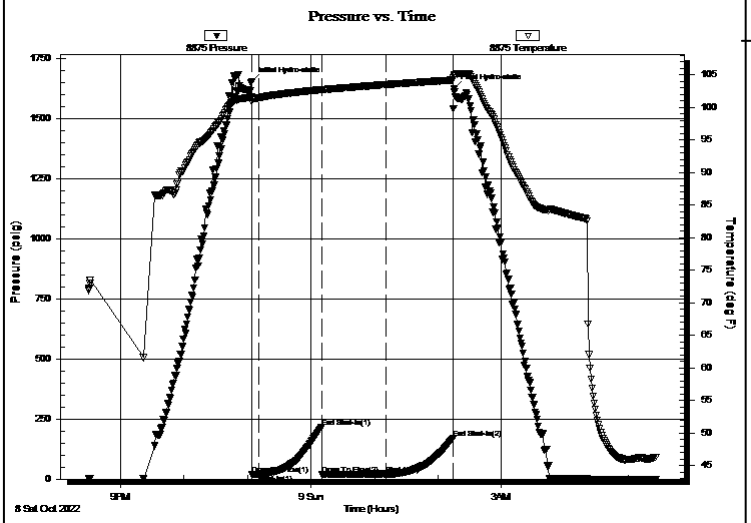
Reference Elevations: 1249.00 ft (KB)
1241.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8875 **Inside**

Press@RunDepth: 21.20 psig @ 3399.00 ft (KB)
Start Date: 2022.10.08 End Date: 2022.10.09
Start Time: 20:30:01 End Time: 05:26:21

Capacity: psig
Last Calib.: 2022.10.09
Time On Btm: 2022.10.08 @ 23:03:52
Time Off Btm: 2022.10.09 @ 02:14:56

TEST COMMENT: 5-IF-Surface Blow
60-ISI-No Return
60-FF-Surface Blow
60-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1654.76	101.59	Initial Hydro-static
1	19.70	100.89	Open To Flow (1)
7	19.08	101.51	Shut-In(1)
66	216.80	102.74	End Shut-In(1)
67	19.83	102.73	Open To Flow (2)
127	21.20	103.51	Shut-In(2)
191	170.06	104.25	End Shut-In(2)
192	1623.07	104.80	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
3.00	Oil Spotted Mud 100%M	0.01

Gas Rates

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

DRILL STEM TEST REPORT

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69816 **DST#: 1**

Test Start: 2022.10.08 @ 20:30:00

GENERAL INFORMATION:

Formation: **Viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:03:57
Time Test Ended: 05:26:22

Test Type: Conventional Bottom Hole (Initial)
Tester: Spencer J Staab
Unit No: 84

Interval: 3395.00 ft (KB) To 3450.00 ft (KB) (TVD)
Total Depth: 3450.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

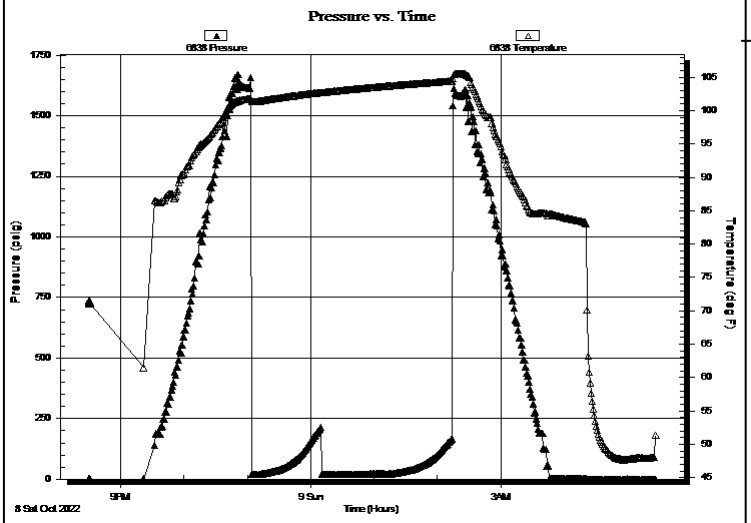
Reference Elevations: 1249.00 ft (KB)
1241.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 6838 **Inside**

Press@RunDepth: psig @ 3399.00 ft (KB)
Start Date: 2022.10.08 End Date: 2022.10.09
Start Time: 20:30:01 End Time: 05:27:02

Capacity: psig
Last Calib.: 2022.10.09
Time On Btm:
Time Off Btm:

TEST COMMENT: 5-IF-Surface Blow
60-ISI-No Return
60-FF-Surface Blow
60-FSI-No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
3.00	Oil Spotted Mud 100%M	0.01

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69816 **DST#: 1**

Test Start: 2022.10.08 @ 20:30:00

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:	46.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.99 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	600.00 ppm				
Filter Cake:	inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
3.00	Oil Spotted Mud 100%M	0.015

Total Length: 3.00 ft Total Volume: 0.015 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments: 8#LCM

DRILL STEM TEST REPORT

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69817 **DST#: 2**

Test Start: 2022.10.09 @ 12:00:00

GENERAL INFORMATION:

Formation: **Viola Porosity**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:45:17
Time Test Ended: 21:28:17

Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J Staab
Unit No: 84

Interval: 3394.00 ft (KB) To 3458.00 ft (KB) (TVD)
Total Depth: 3458.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

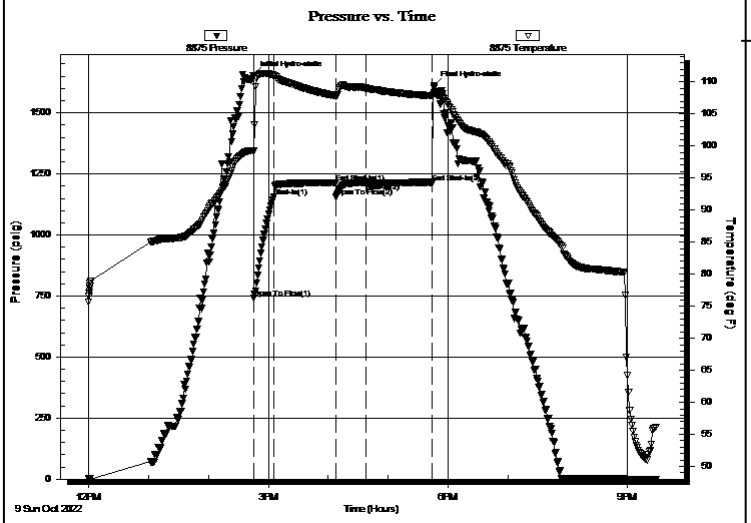
Reference Elevations: 1249.00 ft (KB)
1241.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8875 **Inside**

Press@RunDepth: 1213.81 psig @ 3398.00 ft (KB)
Start Date: 2022.10.09 End Date: 2022.10.09
Start Time: 12:00:01 End Time: 21:28:17

Capacity: psig
Last Calib.: 2022.10.09
Time On Btm: 2022.10.09 @ 14:45:07
Time Off Btm: 2022.10.09 @ 17:45:52

TEST COMMENT: 20-IF-BOB 30 secs Built to 719"
60-ISI-No Return
30-FF-BOB 1 min Built to 66" Died back to 3/4"
60-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1654.64	99.31	Initial Hydro-static
1	743.22	99.08	Open To Flow (1)
21	1157.47	111.04	Shut-In(1)
83	1213.24	107.82	End Shut-In(1)
83	1156.84	107.81	Open To Flow (2)
113	1213.81	109.02	Shut-In(2)
180	1215.04	107.89	End Shut-In(2)
181	1609.52	108.38	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
2790.00	SMCW 10%M 90%W Few oil spots	36.18

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69817 **DST#: 2**

Test Start: 2022.10.09 @ 12:00:00

GENERAL INFORMATION:

Formation: **Viola Porosity**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:45:17
Time Test Ended: 21:28:17

Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J Staab
Unit No: 84

Interval: 3394.00 ft (KB) To 3458.00 ft (KB) (TVD)
Total Depth: 3458.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

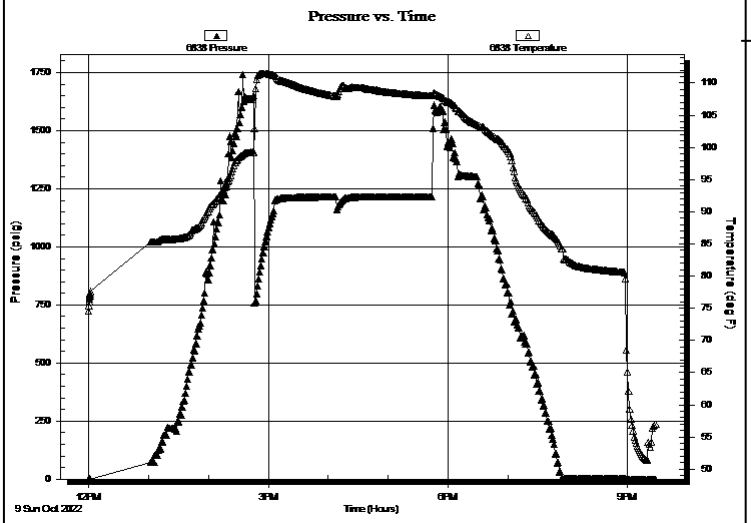
Reference Elevations: 1249.00 ft (KB)
1241.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 6838 **Inside**

Press@RunDepth: psig @ 3398.00 ft (KB)
Start Date: 2022.10.09 End Date: 2022.10.09
Start Time: 12:00:01 End Time: 21:28:17

Capacity: psig
Last Calib.: 2022.10.09
Time On Btm:
Time Off Btm:

TEST COMMENT: 20-IF-BOB 30 secs Built to 719"
60-ISI-No Return
30-FF-BOB 1 min Built to 66" Died back to 3/4"
60-FSI-No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
2790.00	SMCW 10%M 90%W Few oil spots	36.18

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69817 **DST#: 2**

Test Start: 2022.10.09 @ 12:00:00

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:	11000 ppm
Viscosity:	46.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	6.40 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	700.00 ppm				
Filter Cake:	inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
2790.00	SMCW 10%M 90%W Few oil spots	36.180

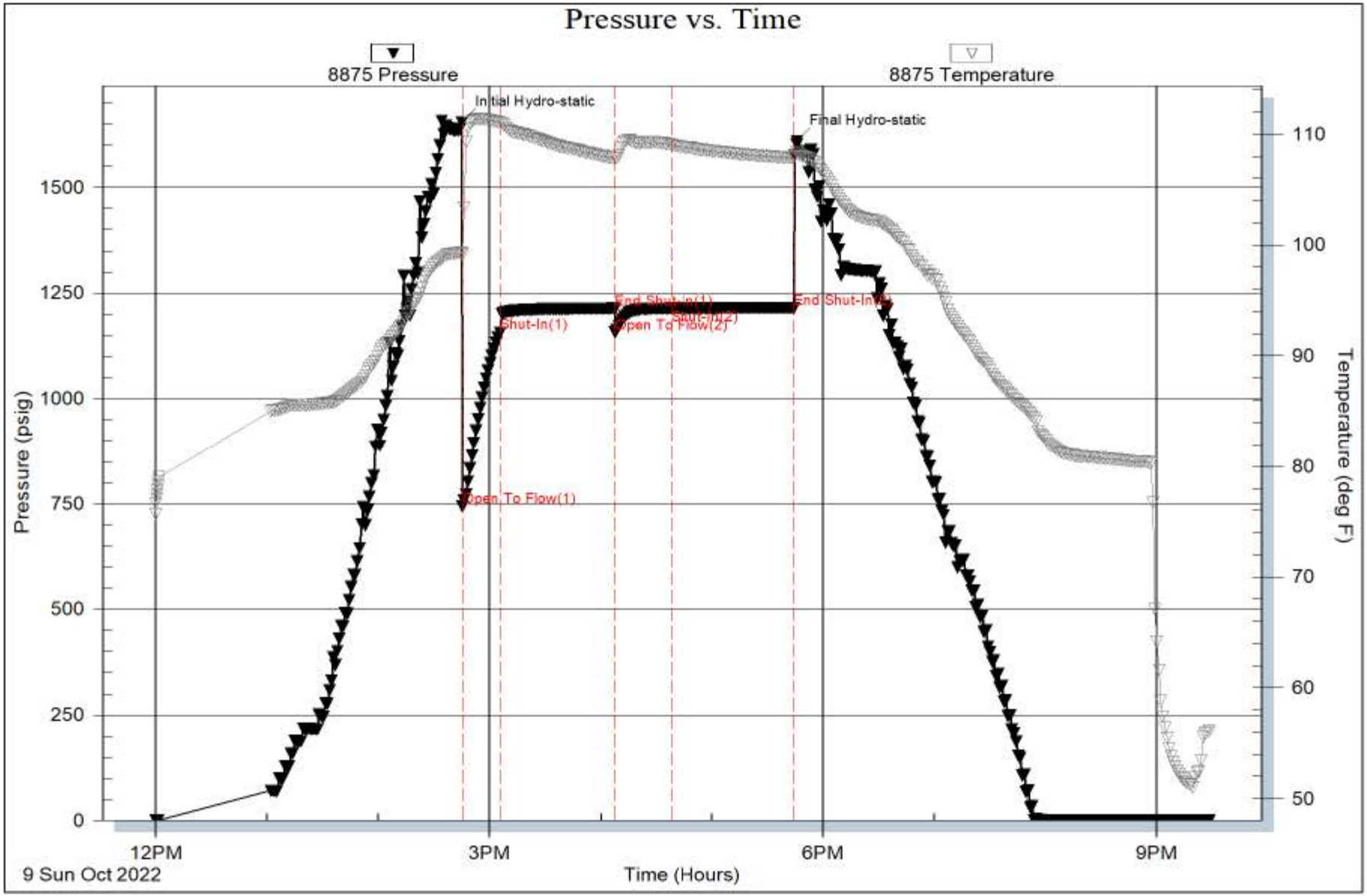
Total Length: 2790.00 ft Total Volume: 36.180 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

