

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
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API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

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

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

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

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

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

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

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

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

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

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

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom

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	Black Oak Exploration
Well Name	MW & MS FARMS 1-16
Doc ID	1469570

All Electric Logs Run

DUCP
DIL
MICRO
SONIC



CEMENT TREATMENT REPORT

Customer:	Black Oak Expl.	Well:	MW & MS Fams #1-16	Ticket:	ICT2202
City, State:		County:	Rawlins, KS	Date:	8/1/2019
Field Rep:	Arturo	S-T-R:	Sec16 - T2S - R31W	Service:	Cement

Downhole Information	
Hole Size:	12.25 in
Hole Depth:	274 ft
Casing Size:	8.625 in
Casing Depth:	272.21 ft
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Depth:	ft
Displacement:	16 bbls

Slurry	
Weight:	14.8 # / sx
Water / Sx:	6.88 gal / sx
Yield:	1.41 ft ³ / sx
Bbls / Ft.:	0.0735
Depth:	274 ft
Volume:	20.14 bbls
Excess:	180 %
Total Slurry:	56.5 bbls
Total Sacks:	225 sx

Cement Blend		
Product	%	#
Class A	100.0	21150
Gel	2.0	423
CaCl	3.0	635
Metso		
KolSeal		
PhenoSeal	0.25#/sk	56
Salt		
Total		22,264

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
16:00				Called for job					
18:45				Depart Oakley yard					
20:15				Arrive on locn. Rig performing wiper trip					
20:20				JSA, discuss moving, spotting & rig-up					
20:25				Rig TOH w/ DP					
20:30				Move on, spot & rig-up					
20:50				Rig-up complete					
20:55				Start to RIH w/ casing					
21:50				Casing @ setting depth					
21:52		100.0		Circulate & condition hole					
22:02	3.4	80.0	5.0	Pump H2O ahead					
22:04	3.2	150.0	56.5	Mix & pump 225sx cement @ 14.8# Y - 1.41cuft/sk, MW - 6.88g/sk					
22:22				Cement to surface, 56bbl cement away					
22:22	3.3	125.0	16.0	Displ. w/ H2O					
22:28				Shutdown. End Job					
22:30				Wash-up pumps & lines					
22:35				JSA, discuss racking up & moving off					
22:40				Rig down & rack-up equipment					
23:00				Depart locn					
				Note: Circulated approx 16bbl good cement to surface.					
				Thanks for calling Hurricane Services					

CREW			UNIT	SUMMARY		
Cementer:	Scott Green		74	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Josh Mosier		231	3.3 bpm	113.75 psi	77.50 bbls
Bulk #1:	Kale Ochs		242			
Bulk #2:						

Black Oak Exploration, LLC

WELL COMPARISON SHEET

Company: Black Oak Exploration, LLC
 1474 S St Paul St
 Denver, CO 80210

Contact: Clayton Camozzi 303-968-4999 (Cell)

Well: MW & MS Farms 1-16
 Location: 1095 FNL / 1450 FEL
 16 - 2S - 31W
 Rawlins Co., KS
 Wellsite Geologist: Clayton Camozzi Cell: (303) 968-4999

Elevation: 2849' KB 2844' GL
 Field: Wildcat
 API No: 15-153- 21233-0000
 Surface Casing: 8 5/8" set @ 272' KB

Drilling Contractor: Murfin Drilling Co Rig #7. Rig Phone (785-443-5616), Tool Pusher Arturo Cabezas (785-443-0494)

	DRILLING WELL					COMPARISON WELL				COMPARISON WELL			
	MW & MS Farms 1-16					Marintzer 1-4		Murfin Drlg Co: D&A		Fassler 17-12		Stoeppelwrth: D&A	
	1095 FNL / 1450 FEL 16 - 2S - 31W					780 FSL / 2310 FEL 4 - 2S - 31W				1980 FSL / 660 FWL 17 - 2S - 31W			
	2849 KB				2673 KB		Structural Relationship		2776 KB		Structural Relationship		
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log	
B. STONE CORRAL	2673	176	2666	183	2480	193	-17	-10	2608	168	8	15	
JANESVILLE SH	3412	-563	3407	-558	3222	-549	-14	-9	3345	-569	6	11	
TOPEKA	3647	-798	3631	-782	3446	-773	-25	-9	3568	-792	-6	10	
DEER CREEK	3695	-846	3683	-834	3494	-821	-25	-13	3622	-846	0	12	
LECOMPTON	3756	-907	3746	-897	3556	-883	-24	-14	3682	-906	-1	9	
OREAD	3782	-933	3768	-919	3582	-909	-24	-10	3703	-927	-6	8	
LANSING	3834	-985	3833	-984	3643	-970	-15	-14	3768	-992	7	8	
LANSING "D" ZONE	3869	-1020	3863	-1014	3679	-1006	-14	-8	3806	-1030	10	16	
LANSING "G" ZONE	3929	-1080	3922	-1073	3734	-1061	-19	-12	3866	-1090	10	17	
LANSING "H" ZONE	3967	-1118	3958	-1109	3771	-1098	-20	-11	3901	-1125	7	16	
LANSING "J" ZONE	4005	-1156	4000	-1151	3812	-1139	-17	-12	3950	-1174	18	23	
LANSING "K" ZONE	4046	-1197	4034	-1185	3847	-1174	-23	-11	3986	-1210	13	25	
BKC	4074	-1225	4064	-1215	3879	-1206	-19	-9	4016	-1240	15	25	
ALTAMONT					3965	-1292			4122	-1346			
Total Depth	4170	-1321	4164	-1315	4050	-1377			4429	-1653			

8' Uphole Correction
 Drill Time Vs E-logs



DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration**

1474 S St Paul
Denver CO 80210

ATTN: Clayton Camozzi

MW & MS Farms #1-16

16-2s-31w Rawlins,KS

Start Date: 2019.08.04 @ 06:03:00

End Date: 2019.08.04 @ 12:22:30

Job Ticket #: 64673 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.08.07 @ 10:26:57



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration

16-2s-31w Rawlins,KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

ATTN: Clayton Camozzi

Job Ticket: 64673

DST#: 1

Test Start: 2019.08.04 @ 06:03:00

GENERAL INFORMATION:

Formation: **Oread - LKC A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 08:01:00

Time Test Ended: 12:22:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Shawn Wheelbarger

Unit No: 76

Interval: 3784.00 ft (KB) To 3854.00 ft (KB) (TVD)

Reference Elevations: 2849.00 ft (KB)

Total Depth: 3854.00 ft (KB) (TVD)

2844.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8355 Outside

Press@RunDepth: 119.36 psig @ 3785.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.08.04

End Date:

2019.08.04

Last Calib.:

2019.08.04

Start Time: 06:03:01

End Time:

12:22:30

Time On Btm:

2019.08.04 @ 08:00:10

Time Off Btm:

2019.08.04 @ 10:18:50

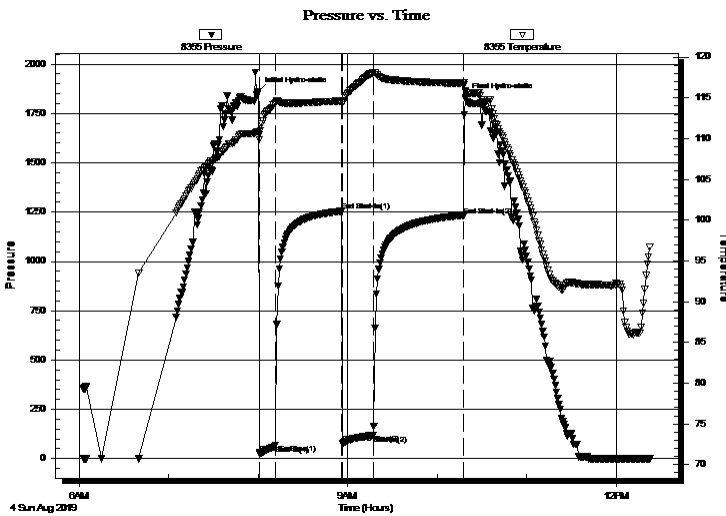
TEST COMMENT: 10-IF-1/2" Blow @ open built to 4 3/4"

45-ISI-No blow back

20-FF-Blow built to 6"

60-FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1862.04	110.84	Initial Hydro-static
1	24.93	110.43	Open To Flow (1)
12	65.82	114.41	Shut-In(1)
56	1254.26	114.62	End Shut-In(1)
57	76.90	114.33	Open To Flow (2)
78	119.36	118.08	Shut-In(2)
138	1232.94	116.79	End Shut-In(2)
139	1828.84	115.86	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
210.00	MW 66%W, 34%M	1.31

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Black Oak Exploration

16-2s-31w Rawlins,KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

Job Ticket: 64673

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.08.04 @ 06:03:00

Tool Information

Drill Pipe:	Length: 3613.00 ft	Diameter: 3.80 inches	Volume: 50.68 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 51.57 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	37.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3784.00 ft			Final 61000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	70.00 ft			
Tool Length:	98.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Change Over Sub	1.00			3757.00	
Shut In Tool	5.00			3762.00	
Hydraulic tool	5.00		Inside	3767.00	
Jars	5.00			3772.00	
Safety Joint	2.00			3774.00	
Packer	5.00			3779.00	28.00 Bottom Of Top Packer
Packer	5.00			3784.00	
Packer - Shale	0.00			3784.00	
Stubb	1.00			3785.00	
Recorder	0.00	8355	Outside	3785.00	
Recorder	0.00	8645	Inside	3785.00	
Perforations	32.00			3817.00	
Change Over Sub	1.00			3818.00	
Drill Pipe	32.00			3850.00	
Change Over Sub	1.00			3851.00	
Bullnose	3.00			3854.00	70.00 Bottom Packers & Anchor
Total Tool Length:	98.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration

16-2s-31w Rawlins,KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

Job Ticket: 64673

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.08.04 @ 06:03:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

20000 ppm

Viscosity: 65.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.38 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1300.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
210.00	MW 66%W, 34%M	1.306

Total Length: 210.00 ft Total Volume: 1.306 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

