KOLAR Document ID: 1661164

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 # 3180
Name: Deutsch, Kent A. dba Deutsch Oil Company
Address 1: 8100 E 22ND ST N, BLDG 600
Address 2:
City: WICHITA State: KS Zip: 67226 + 2307
Contact Person: Kent Deutsch
Phone: (316) 681-3567
CONTRACTOR: License # 34484
Name: Fossil Drilling, Inc.
Wellsite Geologist: Arron Young
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 #:

08/09/2021 Spud Date or Recompletion Date
08/15/2021 Date Reached TD
07/12/2022 Completion Date or Recompletion Date

API No.: 15-151-22536-00-00
Spot Description:
_ - E2 - NE - SW Sec. 24 Twp. 26 S. R. 12 ☐ East ☑ West
1980 Feet from ☐ North / ☑ South Line of Section
2970 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: Pratt
Lease Name: HETRICK-HOWELL Well #: 1-24
Field Name:
Producing Formation: Mississippi
Elevation: Ground: 1861 Kelly Bushing: 1874
Total Vertical Depth: 4180 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 291 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: 30000 ppm Fluid volume: 160 bbls
Dewatering method used: Hauled to Disposal
Location of fluid disposal if hauled offsite:
Operator Name: Paul's Oilfield Service
Lease Name: Beckerdite License #: 31085
Quarter SW Sec. 21 Twp. 24 S. R. 13 ☐ East ☑ West
County: Stafford Permit #: D-26547

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:** David Befort **Date:** 08/26/2022

Page Two

Operator Name: Deutsch, Kent A. dba Deutsch Oil Company Lease Name: HETRICK-HOWELL Well #: 1-24

Sec. 24 Twp. 26 S. R. 12 ☐ East ☑ West County: Pratt

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
Heebner	3434	1560
Lansing	3628	1754
Mississippi	4040	2166

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	23	291	60/40 poz	280	2%cc 3% cellflake
Production	7.875	5.5	17	4172	H-Long	175	0

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:
10/12/2021	☐ Flowing ☑ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	.1		200		

DISPOSITION OF GAS:	METHOD OF COMPLETION:	PRODUCTION INTERVAL: Top	Bottom
☐ Vented ☐ Sold ☑ Used on Lease *(If vented, Submit ACO-18.)*	☐ Open Hole ☑ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*	4014	4078
		3881	3883

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)*
1	4014	4078			1500 gal. 10% NEFE, 8536 bbl. slick water with 173,000# sand
			CIBP Cast Iron Bridge Plug	3950	
4	3881	3884			

TUBING RECORD: Size: 2.875 Set At: 3900 Packer At:

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

Form	ACO1 - Well Completion
Operator	Deutsch, Kent A. dba Deutsch Oil Company
Well Name	HETRICK-HOWELL 1-24
Doc ID	1661164

All Electric Logs Run

Dual Induction
Comp Neutron/Density
Micro
Frac Finder

Form	ACO1 - Well Completion
Operator	Deutsch, Kent A. dba Deutsch Oil Company
Well Name	HETRICK-HOWELL 1-24
Doc ID	1661164

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	23	291	60/40 poz	280	2%cc 3% cellflake
Production	7.875	5.5	17	4172	H-Long	175	0

CEMENT TREATMENT REPORT

Customer:	DEUTSCH OIL COMPANY	Well:	HEDRICK HOWELL 1-24	Ticket:	WP1734
City, State:	PRESTON KS	County:	PRATT KS	Date:	8/16/2021
Field Rep:	DAVE PAULY	S-T-R:	24-26S-12W	Service:	LONGSTRING 5 1/2

Downhole Information	
Hole Size:	7 7/8 in
Hole Depth:	4180 ft
Casing Size:	5 1/2 in
Casing Depth:	4175.53 ft
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Tool Depth:	ft
Displacement:	96.3 bbls

Calculated Slurry - Lead	
Blend:	H-LONG
Weight:	15.0 ppg
Water / Sx:	6.0 gal / sx
Yield:	1.42 ft^3 / sx
Annular Bbls / Ft.:	bbs / ft.
Depth:	ft
Annular Volume:	0.0 bbls
Excess:	
Total Slurry:	44.0 bbls
Total Sacks:	175 sx

Calculated Slurry - Tail	
Blend:	H-PLUG
Weight:	13.78 ppg
Water / Sx:	6.9 gal / sx
Yield:	1.43 ft^3 / sx
Annular Bbls / Ft.:	bbs / ft.
Depth:	ft
Annular Volume:	0 bbls
Excess:	
Total Slurry:	18.0 bbls
Total Sacks:	75 sx

TIME	RATE	PSI	STAGE BBLs	TOTAL BBLs	REMARKS
12:40 PM			-	-	ON LOCATION, SAFTEY MEETING
4:00 AM				-	RUN 17# 5 1/2 CASING BASKET ON TOP OF 7 TURBOS 1,3,5,7,9,11,13 25.17' SHOE JOINT
6:00 AM				-	CASING ON BOTTOM
6:13 AM				-	HOOK TO CASING, BREAK CIRCULATION WITH RIG
8:00 AM	2.0	25.0	7.0	7.0	MIX 30 SKS H-PLUG FOR RAT HOLE
8:08 AM	2.0	25.0	5.0	12.0	MIX 20 SKS H-PLUG FOR MOUSEHOLE
8:08 AM	6.5	350.0	6.0	18.0	MIX 25 SKS H-PLUG AS SCAVENGER
8:12 AM	6.0	300.0	44.0	62.0	MIX 175 SKS H-LONG
8:29 AM	4.0	50.0	4.0	66.0	DROP PLUG, WASH PUMP AND LINE
8:33 AM	6.0	200.0		66.0	START 2% KCL DISPLACEMENT
8:40 AM	6.9	550.0	65.0	131.0	LIFT PRESSURE, STOP RECIPROCATING
8:44 AM	3.0	565.0	86.0	217.0	SLOW RATE
8:50 AM		1,500.0	96.3	313.3	PLUG DOWN, RELEASED AND HELD
					CIRCULATION THRU JOB
				-	
				-	
				-	
				-	
				-	
				-	JOB COMPLETE, THANK YOU!
				-	MIKE MATTAL
				-	RILEY, BRIAN & BRYDON
				-	
				-	
				-	
				-	

CREW		UNIT
Cementer:	MATTAL	912
Pump Operator:	OSBORN	176/521
Bulk #1:	WHITFIELDS	526/522
Bulk #2:		

SUMMARY		
Average Rate	Average Pressure	Total Fluid
4.6 bpm	396 psi	313 bbls

CEMENT TREATMENT REPORT

Customer:	Deutsch Oil Copmpany	Well:	Hendrick-Howell 1-24	Ticket:	wp 1700
City, State:	Preston Kansas	County:	Pratt Kansas	Date:	8/9/2021
Field Rep:	Jim Johnson	S-T-R:	24-26s-12w	Service:	8.625

Downhole Information	
Hole Size:	12 1/4 in
Hole Depth:	300 ft
Casing Size:	8 5/8 in
Casing Depth:	292 ft
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Tool Depth:	ft
Displacement:	17.0 bbls

Calculated Slurry - Lead	
Blend:	60/40 2&3
Weight:	14.8 ppg
Water / Sx:	5.1 gal / sx
Yield:	1.21 ft^3 / sx
Annular Bbls / Ft.:	bbs / ft.
Depth:	ft
Annular Volume:	0.0 bbls
Excess:	
Total Slurry:	60.3 bbls
Total Sacks:	280 sx

Calculated Slurry - Tail	
Blend:	
Weight:	ppg
Water / Sx:	gal / sx
Yield:	ft^3 / sx
Annular Bbls / Ft.:	bbs / ft.
Depth:	ft
Annular Volume:	0 bbls
Excess:	
Total Slurry:	0.0 bbls
Total Sacks:	0 sx

TIME	RATE	PSI	STAGE BBLs	TOTAL BBLs	REMARKS
1:30 PM			-	-	on location job and safety
1:45 PM				-	spot trucks and rig up
				-	
2:50 PM				-	start casing in the hole
3:45 PM				-	casing on bottom and circulate
				-	
3:55 PM				-	start cement
	5.0	230.0	5.0	5.0	fresh water
	5.0	230.0	60.3	65.3	mix 280 sacks cement
4:10 PM				65.3	cement in and shut down
4:15 PM	2.0	200.0			start displacement
4:30 PM			17.0		displacement in and close in the well
					cement did circulate

CREW		UNIT
Cementer:	M Brungardt	916
Pump Operator:	R Osborn	179/522
Bulk #1:	B Whitfield	181/256
Bulk #2:	D Martinez	

SUMMARY		
Average Rate	Average Pressure	Total Fluid
4.0 bpm	220 psi	82 bbls

ftv: 15-2021/01/25
mplv: 196-2021/08/03

DRILL STEM TEST REPORT

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 56166 **DST#: 1**

Test Start: 2021.08.12 @ 19:20:10

GENERAL INFORMATION:

Formation: **Lansing A&B**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:56:10
Time Test Ended: 03:41:40

Test Type: Conventional Bottom Hole (Initial)
Tester: Matt Smith
Unit No: 68

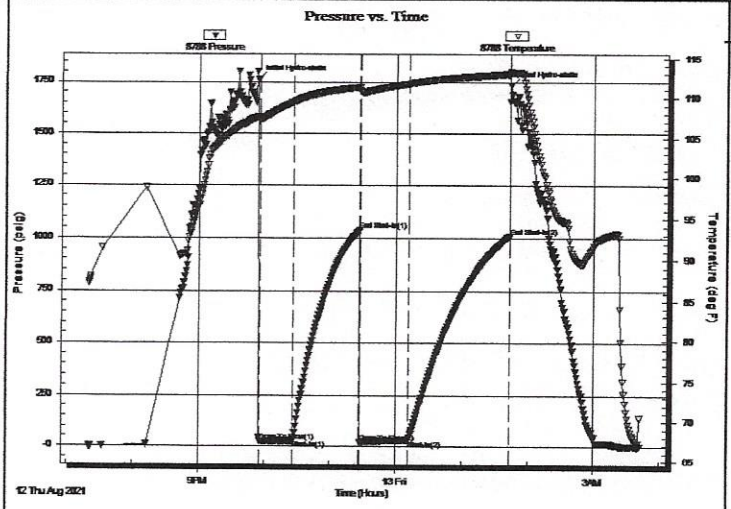
Interval: 3616.00 ft (KB) To 3672.00 ft (KB) (TVD)
Total Depth: 3672.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1874.00 ft (KB)
1862.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8788 **Inside**
Press@RunDepth: 28.24 psig @ 3617.00 ft (KB)
Start Date: 2021.08.12 End Date: 2021.08.13
Start Time: 19:20:15 End Time: 03:41:39

Capacity: 8000.00 psig
Last Calib.: 2021.08.13
Time On Btm: 2021.08.12 @ 21:54:25
Time Off Btm: 2021.08.13 @ 01:44:25

TEST COMMENT: IF: Strong Blow . B.O.B. in 3 mins. Built to 56.48". (30)
ISI: No Blow . (60)
FF: Strong Blow . B.O.B. immediate. Built to 108.03". (45)
FSI: No Blow . (90)



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1759.25	107.65	Initial Hydro-static
2	24.32	107.29	Open To Flow (1)
32	27.04	109.45	Shut-In(1)
93	1037.88	111.29	End Shut-In(1)
93	19.82	110.84	Open To Flow (2)
138	28.24	111.77	Shut-In(2)
229	1010.76	112.99	End Shut-In(2)
230	1733.31	113.14	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
7.00	GCM 1%g 99%m	0.05
0.00	960' GIP 100%g	0.00

Gas Rates

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

DRILL STEM TEST REPORT

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 56166 **DST#: 1**

Test Start: 2021.08.12 @ 19:20:10

GENERAL INFORMATION:

Formation: **Lansing A&B**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:56:10
Time Test Ended: 03:41:40

Test Type: Conventional Bottom Hole (Initial)
Tester: Matt Smith
Unit No: 68

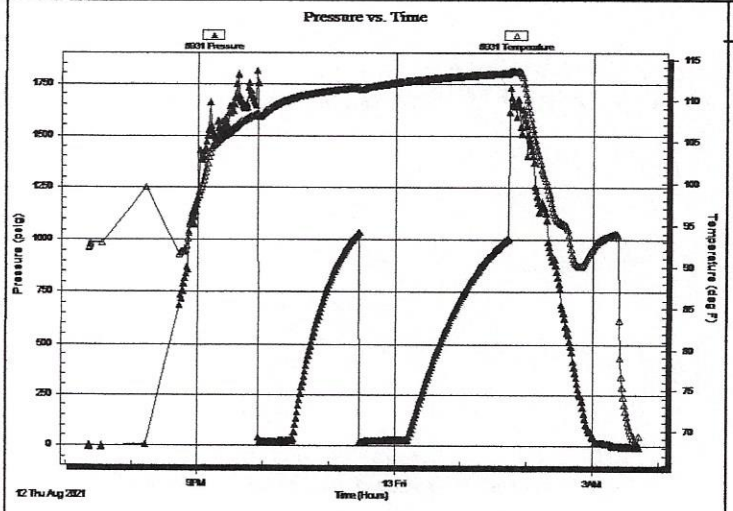
Interval: 3616.00 ft (KB) To 3672.00 ft (KB) (TVD)
Total Depth: 3672.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1874.00 ft (KB)
1862.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8931 **Outside**
Press@RunDepth: psig @ 3617.00 ft (KB)
Start Date: 2021.08.12 End Date: 2021.08.13
Start Time: 19:20:41 End Time: 03:42:05

Capacity: 8000.00 psig
Last Calib.: 2021.08.13
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Strong Blow . B.O.B. in 3 mins. Built to 56.48". (30)
ISI: No Blow . (60)
FF: Strong Blow . B.O.B. immediate. Built to 108.03". (45)
FSI: No Blow . (90)



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
7.00	GCM 1%g 99%m	0.05
0.00	960' GIP 100%g	0.00

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 56166 **DST#: 1**

Test Start: 2021.08.12 @ 19:20:10

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:	3500 ppm
Viscosity:	49.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	8.99 in³	Gas Cushion Type:			
Resistivity:	3500.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	ppm				
Filter Cake:	0.20 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
7.00	GCM 1%g 99%m	0.053
0.00	960' GIP 100%g	0.000