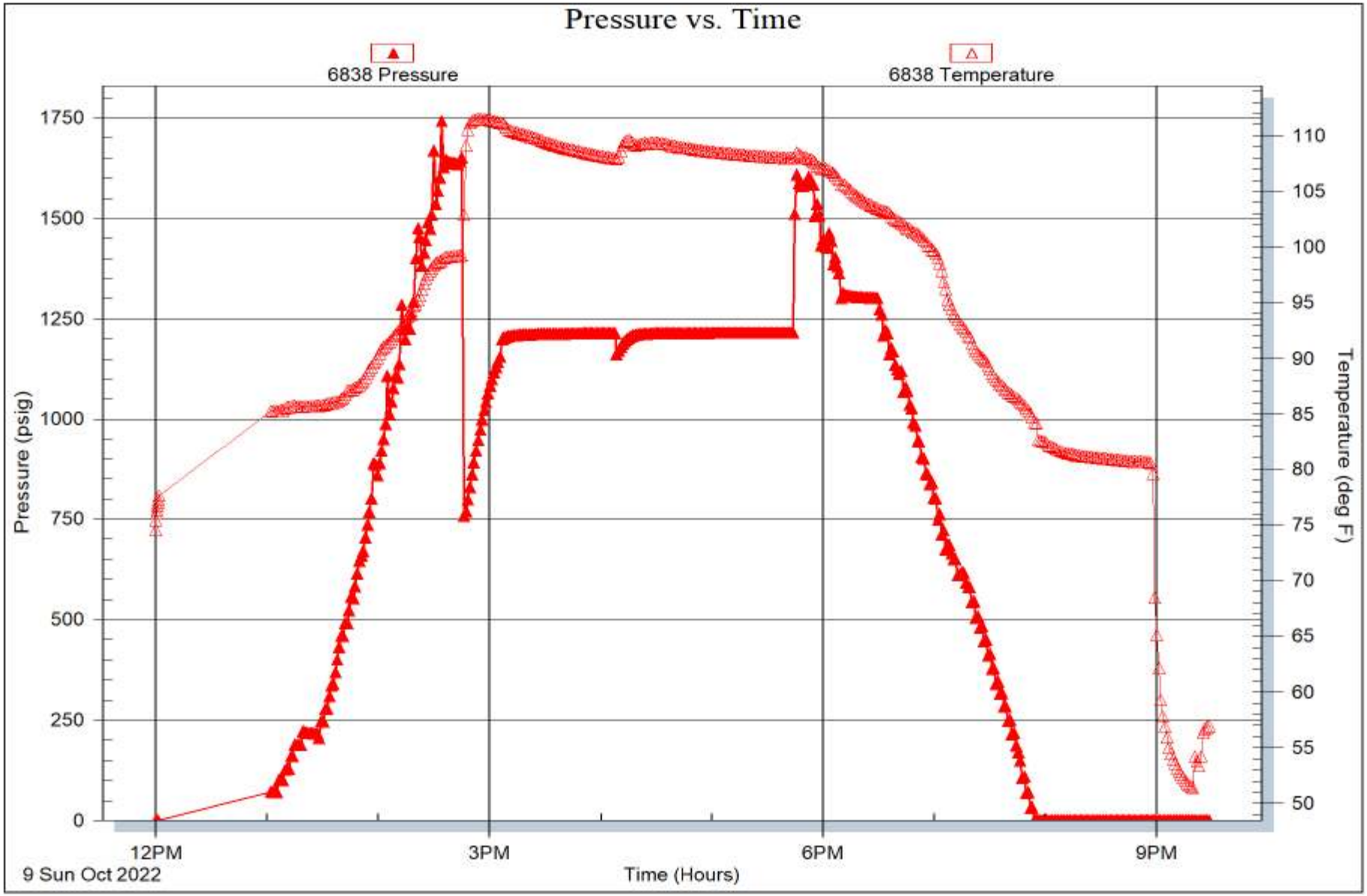
Recovery Comments: 7#LCM
RW=.789@50F

Serial #: 8875 **Inside** Petroleum Property Services Inc Richards-Fund A #4 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 69817 Printed: 2022.10.09 @ 21:58:05

Serial #: 6838 **Inside** Petroleum Property Services Inc Richards-Fund A #4 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 69817 Printed: 2022.10.09 @ 21:58:05

DRILL STEM TEST REPORT

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69818 **DST#: 3**

Test Start: 2022.10.10 @ 21:09:00

GENERAL INFORMATION:

Formation: **Upper Simp Ss**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:28:52
Time Test Ended: 06:41:57

Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J Staab
Unit No: 84

Interval: 3647.00 ft (KB) To 3668.00 ft (KB) (TVD)
Total Depth: 3668.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

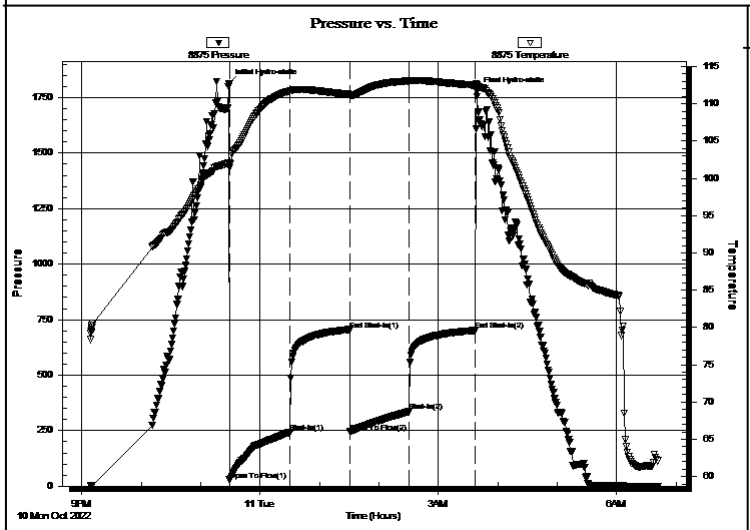
Reference Elevations: 1249.00 ft (KB)
1241.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8875 **Outside**

Press@RunDepth: 336.66 psig @ 3650.00 ft (KB)
Start Date: 2022.10.10 End Date: 2022.10.11
Start Time: 21:09:01 End Time: 06:41:57

Capacity: psig
Last Calib.: 2022.10.11
Time On Btm: 2022.10.10 @ 23:28:47
Time Off Btm: 2022.10.11 @ 03:39:12

TEST COMMENT: 60-IF-BOB 23 mins Built to 21.5"
60-ISI-No Return
60-FF-Surface to 6"
60-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1810.86	102.05	Initial Hydro-static
1	27.66	101.45	Open To Flow (1)
62	243.60	111.73	Shut-In(1)
122	705.36	111.24	End Shut-In(1)
123	245.07	111.19	Open To Flow (2)
182	336.66	113.08	Shut-In(2)
249	701.51	112.50	End Shut-In(2)
251	1776.26	112.55	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
679.00	SMCW 5%M 95%W	6.26
1.00	Clean Oil 100%O	0.01

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69818 **DST#: 3**

Test Start: 2022.10.10 @ 21:09:00

GENERAL INFORMATION:

Formation: **Upper Simp Ss**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:28:52
Time Test Ended: 06:41:57

Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J Staab
Unit No: 84

Interval: 3647.00 ft (KB) To 3668.00 ft (KB) (TVD)
Total Depth: 3668.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

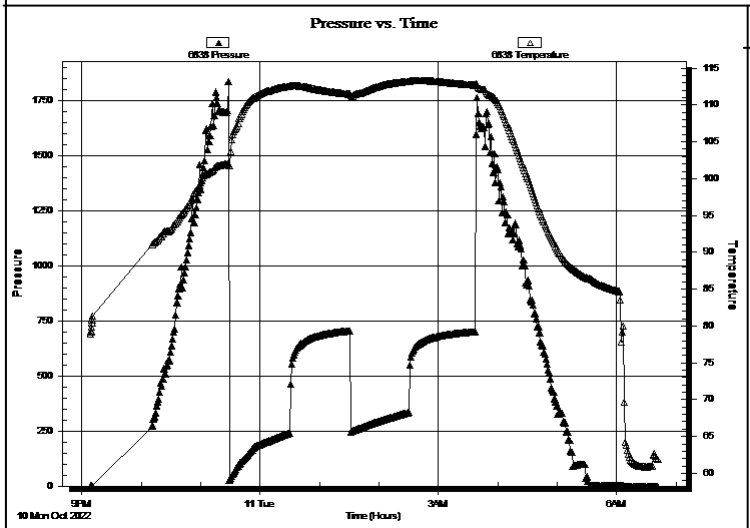
Reference Elevations: 1249.00 ft (KB)
1241.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 6838 **Inside**

Press@RunDepth: psig @ 3650.00 ft (KB)
Start Date: 2022.10.10 End Date: 2022.10.11
Start Time: 21:09:01 End Time: 06:41:57

Capacity: psig
Last Calib.: 2022.10.11
Time On Btm:
Time Off Btm:

TEST COMMENT: 60-IF-BOB 23 mins Built to 21.5"
60-ISI-No Return
60-FF-Surface to 6"
60-FSI-No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
679.00	SMCW 5%M 95%W	6.26
1.00	Clean Oil 100%O	0.01

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Petroleum Property Services Inc

125 N Market Suite 1251
Wichita KS 67202+1719

ATTN: Curtis Covey

7-4s-14E Nemaha KS

Richards-Fund A #4

Job Ticket: 69818 **DST#: 3**

Test Start: 2022.10.10 @ 21:09:00

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	20 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	8500 ppm
Viscosity:	46.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	8.99 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	1000.00 ppm				
Filter Cake:	inches				

Recovery Information

Recovery Table

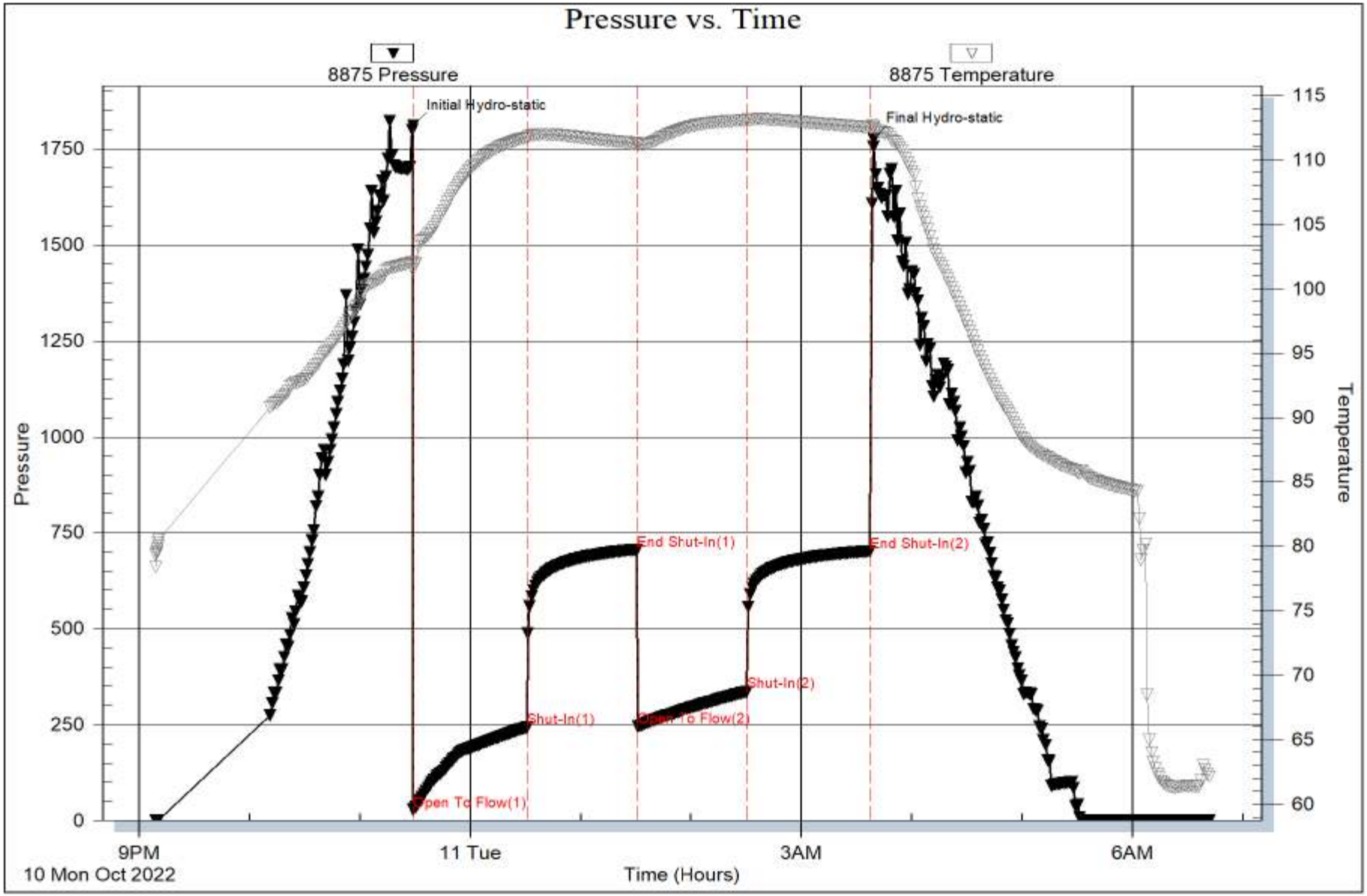
Length ft	Description	Volume bbl
679.00	SMCW 5%M 95%W	6.255
1.00	Clean Oil 100%O	0.014

