KOLAR Document ID: 1483389

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 # 34674
Name: H & D Exploration LLC
Address 1: 165 WEST 1ST
Address 2: PO BOX 387
City: HOISINGTON State: KS Zip: 67544 + 0387
Contact Person: Alan Hoffman
Phone: (620) 653-4791
CONTRACTOR: License # 33350
Name: Southwind Drilling, Inc.
Wellsite Geologist: Jim Musgrove
Purchaser: N/A

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 #:

11/13/2019 Spud Date or Recompletion Date
11/21/2019 Date Reached TD
11/21/2019 Completion Date or Recompletion Date

API No.: 15-185-24045-00-00
Spot Description:
SW - NE - SW - SE Sec. 5 Twp. 25 S. R. 12 ☐ East ☑ West
938 Feet from ☐ North / ☑ South Line of Section
1743 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: Stafford
Lease Name: FARRIS Well #: 1
Field Name:
Producing Formation: Arbuckle
Elevation: Ground: 1892 Kelly Bushing: 1901
Total Vertical Depth: 4230 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 348 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:** Karen Ritter **Date:** 12/31/2019

Operator Name: H & D Exploration LLC Lease Name: FARRIS Well #: 1

Sec. 5 Twp. 25 S. R. 12 ☐ East ☑ West County: Stafford

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:

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

Name	Top	Datum
LKC "I-L"	3727	-3820
Arbuckle	4164	-4172

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	20	348	60/40	350	4% cc, 2% gell

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ Plug Off Zone	-			
	-			

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

Date of first Production/Injection or Resumed Production/ Injection:	Producing Method: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)*

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

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

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

TUBING RECORD: Size: Set At: Packer At:

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

Form	ACO1 - Well Completion
Operator	H & D Exploration LLC
Well Name	FARRIS 1
Doc ID	1483389

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	20	348	60/40	350	4% cc, 2% gell

MORNING DRILLING REPORT

For: H&D Exploration, LLC

SOUTHWIND DRILLING, INC.

RIG No. 3

Well Name: Farris #1
Location: 938' FSL & 1743' FEL
Section: 5-25S-12W
County: Stafford
API: 15-185-24045-00-00

GL Elevation: 1892'
KB: 1901'
Est. TD: 4300'
Conductor String: N/A

Surface Casing: Ran 8 joints of new 20#, 8 5/8" casing, Tally @ 336.97', Set @ 348', used 350 sacks of 60/40 poz, 4% cc, 2% gel, cement circulated, by Quality (Ticket #1745), plug down @ 12:30 am on 11.14.19.

Plugging Info: Plugged well with 200 sacks of 60/40 Poz, 4% gel, 1st plug @ 4141' w/ 50 sacks, 2nd plug @ 710' w/ 50 sacks, 3rd plug @ 390' w/ 50 sacks, 4th plug @ 60' w/ 20 sacks, 30 sacks for Rathole, cemented by Quality (Ticket #1853), job complete @ 9:00 pm on 11.21.19.

Rotary Total Depth: 4230'
Log Total Depth: 4231'

Rig No. 3 Pusher (Jay Krier) 620-617-4477
Rig No. 3 (Doghouse) 620-566-7014
Southwind Drilling Office 620-564-3800

Geologist: Jim Musgrove

7:00 A.M. Depth: 4230' — **Current Operation: CIRCULATE TO COND HOLE**

Spud Date & Time: 11/13/19 @ 4:45pm	11/13/19 Day 1	11/14/19 Day 2	11/15/19 Day 3	11/16/19 Day 4	11/17/19 Day 5	11/18/19 Day 6	11/19/19 Day 7	11/20/19 Day 8	11/21/19 Day 9	Total
Total Depth (7:00am)	0	348	1707	2624	3414	3820	3918	4170	4230	
Daily Progress	348	1359	917	790	406	98	252	60	0	**4230**
Ft. Per Hr.	107.08	76.56	45.85	37.18	25.78	18.67	16.26	18.46	0.00	**41.47**
Current Operation (7:00am)	Rig Up	WOC	Drilling	Drilling	Drilling	Drilling	WOP	CFS	CTCH	
Formation	Surface	Surface	Lime / Shale	Lime / Shale	Lime / Shale	Lime / Shale	LKC	LKC	Arbuckle	
Fuel Used (41.5 Gal/Inch)	477.25	373.50	373.50	456.50	415.00	290.50	332.00	249.00		**2967.25**
Survey (degree & depth)	3/4° @ 348'					1° @ 3820'				
Mud Cost	$0.00	$851.98	$2,715.53	$2,200.77	$0.00	$635.70	$1,003.69	$89.12		**$7,496.79**
Weight (# / Gal)	10.0	10.0		9.5	9.6	9.9	9.7	9.4		
Vis (Funnel)	40	40		62	50	48	49	50		
Water Loss (cc)						10.8	11.6			
Bit #1										
Bit Make / Type	JZ RR RT									
Bit Size	12 1/4									
Bit Hours	3.25									**3.25**
Bit #2										
Bit Make / Type		JZ RX-23	JZ RX-23	JZ RX-23	JZ RX-23					
Bit Size		7 7/8	7 7/8	7 7/8	7 7/8					
Bit Hours		17.75	20.00	21.25	15.75					**74.75**
Bit #3										
Bit Make / Type						JZ RX-23	JZ RX-23			
Bit Size						7 7/8	7 7/8			
Bit Hours						5.25	4.75			**10.00**
Bit #4										
Bit Make / Type							Hughes	Hughes		
Bit Size							7 7/8	7 7/8		
Bit Hours							10.75	3.25		**14.00**
Bit Cumulative Hours	**3.25**	**17.75**	**20.00**	**21.25**	**15.75**	**5.25**	**15.50**	**3.25**	**0.00**	**102.00**
Weight on Bit (WOB)	15,000	30,000	35,000	35,000	35,000	35,000	35,000	35,000		
RPM	120	70	70	70	80	80	80	80		
Pump Pressure	300	800	800	800	900	900	800	800		
Drilling (Rotating) Hours	**3.25**	**17.75**	**20.00**	**21.25**	**15.75**	**5.25**	**15.50**	**3.25**	**0.00**	**102.00**
Daywork Hrs. (Operator's time)										
Rat Hole (>.75 Hrs)										**0.00**
Wait on Cement	6.50	1.50								**8.00**
Short Trip						1.75				**1.75**
Trip						6.25		10.75	3.00	**20.00**
Circulate					5.25	4.50	4.50	5.25	0.75	**20.25**
Tool						1.00		1.00		**2.00**
Testing						3.00		2.75		**5.75**
Clean Floor after DST										**0.00**
Logging								1.00	4.50	**5.50**
Wait on Orders									0.50	**0.50**
Wait on Cementers										**0.00**
LDDP / LDDC / Plug									4.75	**4.75**
Run Casing / Circ / Cement	2.00									**2.00**
Bit Trip										**0.00**
Jet Cellar / Nipple Down										**0.00**
Survey (Operator Request)										**0.00**
Billable Hours	**8.50**	**1.50**	**0.00**	**0.00**	**5.25**	**16.50**	**4.50**	**20.75**	**13.50**	**70.50**
Non-Billable Hours (Southwind's time)										
Rig Up / Tear Down	9.00								2.00	**11.00**
Wait on Cement (NB)										**0.00**
Drill Rat Hole (<.75 hrs)	0.75									**0.75**
Drill Mouse Hole										**0.00**
Drill Plug										**0.00**
Circulate / Trip (Surface)	0.75									**0.75**
Rig Repair		0.75		0.75	1.75	2.25				**5.50**
Connections	1.50	3.00	2.25	2.00	1.25		0.50			**10.50**
Jet/Displace	0.25	1.00	1.75							**3.00**
Surveys										**0.00**
Rig Check										**0.00**
Bit Trip							3.50			**3.50**
Lost Circulation (< 2 hrs)										**0.00**
Lay Down Kelly / MH & RH									0.50	**0.50**
Non-Billable Hrs.	**12.25**	**4.75**	**4.00**	**2.75**	**3.00**	**2.25**	**4.00**	**0.00**	**2.50**	**35.50**
	24.00	24.00	24.00	24.00	24.00	24.00	24.00	24.00	16.00	
Footage Cost	$ 3,828.00	$ 14,949.00	$ 10,087.00	$ 8,690.00	$ 4,466.00	$ 1,078.00	$ 2,772.00	$ 660.00	$ -	**$ 46,530.00**
Daywork Cost	$ 2,847.50	$ 502.50	$ -	$ -	$ 1,758.75	$ 5,527.50	$ 1,507.50	$ 6,951.25	$ 4,522.50	**$ 23,617.50**
Combined Est. Cost*	**$ 6,675.50**	**$ 15,451.50**	**$ 10,087.00**	**$ 8,690.00**	**$ 6,224.75**	**$ 6,605.50**	**$ 4,279.50**	**$ 7,611.25**	**$ 4,522.50**	**$ 70,147.50**

*Please note that this is estimated footage & daywork cost only. Additional charges will apply on invoice (fuel surcharge, water transfer pump, etc)

DST #1 Info -

Footage Interval: 3727' - 3820' LKC "I-L"
Recovery: 31' Gas in Pipe
95' Gassy Oil Spotted Watery Cut Mud
127' Gassy Mud Cut Water