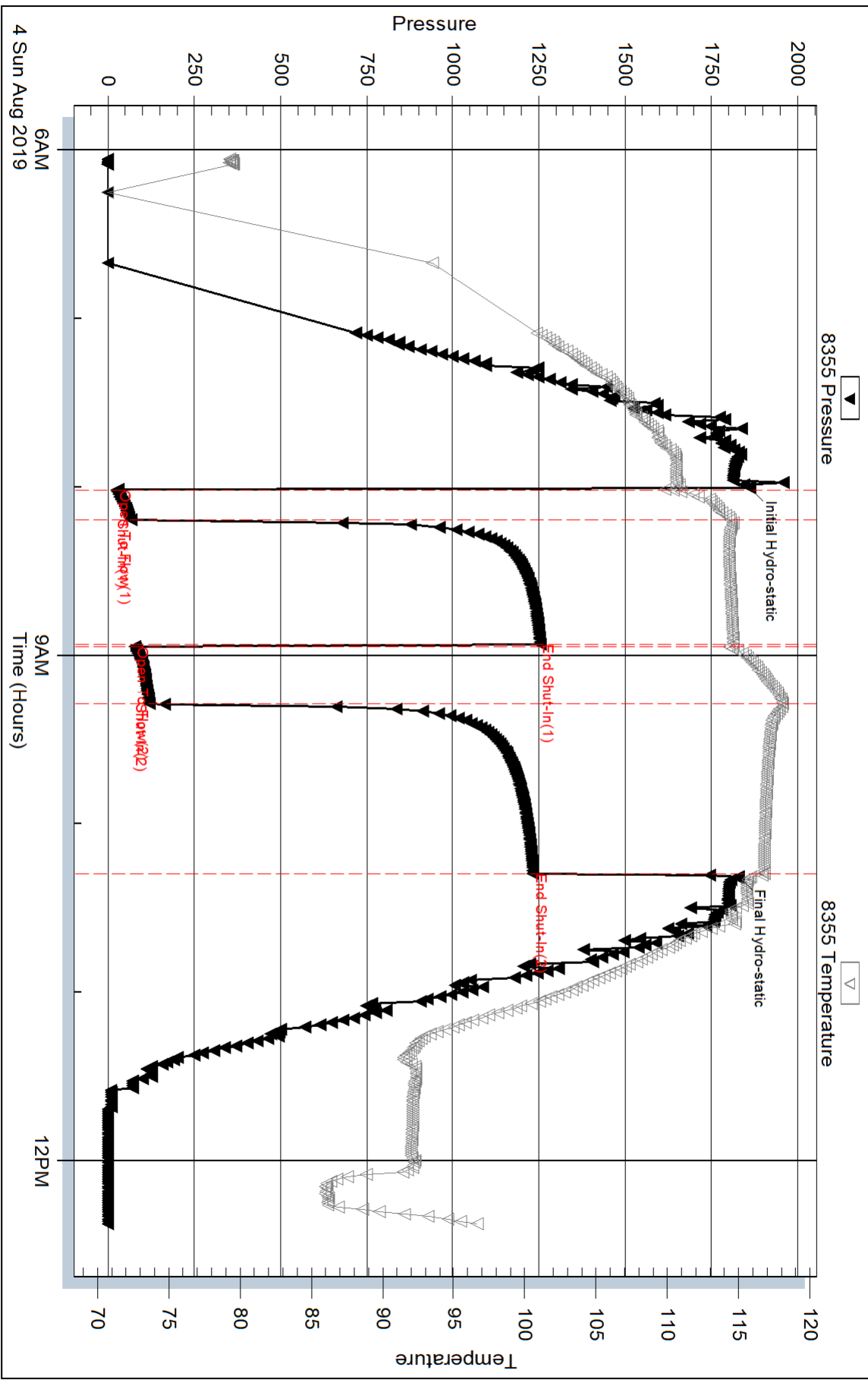
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .265 @ 91 DEG F Chlorides 20000

Pressure vs. Time



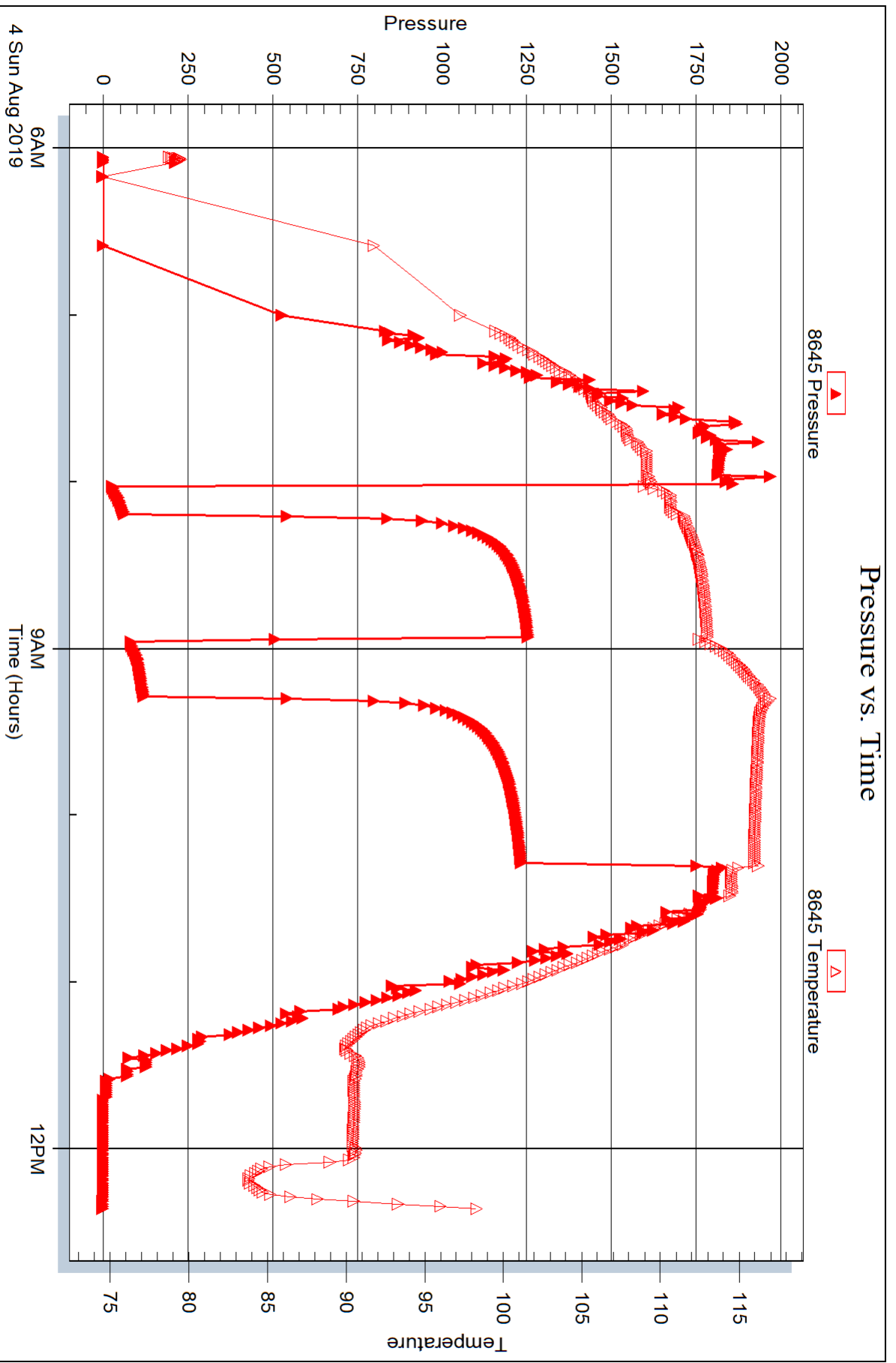
Serial #: 8645

Inside

Black Oak Exploration

MW & NS Farms #1-16

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 64673

Printed: 2019.08.07 @ 10:26:58



DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration**

1474 S St Paul
Denver CO 80210

ATTN: Clayton Camozzi

MW & MS Farms #1-16

16-2s-31w Rawlins,KS

Start Date: 2019.08.04 @ 23:58:00

End Date: 2019.08.05 @ 05:42:52

Job Ticket #: 64674 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.08.07 @ 10:25:03

Black Oak Exploration

16-2s-31w Rawlins,KS

MW & MS Farms #1-16

DST # 2

LKC D-G

2019.08.04



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Oak Exploration

16-2s-31w Rawlins, KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

ATTN: Clayton Camozzi

Job Ticket: 64674

DST#: 2

Test Start: 2019.08.04 @ 23:58:00

GENERAL INFORMATION:

Formation: **LKC D-G**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:54:42

Time Test Ended: 05:42:52

Test Type: Conventional Bottom Hole (Reset)

Tester: Shawn Wheelbarger

Unit No: 76

Interval: 3870.00 ft (KB) To 3950.00 ft (KB) (TVD)

Reference Elevations: 2849.00 ft (KB)

Total Depth: 3950.00 ft (KB) (TVD)

2844.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8355 Outside

Press@RunDepth: 23.97 psig @ 3871.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.08.04

End Date:

2019.08.05

Last Calib.: 2019.08.05

Start Time: 23:58:01

End Time:

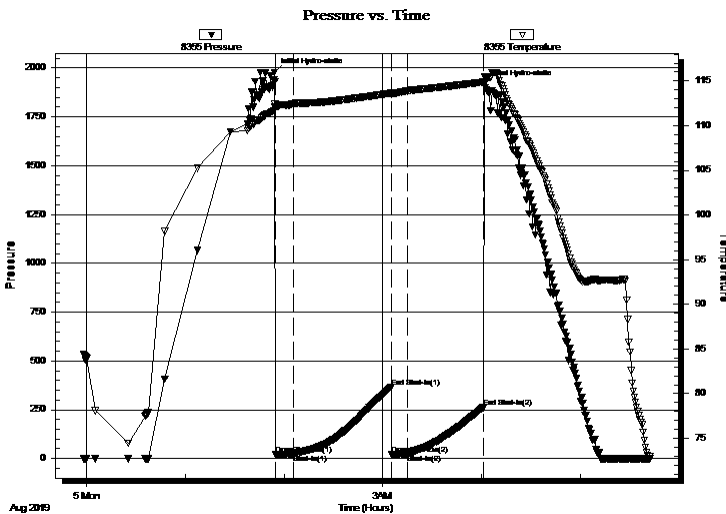
05:42:52

Time On Btm: 2019.08.05 @ 01:54:02

Time Off Btm: 2019.08.05 @ 04:01:42

TEST COMMENT: 10-IF-1/2" Blow @ open Built to 3/4"
60-ISI-Slight surface blow died after 30 mins
10-FF-No blow back
45-FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1977.02	112.12	Initial Hydro-static
1	19.83	112.03	Open To Flow (1)
12	21.59	112.44	Shut-In(1)
71	365.04	113.63	End Shut-In(1)
72	22.91	113.46	Open To Flow (2)
81	23.97	113.91	Shut-In(2)
127	260.59	114.86	End Shut-In(2)
128	1914.22	115.48	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	SGOSM 5%G, 3%O, 92%M	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Black Oak Exploration

16-2s-31w Rawlins,KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

Job Ticket: 64674

DST#: 2

ATTN: Clayton Camozzi

Test Start: 2019.08.04 @ 23:58:00

Tool Information

Drill Pipe:	Length: 3677.00 ft	Diameter: 3.80 inches	Volume: 51.58 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 65000.00 lb
			<u>Total Volume: 52.47 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3870.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	80.00 ft			
Tool Length:	108.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Length (ft) Serial No. Position Depth (ft) Accum. Lengths

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3843.00	
Shut In Tool	5.00			3848.00	
Hydraulic tool	5.00		Inside	3853.00	
Jars	5.00			3858.00	
Safety Joint	2.00			3860.00	
Packer	5.00			3865.00	28.00 Bottom Of Top Packer
Packer	5.00			3870.00	
Packer - Shale	0.00			3870.00	
Stubb	1.00			3871.00	
Recorder	0.00	8355	Outside	3871.00	
Recorder	0.00	8645	Inside	3871.00	
Perforations	10.00			3881.00	
Change Over Sub	1.00			3882.00	
Drill Pipe	64.00			3946.00	
Change Over Sub	1.00			3947.00	
Bullnose	3.00			3950.00	80.00 Bottom Packers & Anchor
Total Tool Length:	108.00				



