

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. 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	Black Oak Exploration
Well Name	FRISBIE FAMILY 1-15
Doc ID	1462430

All Electric Logs Run

DIL
DUCP
MEL
BHCS

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



HURRICANE SERVICES INC

Customer	Black Oak Exploration	Lease & Well #	Frisbie Family 1-15	Date	3/22/2019
Service District	Oakley Ks	County & State	Rawlins Ks	Legals S/I/T/R	15-2-36
Job Type	PTA	<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			
230	Paul	<input type="checkbox"/> Hard hat	<input type="checkbox"/> Gloves	<input type="checkbox"/> Lockout/Tagout	<input type="checkbox"/> Warning Signs & Flagging
181/254	Kale	<input type="checkbox"/> H2S Monitor	<input type="checkbox"/> Eye Protection	<input type="checkbox"/> Required Permits	<input type="checkbox"/> Fall Protection
74	Travis	<input type="checkbox"/> Safety Footwear	<input type="checkbox"/> Respiratory Protection	<input type="checkbox"/> Slip/Trip/Fall Hazards	<input type="checkbox"/> Specific Job Sequence/Expectations
	<i>Done</i>	<input type="checkbox"/> FRC/Protective Clothing	<input type="checkbox"/> Additional Chemical/Acid PPE	<input type="checkbox"/> Overhead Hazards	<input type="checkbox"/> Muster Point/Medical Locations
		<input type="checkbox"/> Hearing Protection	<input type="checkbox"/> Fire Extinguisher	<input type="checkbox"/> Additional concerns or issues noted below	
Comments					
All cement and chemicals came from Oakley service yard.					
Product/ Service Code					
		Description		Unit of Measure	Quantity
					Net Amount
M015		Light Equipment Mileage	mi	75.00	\$127.50
M010		Heavy Equipment Mileage	mi	150.00	\$510.00
M020		Ton Mileage	tm	851.00	\$1,085.03
C010		Cement Pump	ea	1.00	\$837.50
CP055		H-Plug	sack	255.00	\$2,817.75
FE290		8 5/8" Wooden Plug	ea	1.00	\$127.50
Customer Section: On the following scale how would you rate Hurricane Services Inc ?					
Based on this job, how likely is it you would recommend HSI to a colleague?					Total Taxable
<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10					\$ -
Unlikely Extremely Likely					Tax Rate:
					\$ -
					Sale Tax:
					\$ -
					Total:
					\$ 5,305.28
HSI Representative: <i>Travis Williams</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 *[Signature]* **CUSTOMER AUTHORIZATION SIGNATURE**



CEMENT TREATMENT REPORT

Customer: Black Oak Exploration	Well: Frisibe Family 1-15	Ticket: ICT1856
City, State: Denver CO	County: Rawlins	Date: 3/22/2019
Field Rep: Jay	S-T-R: 15-2-36	Service: Cement

Downhole Information	
Hole Size:	7 7/8
Hole Depth:	ft
Casing Size:	in
Casing Depth:	ft
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Depth:	ft
Displacement:	bbbls

Slurry	
Weight:	13.8 # / sx
Water / Sx:	6 5/7 gal / sx
Yield:	1 3/7 ft³ / sx
Bbls / Ft.:	
Depth:	ft
Volume:	bbbls
Excess:	%
Total Slurry:	65 bbbls
Total Sacks:	255 sx

Cement Blend		
Product	%	#
Class A	60.0	14382
Poz	40.0	7548
Gel	4.0	877
Metso		
KolSeal		
PhenoSeal	0.3	64
Salt		
Total		22,871

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
5:45 AM				Arrive					
5:50 AM				Safety meeting					
5:55 AM				Rig up					
8:00 AM	5.0	400.0	8.0	Mix 50 sks @ 1.43 yeild @ 3230					
8:15 AM	4.0	200.0	46.0	Displace					
8:30 AM				Rig pulls pipe					
8:45 AM	4.5	300.0	16.0	Mix 100 sks @ 2480					
9:00 AM	4.0	150.0	35.0	Displace					
9:05 AM				Rig pulls pipe					
10:15 AM	4.6	250.0	8.0	Mix 50 sks @ 470					
10:30 AM	4.0	200.0	6.5	Displace					
10:35 AM				Rig pulls pipe					
11:15 AM				Push 8 5/8 plug down to 40 ft					
11:30 AM	3.0	100.0	9.0	Mix 10 sks @ 40, 30 sks RH, 15 sks MH					
11:45 AM				Wash up					
12:00 PM				Rig down					
12:30 PM				Depart					

CREW	UNIT
Cementer: Travis Williams	74.0
Pump Operator: Paul Williams	230.0
Bulk #1: Kale Ochs	181-254
Bulk #2:	

SUMMARY		
Average Rate	Average Pressure	Total Fluid
4.16714 bpm	228.57 psi	128.50 bbbls



DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration LLC**

1474 S. St. Paul St.
Denver CO 80210

ATTN: Clayton Camozzi

Frisbie Family #1-15

15-2s-36w Rawlins KS

Start Date: 2019.03.15 @ 22:38:00

End Date: 2019.03.16 @ 06:05:39

Job Ticket #: 65265 DST #: 1

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

Printed: 2019.03.21 @ 15:38:17



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65265

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.03.15 @ 22:38:00

GENERAL INFORMATION:

Formation: **Oread**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:48:10

Time Test Ended: 06:05:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Ryan Nichols

Unit No: 71

Interval: 4140.00 ft (KB) To 4205.00 ft (KB) (TVD)

Reference Elevations: 3335.00 ft (KB)

Total Depth: 4205.00 ft (KB) (TVD)

3330.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 79.31 psig @ 4141.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.03.15

End Date:

2019.03.16

Last Calib.:

2019.03.16

Start Time: 22:38:01

End Time:

06:05:40

Time On Btm:

2019.03.16 @ 00:47:50

Time Off Btm:

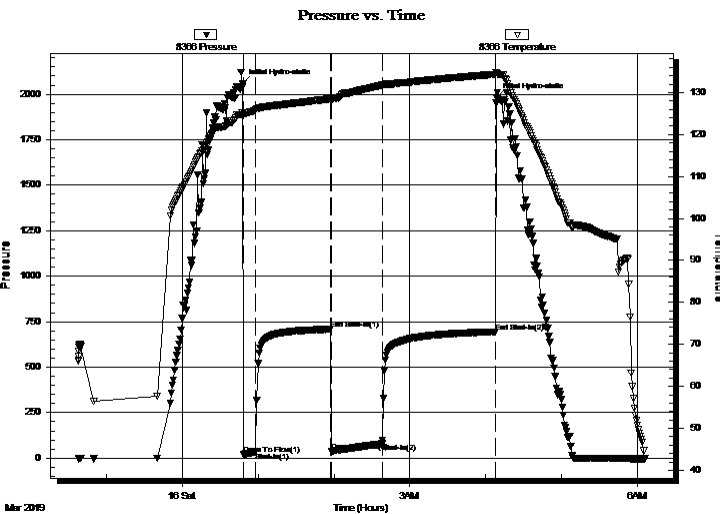
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TEST COMMENT: 10 IF - 1/2" blow built to 2" (in diesel)

60 ISI - No return

40 FF - Blow built to 1/4"

90 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2057.09	125.27	Initial Hydro-static
1	19.02	124.48	Open To Flow (1)
11	33.93	125.85	Shut-In(1)
70	708.27	128.52	End Shut-In(1)
71	38.22	128.25	Open To Flow (2)
111	79.31	131.75	Shut-In(2)
200	694.37	134.34	End Shut-In(2)
201	1980.30	134.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
115.00	VSOCM - 5%o - 95%M	0.57
5.00	FO - 100%o	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65265

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.03.15 @ 22:38:00

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Time Test Ended: 06:05:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Ryan Nichols

Unit No: 71

Interval: 4140.00 ft (KB) To 4205.00 ft (KB) (TVD)

Reference Elevations: 3335.00 ft (KB)

Total Depth: 4205.00 ft (KB) (TVD)

3330.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8353 Inside

Press@RunDepth: psig @ 4141.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.03.15

End Date: 2019.03.16

Last Calib.: 2019.03.16

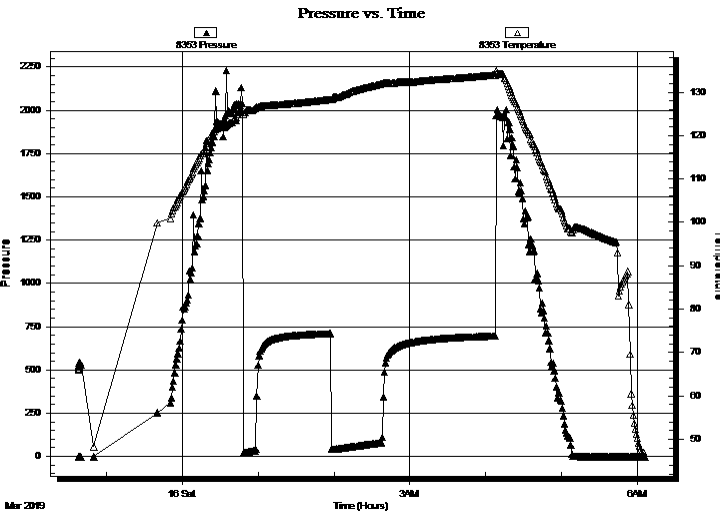
Start Time: 22:38:01

End Time: 06:05:40

Time On Btm:

Time Off Btm:

TEST COMMENT: 10 IF - 1/2" blow built to 2" (in diesel)
60 ISI - No return
40 FF - Blow built to 1/4"
90 FSI - No return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
115.00	VSOCM - 5%o - 95%M	0.57
5.00	FO - 100%o	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65265

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.03.15 @ 22:38:00

Tool Information

Drill Pipe:	Length: 3917.00 ft	Diameter: 3.80 inches	Volume: 54.95 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 55.96 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	14.00 ft			String Weight: Initial 60000.00 lb
Depth to Top Packer:	4140.00 ft			Final 60000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	65.00 ft			
Tool Length:	96.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4114.00	
Hydraulic tool	5.00			4119.00	
Jars	5.00			4124.00	
Gap Sub	3.00			4127.00	
Safety Joint	3.00			4130.00	
Packer	5.00			4135.00	31.00 Bottom Of Top Packer
Packer	5.00			4140.00	
Stubb	1.00			4141.00	
Recorder	0.00	8353	Inside	4141.00	
Recorder	0.00	8366	Outside	4141.00	
Perforations	25.00			4166.00	
Blank Spacing	33.00			4199.00	
Perforations	3.00			4202.00	
Bullnose	3.00			4205.00	65.00 Bottom Packers & Anchor

Total Tool Length: 96.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65265

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.03.15 @ 22:38:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

19 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.37 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
115.00	VSOCM - 5%o - 95%M	0.566
5.00	FO - 100%o	0.025

Total Length: 120.00 ft Total Volume: 0.591 bbl

Num Fluid Samples: 0

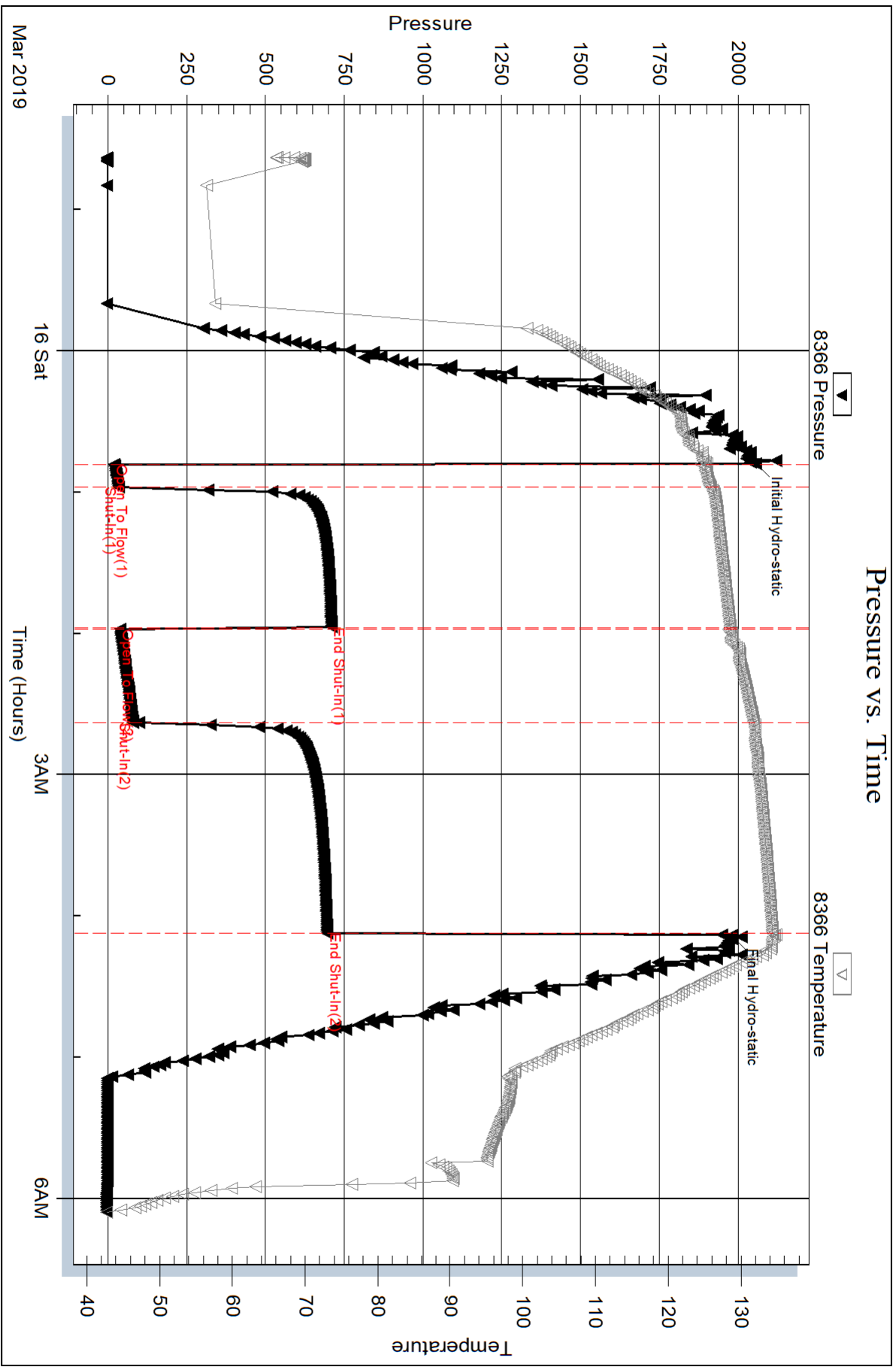
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: GRAVITY = 18 @ 50 DEG F = 19 COR 60 DEG F