DST #2 Info -

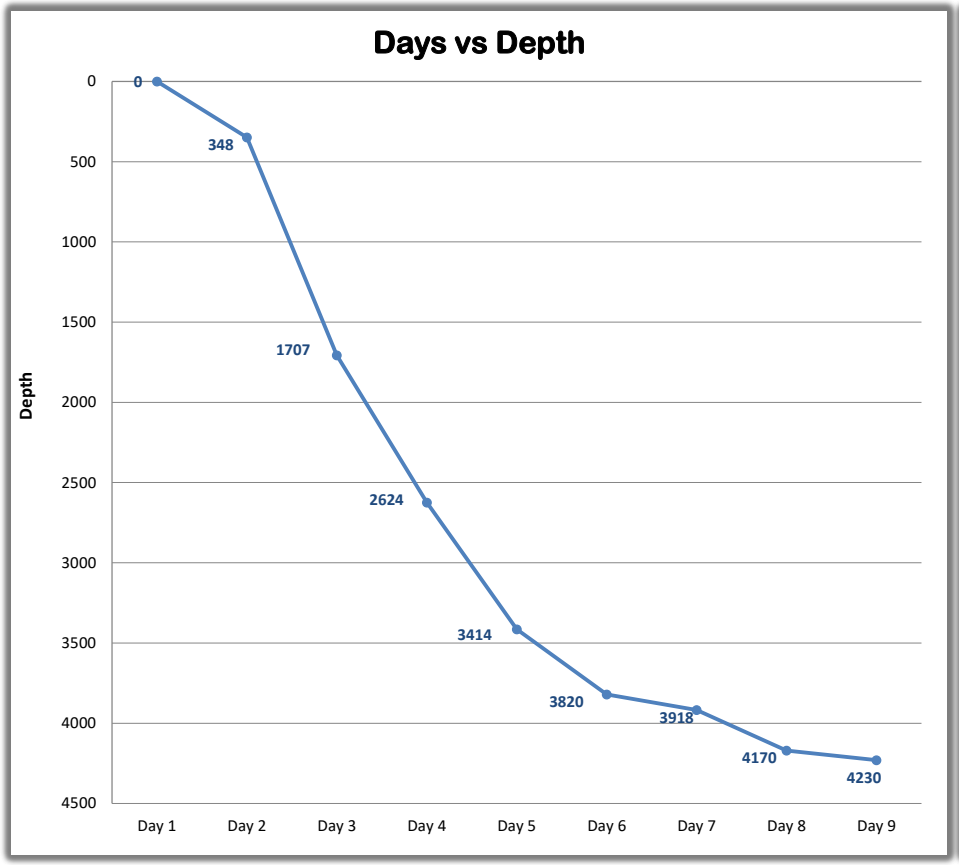
Footage Interval: 4164' - 4172' Arbuckle
Recovery: 94' Gas in Pipe
788' Gassy Spotty Oily Muddy Cut Water

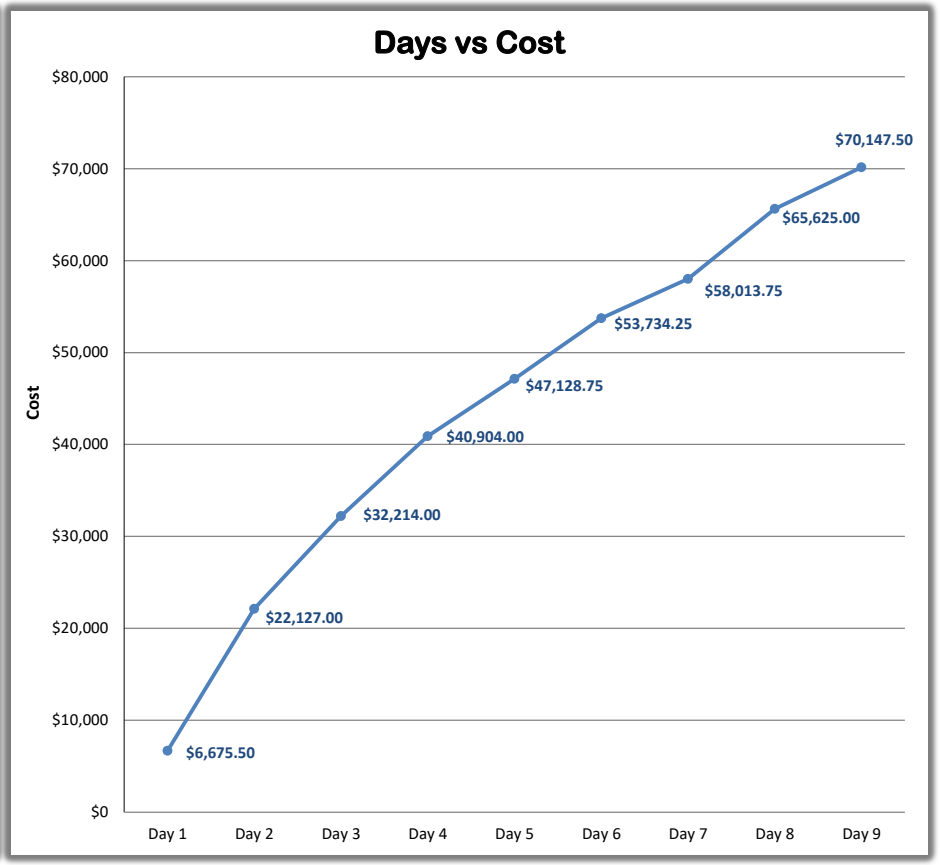
Anhydrite @ 152_' - 1622' ***Displace @ 2594'***

Job Summary Graphical Report

Southwind Rig No. 3

Farris #1





DRILL STEM TEST REPORT

H & D Exploration, LLC.

165 West 1st
P.O.Box 387
Hoisington, Ks. 67544
ATTN: Jim Musgrove

5-25s-12w Stafford Co. Ks.

Farris #1

Job Ticket: 65455 **DST#: 1**

Test Start: 2019.11.18 @ 14:23:18

GENERAL INFORMATION:

Formation: **Lansing I-L Zones**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:00:33
Time Test Ended: 20:55:03

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

Interval: 3727.00 ft (KB) To 3820.00 ft (KB) (TVD)
Total Depth: 3820.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

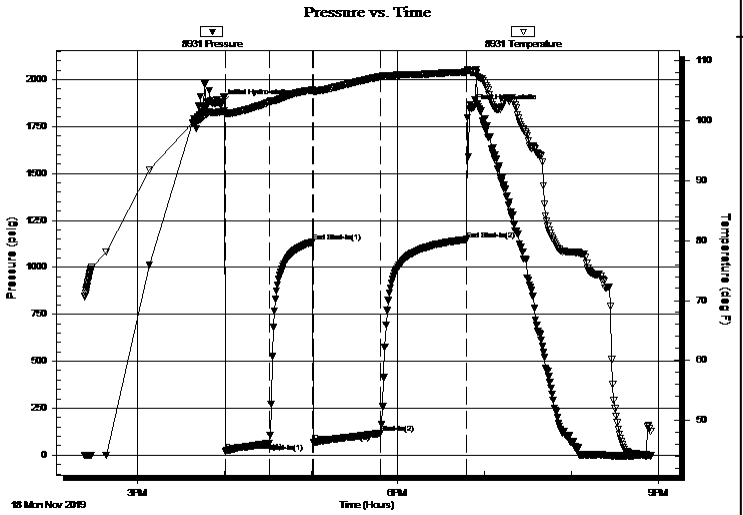
Reference Elevations: 1901.00 ft (KB)
1892.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8931 **Inside**

Press@RunDepth: 116.05 psig @ 3728.00 ft (KB)
Start Date: 2019.11.18 End Date: 2019.11.18
Start Time: 14:23:23 End Time: 20:55:02

Capacity: 8000.00 psig
Last Calib.: 2019.11.18
Time On Btm: 2019.11.18 @ 15:57:48
Time Off Btm: 2019.11.18 @ 18:49:33

TEST COMMENT: IF: Fair - Strong Blow . Built to 11.09".
ISI: No Blow .
FF: Fair - Strong Blow . Built to 10.71".
FSI: No Blow .



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1870.98	101.42	Initial Hydro-static
3	22.27	101.07	Open To Flow (1)
33	61.90	102.99	Shut-In(1)
63	1135.48	105.05	End Shut-In(1)
64	67.52	104.82	Open To Flow (2)
111	116.05	107.28	Shut-In(2)
170	1148.40	108.02	End Shut-In(2)
172	1843.99	108.21	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
63.00	GMCW 5%g 20%m 75%w	0.88
64.00	GMCW 5%g 10%m 85%w	0.90
63.00	GOspecWCM 5%g 25%w 70%m	0.88
32.00	GOsoecWCM 5%g 45%w 50%m	0.45
0.00	31' G.I.P. 100%g	0.00

Gas Rates

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

DRILL STEM TEST REPORT

H & D Exploration, LLC.

165 West 1st
P.O.Box 387
Hoisington, Ks. 67544
ATTN: Jim Musgrove

5-25s-12w Stafford Co. Ks.

Farris #1

Job Ticket: 65455 **DST#: 1**

Test Start: 2019.11.18 @ 14:23:18

GENERAL INFORMATION:

Formation: **Lansing I-L Zones**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:00:33
Time Test Ended: 20:55:03

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

Interval: 3727.00 ft (KB) To 3820.00 ft (KB) (TVD)
Total Depth: 3820.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

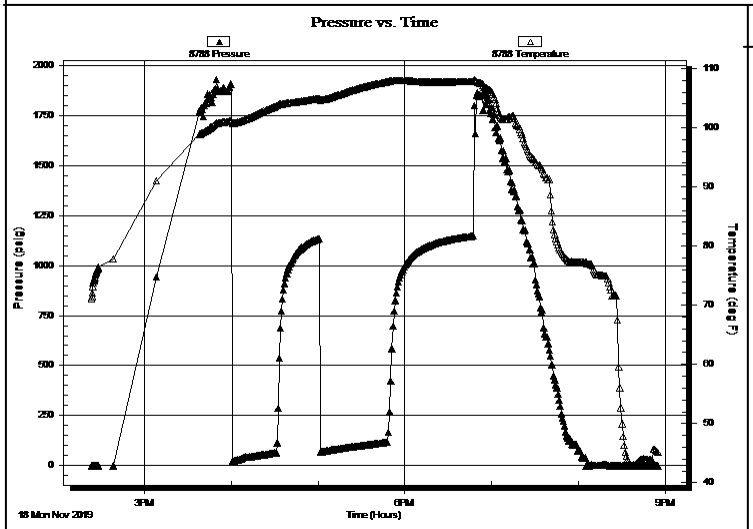
Reference Elevations: 1901.00 ft (KB)
1892.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8788 **Outside**

Press@RunDepth: psig @ 3728.00 ft (KB)
Start Date: 2019.11.18 End Date: 2019.11.18
Start Time: 14:23:27 End Time: 20:55:06

Capacity: 8000.00 psig
Last Calib.: 2019.11.18
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Fair - Strong Blow . Built to 11.09".
ISI: No Blow .
FF: Fair - Strong Blow . Built to 10.71".
FSI: No Blow .