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration

16-2s-31w Rawlins,KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

Job Ticket: 64674

DST#: 2

ATTN: Clayton Camozzi

Test Start: 2019.08.04 @ 23:58:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 62.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1300.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	SGOSM 5%G, 3%O, 92%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

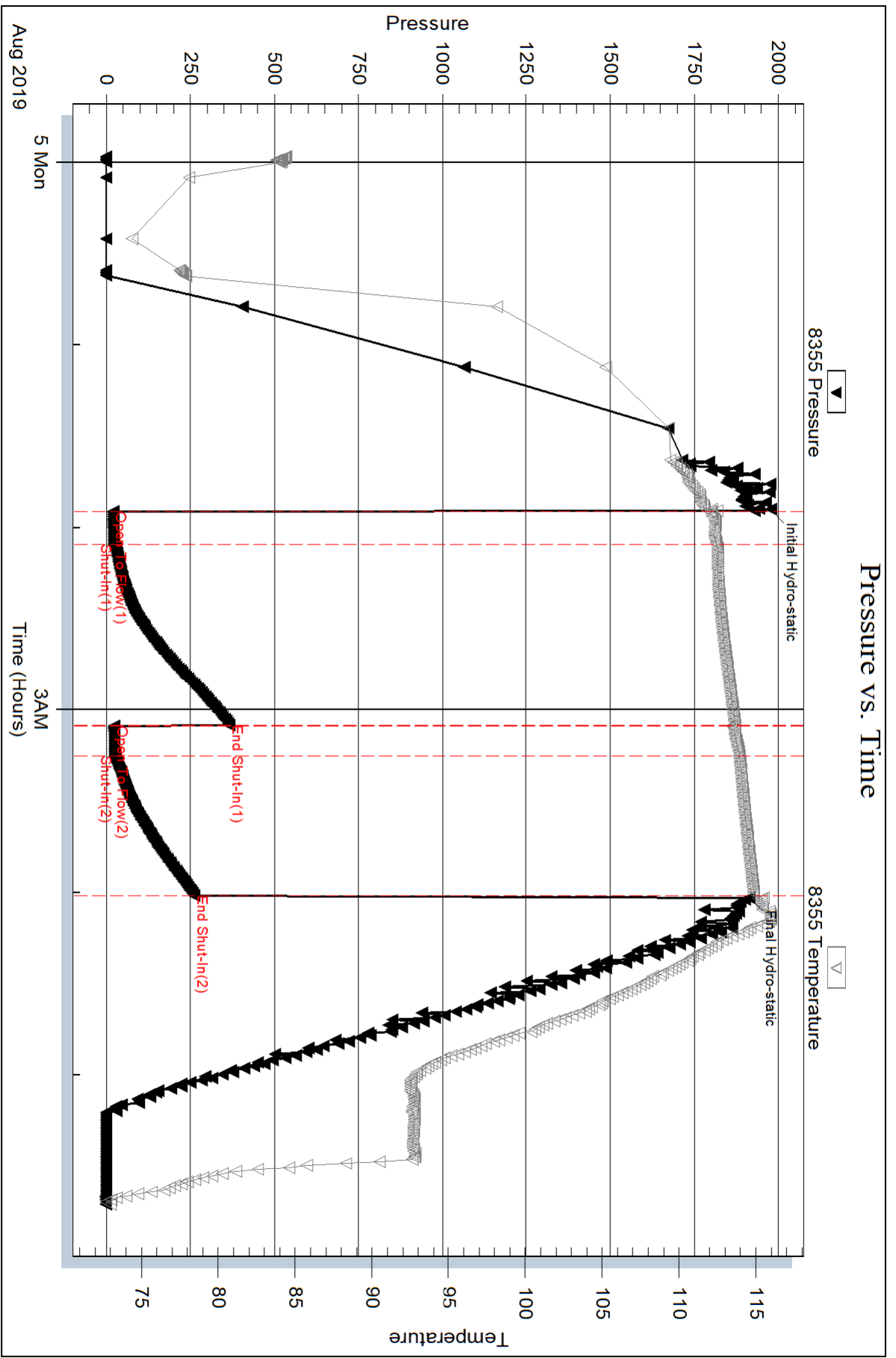
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



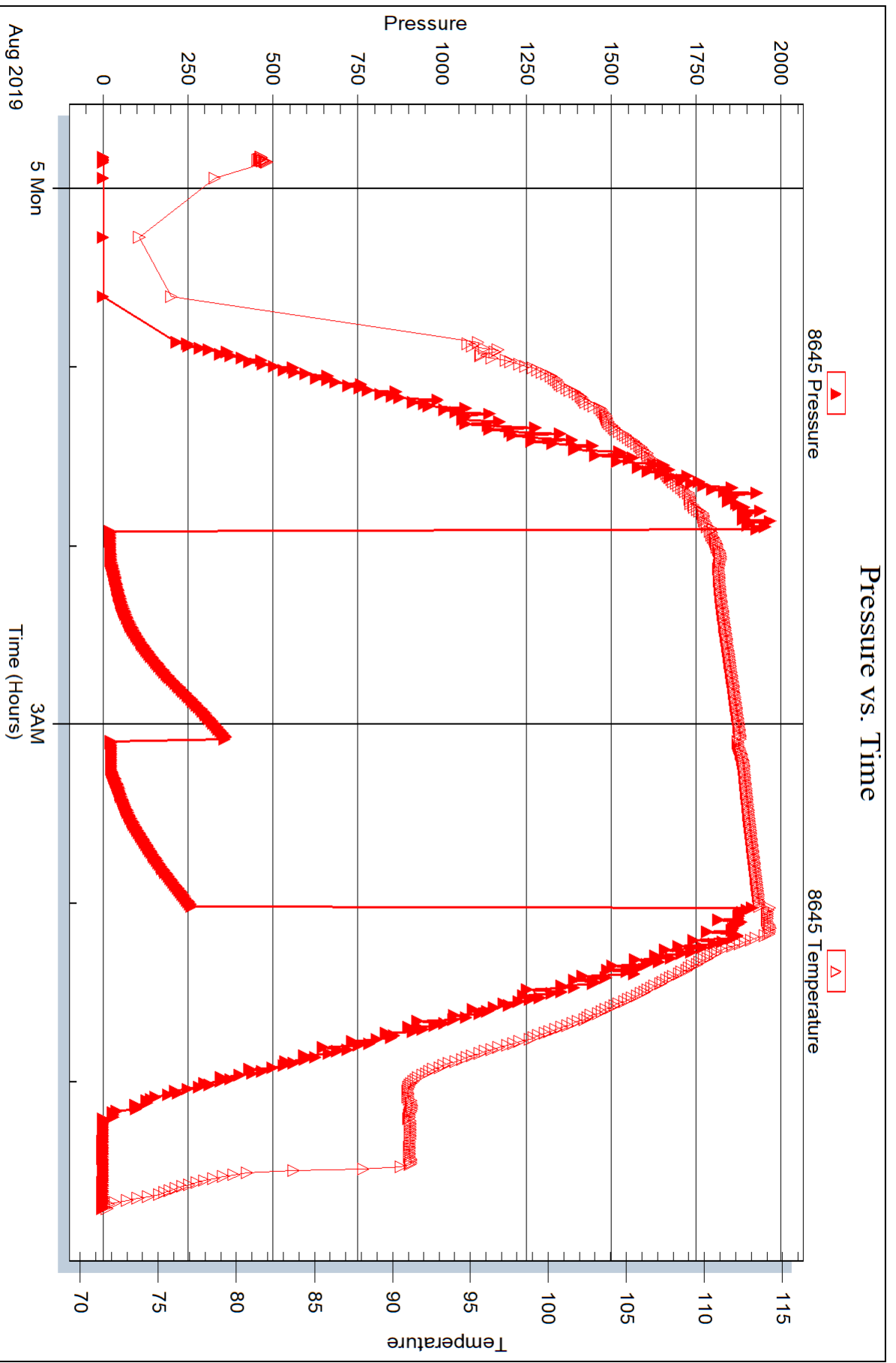
Serial #: 8645

Inside

Black Oak Exploration

MW & NS Farms #1-16

DST Test Number: 2





DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration**

1474 S St Paul
Denver CO 80210

ATTN: Clayton Camozzi

MW & MS Farms #1-16

16-2s-31w Rawlins,KS

Start Date: 2019.08.05 @ 16:24:00

End Date: 2019.08.05 @ 23:43:20

Job Ticket #: 64675 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.08.07 @ 10:21:26

Black Oak Exploration

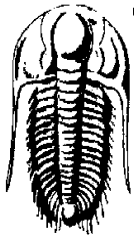
16-2s-31w Rawlins,KS

MW & MS Farms #1-16

DST # 3

LKC H-J

2019.08.05



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Oak Exploration

16-2s-31w Rawlins,KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

ATTN: Clayton Camozzi

Job Ticket: 64675

DST#: 3

Test Start: 2019.08.05 @ 16:24:00

GENERAL INFORMATION:

Formation: **LKC H-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:08:50

Time Test Ended: 23:43:20

Test Type: Conventional Bottom Hole (Reset)

Tester: Shawn Wheelbarger

Unit No: 76

Interval: 3946.00 ft (KB) To 4026.00 ft (KB) (TVD)

Total Depth: 4026.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2849.00 ft (KB)

2844.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8355 Outside

Press@RunDepth: 39.09 psig @ 3947.00 ft (KB)

Start Date: 2019.08.05

End Date: 2019.08.05

Start Time: 16:24:01

End Time: 23:43:20

Capacity: 8000.00 psig

Last Calib.: 2019.08.06

Time On Btm: 2019.08.05 @ 19:08:20

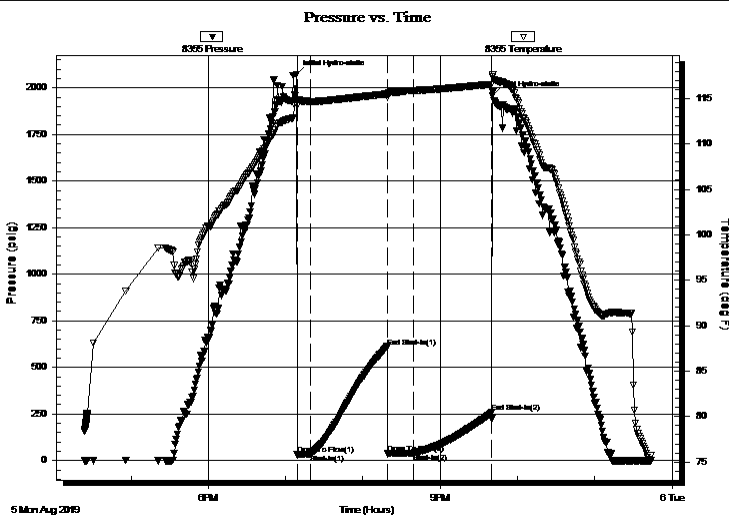
Time Off Btm: 2019.08.05 @ 21:40:30

TEST COMMENT: 10-IF-1 1/4" Blow @ open built to 1 1/2"

60-ISI-No blow back

20-FF-No blow

60-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2071.94	114.82	Initial Hydro-static
1	31.48	114.21	Open To Flow (1)
11	35.12	114.65	Shut-In(1)
71	610.98	115.49	End Shut-In(1)
71	38.21	115.16	Open To Flow (2)
91	39.09	115.87	Shut-In(2)
152	257.59	116.56	End Shut-In(2)
153	1957.19	117.36	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	SGCM 6%G, 94%M	0.15