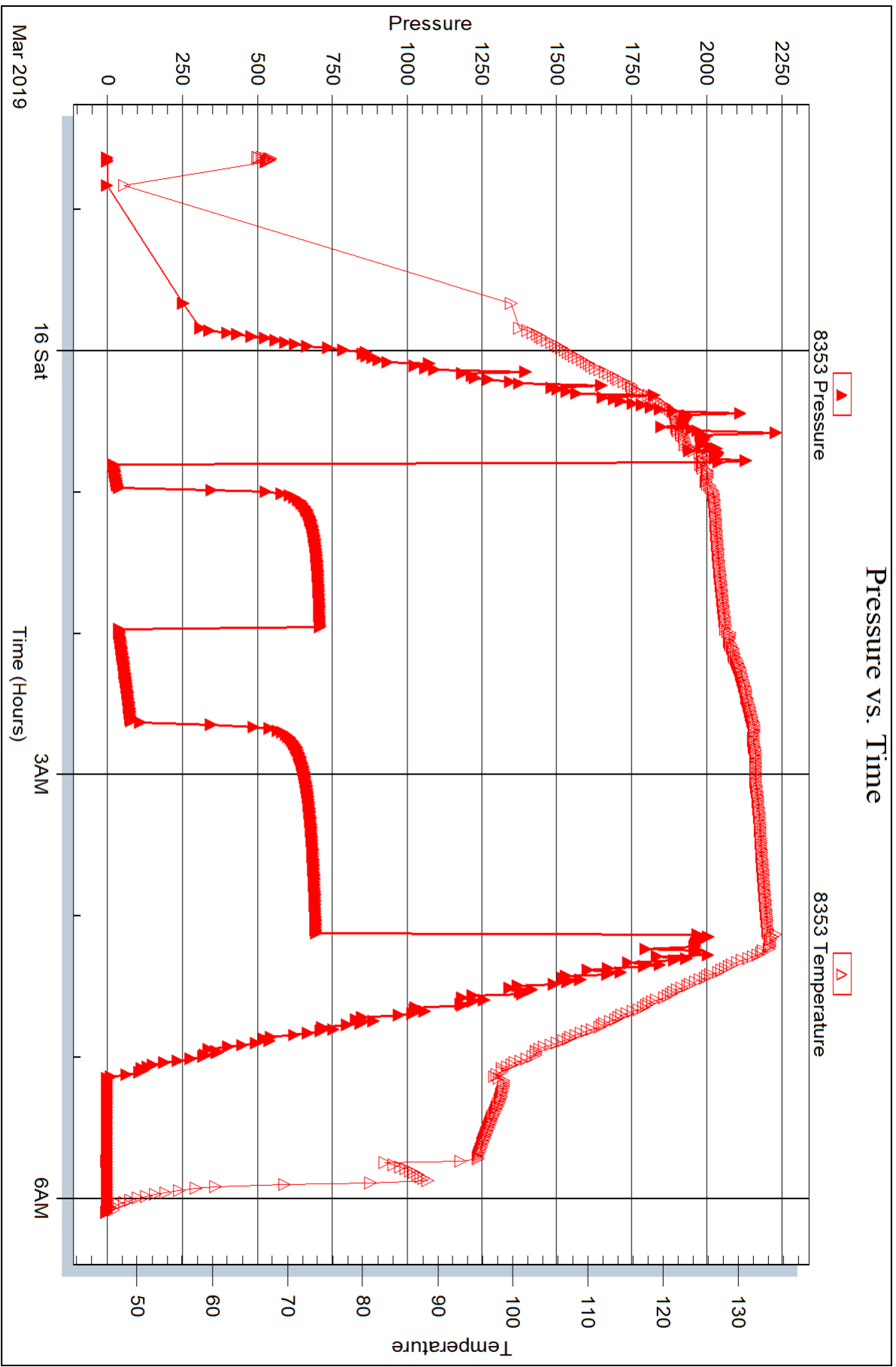
Serial #: 8353

Inside

Black Oak Exploration LLC

Frisbie Family #1-15

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 65265

Printed: 2019.03.21 @ 15:38:18



DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration LLC**

1474 S. St. Paul St.
Denver CO 80210

ATTN: Clayton Camozzi

Frisbie Family #1-15

15-2s-36w Rawlins KS

Start Date: 2019.03.17 @ 12:32:00

End Date: 2019.03.17 @ 21:13:00

Job Ticket #: 65267 DST #: 2

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

Printed: 2019.03.21 @ 15:34:18



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

ATTN: Clayton Camozzi

Job Ticket: 65267

DST#: 2

Test Start: 2019.03.17 @ 12:32:00

GENERAL INFORMATION:

Formation: **Lansing "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:44:30

Time Test Ended: 21:13:00

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder/ Shaw n

Unit No: 71

Interval: 4251.00 ft (KB) To 4286.00 ft (KB) (TVD)

Reference Elevations: 3335.00 ft (KB)

Total Depth: 4286.00 ft (KB) (TVD)

3330.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

Serial #: 8353

Inside

Press@RunDepth: 80.35 psig @ ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.03.17 End Date: 2019.03.17

Last Calib.: 1899.12.30

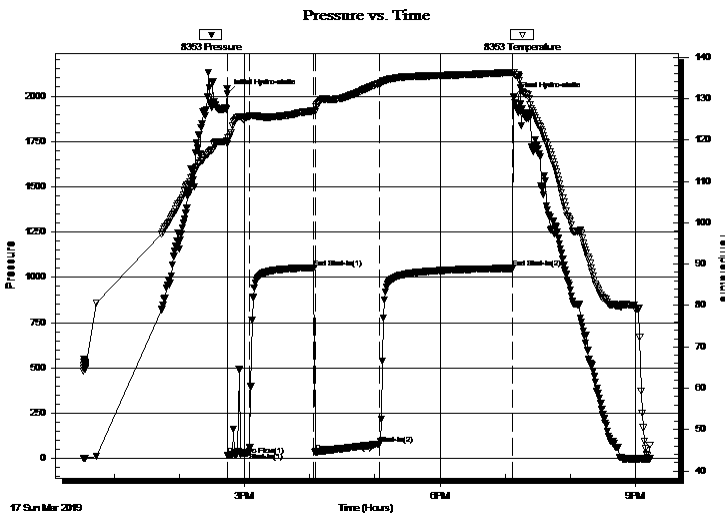
Start Time: 12:32:01 End Time: 21:13:00

Time On Btm: 2019.03.17 @ 14:44:10

Time Off Btm: 2019.03.17 @ 19:08:00

TEST COMMENT: 20 IF Blow built to 1 1/2"
60 ISI No blow back
60 FF Blow built to 3"
120 FSI No blow back

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2014.81	119.83	Initial Hydro-static
1	15.86	119.11	Open To Flow (1)
21	33.53	125.74	Shut-In(1)
80	1052.86	127.05	End Shut-In(1)
81	35.84	126.81	Open To Flow (2)
141	80.35	133.69	Shut-In(2)
263	1049.54	136.30	End Shut-In(2)
264	1995.38	136.11	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
117.00	MCW 86%w, 14%m	0.58
13.00	Mud 100%	0.06

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65267

DST#: 2

ATTN: Clayton Camozzi

Test Start: 2019.03.17 @ 12:32:00

GENERAL INFORMATION:

Formation: **Lansing "A"**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 14:44:30

Time Test Ended: 21:13:00

Interval: **4251.00 ft (KB) To 4286.00 ft (KB) (TVD)**

Total Depth: 4286.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Test Type: Conventional Bottom Hole (Reset)

Tester: James Winder/ Shaw n

Unit No: 71

Reference Elevations: 3335.00 ft (KB)

3330.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: **8366** Outside

Press@RunDepth: psig @ 4252.00 ft (KB)

Start Date: 2019.03.17

End Date: 2019.03.17

Capacity: 8000.00 psig

Last Calib.: 2019.03.17

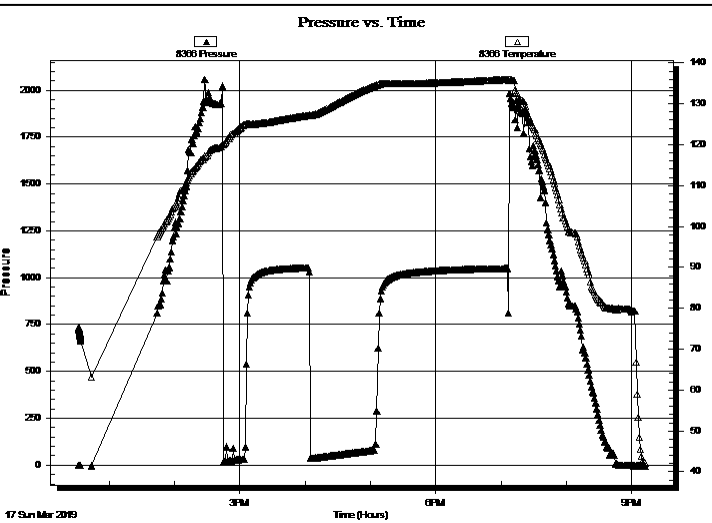
Start Time: 12:32:01

End Time: 21:12:40

Time On Btm:

Time Off Btm:

TEST COMMENT: 20 IF Blow built to 1 1/2"
60 ISI No blow back
60 FF Blow built to 3"
120 FSI No blow back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
117.00	MCW 86%w, 14%m	0.58
13.00	Mud 100%	0.06

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 LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65267

DST#: 2

ATTN: Clayton Camozzi

Test Start: 2019.03.17 @ 12:32:00

Tool Information

Drill Pipe:	Length: 4041.00 ft	Diameter: 3.80 inches	Volume: 56.68 bbl	Tool Weight: 2000.00 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: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 60000.00 lb
			Total Volume: 57.69 bbl	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 57000.00 lb
Depth to Top Packer:	4251.00 ft			Final 58000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	35.00 ft			
Tool Length:	64.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		
Tool Comments:				

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4227.00	
Hydraulic tool	5.00			4232.00	
Jars	5.00			4237.00	
Safety Joint	3.00			4240.00	
Change Over Sub	1.00			4241.00	
Packer - Shale	0.00			4241.00	
Packer	5.00			4246.00	29.00 Bottom Of Top Packer
Packer	5.00			4251.00	
Packer - Shale	0.00			4251.00	
Stubb	1.00			4252.00	
Recorder	0.00	8353	Inside	4252.00	
Recorder	0.00	8366	Outside	4252.00	
Perforations	31.00			4283.00	
Bullnose	3.00			4286.00	35.00 Bottom Packers & Anchor

Total Tool Length: 64.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65267

DST#: 2

ATTN: Clayton Camozzi

Test Start: 2019.03.17 @ 12:32:00

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: 63.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.36 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
117.00	MCW 86%w , 14%m	0.575
13.00	Mud 100%	0.064

