

Confidentiality Requested:

Yes  No

**KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

**Form must be Typed**

**Form must be Signed**

**All blanks must be Filled**

**WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

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

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD

Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Recompletion Date \_\_\_\_\_ Date Reached TD \_\_\_\_\_ Completion Date or Recompletion Date \_\_\_\_\_

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

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

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

**Drilling Fluid Management Plan**

*(Data must be collected from the Reserve Pit)*

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite: \_\_\_\_\_

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

**AFFIDAVIT**

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

Submitted Electronically

**KCC Office Use ONLY**

Confidentiality Requested

Date: \_\_\_\_\_

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

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

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

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

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

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____			
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Petroleum Development Company
Well Name	ENGLER FARMS 1-14
Doc ID	1574606

All Electric Logs Run

Microlog
Sonic Log
Dual Induction
Compensated Density





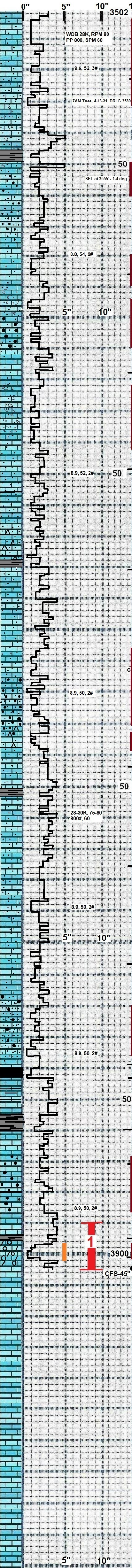


Geologist on location at 3300 ft.  
Displace Mud System at 3400 ft.

# FIELD (First Look) REPORT

API: 15-093-21981-0000  
Petroleum Development Co. (35628)  
Engler Farms 1-14  
1943 FNL & 906 FEL  
Sec. 14-T22S-R35W  
Kearny Co., KS  
KB 3031

## Lithology Legend



0" 5" 10" 15" 3502 DRLG W/BIT 3, Smith F27 in at 3502', Jets 3-15's  
Pipe Strap at 3502' - 0.37' long to board

WOB 28K, RPM 80  
PP 800, SPM 60

Is tan-lt gry fn xln dn, some suboolitic

9.6, 52, 3#

Is tan-lt gry fn xln dn, some suboolitic

Is tan-brn fn xln dn to fn oolitic and chalky

7AM Tues, 4-13-21, DRLG 3530

Is gry and brn fn xln dn, lesser fn oolitic,  
chalky, some with embedded fossils (clam  
impressions)

shales gry, dk gry

50

SHT at 3555' - 1.4 deg

Is tan-brn fn xln dn, small amts of ls white with  
fn blk uncoated ooids, assoc. ls with coarse dk  
gry clasts, fossilif in part

Is dk brn and gry, lesser cream fn thru med oolitic,  
ringed

Is cream to white fn xln dn-chalky, equal fn-med  
oolitic

8.8, 54, 2#

Is tan and cream fn xln dn to chalky ls, some suboolitic

Is cream to white fn xln and lesser fn-med suboolitic, some  
ringed, scattered fossils

5" 10" 3600

Is brn fn-med oolitic and tan, ringed ooids and clasts, some with  
coarse dk gry clast

Is tan-brn fn xln dn some oolitic

Is brn and gry fn and med xln to oolitic, fossilif  
in part

Is brn and gry fn and med xln to oolitic, fossilif  
in part

8.9, 52, 2#

50

Is cream fn xln-chalky and suboolitic

Is cream and tan fn xln, weathered to fn and med  
suboolitic, weathered

Is dk brn fn and fn-med oolitic, gritty, soft, fossilif, assoc.  
chert gry, fresh, fossilif, scattered chalk

shales dk gry to blk

Is cream-white vfn oolitic and suboolitic grades to chalky  
oolitic ls

Is cream-white vfn oolitic and suboolitic grades to chalky  
oolitic ls

3700

Is cream-brn fn oolitic, chalky, ringed in part to ls brn med  
and some coarsely oolitic, blk and dk gry uncoated clasts  
in dn matrix, assoc. chalk thru-out

8.9, 50, 2#

Is cream-brn fn oolitic, chalky, ringed in part to ls brn med  
and some coarsely oolitic, blk and dk gry uncoated clasts  
in dn matrix, assoc. chalk thru-out

Is tan and cream fn xln dn, assoc. chalk thru-out, equal ls  
tan and cream fn and med suboolitic, sparse chert yellow  
to tan, fresh, opaque

Is tan and cream fn and med suboolitic, some ringed to weathered

50

shales gry, dk gry

Is tan and cream fn and med suboolitic, some ringed to weathered

28-30K, 75-80  
800#, 60

Is tan and cream fn xln dn, some suboolitic, chalk thru-out

Is tan-brn fn and med xln to suboolitic, some ringed w/dk gry  
ooids

8.9, 50, 2#

Is tan-brn fn and med xln to suboolitic, some ringed w/dk gry  
ooids

5" 10" 3800

Is tan-brn fn and med xln to suboolitic, some with ringed dk gry and  
gry ooids

Is tan and cream vfn-fn and some med oolitic, weathered  
ringed, gritty

Is tan and cream vfn-fn and some med oolitic, weathered  
ringed, gritty

8.9, 50, 2#

shales blk, carb.

**B/Heebner Shale 3843-812**  
Is tan and cream fn xln dn

50

Is tan and cream fn xln dn mixed with shales  
gry, dk gry

shales gry, dk gry, gry-green

**Toronto Ls 3860-829**

Is tan-cream fn xln dn,  
chalk laced

Is cream and tan med oolitic, ringed and xln,  
some with vuggy porosity, no shows, chalk  
laced with chalk thru-out

8.9, 50, 2#

Is cream to tan fn xln dn, chalk laced

Is tan and cream fn xln dn

**Lansing 3895-864**

flash to faint odor, ls cream coarsely oomoldic and vugged porosity,  
cbrn and tan sptd stain, heavy sptd yellow-gold fluor wet and dry, fair  
and some good shows clear live oil on break, assoc. tan oil, (oil does  
fluor), with blue halo, fast cut, assoc. dolomite brn fn sucrosic, dk  
brn sptd stain, no shows oil or gas, very weak to no cut  
VERY SLIGHT INC. ON GAS DETECTOR

7AM Thur. 4-14-21, 3905' - taking DST 1

3900

CFS-45'

50

5" 10" 4000

SHT at 604' - 0.50 deg  
at 897' - 0.60 deg  
at 1828' - 1.60 deg  
at 1906' - 1.90 deg  
at 2000' - 1.50 deg  
at 2415' - 1.00 deg  
at 2700' - 0.80 deg  
at 3206' - 1.20 deg

MUD-CO at 3563'  
WT: 8.7, VIS: 52  
WL: 6.4, CHL: 2.9K  
LCM: 3#

MUD-CO at 898'  
WT: 9.8, VIS: 10  
WL: NC, CHL: 240  
LCM: 5#

MUD-CO at 1447'  
WT: 9.7, VIS: 36  
WL: NC, CHL: 24K  
LCM: 5#

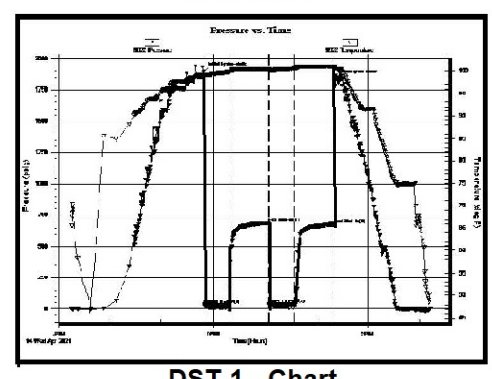
MUD-CO at 1828'  
WT: 8.2, VIS: water  
WL: NC, CHL: 100  
LCM: 0#

MUD-CO at 2017'  
WT: 9.0, VIS: 27  
WL: NC, CHL: 47K  
LCM: trace

MUD-CO at 2200'  
WT: 9.6, VIS: 28  
WL: NC, CHL: 82K  
LCM: 1#

MUD-CO at 2727'  
WT: 9.6, VIS: 30  
WL: NC, CHL: 61K  
LCM: 2#

DST 1) 3890-3905 (Lansin A Zn)  
[30-45-30-45]  
Rec: 20' Mud, Specks Oil  
IFP: 34-30, FFP: 37-35  
BHP: 688-678

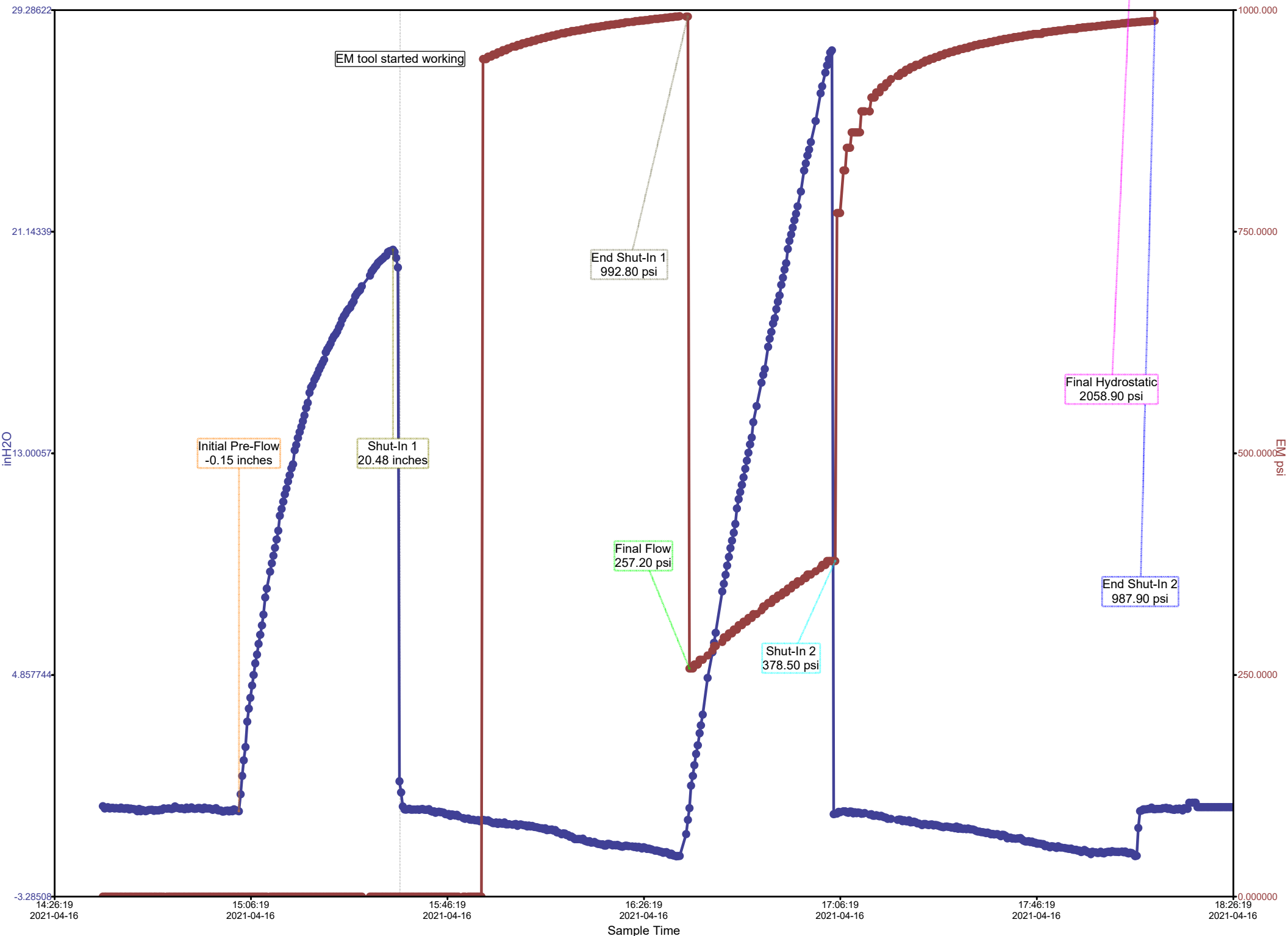


SHORT TRIP 10 Stands  
at 3905' - pulled TITE  
CTCH for 60" - TOOH  
F/DST 1

MUD-CO at 3905'  
WT: 9.1, VIS: 56  
WL: 6.4, CHL: 3.8K  
LCM: 4#



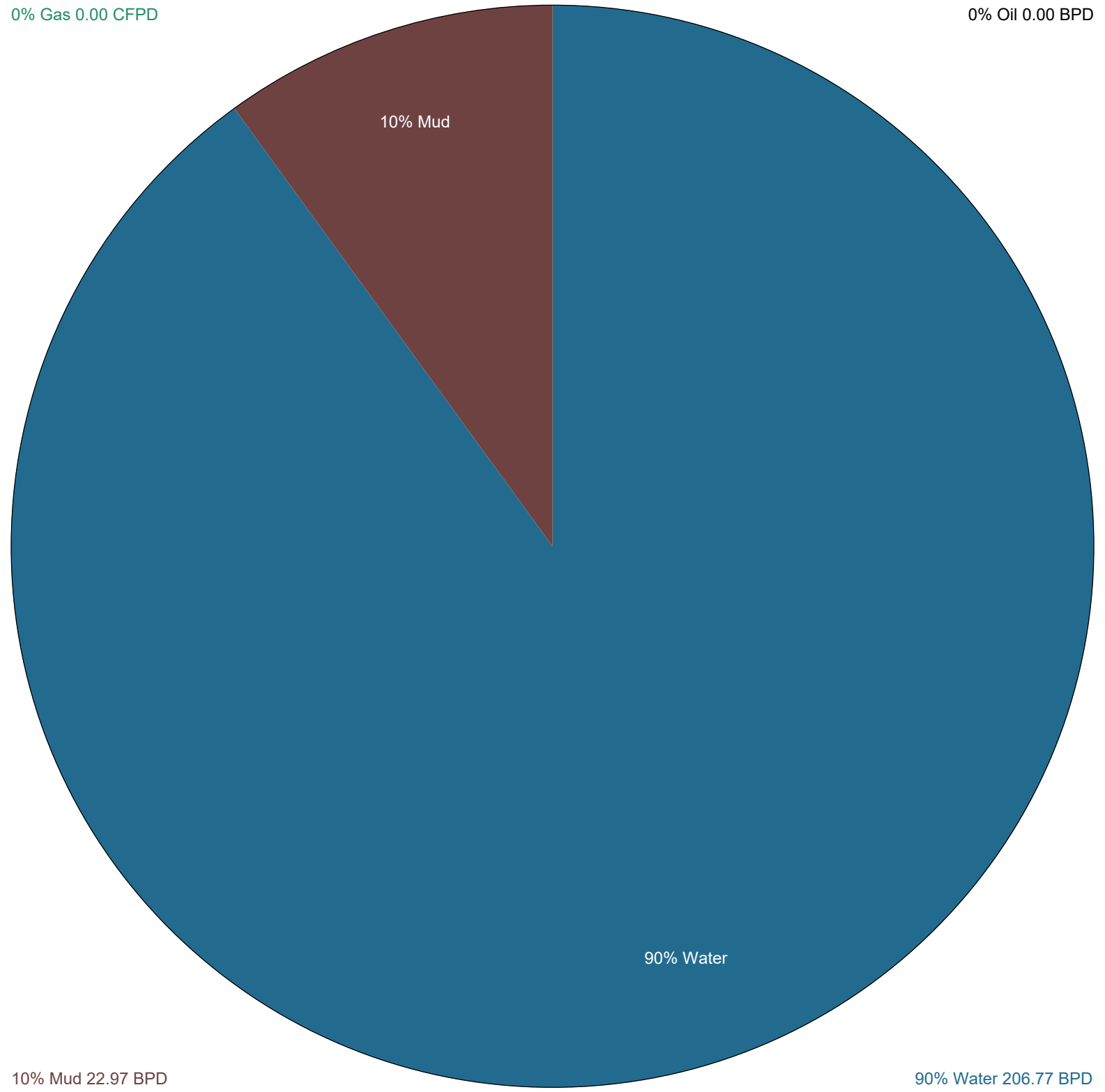
# Petroleum Development Company - Engler Farms#1-14 - DST #2 Straddle