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Black Oak Exploration

16-2s-31w Rawlins,KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

Job Ticket: 64675

DST#: 3

ATTN: Clayton Camozzi

Test Start: 2019.08.05 @ 16:24:00

Tool Information

Drill Pipe:	Length: 3772.00 ft	Diameter: 3.80 inches	Volume: 52.91 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 180.00 ft	Diameter: 2.25 inches	Volume: 0.89 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 53.80 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	3946.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	80.00 ft			
Tool Length:	108.00 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			3919.00	
Shut In Tool	5.00			3924.00	
Hydraulic tool	5.00		Inside	3929.00	
Jars	5.00			3934.00	
Safety Joint	2.00			3936.00	
Packer	5.00			3941.00	28.00 Bottom Of Top Packer
Packer	5.00			3946.00	
Packer - Shale	0.00			3946.00	
Stubb	1.00			3947.00	
Recorder	0.00	8355	Outside	3947.00	
Recorder	0.00	8645	Inside	3947.00	
Perforations	10.00			3957.00	
Change Over Sub	1.00			3958.00	
Drill Pipe	64.00			4022.00	
Change Over Sub	1.00			4023.00	
Bullnose	3.00			4026.00	80.00 Bottom Packers & Anchor
Total Tool Length:	108.00				



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration

16-2s-31w Rawlins,KS

1474 S St Paul
Denver CO 80210

MW & MS Farms #1-16

Job Ticket: 64675

DST#: 3

ATTN: Clayton Camozzi

Test Start: 2019.08.05 @ 16:24:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1300.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
30.00	SGCM 6%G, 94%M	0.148

Total Length: 30.00 ft Total Volume: 0.148 bbl

Num Fluid Samples: 0

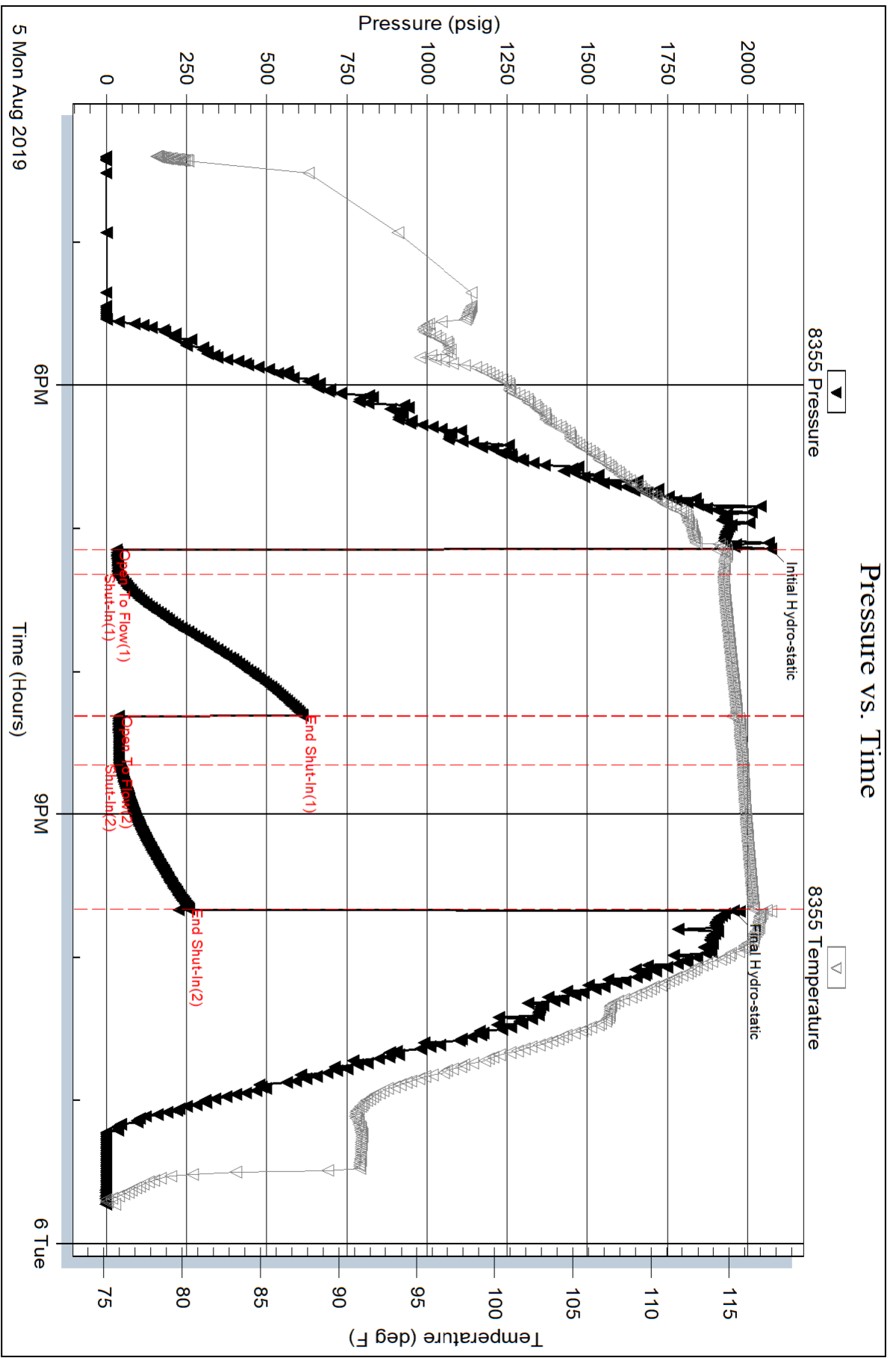
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



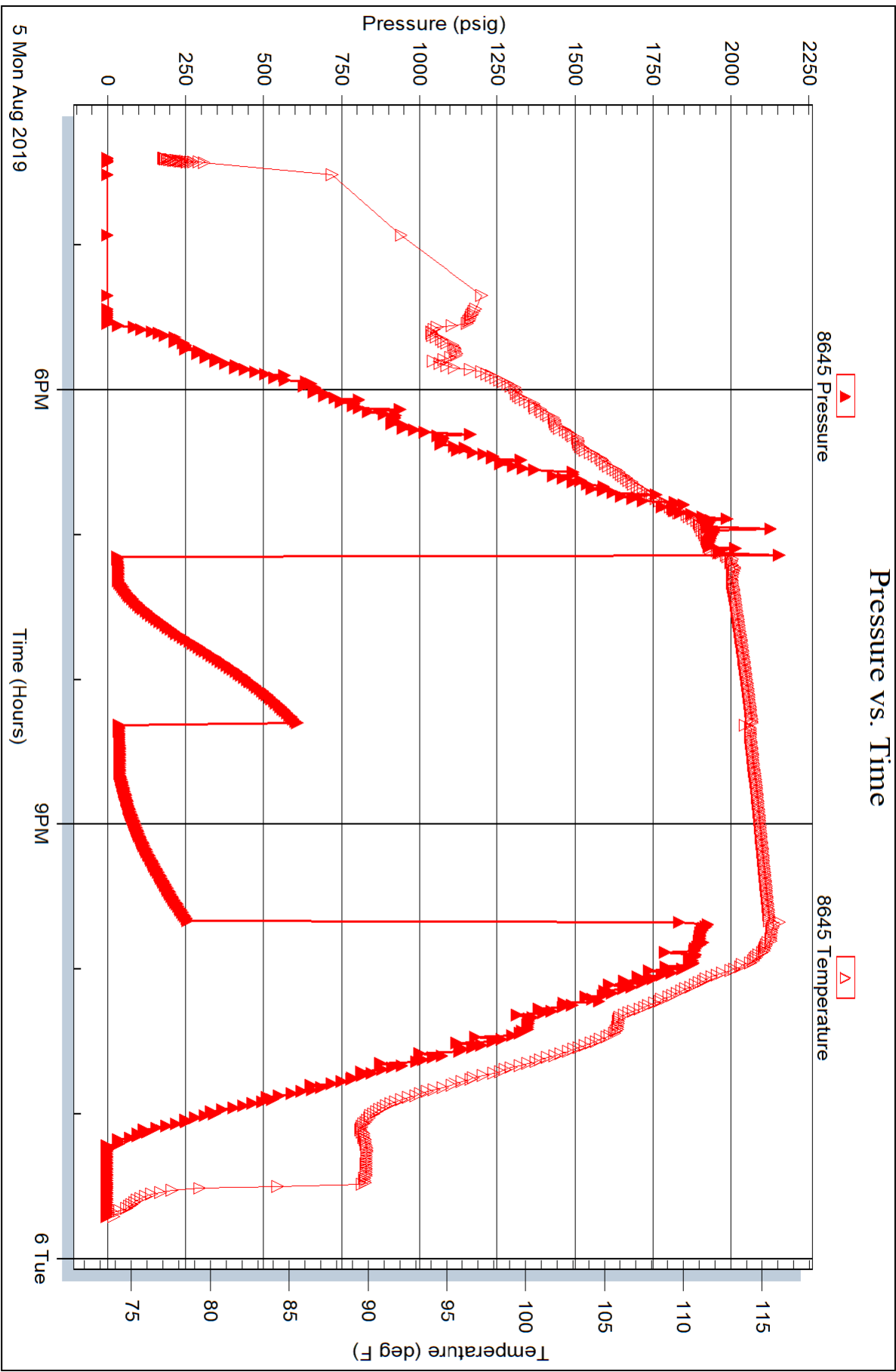
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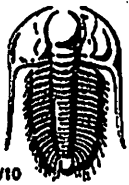
Inside

Black Oak Exploration

MW & NS Farms #1-16

DST Test Number: 3





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64673

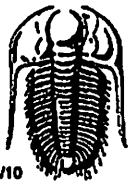
Well Name & No. MW & MS Farms #1-16 Test No. 1 Date 8-4-19
 Company Black Oak Exploration Elevation 2849 KB 2844 GL
 Address 1474 S St Paul Denver CO 80210
 Co. Rep / Geo. Clayton Camozzi Rig Martin #7
 Location: Sec. 16 Twp 2S Rge. 31W Co. Rawlins State KS

Interval Tested 3784-3854 Zone Tested Oreud Lens A
 Anchor Length 70 Drill Pipe Run 3613 Mud Wt. 9
 Top Packer Depth 3779 Drill Collars Run 180 Vis 6.5
 Bottom Packer Depth 3784 Wt. Pipe Run - WL 6.4
 Total Depth 3854 Chlorides 1300 ppm System LCM 4
 Blow Description IF 1/2" Blow @ open built to 4 3/4"
ISI No Blowback
FF Blow built to 6"
FSI No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>210</u>	<u>MW</u>		<u>66</u>	<u>34</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 210 BHT 116 Gravity - API RW 26.5 @ 91 °F Chlorides 20000 ppm
 (A) Initial Hydrostatic 1862 Test 1200 T-On Location 4:37
 (B) First Initial Flow 25 Jars 250 T-Started 6:03
 (C) First Final Flow 66 Safety Joint 75 T-Open 8:00
 (D) Initial Shut-In 1254 Circ Sub T-Pulled 10:15
 (E) Second Initial Flow 77 Hourly Standby T-Out 12:14
 (F) Second Final Flow 119 Mileage 38 RT 38 Comments _____
 (G) Final Shut-In 1233 Sampler _____
 (H) Final Hydrostatic 1829 Straddle _____
 Shale Packer 250 Ruined Shale Packer _____
 Extra Packer _____ Ruined Packer _____
 Extra Recorder _____ Extra Copies _____
 Initial Open 10 Day Standby _____ Sub Total 0
 Initial Shut-In 45 Accessibility _____ Total 1813
 Final Flow 20 Sub Total 1813 MP/DST Disc't _____
 Final Shut-In 60