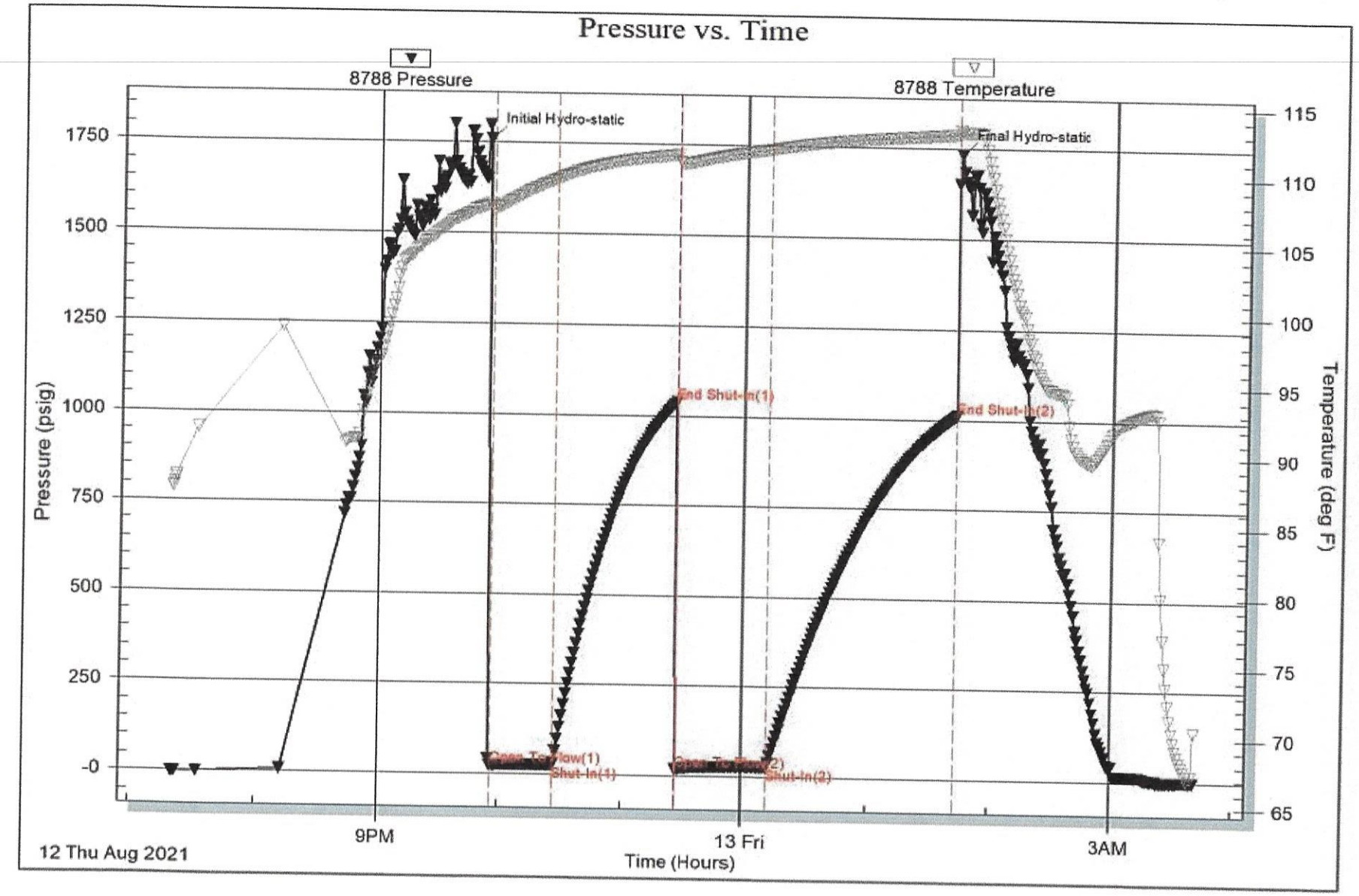
Total Length: 7.00 ft Total Volume: 0.053 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #: None

Laboratory Name: Laboratory Location:

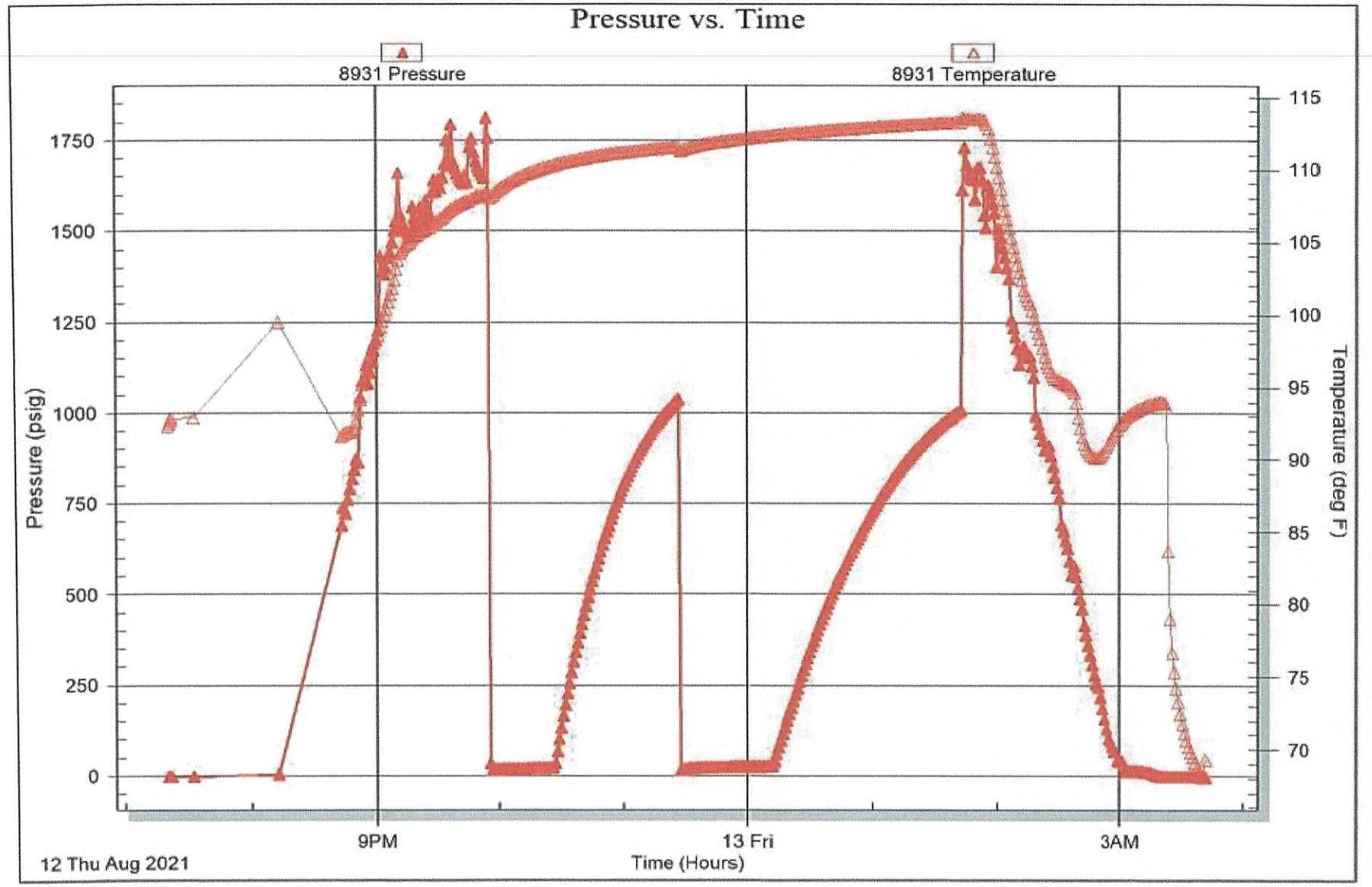
Recovery Comments: 960 FEET of Gas in Pipe.

Serial #: 8788 **Inside** Deutsch Oil Company Hedrick-How ell #1-24 DST Test Number: 1



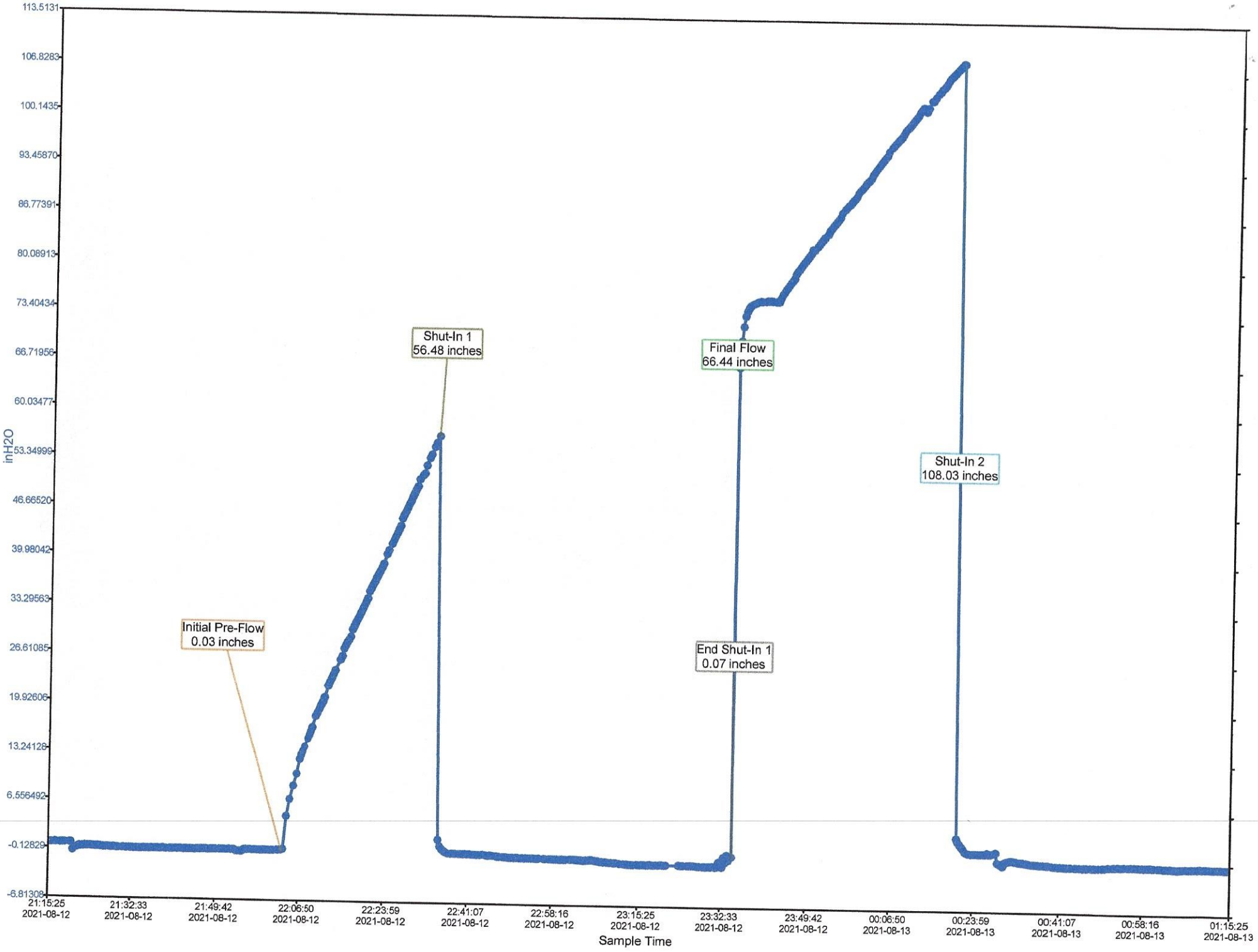
Trilobite Testing, Inc Ref. No: 56166 Printed: 2021.08.13 @ 04:44:52

Serial #: 8931 **Outside** Deutsch Oil Company Hedrick-How ell #1-24 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 56166 Printed: 2021.08.13 @ 04:44:52

Deutsch Oil - Hedrick Howell 1-24 - DST 1



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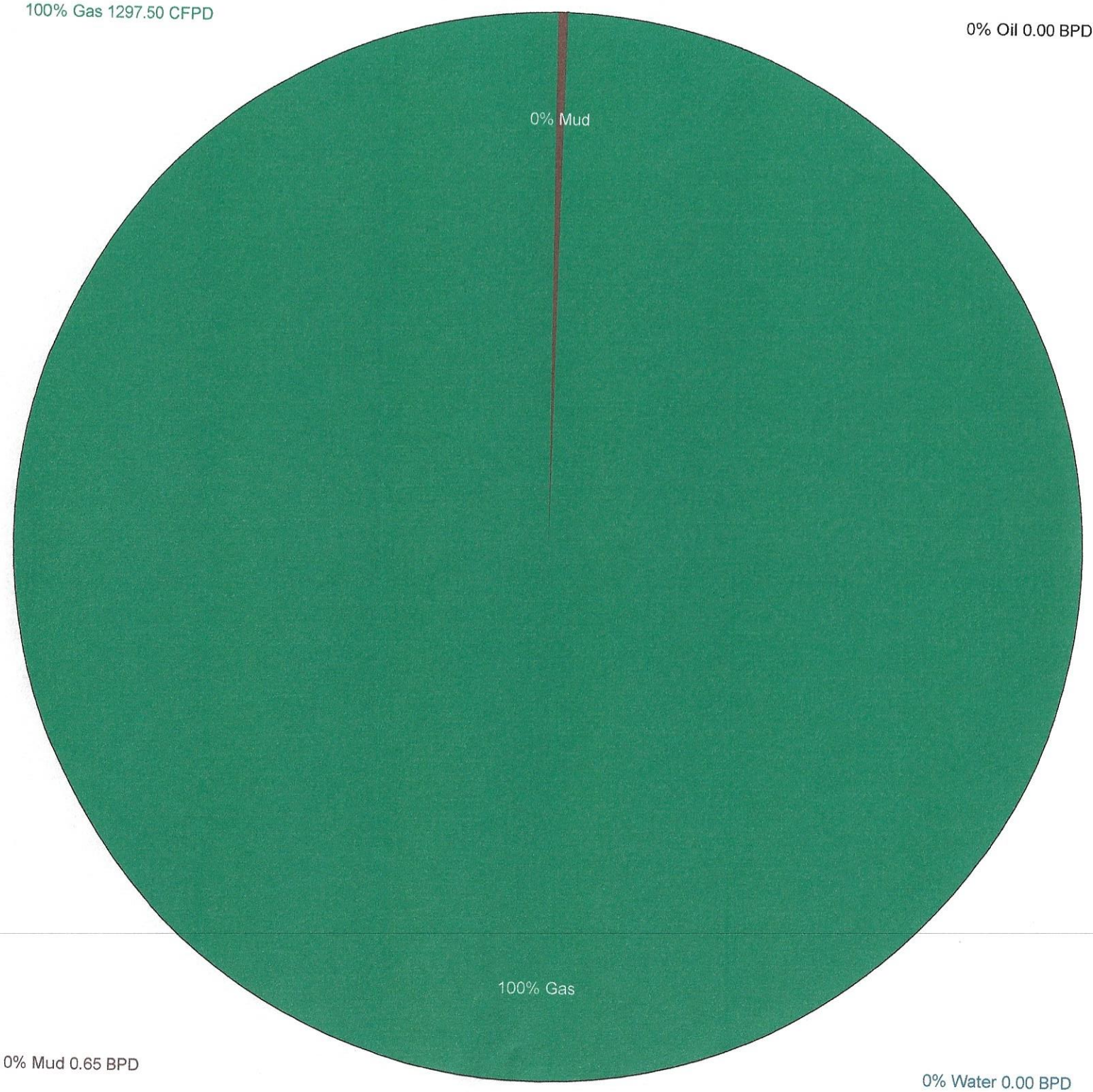
Calculated Recovery Analysis - Deutsch Oil - Hedrick Howell 1-24 - DST 1