Total Length: 680.00 ft Total Volume: 6.269 bbl

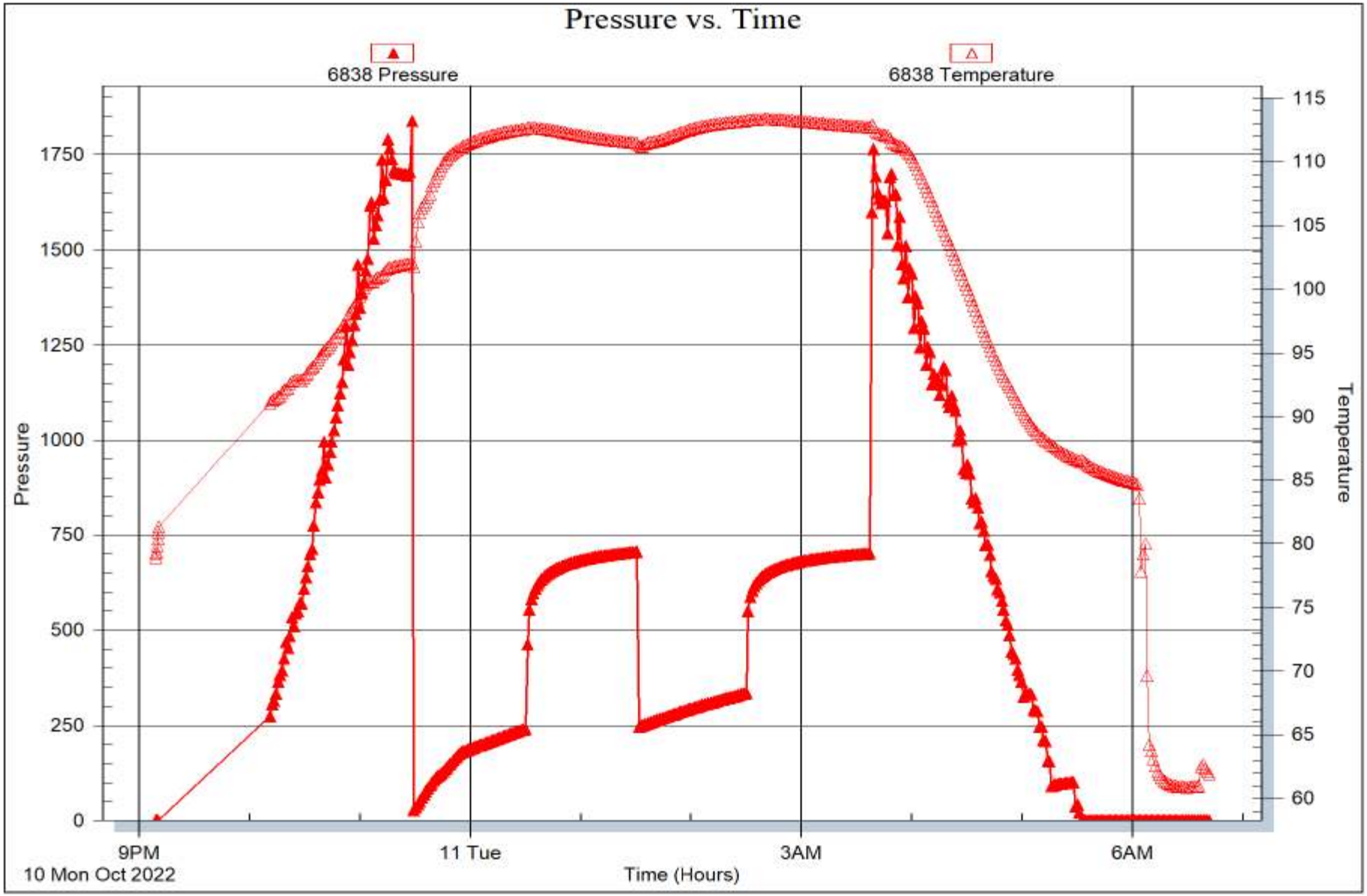
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: 6#LCM
RW=.834@57F


Pressure vs. Time
8875 Pressure
8875 Temperature
Initial Hydro-static
Final Hydro-static
End Shut-In(1)
End Shut-In(2)
Shut-In(1)
Shut-In(2)
Open To Flow(1)
Open To Flow(2)
Pressure
Temperature
1750
1500
1250
1000
750
500
250
0
115
110
105
100
95
90
85
80
75
70
65
60
9PM
10 Mon Oct 2022
11 Tue
3AM
6AM
Time (Hours)

Serial #: 6838 **Inside** Petroleum Property Services Inc Richards-Fund A #4 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 69818 Printed: 2022.10.11 @ 07:30:35

Covey
The Well Watchers

Scale 1:240 (5"=100') Imperial

Well Name:	RICHARDS - FUND #4		
Location:	Section 7 - Township 4S - Range 14 East		
Licence Number:	15-131-209248-00-00	**Region:**	Nemaha County, KS.
Spud Date:	3 October 2022	**Drilling Completed:**	11 October 2022
Surface Coordinates:	1,436' FSL &1,958' FEL (About: SW SE NW SE)		
Bottom Hole Coordinates:			
Ground Elevation (ft):	1,241'	**K.B. Elevation (ft):**	1,249'
Logged Interval (ft):	1,700' To: 3,740'	**Total Depth (ft):**	3,740'
Formation:	Lansing ----> Granite (Basement - PC)		
Type of Drilling Fluid:	Displace @ 1,700' - Chemical, Low Solids/Non-Dispersed		

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: PETROLEUM PROPERTY SERVICES, INC
Address: 125 North Market, Suite 1251 POC: Dan Fredlund
Wichita, Kansas 67202
(316) 265-3351

GEOLOGIST

Name: Curtis E. Covey
Company: COVEY - The Well Watchers
Address: 6548 Bedford Circle
Derby,Kansas 67037
Office: (316) 776-0367 Cell: (316) 217-4679

FORMATION TOPS

KB: 1,249' GL: 1,241'

Formation	Rotary Sample Depth (Datum)	E-log Depth (Datum)
Miss ..... (PDC ROP)	2,511' (- 1,262')	2,516' (-1,267')
Kinderhook ..... (PDC ROP)	2,516' (- 1,267')	2,534' (-1,285')
Hunton ..... (PDC ROP)	2,764' (- 1,515')	2,778' (-1,529')
Maquoketa SH	3,398' (- 2,149')	3,396' (-2,147')
Viola	3,439' (-2,190')	3,436' (-2,187')
Upper Simpson SS	3,662' (-2,413')	3,658' (-2,409')
Granite	3,729' (-2,480')	3,726' (-2,477')

RTD: 3,740' LTD: 3,736' ATD: 3,736'

Float:
Rotary Sample Depth is 1' - 4' low to E-log Depth.

E-Loggers:
Midwest Wireline ... Hays, KS.

DST #1 - VIOLA

Rotary Depth: 3,395' - 3,450'
Logger's Depth: 3,393' - 3,448'

IFP: 19# - 19# / 5"
ISIP: 216# / 60"
FFP: 19# - 21# / 60"
FSIP: 170# / 60"
104 deg F
MH: 1,654# - 1,623#

Recovery: 3' OIL spotted Mud

IF: Surface Blow
ISI: No Return Blow.
FF: Surface Blow.
FSI: No Return Blow.

Recovery Water: NA
System Water: (600 ppm)

Reported Rw = NA

Recovery Water Mud Engineer: NA

Trilobite Testing, Inc.
Hays, KS.

DST #2 - VIOLA Porosity

Rotary Depth: 3,394' - 3,458'
Logger's Depth: 3,392' - 3,456'

IFP: 743# - 1,157# / 20"
ISIP: 1,213# / 60"
FFP: 1,156# - 1,213# / 30"
FSIP: 1,215# / 60"
108 deg F
MH: 1,654# - 1,609#

Recovery: 2,790' Slightly Mud cut Water
(10% M, 90% W)

IF: BOB 30 seconds.
ISI: No Return Blow.
FF: BOB 1", died back to .75 inch.
FSI: No Return Blow.

Recovery Water: (11,000 ppm)
System Water: (700 ppm)

Reported Rw =
0.789 ohms @ 50 deg F.

Recovery Water Mud Engineer: (12,000 ppm)

Trilobite Testing, Inc.
Hays, KS.

DST #3 - Upper Simpson Sandstone

Rotary Depth: 3,647' - 3,668'
Logger's Depth: 3,645' - 3,666'

IFP: 27# - 243# / 60"
ISIP: 705# / 60"
FFP: 245# - 336# / 60"
FSIP: 701# / 60"
112 deg F
MH: 1,810# - 1,776#

Recovery: 1' Clean OIL ..... API: 20 deg
679' Slightly Mud cut Water
(5% Mud, 95% Water)

IF: BOB 23 minutes.
ISI: No Return Blow.
FF: Surface Blow to 6 inches.
FSI: No Return Blow.

Recovery Water: (8,500 ppm)
System Water: (1,000 ppm)

Reported Rw =
0.834 ohms @ 57 deg F.

Recovery Water Mud Engineer: (15,000 ppm)

Trilobite Testing, Inc.
Hays, KS.

2022

DAILY DRILLING - OCTOBER

2022

12/1/4" Hole (Surface)

3 Oct --- Spud @ 1pm.
Drill to 394' @ 7:45pm.
Ran 8-5/8" (23#) casing.
Washed down 3 jts.
Set @ 381'.
220 sx H-325 (2%CC +
4% Gel, 1/4# FLO &
1# Cedar). Circ 5 Bbls.
[Hurricane Services]
4 --- Plug down @ 10:30pm.
WOC.

7-7/8" Hole (Vertical)

4 Oct --- WOC. Tag/Drill 15' of cement.
Under Surface @ 2:30pm.
5 --- 7am @ 1,478'.
6 --- Bit Trip @ 2,530'.
7am @ 2,551'.
7 --- T/O to locate hole in pipe
@ 3,008'. (Found on 29th joint.)
T/I ... resurfaced 9 joints.
Resumed Drilling @ 3:30am.
Work on Rig Clutch.
7am @ 3,026'.
Bit Trip @ 3,340'. Add 1 DC
8 --- Resumed Drilling @ 3:30am.
7am @ 3,384' (Actual).
[7am @ 3,402' (Reported).]
T/O. Level Rig.
Start and .....

7-7/8" Hole (Vertical)

9 Oct --- Finish DST #1 - VIOLA.
(3,395' - 3,450').
7am @ 3,450'.
Resumed Drilling @ 8:10am.
DST #2 - VIOLA Porosity.
(3,394' - 3,458').
10 --- Resumed Drilling @ 12:15am
7am @ 3,563'. Start and .....
11 --- Finish DST #3 - Upper
Simpson SS Porosity.
(3,647' - 3,668').
7am @ 3,668'.
Resumed Drilling @ 9:10am.
Drill to RTD (3,740') @ 3:08pm.
E-log.
[Midwest Wireline}

HOLE DEVIATION (394' - 3,740' MD)

12-1/4" Surface Hole

DEPTH / TVD	---	INCLINATION		AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'
394' /	---	0.50	(Surface Casing)						

7-7/8" Vetical Hole

911' /	---	0.75	
1,415' /	---	0.75	
2,014' /	---	0.25	
2,519' /	---	0.75	
3,215' /	---	1.50	
3,450' /	---	1.00	(DST #1)
3,740' /	---	1.00	(RTD)

Strap @ x,xxx' (Bit Trip): NA

Strap: NA
Board: NA
Diff: NA

Inclination Surveys provided by Lighthouse Drilling - Rig #2

CONTRACTOR

Lighthouse Drilling, Inc. --- Rig #2

P. O. Box 1118
El Dorado, Kansas
Office: (316) 435-5151

Lighthouse Drilling - Rig #2 ----
Toolpusher: Duke Cuolter (620) 750-0369

Pump: EMSCO D-375
6.5" x 14" @ 60 SPM.
700 PSI @ Standpipe.