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
63.00	GMCW 5%g 20%m 75%w	0.88
64.00	GMCW 5%g 10%m 85%w	0.90
63.00	GOspecWCM 5%g 25%w 70%m	0.88
32.00	GOsoecWCM 5%g 45%w 50%m	0.45
0.00	31' G.I.P. 100%g	0.00

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

H & D Exploration, LLC.

165 West 1st
P.O.Box 387
Hoisington, Ks. 67544
ATTN: Jim Musgrove

5-25s-12w Stafford Co. Ks.

Farris #1

Job Ticket: 65455 **DST#: 1**

Test Start: 2019.11.18 @ 14:23:18

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	10.00 lb/gal	Cushion Length:	ft	Water Salinity:	62000 ppm
Viscosity:	48.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	10.79 in³	Gas Cushion Type:			
Resistivity:	6700.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	ppm				
Filter Cake:	0.20 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	GMCW 5%g 20%m 75%w	0.884
64.00	GMCW 5%g 10%m 85%w	0.898
63.00	GOspecWCM 5%g 25%w 70%m	0.884
32.00	GOsoecWCM 5%g 45%w 50%m	0.449
0.00	31' G.I.P. 100%g	0.000

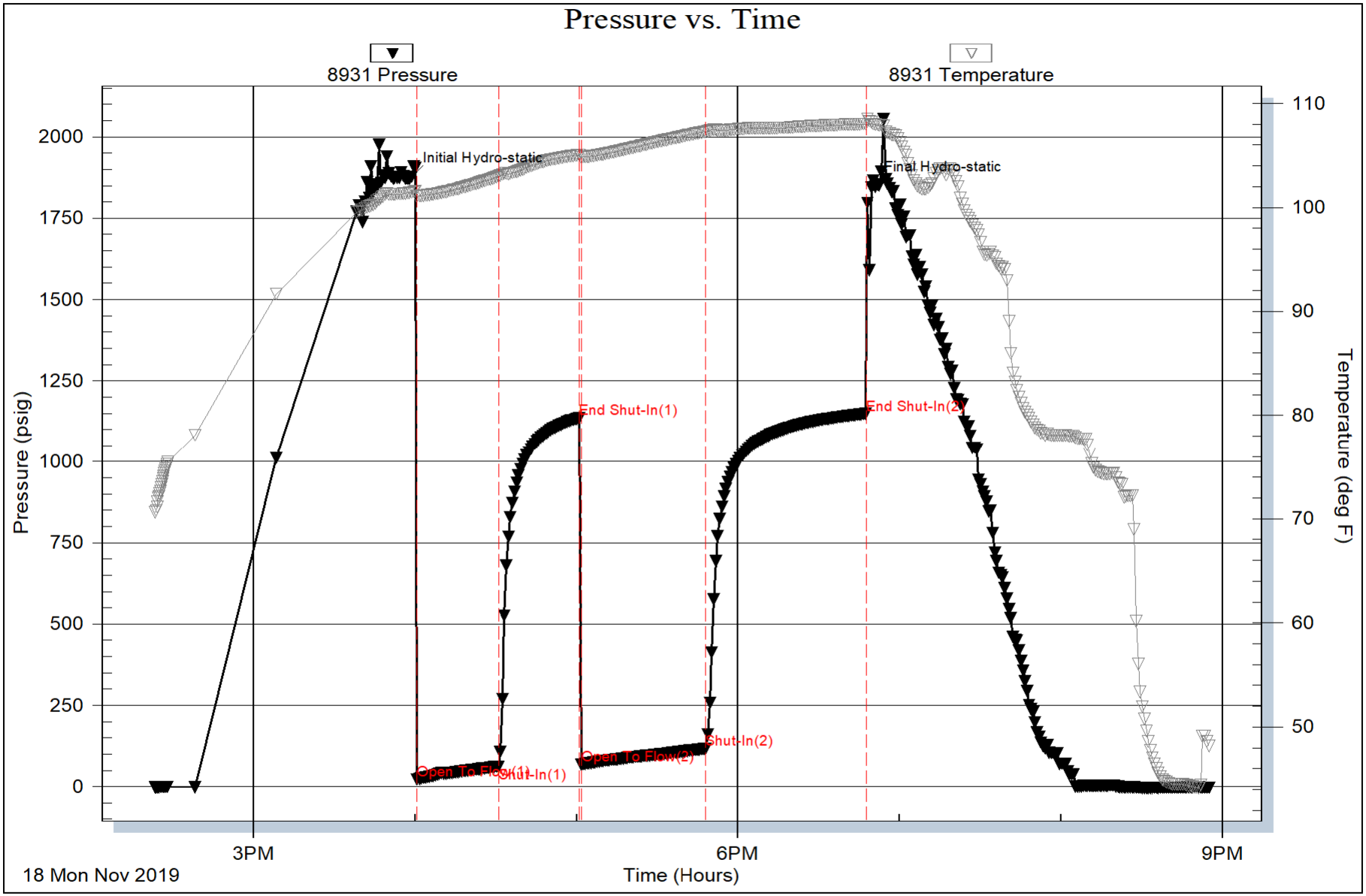
Total Length: 222.00 ft Total Volume: 3.115 bbl

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

Laboratory Name: Laboratory Location:

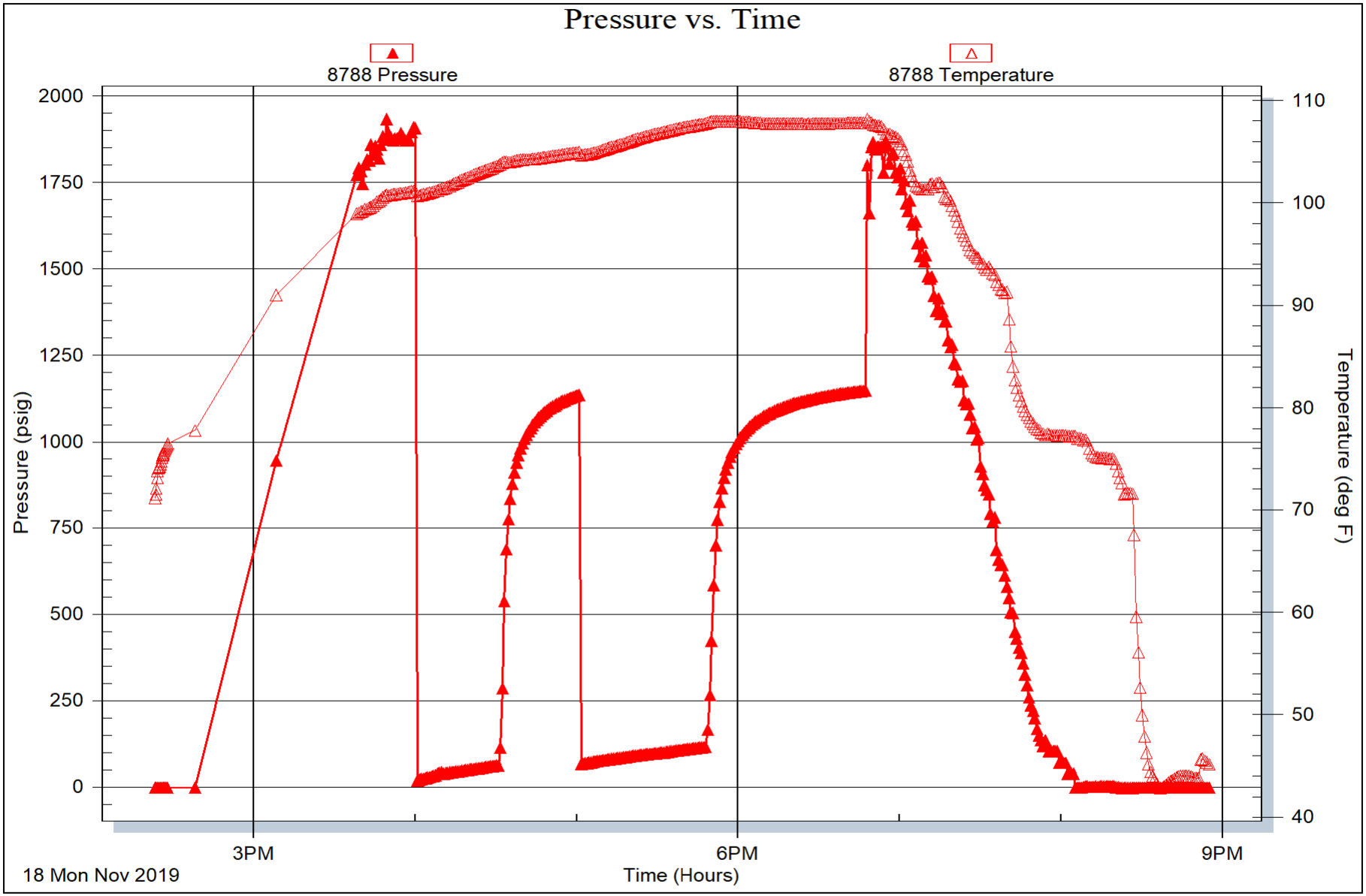
Recovery Comments: RW 1.59 @ 49 Degrees = 62,000 Chlorides

Serial #: 8931 **Inside** H & D Exploration, LLC. Farris #1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 65455 Printed: 2019.11.18 @ 22:33:52

Serial #: 8788 **Outside** H & D Exploration, LLC. Farris #1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 65455 Printed: 2019.11.18 @ 22:33:52

DRILL STEM TEST REPORT

H & D Exploration, LLC.