Calculated Recovery Analysis - Petroleum Development Company - Engler Farms#1-14 - DST #2 Straddle

0% Gas 0.00 CFPD

0% Oil 0.00 BPD



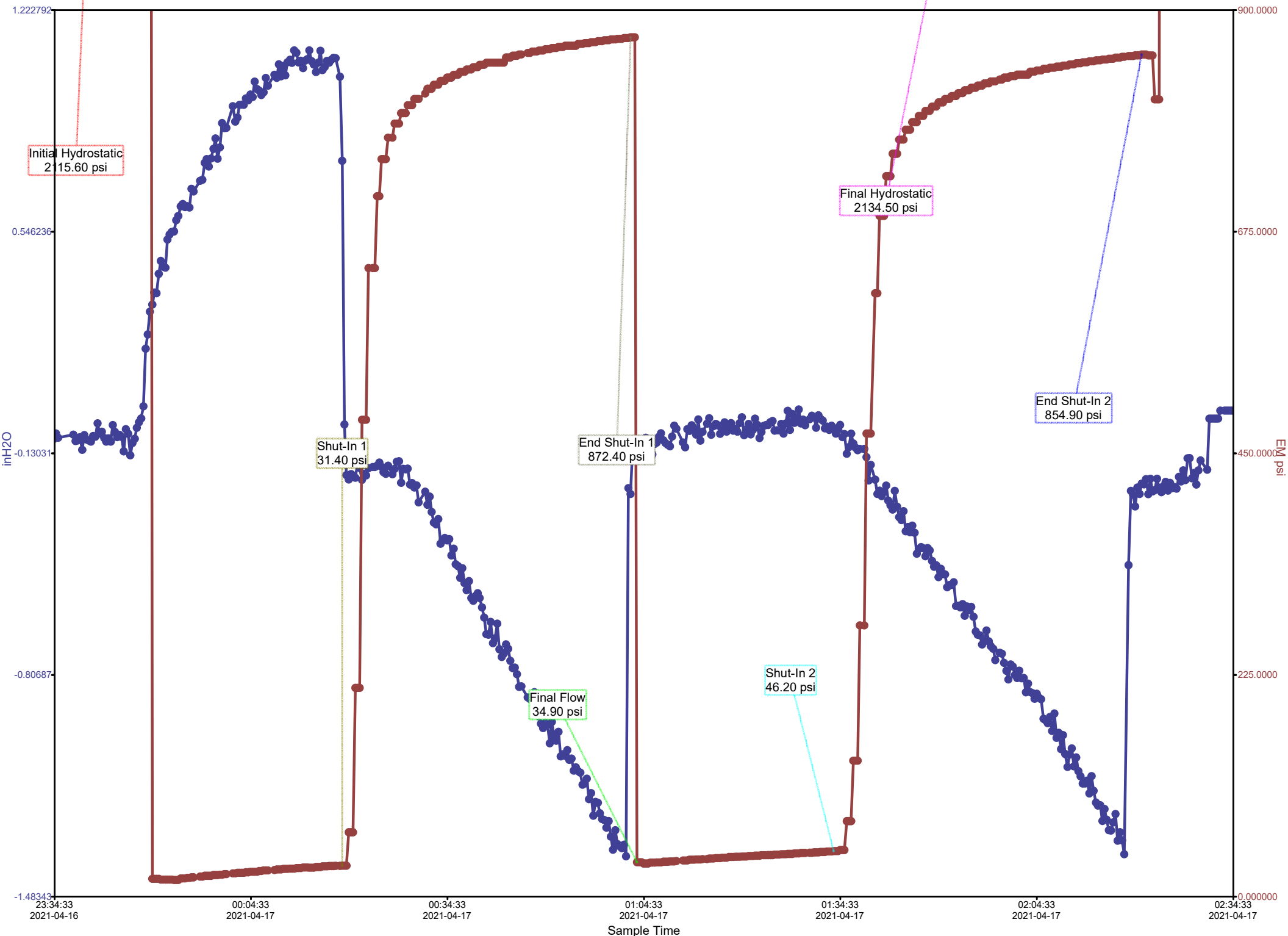
10% Mud 22.97 BPD

90% Water 206.77 BPD

10% Mud

90% Water

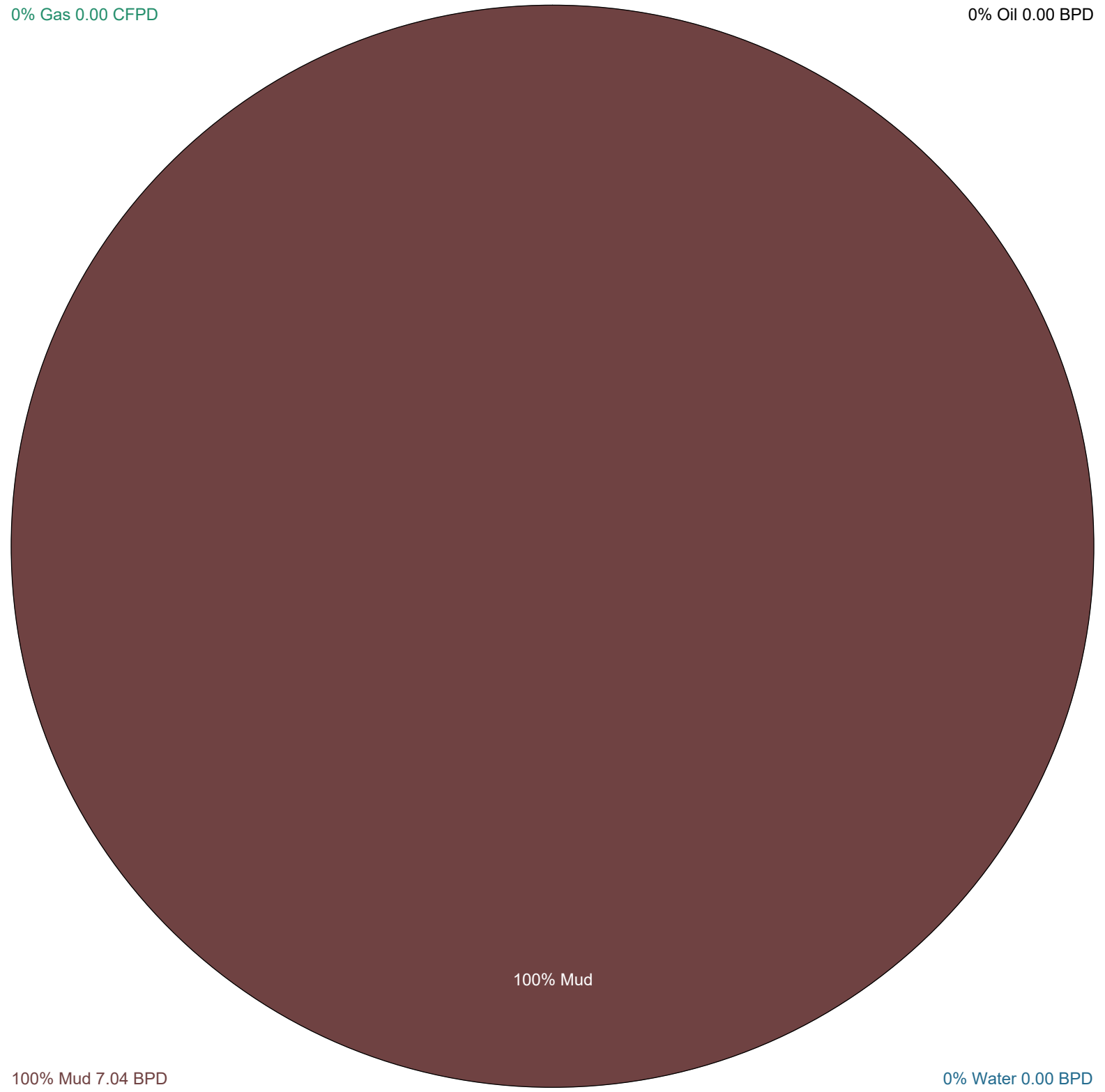
# Petroleum Development Company - Engler Farms#1-14 - DST #3



Calculated Recovery Analysis - Petroleum Development Company - Engler Farms#1-14 - DST #3