Approved By _____ Our Representative Shawn Hechberger
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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 64674

Well Name & No. MW + MS Farms #1-16 Test No. 2 Date 8-4-19
 Company Black Oak Exploration Elevation 2849 KB 2844 GL
 Address 1474 S St Paul Denver CO 80210
 Co. Rep / Geo. Clayton Camozzi Rig Murfin #7
 Location: Sec. 16 Twp 25 Rge. 31w Co. Rawlins State KS

Interval Tested 3870 - 3950 Zone Tested Lans D-6
 Anchor Length 80 Drill Pipe Run 3677 Mud Wt. 8.9
 Top Packer Depth 3865 Drill Collars Run 180 Vis 62
 Bottom Packer Depth 3870 Wt. Pipe Run 000 - WL 6.4
 Total Depth 3950 Chlorides 1300 ppm System LCM 3
 Blow Description IF 1/2" Blow @ open built to 3/4"
ISI Slight surface blow died after 30mins
FF NO blow back
FSI No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>5605M</u>	<u>5</u>	<u>3</u>	<u>92</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

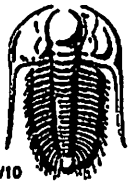
Rec Total 5 BHT 116 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>1977</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>23:34 8-4</u>
(B) First Initial Flow <u>20</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>23:58 8-4</u>
(C) First Final Flow <u>22</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>2:02</u>
(D) Initial Shut-In <u>365</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>4:07</u>
(E) Second Initial Flow <u>23</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>5:45</u>
(F) Second Final Flow <u>24</u>	<input checked="" type="checkbox"/> Mileage <u>38 RT</u> 38	Comments
(G) Final Shut-In <u>261</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1914</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>10</u>	<input checked="" type="checkbox"/> Shale Packer <u>250</u>	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>10</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>45</u>	<input type="checkbox"/> Day Standby	Total <u>1813</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1813</u>	

Approved By _____

Our Representative Shawn Wheelbarger

Triobite 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. 64675

Well Name & No. MW + MS Farms #1-16 Test No. 3 Date 8-5-19
 Company Black Oak Exploration Elevation 2849 KB 2844 GL
 Address 1474 S St Paul Denver CO 80210
 Co. Rep / Geo. Claudio Camozzi Rig Murfin #7
 Location: Sec. 16 Twp 2S Rge. 31W Co. Rawlins State KS

Interval Tested 3946 - 4026 Zone Tested Lans H-J
 Anchor Length 80 Drill Pipe Run 3772 Mud Wt. 9
 Top Packer Depth 3941 Drill Collars Run 180 Vis 55
 Bottom Packer Depth 3946 Wt. Pipe Run — WL 6.4
 Total Depth 4026 Chlorides 1300 ppm System LCM 4
 Blow Description IF 1 1/4" Blow @ open built to 1 1/2"
ISI No blow back
FF No blow
FSI No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>30</u>	<u>SGCM w/oil spots</u>	<u>6</u>		<u>94</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 30 BHT 117 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2072</u>	<input checked="" type="checkbox"/> Test 1300	T-On Location <u>16:16</u>
(B) First Initial Flow <u>31</u>	<input checked="" type="checkbox"/> Jars 250	T-Started <u>16:24</u>
(C) First Final Flow <u>35</u>	<input checked="" type="checkbox"/> Safety Joint 75	T-Open <u>19:09</u>
(D) Initial Shut-In <u>611</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>21:39</u>
(E) Second Initial Flow <u>38</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>23:40</u>
(F) Second Final Flow <u>39</u>	<input checked="" type="checkbox"/> Mileage <u>38 RT</u> 76	Comments <u>loaded tools 8/6 23:15</u>
(G) Final Shut-In <u>258</u>	<input type="checkbox"/> Sampler	<input type="checkbox"/> Ruined Shale Packer
(H) Final Hydrostatic <u>1957</u>	<input checked="" type="checkbox"/> Shale Packer 250	<input type="checkbox"/> Ruined Packer
Initial Open <u>10</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Flow <u>20</u>	<input type="checkbox"/> Day Standby	Total <u>1951</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	MP/DST Disc't
Sub Total <u>1951</u>		

Approved By _____ Our Representative Shawn Heebarger
 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.

BLACK OAK



EXPLORATION

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

Well Name: MW & MS Farms 1-16
Well Id:
Location: Section 16 - 2S - 31W Rawlins Co, Kansas
License Number: API # 15-181-21233-0000
Spud Date: 7/31/2019
Surface Coordinates: 1095 FNL & 1450 FEL
Region: Wildcat
Drilling Completed: 8/6/2019

Bottom Hole
Coordinates:
Ground Elevation (ft): 2844' K.B. Elevation (ft): 2849'
Logged Interval (ft): 3600 To: 4170 Total Depth (ft): 4170
Formation: Lansing Kansas City
Type of Drilling Fluid: Chemical Gel/Polymer Fresh Water -Based

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

OPERATOR

Company: BLACK OAK EXPLORATION, LLC
Address: 1474 S St Paul St
Denver CO 80210

GEOLOGIST

Name: Clayton Camozzi
Company: Black Oak Exploration, LLC
Address: 1474 S St Paul St
Denver CO 80210
Cell: 303.968.4999

Black Oak Exploration, LLC

WELL COMPARISON SHEET

Company: Black Oak Exploration, LLC
 1474 S St Paul St
 Denver, CO 80210

Contact: Clayton Camozzi 303-968-4999 (Cell)
 Denver, CO 80210

Well: MW & MS Farms 1-16
 Location: 1095 FNL / 1450 FEL
 16 - 2S - 31W

Elevation: 2849' KB 2844' GL
 Field: Wildcat
 API No: 15-153-21233-0000
 Surface Casing: 8 5/8" set @ 272' KB

Rawlins Co., KS
 Wellsite Geologist: Clayton Camozzi Cell: (303) 968-4999

Drilling Contractor: Murfin Drilling Co Rig #7. Rig Phone (785-443-5616), Tool Pusher Arturo Cabezas (785-443-0494)

Formation	2849 KB			2673 KB			2776 KB		
	Sample	Sub-Sea	Log	Sub-Sea	Sample	Log	Sub-Sea	Sample	Log
B. STONE CORRAL	2673	176	2666	193	-17	-10	168	8	15
JANESVILLE SH	3412	-563	3407	-549	-14	-9	-569	6	11
TOPEKA	3647	-798	3631	-773	-25	-9	-792	-6	10
DEER CREEK	3695	-846	3683	-821	-25	-13	-846	0	12
LECOMPTON	3756	-907	3746	-883	-24	-14	-906	-1	9
OREAD	3782	-933	3768	-909	-24	-10	-927	-6	8
LANSING	3834	-985	3833	-970	-15	-14	-992	7	8
LANSING "D" ZONE	3869	-1020	3863	-1006	-14	-8	-1030	10	16
LANSING "G" ZONE	3929	-1080	3922	-1061	-19	-12	-1090	10	17
LANSING "H" ZONE	3967	-1118	3958	-1098	-20	-11	-1125	7	16
LANSING "J" ZONE	4005	-1156	4000	-1139	-17	-12	-1174	18	23
LANSING "K" ZONE	4046	-1197	4034	-1174	-23	-11	-1210	13	25
BKC	4074	-1225	4064	-1206	-19	-9	-1240	15	25
ALTAMONT				-1292			-1346		
Total Depth	4170	-1321	4164	-1377			-1653		

DRILLING WELL			COMPARISON WELL						
MW & MS Farms 1-16 1095 FNL / 1450 FEL 16 - 2S - 31W			Marintzer 1-4 780 FSL / 2310 FEL 4 - 2S - 31W						
Formation	2849 KB			2673 KB			2776 KB		
	Sample	Sub-Sea	Log	Sub-Sea	Sample	Log	Sub-Sea	Sample	Log
B. STONE CORRAL	2673	176	2666	193	-17	-10	168	8	15
JANESVILLE SH	3412	-563	3407	-549	-14	-9	-569	6	11
TOPEKA	3647	-798	3631	-773	-25	-9	-792	-6	10
DEER CREEK	3695	-846	3683	-821	-25	-13	-846	0	12
LECOMPTON	3756	-907	3746	-883	-24	-14	-906	-1	9
OREAD	3782	-933	3768	-909	-24	-10	-927	-6	8
LANSING	3834	-985	3833	-970	-15	-14	-992	7	8
LANSING "D" ZONE	3869	-1020	3863	-1006	-14	-8	-1030	10	16
LANSING "G" ZONE	3929	-1080	3922	-1061	-19	-12	-1090	10	17
LANSING "H" ZONE	3967	-1118	3958	-1098	-20	-11	-1125	7	16
LANSING "J" ZONE	4005	-1156	4000	-1139	-17	-12	-1174	18	23
LANSING "K" ZONE	4046	-1197	4034	-1174	-23	-11	-1210	13	25
BKC	4074	-1225	4064	-1206	-19	-9	-1240	15	25
ALTAMONT				-1292			-1346		
Total Depth	4170	-1321	4164	-1377			-1653		

DRILLING WELL			COMPARISON WELL						
MW & MS Farms 1-16 1095 FNL / 1450 FEL 16 - 2S - 31W			Fassler 17-12 1980 FSL / 660 FWL 17 - 2S - 31W						
Formation	2849 KB			2673 KB			2776 KB		
	Sample	Sub-Sea	Log	Sub-Sea	Sample	Log	Sub-Sea	Sample	Log
B. STONE CORRAL	2673	176	2666	193	-17	-10	168	8	15
JANESVILLE SH	3412	-563	3407	-549	-14	-9	-569	6	11
TOPEKA	3647	-798	3631	-773	-25	-9	-792	-6	10
DEER CREEK	3695	-846	3683	-821	-25	-13	-846	0	12
LECOMPTON	3756	-907	3746	-883	-24	-14	-906	-1	9
OREAD	3782	-933	3768	-909	-24	-10	-927	-6	8
LANSING	3834	-985	3833	-970	-15	-14	-992	7	8
LANSING "D" ZONE	3869	-1020	3863	-1006	-14	-8	-1030	10	16
LANSING "G" ZONE	3929	-1080	3922	-1061	-19	-12	-1090	10	17
LANSING "H" ZONE	3967	-1118	3958	-1098	-20	-11	-1125	7	16
LANSING "J" ZONE	4005	-1156	4000	-1139	-17	-12	-1174	18	23
LANSING "K" ZONE	4046	-1197	4034	-1174	-23	-11	-1210	13	25
BKC	4074	-1225	4064	-1206	-19	-9	-1240	15	25
ALTAMONT				-1292			-1346		
Total Depth	4170	-1321	4164	-1377			-1653		

8' Uphole Correction
 Drill Time Vs E-logs



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration
1474 S St Paul Denver CO 80210
ATTN: Clayton Camozzi