165 West 1st
P.O.Box 387
Hoisington, Ks. 67544
ATTN: Jim Musgrove

5-25s-12w Stafford Co. Ks.

Farris #1

Job Ticket: 65456 **DST#: 2**

Test Start: 2019.11.20 @ 11:08:13

GENERAL INFORMATION:

Formation: **Arbucke**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:36:58
Time Test Ended: 18:55:13

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

Interval: 4164.00 ft (KB) To 4172.00 ft (KB) (TVD)
Total Depth: 4172.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

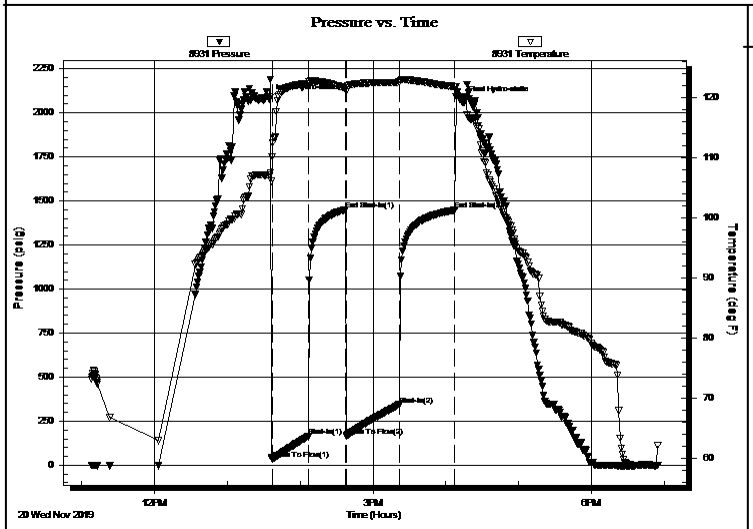
Reference Elevations: 1901.00 ft (KB)
1892.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8931 **Inside**

Press@RunDepth: 343.10 psig @ 4165.00 ft (KB)
Start Date: 2019.11.20 End Date: 2019.11.20
Start Time: 11:08:18 End Time: 18:55:12

Capacity: 8000.00 psig
Last Calib.: 2019.11.20
Time On Btm: 2019.11.20 @ 13:34:28
Time Off Btm: 2019.11.20 @ 16:12:28

TEST COMMENT: IF: Strong Blow . B.O.B. in 10 mins. Built to 32.45".
ISI: No Blow .
FF: Strong Blow . B.O.B. in 11 mins. Built to 43.89".
FSI: No Blow .



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2079.35	107.23	Initial Hydro-static
3	34.06	110.24	Open To Flow (1)
33	163.26	122.39	Shut-In(1)
63	1450.77	121.59	End Shut-In(1)
64	165.72	121.04	Open To Flow (2)
107	343.10	122.57	Shut-In(2)
153	1448.36	121.87	End Shut-In(2)
158	2070.16	120.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
63.00	GVSOMCW 1%g 2%o 3%m 94%w	0.88
63.00	GVSOMCW 1%g 5%o 20%m 74%w	0.88
630.00	GOspecCW 1%g 3%m 96%w	8.84
32.00	GVSOMCW 1%g 5%o 40%m 54%w	0.45
0.00	94' G.I.P. 100%g	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

H & D Exploration, LLC.

165 West 1st
P.O.Box 387
Hoisington, Ks. 67544
ATTN: Jim Musgrove

5-25s-12w Stafford Co. Ks.

Farris #1

Job Ticket: 65456 **DST#: 2**

Test Start: 2019.11.20 @ 11:08:13

GENERAL INFORMATION:

Formation: **Arbucke**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:36:58
Time Test Ended: 18:55:13

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

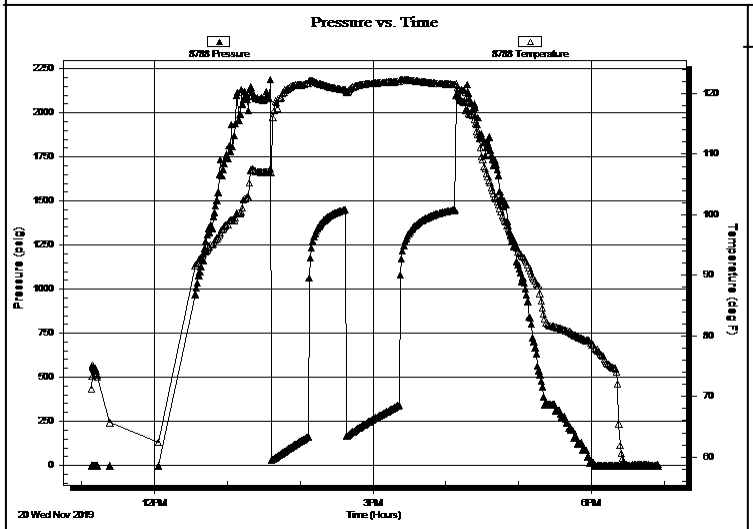
Interval: 4164.00 ft (KB) To 4172.00 ft (KB) (TVD)
Total Depth: 4172.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1901.00 ft (KB)
1892.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8788 **Outside**
Press@RunDepth: psig @ 4165.00 ft (KB)
Start Date: 2019.11.20 End Date: 2019.11.20
Start Time: 11:08:20 End Time: 18:55:14

Capacity: 8000.00 psig
Last Calib.: 2019.11.20
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Strong Blow . B.O.B. in 10 mins. Built to 32.45".
ISI: No Blow .
FF: Strong Blow . B.O.B. in 11 mins. Built to 43.89".
FSI: No Blow .



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
63.00	GVSOMCW 1%g 2%o 3%m 94%w	0.88
63.00	GVSOMCW 1%g 5%o 20%m 74%w	0.88
630.00	GOspecCW 1%g 3%m 96%w	8.84
32.00	GVSOMCW 1%g 5%o 40%m 54%w	0.45
0.00	94' G.I.P. 100%g	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

H & D Exploration, LLC.

165 West 1st
P.O.Box 387
Hoisington, Ks. 67544
ATTN: Jim Musgrove

5-25s-12w Stafford Co. Ks.

Farris #1

Job Ticket: 65456 **DST#: 2**

Test Start: 2019.11.20 @ 11:08:13

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	10.00 lb/gal	Cushion Length:	ft	Water Salinity:	25000 ppm
Viscosity:	41.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	16.38 in³	Gas Cushion Type:			
Resistivity:	10200.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	ppm				
Filter Cake:	0.20 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	GVSOMCW 1%g 2%o 3%m 94%w	0.884
63.00	GVSOMCW 1%g 5%o 20%m 74%w	0.884
630.00	GOspecCW 1%g 3%m 96%w	8.837
32.00	GVSOMCW 1%g 5%o 40%m 54%w	0.449
0.00	94' G.I.P. 100%g	0.000

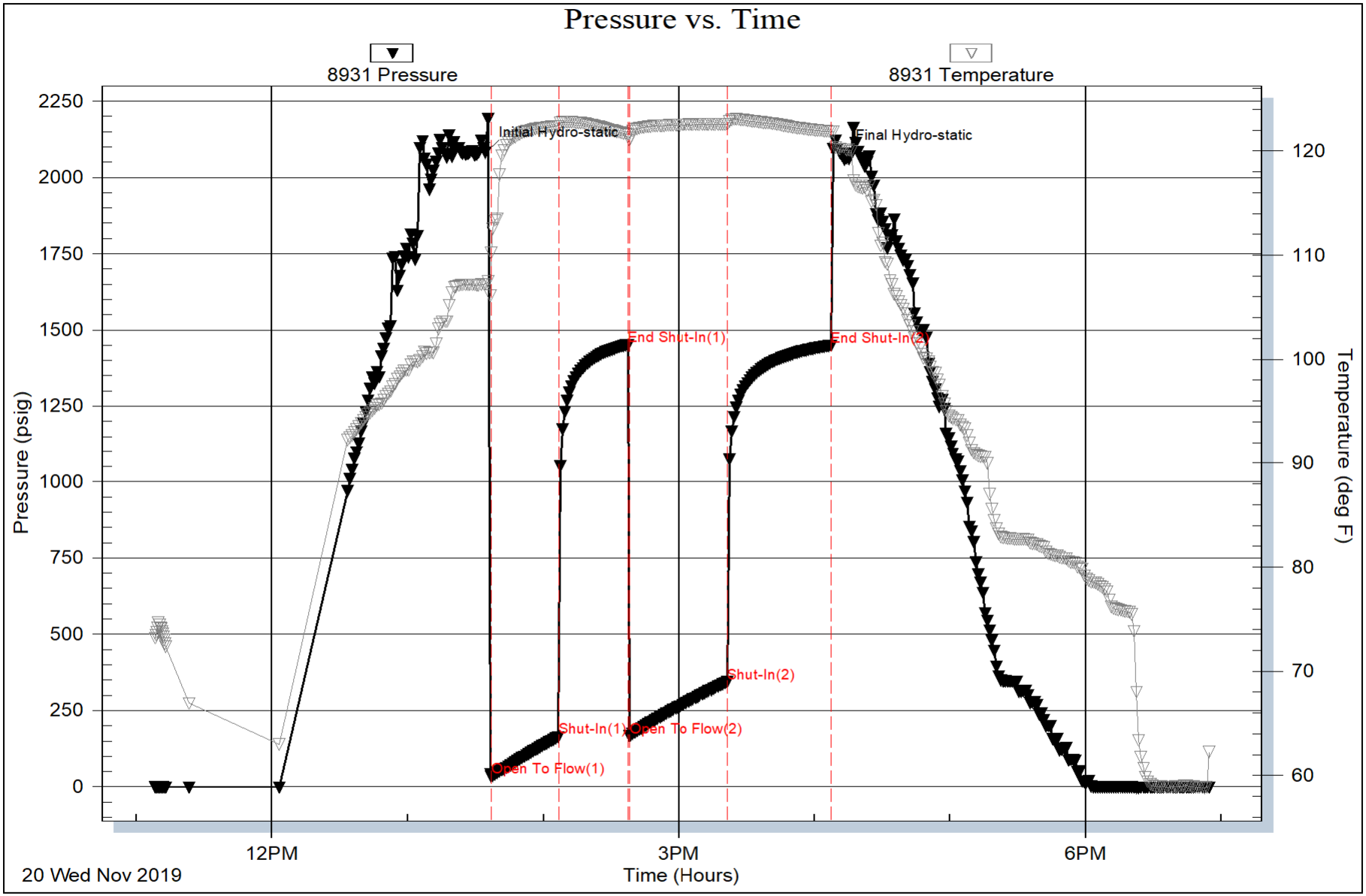
Total Length: 788.00 ft Total Volume: 11.054 bbl