0% Gas 0.00 CFPD

0% Oil 0.00 BPD

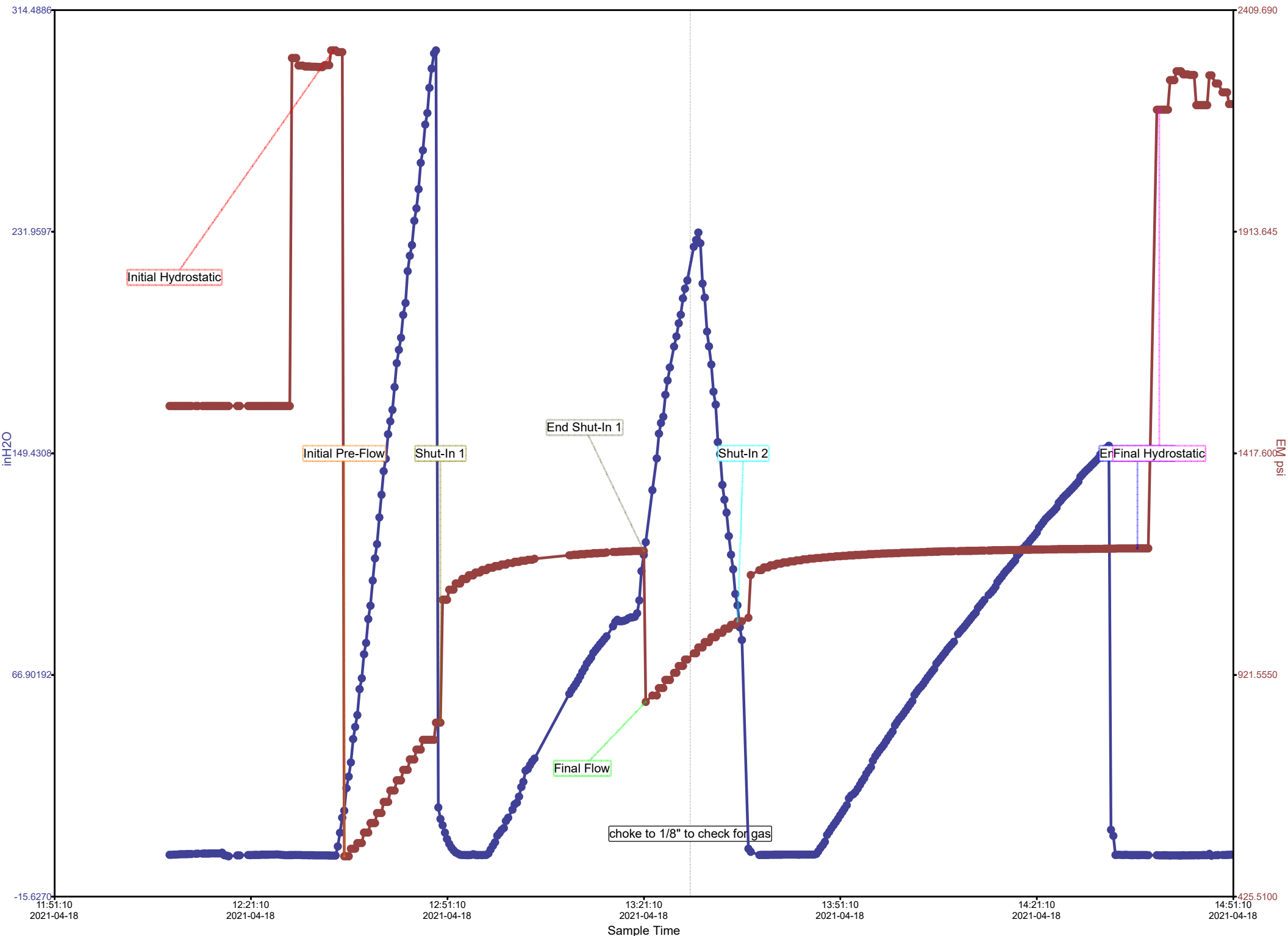


100% Mud

100% Mud 7.04 BPD

0% Water 0.00 BPD

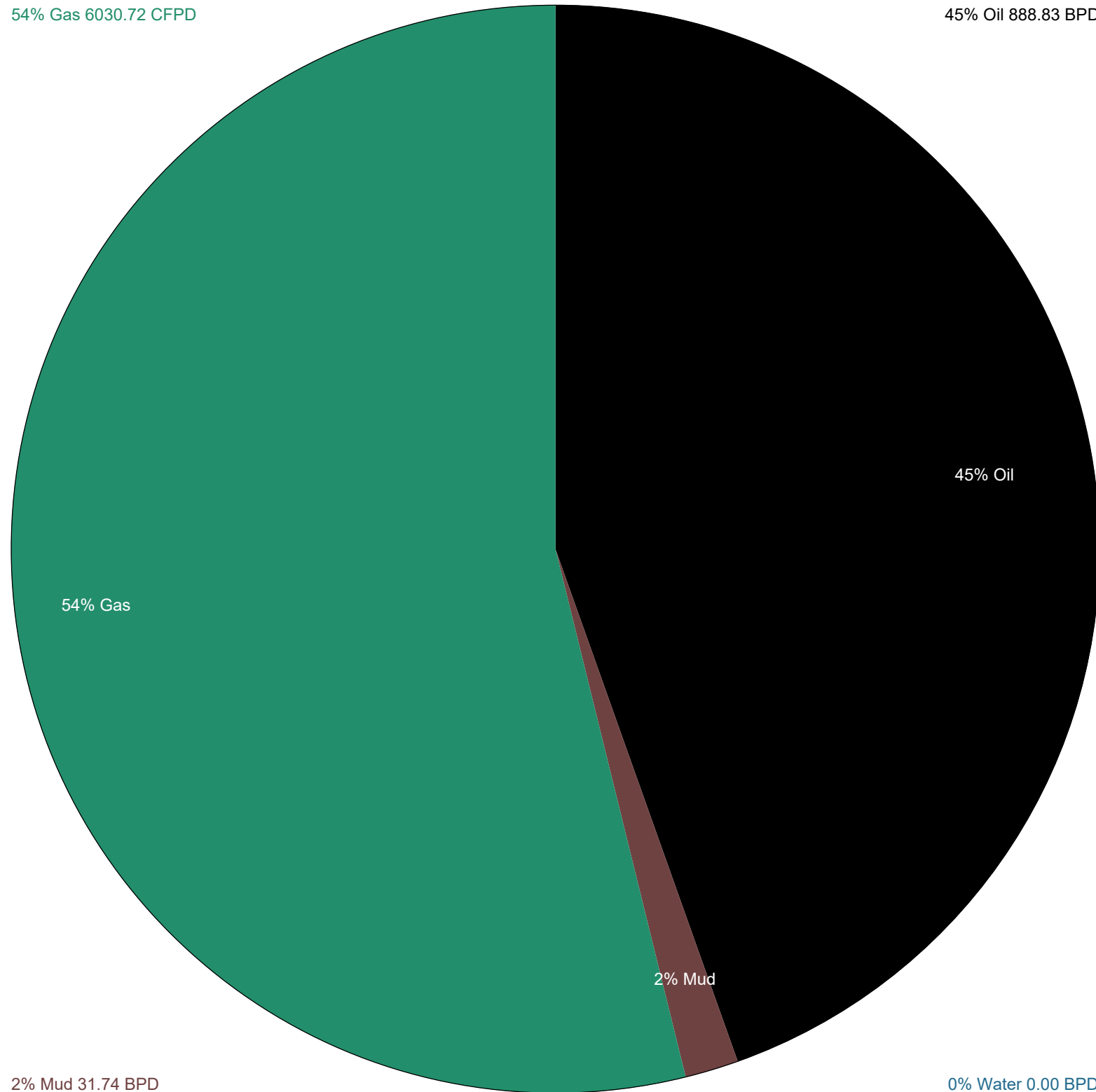
# Petroleum Development Company - Engler Farms#1-14 - DST #4



Calculated Recovery Analysis - Petroleum Development Company - Engler Farms#1-14 - DST #4

54% Gas 6030.72 CFPD

45% Oil 888.83 BPD



54% Gas

45% Oil

2% Mud

2% Mud 31.74 BPD

0% Water 0.00 BPD



## DRILL STEM TEST REPORT

Prepared For: **Petroleum Development Co**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

ATTN: Ken LeBlanc

### **Engler Farms #1-14**

#### **14-22s-35w Kearney,KS**

Start Date: 2021.04.14 @ 03:15:00

End Date: 2021.04.14 @ 10:12:45

Job Ticket #: 66982                      DST #: 1

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

Printed: 2021.04.19 @ 14:45:07





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Petroleum Development Co  
 401 S Boston Ave Ste 1850  
 Tulsa, OK 74103  
 ATTN: Ken LeBlanc

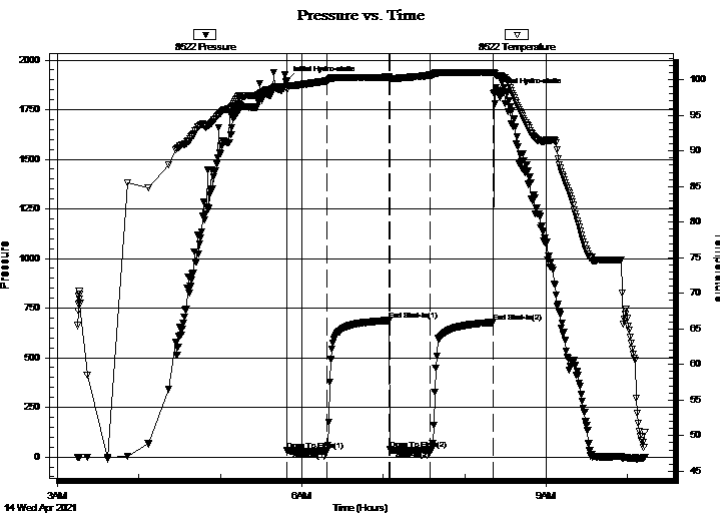
**14-22s-35w Kearney,KS**  
**Engler Farms #1-14**  
 Job Ticket: 66982 **DST#: 1**  
 Test Start: 2021.04.14 @ 03:15:00

## GENERAL INFORMATION:

Formation: **LKC A**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 05:49:15  
 Time Test Ended: 10:12:45  
 Interval: **3890.00 ft (KB) To 3905.00 ft (KB) (TVD)**  
 Total Depth: 3905.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 3034.00 ft (KB)  
 3023.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 8522 Inside**  
 Press@RunDepth: 35.53 psig @ 3891.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2021.04.14 End Date: 2021.04.14 Last Calib.: 2021.04.14  
 Start Time: 03:15:05 End Time: 10:12:44 Time On Btm: 2021.04.14 @ 05:49:00  
 Time Off Btm: 2021.04.14 @ 08:21:45

TEST COMMENT: 30- IF: 1/2" blow .  
 45- IS: No return.  
 30: FF: No blow .  
 45- FS: No return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1897.09	99.12	Initial Hydro-static
1	34.95	98.69	Open To Flow (1)
30	30.34	99.85	Shut-In(1)
76	688.12	100.36	End Shut-In(1)
77	37.18	100.08	Open To Flow (2)
106	35.53	100.63	Shut-In(2)
152	678.08	101.02	End Shut-In(2)
153	1834.86	100.94	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
20.00	Mud 100m (oil spots)	0.10

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Petroleum Development Co

**14-22s-35w Kearney,KS**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

**Engler Farms #1-14**

Job Ticket: 66982

**DST#: 1**

ATTN: Ken LeBlanc

Test Start: 2021.04.14 @ 03:15:00

## Tool Information

Drill Pipe:	Length: 3644.00 ft	Diameter: 3.80 inches	Volume: 51.12 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 239.00 ft	Diameter: 2.25 inches	Volume: 1.18 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 52.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 62000.00 lb
Depth to Top Packer:	3890.00 ft			Final 62000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	15.00 ft			
Tool Length:	45.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3861.00	
Shut In Tool	5.00		Fluid	3866.00	
Hydraulic tool	5.00			3871.00	
Em Tool	3.00			3874.00	
Jars	5.00			3879.00	
Safety Joint	2.00			3881.00	
Packer	5.00		Inside	3886.00	30.00 Bottom Of Top Packer
Packer	4.00			3890.00	
Stubb	1.00			3891.00	
Recorder	0.00	8522	Inside	3891.00	
Recorder	0.00	8319	Outside	3891.00	
Perforations	11.00			3902.00	
Bullnose	3.00			3905.00	15.00 Bottom Packers & Anchor

**Total Tool Length: 45.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Petroleum Development Co

**14-22s-35w Kearney,KS**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

**Engler Farms #1-14**

Job Ticket: 66982

**DST#: 1**

ATTN: Ken LeBlanc

Test Start: 2021.04.14 @ 03:15:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	Mud 100m (oil spots)	0.098

Total Length: 20.00 ft      Total Volume: 0.098 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

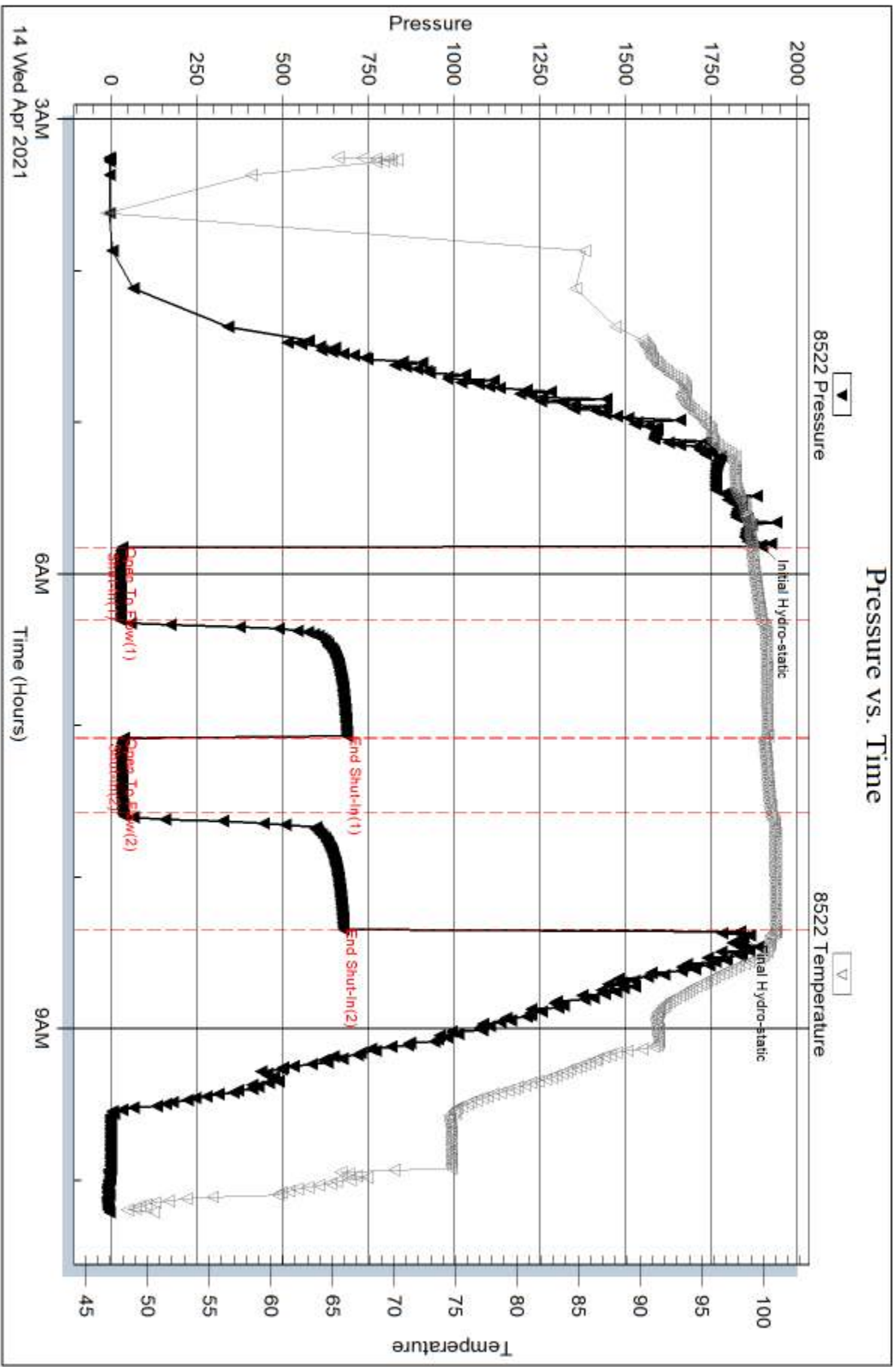
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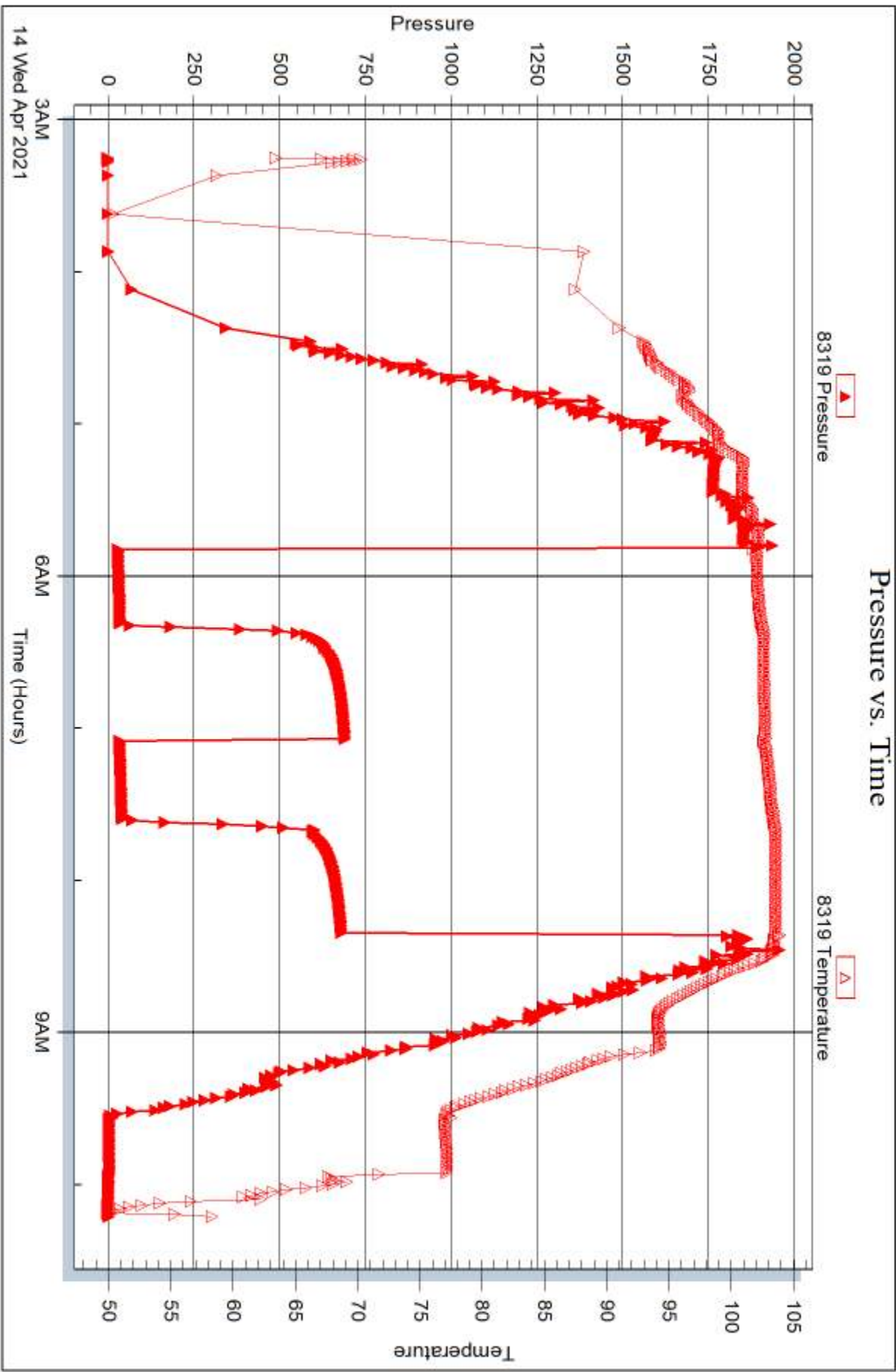
Inside