DRILL STEM TEST REPORT

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 67167 **DST#: 2**

Test Start: 2021.08.13 @ 16:04:21

GENERAL INFORMATION:

Formation: **LKC H&I**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:14:21
Time Test Ended: 22:42:51

Test Type: Conventional Bottom Hole (Reset)
Tester: Matt Smith
Unit No: 68

Interval: 3786.00 ft (KB) To 3818.00 ft (KB) (TVD)
Total Depth: 3818.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

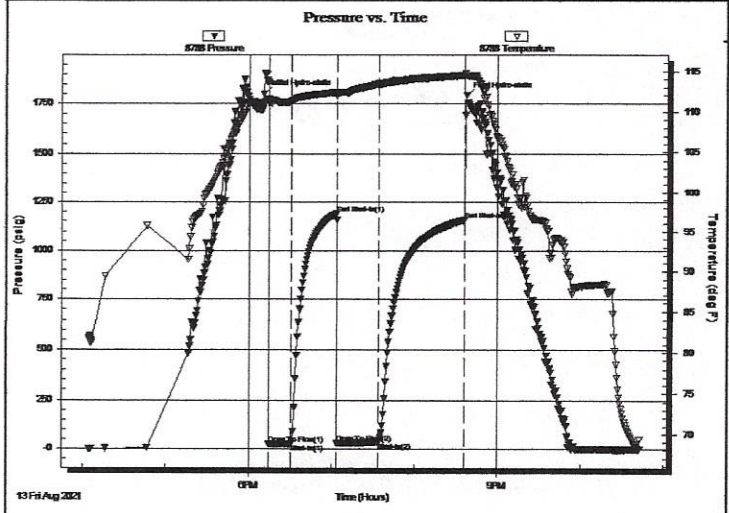
Reference Elevations: 1874.00 ft (KB)
1862.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8788 **Inside**

Press@RunDepth: 36.57 psig @ 3787.00 ft (KB)
Start Date: 2021.08.13 End Date: 2021.08.13
Start Time: 16:04:26 End Time: 22:42:50

Capacity: 8000.00 psig
Last Calib.: 2021.08.13
Time On Btm: 2021.08.13 @ 18:11:06
Time Off Btm: 2021.08.13 @ 20:37:21

TEST COMMENT: IF: Weak Blow . Built to .59". (15)
ISI: No Blow . (30)
FF: Weak Surface Blow . Built to .11". (30)
FSI: No Blow . (60)



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1800.17	111.09	Initial Hydro-static
4	24.91	110.97	Open To Flow (1)
20	26.04	111.31	Shut-In(1)
53	1191.31	112.40	End Shut-In(1)
53	31.64	112.01	Open To Flow (2)
83	36.57	113.42	Shut-In(2)
145	1156.47	114.50	End Shut-In(2)
147	1791.03	114.52	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	GOSM 1%g 99%m	0.23
0.00	30' GIP 100%g	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 67167 **DST#: 2**

Test Start: 2021.08.13 @ 16:04:21

GENERAL INFORMATION:

Formation: **LKC H&I**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:14:21
Time Test Ended: 22:42:51

Test Type: Conventional Bottom Hole (Reset)
Tester: Matt Smith
Unit No: 68

Interval: 3786.00 ft (KB) To 3818.00 ft (KB) (TVD)
Total Depth: 3818.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

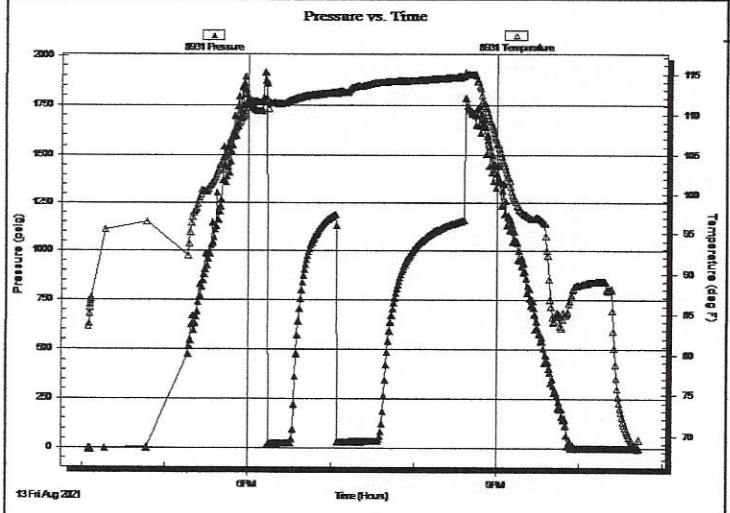
Reference Elevations: 1874.00 ft (KB)
1862.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8931

Press@RunDepth: psig @ ft (KB)
Start Date: 2021.08.13 End Date: 2021.08.13
Start Time: 16:04:37 End Time: 22:43:01

Capacity: 8000.00 psig
Last Calib.: 1899.12.30
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Weak Blow . Built to .59". (15)
ISI: No Blow . (30)
FF: Weak Surface Blow . Built to .11". (30)
FSI: No Blow . (60)



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
30.00	GOSM 1%g 99%m	0.23
0.00	30' GIP 100%g	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 67167 **DST#: 2**

Test Start: 2021.08.13 @ 16:04:21

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:	9000 ppm
Viscosity:	58.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	11.19 in³	Gas Cushion Type:			
Resistivity:	9000.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	ppm				
Filter Cake:	0.20 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	GOSM 1%g 99%m	0.228
0.00	30' GIP 100%g	0.000

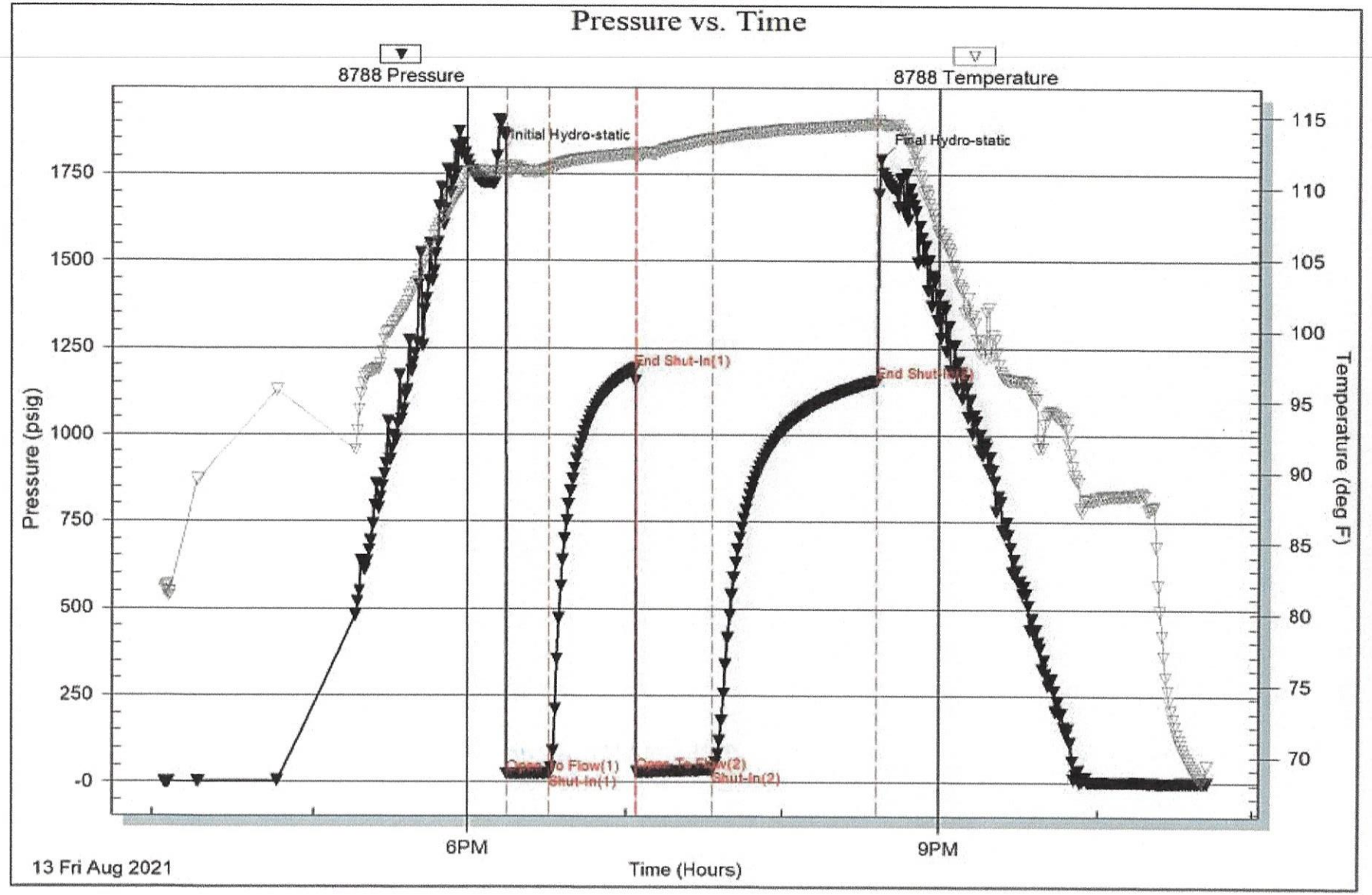
Total Length: 30.00 ft Total Volume: 0.228 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #: None

Laboratory Name: Laboratory Location:

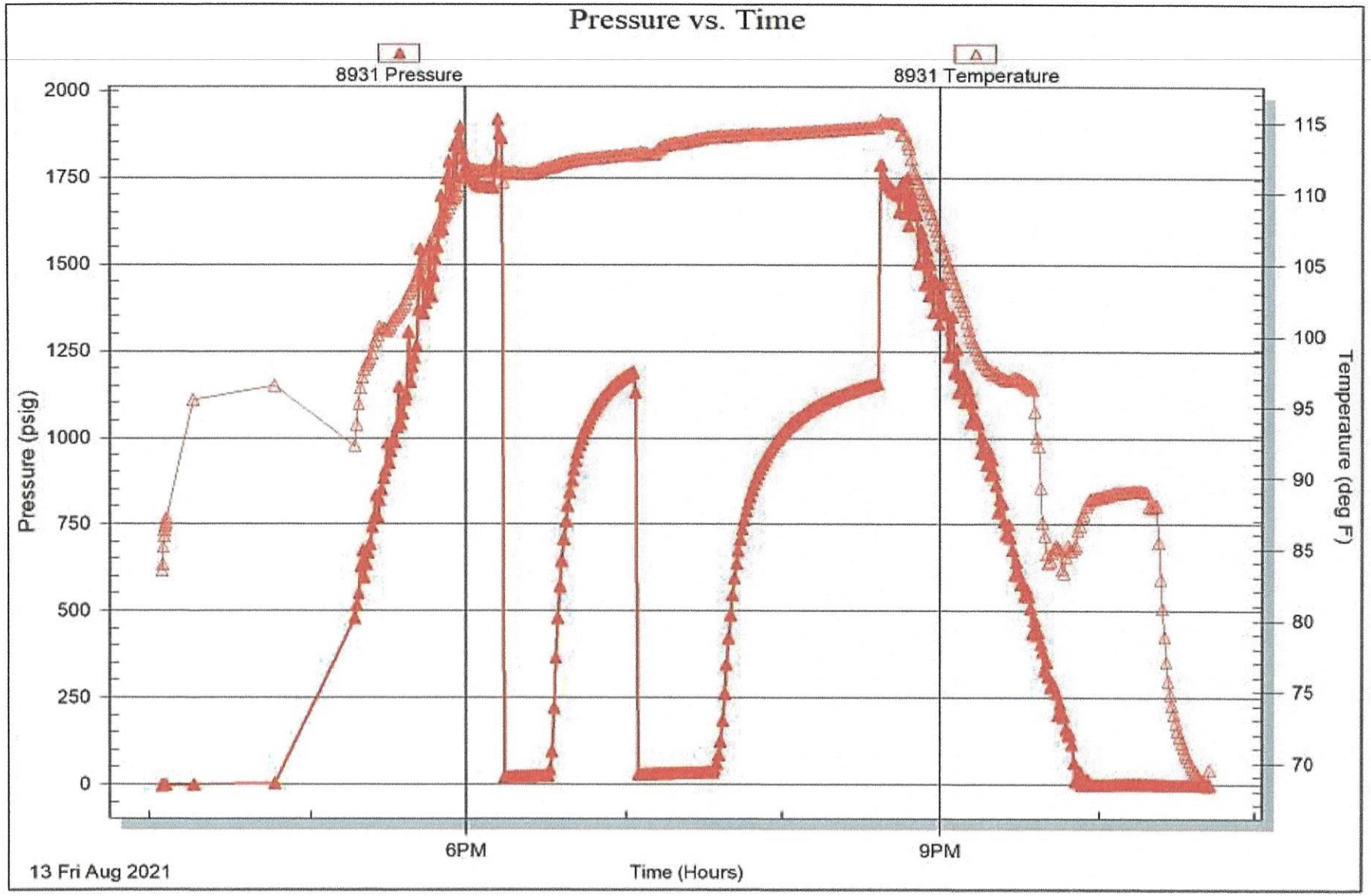
Recovery Comments: 30 FEET of Gas in Pipe.