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

Laboratory Name: Laboratory Location:

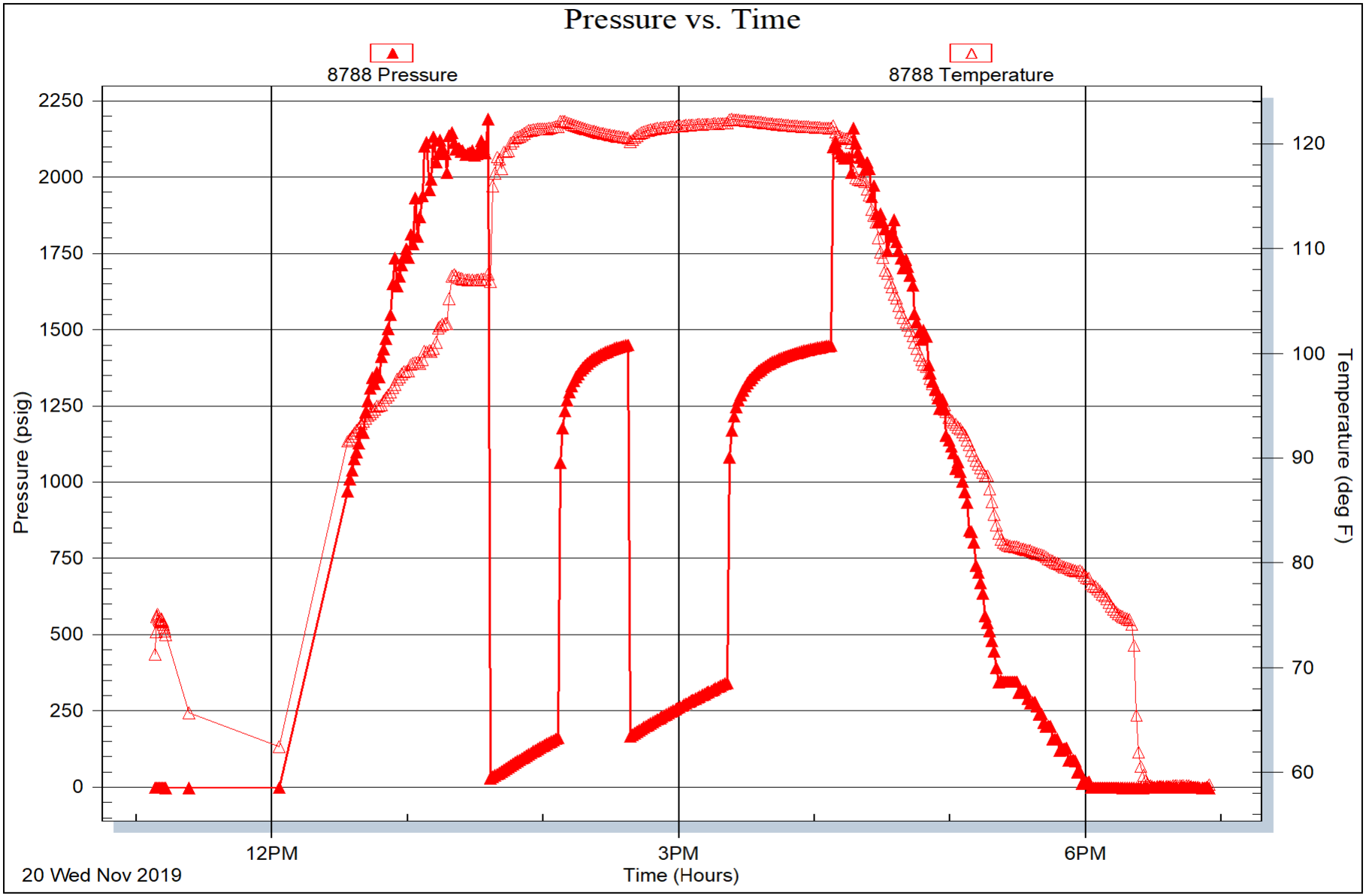
Recovery Comments: Ran a tank of fresh Pre-mix right before test.
RW .33 @ 59 Degrees = 25,000 Chlorides.

Serial #: 8931 **Inside** H & D Exploration, LLC. Farris #1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 65456 Printed: 2019.11.20 @ 20:25:34

Serial #: 8788 **Outside** H & D Exploration, LLC. Farris #1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 65456 Printed: 2019.11.20 @ 20:25:34

Musgrove
Petroleum Geology
212 Main Street, Claflin KS

NOTES

Company: H&D Exploration, LLC

Lease: FARRIS #1

Field:

Location: SW-NE-SW-SE (938' FSL & 1743' FEL)

Sec: 5 Twsp: 25S Rge: 12W

County: Stafford State: Kansas

KB: 1901' DF: 1894' GL: 1892'

Contractor: Southwind Drilling Inc. (Rig #3)

Spud: 11/13/2019 Comp: 11/21/2019

RTD: 3450' LTD: 3452'

Mud Up: 2900' Type Mud: Chemical

Samples Saved From: 3300' to RTD
Drilling Time Kept From: 3300' to RTD
Samples Examined From: 3300' to RTD
Geological Supervision from: 3400' to RTD

Geologist on Well: JIM MUSGROVE

Surface Casing: 8 5/8" @ 348'
Production Casing: None

Electronic Surveys: Logged by ELI WIRELINE Services, SONIC,DIL ,CNL/CDNL

	DRILLING				OIL / SWD/						D&A						D&A					
	H&D EXPLORATION				PARAMOUNT PETRO.						ZETCO PETROLEUM						ICER ADDIS OIL OPERATIONS					
	FARRIS # 1				McCUNE #3 (WAS MCUNE #1B)						MCCUNE "B" 1						AUSHERMAN #1					
	5-25S-12W (938' FSL & 1743' FEL)				4-25S-12W						8-25S-12W (4950' FSL & 990' FEL)						5-25-12W (1890 FSL & 1980 FWL)					
	KB	1901	GL	1892	KB	1893					KB	1892					KB	1898				
	LOG		SAMPLE		LOG		LOG		SMPL.		SAMPLE		LOG		SMPL.		LOG		LOG		SMPL.	
FORMATION	DEPTH	DATUM	DEPTH 2	DATUM3	DEPTH	DATUM4	CORR.5	Column5	CORR.6	Column7	DEPTH8	DATUM9	CORR.10	Column11	CORR.12	Column13	DEPTH14	DATUM15	CORR.16	Column17	CORR.18	Column19
ANHYDRITE TOP	701	1200	700	1192	710	1183	+	17	-	18							717	1181	+	19	+	20
ANHYDRITE BASE	728	1173	730	1171													725	1173	+	0	+	2
HEEBNER SHALE	3395	-1494	3393	-1492	3383	-1490	-	4	-	2	3388	-1490	-	4	-	2	3401	-1503	+	9	+	11
TORONTO	3411	-1510	3410	-1509							3407	-1509	-	1	+	0	3420	-1522	+	12	+	13
DOUGLAS	3439	-1538	3439	-1538													3446	-1548	+	10	+	10
DOUGLAS SD.	3457	-1556	3456	-1555																		
BROWN LIME	3552	-1651	3551	-1650	3539	-1646	-	5	-	4							3558	-1660	+	9	+	10
LANSING	3576	-1675	3575	-1674	3562	-1666	-	9	-	8	3571	-1673	-	2	-	1	3584	-1686	+	11	+	12
BKC	3861	-1960	3864	-1963							3859	-1961	+	1	-	2	3868	-1970	+	10	+	7
CONGLOMERATE	3907	-2006	3907	-2006	3914	-2021	+	15	+	15												
VIOLA	3981	-2080	3980	-2079	3980	-2087	+	7	+	8	3959	-2061	-	19	-	18	4052	-2154	+	74	+	75
SIMPSON SH.	4099	-2198	4099	-2198	4074	-2181	-	17	-	17	4093	-2195	-	3	-	3	4160	-2262	+	64	+	64

SIMPSON SD.	4110	-2209	4111	-2210																	
ARBUCKLE	4161	-2260	4162	-2261	4146	-2253	-	7	-	8	4153	-2255	-	5	-	6					
RTD	4230	-2329	4230	-2329	4217	-2324	-	5	-	5	4165	-2267	-	62	-	62	4175	-2277	-	52	-	52
LTD	4231	-2330	4231	-2330																	

Musgrove

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

H & D Exploration, LLC.

165 West 1st
P.O.Box 387
Hoisington, Ks. 67544
ATTN: Jim Musgrove

5-25s-12w Stafford Co. Ks.