Petroleum Development Co

Engler Farms #1-14

DST Test Number: 1







## DRILL STEM TEST REPORT

Prepared For: **Petroleum Development Co**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

ATTN: Ken LeBlanc

### **Engler Farms #1-14**

#### **14-22s-35w Kearney,KS**

Start Date: 2021.04.16 @ 12:38:15

End Date: 2021.04.16 @ 21:02:17

Job Ticket #: 66983                      DST #: 2

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

Printed: 2021.04.19 @ 14:44:32



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Petroleum Development Co  
 401 S Boston Ave Ste 1850  
 Tulsa, OK 74103  
 ATTN: Ken LeBlanc

**14-22s-35w Kearney,KS**  
**Engler Farms #1-14**  
 Job Ticket: 66983 **DST#: 2**  
 Test Start: 2021.04.16 @ 12:38:15

## GENERAL INFORMATION:

Formation: **Pleasantan**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:03:33  
 Time Test Ended: 21:02:17  
 Interval: **4305.00 ft (KB) To 4347.00 ft (KB) (TVD)**  
 Total Depth: 4490.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Straddle (Reset)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 3034.00 ft (KB)  
 3023.00 ft (CF)  
 KB to GR/CF: 11.00 ft

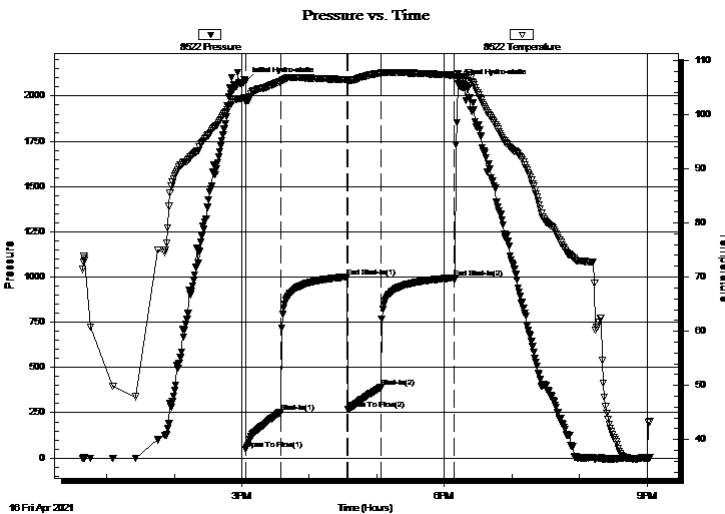
## Serial #: 8522

Inside

Press@RunDepth: 389.56 psig @ 4306.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2021.04.16 End Date: 2021.04.16 Last Calib.: 2021.04.16  
 Start Time: 12:38:38 End Time: 21:02:17 Time On Btm: 2021.04.16 @ 15:03:18  
 Time Off Btm: 2021.04.16 @ 18:12:32

TEST COMMENT: 30- IF: BOB @ 8 min built to 20.5"  
 60- IS: No return.  
 30- FF: BOB @ 8 min. built to 27.8"  
 60- FF: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2080.83	103.01	Initial Hydro-static
1	46.67	102.35	Open To Flow (1)
32	254.56	106.10	Shut-In(1)
91	1000.70	106.45	End Shut-In(1)
91	267.70	106.31	Open To Flow (2)
121	389.56	107.63	Shut-In(2)
186	995.59	107.29	End Shut-In(2)
190	2069.89	106.76	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
830.00	mcw 10m 90w	9.47
0.00	oil spots throughout, puddle on top	0.00

\* Recovery from multiple tests

## Gas Rates

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









**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Petroleum Development Co

**14-22s-35w Kearney,KS**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

**Engler Farms #1-14**

Job Ticket: 66983

**DST#: 2**

ATTN: Ken LeBlanc

Test Start: 2021.04.16 @ 12:38:15

## Tool Information

Drill Pipe:	Length: 4062.00 ft	Diameter: 3.80 inches	Volume: 56.98 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 239.00 ft	Diameter: 2.25 inches	Volume: 1.18 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.16 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 70000.00 lb
Depth to Top Packer:	4305.00 ft			Final 73000.00 lb
Depth to Bottom Packer:	4344.00 ft			
Interval between Packers:	39.00 ft			
Tool Length:	212.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4279.00	
Shut In Tool	5.00		Fluid	4284.00	
Hydraulic tool	5.00			4289.00	
Jars	5.00			4294.00	
Safety Joint	2.00			4296.00	
Packer	5.00		Inside	4301.00	27.00 Bottom Of Top Packer
Packer	4.00			4305.00	
Stubb	1.00			4306.00	
Recorder	0.00	8319	Outside	4306.00	
Recorder	0.00	8522	Inside	4306.00	
Perforations	5.00			4311.00	
Perforations	32.00			4343.00	
Blank Off Sub	1.00			4344.00	39.00 Tool Interval
Packer	3.00			4347.00	
Stubb	1.00			4348.00	
Recorder	0.00	8845	Below	4348.00	
Perforations	10.00			4358.00	
Change Over Sub	1.00			4359.00	
Drill Pipe	127.00			4486.00	
Change Over Sub	1.00			4487.00	
Bullnose	3.00			4490.00	146.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>212.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Petroleum Development Co

**14-22s-35w Kearney,KS**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

**Engler Farms #1-14**

Job Ticket: 66983

**DST#: 2**

ATTN: Ken LeBlanc

Test Start: 2021.04.16 @ 12:38:15

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

44000 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3800.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
830.00	mcw 10m 90w	9.466
0.00	oil spots throughout, puddle on top	0.000

Total Length: 830.00 ft      Total Volume: 9.466 bbl

Num Fluid Samples: 0

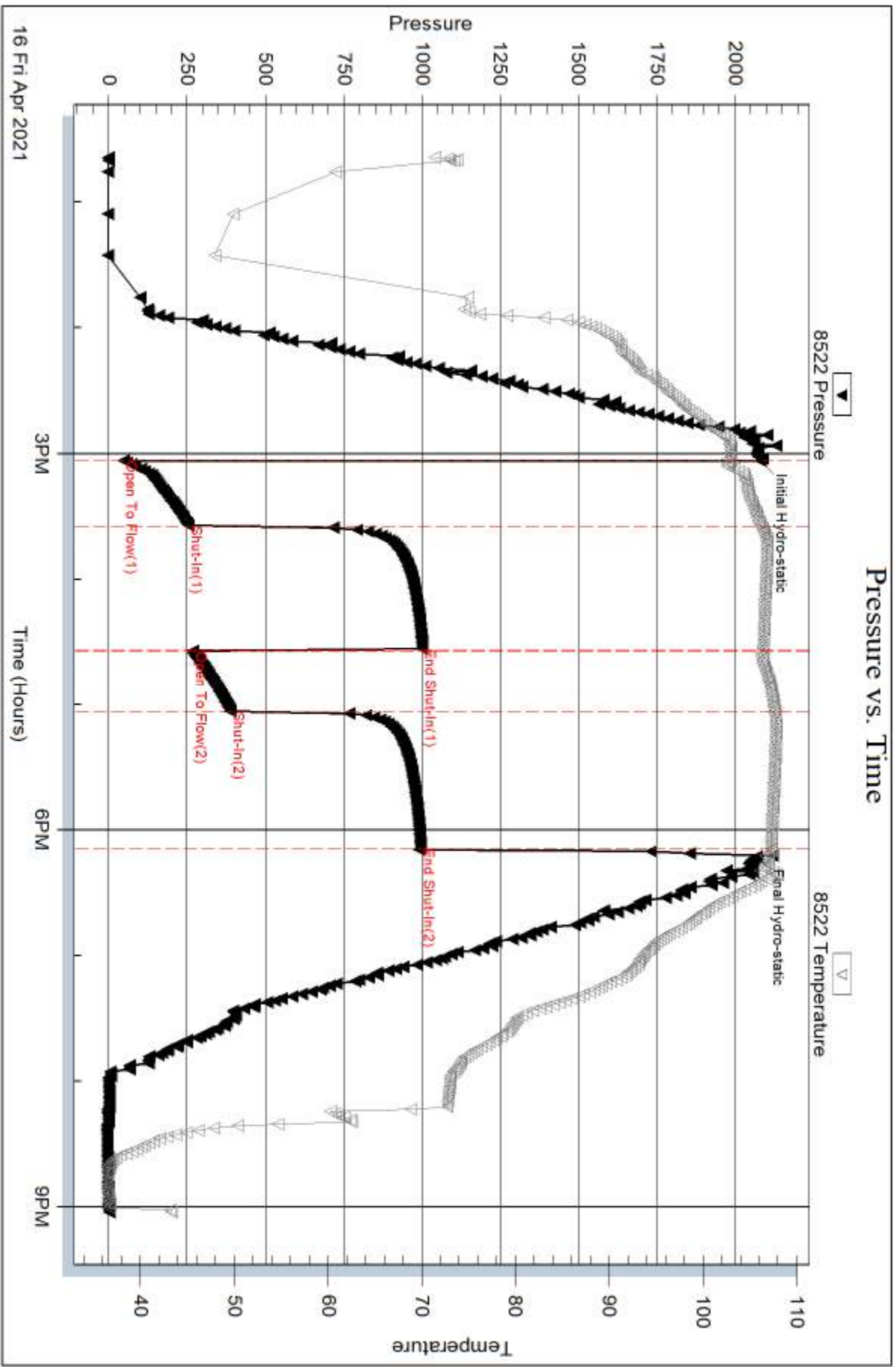
Num Gas Bombs: 0

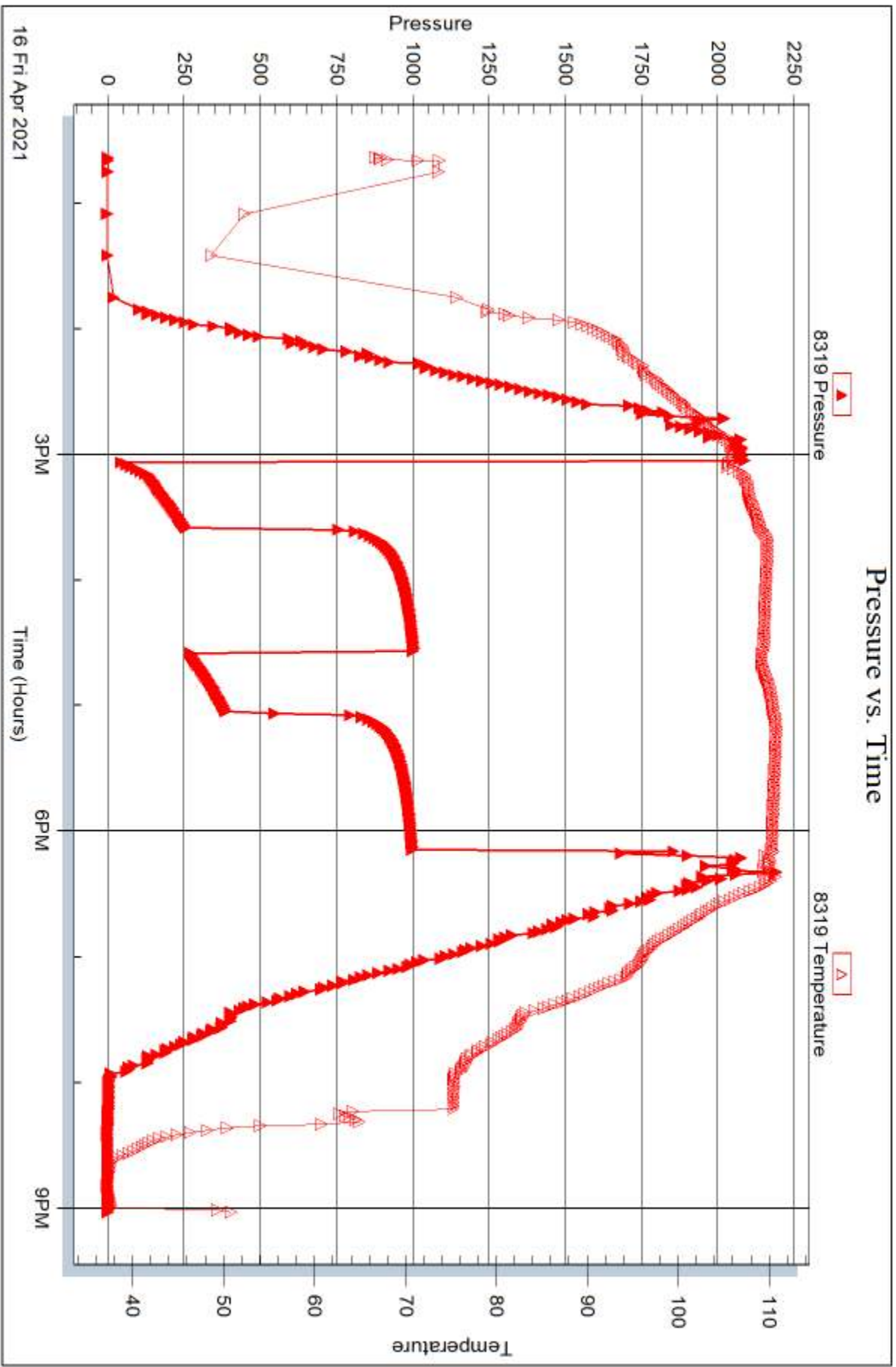
Serial #:

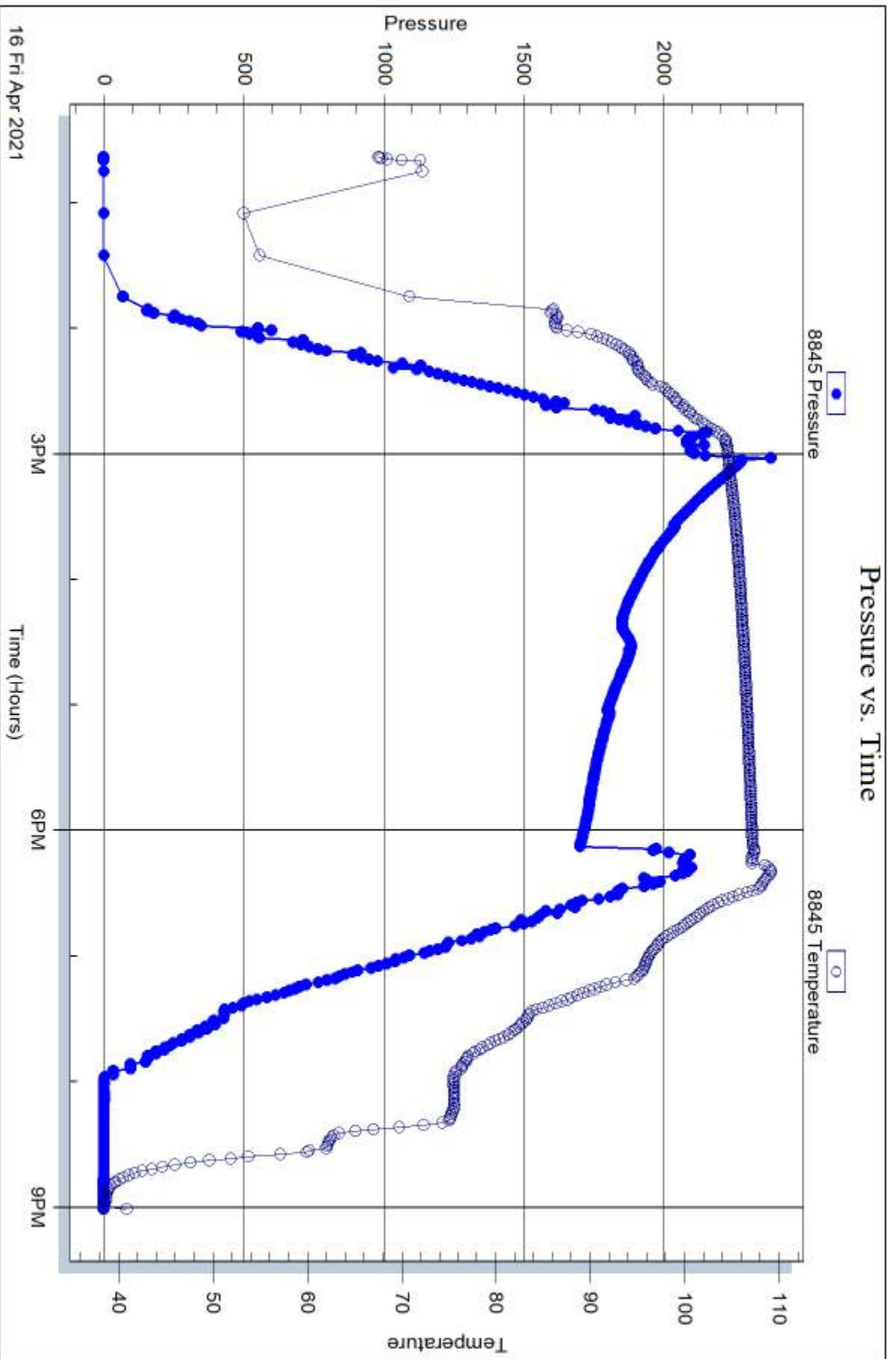
Laboratory Name:

Laboratory Location:

Recovery Comments: rw is .332 @ 41f = 44000ppm









## DRILL STEM TEST REPORT

Prepared For: **Petroleum Development Co**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

ATTN: Ken LeBlanc

### **Engler Farms #1-14**

#### **14-22s-35w Kearney,KS**

Start Date: 2021.04.16 @ 21:38:00

End Date: 2021.04.17 @ 04:37:45

Job Ticket #: 66984                      DST #: 3

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

Printed: 2021.04.19 @ 14:43:46





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

Petroleum Development Co  
401 S Boston Ave Ste 1850  
Tulsa, OK 74103  
ATTN: Ken LeBlanc

**14-22s-35w Kearney,KS**  
**Engler Farms #1-14**  
Job Ticket: 66984      **DST#: 3**  
Test Start: 2021.04.16 @ 21:38:00

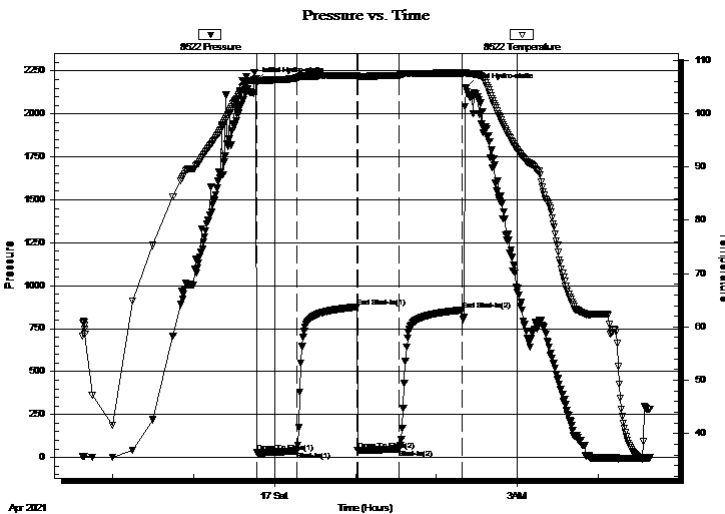
## GENERAL INFORMATION:

Formation: **Pawnee Ls**  
Deviated: No Whipstock: ft (KB)  
Time Tool Opened: 23:46:45  
Time Test Ended: 04:37:45  
Interval: **4460.00 ft (KB) To 4490.00 ft (KB) (TVD)**  
Total Depth: 4490.00 ft (KB) (TVD)  
Hole Diameter: 7.88 inches Hole Condition: Good  
Test Type: Conventional Bottom Hole (Reset)  
Tester: Bradley Walter  
Unit No: 78  
Reference Elevations: 3034.00 ft (KB)  
3023.00 ft (CF)  
KB to GR/CF: 11.00 ft

**Serial #: 8522      Inside**  
Press@RunDepth: 49.90 psig @ 4461.00 ft (KB)      Capacity: 8000.00 psig  
Start Date: 2021.04.16      End Date: 2021.04.17      Last Calib.: 2021.04.17  
Start Time: 21:38:05      End Time: 04:37:44      Time On Btm: 2021.04.16 @ 23:46:30  
Time Off Btm: 2021.04.17 @ 02:21:30

TEST COMMENT: 30- IF: 1" blow.  
45- IS: No return.  
30- FF: Surface blow.  
45; FSI: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2188.75	106.53	Initial Hydro-static
1	29.14	105.66	Open To Flow (1)
30	36.44	106.67	Shut-In(1)
75	876.04	107.19	End Shut-In(1)
75	42.15	106.86	Open To Flow (2)
106	49.90	107.18	Shut-In(2)
153	858.85	107.62	End Shut-In(2)
155	2154.19	107.72	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	Mud 100m (oil spots)	0.30

\* Recovery from multiple tests

## Gas Rates

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





**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Petroleum Development Co

**14-22s-35w Kearney,KS**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

**Engler Farms #1-14**

Job Ticket: 66984

**DST#: 3**

ATTN: Ken LeBlanc

Test Start: 2021.04.16 @ 21:38:00

## Tool Information

Drill Pipe:	Length: 4214.00 ft	Diameter: 3.80 inches	Volume: 59.11 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 239.00 ft	Diameter: 2.25 inches	Volume: 1.18 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 60.29 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4460.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	30.00 ft			
Tool Length:	60.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4431.00	
Shut In Tool	5.00		Fluid	4436.00	
Hydraulic tool	5.00			4441.00	
Em Tool	3.00			4444.00	
Jars	5.00			4449.00	
Safety Joint	2.00			4451.00	
Packer	5.00		Inside	4456.00	30.00 Bottom Of Top Packer
Packer	4.00			4460.00	
Stubb	1.00			4461.00	
Recorder	0.00	8522	Inside	4461.00	
Recorder	0.00	8319	Outside	4461.00	
Perforations	26.00			4487.00	
Bullnose	3.00			4490.00	30.00 Bottom Packers & Anchor

**Total Tool Length: 60.00**



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Petroleum Development Co

**14-22s-35w Kearney,KS**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

**Engler Farms #1-14**

Job Ticket: 66984

**DST#: 3**

ATTN: Ken LeBlanc

Test Start: 2021.04.16 @ 21:38:00

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3800.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	Mud 100m (oil spots)	0.295

Total Length: 60.00 ft      Total Volume: 0.295 bbl

Num Fluid Samples: 0

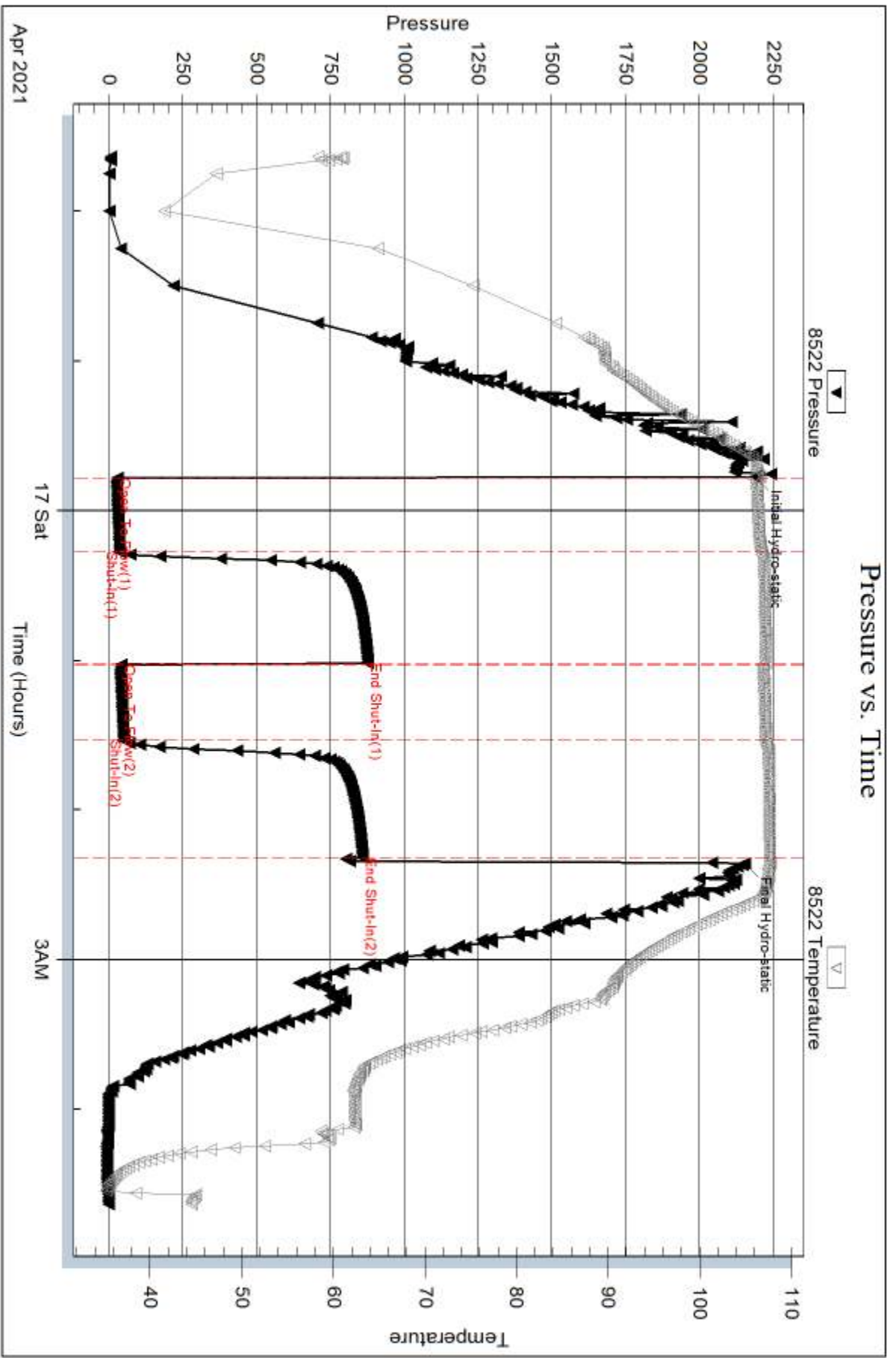
Num Gas Bombs: 0

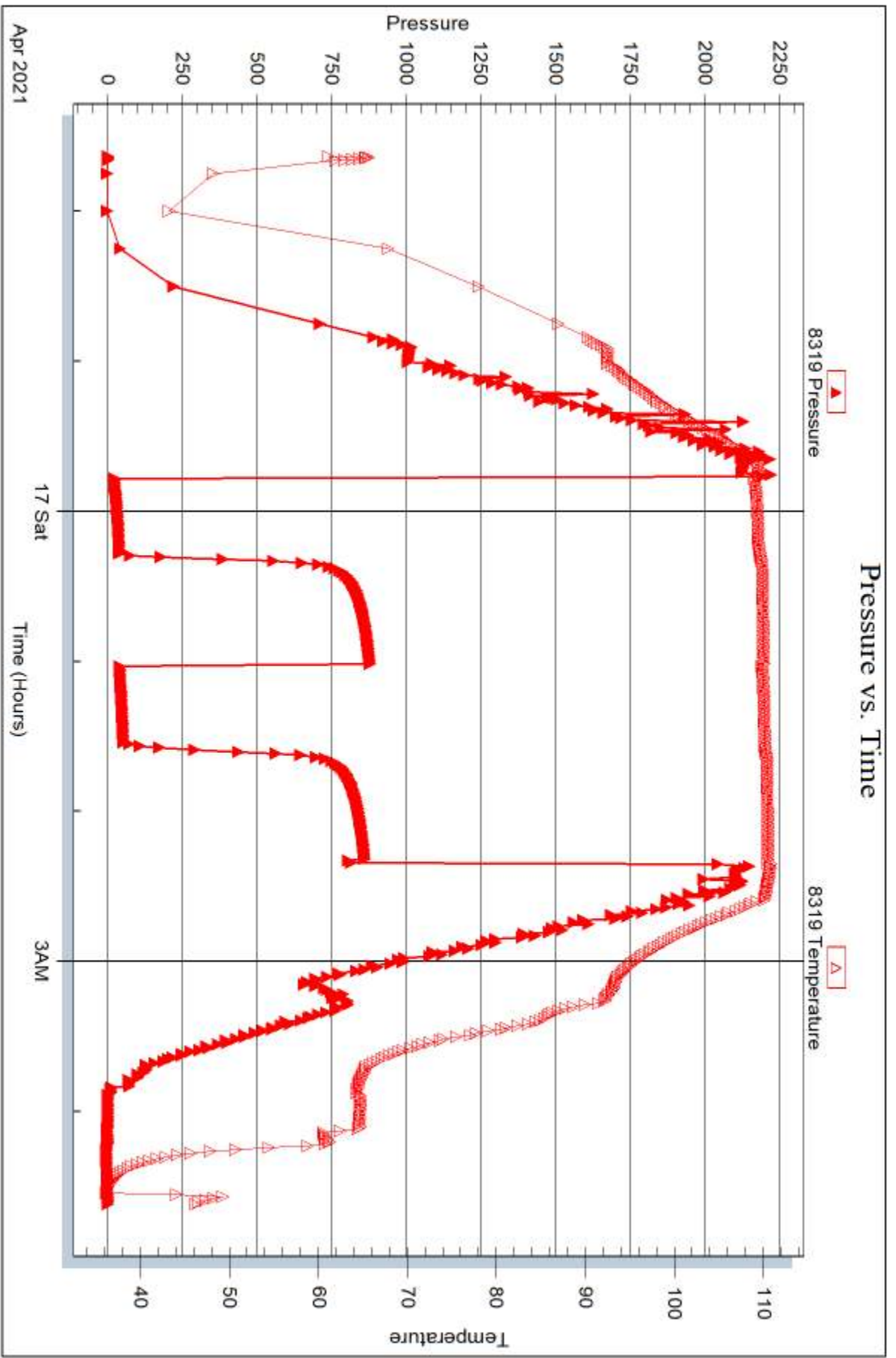
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