Total Length: 130.00 ft Total Volume: 0.639 bbl

Num Fluid Samples: 0

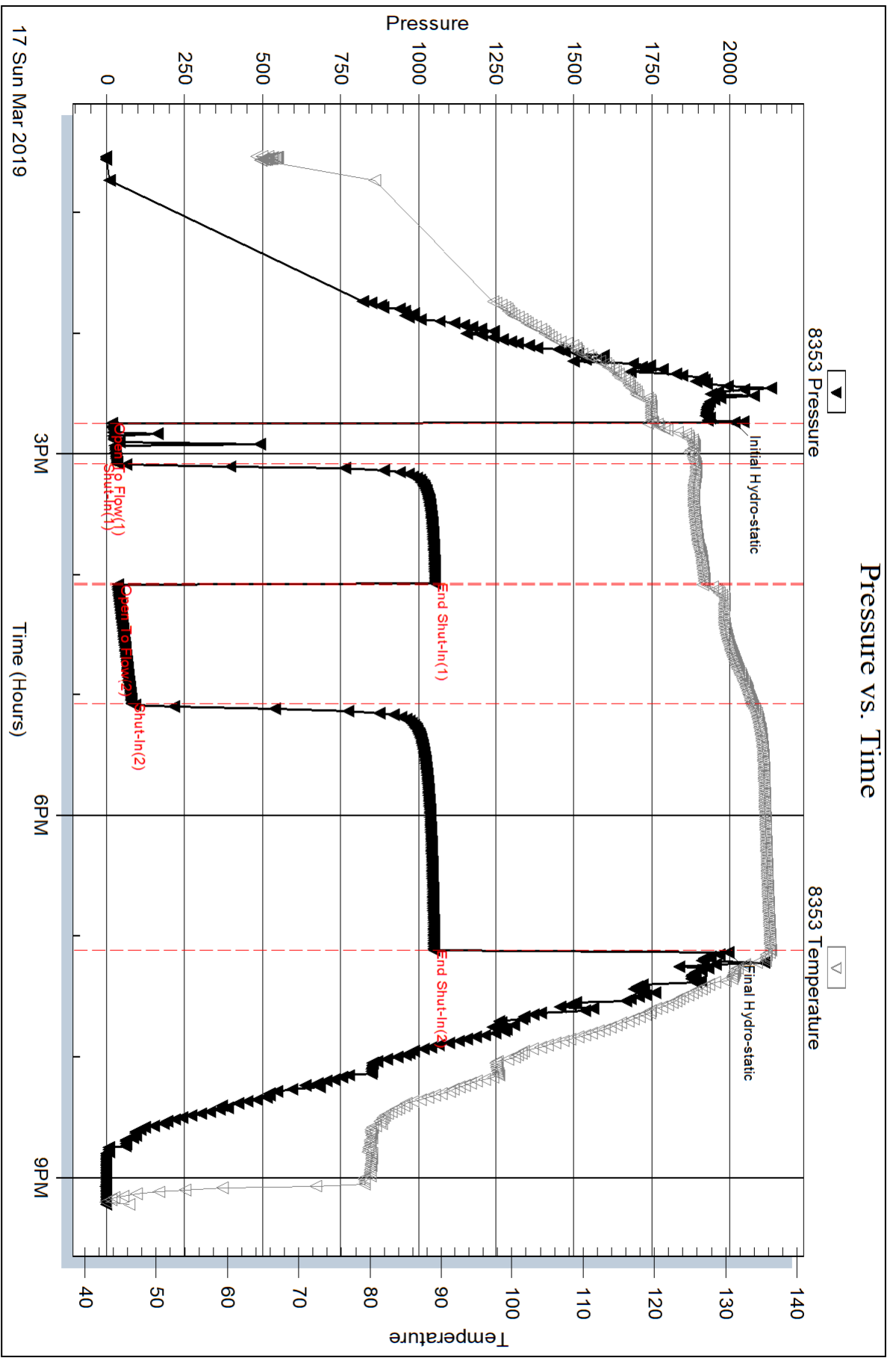
Num Gas Bombs: 0

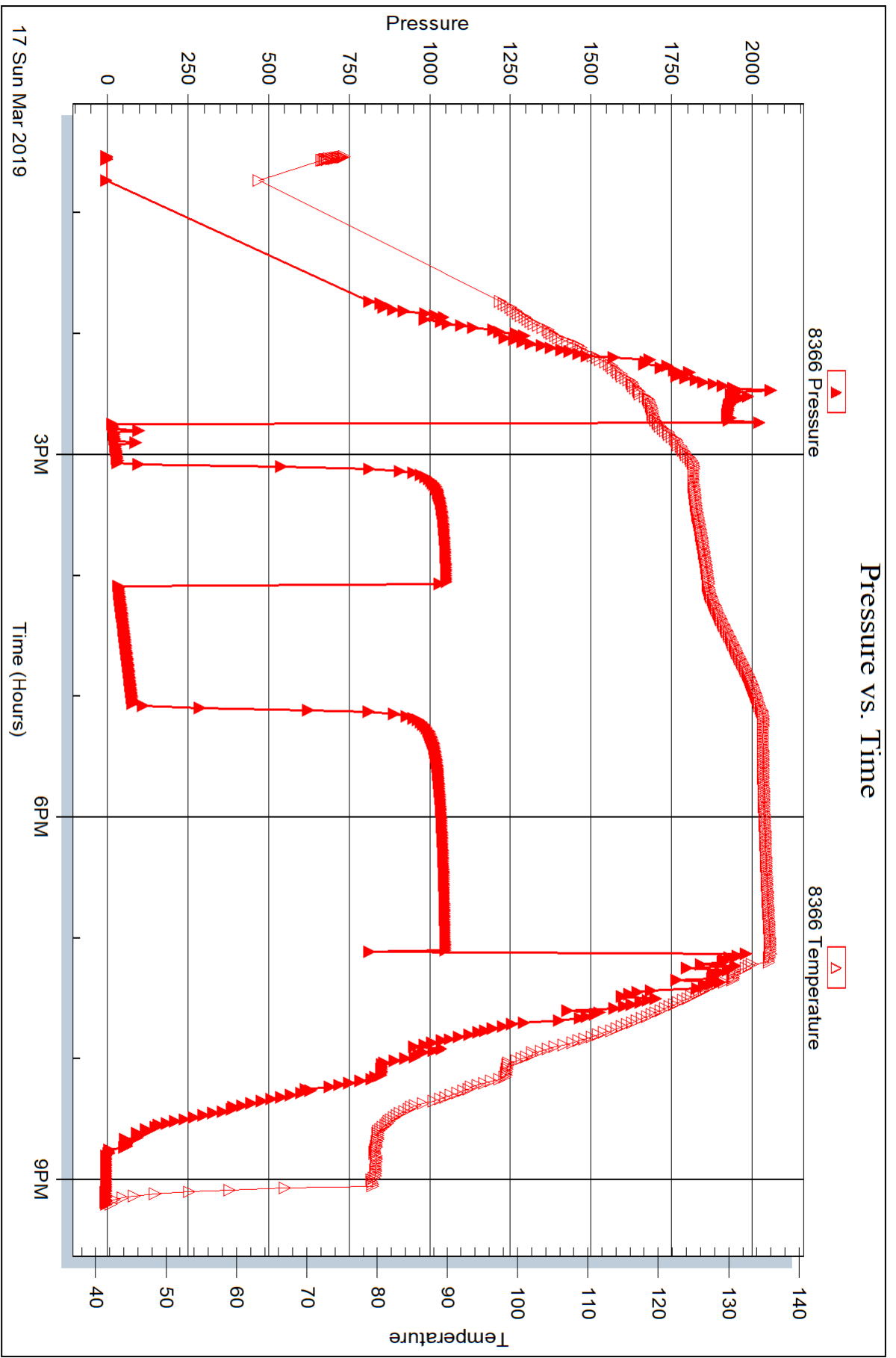
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: rw = .238 ohms @36 degrees F chlorides = 62,000 ppm







DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration LLC**

1474 S. St. Paul St.
Denver CO 80210

ATTN: Clayton Camozzi

Frisbie Family #1-15

15-2s-36w Rawlins KS

Start Date: 2019.03.18 @ 05:44:00

End Date: 2019.03.18 @ 12:49:20

Job Ticket #: 65268 DST #: 3

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

Printed: 2019.03.21 @ 15:33:47



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

ATTN: Clayton Camozzi

Job Ticket: 65268

DST#: 3

Test Start: 2019.03.18 @ 05:44:00

GENERAL INFORMATION:

Formation: **Lansing "A Sand"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 08:23:10
 Time Test Ended: 12:49:20
 Interval: **4284.00 ft (KB) To 4312.00 ft (KB) (TVD)**
 Total Depth: 4312.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: james winder shaw n w
 Unit No: 71
 Reference Elevations: 3335.00 ft (KB)
 3330.00 ft (CF)
 KB to GR/CF: 5.00 ft

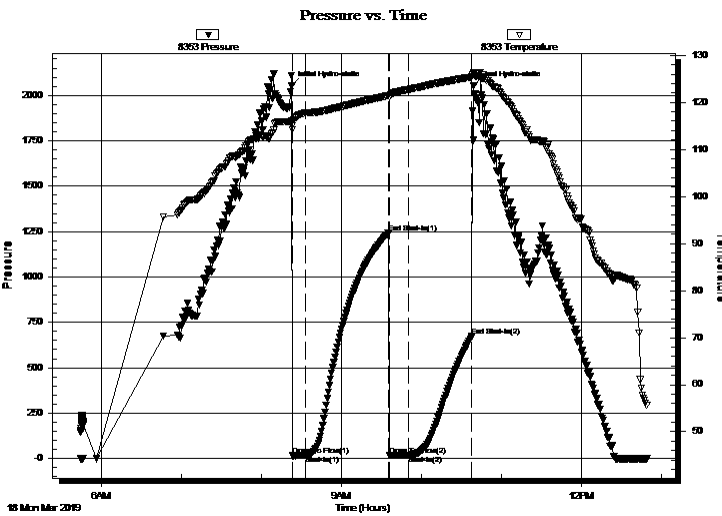
Serial #: 8353

Inside

Press@RunDepth: 17.02 psig @ 4285.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.03.18 End Date: 2019.03.18 Last Calib.: 2019.03.18
 Start Time: 05:44:01 End Time: 12:49:20 Time On Btm: 2019.03.18 @ 08:22:40
 Time Off Btm: 2019.03.18 @ 10:39:20

TEST COMMENT: 10 IF Blow built to 1/4"
 60 ISI No blow back
 15 FF No blow
 45 FSI No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2054.27	115.99	Initial Hydro-static
1	15.62	114.13	Open To Flow (1)
11	15.96	117.78	Shut-In(1)
73	1241.61	121.45	End Shut-In(1)
74	16.57	121.14	Open To Flow (2)
88	17.02	122.74	Shut-In(2)
136	671.65	125.39	End Shut-In(2)
137	2054.57	126.36	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	Mud 100%	0.00
0.00	oil spots in tool	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

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65268

DST#: 3

ATTN: Clayton Camozzi

Test Start: 2019.03.18 @ 05:44:00

Tool Information

Drill Pipe:	Length: 4072.00 ft	Diameter: 3.80 inches	Volume: 57.12 bbl	Tool Weight: 2000.00 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: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 80000.00 lb
			<u>Total Volume: 58.13 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4284.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	28.00 ft			
Tool Length:	56.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4261.00	
Hydraulic tool	5.00			4266.00	
Jars	5.00			4271.00	
Safety Joint	3.00			4274.00	
Packer	5.00			4279.00	28.00 Bottom Of Top Packer
Packer	5.00			4284.00	
Stubb	1.00			4285.00	
Recorder	0.00	8353	Inside	4285.00	
Recorder	0.00	8366	Outside	4285.00	
Perforations	24.00			4309.00	
Bullnose	3.00			4312.00	28.00 Bottom Packers & Anchor

Total Tool Length: 56.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65268

DST#: 3

ATTN: Clayton Camozzi

Test Start: 2019.03.18 @ 05:44:00

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: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
1.00	Mud 100%	0.005
0.00	oil spots in tool	0.000

Total Length: 1.00 ft Total Volume: 0.005 bbl

Num Fluid Samples: 0

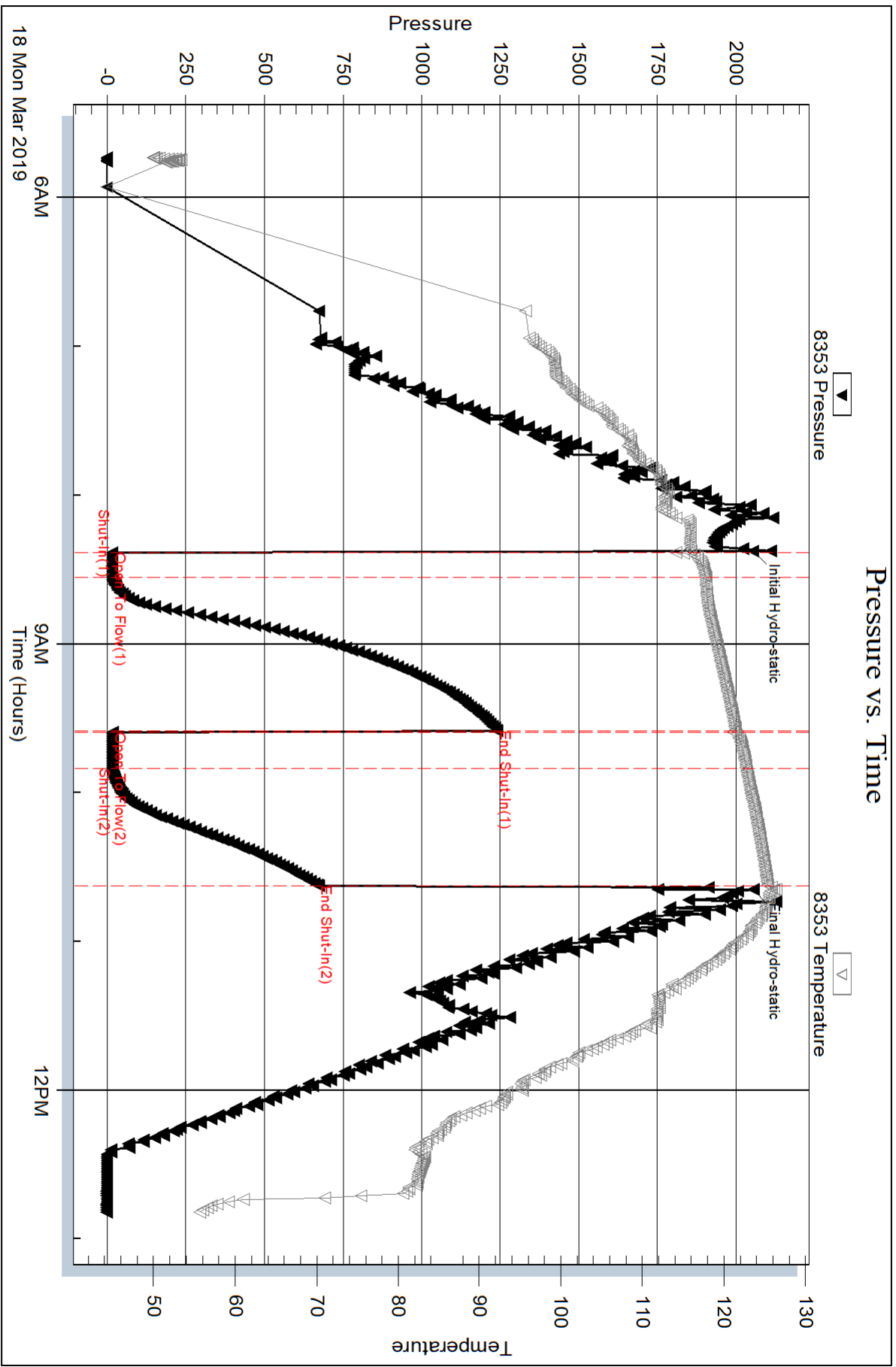
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