Serial #: 8788 **Inside** Deutsch Oil Company Hedrick-How ell #1-24 DST Test Number: 2



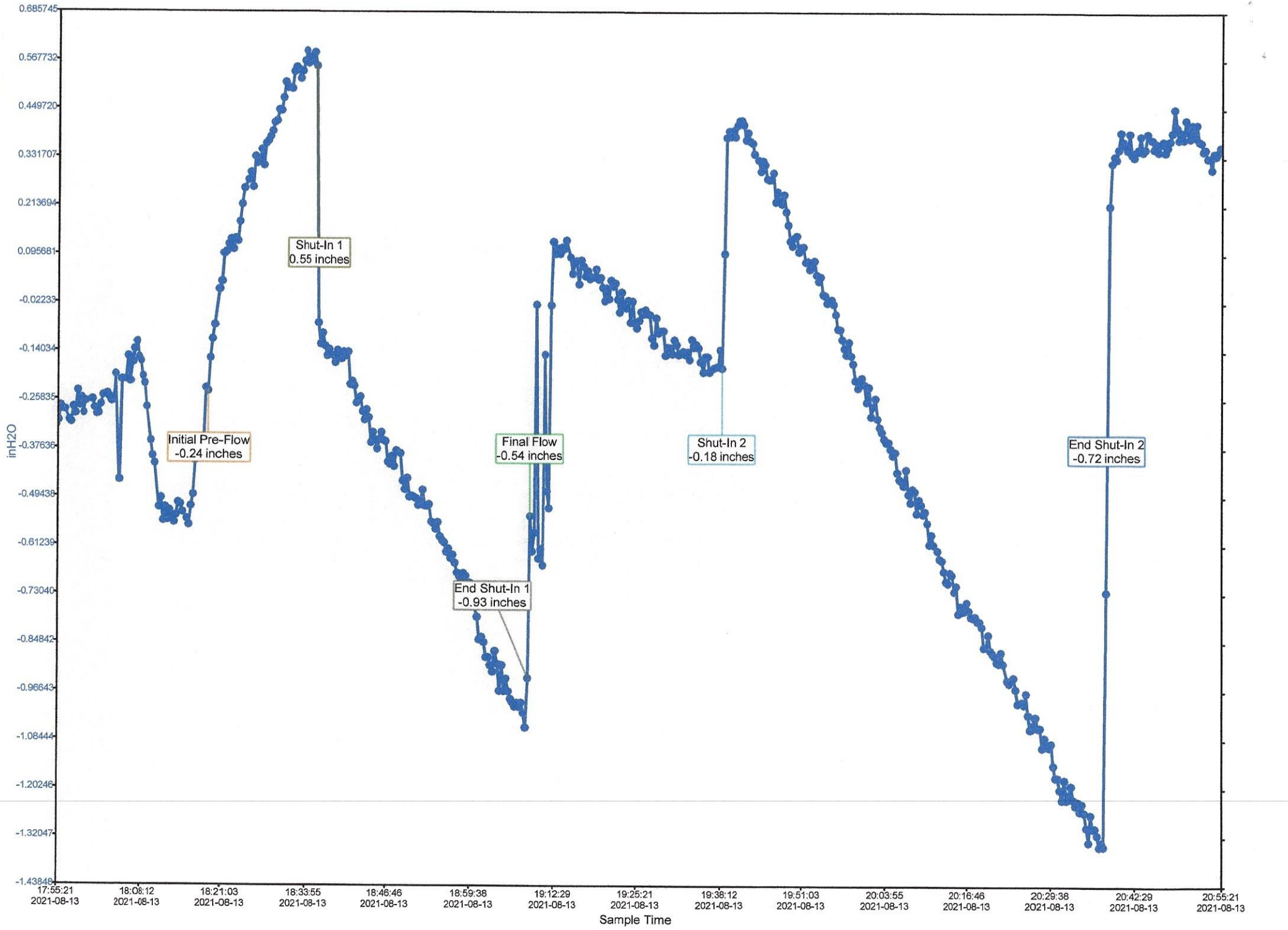
Trilobite Testing, Inc Ref. No: 67167 Printed: 2021.08.13 @ 23:46:52

Serial #: 8931 | Deutsch Oil Company | Hedrick-How ell #1-24 | DST Test Number: 2



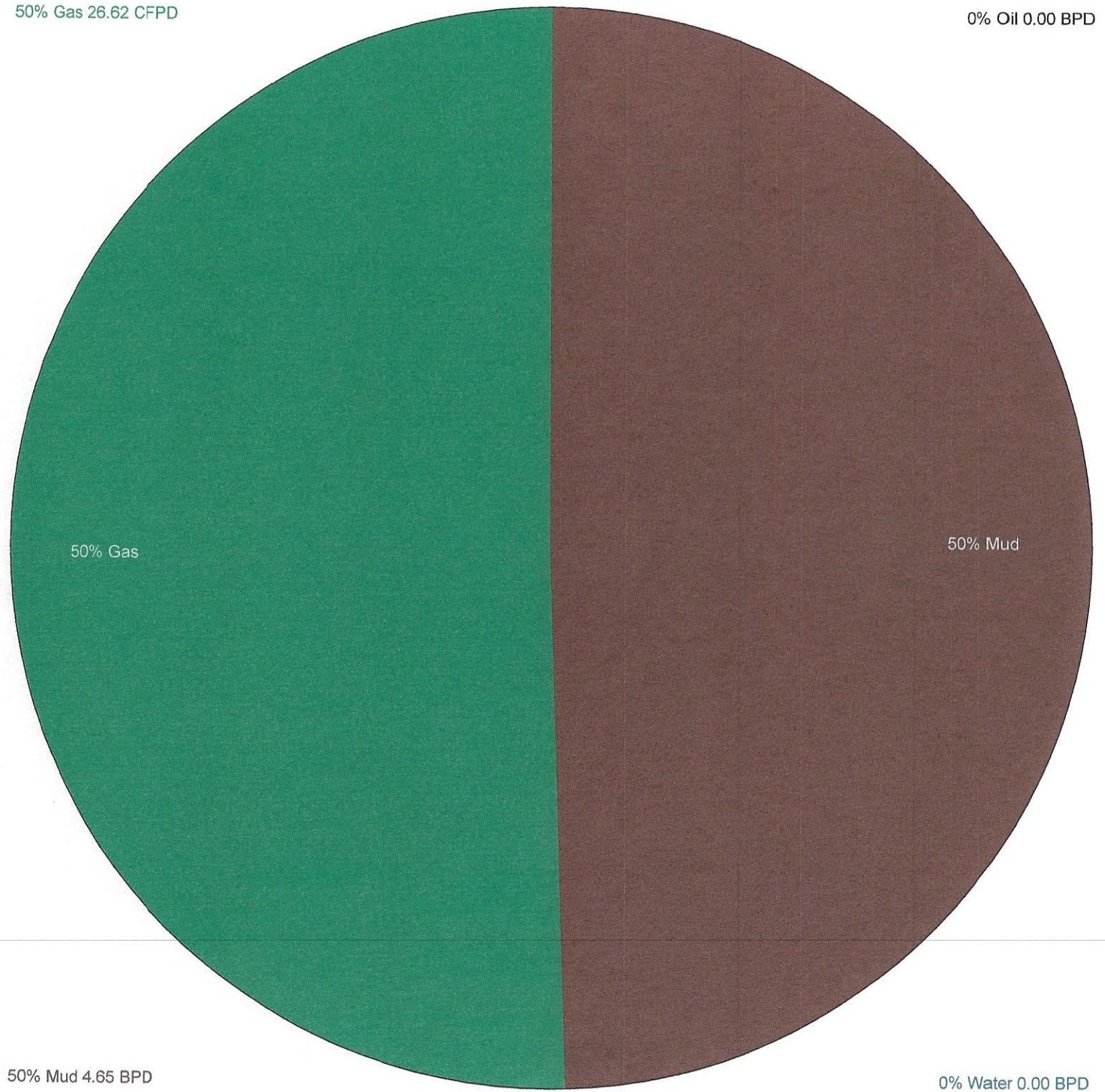
Trilobite Testing, Inc | Ref. No: 67167 | Printed: 2021.08.13 @ 23:46:52

Deutsch Oil - Hedrick Howell 1-24 - DST # 2



2021-08-13 23:44:37

Calculated Recovery Analysis - Deutsch Oil - Hedrick Howell 1-24 - DST # 2



DRILL STEM TEST REPORT

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 67168 **DST#: 3**

Test Start: 2021.08.14 @ 11:36:47

GENERAL INFORMATION:

Formation: **LKC K&L**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:01:17
Time Test Ended: 20:05:47

Test Type: Conventional Bottom Hole (Reset)
Tester: Matt Smith
Unit No: 68

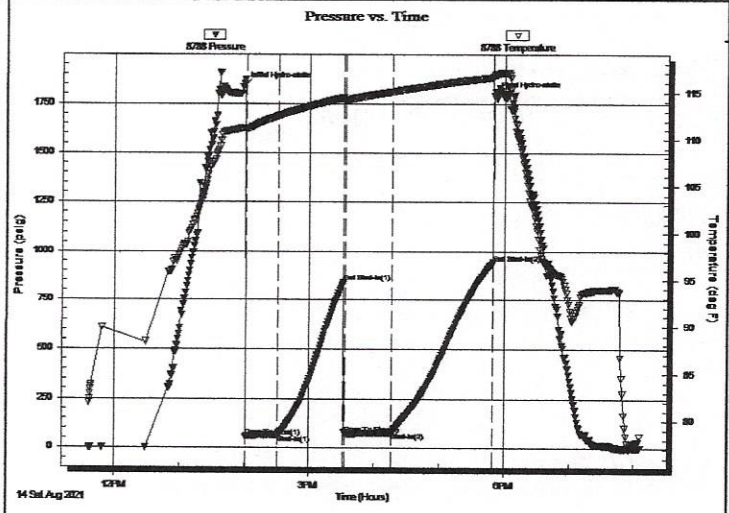
Interval: 3866.00 ft (KB) To 3937.00 ft (KB) (TVD)
Total Depth: 3937.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor

Reference Elevations: 1874.00 ft (KB)
1862.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8788 **Inside**
Press@RunDepth: 78.17 psig @ 3867.00 ft (KB)
Start Date: 2021.08.14 End Date: 2021.08.14
Start Time: 11:36:52 End Time: 20:05:46

Capacity: 8000.00 psig
Last Calib.: 2021.08.14
Time On Btm: 2021.08.14 @ 13:58:17
Time Off Btm: 2021.08.14 @ 17:50:17

TEST COMMENT: IF: Weak-Fair Blow . Built to 5.72". (30)
ISI: No Blow in Bucket.. (60)
FF: Strong Blow . Built to 11.42". (45)
FSI: No Blow in Bucket. (90)



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1834.99	111.24	Initial Hydro-static
3	55.69	111.02	Open To Flow (1)
33	66.33	112.54	Shut-In(1)
94	839.13	114.43	End Shut-In(1)
95	68.44	114.20	Open To Flow (2)
138	78.17	115.05	Shut-In(2)
231	942.14	116.57	End Shut-In(2)
232	1788.66	116.80	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
61.00	GOCM 34%g 11%o 55%m	0.46
60.00	GVSOCM 2%g 2%o 96%m	0.46
4.00	GOSM 1%g 99m	0.03
0.00	60' GIP 100%g	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 67168 **DST#: 3**

Test Start: 2021.08.14 @ 11:36:47

GENERAL INFORMATION:

Formation: **LKC K&L**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 14:01:17
Time Test Ended: 20:05:47

Test Type: Conventional Bottom Hole (Reset)
Tester: Matt Smith
Unit No: 68

Interval: 3866.00 ft (KB) To 3937.00 ft (KB) (TVD)
Total Depth: 3937.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Poor

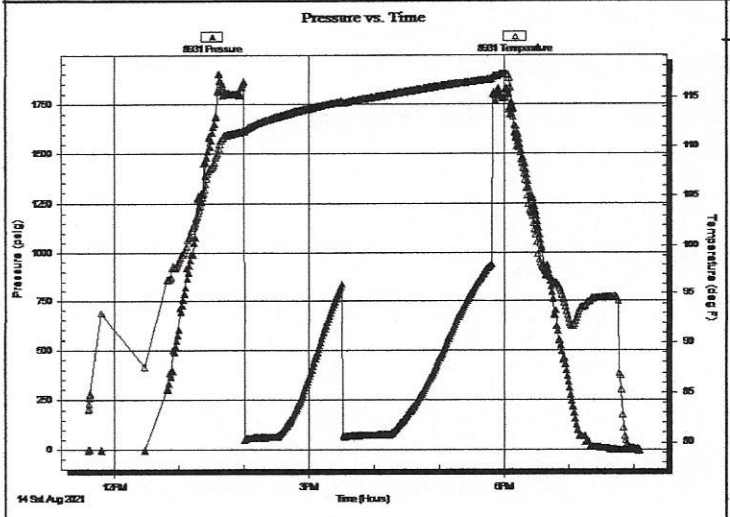
Reference Elevations: 1874.00 ft (KB)
1862.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8931 **Outside**

Press@RunDepth: psig @ 3867.00 ft (KB)
Start Date: 2021.08.14 End Date: 2021.08.14
Start Time: 11:36:09 End Time: 20:05:03

Capacity: 8000.00 psig
Last Calib.: 2021.08.14
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Weak-Fair Blow . Built to 5.72". (30)
ISI: No Blow in Bucket.. (60)
FF: Strong Blow . Built to 11.42". (45)
FSI: No Blow in Bucket. (90)



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
61.00	GOCM 34%g 11%o 55%m	0.46
60.00	GVSOCM 2%g 2%o 96%m	0.46
4.00	GOSM 1%g 99m	0.03
0.00	60' GIP 100%g	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Deutsch Oil Company

8100 E 22nd St. N. #600-D
Wichita, Ks. 67226

ATTN: Aaron Young

24-26s-12w Pratt Co Ks

Hedrick-Howell #1-24

Job Ticket: 67168 **DST#: 3**

Test Start: 2021.08.14 @ 11:36:47

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:	9000 ppm
Viscosity:	57.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	8.79 in³	Gas Cushion Type:			
Resistivity:	9000.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	ppm				
Filter Cake:	0.20 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
61.00	GOCM 34%g 11%o 55%m	0.465
60.00	GVSOCM 2%g 2%o 96%m	0.457
4.00	GOSM 1%g 99m	0.030
0.00	60' GIP 100%g	0.000

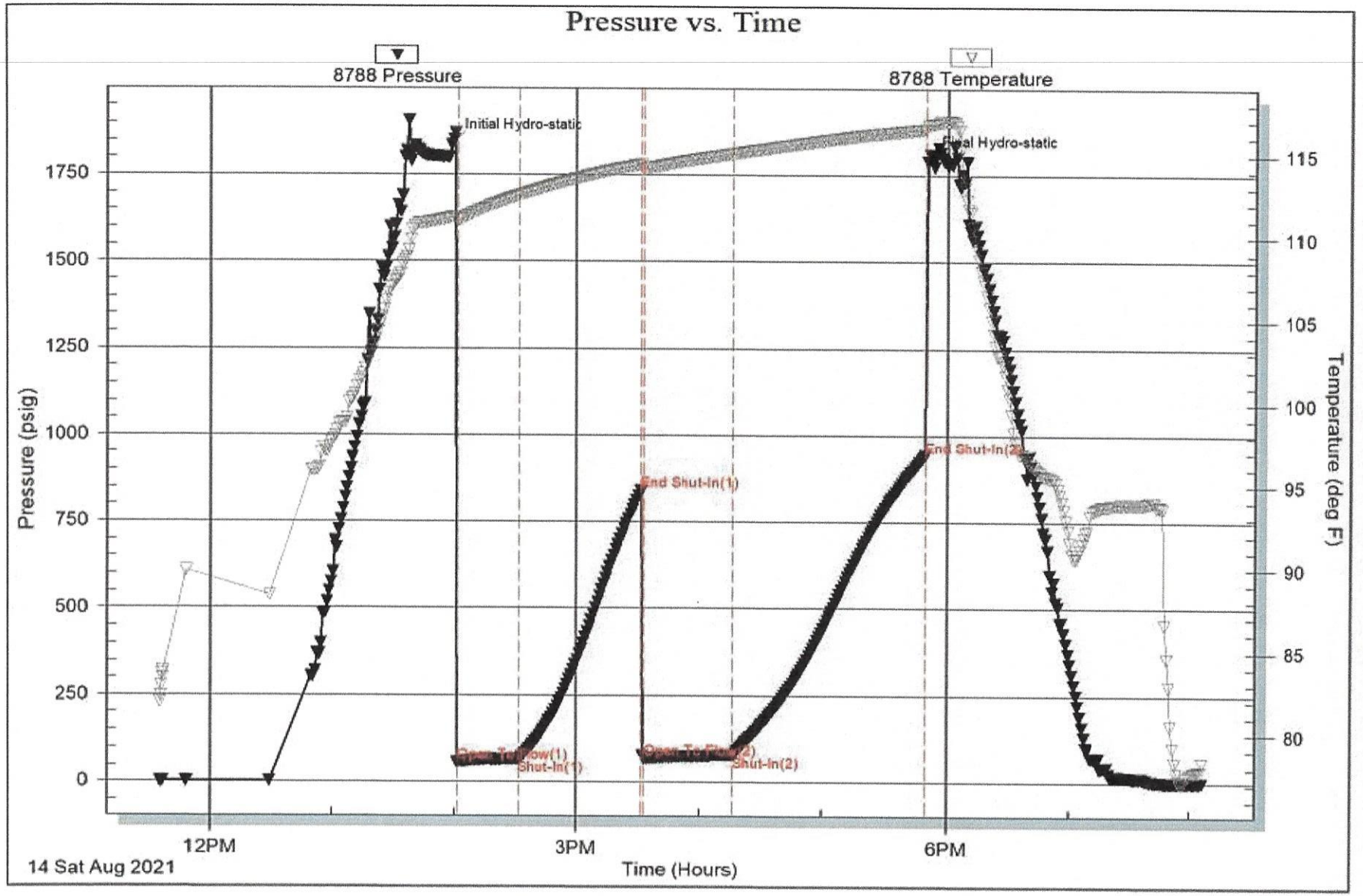
Total Length: 125.00 ft Total Volume: 0.952 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #: None