## DRILL STEM TEST REPORT

Prepared For: **Petroleum Development Co**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

ATTN: Ken LeBlanc

### **Engler Farms #1-14**

#### **14-22s-35w Kearney,KS**

Start Date: 2021.04.18 @ 10:40:00

End Date: 2021.04.18 @ 18:51:15

Job Ticket #: 66985                      DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2021.04.19 @ 14:42:49

Petroleum Development Co

14-22s-35w Kearney,KS

Engler Farms #1-14

DST # 4

Morrow Sand

2021.04.18



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Petroleum Development Co  
 401 S Boston Ave Ste 1850  
 Tulsa, OK 74103  
 ATTN: Ken LeBlanc

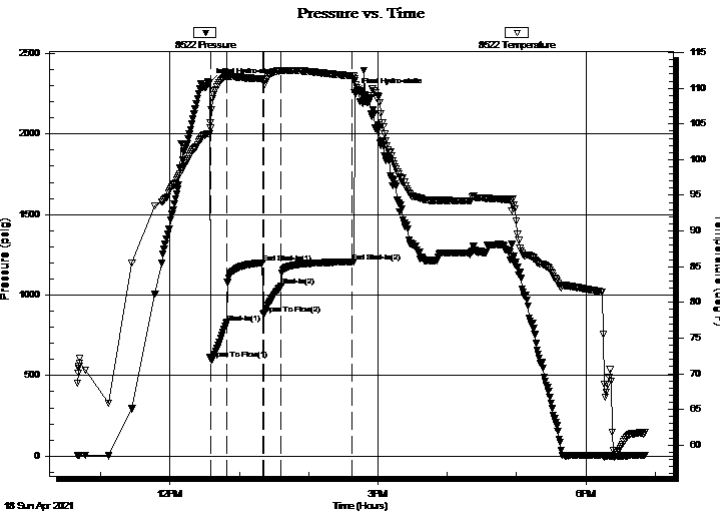
**14-22s-35w Kearney,KS**  
**Engler Farms #1-14**  
 Job Ticket: 66985 **DST#: 4**  
 Test Start: 2021.04.18 @ 10:40:00

## GENERAL INFORMATION:

Formation: **Morrow Sand**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 12:35:00  
 Time Test Ended: 18:51:15  
 Interval: **4710.00 ft (KB) To 4825.00 ft (KB) (TVD)**  
 Total Depth: 4825.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 3034.00 ft (KB)  
 3023.00 ft (CF)  
 KB to GR/CF: 11.00 ft

**Serial #: 8522 Inside**  
 Press@RunDepth: 1053.86 psig @ 4711.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2021.04.18 End Date: 2021.04.18 Last Calib.: 2021.04.18  
 Start Time: 10:40:05 End Time: 18:51:14 Time On Btm: 2021.04.18 @ 12:34:00  
 Time Off Btm: 2021.04.18 @ 14:40:00

**TEST COMMENT:** 15- IF: BOB >1 min. built to 299"  
 30- IS: 90" return.  
 15- FF: 200"+ blow, 1/8" choke to check for gas.  
 60- FS: 150" return. Gas to surface (burned with lighter)



PRESSURE SUMMARY			
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2320.74	103.65	Initial Hydro-static
1	604.30	105.18	Open To Flow (1)
15	827.76	111.72	Shut-In(1)
46	1200.64	111.32	End Shut-In(1)
47	881.01	110.91	Open To Flow (2)
63	1053.86	112.50	Shut-In(2)
124	1206.49	111.74	End Shut-In(2)
126	2255.80	111.06	Final Hydro-static

Recovery		
Length (ft)	Description	Volume (bbl)
120.00	gmco 10g 50o 40m	0.59
2900.00	go 55g 45o	39.60
60.00	gocm 30g 20o 50m	0.84
0.00	Gas to surface	0.00

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

\* Recovery from multiple tests







**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Petroleum Development Co

**14-22s-35w Kearney,KS**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

**Engler Farms #1-14**

Job Ticket: 66985

**DST#: 4**

ATTN: Ken LeBlanc

Test Start: 2021.04.18 @ 10:40:00

## Tool Information

Drill Pipe:	Length: 4466.00 ft	Diameter: 3.80 inches	Volume: 62.65 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 239.00 ft	Diameter: 2.25 inches	Volume: 1.18 bbl	Weight to Pull Loose: 98000.00 lb
			<u>Total Volume: 63.83 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4710.00 ft			Final 86000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	115.00 ft			
Tool Length:	145.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

## Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4681.00	
Shut In Tool	5.00		Fluid	4686.00	
Hydraulic tool	5.00			4691.00	
Em Tool	3.00			4694.00	
Jars	5.00			4699.00	
Safety Joint	2.00			4701.00	
Packer	5.00		Inside	4706.00	30.00 Bottom Of Top Packer
Packer	4.00			4710.00	
Stubb	1.00			4711.00	
Recorder	0.00	8522	Inside	4711.00	
Recorder	0.00	8319	Outside	4711.00	
Perforations	14.00			4725.00	
Change Over Sub	1.00			4726.00	
Drill Pipe	95.00			4821.00	
Change Over Sub	1.00			4822.00	
Bullnose	3.00			4825.00	115.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>	<b>145.00</b>				



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Petroleum Development Co

**14-22s-35w Kearney,KS**

401 S Boston Ave Ste 1850  
Tulsa, OK 74103

**Engler Farms #1-14**

Job Ticket: 66985

**DST#: 4**

ATTN: Ken LeBlanc

Test Start: 2021.04.18 @ 10:40:00

## Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

27 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 4000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
120.00	gmco 10g 50o 40m	0.590
2900.00	go 55g 45o	39.595
60.00	gocm 30g 20o 50m	0.842
0.00	Gas to surface	0.000

Total Length: 3080.00 ft

Total Volume: 41.027 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

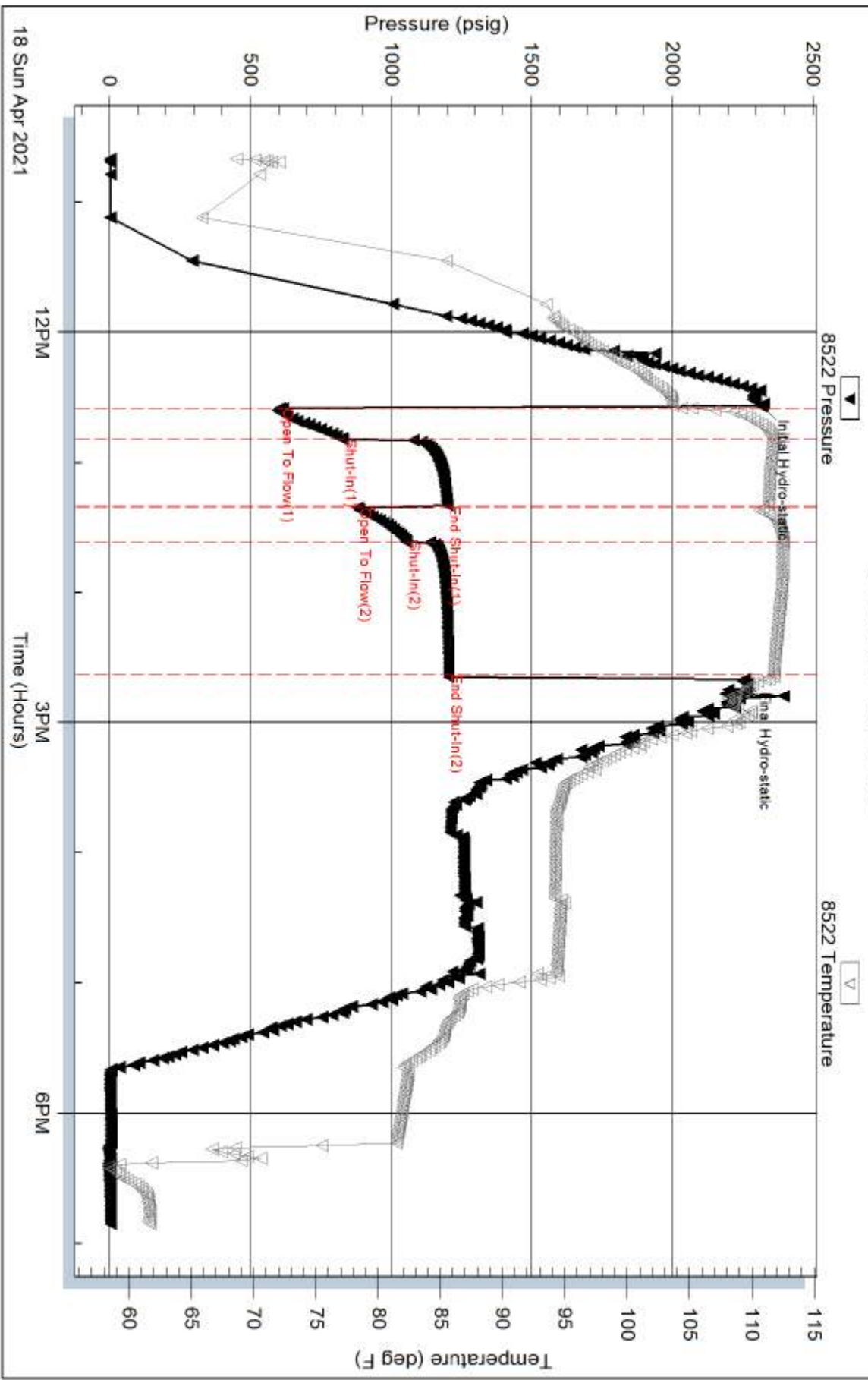
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time

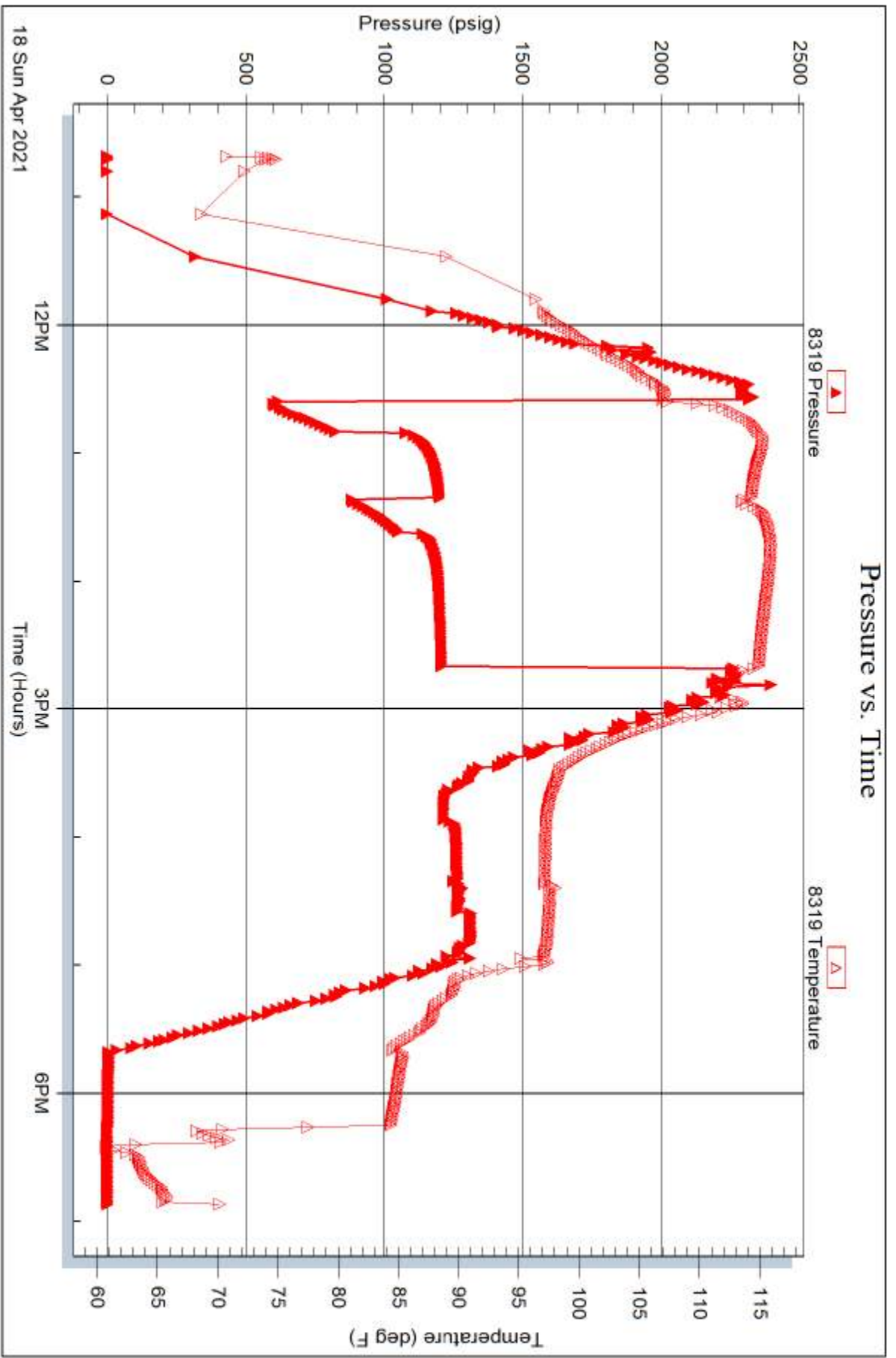


Serial #: 8319

Outside Petroleum Development Co

Engler Farms #1-14

DST Test Number: 4





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 66982

Well Name & No. Engler Farms # 1-14 Test No. 1 Date 04/14/2021  
 Company Petroleum Development Co Elevation 3034 KB 3023 GL  
 Address 401 S Boston Ave Ste 1850 Tulsa, OK 74103  
 Co. Rep / Geo. Ken LeBlanc Rig Martin 21  
 Location: Sec. 14 Twp 22s Rge. 35w Co. Keowney State KS