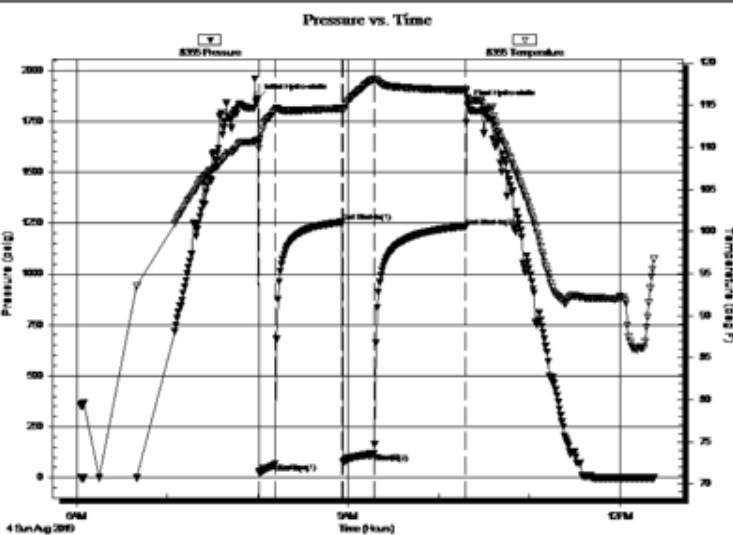
16/2s/31w
MW&MS Farms #1-16
Job Ticket: 64673 **DST#: 1**
Test Start: 2019.08.04 @ 06:03:00

GENERAL INFORMATION:

Formation: **Oread Lans A**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 08:01:00
Time Test Ended: 12:22:30
Test Type: Conventional Bottom Hole (Initial)
Tester: Shawn Wheelbarger
Unit No: 76
Interval: **3784.00 ft (KB) To 3854.00 ft (KB) (TVD)**
Reference Elevations: 2849.00 ft (KB)
Total Depth: 3854.00 ft (KB) (TVD) 2844.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8355 **Outside**
Press@RunDepth: 119.36 psig @ 3785.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.08.04 End Date: 2019.08.04 Last Calib.: 2019.08.04
Start Time: 06:03:01 End Time: 12:22:30 Time On Btm: 2019.08.04 @ 08:00:10
Time Off Btm: 2019.08.04 @ 10:18:50

TEST COMMENT: 10-IF-1/2" Blow @ open built to 4 3/4"
45-ISI-No blow back
20-FF-Blow built to 6"
60-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1862.04	110.84	Initial Hydro-static
1	24.93	110.43	Open To Flow (1)
12	65.82	114.41	Shut-In(1)
56	1254.26	114.62	End Shut-In(1)
57	76.90	114.33	Open To Flow (2)
78	119.36	118.08	Shut-In(2)
138	1232.94	116.79	End Shut-In(2)
139	1828.84	115.86	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
210.00	MW 66%W, 34%M	1.31

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration
1474 S St Paul Denver CO 80210
ATTN: Clayton Camozzi

16/2s/31w
MW&MS Farms #1-16
Job Ticket: 64674 **DST#: 2**
Test Start: 2019.08.04 @ 23:58:00

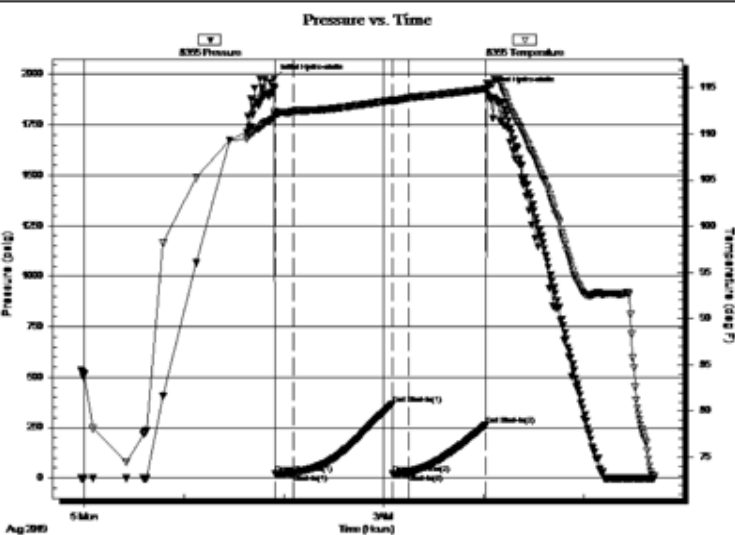
GENERAL INFORMATION:

Formation: **Lans D-G**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:54:42
Time Test Ended: 05:42:52
Test Type: Conventional Bottom Hole (Reset)
Tester: Shawn Wheelbarger
Unit No: 76
Interval: **3870.00 ft (KB) To 3950.00 ft (KB) (TVD)**
Reference Elevations: 2849.00 ft (KB)
Total Depth: 3950.00 ft (KB) (TVD) 2844.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8355

Press@RunDepth: 23.97 psig @ ft (KB) Capacity: 8000.00 psig
Start Date: 2019.08.04 End Date: 2019.08.05 Last Calib.: 2019.08.05
Start Time: 23:58:01 End Time: 05:42:52 Time On Btm: 2019.08.05 @ 01:54:02
Time Off Btm: 2019.08.05 @ 04:01:42

TEST COMMENT: 10-IF-1/2" Blow @ open Built to 3/4"
60-ISI-Slight surface blow died after 30 mins
10-FF-No blow back
45-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1977.02	112.12	Initial Hydro-static
1	19.83	112.03	Open To Flow (1)
12	21.59	112.44	Shut-In(1)
71	365.04	113.63	End Shut-In(1)
72	22.91	113.46	Open To Flow (2)
81	23.97	113.91	Shut-In(2)
127	260.59	114.86	End Shut-In(2)
128	1914.22	115.48	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	SGOSM 5%G, 3%O, 92%M	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration
1474 S St Paul Denver CO 80210
ATTN: Clayton Camozzi

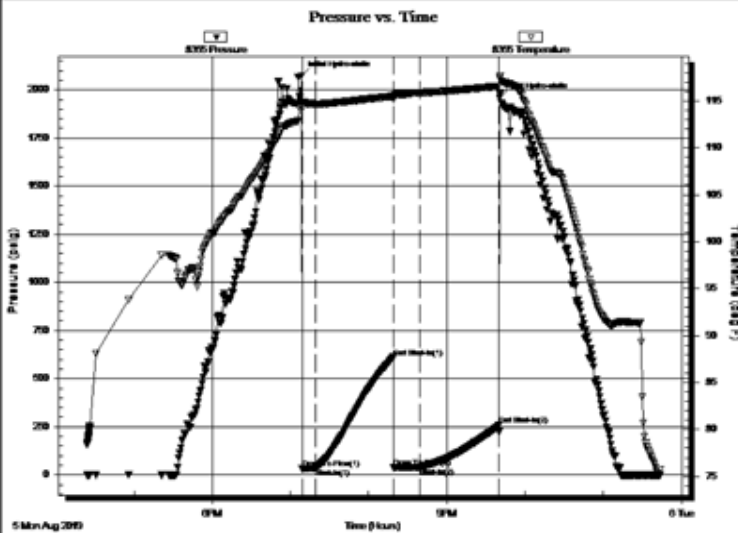
16/2s/31w
MW&MS Farms #1-16
Job Ticket: 64675 **DST#: 3**
Test Start: 2019.08.05 @ 16:24:00

GENERAL INFORMATION:

Formation: **Lans H-J**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 19:08:50
Time Test Ended: 23:43:20
Test Type: Conventional Bottom Hole (Reset)
Tester: Shawn Wheelbarger
Unit No: 76
Interval: **3946.00 ft (KB) To 4026.00 ft (KB) (TVD)**
Total Depth: 4026.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2849.00 ft (KB)
2844.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8355 **Outside**
Press@RunDepth: 39.09 psig @ 3947.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.08.05 End Date: 2019.08.05 Last Calib.: 2019.08.06
Start Time: 16:24:01 End Time: 23:43:20 Time On Btm: 2019.08.05 @ 19:08:20
Time Off Btm: 2019.08.05 @ 21:40:30

TEST COMMENT: 10-IF-1 1/4" Blow @ open built to 1 1/2"
60-ISI-No blow back
20-FF-No blow
60-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2071.94	114.82	Initial Hydro-static
1	31.48	114.21	Open To Flow (1)
11	35.12	114.65	Shut-In(1)
71	610.98	115.49	End Shut-In(1)
71	38.21	115.16	Open To Flow (2)
91	39.09	115.87	Shut-In(2)
152	257.59	116.56	End Shut-In(2)
153	1957.19	117.36	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
30.00	SGCM 6%G, 94%M	0.15

Gas Rates

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

Geologist, Clayton Camozzi on Location @ 3600'
8:30 AM August 3, 2019

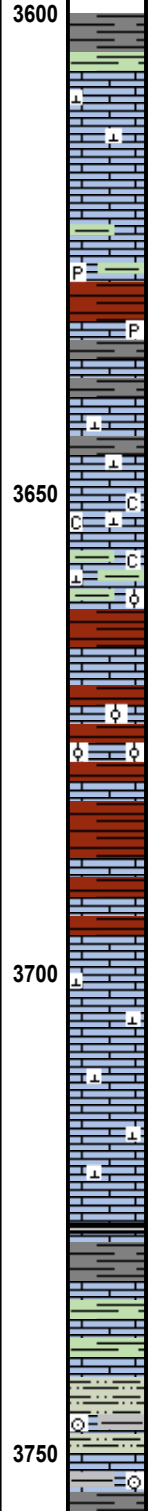
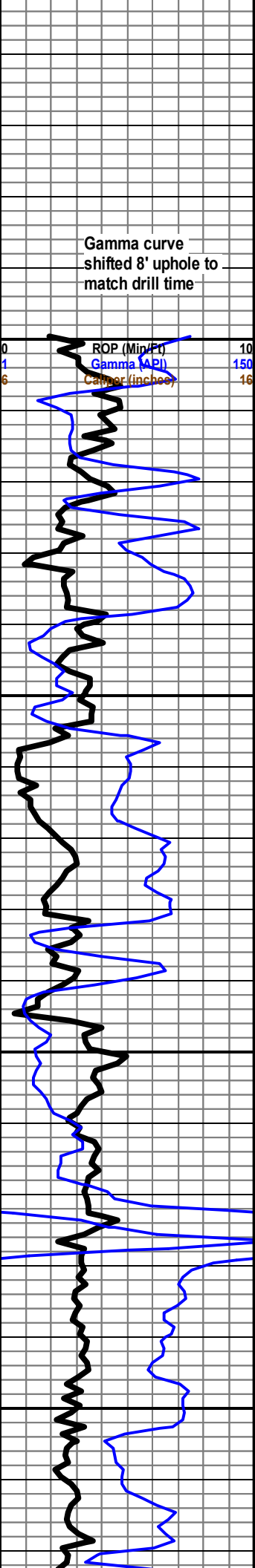
Displaced mud system @ 3505'

Morgan Ck @ 3599'
 8:05 AM 8/3/19
 Vis 60 Wt 8.5
 PV 18 YP 20
 WL 6.4
 Cake 2/32
 PH 12
 CHL 1,500 ppm
 CA 10
 Sol 2.1
 LCM: 5# / bbl
 DMC: \$2440
 CMC: \$9,690

Mud: Morgan Mud
 Engineer(s):
 Dave Lines 308-340-5946

Start Wet & Dry Samples @ 3600'

Trip / Change PDC for Tricone @ 3599' Deviation Survey - 3/4°



Limestone, cream, hard dense microcrystalline to sub sucrosic, abundant calcite in matrix, poor to fair intercrystalline porosity, no stain, no odor, dull yellow mineral fluorescence, no show free oil

Limestone, cream, hard dense to hint very light red due to shale inclusions, microcrystalline matrix, abundant shale inclusions, calcite crystals in matrix, poor intercrystalline porosity, no stain, no odor, dull yellow mineral fluorescence, no show free oil, pyrite scattered throughout.