Laboratory Name: Laboratory Location:

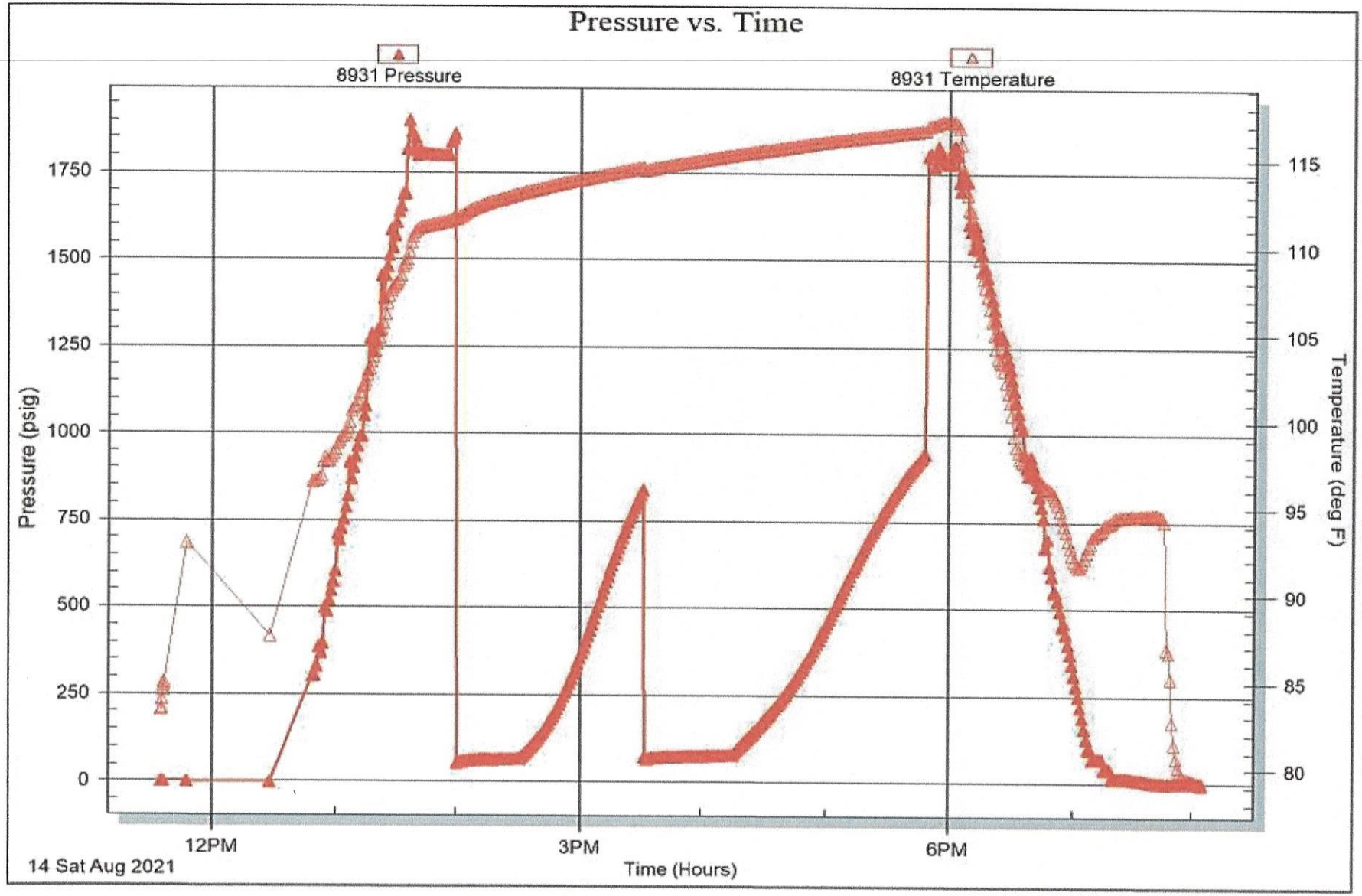
Recovery Comments: 60 Feet of Gas in Pipe.

Serial #: 8788 **Inside** Deutsch Oil Company Hedrick-How ell #1-24 DST Test Number: 3



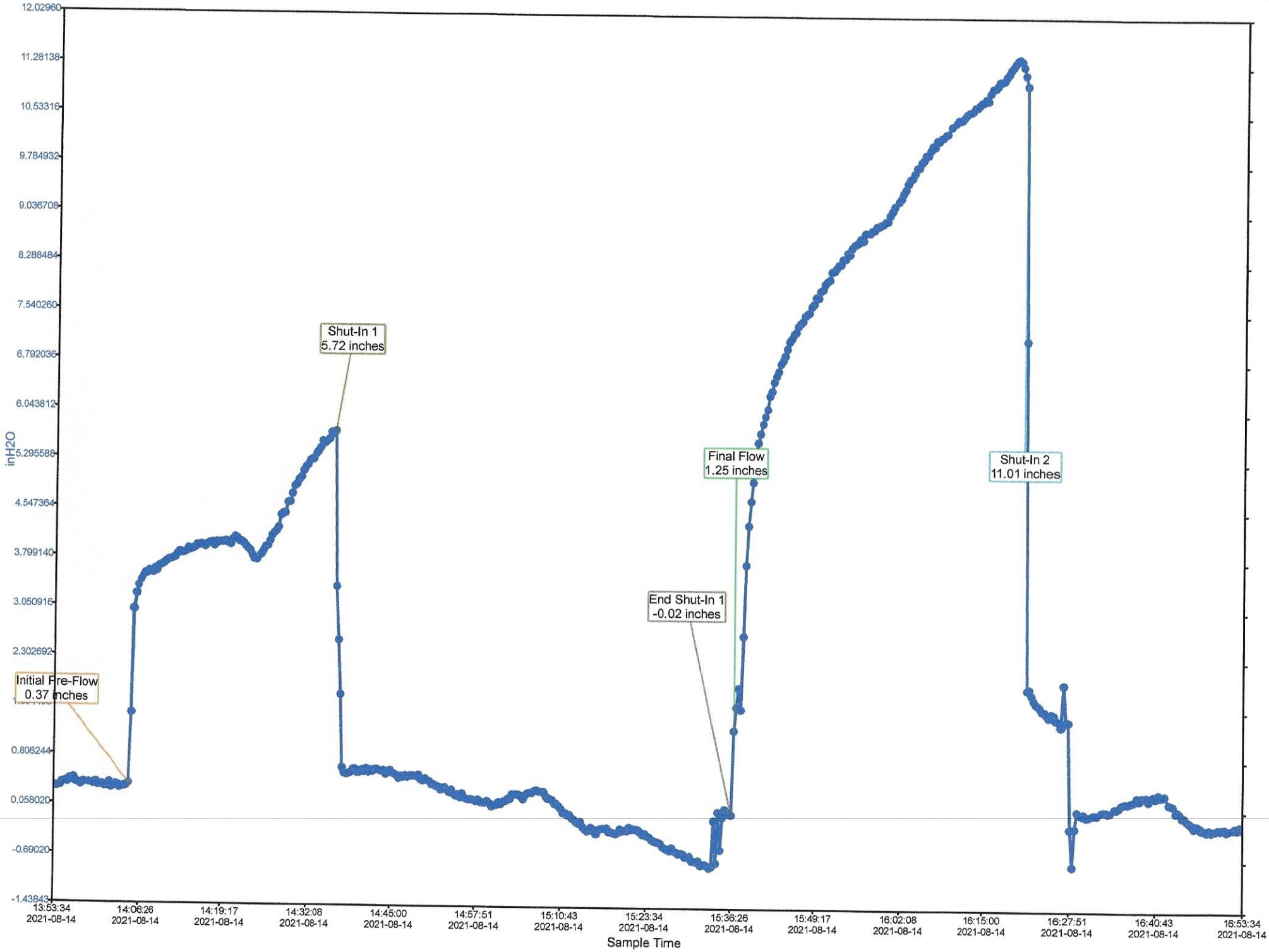
Trilobite Testing, Inc Ref. No: 67168 Printed: 2021.08.14 @ 22:33:12

Serial #: 8931 **Outside** Deutsch Oil Company Hedrick-How ell #1-24 DST Test Number: 3



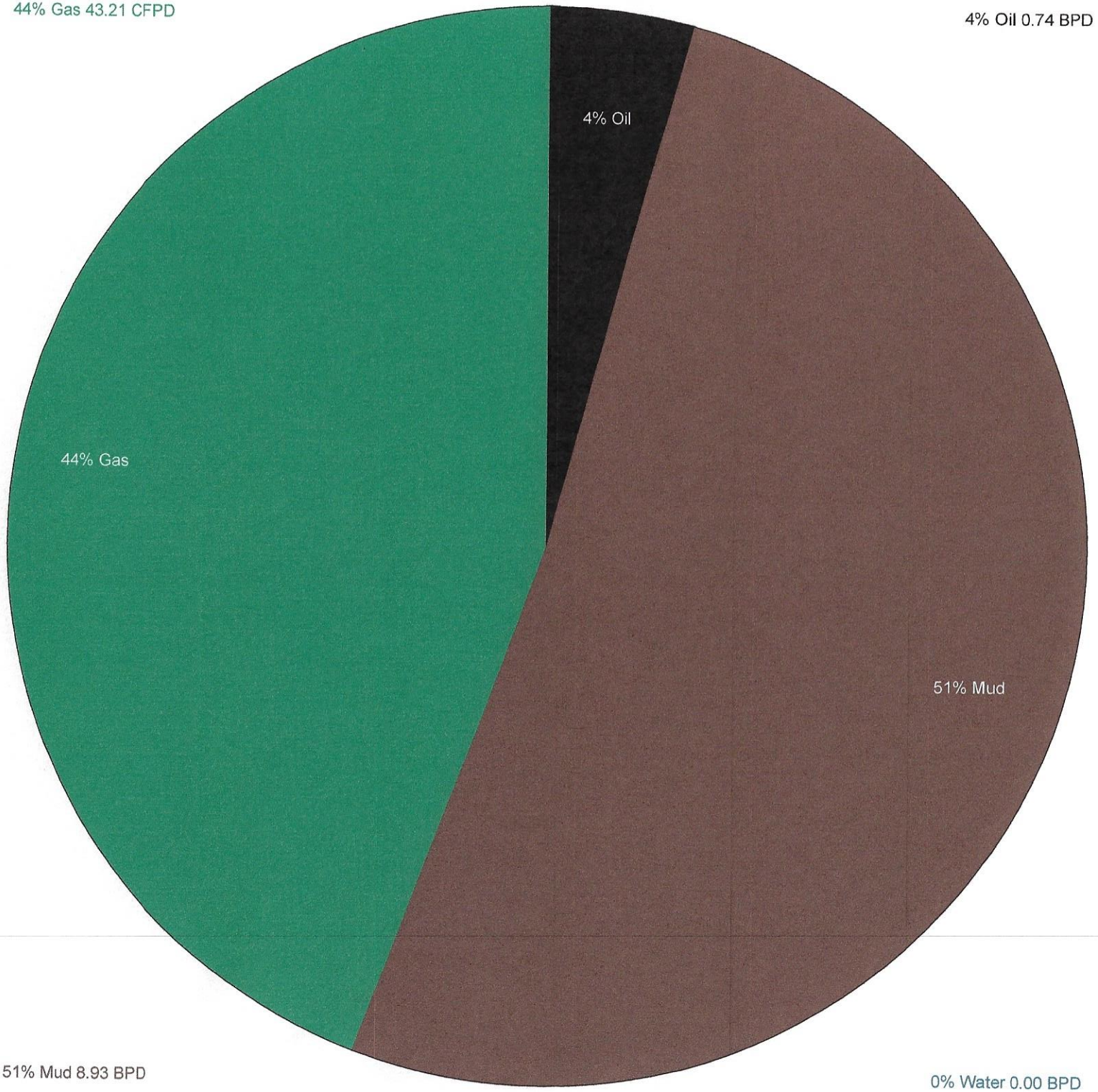
Trilobite Testing, Inc Ref. No: 67168 Printed: 2021.08.14 @ 22:33:13

Deutsch Oil - Hedrick Howell 1-24 - DST 3



2021-08-14 22:35:26

Calculated Recovery Analysis - Deutsch Oil - Hedrick Howell 1-24 - DST 3



Fracture Start Date/Time:	**9/10/21 11:59**
Fracture End Date/Time:	**9/10/21 13:47**
State:	**Kansas**
County:	**Pratt**
API Number:	
Operator Number:	
Well Name:	**Hendrick-Hpwell 1-24**
Federal Well:	**No**
Tribal Well:	**No**
Longitude:	
Latitude:	
Long/Lat Projection:	**NAD83**
True Vertical Depth (TVD):	
Total Clean Fluid Volume* (gal):	**359,974**

Frac Focus Chemical Disclosure Registry

(e.g. XX-XXX-XXXXX-0000)

3.0

Additive	*Specific Gravity*	*Additive Quantity*	*Mass (lbs)*	
Water	1.00	**359,974**	*3,003,983*	*gal*
30/50 Premium Sand		**124,000**	*124,000*	*lb*
16/30 Premium Plus		**44,000**	*44,000*	*lb*
FRA-1 Friction Reducer (Anionic)	1.06	**113**	*1,000*	*gal*
LB-1 Liquid Biocide	0.93	**94**	*730*	*gal*
W-11 NE/Surfactant	0.95	**94**	*743*	*gal*
KCL-LC Liquid KCl Substitute	1.08	**375**	*3,380*	*gal*
LBC-1 SP-480	0.93	**94**	*730*	*gal*
PB-1 FR Breaker	1.03	**57**	*490*	*gal*
PropCure XA Component	1.02	**14**	*119*	*gal*
PropCure XB Component	1.12	**13**	*122*	*gal*
				gal
				gal
				gal
				gal
				gal
				gal
				gal
				gal
			Total Slurry Mass (Lbs)	
			3,179,294	