Interval Tested 3890 - 3905 Zone Tested LKC A  
 Anchor Length 15' Drill Pipe Run 3644 Mud Wt. 9.1  
 Top Packer Depth 3885 Drill Collars Run 239 Vis 54  
 Bottom Packer Depth 3890 Wt. Pipe Run Ø WL 3# 6.4  
 Total Depth 3905 Chlorides 2900 ppm System LCM 3#

Blow Description FF 1/2" blow.  
ISI No return.  
FF No blow  
FBI No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>20</u>	<u>MUD</u>			<u>100</u>	
	<u>oil spots</u>				

Rec Total 20 BHT 101 Gravity — API RW — @ — °F Chlorides — ppm

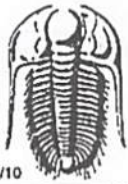
(A) Initial Hydrostatic <u>1897</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>0230</u>
(B) First Initial Flow <u>34</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>0315</u>
(C) First Final Flow <u>30</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0549</u>
(D) Initial Shut-In <u>688</u>	<input checked="" type="checkbox"/> Circ Sub <u>MC</u>	T-Pulled <u>0820</u>
(E) Second Initial Flow <u>37</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1007</u>
(F) Second Final Flow <u>35</u>	<input checked="" type="checkbox"/> Mileage <u>104rt 130</u>	Comments
(G) Final Shut-In <u>678</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1834</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool <u>350 NS</u>

Initial Open <u>36</u>	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Ruined Packer
Final Flow <u>30</u>	<input type="checkbox"/> Extra Copies
Final Shut-In <u>45</u>	Sub Total <u>0</u>
	Total <u>1655</u>
	Sub Total <u>1655</u>
	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative [Signature]

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





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 66983

Well Name & No. Engler Farms #1-14 Test No. 2 Date 04/16/2021  
 Company Petroleum Development Co Elevation 3034 KB 3023 GL  
 Address 401 S Boston Ave Ste 1850 Tulsa, OK 74103  
 Co. Rep / Geo. Ken LeBlanc Rig Martin 21  
 Location: Sec. 14 Twp 22S Rge. 35W Co. Kearney State KS

Interval Tested 4305 - 4347 Zone Tested Pleasanton  
 Anchor Length 42' Drill Pipe Run 4062 Mud Wt. 9.1  
 Top Packer Depth 4300/4305 Drill Collars Run 239 Vis 50  
 Bottom Packer Depth 4347 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4490 Chlorides 3800 ppm System LCM 3<sup>rd</sup>  
 Blow Description IF BOB@ 8 min - 20.5"  
ISI No return.  
FF BOB@ 8 min - 27.8"  
FSI No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>830</u>	<u>mcw</u>		<u>90</u>	<u>10</u>	
	<u>oil spots throughout</u>				
	<u>oil puddle on top</u>				

Rec Total 830 BHT 107 Gravity — API RW 332 @ 41 °F Chlorides 44,000 ppm

(A) Initial Hydrostatic <u>2080</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>1145</u>
(B) First Initial Flow <u>46</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1238</u>
(C) First Final Flow <u>254</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1504</u>
(D) Initial Shut-In <u>1000</u>	<input checked="" type="checkbox"/> Circ Sub <u>Nc</u>	T-Pulled <u>1805</u>
(E) Second Initial Flow <u>267</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>2101</u>
(F) Second Final Flow <u>389</u>	<input checked="" type="checkbox"/> Mileage <u>104 RT \$130</u>	Comments
(G) Final Shut-In <u>995</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2069</u>	<input checked="" type="checkbox"/> Straddle <u>600</u>	<input checked="" type="checkbox"/> EM Tool <u>350</u>
	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	Sub Total
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	Total <u>2955.00</u>
	Sub Total <u>2605</u>	MP/DST Disc't

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



# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 66984

Well Name & No. Engler Farms #1-14 Test No. 3 Date 04/17/2021  
 Company Petroleum Development Co Elevation 3034 KB 3025 GL  
 Address 401 South Boston Ave Ste 1850 Tulsa OK 74103  
 Co. Rep / Geo. Ken LeBlanc Rig Martin 21  
 Location: Sec. 14 Twp 22S Rge. 35W Co. Kearney State Ks

Interval Tested 4460-4490 Zone Tested Pawnee Ls  
 Anchor Length 30' Drill Pipe Run 4214 Mud Wt. 9.1  
 Top Packer Depth 4455 Drill Collars Run 239 Vis 50  
 Bottom Packer Depth 4460 Wt. Pipe Run 0 WL 7.2  
 Total Depth 4490 Chlorides 3800 ppm System LCM 3#

Blow Description IF 1" blow  
ISI No return.  
FF Surface blow  
FST No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>MUD</u>			<u>100</u>	
	<u>oil spots</u>				

Rec Total 60 BHT 108 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2188</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>2110 04/16</u>
(B) First Initial Flow <u>29</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2138</u>
(C) First Final Flow <u>36</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2347</u>
(D) Initial Shut-In <u>876</u>	<input checked="" type="checkbox"/> Circ Sub <u>NC</u>	T-Pulled <u>0217 04/17</u>
(E) Second Initial Flow <u>42</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0438</u>
(F) Second Final Flow <u>49</u>	<input type="checkbox"/> Mileage <u>N/A</u>	Comments
(G) Final Shut-In <u>858</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2154</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool <u>350</u>
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Day Standby	Sub Total <u>350</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Accessibility	Total <u>1975</u>
	Sub Total <u>1625</u>	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative [Signature]

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# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 66985

Well Name & No. Engler Farms #1-14 Test No. 4 Date 04/18/2021  
 Company Petroleum Development Co Elevation 3034 KB 3023 GL  
 Address 401 S Boston Ave Ste 1850 Tulsa Ok 74103  
 Co. Rep / Geo. Ken LeBlanc Rig Martin 21  
 Location: Sec. 14 Twp 22s Rge. 35w Co. Kearney State Ks

Interval Tested 4710 - 4825 Zone Tested Narrow Sand  
 Anchor Length 115' Drill Pipe Run 4466 Mud Wt. 9.2  
 Top Packer Depth 4705 Drill Collars Run 239 Vis 50  
 Bottom Packer Depth 4710 Wt. Pipe Run Ø WL 7.2  
 Total Depth 4825 Chlorides 4000 ppm System LCM 3<sup>rd</sup>

Blow Description IF BOB 7/min built to 299"  
ISI 90" return.  
FF 200+ "blow choke @ 1/8" to check for gas  
FSI 150" return. Gas to surface (Burned)

Rec	Feet of	%gas	%oil	%water	%mud
<u>120</u>	<u>GACO 60CM</u>	<u>30</u>	<u>20</u>	<u>50</u>	
<u>2900</u>	<u>60</u>	<u>55</u>	<u>45</u>		
<u>120</u>	<u>G.MCO</u>	<u>10</u>	<u>50</u>		<u>40</u>
	<u>Gas to surface</u>				

Rec Total 3080 BHT 112 Gravity 27 API RW - @ - F Chlorides - ppm

(A) Initial Hydrostatic <u>2320</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>0930</u>
(B) First Initial Flow <u>604</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>1040</u>
(C) First Final Flow <u>827</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>1235</u>
(D) Initial Shut-In <u>1200</u>	<input checked="" type="checkbox"/> Circ Sub <u>used</u>	T-Pulled <u>1435</u>
(E) Second Initial Flow <u>981</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>1930</u>
(F) Second Final Flow <u>1053</u>	<input checked="" type="checkbox"/> Mileage <u>80 AT X2</u> <u>260</u>	Comments <u>P/v Tool 4/19 08:00</u>
(G) Final Shut-In <u>1206</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2255</u>	<input type="checkbox"/> Straddle	<input checked="" type="checkbox"/> EM Tool <u>350</u>

Initial Open <u>15</u>	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>30</u>	<input type="checkbox"/> Ruined Packer
Final Flow <u>15'</u>	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	Sub Total <u>350</u>
	Total <u>2235</u>
	Sub Total <u>1885</u>
	MP/DST Disc't

Approved By \_\_\_\_\_ Our Representative [Signature]

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Customer		Petroleum Development Company		Lease & Well #		Engler Farms #1-14		Date		4/20/2021			
Service District		Oakley		County & State		Kearney KS		Legals S/T/R		14-22S-35W			
Job Type		5.5" production		<input checked="" type="checkbox"/> PROD <input type="checkbox"/> INJ <input type="checkbox"/> SWD		New Well?		<input checked="" type="checkbox"/> YES <input type="checkbox"/> No		Job #			
										Ticket #			
Equipment #		Driver		Job Safety Analysis - A Discussion of Hazards & Safety Procedures									
78		Fennis		<input checked="" type="checkbox"/> Hard hat		<input checked="" type="checkbox"/> Gloves		<input type="checkbox"/> Lockout/Tagout		<input type="checkbox"/> Warning Signs & Flagging			
230		Mike		<input checked="" type="checkbox"/> H2S Monitor		<input checked="" type="checkbox"/> Eye Protection		<input type="checkbox"/> Required Permits		<input type="checkbox"/> Fall Protection			
180/250		Kale		<input checked="" type="checkbox"/> Safety Footwear		<input type="checkbox"/> Respiratory Protection		<input checked="" type="checkbox"/> Slip/Trip/Fall Hazards		<input type="checkbox"/> Specific Job Sequence/Expectations			
				<input checked="" type="checkbox"/> FRC/Protective Clothing		<input type="checkbox"/> Additional Chemical/Acid PPE		<input checked="" type="checkbox"/> Overhead Hazards		<input checked="" type="checkbox"/> Muster Point/Medical Locations			
				<input type="checkbox"/> Hearing Protection		<input checked="" type="checkbox"/> Fire Extinguisher		<input type="checkbox"/> Additional concerns or issues noted below					
<b>Comments</b>													
Muster point entrance of location. Person in charge of head count Fennis. Nearest hospital Lakin KS phone # 620-355-7111 emergency # 911													
<b>Description</b>													
<b>Unit of Measure</b>													
<b>Quantity</b>													
<b>Net Amount</b>													
CP030	H-Long			sack	225.00						\$5,355.00		
cp055	H-Plug			sack	100.00						\$1,105.00		
FE145	5 1/2" Float Shoe - AFU Flapper Type			ea	1.00						\$318.75		
FE170	5 1/2" Latch Down Plug & Baffle			ea	1.00						\$297.50		
FE130	5 1/2" Cement Basket			ea	1.00						\$255.00		
FE135	5 1/2 Turbolizer			ea	15.00						\$1,020.00		
CP170	Mud Flush			gal	1,000.00						\$850.00		
M015	Light Equipment Mileage			mi	85.00						\$144.50		
M010	Heavy Equipment Mileage			mi	85.00						\$289.00		
M020	Ton Mileage			tm	1,258.00						\$1,603.95		
C015	Cement Pump Service			ea	1.00						\$1,275.00		
C050	Cement Plug Container			job	1.00						\$212.50		
Customer Section: On the following scale how would you rate Hurricane Services Inc.?										Net:	\$12,726.20		
Based on this job, how likely is it you would recommend HSI to a colleague?										Total Taxable	\$ -	Tax Rate:	
										<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			
Unlikely 1 2 3 4 5 6 7 8 9 10 Extremely Likely										State tax laws deem certain products and services used on new wells to be sales tax exempt. Hurricane Services relies on the customer provided well information above to make a determination if services and/or products are tax exempt.		Sale Tax:	\$ -
										Total:		\$	12,726.20
HSI Representative: <i>Fennis Garduno</i>													

**TERMS:** Cash in advance unless Hurricane Services Inc. (HSI) has approved credit prior to sale. Credit terms of sale for approved accounts are total invoice due on or before the 30th day from the date of invoice. Past due accounts shall pay interest on the balance past due at the rate of 1 1/2% per month or the maximum allowable by applicable state or federal laws. In the event it is necessary to employ an agency and/or attorney to affect the collection, Customer hereby agrees to pay all fees directly or indirectly incurred for such collection. In the event that Customer's account with HSI becomes delinquent, HSI has the right to revoke any discounts previously applied in arriving at net invoice price. Upon revocation, the full invoice price without discount is immediately due and subject to collection. Prices quoted are estimates only and are good for 30 days from the date of issue. Pricing does not include federal, state, or local taxes, or royalties and stated price adjustments. Actual charges may vary depending upon time, equipment, and material ultimately required to perform these services. Any discount is based on 30 days net payment terms or cash. **DISCLAIMER NOTICE:** Technical data is presented in good faith, but no warranty is stated or implied. HSI assumes no liability for advice or recommendations made concerning the results from the use of any product or service. The information presented is a best estimate of the actual results that may be achieved and should be used for comparison purposes and HSI makes no guarantee of future production performance. Customer represents and warrants that well and all associated equipment in acceptable condition to receive services by HSI. Likewise, the customer guarantees proper operational care of all customer owned equipment and property while HSI is on location performing services. The authorization below acknowledges the receipt and acceptance of all terms/conditions stated above, and Hurricane has been provided accurate well information in determining taxable services.