Farris #1

Job Ticket: 65455 **DST#: 1**

Test Start: 2019.11.18 @ 14:23:18

GENERAL INFORMATION:

Formation: **Lansing I-L Zones**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:00:33
Time Test Ended: 20:55:03

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

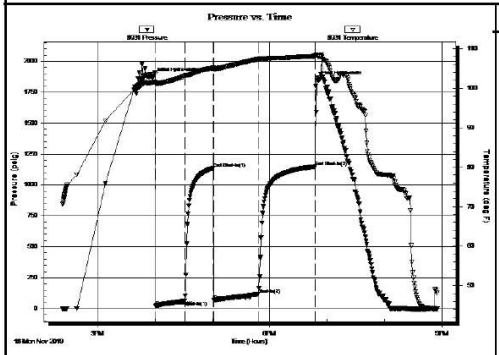
Interval: 3727.00 ft (KB) To 3820.00 ft (KB) (TVD)
Total Depth: 3820.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1901.00 ft (KB)
1892.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8931 **Inside**
Press@RunDepth: 116.05 psig @ 3728.00 ft (KB)
Start Date: 2019.11.18 End Date: 2019.11.18
Start Time: 14:23:23 End Time: 20:55:02

Capacity: 8000.00 psig
Last Calib.: 2019.11.18
Time On Btm: 2019.11.18 @ 15:57:48
Time Off Btm: 2019.11.18 @ 18:49:33

TEST COMMENT: IF: Fair - Strong Blow . Built to 11.09".
ISI: No Blow .
FF: Fair - Strong Blow . Built to 10.71".
FSI: No Blow .



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1870.98	101.42	Initial Hydro-static
3	22.27	101.07	Open To Flow (1)
33	61.90	102.99	Shut-In(1)
63	1135.48	105.05	End Shut-In(1)
64	67.52	104.82	Open To Flow (2)
111	116.05	107.28	Shut-In(2)
170	1148.40	108.02	End Shut-In(2)
172	1843.99	108.21	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
63.00	GMCW 5%g 20%m 75%w	0.88
64.00	GMCW 5%g 10%m 85%w	0.90
63.00	GOspecWCM 5%g 25%w 70%m	0.88
32.00	GOsoecWCM 5%g 45%w 50%m	0.45
0.00	31' G.I.P. 100%g	0.00

Gas Rates

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

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

H & D Exploration, LLC.

PO Box 387
Hoisington, KS 67544

ATTN: Jim Musgrove

5-25s-12w Stafford,KS

Farris #1

Job Ticket: 65456 **DST#: 2**

Test Start: 2019.11.20 @ 11:08:13

GENERAL INFORMATION:

Formation: **Arbucke**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:36:58
Time Test Ended: 18:55:13

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

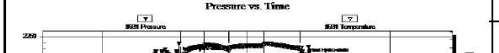
Interval: 4164.00 ft (KB) To 4172.00 ft (KB) (TVD)
Total Depth: 4172.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1901.00 ft (KB)
1892.00 ft (CF)
KB to GR/CF: 9.00 ft

Serial #: 8931 **Inside**
Press@RunDepth: 343.10 psig @ 4165.00 ft (KB)
Start Date: 2019.11.20 End Date: 2019.11.20
Start Time: 11:08:18 End Time: 18:55:12

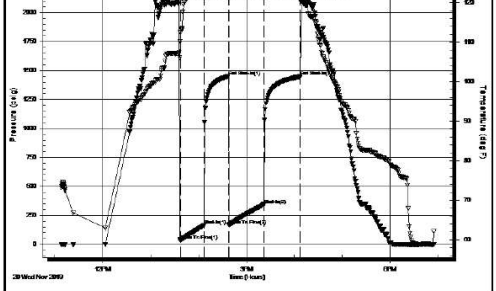
Capacity: 8000.00 psig
Last Calib.: 2019.11.20
Time On Btm: 2019.11.20 @ 13:34:28
Time Off Btm: 2019.11.20 @ 16:12:28

TEST COMMENT: IF: Strong Blow . B.O.B. in 10 mins. Built to 32.45".
ISI: No Blow .
FF: Strong Blow . B.O.B. in 11 mins. Built to 43.89".
FSI: No Blow .



PRESSURE SUMMARY

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



0	2079.35	107.23	Initial Hydro-static
3	34.06	110.24	Open To Flow (1)
33	163.26	122.39	Shut-In(1)
63	1450.77	121.59	End Shut-In(1)
64	165.72	121.04	Open To Flow (2)
107	343.10	122.57	Shut-In(2)
153	1448.36	121.87	End Shut-In(2)
158	2070.16	120.13	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
63.00	GVSOMCW 1%g 2%o 3%m 94%w	0.88
63.00	GVSOMCW 1%g 5%o 20%m 74%w	0.88
630.00	GOspecCW 1%g 3%m 96%w	8.84
32.00	GVSOMCW 1%g 5%o 40%m 54%w	0.45
0.00	94' G.I.P. 100%g	0.00