Limestone cream, hard, subsucrosic matrix scattered microcrystalline, calcite crystals in matrix, poor intercrystalline porosity throughout, no stain, no odor, dull yellow mineral fluorescence, no show free oil, pyrite in scattered throughout

Topeka 3647 (-798)

Limestone cream, hard to soft microcrystalline scattered sub sucrosic, calcite stringers, chalky matrix, poor intercrystalline porosity, no stain, no odor, dull yellow mineral fluorescence, no show free oil, chalk

Limestone cream scattered maroon due to shale inclusions, hard, sub sucrosic, to scattered oolitic in a dense calcareous matrix, shale stringers throughout matrix, poor intercrystalline to very slight trace fair intercrystalline porosity, no stain, yellow fluorescence in 10%, dull mineral fluorescence throughout, no cut, no odor, no show free oil.

Limestone cream to maroon due to red shale inclusions, hard dense to trace soft, sub sucrosic matrix with abundant red shale inclusions in matrix, scattered oolitic in a dense calcareous matrix, poor to fair intercrystalline porosity, no stain, dull yellow fluorescence, no cut, no show free oil.

Limestone cream to stringy maroon due to shale inclusions throughout, hard to brittle, oolitic matrix throughout to scattered sucrosic/ sub sucrosic in maroon red shaly matrix, scattered calcite veins in part, poor to fair intercrystalline porosity, no stain, scattered mineral fluorescence, no odor, no show free oil

Deer Creek 3695 (-846)

Limestone white, hard dense, microcrystalline matrix throughout, very poor to no visible porosity, no stain, dull yellow mineral fluorescence throughout, yellow fluorescence in 10%, no cut, no odor, no show free oil, calcite crystals in part, trace soft white chalf scattered throughout

Limestone as above

Limestone to shaly lime in part, light gray to brown to cream, hard dense to scattered brittle, microcrystalline cryptocrystalline to trace scattered subsucrosic, black carbonaceous shale inclusions in matrix, poor to no visible porosity, no stain, dull yellow fluorescence in 20%, no cut, no odor, no show free oil

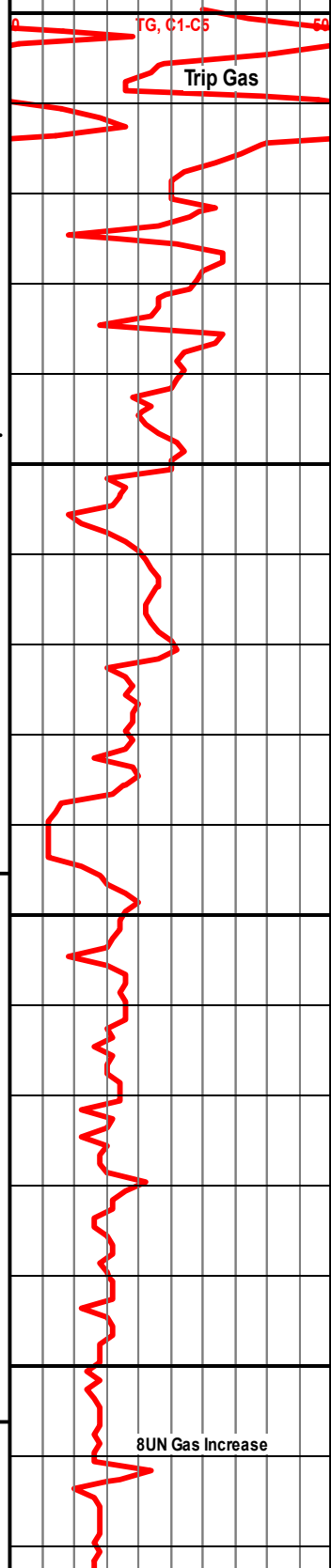
Limestone / shaly lime, hard dense to brittle, light green to gray shale scattered throughout, no fluorescence no show

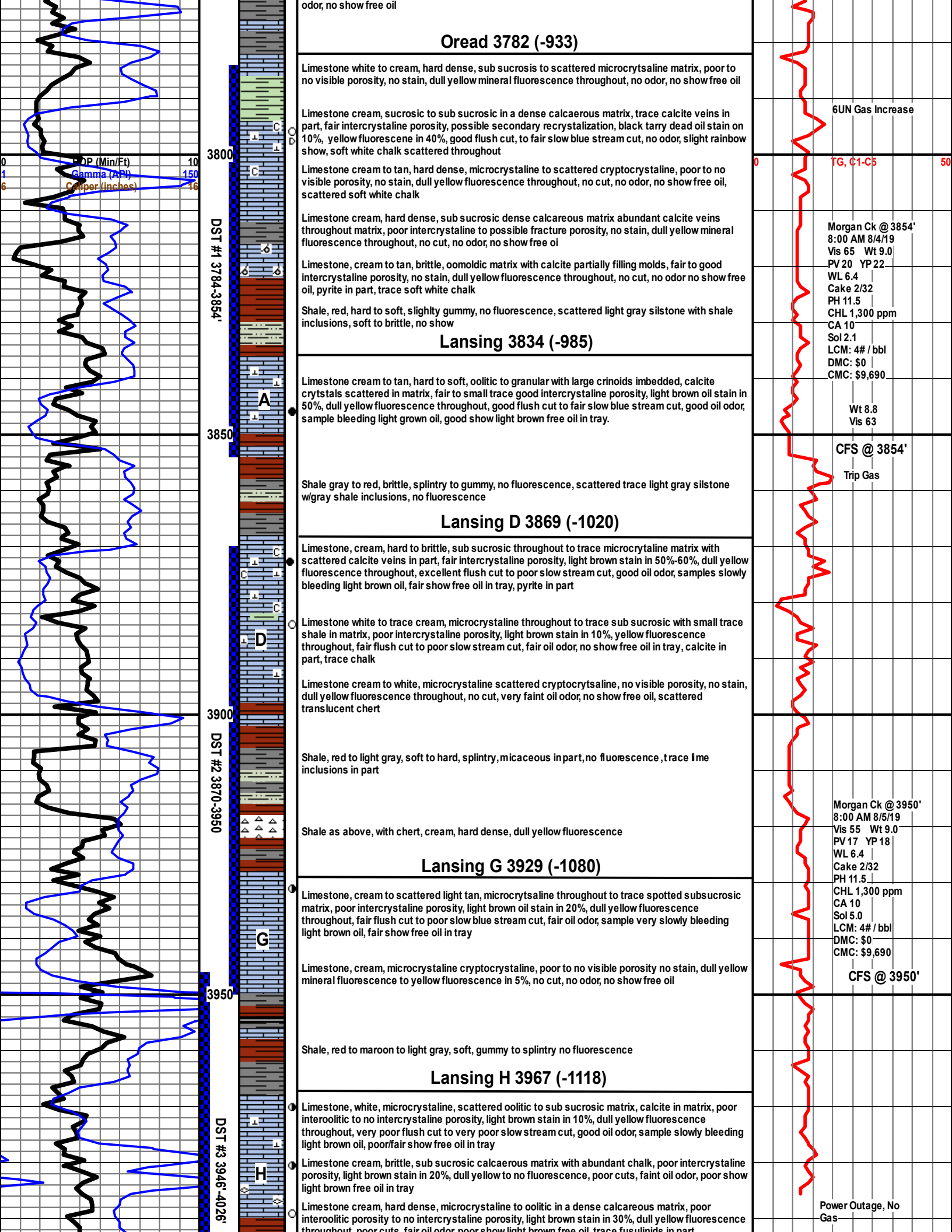
Limestone / Shaly lime, gray to tan, hard, microcrystalline, light gray shale inclusions in part, cryptocrystalline, no visible porosity, no stain, yellow fluorescence in 15%, no cut, no odor, no show free oil. Scattered light gray silt stringers scattered throughout, small trace crinoids scattered throughout

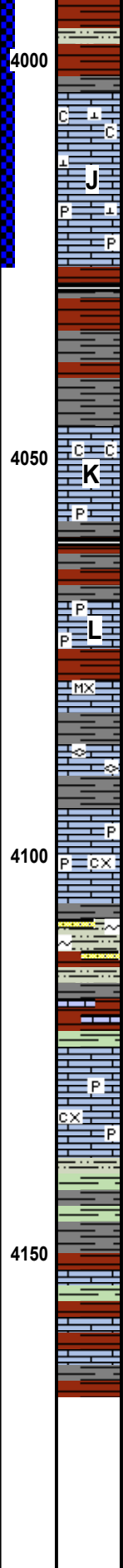
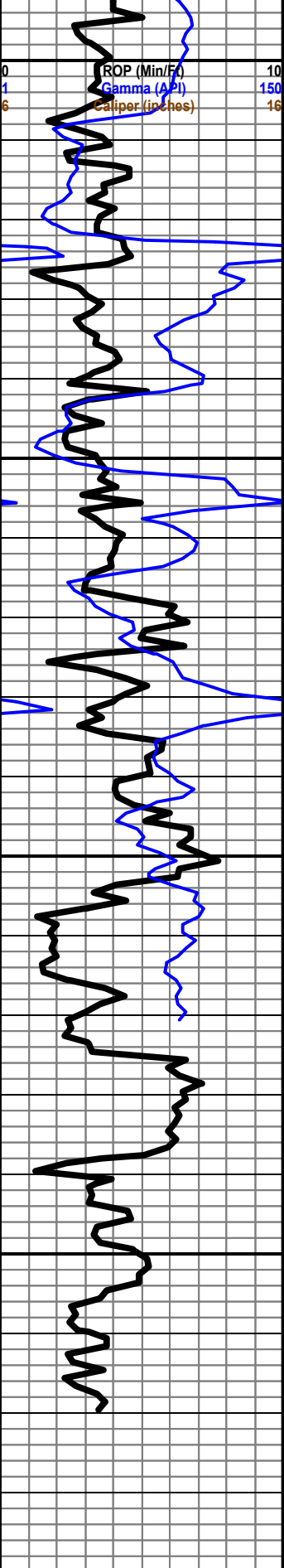
LeCompton 3756 (-907)

Limestone cream, hard, scattered subsucrosic matrix, poor intercrystalline porosity, light black gummy dead oil stain scattered throughout, yellow fluorescence in 25%, no cut, no odor, no show free oil

Shale, light gray scattered green, hard dense, scattered light gray siltstone, blocky, shale inclusions throughout, poor to fair intergranular porosity, yellow fluorescence in 10%, no cut, no







throughout, poor cuts, fair oil odor, poor show light brown free oil, trace fusulines in part