Drill Pipe: 4.5" XH. (16.4# / ft -used)

Drill Collars: 6.25" x 2.25" --- 336'. (91#//ft)
Dry Collar Weight: 30,576#
Bouyancy Collar Weight: 26,381#
(@ 9.0 ppg / Buoyancy Factor 0.863)
Design Factor: 15% held back to keep drill string straight, therefore: available calculated WOB is 22,429#

Check Weight Indicator @ 2.014'.
Calculated String Weight (62,570#) -vs- Observed WI (53,000#).
WI is weighing LIGHT by about 15%
Therefore: Calculated WOB of 22,429# will show 19,503# on WI.

BIT RECORD

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP
SURFACE ---		(IADC)					(ft/hr)
3 Oct 2022	12-1/4"	Logic	6 x 14's	O' / 394'	394'	2.0	197.0
VERTICAL ---							
4 Oct 2022	7-7/8"	LOGIC PLT61606 (PDC)	6 - 16's	394' / 2,530'	394'	25.75	83.8
6 Oct 2022	7-7/8"	LOGIC PLT61606 (PDC)	6 - 16's	2,530' / 3,240'	710'	26.25	27.0
7 Oct 2022	7-7/8"	LOGIC GPS517	3 - 22's	3,240' / 3,740'	500'	29.50	16.9

ROCK TYPES

POROSITY

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

LITHOLOGY

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Granite wash
- Congl
- Dol lmst
- Silty dol
- Calc dol
- Dol 2
- Dol
- Gyp
- Igne
- Lmst 2
- Lmst
- Meta
- Mrlst
- Salt
- Shale 3
- Shale 3
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- Ss 2

MINERAL

- Mica
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Copper
- Ooliticastic
- Ooloid
- Oolite
- Sucrosic
- Dark specks

STRINGER

- Dol ls
- Silty dol
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Calc dol
- Sltstrg
- Ssstrg
- Chalk
- New symbol

SHOW

- Oil
- Spotted
- Ques
- Dead
- Gas
- Oil/gas
- Bed contact

ACCESSORIES

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Spore
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

MINERAL

- Mica
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Copper
- Ooliticastic
- Ooloid
- Oolite
- Sucrosic
- Dark specks

STRINGER

- Dol ls
- Silty dol
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Calc dol
- Sltstrg
- Ssstrg
- Chalk
- New symbol

OTHER SYMBOLS

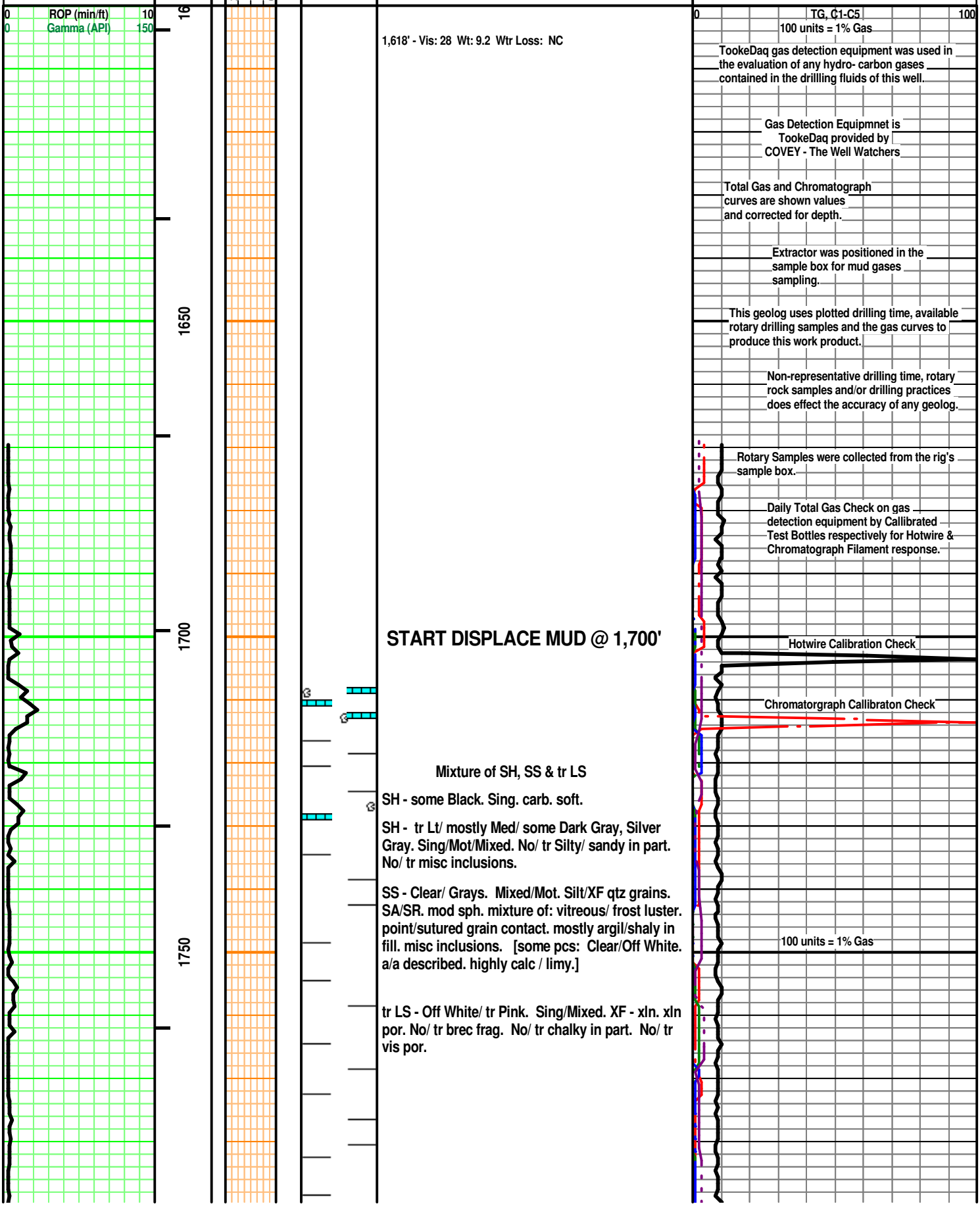
ACTIVITY

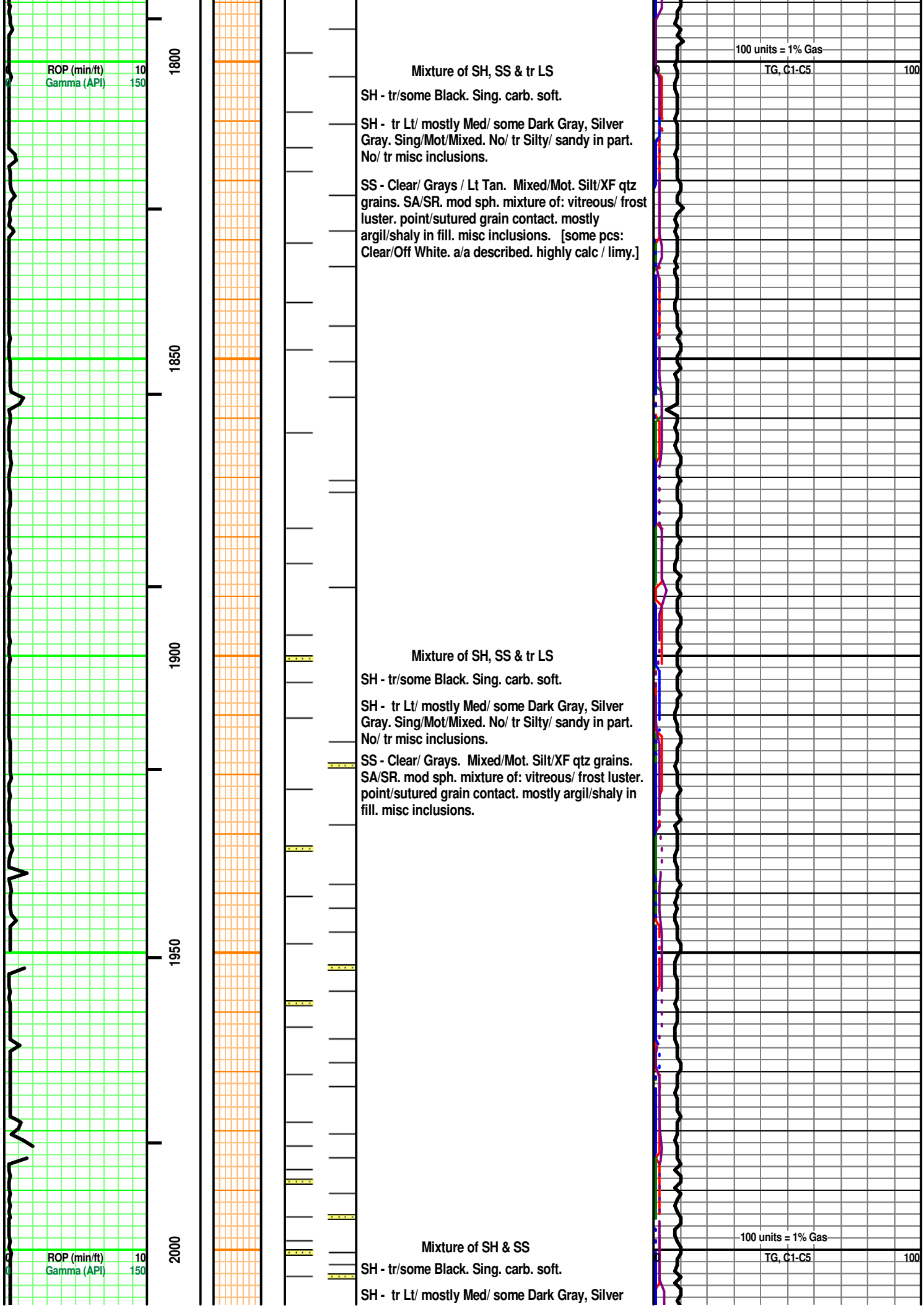
- Lost circluation
- Circulate for sam
- Circulate for sam
- Rtd
- Trip