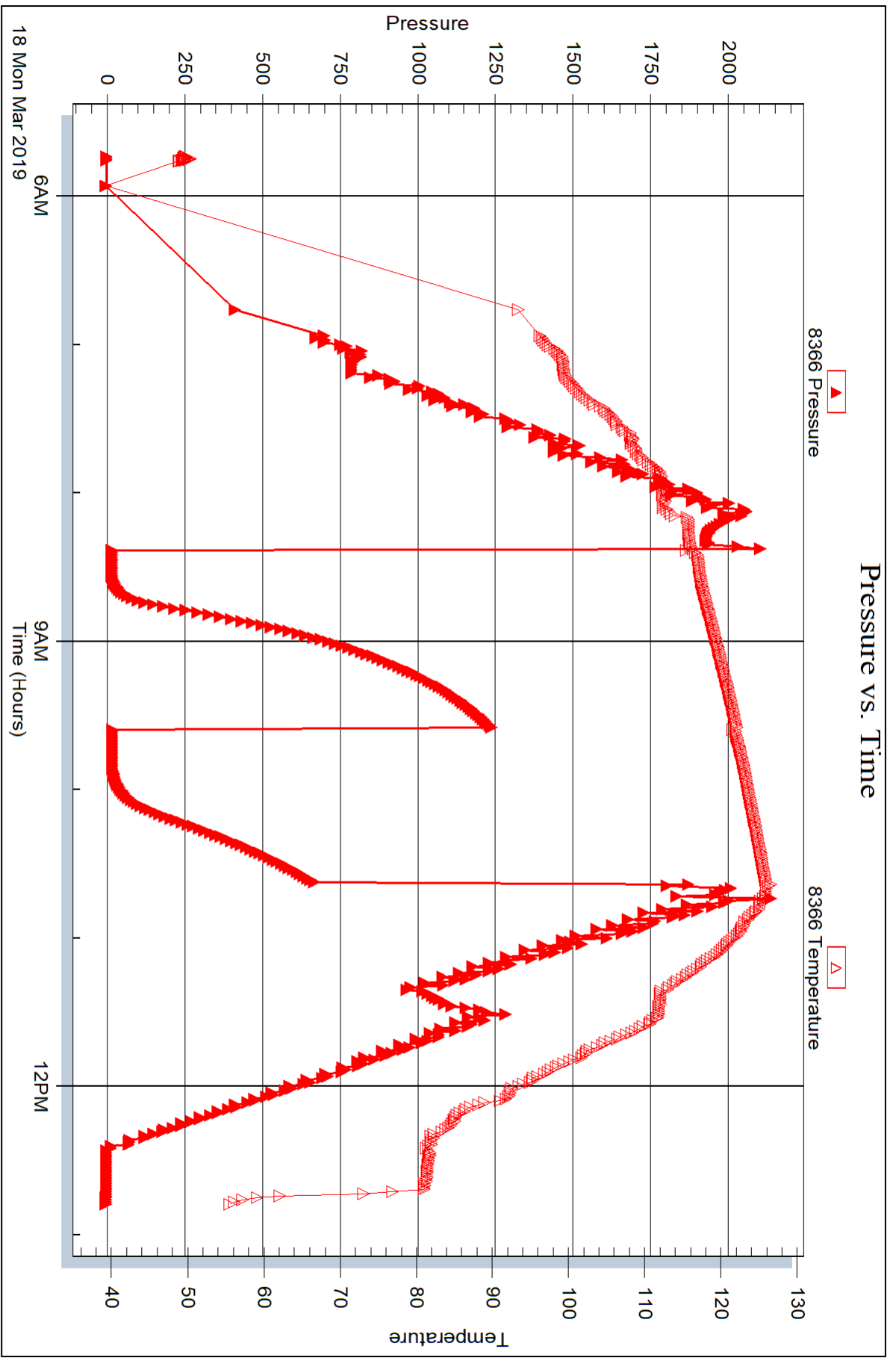


Serial #: 8366

Outside Black Oak Exploration LLC

Friskie Family #1-15

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration LLC**

1474 S. St. Paul St.
Denver CO 80210

ATTN: Clayton Camozzi

Frisbie Family #1-15

15-2s-36w Rawlins KS

Start Date: 2019.03.18 @ 20:48:00

End Date: 2019.03.19 @ 03:48:20

Job Ticket #: 65269 DST #: 4

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

Printed: 2019.03.21 @ 15:33:13



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65269

DST#: 4

ATTN: Clayton Camozzi

Test Start: 2019.03.18 @ 20:48:00

GENERAL INFORMATION:

Formation: **LKC " D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:46:00

Time Test Ended: 03:48:20

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: 4282.00 ft (KB) To 4344.00 ft (KB) (TVD)

Reference Elevations: 3335.00 ft (KB)

Total Depth: 4344.00 ft (KB) (TVD)

3330.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8366 Outside

Press@RunDepth: 543.81 psig @ 4283.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.03.18

End Date:

2019.03.19

Last Calib.:

2019.03.19

Start Time: 20:48:01

End Time:

03:48:20

Time On Btm:

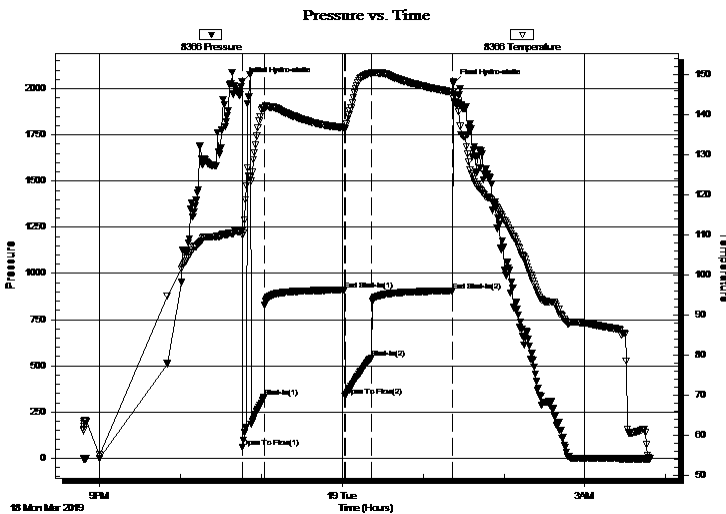
2019.03.18 @ 22:45:40

Time Off Btm:

2019.03.19 @ 01:22:30

TEST COMMENT: 10 IF - BOB @ 8 mins
60 ISI - No return
20 FF - BOB @ 3 1/2 mins
60 FSI - No return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2037.74	110.91	Initial Hydro-static
1	60.30	109.93	Open To Flow (1)
17	329.23	141.61	Shut-In(1)
76	910.46	136.70	End Shut-In(1)
77	335.78	136.35	Open To Flow (2)
96	543.81	150.29	Shut-In(2)
156	906.11	145.57	End Shut-In(2)
157	2026.60	143.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OSMCW - 2%o - 38%M - 60%W	0.30
960.00	OSMCW - 2%o - 10%M - 88%W	12.14
100.00	VSOMCW - 5%o - 45%M - 50%W	1.40

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 LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65269

DST#: 4

ATTN: Clayton Camozzi

Test Start: 2019.03.18 @ 20:48:00

Tool Information

Drill Pipe:	Length: 4072.00 ft	Diameter: 3.80 inches	Volume: 57.12 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 2000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 75000.00 lb
			<u>Total Volume: 58.13 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	24.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4282.00 ft			Final 70000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	62.00 ft			
Tool Length:	90.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4259.00	
Hydraulic tool	5.00			4264.00	
Jars	5.00			4269.00	
Safety Joint	3.00			4272.00	
Packer	5.00			4277.00	28.00 Bottom Of Top Packer
Packer	5.00			4282.00	
Stubb	1.00			4283.00	
Recorder	0.00	8353	Inside	4283.00	
Recorder	0.00	8366	Outside	4283.00	
Perforations	25.00			4308.00	
Blank Spacing	33.00			4341.00	
Bullnose	3.00			4344.00	62.00 Bottom Packers & Anchor

Total Tool Length: 90.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65269

DST#: 4

ATTN: Clayton Camozzi

Test Start: 2019.03.18 @ 20:48:00

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:

33000 ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
60.00	OSMCW - 2%o - 38%M - 60%W	0.295
960.00	OSMCW - 2%o - 10%M - 88%W	12.136
100.00	VSOMCW - 5%o - 45%M - 50%W	1.403

Total Length: 1120.00 ft Total Volume: 13.834 bbl

Num Fluid Samples: 0

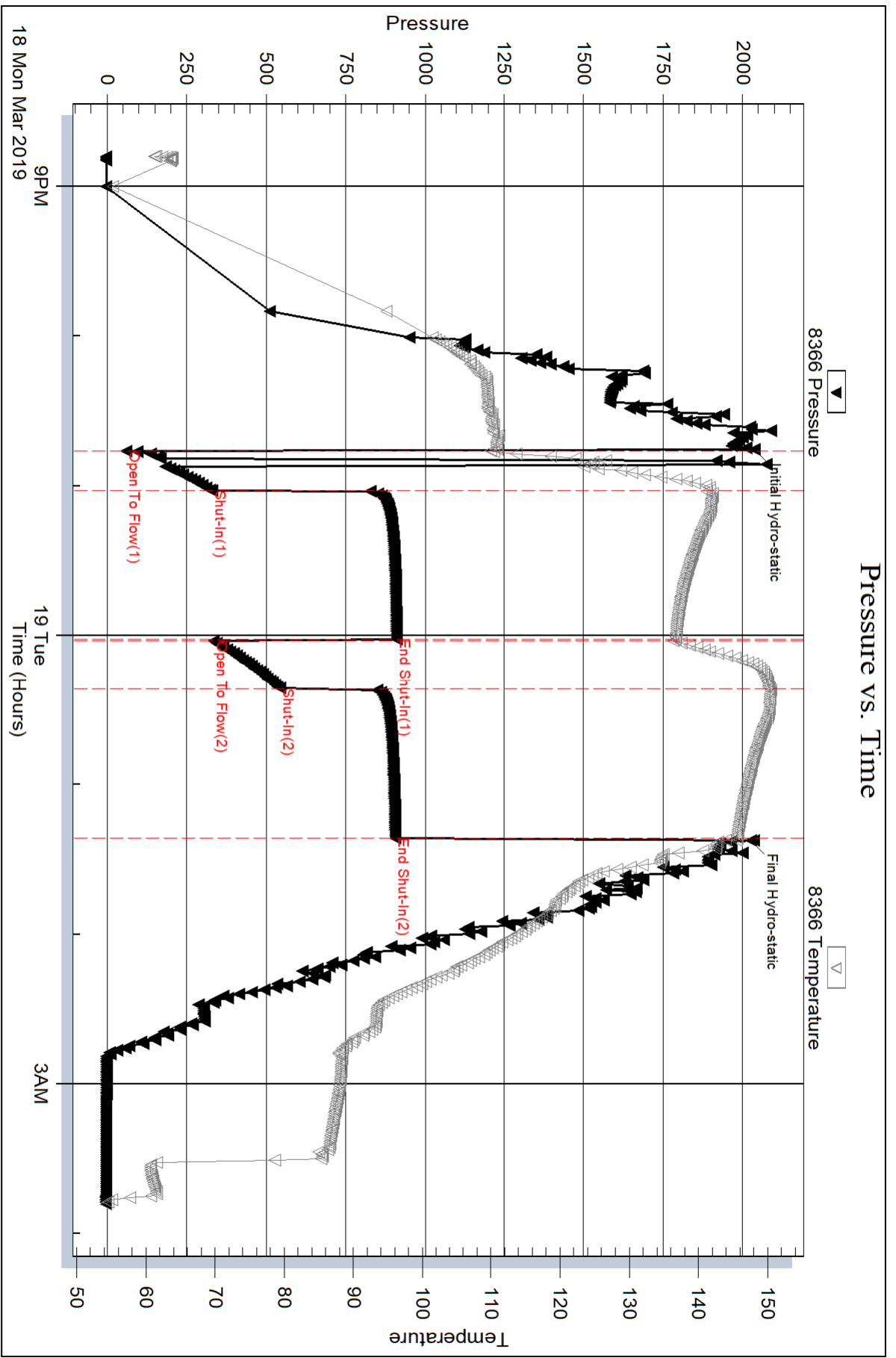
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: Rw = .418 @ 36 DEG F