Ingredients Section:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments	Claimant Company	Claimant First Name	Claimant Last Name	Claimant Email	Claimant Phone (nnn-nnn-nnnn)
Water	Deutsch Oil Company	Carrier/Base Fluid	Water	7732-18-5	100.00%	*3,003,983*	*94.48584%*						
30/50 Premium Sand	SPS	Propping Agent	Crystalline Silica	14808-60-7	100.00%	*124,000*	*3.90024%*						
16/30 Premium Plus	SPS	Propping Agent	Crystalline Silica	14808-60-7	100.00%	*44,000*	*1.38395%*						
FRA-1 Friction Reducer (An	Chemplex Chemical	Friction Reducer	Distillates (Petroleum), Hydrotreated light	64742-47-8	30.00%	*300*	*0.00943%*						
			Citric Acid	77-92-9	5.00%	*50*	*0.00157%*						
			Alcohols, C10-16, Ethoxylated	68002-97-1	5.00%	*50*	*0.00157%*						
			Alcohols, C12-14, Ethoxylated	68439-50-9	5.00%	*50*	*0.00157%*						
			Alcohols, C12-16, Ethoxylated	68551-12-2	5.00%	*50*	*0.00157%*						
			Water	7732-18-5	50.00%	*500*	*0.01572%*						
LB-1 Liquid Biocide	EES	Biocide	Glutaraldehyde	111-30-8	20.00%	*146*	*0.00459%*						
			Didecyldimethyl ammonium chloride	7173-51-5	3.00%	*22*	*0.00069%*						
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	3.00%	*22*	*0.00069%*						
W-11 NE/Surfactant	Strategy Oilfield	NE/Surfactant	Methanol	67-56-1	15.00%	*111*	*0.00350%*						
			Polyoxyethylene Nonyl Phenyl Ether	127087-87-0	20.00%	*149*	*0.00467%*						
			Supplier Proprietary Mixture	Proprietary	65.00%	*483*	*0.01519%*		Strategy Oilfield	Greg	Ferguson	gferguson@strategyoilfieldsr	940-736-0352
CL-LC Liquid KCl Substitut	Strategy Oilfield	Liquid KCl Substitute	Choline Chloride	67-48-1	75.00%	*2,535*	*0.07973%*						
			Water	7732-18-5	25.00%	*845*	*0.02658%*						
LBC-1 SP-480	Strategy Oilfield	H2S Scale Inhibitor	Corrosion Inhibitor	Proprietary	70.00%	*511*	*0.01606%*		Strategy Oilfield	Greg	Ferguson	gferguson@strategyoilfieldsr	940-736-0352
			Methanol	67-56-1	30.00%	*219*	*0.00688%*						
PB-1 FR Breaker	EES	Polymer Breaker	Sodium chlorite	7758-19-2	10.00%	*49*	*0.00154%*						
			Water	7732-18-5	90.00%	*441*	*0.01387%*						
PropCure XA Component	Hexion	Amidoamine	Fatty Acid polyamine condensate	Proprietary	25.00%	*30*	*0.00093%*		Hexion	Logan	Cabori	logan.cabri@hexion.com	405-301-5073
			Solvent naphtha (petroleum), heavy arom	64742-94-5	10.00%	*12*	*0.00037%*						
			3,6,9,12-Tetraoxatetradecan-1-ol	5650-20-4	5.00%	*6*	*0.00019%*						
			Naphthalene	91-20-3	1.00%	*1*	*0.00004%*						
PropCure XB Component	Hexion	Epoxy	4,4-Isopropylidenediphenol-Epichlorohydrin Copolym	25068-38-6	75.00%	*91*	*0.00287%*						

*Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
All component information

Fracture Start Date/Time:	**4/6/21 10:46**
Fracture End Date/Time:	**4/6/21 12:39**
State:	**Kansas**
County:	**Pratt**
API Number:	
Operator Number:	
Well Name:	**Deitz 2-8**
Federal Well:	**No**
Tribal Well:	**No**
Longitude:	
Latitude:	
Long/Lat Projection:	**NAD83**
True Vertical Depth (TVD):	
Total Clean Fluid Volume* (gal):	**358,777**

FracFocus Chemical Disclosure Registry

(e.g. XX-XXX-XXXXX-0000)

Total Slurry Mass (Lbs)
3,181,065

Ingredients Section:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Mass per Component (LBS)	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments	Claimant Company	Claimant First Name	Claimant Last Name	Claimant Email	Claimant Phone (nnn-nnn-nnnn)
Water	Deutsch Oil Company	Carrier/Base Fluid	Water	7732-18-5	100.00%	***2,993,994***	***94.11923%***						
30/50 Premium Sand	SPS	Propping Agent		Listed Below									
16/30 Northern White Sand	SPS	Propping Agent		Listed Below									
16/30 Garnet Resin Sand	SPS	Propping Agent		Listed Below									
FRA-1 Friction Reducer (Ad	Chemplex Chemical	Friction Reducer		Listed Below									
LB-1 Liquid Biocide	Innospec Oilfield Service	Biocide		Listed Below									
W-11 NE/Surfactant	Strategy Oilfield	NE/Surfactant		Listed Below									
KCL-LC Liquid KCl Substit	Strategy Oilfield	Liquid KCl Substitute		Listed Below									
LBC-1 SP-480	Strategy Oilfield	H2S Scale Inhibitor		Listed Below									
PB-1 FR Breaker	EES	Polymer Breaker		Listed Below									
			Crystalline Silica	14808-60-7	100.00%	***124,000***	***3.89807%***						
			Crystalline Silica	14808-60-7	100.00%	***44,000***	***1.38318%***						
			Crystalline Silica	14808-60-7	99.00%	***11,880***	***0.37346%***						
			Polyurethane Resin (Nuisance Dust)	57029-46-6	2.00%	***240***	***0.00754%***						
			Distillates (Petroleum), Hydrotreated light	64742-47-8	30.00%	***300***	***0.00943%***						
			Citric Acid	77-92-9	5.00%	***50***	***0.00157%***						
			Alcohols, C10-16, Ethoxylated	68002-97-1	5.00%	***50***	***0.00157%***						
			Alcohols, C12-14, Ethoxylated	68439-50-9	5.00%	***50***	***0.00157%***						
			Alcohols, C12-16, Ethoxylated	68551-12-2	5.00%	***50***	***0.00157%***						
			Water	7732-18-5	50.00%	***500***	***0.01571%***						
			Glutaraldehyde	111-30-8	20.00%	***146***	***0.00459%***						
			Didecyldimethyl ammonium chloride	7173-51-5	3.00%	***22***	***0.00069%***						
			Alkyl (C12-16) dimethylbenzyl ammonium chloride	68424-85-1	3.00%	***22***	***0.00069%***						
			Mixture	Not Assigned	74.00%	***540***	***0.01697%***		Innospec Oilfield Service	Bryce	Hoisington	sdsinfo@innospecinc.com	713-936-4340
			Methanol	67-56-1	15.00%	***111***	***0.00350%***						
			Polyoxyethylene Nonyl Phenyl Ether	127087-87-0	20.00%	***149***	***0.00467%***						
			Supplier Proprirtary Mixture	Proprietary	65.00%	***483***	***0.01518%***		Strategy Oilfield	Greg	Ferguson	gferguson@strategyoilfieldse	940-736-0352
			Choline Chloride	67-48-1	75.00%	***2,535***	***0.07968%***						
			Water	7732-18-5	25.00%	***845***	***0.02656%***						
			Corrosion Inhibitor	Proprietary	70.00%	***511***	***0.01605%***		Strategy Oilfield	Greg	Ferguson	gferguson@strategyoilfieldse	940-736-0352
			Methanol	67-56-1	30.00%	***219***	***0.00688%***						
			Sodium chlorite	7758-19-2	10.00%	***49***	***0.00154%***						
			Water	7732-18-5	90.00%	***441***	***0.01386%***						

*Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%
All component information

Geologic Report

Aaron L. Young

Drilling Time and Sample Log

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

Well Name:	**Hetrick-Howell #1-24**		
API:	**15-151-22536**		
Location:	**Section 24 - T26S - R12W**		
License Number:	**3180**	**Region:**	**Pratt Co., KS**
Spud Date:	**08 / 09 / 2021**	**Drilling Completed:**	**08 / 15 / 2021**
Surface Coordinates:	**1980' FSL and 2970' FEL** **Approx. E2 - NE - SW**		
Bottom Hole Coordinates:			
Ground Elevation (ft):	**1861'**	**K.B. Elevation (ft):**	**1874'**
Logged Interval (ft):	**3550'** **To:** **4180'**	**Total Depth (ft):**	**4180'**
Formation:	**Kinderhook**		
Type of Drilling Fluid:	**Mud-Co**		

OPERATOR

Company: **Deutsch Oil Company**
Address: **8100 E 22nd St N, Bldg 600**
Wichita, KS 67226

GEOLOGIST

Name: **Aaron L. Young, M. S.**
Company: **Young Consulting LLC**
Address: **100 S Main Ste 505**
Wichita, KS 67202

General Info

CONTRACTOR: Fossil Drilling, Rig #3

BIT RECORD:

No.	Size	Make	Jets	Out	Feet	Hours
1	12-1/4	RR	16-16-16	300'	303'	2.5
2	7-7/8	Taurex TSO516	18-18-18-16-16	3880'	3850'	60.0

Surveys: 300'-.5, 924'-.5, 1431'-1, 1940-1, 2449'-.75, 3021'-.75, 3557'-.75, 4180'-.25

GENERAL DRILLING AND PUMP INFORMATION:
Drilling with 6,000 - 12,000 lbs. on bit and approx 80-110 RPM.
Running 10 stands of collars; 597.98'
Pumping approx 1000 psi at standpipe @ 55 SPM

Daily Status

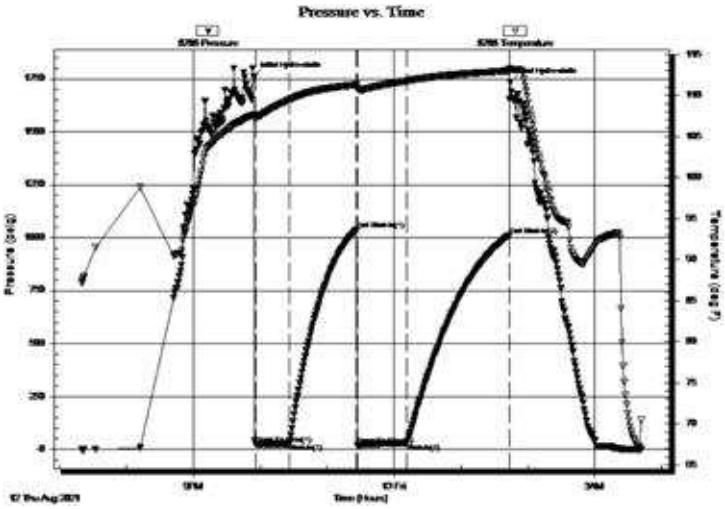
08-04-21 Start building location.
08-05-21 Finish digging pits and level location. Start moving in rig.
08-06-21 Finish rig move. Rig up. Will spud well on Monday.
08-09-21 Spud well at 11:00 am. Drill 12 1/4"' hole to 300 ft. Set 8 5/8" new 23# casing at 291 ft. Cemented with 280 sx. 60/40 poz., 2% cc., 3% celflake. Plug down at 4:30 pm.
08-10-21 Drilling ahead at 855 ft. at 7:00 am.
08-11-21 Drilling ahead at 2309 ft. at 7:00 am.
08-12-21 Drilling ahead at 3373 ft. Mud up at 3021 ft.
08-13-21 3672 ft. at 7:00 am. Tripping in with bit after DST #1. DST #1, 3616'-3672', LKC A & B zones, 30"-60"45"-90"
08-14-21 Drilling ahead at 3912 ft. at 7:00 am. DST #2, 3788'-3818', LKC H & I zones, 15"-30"-30"-60" DST #3, 3866'-3937', 30"-60"-45"-90", Tool slid 15 ft. to bottom
08-15-21 4180 ft at 7:00 am. And start circulating hole clean for logs.
08-16-21 TD: 4180 ft. at 7:00 am and running 5 ½" 17# production casing.

DST #1 LKC A & B
3616' - 3672'
30" - 60" - 45" - 90"

IF: BOB in 3 min. Built to 56.48"
ISI: No blow
FF: BOB immed. Built to 108.03"
FSI: No blow

Rec'd: 7' GCM (1% G, 99% M), 960' GIP

SIP: 1038-1011#
FP: 24-27#, 20-28#
HP: 1759-1733#

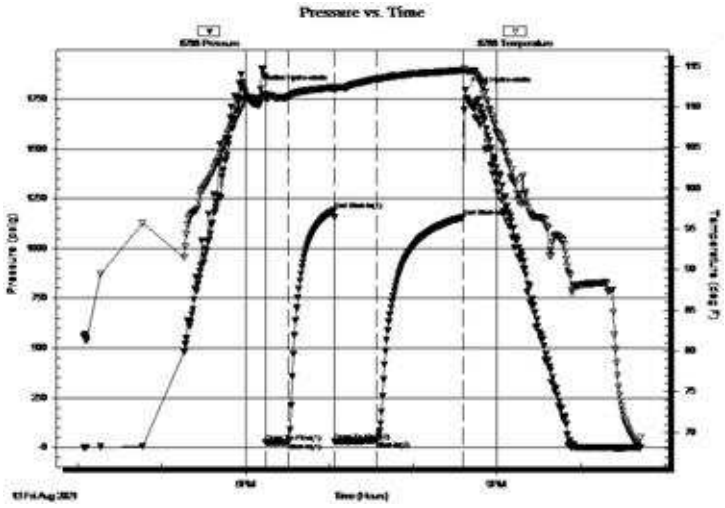


DST #2 LKC H & I
3786' - 3818'
15" - 30" - 30" - 60"

IF: Weak blow. Built to 0.59"
ISI: No blow
FF: Weak surface blow. Built to 0.11"
FSI: No blow

Rec'd: 30' GOSM (1% G, 99% M), 30' GIP

SIP: 1191-1156#
FP: 25-26#, 32-37#
HP: 1800-1791#



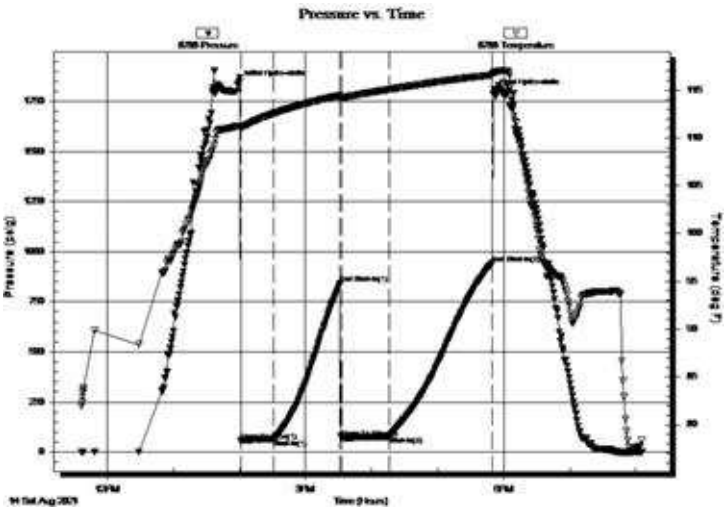
DST #3 LKC K & L 3866' - 3937'
30" - 60" - 45" - 90"