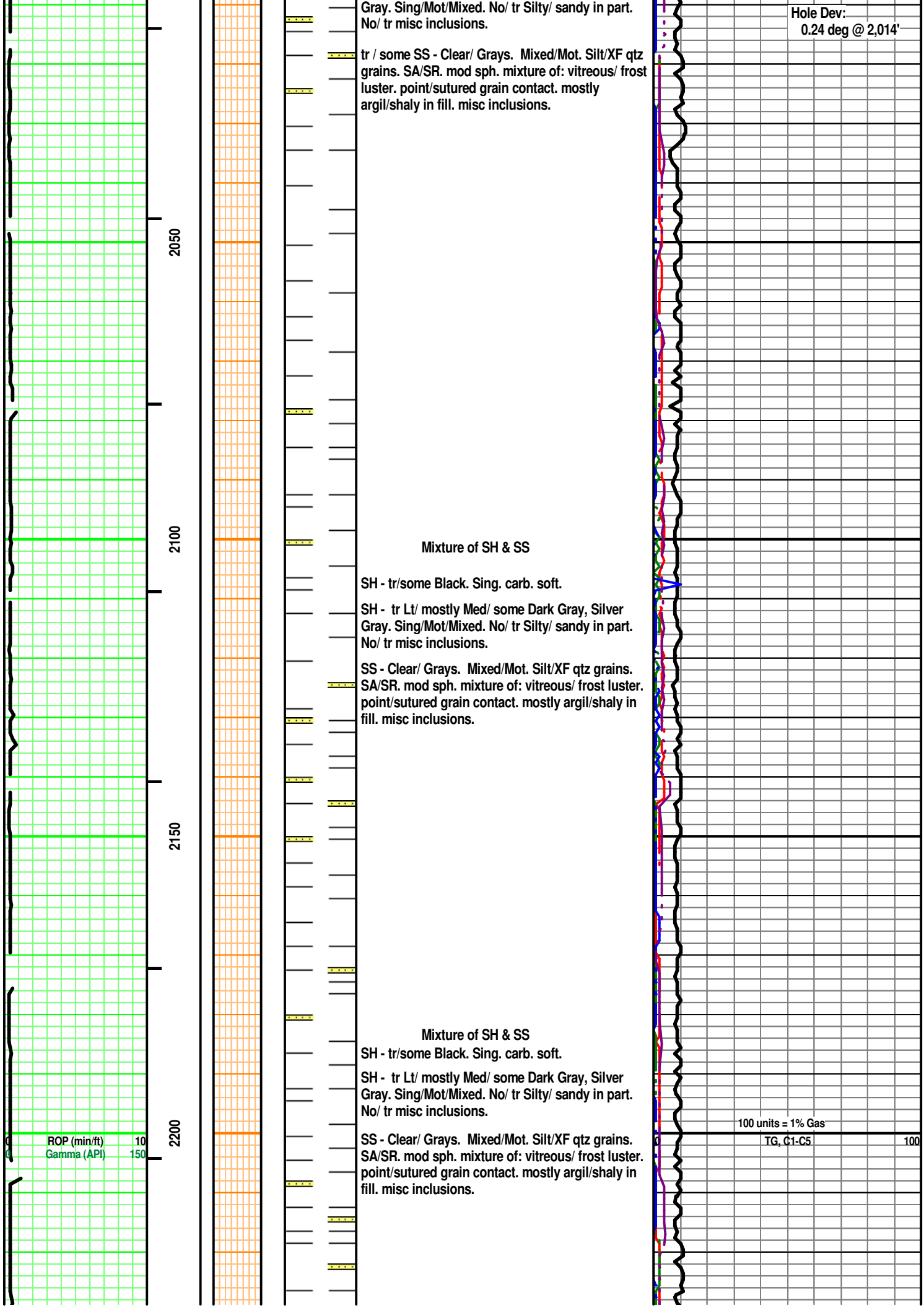
EVENT

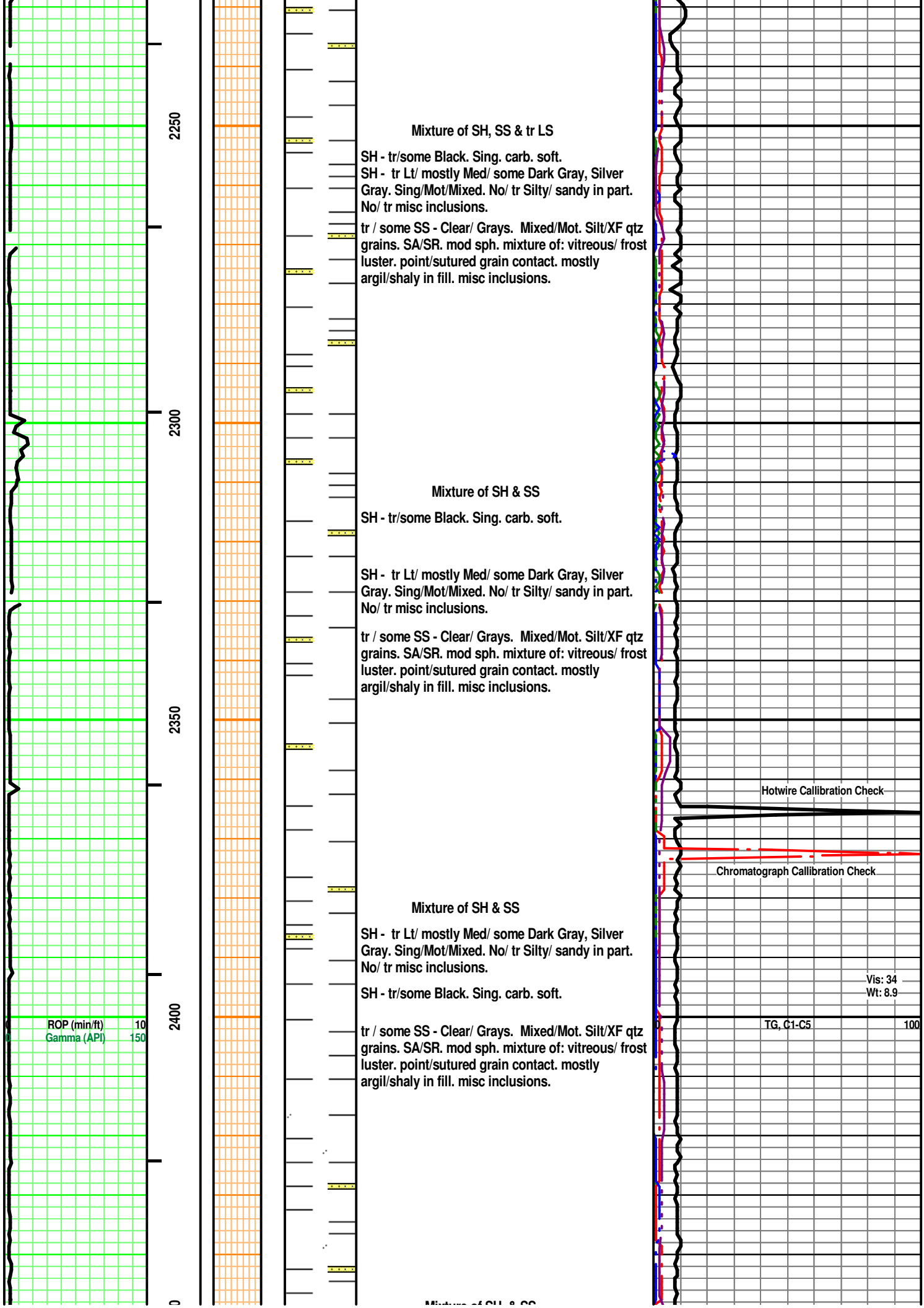
- Connection
- Rft

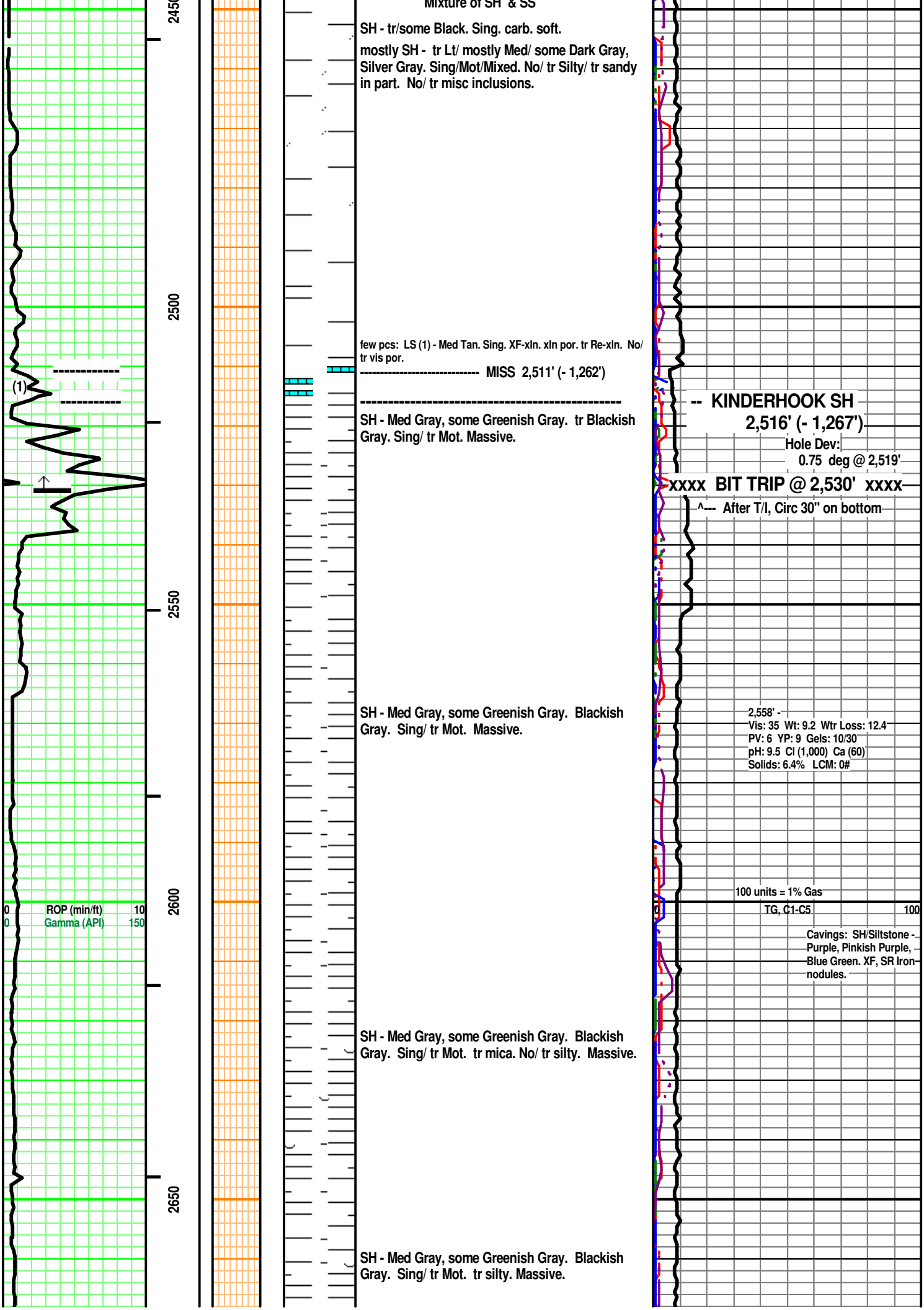
- Sidewall


Curve Track 1
ROP (min/ft)
Gamma (API)
Depth
Porosity Type
Porosity
24%
18%
12%
6%
Shows
Lithology
Geological Descriptions
TG, C1-C5
TG (Units)
C1 (units)
C2 (units)
C3 (units)
C4 (units)
C5 (units)
0 ROP (min/ft) 10
0 Gamma (API) 150
1650
1700
1750
1,618' - Vis: 28 Wt: 9.2 Wtr Loss: NC
START DISPLACE MUD @ 1,700'
Mixture of SH, SS & tr LS
SH - some Black. Sing. carb. soft.
SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
SS - Clear/ Grays. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions. [some pcs: Clear/Off White. a/a described. highly calc / limy.]
tr LS - Off White/ tr Pink. Sing/Mixed. XF - xln. xln por. No/ tr brec frag. No/ tr chalky in part. No/ tr vis por.
0 TG, C1-C5 100
100 units = 1% Gas
TookeDaq gas detection equipment was used in the evaluation of any hydro- carbon gases contained in the drillling fluids of this well.
Gas Detection Equipmnet is TookeDaq provided by COVEY - The Well Watchers
Total Gas and Chromatograph curves are shown values and corrected for depth.
Extractor was positioned in the sample box for mud gases sampling.
This geolog uses plotted drilling time, available rotary drilling samples and the gas curves to produce this work product.
Non-representative drilling time, rotary rock samples and/or drilling practices does effect the accuracy of any geolog.
Rotary Samples were collected from the rig's sample box.
Daily Total Gas Check on gas detection equipment by Callibrated Test Bottles respectively for Hotwire & Chromatograph Filament response.
Hotwire Calibration Check
Chromatorgraph Callibraton Check
100 units = 1% Gas