Lansing J 4005' (-1156)

Limestone-light tan, brittle, sub sucrosic to scattered sucrosic matrix with large sub round lime grains in part, calcite crystals and slight trace chalk in matrix, fair to good intercrystalline porosity, stain in 70%, yellow fluorescence throughout, fair flush cut to fair slow blue stream cut, good oil odor, sample quickly bleeding light brown oil and gas, very good show free oil in tray,

Limestone cream, hard dense microcrystalline throughout, poor to no intercrystalline porosity, no stain, dull yellow mineral fluorescence throughout, no cuts, faint oil odor, no show free oil, pyrite

Shale, black, soft, splintry, carbonaceous

Shale, light gray to maroon to red, soft blocky partly micaceous, no fluorescence

Shale as above

Lansing K 4046' (-1197)

Limestone, white, hard dense, microcrystalline throughout, no visible porosity, no stain, dull yellow mineral fluorescence throughout, no cut, very slight trace oil odor, 1 droplet free oil, abundant soft white chalk scattered throughout

Shale light gray to red to trace black carbonaceous, hard to brittle, waxy, no fluorescence

Limestone, cream to light purple, hard dense, microcrystalline to scattered cryptocrystalline shale stringers in matrix, no visible porosity, yellow fluorescence in part, no cuts, no odor no show free oil, pyrite

BKC 4074 (-1225)

Limestone light tan to light purple, hard dense, microcrystalline throughout, no visible porosity, no stain, dull yellow fluorescence, no odor no show

Limestone, cream, to light tan, 2 pieces, fossiliferous with imbedded fusulinids, poor interfossiliferous porosity, brown stain in 20%, dull yellow fluorescence, no cuts, faint oil odor, no show free oil

Limestone, tan, microcrystalline scattered cryptocrystalline matrix, no visible porosity, no stain, mineral fluorescence throughout, no cuts, no odor no show free oil, scattered pyrite

Shale light gray, to green, to red, to scattered dark yellow, very soft, gummy, chalky, interbedded silt and very fine grained sub round sand stringers with shale inclusions, dense calcareous matrix, no fluorescence, no show, trace glauconite in part

Shale & sandy siltstone as above

Limestone cream to off white, hard dense, microcrystalline, cryptocrystalline, no visible porosity, no stain, dull yellow fluorescence, no odor, no show free oil, scattered pyrite

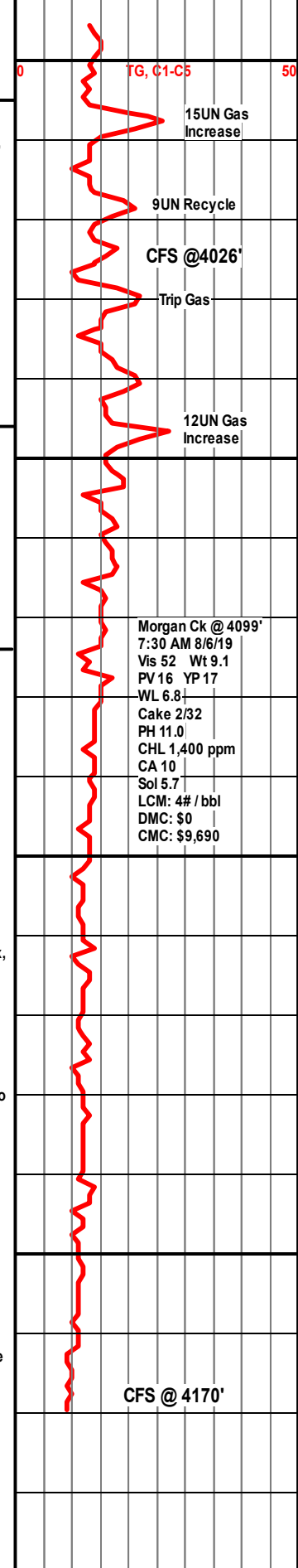
Shale light gray, to green to scattered purple, soft dense, gummy to splintry, imbedded light brown lime grains, siltstone stringers scattered throughout, no fluorescence, Very small trace columnar quartzite shards

Shale light gray to green to red, soft gummy, to hard waxy, no fluorescence, scattered shaly lime, brown, hard dense.

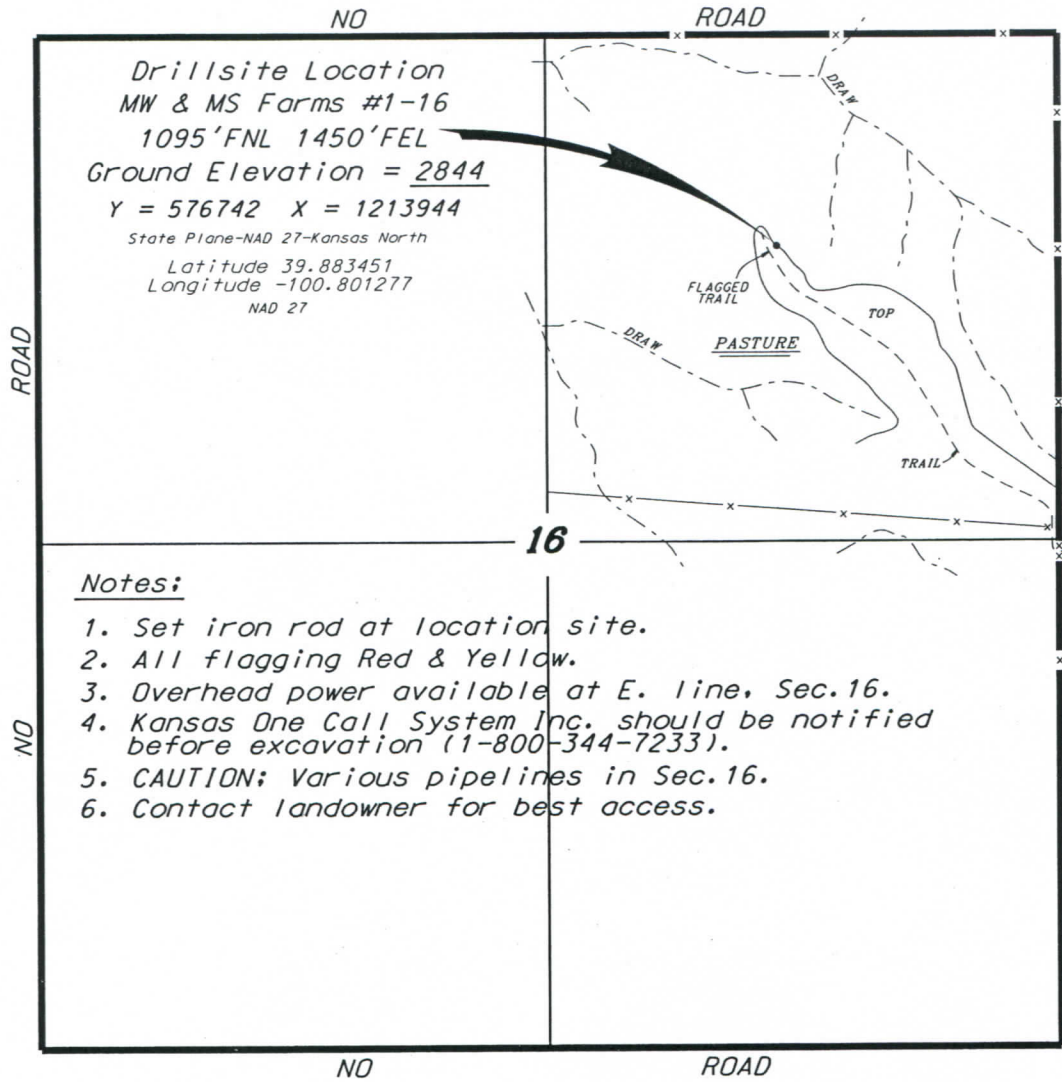
Limestone to shaly lime, cream to light purple to maroon, microcrystalline with shale stringers, no visible porosity, no stain, very dull to no fluorescence due to abundant shale, no odor, no show free oil

TD 4170' @ 12:50pm CDT 8/6/2019

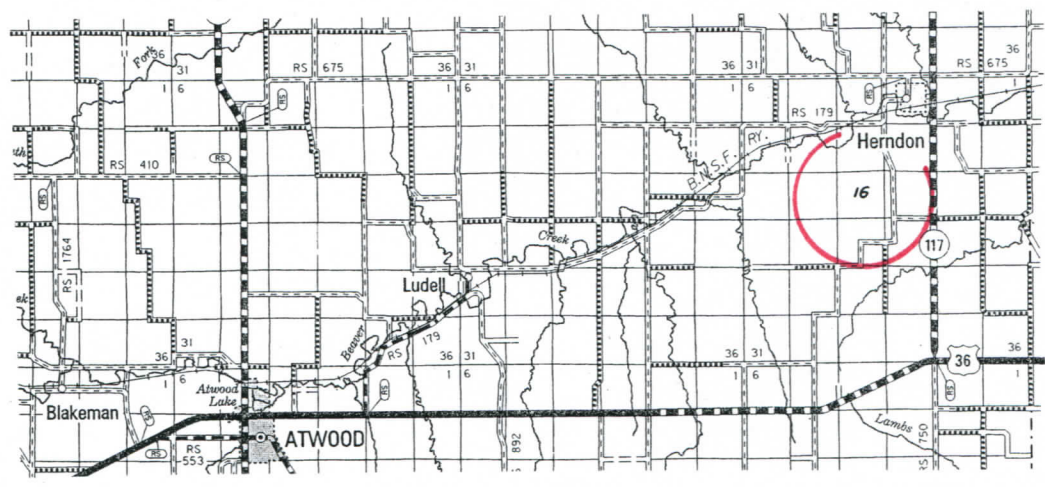
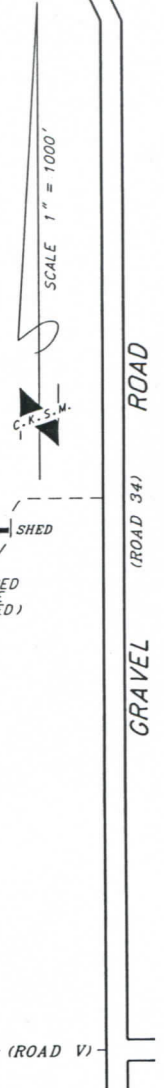
Weatherford Wireline on location @ 4:45 PM CDT



**BLACK OAK EXPLORATION
MW & MS FARMS LEASE
NE. 1/4, SECTION 16, T2S, R31W
RAWLINS COUNTY, KANSAS**



*Ingress and egress to location as shown on this plat is per usage only and may not be legally opened for public use. Contact landowner, tenant and county road department for access.



*Controlling data is based upon the best maps and photographs available to us and upon a regular section of land containing 640 acres.
*Approximate section lines were determined using the normal standard of care of oilfield surveyors practicing in the state of Kansas. The section corners, which establish the precise section lines, were not necessarily located, and the exact location of the drillsite location in the section is not guaranteed. Therefore, the operator securing this service and accepting this plat and all other parties relying thereon agree to hold Central Kansas Oilfield Services, Inc., its officers and employees harmless from all losses, costs and expenses and said entities released from any liability from incidental or consequential damages.
*Elevations derived from National Geodetic Vertical Datum.

Date June 10, 2019