Tool slid 15' to bottom

IF: Weak to fair blow. Built to 5.72"
ISI: No blow
FF: Strong blow. Built to 11.42"
FSI: No blow

Rec'd: 61' GOCM (34% G, 11% O, 55% M), 60' GVSOCM (2% G, 2% O, 96% M), 4' GOSM (1% G, 99% M), 60' GIP

SIP: 839-942# FP: 56-66#, 68-78# HP: 1835-1789#



ROCK TYPES

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Congl
- Dol
- Gyp
- Igne
- Lmst
- Meta
- Mrlst
- Salt
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Till
- Carb sh
- Dol
- Dtd
- Gry sh
- Sandylms
- Shale
- Sltstn
- Shlyslts
- Sltysh
- Lms

ACCESSORIES

MINERAL

- 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
- Chlorite
- Dol
- Sand
- Slty

FOSSIL

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

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh
- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

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

SORTING
- Well
- Moderate
- Poor

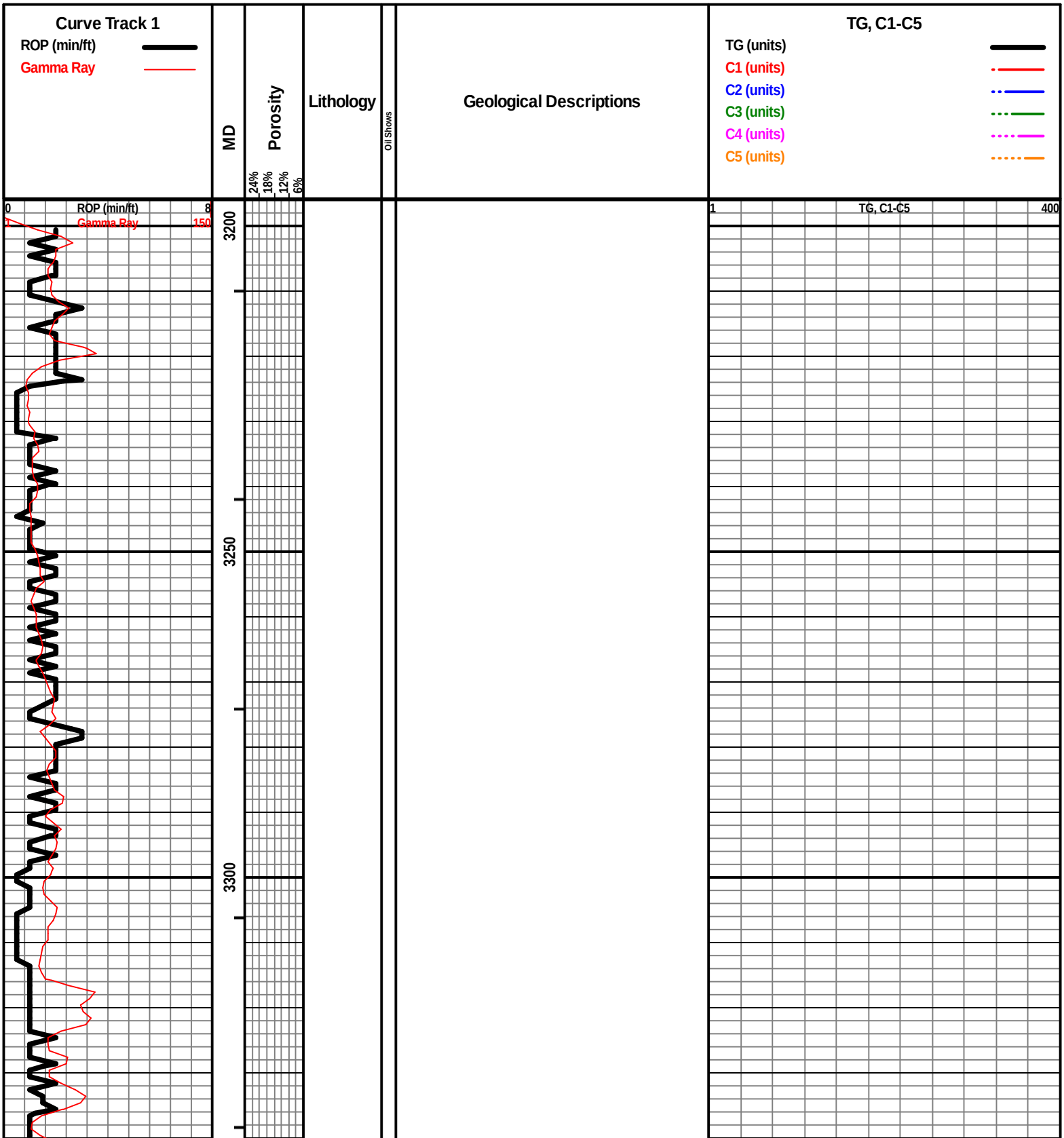
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

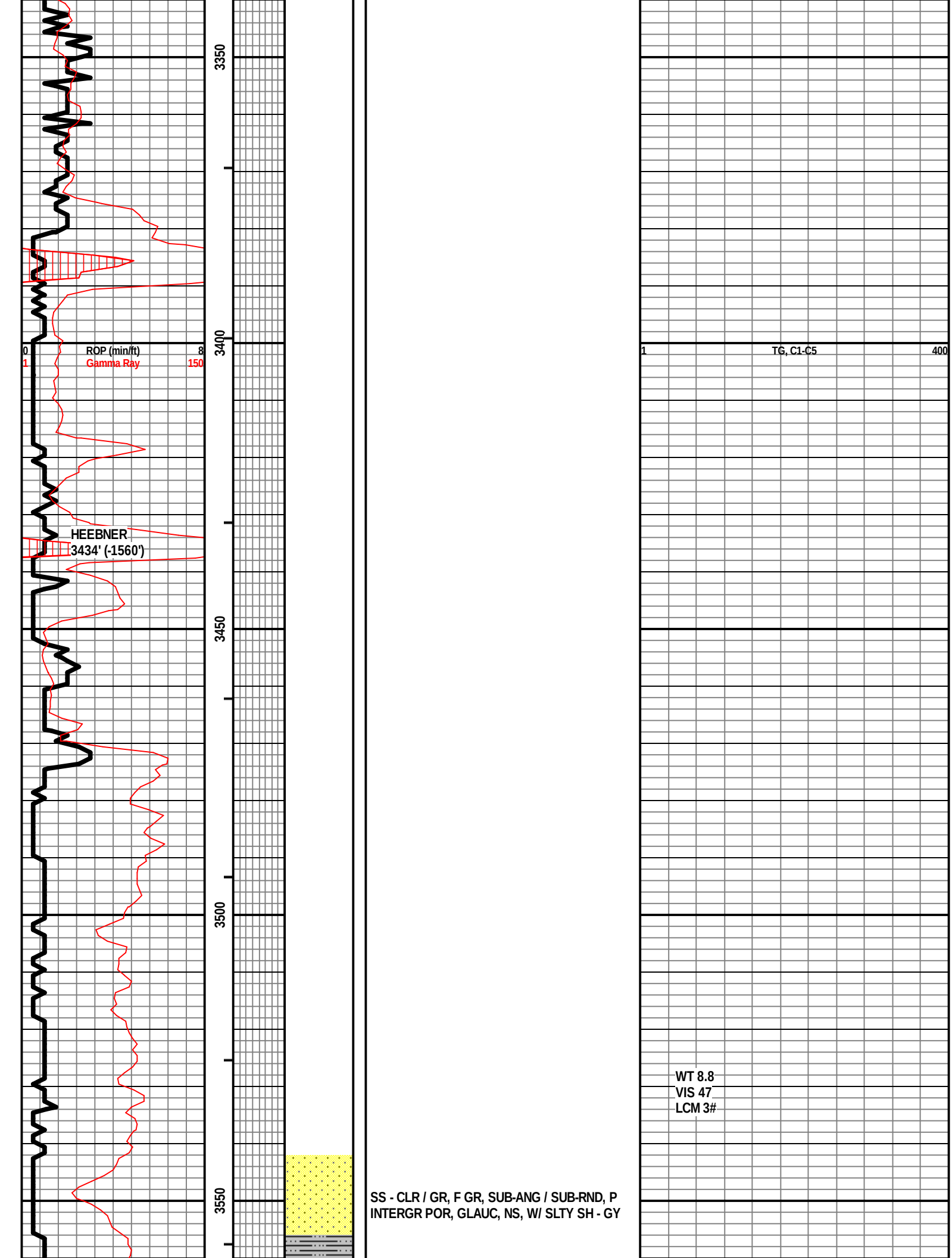
OIL SHOWS
- Even
- Spotted
- Ques
- Dead
- Gas show