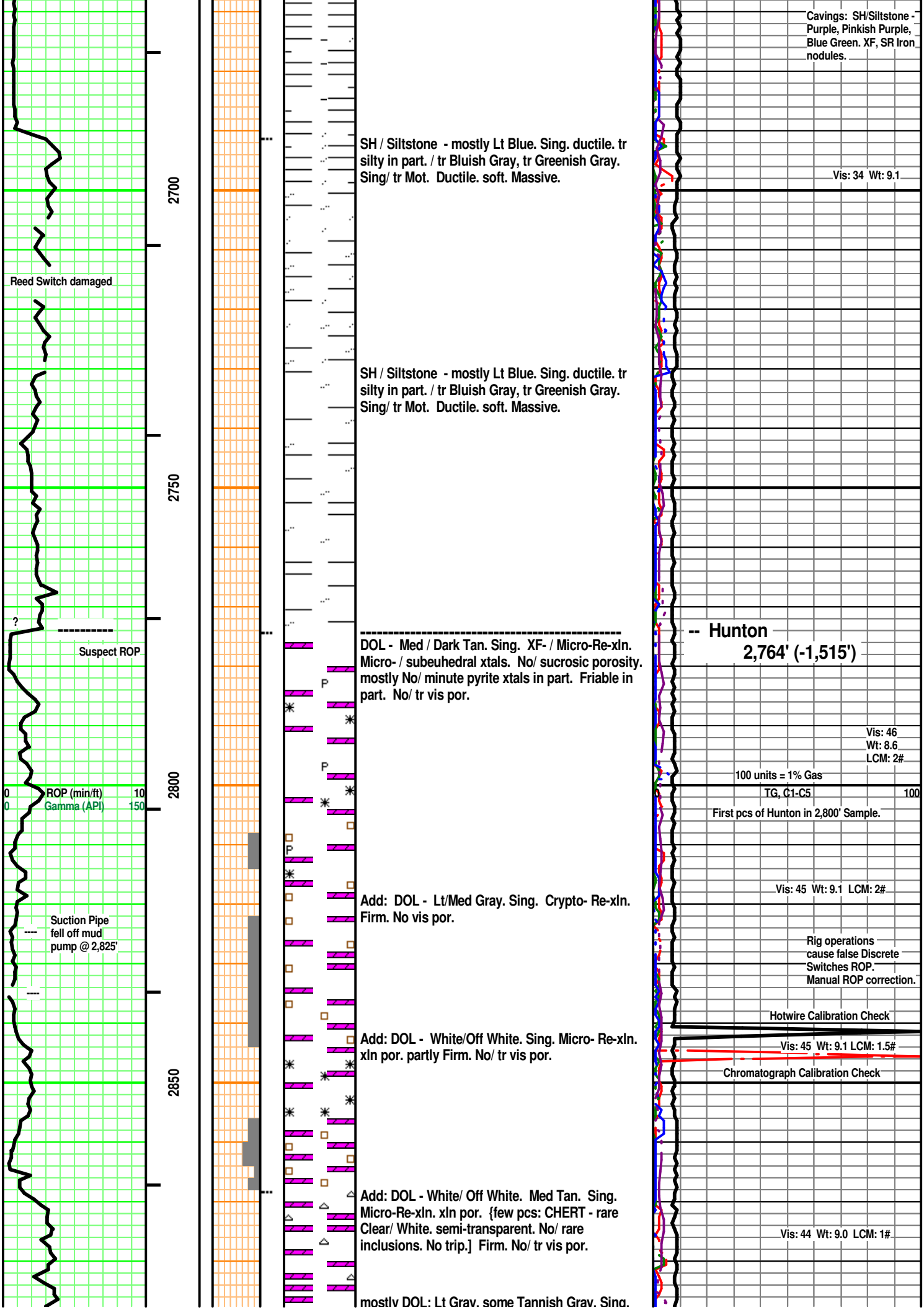

ROP (min/ft)
Gamma (API)
10
150
1800
1850
1900
1950
2000
100 units = 1% Gas
TG, C1-C5
100
Mixture of SH, SS & tr LS
SH - tr/some Black. Sing. carb. soft.
SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
SS - Clear/ Grays / Lt Tan. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions. [some pcs: Clear/Off White. a/a described. highly calc / limy.]
Mixture of SH, SS & tr LS
SH - tr/some Black. Sing. carb. soft.
SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
SS - Clear/ Grays. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions.
Mixture of SH & SS
SH - tr/some Black. Sing. carb. soft.
SH - tr Lt/ mostly Med/ some Dark Gray, Silver

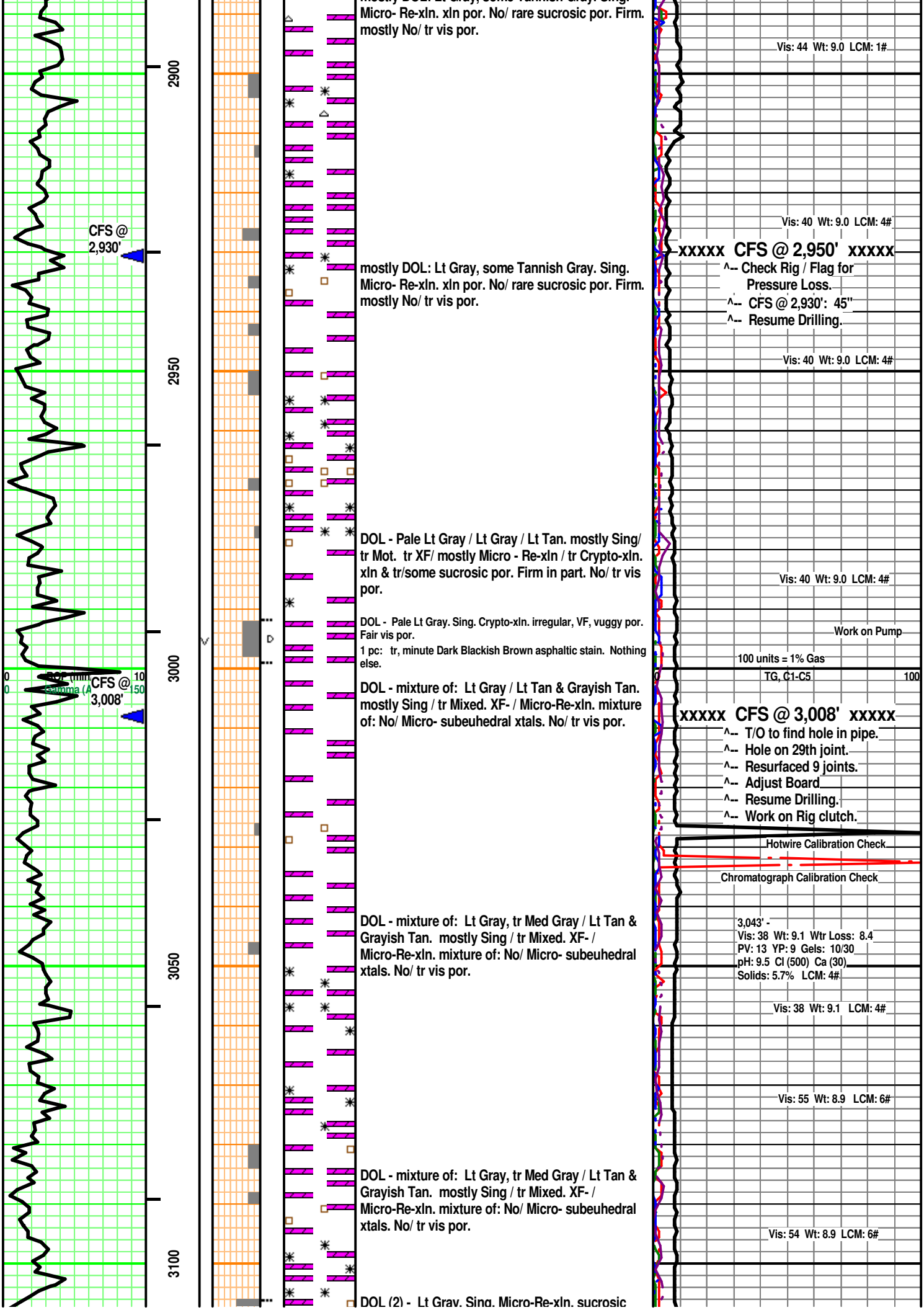

Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
tr / some SS - Clear/ Grays. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions.
Hole Dev:
0.24 deg @ 2,014'
2050
2100
Mixture of SH & SS
SH - tr/some Black. Sing. carb. soft.
SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
SS - Clear/ Grays. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions.
2150
Mixture of SH & SS
SH - tr/some Black. Sing. carb. soft.
SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
SS - Clear/ Grays. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions.
2200
0 ROP (min/ft) 10
0 Gamma (API) 150
100 units = 1% Gas
0 TG, C1-C5 100

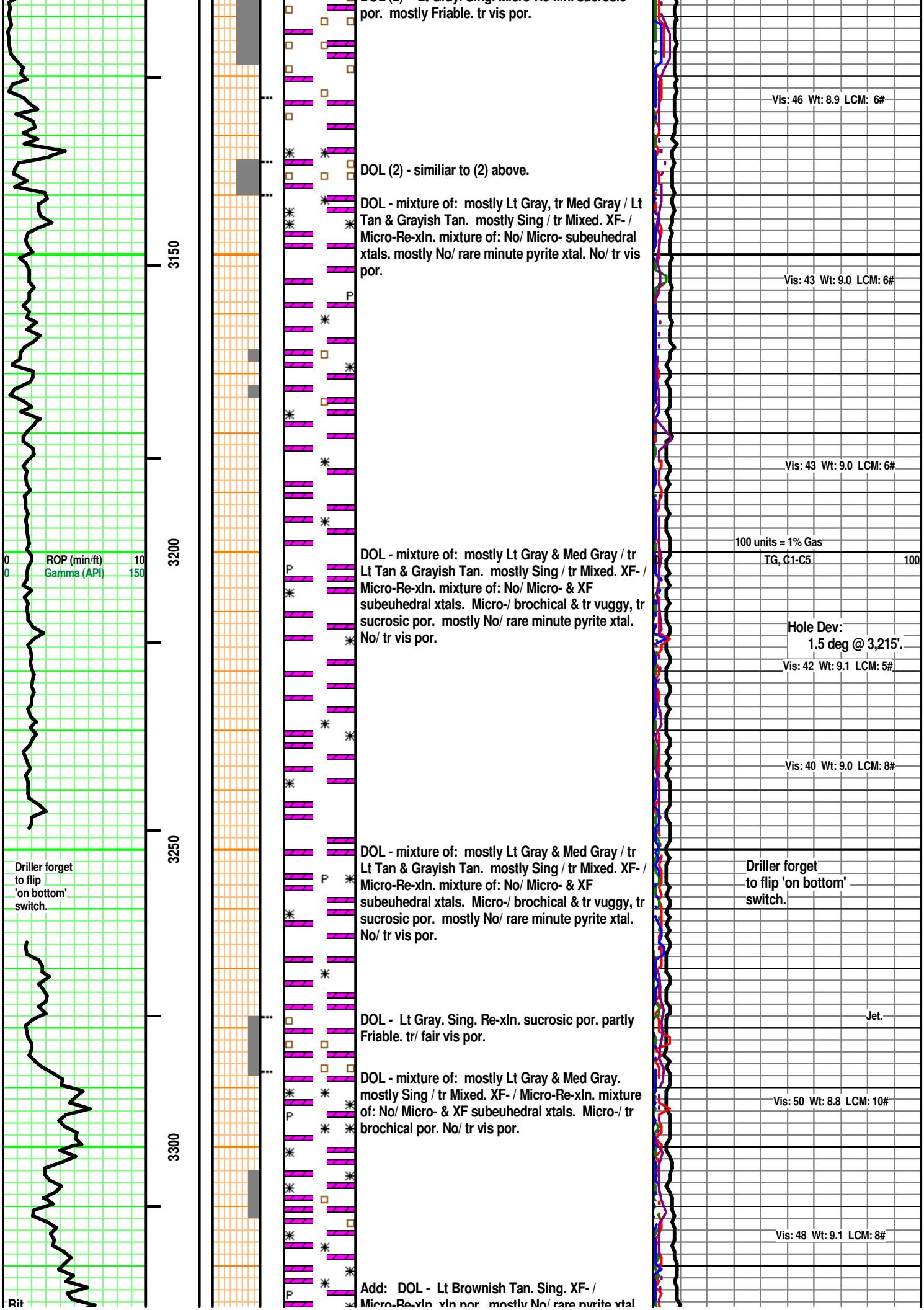

2250
2300
2350
2400
ROP (min/ft) 10
Gamma (API) 150
Mixture of SH, SS & tr LS
SH - tr/some Black. Sing. carb. soft.
SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
tr / some SS - Clear/ Grays. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions.
Mixture of SH & SS
SH - tr/some Black. Sing. carb. soft.
SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
tr / some SS - Clear/ Grays. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions.
Hotwire Callibration Check
Chromatograph Callibration Check
Mixture of SH & SS
SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ sandy in part. No/ tr misc inclusions.
SH - tr/some Black. Sing. carb. soft.
tr / some SS - Clear/ Grays. Mixed/Mot. Silt/XF qtz grains. SA/SR. mod sph. mixture of: vitreous/ frost luster. point/sutured grain contact. mostly argil/shaly in fill. misc inclusions.
Vis: 34
Wt: 8.9
0
TG, C1-C5
100