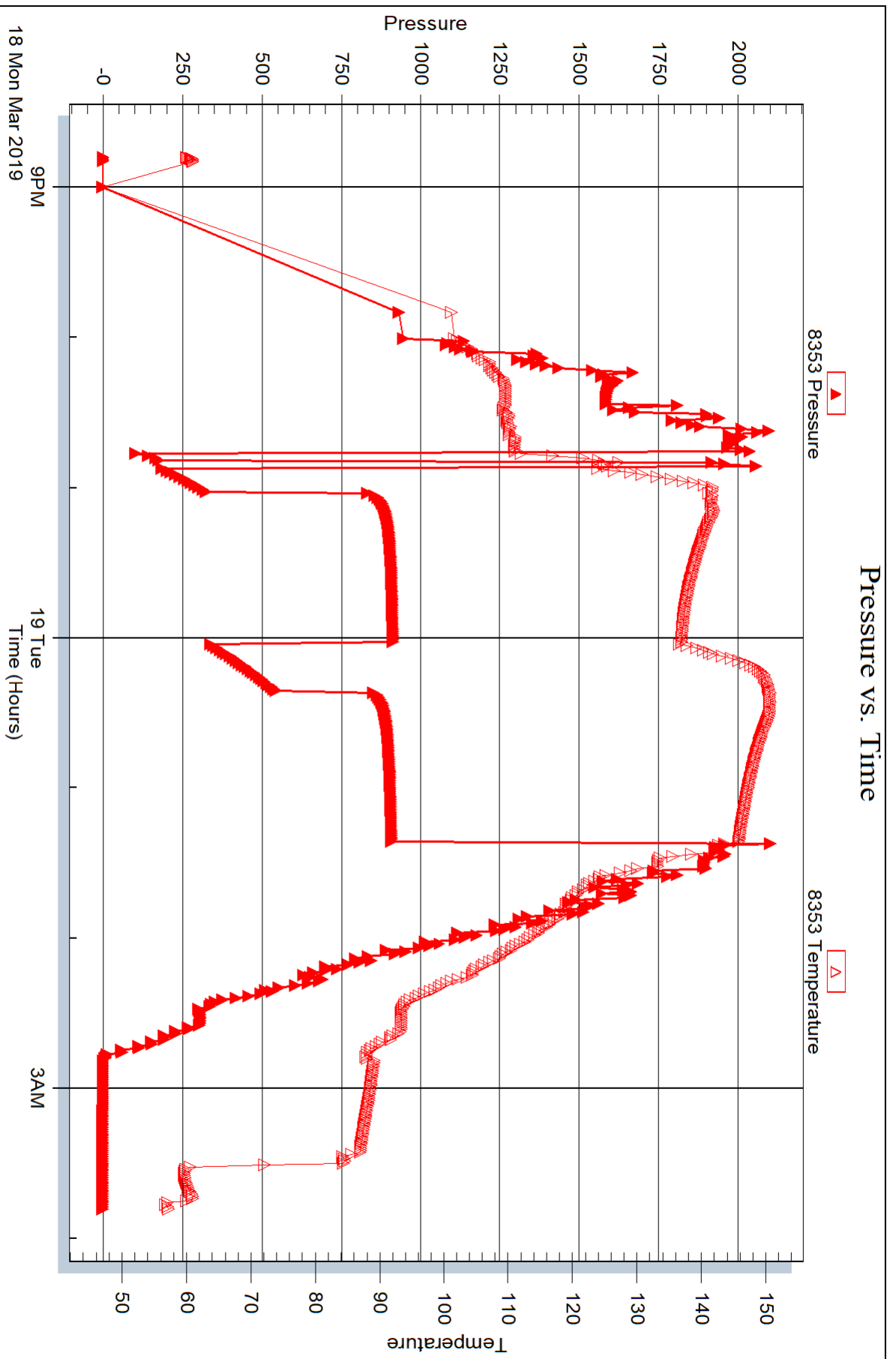
Serial #: 8353

Inside

Black Oak Exploration LLC

Frisbie Family #1-15

DST Test Number: 4





DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration LLC**

1474 S. St. Paul St.
Denver CO 80210

ATTN: Clayton Camozzi

Frisbie Family #1-15

15-2s-36w Rawlins KS

Start Date: 2019.03.19 @ 19:10:00

End Date: 2019.03.20 @ 01:48:30

Job Ticket #: 65270 DST #: 5

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

Printed: 2019.03.21 @ 15:32:39



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

ATTN: Clayton Camozzi

Job Ticket: 65270

DST#: 5

Test Start: 2019.03.19 @ 19:10:00

GENERAL INFORMATION:

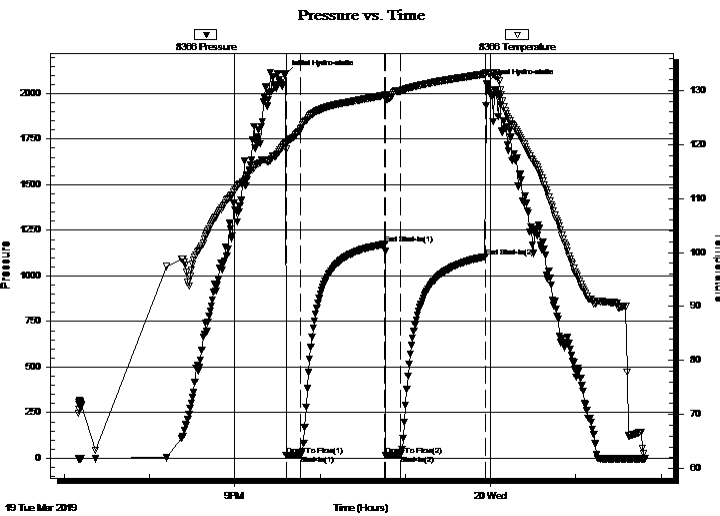
Formation: **LKC " J "**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 21:36:00
 Time Test Ended: 01:48:30
 Interval: **4436.00 ft (KB) To 4482.00 ft (KB) (TVD)**
 Total Depth: 4482.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ryan Nichols
 Unit No: 71
 Reference Elevations: 3335.00 ft (KB)
 3330.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8366

Outside

Press@RunDepth: 18.16 psig @ 4437.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.03.19 End Date: 2019.03.20 Last Calib.: 2019.03.20
 Start Time: 19:10:01 End Time: 01:48:30 Time On Btm: 2019.03.19 @ 21:35:50
 Time Off Btm: 2019.03.19 @ 23:57:20

TEST COMMENT: 10 IF - Blow built to 1/2"
 60 ISI - No return
 10 FF - No blow
 60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2105.91	120.26	Initial Hydro-static
1	14.84	119.13	Open To Flow (1)
11	15.66	122.81	Shut-In(1)
70	1173.90	129.14	End Shut-In(1)
71	17.11	128.52	Open To Flow (2)
81	18.16	129.93	Shut-In(2)
141	1105.49	133.07	End Shut-In(2)
142	2054.55	133.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM - oil spots - 100%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 LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65270

DST#: 5

ATTN: Clayton Camozzi

Test Start: 2019.03.19 @ 19:10:00

Tool Information

Drill Pipe:	Length: 4227.00 ft	Diameter: 3.80 inches	Volume: 59.29 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 70000.00 lb
			<u>Total Volume: 60.30 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial 65000.00 lb
Depth to Top Packer:	4436.00 ft			Final 65000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	46.00 ft			
Tool Length:	74.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4413.00	
Hydraulic tool	5.00			4418.00	
Jars	5.00			4423.00	
Safety Joint	3.00			4426.00	
Packer	5.00			4431.00	28.00 Bottom Of Top Packer
Packer	5.00			4436.00	
Stubb	1.00			4437.00	
Recorder	0.00	8353	Inside	4437.00	
Recorder	0.00	8366	Outside	4437.00	
Perforations	9.00			4446.00	
Blank Spacing	33.00			4479.00	
Bullnose	3.00			4482.00	46.00 Bottom Packers & Anchor

Total Tool Length: 74.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65270

DST#: 5

ATTN: Clayton Camozzi

Test Start: 2019.03.19 @ 19:10:00

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: 56.00 sec/qt

Cushion Volume: bbl

Water Loss: 6.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 1500.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	OSM - oil spots - 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

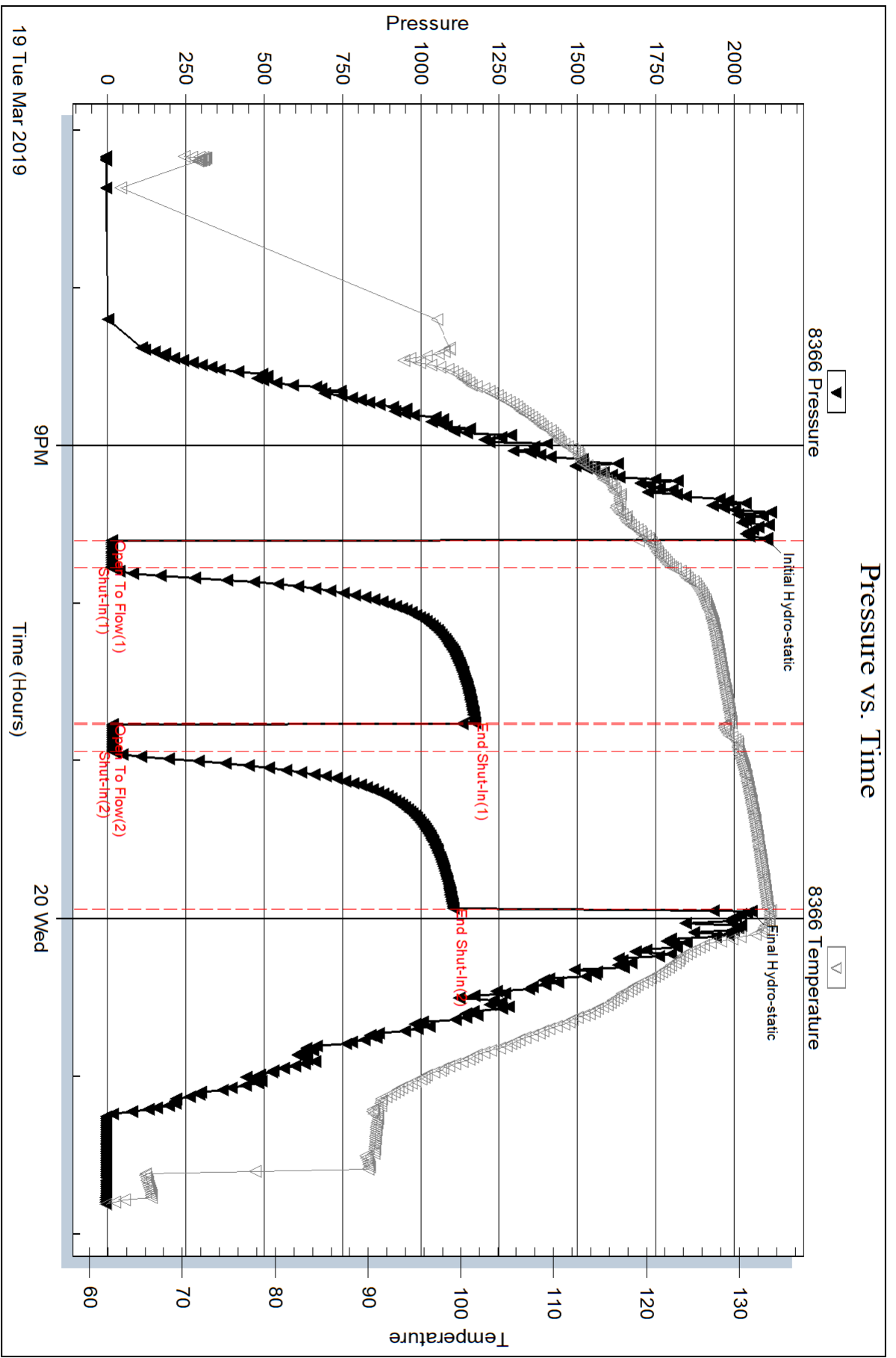
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration LLC**

1474 S. St. Paul St.
Denver CO 80210

ATTN: Clayton Camozzi

Frisbie Family #1-15

15-2s-36w Rawlins KS

Start Date: 2019.03.20 @ 21:40:00

End Date: 2019.03.21 @ 05:06:30

Job Ticket #: 65271 DST #: 6

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

Printed: 2019.03.21 @ 15:29:36



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

ATTN: Clayton Camozzi

Job Ticket: 65271

DST#: 6

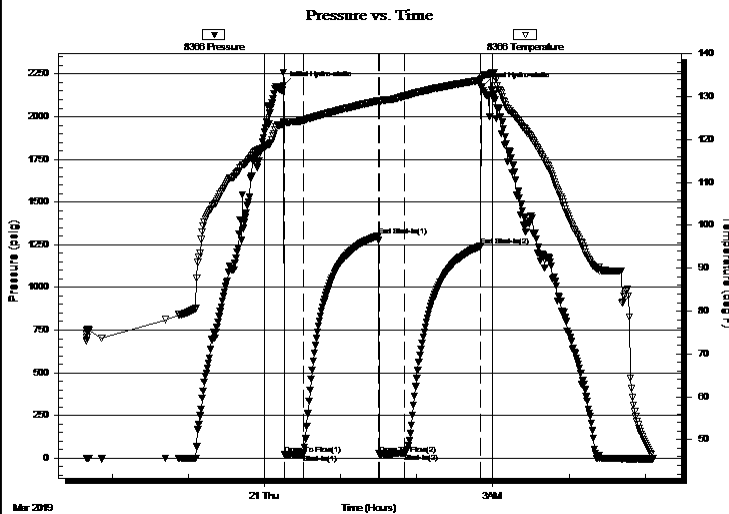
Test Start: 2019.03.20 @ 21:40:00

GENERAL INFORMATION:

Formation: **Pawnee**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:15:50
 Time Test Ended: 05:06:30
 Interval: **4632.00 ft (KB) To 4699.00 ft (KB) (TVD)**
 Total Depth: 4699.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Ryan Nichols
 Unit No: 71
 Reference Elevations: 3335.00 ft (KB)
 3330.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8366 Outside
 Press@RunDepth: 27.02 psig @ 4633.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.03.20 End Date: 2019.03.21 Last Calib.: 2019.03.21
 Start Time: 21:40:01 End Time: 05:06:30 Time On Btm: 2019.03.21 @ 00:15:00
 Time Off Btm: 2019.03.21 @ 02:51:50