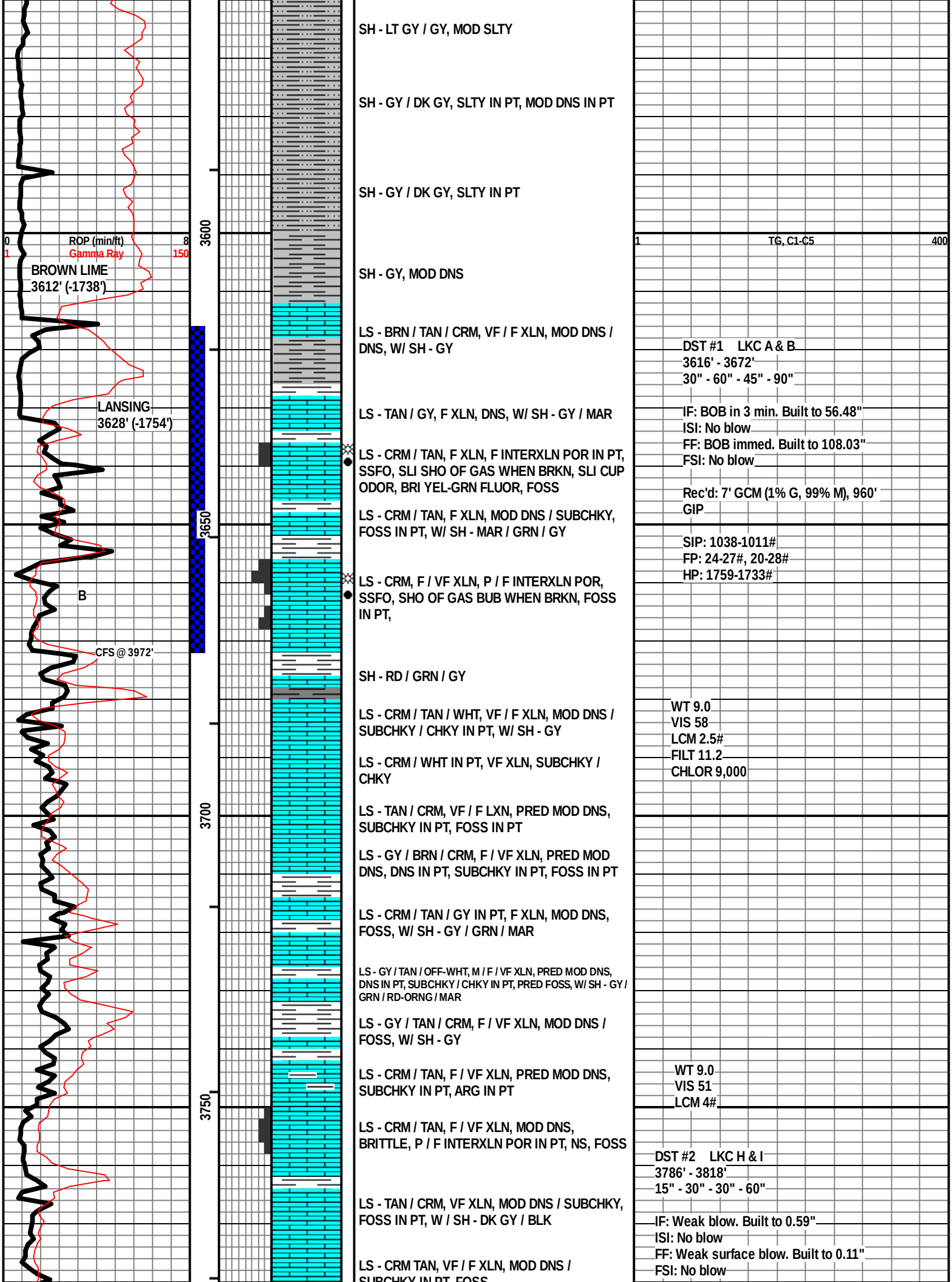
INTERVALS
- Core
- Dst

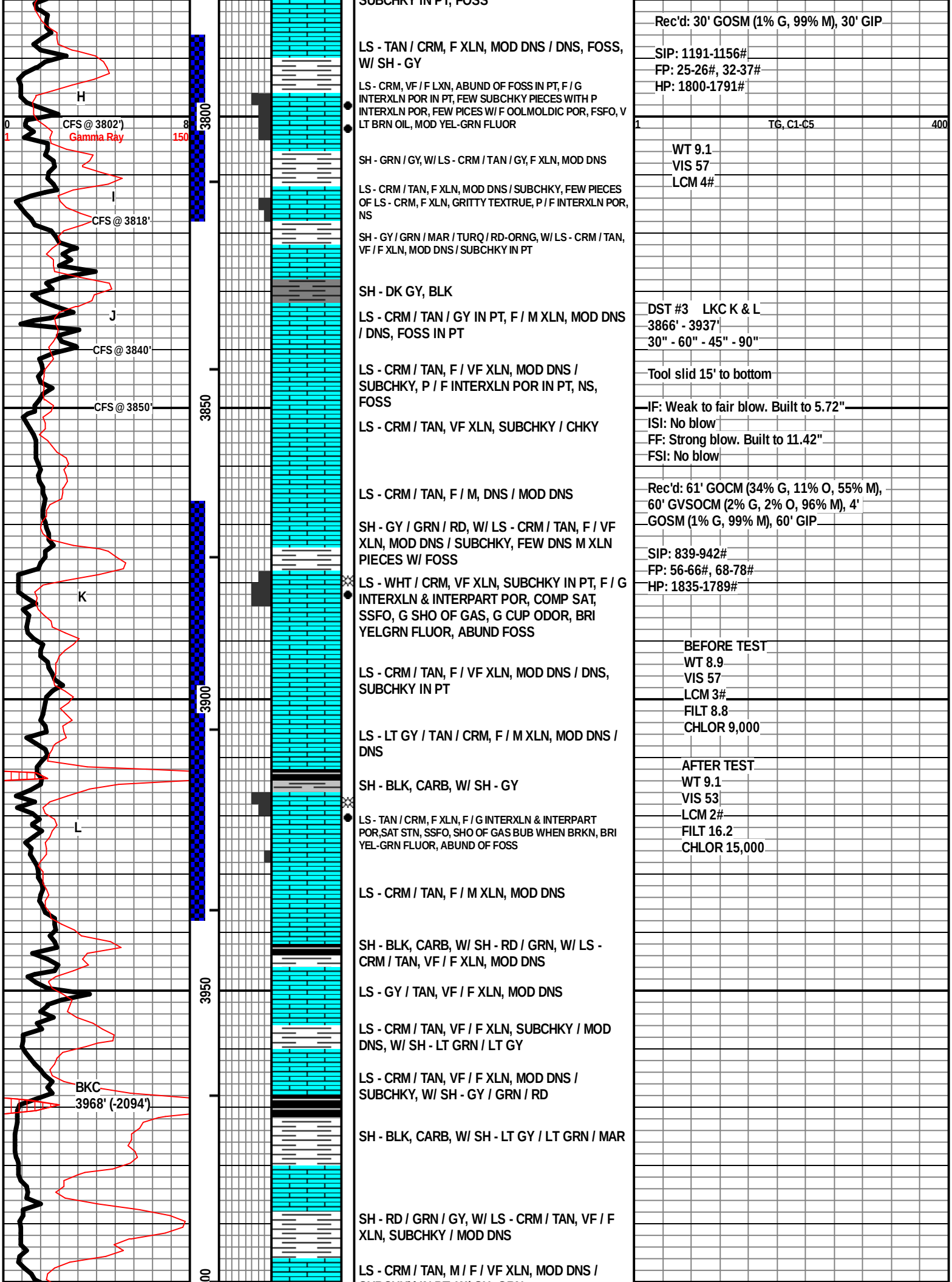
- Dst

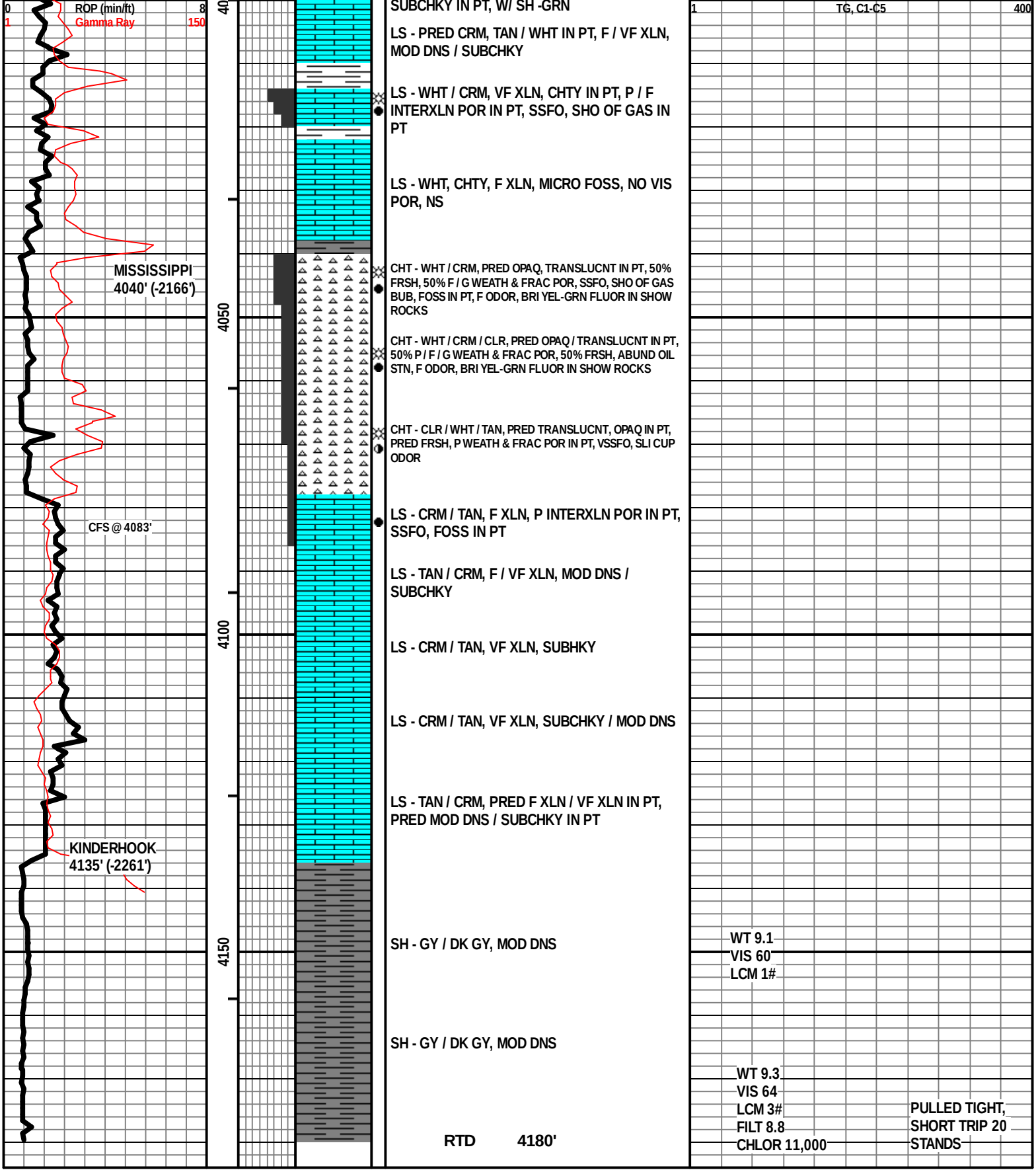
EVENTS
- Rft
- Sidewall
- Conn




3350
3400
3450
3500
3550
0
ROP (min/ft)
8
1
Gamma Ray
150
1
TG, C1-C5
400
HEEBNER
3434' (-1560')
SS - CLR / GR, F GR, SUB-ANG / SUB-RND, P
INTERGR POR, GLAUC, NS, W/ SLTY SH - GY
WT 8.8
VIS 47
LCM 3#


0
ROP (min/ft)
8
1
Gamma Ray
150
BROWN LIME
3612' (-1738')
LANSING
3628' (-1754')
B
CFS @ 3972'
3600
3650
3700
3750
SH - LT GY / GY, MOD SLTY
SH - GY / DK GY, SLTY IN PT, MOD DNS IN PT
SH - GY / DK GY, SLTY IN PT
SH - GY, MOD DNS
LS - BRN / TAN / CRM, VF / F XLN, MOD DNS / DNS, W/ SH - GY
LS - TAN / GY, F XLN, DNS, W/ SH - GY / MAR
LS - CRM / TAN, F XLN, F INTERXLN POR IN PT, SSFO, SLI SHO OF GAS WHEN BRKN, SLI CUP ODOR, BRI YEL-GRN FLUOR, FOSS
LS - CRM / TAN, F XLN, MOD DNS / SUBCHKY, FOSS IN PT, W/ SH - MAR / GRN / GY
LS - CRM, F / VF XLN, P / F INTERXLN POR, SSFO, SHO OF GAS BUB WHEN BRKN, FOSS IN PT,
SH - RD / GRN / GY
LS - CRM / TAN / WHT, VF / F XLN, MOD DNS / SUBCHKY / CHKY IN PT, W/ SH - GY
LS - CRM / WHT IN PT, VF XLN, SUBCHKY / CHKY
LS - TAN / CRM, VF / F LXN, PRED MOD DNS, SUBCHKY IN PT, FOSS IN PT
LS - GY / BRN / CRM, F / VF XLN, PRED MOD DNS, DNS IN PT, SUBCHKY IN PT, FOSS IN PT
LS - CRM / TAN / GY IN PT, F XLN, MOD DNS, FOSS, W/ SH - GY / GRN / MAR
LS - GY / TAN / OFF-WHT, M / F / VF XLN, PRED MOD DNS, DNS IN PT, SUBCHKY / CHKY IN PT, PRED FOSS, W/ SH - GY / GRN / RD-ORNG / MAR
LS - GY / TAN / CRM, F / VF XLN, MOD DNS / FOSS, W/ SH - GY
LS - CRM / TAN, F / VF XLN, PRED MOD DNS, SUBCHKY IN PT, ARG IN PT
LS - CRM / TAN, F / VF XLN, MOD DNS, BRITTLE, P / F INTERXLN POR IN PT, NS, FOSS
LS - TAN / CRM, VF XLN, MOD DNS / SUBCHKY, FOSS IN PT, W / SH - DK GY / BLK
LS - CRM TAN, VF / F XLN, MOD DNS /
1
TG, C1-C5
400
DST #1 LKC A & B
3616' - 3672'
30" - 60" - 45" - 90"
IF: BOB in 3 min. Built to 56.48"
ISI: No blow
FF: BOB immed. Built to 108.03"
FSI: No blow
Rec'd: 7' GCM (1% G, 99% M), 960' GIP
SIP: 1038-1011#
FP: 24-27#, 20-28#
HP: 1759-1733#
WT 9.0
VIS 58
LCM 2.5#
FILT 11.2
CHLOR 9,000
WT 9.0
VIS 51
LCM 4#
DST #2 LKC H & I
3786' - 3818'
15" - 30" - 30" - 60"
IF: Weak blow. Built to 0.59"
ISI: No blow
FF: Weak surface blow. Built to 0.11"
FSI: No blow


SUBCHKY IN PT, FOSS
LS - TAN / CRM, F XLN, MOD DNS / DNS, FOSS, W/ SH - GY
LS - CRM, VF / F LXN, ABUND OF FOSS IN PT, F / G INTERXLN POR IN PT, FEW SUBCHKY PIECES WITH P INTERXLN POR, FEW PICES W/ F OOLMOLDIC POR, FSFO, V LT BRN OIL, MOD YEL-GRN FLUOR
SH - GRN / GY, W/ LS - CRM / TAN / GY, F XLN, MOD DNS
LS - CRM / TAN, F XLN, MOD DNS / SUBCHKY, FEW PIECES OF LS - CRM, F XLN, GRITTY TEXTRUE, P / F INTERXLN POR, NS
SH - GY / GRN / MAR / TURQ / RD-ORNG, W/ LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY IN PT
SH - DK GY, BLK
LS - CRM / TAN / GY IN PT, F / M XLN, MOD DNS / DNS, FOSS IN PT
LS - CRM / TAN, F / VF XLN, MOD DNS / SUBCHKY, P / F INTERXLN POR IN PT, NS, FOSS
LS - CRM / TAN, VF XLN, SUBCHKY / CHKY
LS - CRM / TAN, F / M, DNS / MOD DNS
SH - GY / GRN / RD, W/ LS - CRM / TAN, F / VF XLN, MOD DNS / SUBCHKY, FEW DNS M XLN PIECES W/ FOSS
LS - WHT / CRM, VF XLN, SUBCHKY IN PT, F / G INTERXLN & INTERPART POR, COMP SAT, SSFO, G SHO OF GAS, G CUP ODOR, BRI YELGRN FLUOR, ABUND FOSS
LS - CRM / TAN, F / VF XLN, MOD DNS / DNS, SUBCHKY IN PT
LS - LT GY / TAN / CRM, F / M XLN, MOD DNS / DNS
SH - BLK, CARB, W/ SH - GY
LS - TAN / CRM, F XLN, F / G INTERXLN & INTERPART POR,SAT STN, SSFO, SHO OF GAS BUB WHEN BRKN, BRI YEL-GRN FLUOR, ABUND OF FOSS
LS - CRM / TAN, F / M XLN, MOD DNS
SH - BLK, CARB, W/ SH - RD / GRN, W/ LS - CRM / TAN, VF / F XLN, MOD DNS
LS - GY / TAN, VF / F XLN, MOD DNS
LS - CRM / TAN, VF / F XLN, SUBCHKY / MOD DNS, W/ SH - LT GRN / LT GY
LS - CRM / TAN, VF / F XLN, MOD DNS / SUBCHKY, W/ SH - GY / GRN / RD
SH - BLK, CARB, W/ SH - LT GY / LT GRN / MAR
SH - RD / GRN / GY, W/ LS - CRM / TAN, VF / F XLN, SUBCHKY / MOD DNS
LS - CRM / TAN, M / F / VF XLN, MOD DNS /
H
I
J
K
L
BKC
3968' (-2094')
CFS @ 3802')
Gamma Ray
0
1
150
CFS @ 3818'
CFS @ 3840'
CFS @ 3850'
3800
3850
3900
3950
Rec'd: 30' GOSM (1% G, 99% M), 30' GIP
SIP: 1191-1156#
FP: 25-26#, 32-37#
HP: 1800-1791#
1
TG, C1-C5
400
WT 9.1
VIS 57
LCM 4#
DST #3 LKC K & L
3866' - 3937'
30" - 60" - 45" - 90"
Tool slid 15' to bottom
IF: Weak to fair blow. Built to 5.72"
ISI: No blow
FF: Strong blow. Built to 11.42"
FSI: No blow
Rec'd: 61' GOCM (34% G, 11% O, 55% M), 60' GVSOCM (2% G, 2% O, 96% M), 4' GOSM (1% G, 99% M), 60' GIP
SIP: 839-942#
FP: 56-66#, 68-78#
HP: 1835-1789#
BEFORE TEST
WT 8.9
VIS 57
LCM 3#
FILT 8.8
CHLOR 9,000
AFTER TEST
WT 9.1
VIS 53
LCM 2#
FILT 16.2
CHLOR 15,000


0
ROP (min/ft)
8
1
Gamma Ray
150
4050
4100
4150
MISSISSIPPI
4040' (-2166')
CFS @ 4083'
KINDERHOOK
4135' (-2261')
SUBCHKY IN PT, W/ SH -GRN
LS - PRED CRM, TAN / WHT IN PT, F / VF XLN, MOD DNS / SUBCHKY
LS - WHT / CRM, VF XLN, CHTY IN PT, P / F INTERXLN POR IN PT, SSFO, SHO OF GAS IN PT
LS - WHT, CHTY, F XLN, MICRO FOSS, NO VIS POR, NS
CHT - WHT / CRM, PRED OPAQ, TRANSLUCNT IN PT, 50% FRSH, 50% F / G WEATH & FRAC POR, SSFO, SHO OF GAS BUB, FOSS IN PT, F ODOR, BRI YEL-GRN FLUOR IN SHOW ROCKS
CHT - WHT / CRM / CLR, PRED OPAQ / TRANSLUCNT IN PT, 50% P / F / G WEATH & FRAC POR, 50% FRSH, ABUND OIL STN, F ODOR, BRI YEL-GRN FLUOR IN SHOW ROCKS
CHT - CLR / WHT / TAN, PRED TRANSLUCNT, OPAQ IN PT, PRED FRSH, P WEATH & FRAC POR IN PT, VSSFO, SLI CUP ODOR
LS - CRM / TAN, F XLN, P INTERXLN POR IN PT, SSFO, FOSS IN PT
LS - TAN / CRM, F / VF XLN, MOD DNS / SUBCHKY
LS - CRM / TAN, VF XLN, SUBHKY
LS - CRM / TAN, VF XLN, SUBCHKY / MOD DNS
LS - TAN / CRM, PRED F XLN / VF XLN IN PT, PRED MOD DNS / SUBCHKY IN PT
SH - GY / DK GY, MOD DNS
SH - GY / DK GY, MOD DNS
RTD 4180'
1
TG, C1-C5
400
WT 9.1
VIS 60
LCM 1#
WT 9.3
VIS 64
LCM 3#
FILT 8.8
CHLOR 11,000
PULLED TIGHT,
SHORT TRIP 20
STANDS