* Recovery from multiple tests

Gas Rates

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

ROCK TYPES

Cht
Cht vari
Dolprim
Lmst fw<7
shale, grn
shale, gry
Carbon Sh
shale, red
Ss

ACCESSORIES

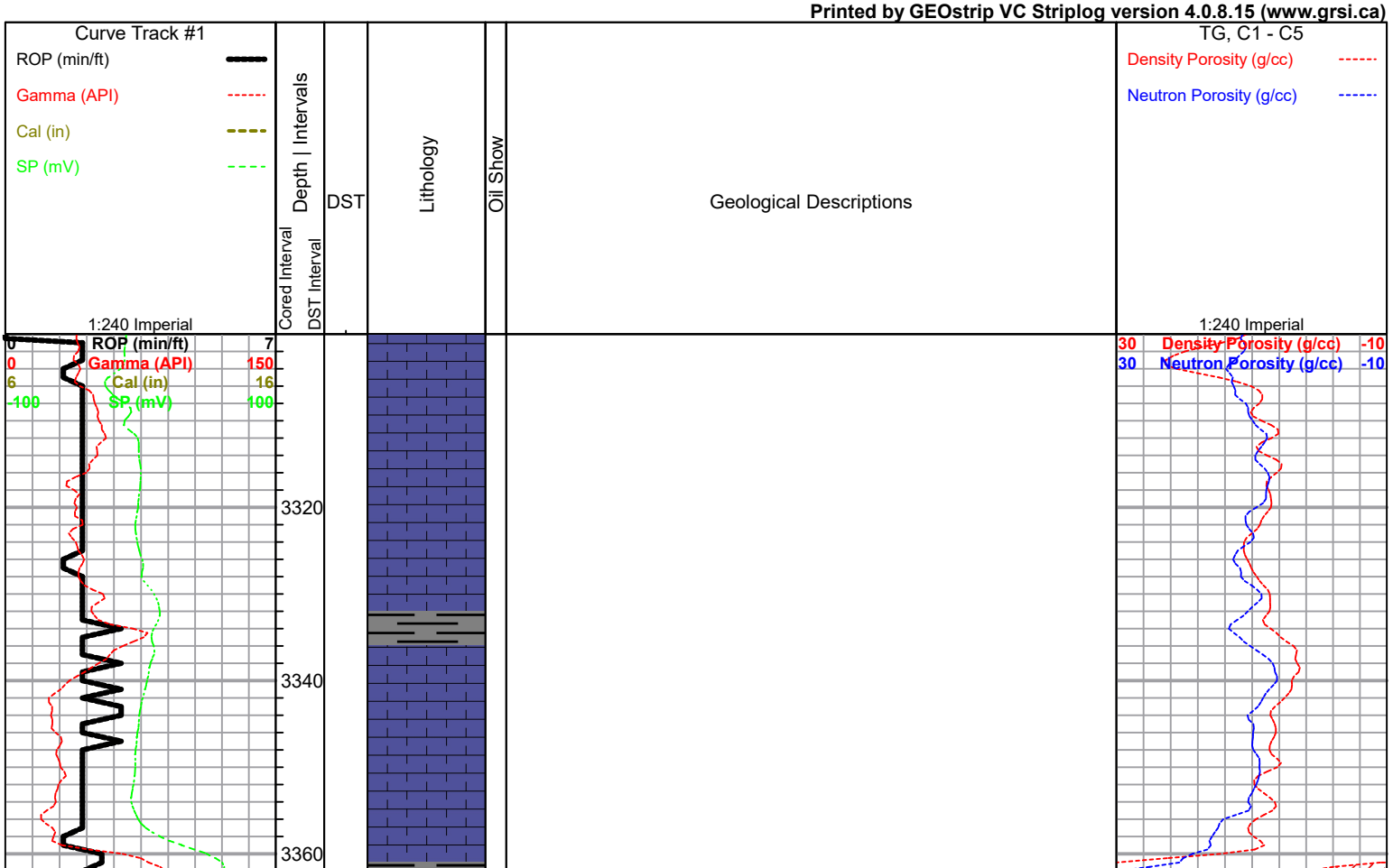
MINERAL
△ Chert White

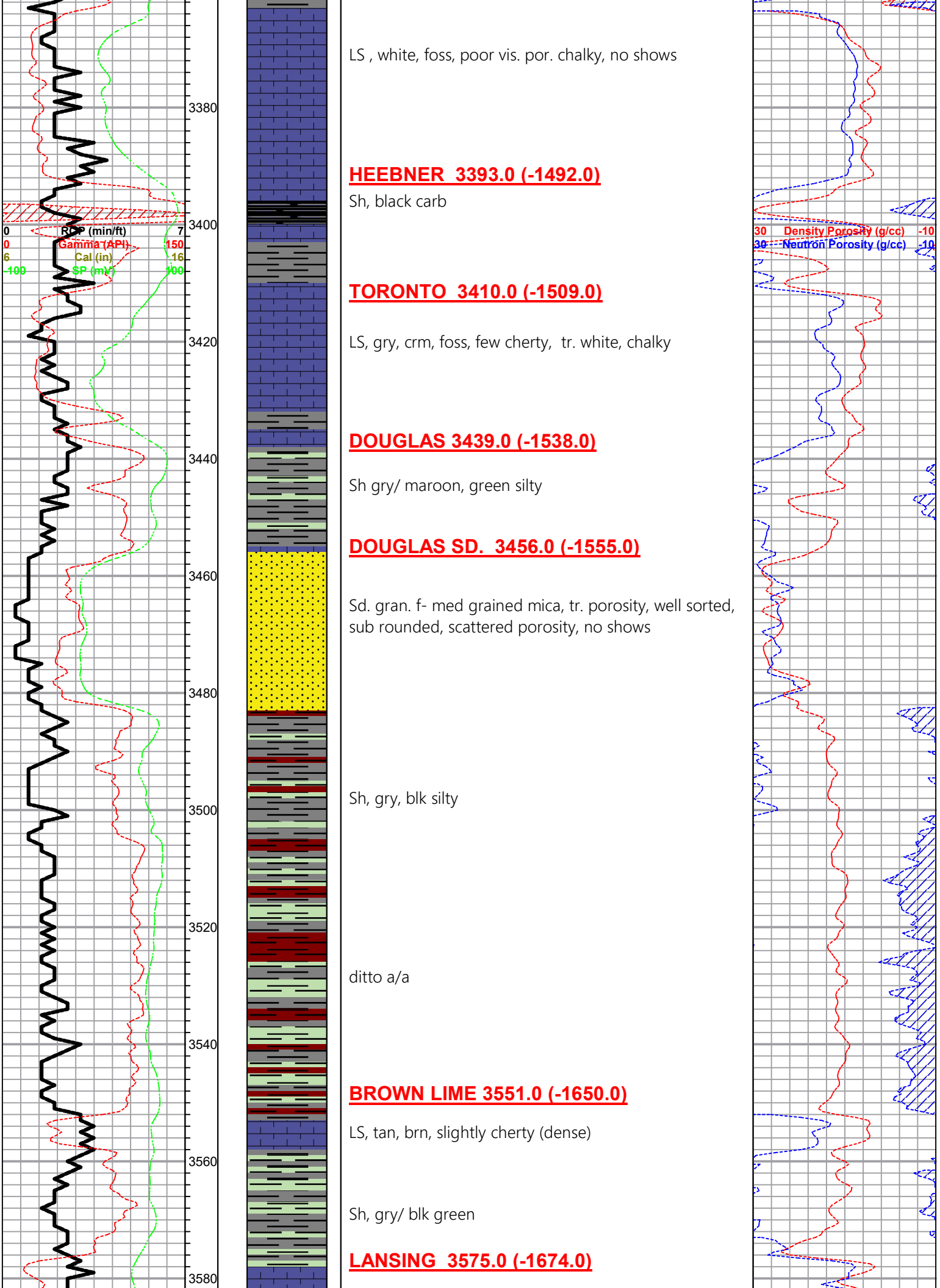
OTHER SYMBOLS

Oil Show
● Good Show
◐ Fair Show
◑ Poor Show
◑ Spotted or Trace
○ Questionable Stn
D Dead Oil Stn
■ Fluorescence
✷ Gas

DST
DST Int
DST alt
Core
tail pipe

Printed by GEOstrip VC Striplog version 4.0.8.15 (www.grsi.ca)





LS , white, foss, poor vis. por. chalky, no shows

HEEBNER 3393.0 (-1492.0)

Sh, black carb

TORONTO 3410.0 (-1509.0)

LS, gry, crm, foss, few cherty, tr. white, chalky

DOUGLAS 3439.0 (-1538.0)

Sh gry/ maroon, green silty

DOUGLAS SD. 3456.0 (-1555.0)

Sd. gran. f- med grained mica, tr. porosity, well sorted, sub rounded, scattered porosity, no shows

Sh, gry, blk silty

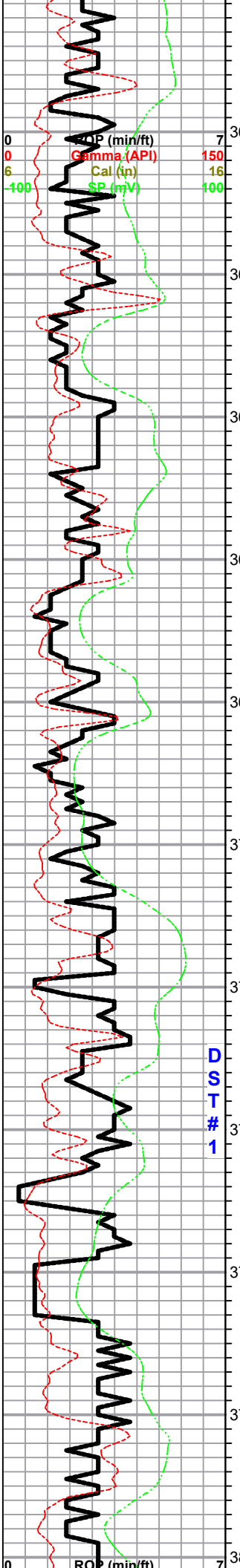
ditto a/a

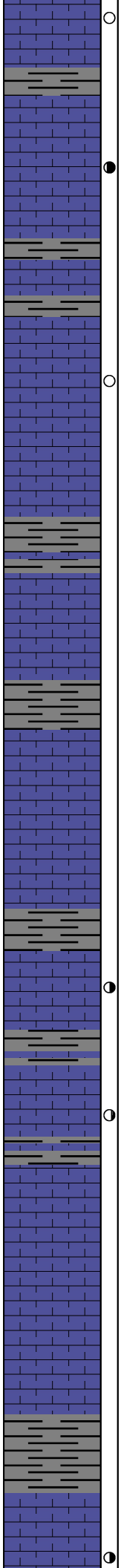
BROWN LIME 3551.0 (-1650.0)

LS, tan, brn, slightly cherty (dense)

Sh, gry/ blk green

LANSING 3575.0 (-1674.0)





LS, white, gry, fxl, foss, chalky, sptty brn stain , nsfo , ft. odor

LS, brn foss, scattered foss / cast/ oom type porosity, brn stain, sfo, ft. odor

LS, white, gry, fxl, slightly foss, chalky, t.r. brn stain, nsfo ,ft. odor

Sh, gry, greenish, blk

LS, brn, f-med xln, chalky, poor vis. porosity, +white/cream, boney chert

Sh, gry, green, blk

LS, white/ crm, fxl, slightly chalky, white/ gry boney chert

Sh, black carb

LS, white/ tan, oom, scattered oom porosity, brown - blk stain , ??? odor no sfo

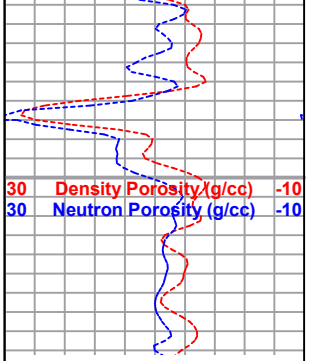
LS, gry, oom, poorly developed porosity, tr. gry / dk stain , tr. fo , no odor

LS, brn, fxl, oom, fair oom porosity, barren , no odor

LS, tan, crm, fxl, / chalky (dense)

Sh, gry, silty soft

LS, white, f-med xln, scattered porosity, tr. brown / blk



DST #1 3727-3820

1st Open:
Blow, good (11.5")

2nd Open:
Blow good, (10.75")