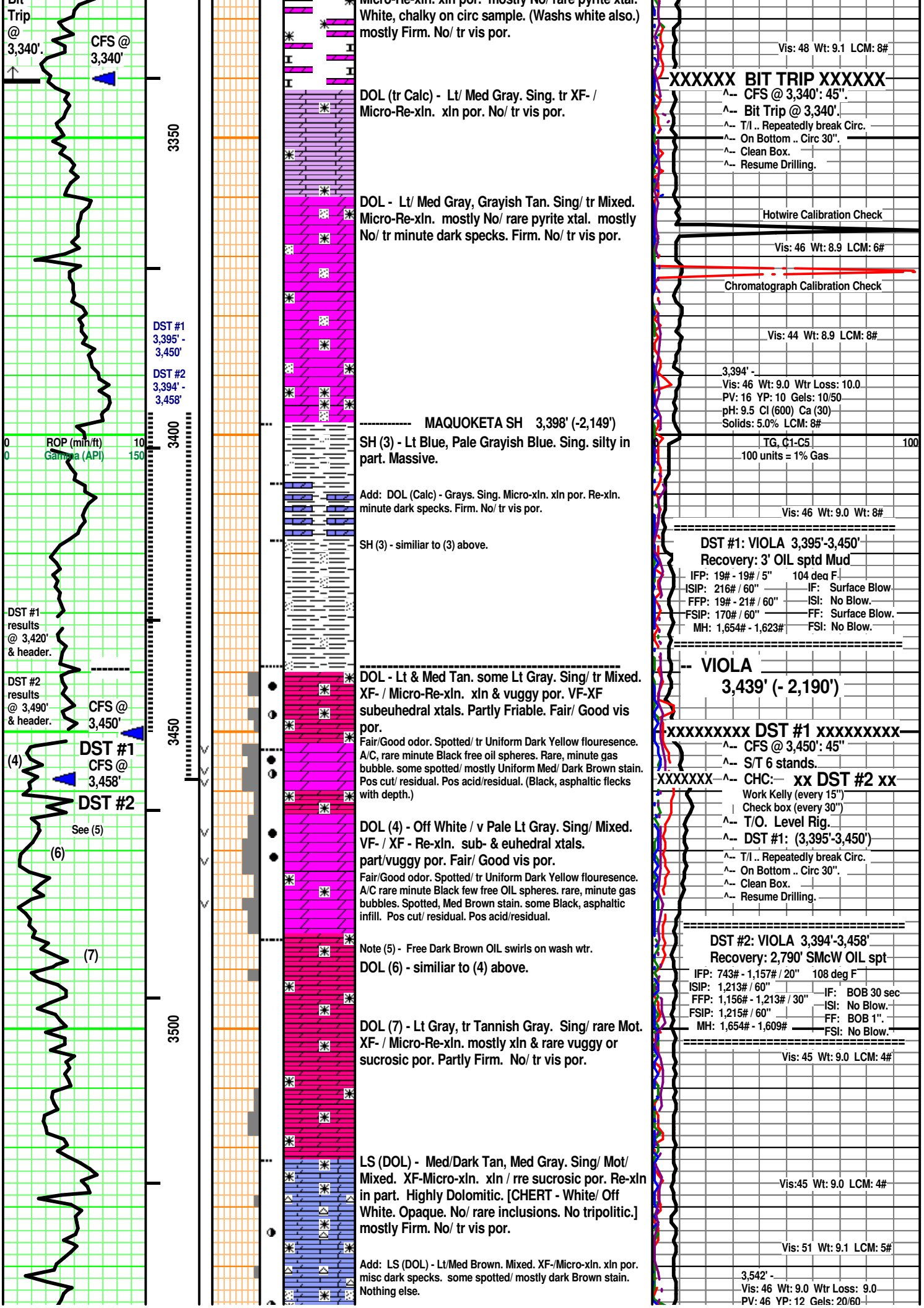

Mixture of SH & SS
SH - tr/some Black. Sing. carb. soft.
mostly SH - tr Lt/ mostly Med/ some Dark Gray, Silver Gray. Sing/Mot/Mixed. No/ tr Silty/ tr sandy in part. No/ tr misc inclusions.
2450
2500
2550
2600
2650
few pcs: LS (1) - Med Tan. Sing. XF-xln. xln por. tr Re-xln. No/ tr vis por.
---------- MISS 2,511' (- 1,262')
(1)

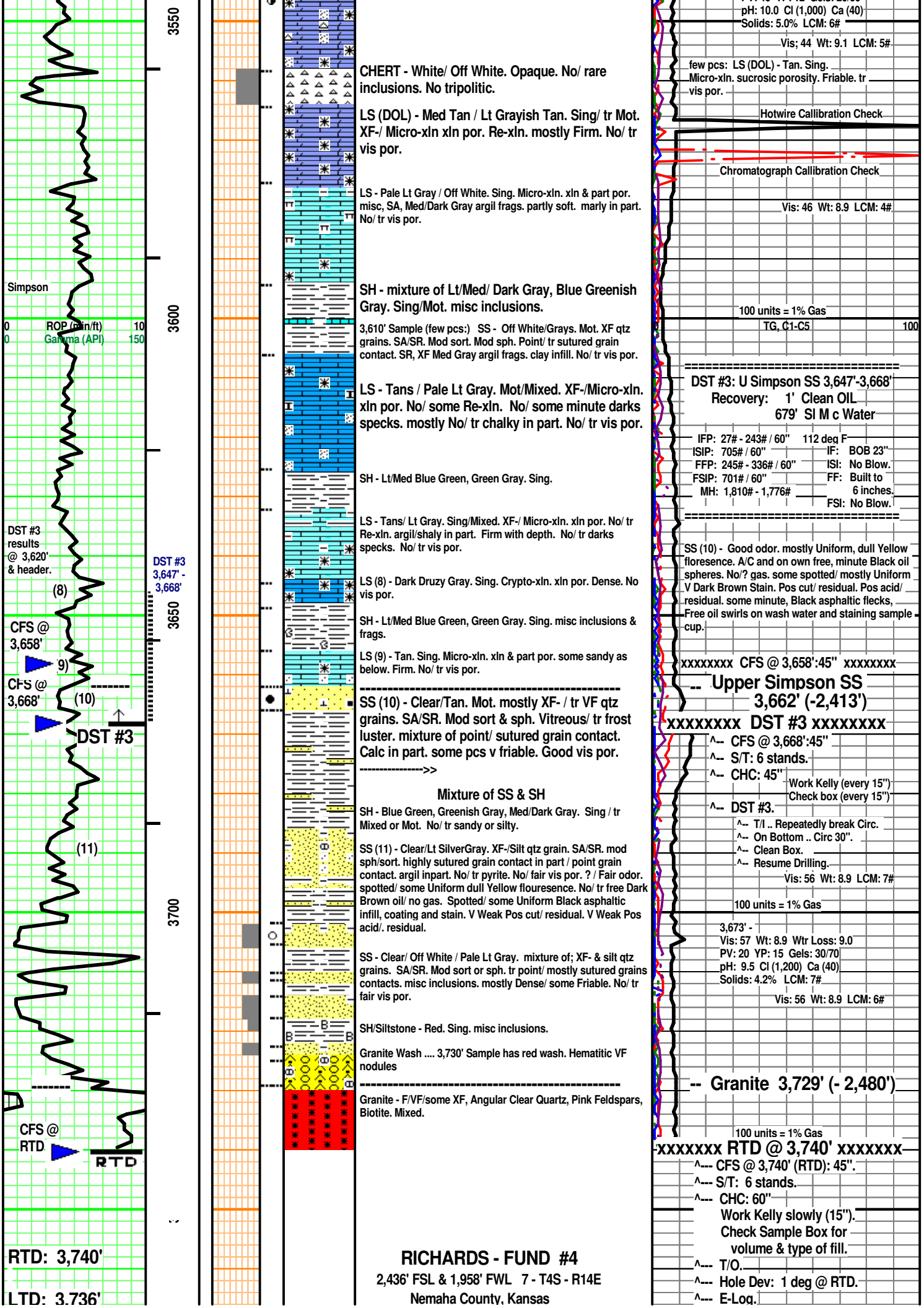
SH - Med Gray, some Greenish Gray. tr Blackish Gray. Sing/ tr Mot. Massive.
-- KINDERHOOK SH
2,516' (- 1,267')
Hole Dev:
0.75 deg @ 2,519'
xxxx BIT TRIP @ 2,530' xxxx
^--- After T/I, Circ 30" on bottom
SH - Med Gray, some Greenish Gray. Blackish Gray. Sing/ tr Mot. Massive.
2,558' -
Vis: 35 Wt: 9.2 Wtr Loss: 12.4
PV: 6 YP: 9 Gels: 10/30
pH: 9.5 Cl (1,000) Ca (60)
Solids: 6.4% LCM: 0#
100 units = 1% Gas
0 TG, C1-C5 100
0 ROP (min/ft) 10
0 Gamma (API) 150
Cavings: SH/Siltstone - Purple, Pinkish Purple, Blue Green. XF, SR Iron nodules.
SH - Med Gray, some Greenish Gray. Blackish Gray. Sing/ tr Mot. tr mica. No/ tr silty. Massive.
SH - Med Gray, some Greenish Gray. Blackish Gray. Sing/ tr Mot. tr silty. Massive.


2700
2750
2800
2850
Reed Switch damaged
?
Suspect ROP
0 ROP (min/ft) 10
0 Gamma (API) 150
Suction Pipe fell off mud pump @ 2,825'
SH / Siltstone - mostly Lt Blue. Sing. ductile. tr silty in part. / tr Bluish Gray, tr Greenish Gray. Sing/ tr Mot. Ductile. soft. Massive.
SH / Siltstone - mostly Lt Blue. Sing. ductile. tr silty in part. / tr Bluish Gray, tr Greenish Gray. Sing/ tr Mot. Ductile. soft. Massive.
DOL - Med / Dark Tan. Sing. XF- / Micro-Re-xln. Micro- / subeuhedral xtals. No/ sucrosic porosity. mostly No/ minute pyrite xtals in part. Friable in part. No/ tr vis por.
Add: DOL - Lt/Med Gray. Sing. Crypto- Re-xln. Firm. No vis por.
Add: DOL - White/Off White. Sing. Micro- Re-xln. xln por. partly Firm. No/ tr vis por.
Add: DOL - White/ Off White. Med Tan. Sing. Micro-Re-xln. xln por. {few pcs: CHERT - rare Clear/ White. semi-transparent. No/ rare inclusions. No trip.] Firm. No/ tr vis por.
mostly DOL: Lt Gray, some Tannish Gray. Sing.
Cavings: SH/Siltstone - Purple, Pinkish Purple, Blue Green. XF, SR Iron nodules.
Vis: 34 Wt: 9.1
-- Hunton
2,764' (-1,515')
Vis: 46
Wt: 8.6
LCM: 2#
100 units = 1% Gas
0 TG, C1-C5 100
First pcs of Hunton in 2,800' Sample.
Vis: 45 Wt: 9.1 LCM: 2#
Rig operations cause false Discrete Switches ROP. Manual ROP correction.
Hotwire Calibration Check
Vis: 45 Wt: 9.1 LCM: 1.5#
Chromatograph Calibration Check
Vis: 44 Wt: 9.0 LCM: 1#


2900
2950
3000
3050
3100
CFS @ 2,930'
CFS @ 3,008'
Micro- Re-xln. xln por. No/ rare sucrosic por. Firm. mostly No/ tr vis por.
Vis: 44 Wt: 9.0 LCM: 1#
Vis: 40 Wt: 9.0 LCM: 4#
xxxxx CFS @ 2,950' xxxxx
^-- Check Rig / Flag for Pressure Loss.
^-- CFS @ 2,930': 45"
^-- Resume Drilling.
mostly DOL: Lt Gray, some Tannish Gray. Sing. Micro- Re-xln. xln por. No/ rare sucrosic por. Firm. mostly No/ tr vis por.
Vis: 40 Wt: 9.0 LCM: 4#
DOL - Pale Lt Gray / Lt Gray / Lt Tan. mostly Sing/ tr Mot. tr XF/ mostly Micro - Re-xln / tr Crypto-xln. xln & tr/some sucrosic por. Firm in part. No/ tr vis por.
Vis: 40 Wt: 9.0 LCM: 4#
DOL - Pale Lt Gray. Sing. Crypto-xln. irregular, VF, vuggy por. Fair vis por.
1 pc: tr, minute Dark Blackish Brown asphaltic stain. Nothing else.
Work on Pump
100 units = 1% Gas
TG, C1-C5
DOL - mixture of: Lt Gray / Lt Tan & Grayish Tan. mostly Sing / tr Mixed. XF- / Micro-Re-xln. mixture of: No/ Micro- subeuhedral xtals. No/ tr vis por.
xxxxx CFS @ 3,008' xxxxx
^-- T/O to find hole in pipe.
^-- Hole on 29th joint.
^-- Resurfaced 9 joints.
^-- Adjust Board
^-- Resume Drilling.
^-- Work on Rig clutch.
Hotwire Calibration Check
Chromatograph Calibration Check
DOL - mixture of: Lt Gray, tr Med Gray / Lt Tan & Grayish Tan. mostly Sing / tr Mixed. XF- / Micro-Re-xln. mixture of: No/ Micro- subeuhedral xtals. No/ tr vis por.
3,043' -
Vis: 38 Wt: 9.1 Wtr Loss: 8.4
PV: 13 YP: 9 Gels: 10/30
pH: 9.5 Cl (500) Ca (30)
Solids: 5.7% LCM: 4#
Vis: 38 Wt: 9.1 LCM: 4#
Vis: 55 Wt: 8.9 LCM: 6#
DOL - mixture of: Lt Gray, tr Med Gray / Lt Tan & Grayish Tan. mostly Sing / tr Mixed. XF- / Micro-Re-xln. mixture of: No/ Micro- subeuhedral xtals. No/ tr vis por.
Vis: 54 Wt: 8.9 LCM: 6#
DOL (2) - Lt Gray, Sing. Micro-Re-xln. sucrosic