TEST COMMENT: 15 IF - Blow built to 1" died back to 3/4"
 60 ISI - No return
 20 FF - No blow
 60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2182.13	124.04	Initial Hydro-static
1	20.63	123.74	Open To Flow (1)
16	23.95	124.48	Shut-In(1)
75	1302.67	129.11	End Shut-In(1)
76	25.23	128.66	Open To Flow (2)
96	27.02	130.18	Shut-In(2)
156	1243.17	133.90	End Shut-In(2)
157	2174.31	134.72	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud with oil spots 100%	0.02

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 LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65271

DST#: 6

ATTN: Clayton Camozzi

Test Start: 2019.03.20 @ 21:40:00

Tool Information

Drill Pipe:	Length: 4415.00 ft	Diameter: 3.80 inches	Volume: 61.93 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 20000.00 lb
Drill Collar:	Length: 206.00 ft	Diameter: 2.25 inches	Volume: 1.01 bbl	Weight to Pull Loose: 85000.00 lb
			<u>Total Volume: 62.94 bbl</u>	Tool Chased 2.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 67000.00 lb
Depth to Top Packer:	4632.00 ft			Final 67000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	67.00 ft			
Tool Length:	95.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Shut In Tool	5.00			4609.00	
Hydraulic tool	5.00			4614.00	
Jars	5.00			4619.00	
Safety Joint	3.00			4622.00	
Packer	5.00			4627.00	28.00 Bottom Of Top Packer
Packer	5.00			4632.00	
Stubb	1.00			4633.00	
Recorder	0.00	8353	Inside	4633.00	
Recorder	0.00	8366	Outside	4633.00	
Perforations	30.00			4663.00	
Blank Spacing	33.00			4696.00	
Bullnose	3.00			4699.00	67.00 Bottom Packers & Anchor

Total Tool Length: 95.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65271

DST#: 6

ATTN: Clayton Camozzi

Test Start: 2019.03.20 @ 21:40:00

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: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 1800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
5.00	Mud w ith oil spots 100%	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

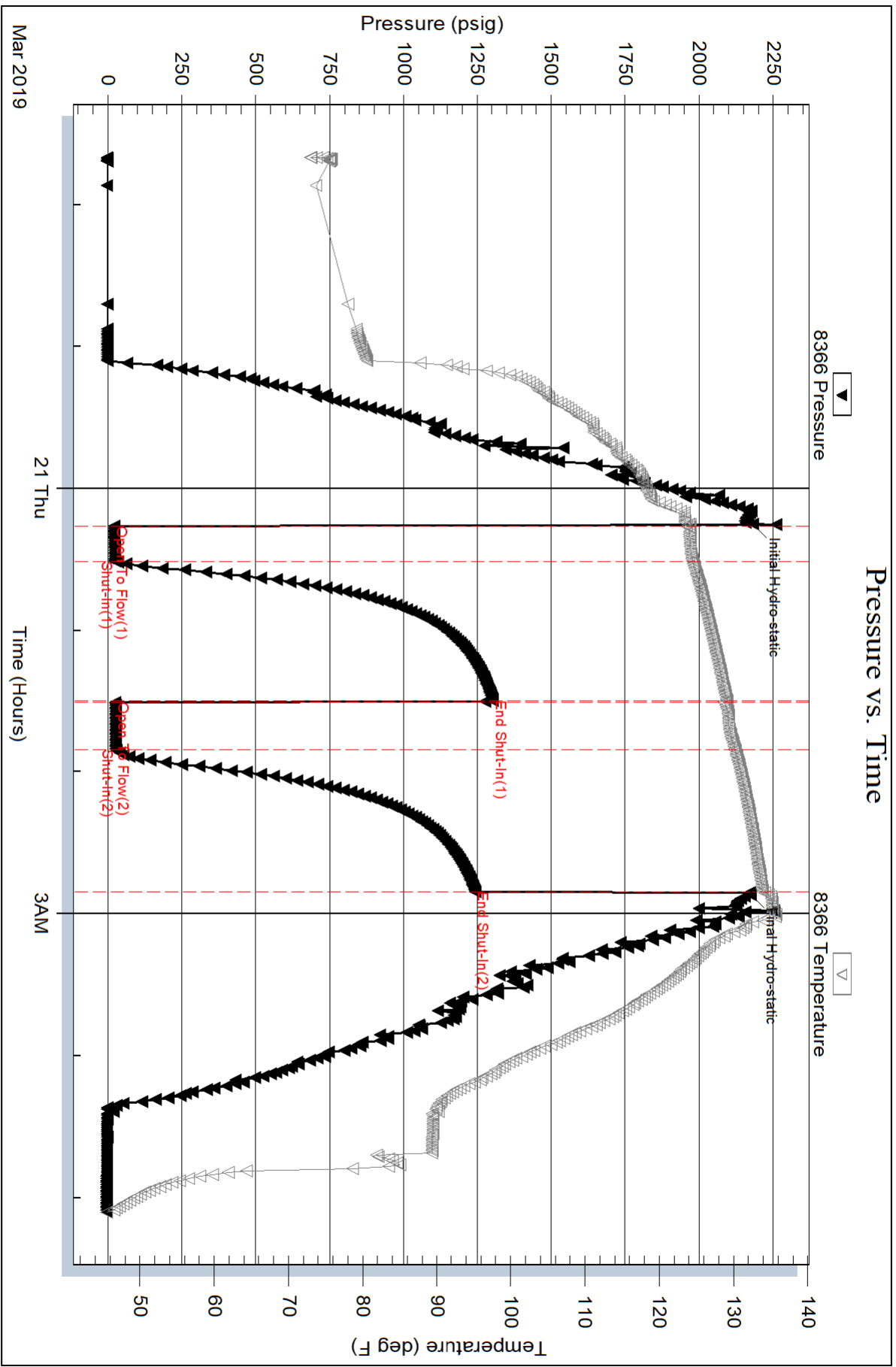
Num Gas Bombs: 0

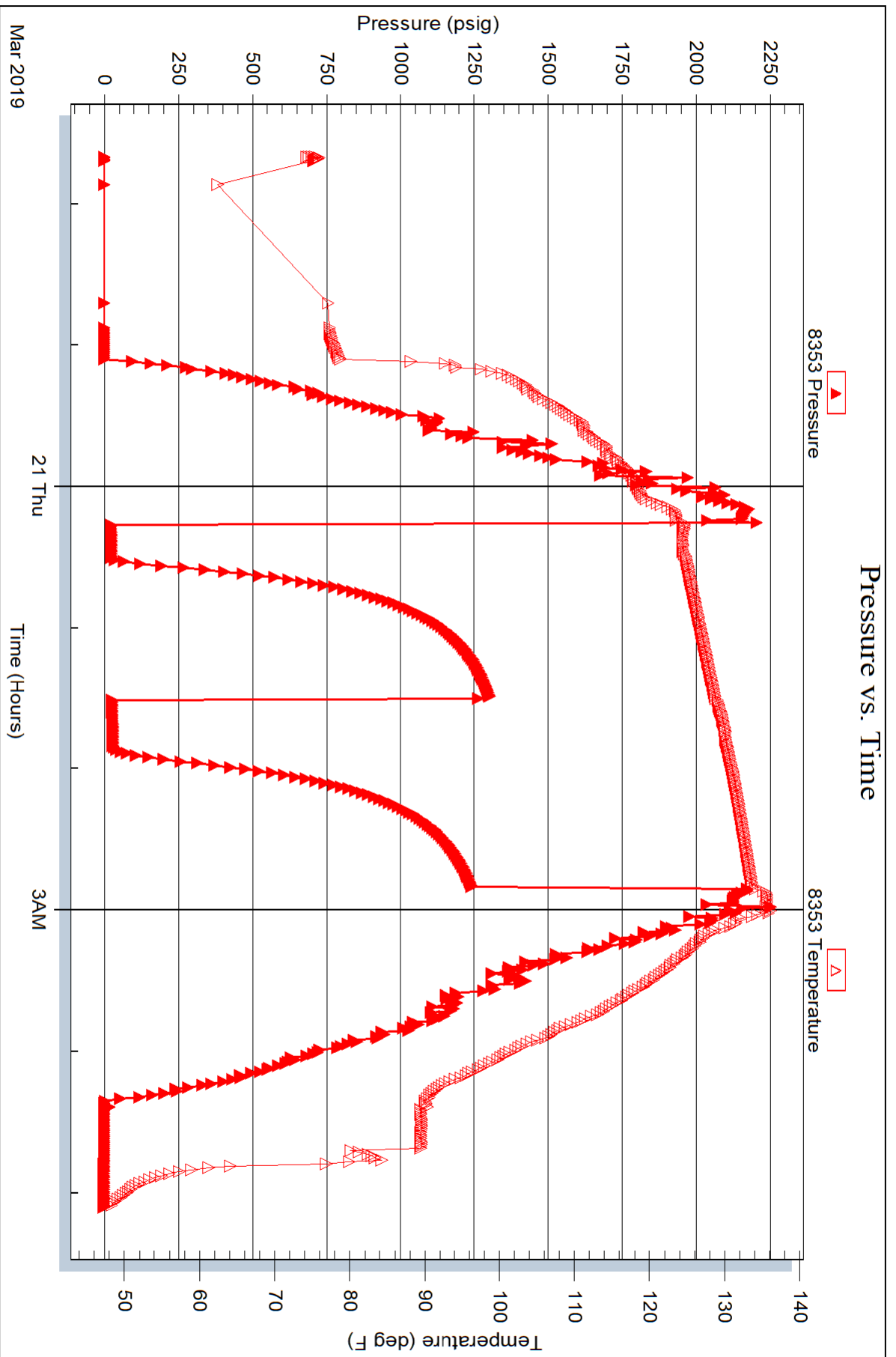
Serial #:

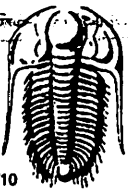
Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65265

Well Name & No. Frisbie Family "1-15" Test No. 1 Date 3/15/19
 Company Black Oak Exploration LLC Elevation 3335 KB 3330 GL
 Address 1474 S. St. Paul St. Denver Co 80210
 Co. Rep / Geo. Clayton Camozzi Rig Murfin # 3
 Location: Sec. 15 Twp. 2S Rge. 36W Co. Awajins State KS

Interval Tested 4140 - 4205 Zone Tested Oread
 Anchor Length 65' Drill Pipe Run 3917 Mud Wt. 9.1
 Top Packer Depth 4135 Drill Collars Run 206' Vis 56
 Bottom Packer Depth 4140 Wt. Pipe Run 0' WL 6.4
 Total Depth 4205 Chlorides 1800 ppm System LCM 5

Blow Description 10 IF - 1/2" blow built to 2" (in diesel)
60 ISI - No return
40 FF - Blow built to 1/4"
90 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>FO</u>	<u>100</u>			
<u>115'</u>	<u>VSOCM</u>	<u>5</u>		<u>95</u>	

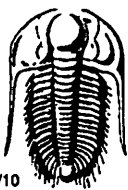
Rec Total 120' BHT 134° Gravity 19 COR 60°F API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 2057 Test 1300 T-On Location 22:00
 (B) First Initial Flow 19 Jars 250 T-Started 22:38
 (C) First Final Flow 34 Safety Joint 75 T-Open 00:48
 (D) Initial Shut-In 708 Circ Sub — T-Pulled 04:07
 (E) Second Initial Flow 38 Hourly Standby — T-Out 06:15
 (F) Second Final Flow 79 Mileage 110 RT 110 Comments EM Tool - James W
 (G) Final Shut-In 694 Sampler —
 (H) Final Hydrostatic 1980 Straddle —
 Ruined Shale Packer —
 Ruined Packer —

Initial Open 10 Extra Packer —
 Initial Shut-In 60 Extra Recorder —
 Final Flow 40 Day Standby —
 Final Shut-In 90 Accessibility —
 Sub Total 1735 MP/DST Disc't —

Approved By _____ Our Representative James W

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65267

Well Name & No. Frisbie Family #1-15 Test No. 2 Date 3-17-19
 Company Black Oak Exploration LLC Elevation 3335 KB 3330 GL
 Address 1474 S st Paul st Denver CO 80210
 Co. Rep / Geo. Clayton Camozzi Rig Mudfin #3
 Location: Sec. 15 Twp. 25 Rge. 36W Co. Rawlins State KS

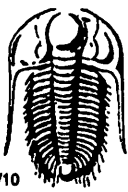
Interval Tested 4251-4286 Zone Tested Lansing A
 Anchor Length 35 Drill Pipe Run 4041 Mud Wt. 8.9
 Top Packer Depth 4246 Shale Drill Collars Run 206 Vis 63
 Bottom Packer Depth 4251 Shale Wt. Pipe Run - WL 6.4
 Total Depth 4286 Chlorides 1000 ppm System LCM 14#
 Blow Description IF No Blow built to 1 1/2"
ISI No blow back
FF Blow built to 3"
FSI No blow back

Rec	Feet of	%gas	%oil	%water	%mud
<u>13</u>	<u>Mud</u>			<u>100</u>	
<u>117</u>	<u>MCLW</u>		<u>86</u>	<u>14</u>	