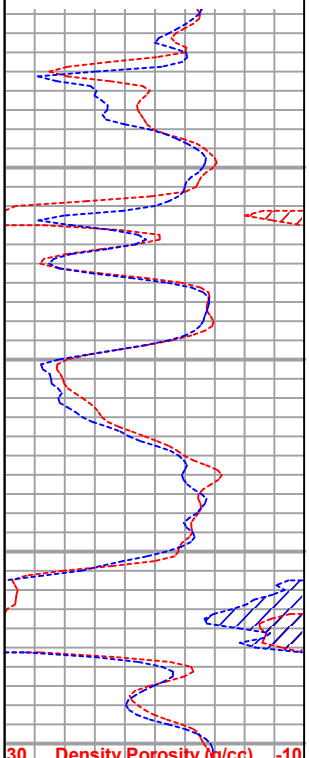
Recovery:
31' GIP

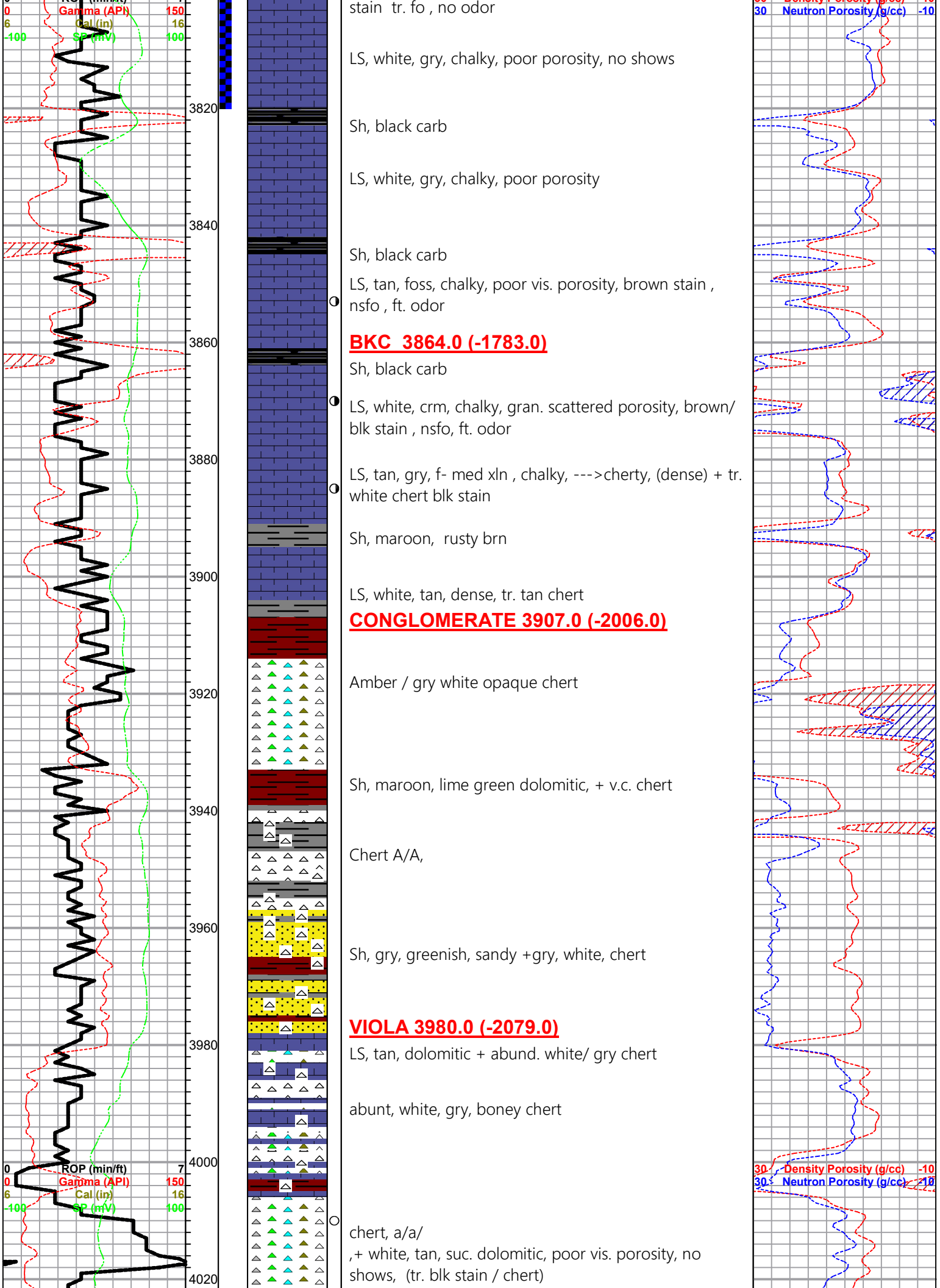
32' Muddy Gassy water
(5%g, 45%m, 50%w)

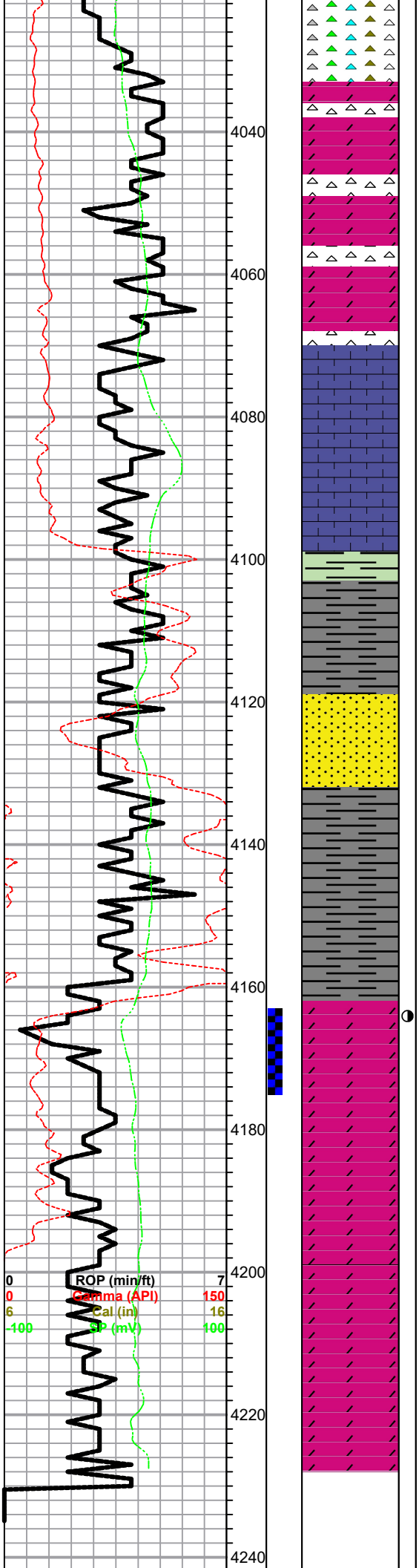
63' Muddy water
(5%g, 25%w, 65m)

127' muddy water

Pressures:
ISIP 1135 psi
FSIP 1148 psi
IFP 22-62 psi
FFP 68-116 psi
HSH 1871-1844 psi




0 ROP (min/ft) 7
0 Gamma (API) 150
6 Cal (in) 16
-100 SP (mV) 100
3820
3840
3860
3880
3900
3920
3940
3960
3980
4000
4020
30 Density Porosity (g/cc) -10
30 Neutron Porosity (g/cc) -10
stain tr. fo , no odor
LS, white, gry, chalky, poor porosity, no shows
Sh, black carb
LS, white, gry, chalky, poor porosity
Sh, black carb
LS, tan, foss, chalky, poor vis. porosity, brown stain , nsfo , ft. odor
BKC 3864.0 (-1783.0)
Sh, black carb
LS, white, crm, chalky, gran. scattered porosity, brown/ blk stain , nsfo, ft. odor
LS, tan, gry, f- med xln , chalky, --->cherty, (dense) + tr. white chert blk stain
Sh, maroon, rusty brn
LS, white, tan, dense, tr. tan chert
CONGLOMERATE 3907.0 (-2006.0)
Amber / gry white opaque chert
Sh, maroon, lime green dolomitic, + v.c. chert
Chert A/A,
Sh, gry, greenish, sandy +gry, white, chert
VIOLA 3980.0 (-2079.0)
LS, tan, dolomitic + abund. white/ gry chert
abunt, white, gry, boney chert
chert, a/a/
,+ white, tan, suc. dolomitic, poor vis. porosity, no shows, (tr. blk stain / chert)



Dol. chert, a/a, no shows

Slug, gry, gryish green, pyritic sh.

LS, gry, tan, f- med xln , foss. in pt.,

SIMPSON 4099.0 (-2198.0)

Tr. blue green sh.

White, gry, dolomitic, sandy , v. f.g., shaley, no shows

SIMPSON SD. 4099.0 (-2210.0)

Sd. a/a , + gry, olive green sh.

Sd. gry, highly dolomitic tr. pyrite no shows

Sh, blue, green

ARBUCKLE 4162.0 (-2262.0)

Dol, tan, fxl, suc. in pt. dense

Dol, tan, oom, scattered oom vuggy porosity, tr. sd. tr. fo ft. odor

Dol, gry, dol, gry, fxl, fair suc. slightly chert , no shows chalky luster on samples

Dol, white, gry, f- med xln, fair slightly cherty , poor porosity +white/ gry opaque chert

A/A, tr. white chert & white chalk

RTD 4230.0 (-2329.0)

LTD 4231.0 (-2330.0)

DST#2 4164-4172
30-30-45-45

1st Open:
BOB 10 mins.

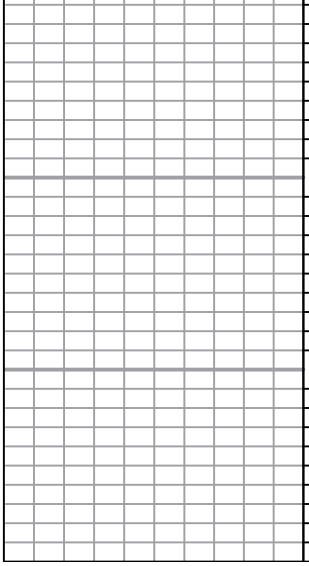
2nd Open:
BOB 11 mins.

Recovery:
94' GIP

32' VSOCMW
(1%G, 5%O, 54%W40% M)

63' Oil Specked Mud
(1%g 5%o, 74 %w, 20% m)

63 ' VSO&GCMW
(1%g, 5%o, 94%w, 3% m)



m)

63' VSO&GCMW
(1%g, 2%o, 74%w, 3% m)

Pressures:
ISIP 1451 psi
FSIP 1448 psi
IFP 34-163 psi
FFP 166-343 psi
HSH 2079- 2070 psi

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-1071
Cell 785-324-1041

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

No. 1745

Date	Sec.	Twp.	Range	County	State	On Location	Finish
11-14-19	5	25	12	Stafford	Ks		12:30 AM

Location 281 & 50 Jct - 45 to 40th Street, SE to 50th Ave, 1/2N, W Into

Lease Farris Well No. 1

Owner

To Quality Oilwell Cementing, Inc.
You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.

Contractor Southwind #3

Type Job Surface

Hole Size 12 1/4" T.D. 348'

Csg. 8 5/8" Depth 348'

Tbg. Size Depth

Tool Depth

Cement Left in Csg. 15' Shoe Joint 15'

Meas Line Displace 21 BLS

Charge To HD Exploration

Street

City State

The above was done to satisfaction and supervision of owner agent or contractor.

Cement Amount Ordered 425 60/40 4% CC 2% Gel 1/2 # Flo-Seal

EQUIPMENT

	No.		
Pumptrk 16		Cementer Helper	Tony L.
Bulktrk 19		Driver Driver	Mike
~~Bulktrk~~ P.U.		Driver Driver	Rick

JOB SERVICES & REMARKS

Remarks: Cement did Circulate

Rat Hole

Mouse Hole

Centralizers

Baskets

D/V or Port Collar

Used 350 sx Cement.

Thanks

X Signature Jay Ennis

Common	210
Poz. Mix	140
Gel.	7
Calcium	16
Hulls	
Salt	
Flowseal	200#
Kol-Seal	
Mud CLR 48	
CFL-117 or CD110 CAF 38	
Sand	
Handling	425
Mileage	

FLOAT EQUIPMENT

Guide Shoe	
Centralizer	
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	
Pumptrk Charge	Surface
Mileage	25
Tax	
Discount	
Total Charge	