X \_\_\_\_\_ **CUSTOMER AUTHORIZATION SIGNATURE**





**CEMENT TREATMENT REPORT**

Customer:	Petroleum Development Company	Well:	Engler Farms #1-14	Ticket:	WP 1312
City, State:		County:	Kearney KS	Date:	4/20/2021
Field Rep:		S-T-R:	14-22S-35W	Service:	5.5" production

Downhole Information	
Hole Size:	7.875 in
Hole Depth:	5000 ft
Casing Size:	5 1/2 in
Casing Depth:	5000 ft
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Tool Depth:	ft
Displacement:	118.4 bbls

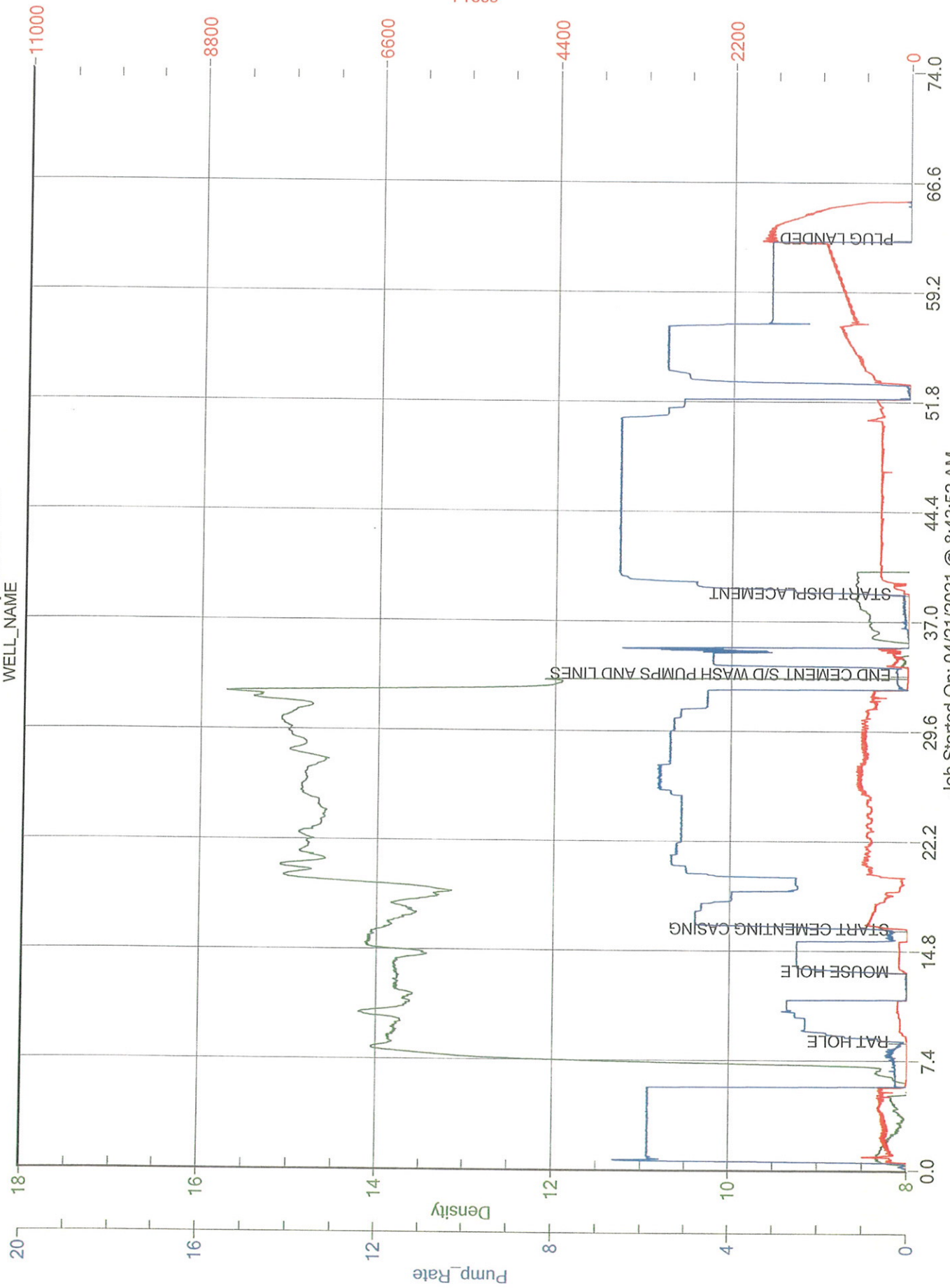
Calculated Slurry - Lead	
Blend:	H-Plug
Weight:	13.8 ppg ppg
Water / Sx:	6.9 gal / sx
Yield:	1.43 ft <sup>3</sup> / sx
Annular Bbls / Ft.:	bbs / ft.
Depth:	ft
Annular Volume:	0.0 bbls
Excess:	
Total Slurry:	25.4 bbls
Total Sacks:	100 sx

Calculated Slurry - Tail	
Blend:	H-Long
Weight:	14.8 ppg
Water / Sx:	6.4 gal / sx
Yield:	1.38 ft <sup>3</sup> / sx
Annular Bbls / Ft.:	bbs / ft.
Depth:	ft
Annular Volume:	0 bbls
Excess:	
Total Slurry:	55.3 bbls
Total Sacks:	225 sx

TIME	RATE	PSI	STAGE BBLs	TOTAL BBLs	REMARKS
11:30 PM			-	-	Journey management meeting
12:00 AM			-	-	Convoy to location
2:00 AM			-	-	Arrive on location
2:05 AM			-	-	Safety meeting
2:20 AM			-	-	Spot in / rig up equipment
			-	-	Rig still lay down pipe
8:15 AM			-	-	Rig up casing crew start running casing
11:10 AM		800.0	-	-	Rig land casing drop ball, blow afu seat circulate
11:55 AM	6.0	220.0	24.0	24.0	Pump 1000 gals mud flush
12:00 PM	6.0	220.0	5.0	29.0	Pump fresh water spacer
12:05 PM	1.0	50.0	12.7	41.7	Plug rat hole with 30 sx h-plug @ 13.8 ppg plug mouse hole with 20 sx H-Plug @ 13.8 ppg
12:10 PM	5.5	450.0	12.7		Hook back up to casing and mix 50 sx H-Plug @ 13.8 ppg
12:13 PM	5.5	500.0	55.3		Mix 225 sx H-long @ 14.8 ppg
12:28 PM					S/d wash pumps and lines
12:34 PM	6.5	350.0			Drop latch down plug start H2O displacement
12:46 PM	6.5	450.0	72.0		Saw lift pressure
12:52 PM	3.0	700.0	100.0		Slow down to land plug
1:00 PM	3.0	1,780.0	18.4		Land plug 1000 psi over last circulation pressure of 780 psi
					Check floats, floats held got 1 bbl back shut in cement head and leave on casing per company rep request
1:05 PM					Rig down
1:30 PM					leave location
					turbolizers on jts 1,2,4,6,8,10,13,16,19,22,25,28,31,34,37 basket on jt 9 latch down insert on jt 1
					HOC - 2171.94' TOC- 2828.06'

CREW		UNIT	SUMMARY		
Cementer:	Fennis	78	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Mike	230	4.8 bpm	552 psi	300 bbls
Bulk #1:	Kale	180/250			
Bulk #2:					

Petroleum Development Co.





Hurricane Services, Inc.  
 250 N. Water St., Suite #200  
 Wichita, KS 67202



Customer	Petroleum Development Company		Lease & Well #	Engler Farms # 1-14		Date	4/9/2021	
Service District	Oakley Ks		County & State	Kearny Ks		Legals S/T/R	14-22-35W	
Job Type	Surface	<input checked="" type="checkbox"/> PROD	<input type="checkbox"/> INJ	<input type="checkbox"/> SWD	New Well?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> No	
Equipment #	Driver	Job Safety Analysis - A Discussion of Hazards & Safety Procedures						
73	Josh	<input checked="" type="checkbox"/> Hard hat	<input checked="" type="checkbox"/> Gloves	<input checked="" type="checkbox"/> Lockout/Tagout	<input checked="" type="checkbox"/> Warning Signs & Flagging			
208	John	<input checked="" type="checkbox"/> H2S Monitor	<input checked="" type="checkbox"/> Eye Protection	<input checked="" type="checkbox"/> Required Permits	<input checked="" type="checkbox"/> Fall Protection			
194/254	Kale	<input checked="" type="checkbox"/> Safety Footwear	<input type="checkbox"/> Respiratory Protection	<input checked="" type="checkbox"/> Slip/Trip/Fall Hazards	<input type="checkbox"/> Specific Job Sequence/Expectations			
180/250	Fennis	<input checked="" type="checkbox"/> FRC/Protective Clothing	<input type="checkbox"/> Additional Chemical/Acid PPE	<input checked="" type="checkbox"/> Overhead Hazards	<input checked="" type="checkbox"/> Muster Point/Medical Locations			
		<input checked="" type="checkbox"/> Hearing Protection	<input checked="" type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> Additional concerns or issues noted below				
<b>Comments</b>								
CEMENT WEIGHT WAS CONFIRMED BY MUD SCALES/ CIRCULATED 75 BBL TO PIT/ RIG RAN OUT OF WATER 35 BBL SHORT OF LANDING PLUG SO FINISHED PUMPING PLUG DOWN WITH RIG PUMP								

Product/ Service Code	Description	Unit of Measure	Quantity	List Price/Unit	Gross Amount	Item Discount	Net Amount
C011	Cement Pump Service	ea	1.00				\$880.00
C050	Cement Plug Container	job	1.00				\$200.00
M010	Heavy Equipment Mileage	mi	85.00				\$272.00
M015	Light Equipment Mileage	mi	85.00				\$136.00
M020	Ton Mileage	tm	2,601.00				\$3,121.20
FE260	8 5/8" Guide Shoe	ea	1.00				\$480.00
FE275	8 5/8" AFU Flapper Insert Valve	ea	1.00				\$300.00
FE285	8 5/8" Rubber Plug	ea	1.00				\$140.00
FE250	8 5/8" Centralizer	ea	6.00				\$432.00
CP025	H-Con	sack	475.00				\$7,980.00
CP015	H-325	sack	175.00				\$2,800.00

Customer Section: On the following scale how would you rate Hurricane Services Inc.?				Gross:		Net:	\$16,741.20
Based on this job, how likely is it you would recommend HSI to a colleague?				Total Taxable	\$ -	Tax Rate:	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unlikely	1	2	3	4	5	6	7
	8	9	10	Extremely Likely			
				State tax laws deem certain products and services used on new wells to be sales tax exempt. Hurricane Services relies on the customer provided well information above to make a determination if services and/or products are tax exempt.		Sale Tax:	\$ -
						Total:	\$ 16,741.20
				HSI Representative: <i>Josh Master</i>			

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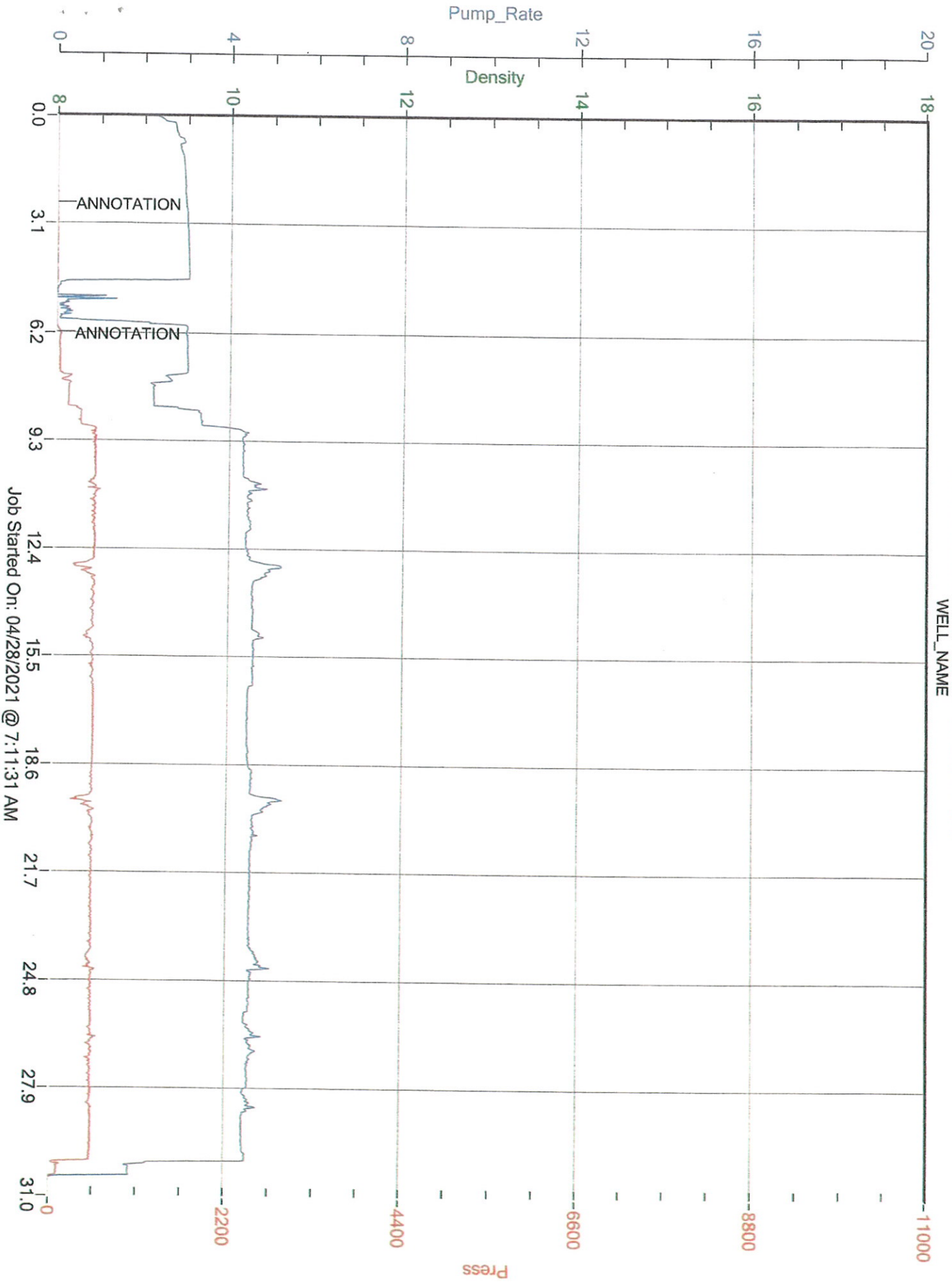






# PETROLEUM DEVELOPEMENT CO

WELL\_NAME





## Engler Farms #1-14

Geologic Tops and Comments      Updated 4/22/2021 Cole Hinds

KB	Depth	Relative to Sea Level	
	3031		
	1329	1702	
Glorietta Sand	1574	1457	
Base of Glorietta	1722	1309	
Base of Lost Circulation Zone	1982	1049	
Stone Corral	2074	957	
Base of Anhydrite	2579	452	
Herrington	2635	396	
Winfield	3235	-204	
Wabunsee	3839	-808	
Heebner Shale	3844	-813	
Base of Heebner Shale	3856	-825	
Toronto lime	3894	-863	Lansing A had a slight show, DST #1 condemned
Lansing	4001	-970	
Lansing "D"	1098	1933	
Lansing "G"			
Lansing "H"			
	4125	-1094	Lansing H had a fair show, No DST was run due to similar shows in offset well with poor DST results. 20/20 hindsight, this zone should have had a DST run. Porosity Log indicates 6 feet of porous rock with better than 8% porosity and approximately 16 ohms resistivity. Interval should be tested prior to abandonment or more closely evaluated in future
	4226	-1195	offset wells.
Swope	4271	-1240	Oomoldic
Pleasanton	4374	-1343	Fair sample show, DST #2 condemned, wet
Marmaton	4470	-1439	Altamont interval Oomoldic, no shows
Pawnee			Minor thin porosity with slight sample show. DST #3 condemned
Ft. Scott	4499	-1468	No shows reported. Porosity log has possibly 3 feet of better than 8% porosity but no corresponding micro-log permeability
Cherokee	4512	-1481	
Morrow Shale	4728	-1697	
Morrow Sand			Very good sand 36' thick with 32 feet of excellent porosity (~22% XP) and excellent resistivity (30+ ohms). DST #4 was outstanding and confirmed the well should be
St. Genieve	4791	-1760	completed as a New Field Discovery.
St. Louis	4860	-1829	Slight sample show. Logs indicate probability of being wet
St. Louis "C"	4884	-1853	No sample show. Logs indicate probability of being wet.
Drillers TD	4893	-1862	
Loggers TD	5000	-1969	
	5002	-1971	