Rec Total 130 BHT 136 Gravity API RW 1238 @ 36 °F Chlorides 62,000 ppm

(A) Initial Hydrostatic <u>2015</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>11:00</u>
(B) First Initial Flow <u>16</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>12:32</u>
(C) First Final Flow <u>34</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>14:44</u>
(D) Initial Shut-In <u>1053</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>19 06</u>
(E) Second Initial Flow <u>36</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>21:10</u>
(F) Second Final Flow <u>80</u>	<input checked="" type="checkbox"/> Mileage <u>110 RT</u> 110	Comments <u>Some plugging on IF</u>
(G) Final Shut-In <u>1050</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>1995</u>	<input type="checkbox"/> Straddle	
	<input checked="" type="checkbox"/> Shale Packer <u>X2</u> 500	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>2235</u>
	Sub Total <u>2235</u>	MP/DST Disc't

Approved By _____ Our Representative James Kevin Shawhredberger
 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. 65268

Well Name & No. Frisbie Family 1-15 Test No. 3 Date 3-18-19
 Company Black Oak Exploration LLC Elevation 3335 KB 3330 GL
 Address 1474 S. St Paul St Denver CO 80210
 Co. Rep / Geo. Clayton Camozzi Rig Murfin #3
 Location: Sec. 15 Twp. 25 Rge. 36W Co. Hawkins State KS

Interval Tested 4284-4312 Zone Tested Lansing A Sand
 Anchor Length 28 Drill Pipe Run 4072 Mud Wt. 8.9
 Top Packer Depth 4279 Drill Collars Run 206' Vis 61
 Bottom Packer Depth 4284 Wt. Pipe Run _____ WL 7.2
 Total Depth 4312 Chlorides 1000 ppm System LCM 1000 16 #
 Blow Description IF: Blow built to 1/4"
ISI: No blowback
FF: No blow
FSI: No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>1</u>	<u>Mud</u>			<u>100</u>	
	<u>Oil spots in tool</u>				

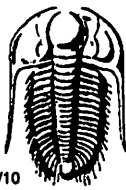
Rec Total _____ BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2054 Test 1300 T-On Location 5:00
 (B) First Initial Flow 16 Jars 250 T-Started 5:44
 (C) First Final Flow 16 Safety Joint 75 T-Open 8:23
 (D) Initial Shut-In 1242 Circ Sub _____ T-Pulled 10:37
 (E) Second Initial Flow 17 Hourly Standby _____ T-Out 12:50
 (F) Second Final Flow 17 Mileage 110 RT 110 Comments _____
 (G) Final Shut-In 672 Sampler _____
 (H) Final Hydrostatic 2055 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer 320
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 320
 Day Standby _____ Total 2055
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1735

Initial Open 10
 Initial Shut-In 60
 Final Flow 15
 Final Shut-In 45

Approved By _____ Our Representative James White / Shawn Wheelbacher

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65269

Well Name & No. Frisbie Family # 1-15 Test No. 4 Date 3/18/19
 Company Black Oak Exploration LLC Elevation 3335 KB 3330 GL
 Address 1474 S. St. Paul St. Denver Co 80210
 Co. Rep / Geo. Clayton Camozzi Rig Martin # 3
 Location: Sec. 15 Twp. 2S Rge. 36W Co. Rawlins State KS

Interval Tested 4282 - 4344 Zone Tested LKC "D"
 Anchor Length 62' Drill Pipe Run 4072' Mud Wt. 8.9
 Top Packer Depth 4277 Drill Collars Run 206' Vis 61
 Bottom Packer Depth 4282 Wt. Pipe Run 0' WL 7.2
 Total Depth 4344 Chlorides 1000 ppm System LCM 6
 Blow Description 10 IF - BoB @ 8 mins
60 ISI - No return
20 FF - BoB @ 3 1/2 mins
60 FSI - No return

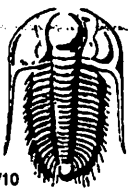
Rec	Feet of	%gas	%oil	%water	%mud
<u>100'</u>	<u>V50MCW</u>	<u>5</u>	<u>50</u>	<u>45</u>	
<u>960</u>	<u>05MCW</u>	<u>2</u>	<u>88</u>	<u>10</u>	
<u>60'</u>	<u>05MCW</u>	<u>5</u>	<u>60</u>	<u>30</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 1120' BHT 146° Gravity — API RW .418 @ 36 ° F Chlorides 33,000 ppm

(A) Initial Hydrostatic <u>2038</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>20:30</u>
(B) First Initial Flow <u>60</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>20:48</u>
(C) First Final Flow <u>329</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>22:46</u>
(D) Initial Shut-In <u>910</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>01:21</u>
(E) Second Initial Flow <u>336</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>03:45</u>
(F) Second Final Flow <u>544</u>	<input checked="" type="checkbox"/> Mileage <u>110 RT</u> 110	Comments
(G) Final Shut-In <u>906</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2027</u>	<input type="checkbox"/> Straddle	
	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Initial Open <u>10</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
Initial Shut-In <u>60</u>	<input type="checkbox"/> Accessibility	Total <u>1735</u>
Final Flow <u>20</u>	Sub Total <u>1735</u>	MP/DST Disc't
Final Shut-In <u>60</u>		

Approved By _____ Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65270

Well Name & No. Frisbe Family #1-15 Test No. 5 Date 3/19/19
 Company Black Oak Exploration LLC Elevation 3335 KB 3330 GL
 Address 1474 S. St. Paul St. Denver Co 80210
 Co. Rep / Geo. Clayton Zamozzi Rig Murfin #3
 Location: Sec. 15 Twp. 20s Rge. 36W Co. Rawlins State KS

Interval Tested 4436 - 4482 Zone Tested LKC "J"
 Anchor Length 46' Drill Pipe Run 4227' Mud Wt. 8.8
 Top Packer Depth 4431 Drill Collars Run 206' Vis 56
 Bottom Packer Depth 4436 Wt. Pipe Run 0' WL 6.4
 Total Depth 4482 Chlorides 1500 ppm System LCM 6
 Blow Description 10 IF - Blow built to 1/2"
60 ISI - No return
10 FF - No blow
60 FSI - No return

Rec	Feet of	%gas	%oil	%water	%mud
<u>5'</u>	<u>Mud</u>			<u>100</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

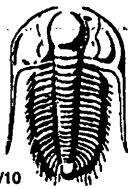
Rec Total 5' BHT 133° Gravity — API RW — @ — ° F Chlorides — ppm

(A) Initial Hydrostatic <u>2106</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>18:30</u>
(B) First Initial Flow <u>15</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>19:10</u>
(C) First Final Flow <u>16</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>21:36</u>
(D) Initial Shut-In <u>1174</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>23:56</u>
(E) Second Initial Flow <u>17</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>01:45</u>
(F) Second Final Flow <u>18</u>	<input checked="" type="checkbox"/> Mileage <u>110 RT</u> 110	Comments
(G) Final Shut-In <u>1105</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2055</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>10</u>	<input type="checkbox"/> Shale Packer	<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>60</u>	<input type="checkbox"/> Day Standby	Total <u>1735</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1735</u>	

Approved By _____

Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65271

Well Name & No. Friskie Family # 1-15 Test No. 6 Date 3/30/19
 Company Black Oak Exploration LLC Elevation 3335 KB 3330 GL
 Address 1474 S. St. Paul St. Denver Co 80210
 Co. Rep / Geo. Clayton Camozzi Rig Martin # 3
 Location: Sec. 12 Twp. 2s Rge. 36w Co. Rawlins State KS

Interval Tested 4632 - 4699 Zone Tested ~~XXXXXXXXXX~~ Pawnee
 Anchor Length 67' Drill Pipe Run 4415' Mud Wt. 8.8
 Top Packer Depth 4627 Drill Collars Run 206' Vis 61
 Bottom Packer Depth 4632 Wt. Pipe Run 0' WL 7.2
 Total Depth 4699 Chlorides 1800 ppm System LCM 4
 Blow Description 15 IF - Blow built to 1" died back to 3/4"
60 ISI - No return
20 FF - No blow
60 FSI - No return

Rec	Feet of	%gas	Spts	%oil	%water	%mud
<u>5</u>	<u>Mud with oil spots</u>				<u>100</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 134° Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2182</u>	<input checked="" type="checkbox"/> Test <u>1300</u>	T-On Location <u>21:00</u>
(B) First Initial Flow <u>21</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>21:40</u>
(C) First Final Flow <u>24</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>00:16</u>
(D) Initial Shut-In <u>1303</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>02:50</u>
(E) Second Initial Flow <u>25</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>05:00</u>
(F) Second Final Flow <u>27</u>	<input checked="" type="checkbox"/> Mileage <u>110 RT</u> 110	Comments
(G) Final Shut-In <u>1243</u>	<input type="checkbox"/> Sampler	
(H) Final Hydrostatic <u>2174</u>	<input type="checkbox"/> Straddle	
Initial Open <u>15</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Shale Packer
Initial Shut-In <u>60</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Ruined Packer
Final Flow <u>20</u>	<input type="checkbox"/> Extra Recorder	<input type="checkbox"/> Extra Copies
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Sub Total <u>0</u>
	<input type="checkbox"/> Accessibility	Total <u>1735</u>
	Sub Total <u>1735</u>	MP/DST Disc't

Approved By _____ Our Representative [Signature]

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5' Downhole
E-logs / Sample

DRILLING WELL
Black Oak Exp, Frisbie Family #1-15
2180 FSL & 2300 FEL
Sec. 15 - 2s - 36w
3335 KB

Formation	Sample	Sub-Sea	Log	Sub-Sea
Stone Corral	3219	116	3224	111
Topeka	4052	-717	4062	-727
Oread	4172	-837	4177	-842
Heebner	4215	-880	4220	-885
Lansing	4268	-933	4271	-936
Lansing D	4329	-994	4334	-999
Lansing G	4381	-1046	4392	-1057
Lansing J	4468	-1133	4476	-1141
BKC	4532	-1197	4542	-1207
Labette Shale	4647	-1312	4652	-1317
Fort Scott	4720	-1385	4732	-1397
Cherokee	4738	-1403	4743	-1408
Mississippian				
Total Depth	4860	-1525		

COMPARISON WELL
Black Oak Exp, Frisbie #1-15
2050 FSL & 1440 FEL Producer
Sec. 15 - 2s - 36w
3330 KB

Log	Sub-Sea	Structural Relationship	
		Sample	Log
3217	113	3	-2
4049	-719	2	-8
4169	-839	2	-3
4212	-882	2	-3
4264	-934	1	-2
4327	-997	3	-2
4381	-1051	5	-6
4468	-1138	5	-3
4535	-1205	8	-2
4650	-1320	8	3
4720	-1390	5	-7
4734	-1404	1	-4
4855	-1525	0	

COMPARISON WELL
Murfin Drilling Co, Wilkinson Trust #1-16
1320 FNL & 890 FWL T&A
Sec. 16-2S-36W
3348 KB

Log	Sub-Sea	Structural Relationship	
		Sample	Log
3244	104	12	7
4084	-736	19	9
4201	-853	16	11
4243	-895	15	10
4293	-945	12	9
4354	-1006	12	7
4408	-1060	14	3
4498	-1150	17	9
4565	-1217	20	10
4680	-1332	20	15
4754	-1406	21	9
4771	-1423	20	15
4998	-1650		
5075	-1727	202	

BLACK OAK



EXPLORATION

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

Well Name: Frisbie Family 1-15
Well Id:
Location: Section 15 - 2S - 36W Rawlins Co, Kansas
License Number: API # 15-153-21221-0000
Spud Date: 3/11/2019
Surface Coordinates: 2180 FSL & 2300 FEL
Region: Wildcat
Drilling Completed: 3/21/2019

Bottom Hole
Coordinates:
Ground Elevation (ft): 3330' K.B. Elevation (ft): 3335'
Logged Interval (ft): 4000 To: 4860 Total Depth (ft): 4860
Formation:
Type of Drilling Fluid: Chemical Gel/Polymer Fresh Water -Based

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

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

REMARKS

After review of the Open Hole Logs, DST Results & Geological Data; it was recommended to P&A the Frisbie Family 1-15. Note, The Log Tops and DST intervals are 5' Lower/Deeper to the aforementioned. GR and Caliper log adjusted 5' Higher/Shallower to match drill time. The samples will be delivered, processed and available for review at the KGS Sample Library located in Wichita, Kansas.
Respectfully, Clayton Camozzi

Black Oak Exploration, LLC

WELL COMPARISON SHEET

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

Well: Frisbie Family 1-15
 Location: 2180 FSL & 2300 FEL
 Sec. 15 - 2s - 36w

Elevation: 3335' KB 3330' GL
 Field: Wildcat

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

API No: 15-153- 21221-0000
 Surface Casing: 8 5/8" set @ 420' KB
 Wellsite Geologist: Clayton Camozzi Cell: (303) 968-4999

Drilling Contractor: Murfin Drilling Co Rig #3. Rig Phone (785-443-1857), Tool Pusher Jay Ruzicka (308-340-1089)

Formation	DRILLING WELL			Log	Sub-Sea
	Sample	Sub-Sea	Log		
Stone Corral	3219	116	3224	111	
Topeka	4052	-717	4062	-727	
Oread	4172	-837	4177	-842	
Heebner	4215	-880	4220	-885	
Lansing	4268	-933	4271	-936	
Lansing D	4329	-994	4334	-999	
Lansing G	4381	-1046	4392	-1057	
Lansing J	4468	-1133	4476	-1141	
BKC	4532	-1197	4542	-1207	
Labette Shale	4647	-1312	4652	-1317	
Fort Scott	4720	-1385	4732	-1397	
Cherokee	4738	-1403	4743	-1408	
Mississippian					
Total Depth	4860	-1525			