0
ROP (min/ft)
10
0
Gamma (API)
150
3150
3200
3250
3300
Driller forget to flip 'on bottom' switch.
Bit
DOL - mixture of: mostly Lt Gray & Med Gray / tr Lt Tan & Grayish Tan. mostly Sing / tr Mixed. XF- / Micro-Re-xln. mixture of: No/ Micro- & XF subeuhedral xtals. Micro-/ brochical & tr vuggy, tr sucrosic por. mostly No/ rare minute pyrite xtal. No/ tr vis por.
DOL - Lt Gray. Sing. Re-xln. sucrosic por. partly Friable. tr/ fair vis por.
DOL - mixture of: mostly Lt Gray & Med Gray. mostly Sing / tr Mixed. XF- / Micro-Re-xln. mixture of: No/ Micro- & XF subeuhedral xtals. Micro-/ tr brochical por. No/ tr vis por.
Add: DOL - Lt Brownish Tan. Sing. XF- /
Micro-Re-xln. xln por. mostly No/ rare pyrite xtal
Vis: 46 Wt: 8.9 LCM: 6#
DOL (2) - similiar to (2) above.
DOL - mixture of: mostly Lt Gray, tr Med Gray / Lt Tan & Grayish Tan. mostly Sing / tr Mixed. XF- / Micro-Re-xln. mixture of: No/ Micro- subeuhedral xtals. mostly No/ rare minute pyrite xtal. No/ tr vis por.
Vis: 43 Wt: 9.0 LCM: 6#
Vis: 43 Wt: 9.0 LCM: 6#
100 units = 1% Gas
TG, C1-C5
100
Hole Dev:
1.5 deg @ 3,215'.
Vis: 42 Wt: 9.1 LCM: 5#
Vis: 40 Wt: 9.0 LCM: 8#
Driller forget to flip 'on bottom' switch.
Jet.
Vis: 50 Wt: 8.8 LCM: 10#
Vis: 48 Wt: 9.1 LCM: 8#


Bit Trip @ 3,340'.
CFS @ 3,340'
3350
DST #1 3,395' - 3,450'
DST #2 3,394' - 3,458'
3400
0 ROP (min/ft) 10
0 Gamma (API) 150
DST #1 results @ 3,420' & header.
DST #2 results @ 3,490' & header.
CFS @ 3,450'
3450
DST #1
(4)
CFS @ 3,458'
DST #2
See (5)
(6)
(7)
3500
White, chalky on circ sample. (Washs white also.) mostly Firm. No/ tr vis por.
DOL (tr Calc) - Lt/ Med Gray. Sing. tr XF- / Micro-Re-xln. xln por. No/ tr vis por.
DOL - Lt/ Med Gray, Grayish Tan. Sing/ tr Mixed. Micro-Re-xln. mostly No/ rare pyrite xtal. mostly No/ tr minute dark specks. Firm. No/ tr vis por.
---------- MAQUOKETA SH 3,398' (-2,149')
SH (3) - Lt Blue, Pale Grayish Blue. Sing. silty in part. Massive.
Add: DOL (Calc) - Grays. Sing. Micro-xln. xln por. Re-xln. minute dark specks. Firm. No/ tr vis por.
SH (3) - similiar to (3) above.
DOL - Lt & Med Tan. some Lt Gray. Sing/ tr Mixed. XF- / Micro-Re-xln. xln & vuggy por. VF-XF subeuhedral xtals. Partly Friable. Fair/ Good vis por.
Fair/Good odor. Spotted/ tr Uniform Dark Yellow flouresence. A/C, rare minute Black free oil spheres. Rare, minute gas bubble. some spotted/ mostly Uniform Med/ Dark Brown stain. Pos cut/ residual. Pos acid/residual. (Black, asphaltic flecks with depth.)
DOL (4) - Off White / v Pale Lt Gray. Sing/ Mixed. VF- / XF - Re-xln. sub- & euhedral xtals. part/vuggy por. Fair/ Good vis por.
Fair/Good odor. Spotted/ tr Uniform Dark Yellow flouresence. A/C rare minute Black few free OIL spheres. rare, minute gas bubbles. Spotted, Med Brown stain. some Black, asphaltic infill. Pos cut/ residual. Pos acid/residual.
Note (5) - Free Dark Brown OIL swirls on wash wtr.
DOL (6) - similiar to (4) above.
DOL (7) - Lt Gray, tr Tannish Gray. Sing/ rare Mot. XF- / Micro-Re-xln. mostly xln & rare vuggy or sucrosic por. Partly Firm. No/ tr vis por.
LS (DOL) - Med/Dark Tan, Med Gray. Sing/ Mot/ Mixed. XF-Micro-xln. xln / rre sucrosic por. Re-xln in part. Highly Dolomitic. [CHERT - White/ Off White. Opaque. No/ rare inclusions. No tripolitic.] mostly Firm. No/ tr vis por.
Add: LS (DOL) - Lt/Med Brown. Mixed. XF-/Micro-xln. xln por. misc dark specks. some spotted/ mostly dark Brown stain. Nothing else.
Vis: 48 Wt: 9.1 LCM: 8#
XXXXXX BIT TRIP XXXXXX
^-- CFS @ 3,340': 45".
^-- Bit Trip @ 3,340'.
^-- T/I .. Repeatedly break Circ.
^-- On Bottom .. Circ 30".
^-- Clean Box.
^-- Resume Drilling.
Hotwire Calibration Check
Vis: 46 Wt: 8.9 LCM: 6#
Chromatograph Calibration Check
Vis: 44 Wt: 8.9 LCM: 8#
3,394' -
Vis: 46 Wt: 9.0 Wtr Loss: 10.0
PV: 16 YP: 10 Gels: 10/50
pH: 9.5 Cl (600) Ca (30)
Solids: 5.0% LCM: 8#
0 TG, C1-C5 100
100 units = 1% Gas
Vis: 46 Wt: 9.0 Wt: 8#
DST #1: VIOLA 3,395'-3,450'
Recovery: 3' OIL sptd Mud
IFP: 19# - 19# / 5" 104 deg F
ISIP: 216# / 60"
FFP: 19# - 21# / 60"
FSIP: 170# / 60"
MH: 1,654# - 1,623#
IF: Surface Blow
ISI: No Blow.
FF: Surface Blow.
FSI: No Blow.
-- VIOLA
3,439' (- 2,190')
XXXXXXXXX DST #1 XXXXXXXXX
^-- CFS @ 3,450': 45"
^-- S/T 6 stands.
XXXXXXX ^-- CHC: xx DST #2 xx
Work Kelly (every 15")
Check box (every 30")
^-- T/O. Level Rig.
^-- DST #1: (3,395'-3,450')
^-- T/I .. Repeatedly break Circ.
^-- On Bottom .. Circ 30".
^-- Clean Box.
^-- Resume Drilling.
DST #2: VIOLA 3,394'-3,458'
Recovery: 2,790' SMcW OIL spt
IFP: 743# - 1,157# / 20" 108 deg F
ISIP: 1,213# / 60"
FFP: 1,156# - 1,213# / 30"
FSIP: 1,215# / 60"
MH: 1,654# - 1,609#
IF: BOB 30 sec
ISI: No Blow.
FF: BOB 1".
FSI: No Blow.
Vis: 45 Wt: 9.0 LCM: 4#
Vis:45 Wt: 9.0 LCM: 4#
Vis: 51 Wt: 9.1 LCM: 5#
3,542' -
Vis: 46 Wt: 9.0 Wtr Loss: 9.0
PV: 46 YP: 12 Gels: 20/60


3550
3600
3650
3700
Simpson
0 ROP (min/ft) 10
0 Gamma (API) 150
DST #3 results @ 3,620' & header.
(8)
DST #3 3,647' - 3,668'
CFS @ 3,658'
9)
CFS @ 3,668'
(10)
DST #3
(11)
CFS @ RTD
RTD
RTD: 3,740'
LTD: 3,736'
CHERT - White/ Off White. Opaque. No/ rare inclusions. No tripolitic.
LS (DOL) - Med Tan / Lt Grayish Tan. Sing/ tr Mot. XF-/ Micro-xln xln por. Re-xln. mostly Firm. No/ tr vis por.
LS - Pale Lt Gray / Off White. Sing. Micro-xln. xln & part por. misc, SA, Med/Dark Gray argil frags. partly soft. marly in part. No/ tr vis por.
SH - mixture of Lt/Med/ Dark Gray, Blue Greenish Gray. Sing/Mot. misc inclusions.
3,610' Sample (few pcs:) SS - Off White/Grays. Mot. XF qtz grains. SA/SR. Mod sort. Mod sph. Point/ tr sutured grain contact. SR, XF Med Gray argil frags. clay infill. No/ tr vis por.
LS - Tans / Pale Lt Gray. Mot/Mixed. XF-/Micro-xln. xln por. No/ some Re-xln. No/ some minute darks specks. mostly No/ tr chalky in part. No/ tr vis por.
SH - Lt/Med Blue Green, Green Gray. Sing.
LS - Tans/ Lt Gray. Sing/Mixed. XF-/ Micro-xln. xln por. No/ tr Re-xln. argil/shaly in part. Firm with depth. No/ tr darks specks. No/ tr vis por.
LS (8) - Dark Druzy Gray. Sing. Crypto-xln. xln por. Dense. No vis por.
SH - Lt/Med Blue Green, Green Gray. Sing. misc inclusions & frags.
LS (9) - Tan. Sing. Micro-xln. xln & part por. some sandy as below. Firm. No/ tr vis por.
SS (10) - Clear/Tan. Mot. mostly XF- / tr VF qtz grains. SA/SR. Mod sort & sph. Vitreous/ tr frost luster. mixture of point/ sutured grain contact. Calc in part. some pcs v friable. Good vis por.
---------->>
Mixture of SS & SH
SH - Blue Green, Greenish Gray, Med/Dark Gray. Sing / tr Mixed or Mot. No/ tr sandy or silty.
SS (11) - Clear/Lt SilverGray. XF-/Silt qtz grain. SA/SR. mod sph/sort. highly sutured grain contact in part / point grain contact. argil inpart. No/ tr pyrite. No/ fair vis por. ? / Fair odor. spotted/ some Uniform dull Yellow flouresence. No/ tr free Dark Brown oil/ no gas. Spotted/ some Uniform Black asphaltic infill, coating and stain. V Weak Pos cut/ residual. V Weak Pos acid/. residual.
SS - Clear/ Off White / Pale Lt Gray. mixture of; XF- & silt qtz grains. SA/SR. Mod sort or sph. tr point/ mostly sutured grains contacts. misc inclusions. mostly Dense/ some Friable. No/ tr fair vis por.
SH/Siltstone - Red. Sing. misc inclusions.
Granite Wash .... 3,730' Sample has red wash. Hematitic VF nodules
Granite - F/VF/some XF, Angular Clear Quartz, Pink Feldspars, Biotite. Mixed.
RICHARDS - FUND #4
2,436' FSL & 1,958' FWL 7 - T4S - R14E
Nemaha County, Kansas
pH: 10.0 Cl (1,000) Ca (40)
Solids: 5.0% LCM: 6#
Vis; 44 Wt: 9.1 LCM: 5#
few pcs: LS (DOL) - Tan. Sing. Micro-xln. sucrosic porosity. Friable. tr vis por.
Hotwire Callibration Check
Chromatograph Callibration Check
Vis: 46 Wt: 8.9 LCM: 4#
100 units = 1% Gas
TG, C1-C5 100
DST #3: U Simpson SS 3,647'-3,668'
Recovery: 1' Clean OIL
679' Sl M c Water
IFP: 27# - 243# / 60" 112 deg F
ISIP: 705# / 60" IF: BOB 23"
FFP: 245# - 336# / 60" ISI: No Blow.
FSIP: 701# / 60" FF: Built to 6 inches.
MH: 1,810# - 1,776# FSI: No Blow.
SS (10) - Good odor. mostly Uniform, dull Yellow floresence. A/C and on own free, minute Black oil spheres. No/? gas. some spotted/ mostly Uniform V Dark Brown Stain. Pos cut/ residual. Pos acid/ residual. some minute, Black asphaltic flecks, Free oil swirls on wash water and staining sample cup.
xxxxxxxx CFS @ 3,658':45" xxxxxxxx
-- Upper Simpson SS 3,662' (-2,413')
xxxxxxxx DST #3 xxxxxxxx
^-- CFS @ 3,668':45"
^-- S/T: 6 stands.
^-- CHC: 45"
Work Kelly (every 15")
Check box (every 15")
^-- DST #3.
^-- T/I .. Repeatedly break Circ.
^-- On Bottom .. Circ 30".
^-- Clean Box.
^-- Resume Drilling.
Vis: 56 Wt: 8.9 LCM: 7#
100 units = 1% Gas
3,673' -
Vis: 57 Wt: 8.9 Wtr Loss: 9.0
PV: 20 YP: 15 Gels: 30/70
pH: 9.5 Cl (1,200) Ca (40)
Solids: 4.2% LCM: 7#
Vis: 56 Wt: 8.9 LCM: 6#
-- Granite 3,729' (- 2,480')
100 units = 1% Gas
xxxxxxx RTD @ 3,740' xxxxxxx
^--- CFS @ 3,740' (RTD): 45".
^--- S/T: 6 stands.
^--- CHC: 60"
Work Kelly slowly (15").
Check Sample Box for volume & type of fill.
^--- T/O.
^--- Hole Dev: 1 deg @ RTD.
^--- E-Log.

ATD: 3,736'

PETROLEUM PROPERTY SERVICES, INC.
Wichita, Kansas

[Midwest Wireline Service]

Geologist:
Curtis Covey
COVEY - The Well Watchers
Well Number: 1,998