5' Downhole
 E-logs / Sample

Formation	COMPARISON WELL			Log	Sub-Sea
	Sample	Sub-Sea	Log		
Black Oak Exp, Frisbie #1-15	3	113	3217	-2	
2050 FSL & 1440 FEL Producer	2	-719	4049	-8	
Sec. 15 - 2s - 36w	2	-839	4169	-3	
3330 KB	2	-882	4212	-3	
Structural Relationship	1	-934	4264	-2	
Sample	3	-997	4327	-2	
Log	5	-1051	4381	-6	
Relationship	5	-1138	4468	-3	
Sample	8	-1205	4535	-2	
Log	8	-1320	4650	3	
Sample	5	-1390	4720	-7	
Log	1	-1404	4734	-4	
Sample	0	-1525	4855		

Formation	COMPARISON WELL			Log	Sub-Sea
	Sample	Sub-Sea	Log		
Murfin Drilling Co, Wilkinson Trust #1-16	12	104	3244	7	
1320 FNL & 890 FWL T&A	19	-736	4084	9	
Sec. 16-2S-36W	16	-853	4201	11	
3348 KB	15	-895	4243	10	
Structural Relationship	12	-945	4293	9	
Sample	12	-1006	4354	7	
Log	14	-1060	4408	3	
Relationship	17	-1150	4498	9	
Sample	20	-1217	4565	10	
Log	20	-1332	4680	15	
Sample	21	-1406	4754	9	
Log	20	-1423	4771	15	
Sample	202	-1650	4998		
Log		-1727	5075		

Formation	Sample	Sub-Sea	Log	Sub-Sea	Log
Stone Corral	3219	116	3224	111	
Topeka	4052	-717	4062	-727	
Oread	4172	-837	4177	-842	
Heebner	4215	-880	4220	-885	
Lansing	4268	-933	4271	-936	
Lansing D	4329	-994	4334	-999	
Lansing G	4381	-1046	4392	-1057	
Lansing J	4468	-1133	4476	-1141	
BKC	4532	-1197	4542	-1207	
Labette Shale	4647	-1312	4652	-1317	
Fort Scott	4720	-1385	4732	-1397	
Cherokee	4738	-1403	4743	-1408	
Mississippian					
Total Depth	4860	-1525			



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65265

DST#: 1

ATTN: Clayton Camozzi

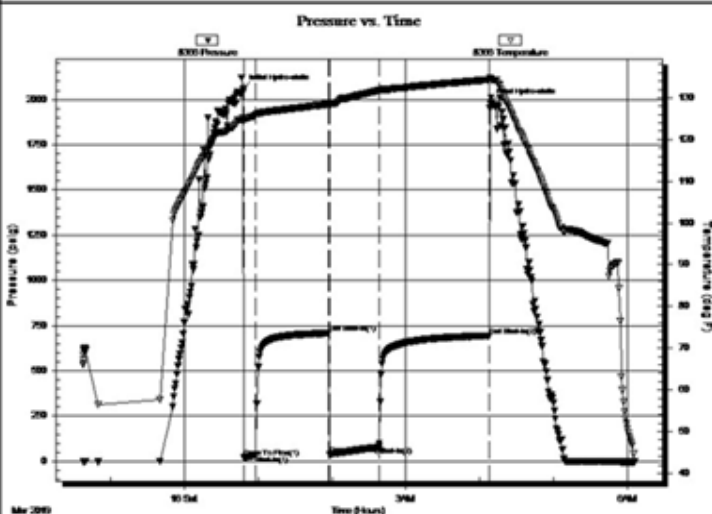
Test Start: 2019.03.15 @ 22:38:00

GENERAL INFORMATION:

Formation: **Oread**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 00:48:10
 Time Test Ended: 06:05:39
 Interval: **4140.00 ft (KB) To 4205.00 ft (KB) (TVD)**
 Total Depth: 4205.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Ryan Nichols
 Unit No: 71
 Reference Elevations: 3335.00 ft (KB)
 3330.00 ft (CF)
 KB to GRV/CF: 5.00 ft

Serial #: **8366** Outside
 Press@RunDepth: 79.31 psig @ 4141.00 ft (KB)
 Start Date: 2019.03.15 End Date: 2019.03.16
 Start Time: 22:38:01 End Time: 06:05:40
 Capacity: 8000.00 psig
 Last Calib.: 2019.03.16
 Time On Btm: 2019.03.16 @ 00:47:50
 Time Off Btm: 2019.03.16 @ 04:08:30

TEST COMMENT: 10 IF - 1/2" blow built to 2" (in diesel)
 60 ISI - No return
 40 FF - Blow built to 1/4"
 90 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2057.09	125.27	Initial Hydro-static
1	19.02	124.48	Open To Flow (1)
11	33.93	125.85	Shut-In(1)
70	708.27	128.52	End Shut-In(1)
71	38.22	128.25	Open To Flow (2)
111	79.31	131.75	Shut-In(2)
200	694.37	134.34	End Shut-In(2)
201	1980.30	134.67	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
115.00	VSOCM - 5%o - 95%M	0.57
5.00	FO - 100%o	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

1474 S. St. Paul St.
Denver CO 80210

ATTN: Clayton Camozzi

15-2s-36w Rawlins KS

Frisbie Family #1-15

Job Ticket: 65269

DST#: 4

Test Start: 2019.03.18 @ 20:48:00

GENERAL INFORMATION:

Formation: **LKC " D "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:46:00

Time Test Ended: 03:48:20

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: **4282.00 ft (KB) To 4344.00 ft (KB) (TVD)**

Total Depth: 4344.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3335.00 ft (KB)

3330.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8366

Outside

Press@RunDepth: 543.81 psig @ 4283.00 ft (KB)

Start Date: 2019.03.18

End Date:

2019.03.19

Start Time: 20:48:00

End Time:

03:48:20

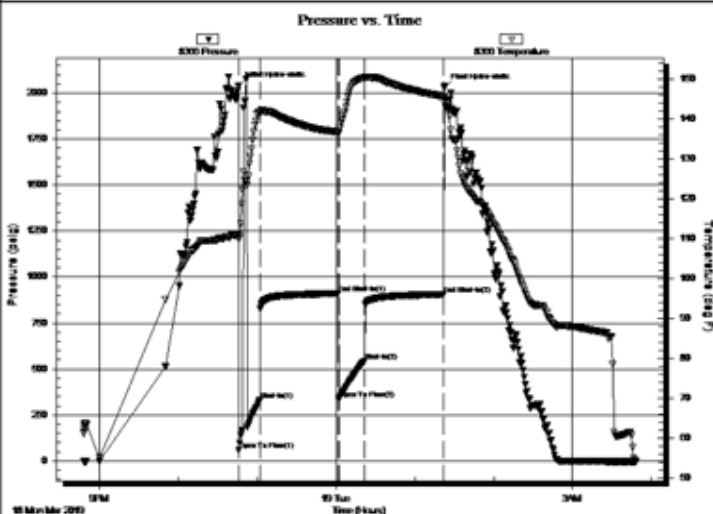
Capacity: 8000.00 psig

Last Calib.: 2019.03.19

Time On Btm: 2019.03.18 @ 22:45:40

Time Off Btm: 2019.03.19 @ 01:22:30

TEST COMMENT: 10 IF - BoB @ 8 mins
60 ISI - No return
20 FF - BoB @ 3 1/2 mins
60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2037.74	110.91	Initial Hydro-static
1	60.30	109.93	Open To Flow (1)
17	329.23	141.61	Shut-In(1)
76	910.46	136.70	End Shut-In(1)
77	335.78	136.35	Open To Flow (2)
96	543.81	150.29	Shut-In(2)
156	906.11	145.57	End Shut-In(2)
157	2026.60	143.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	OSMCW - 2%o - 38%M - 60%W	0.30
960.00	OSMCW - 2%o - 10%M - 88%W	12.14
100.00	VSOMCW - 5%o - 45%M - 50%W	1.40

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65270

DST#: 5

ATTN: Clayton Camozzi

Test Start: 2019.03.19 @ 19:10:00

GENERAL INFORMATION:

Formation: **LKC " J "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 21:36:00

Time Test Ended: 01:48:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: **4436.00 ft (KB) To 4482.00 ft (KB) (TVD)**

Total Depth: 4482.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3335.00 ft (KB)

3330.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8366

Outside

Press@RunDepth: 18.16 psig @ 4437.00 ft (KB)

Start Date: 2019.03.19

Start Time: 19:10:01

End Date: 2019.03.20

End Time: 01:48:30

Capacity: 8000.00 psig

Last Calib.: 2019.03.20

Time On Btm: 2019.03.19 @ 21:35:50

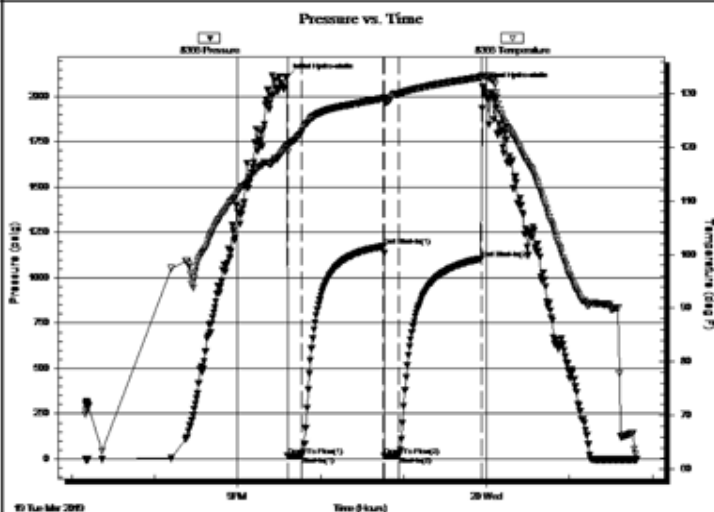
Time Off Btm: 2019.03.19 @ 23:57:20

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

60 ISI - No return

10 FF - No blow

60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2105.91	120.26	Initial Hydro-static
1	14.84	119.13	Open To Flow (1)
11	15.66	122.81	Shut-In(1)
70	1173.90	129.14	End Shut-In(1)
71	17.11	128.52	Open To Flow (2)
81	18.16	129.93	Shut-In(2)
141	1105.49	133.07	End Shut-In(2)
142	2054.55	133.26	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	OSM - oil spots - 100%M	0.02

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

15-2s-36w Rawlins KS

1474 S. St. Paul St.
Denver CO 80210

Frisbie Family #1-15

Job Ticket: 65271

DST#: 6

ATTN: Clayton Camozzi

Test Start: 2019.03.20 @ 21:40:00

GENERAL INFORMATION:

Formation: **Pawnee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 00:15:50

Time Test Ended: 05:06:30

Test Type: Conventional Bottom Hole (Reset)

Tester: Ryan Nichols

Unit No: 71

Interval: **4632.00 ft (KB) To 4699.00 ft (KB) (TVD)**

Total Depth: 4699.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 3335.00 ft (KB)

3330.00 ft (CF)

KB to GR/CF: 5.00 ft

Serial #: 8366

Outside

Press@RunDepth: 27.02 psig @ 4633.00 ft (KB)

Start Date: 2019.03.20

Start Time: 21:40:00

Capacity: 8000.00 psig

Last Calib.: 2019.03.21

Time On Btm: 2019.03.21 @ 00:15:00

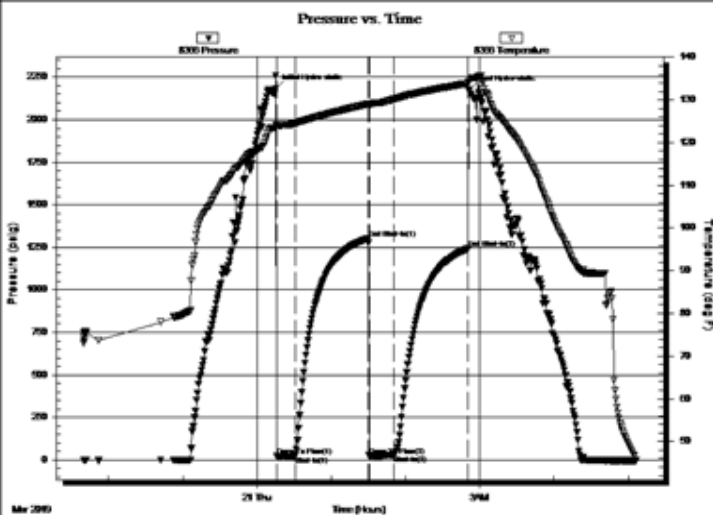
Time Off Btm: 2019.03.21 @ 02:51:50

TEST COMMENT: 15 IF - Blow built to 1" died back to 3/4"

60 ISI - No return

20 FF - No blow

60 FSI - No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2182.13	124.04	Initial Hydro-static
1	20.63	123.74	Open To Flow (1)
16	23.95	124.48	Shut-In(1)
75	1302.67	129.11	End Shut-In(1)
76	25.23	128.66	Open To Flow (2)
96	27.02	130.18	Shut-In(2)
156	1243.17	133.90	End Shut-In(2)
157	2174.31	134.72	Final Hydro-static

Recovery


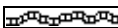
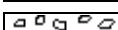

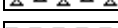


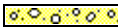






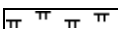


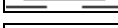
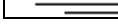
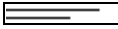

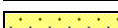

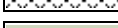


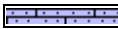



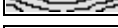
Length (ft)	Description	Volume (bbl)
5.00	Mud with Oil Spots 100%	0.02

Gas Rates

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

ROCK TYPES
















LITHOLOGY

-  Anhy
-  Bent
-  Brec
-  Cht
-  Clyst
-  Coal
-  Congl
-  Dol
-  Gyp
-  Igne
-  Lmst
-  Meta
-  Mrlst
-  Salt
-  Shale
-  Shcol
-  Shgy
-  Slst
-  Ss
-  Till
-  Slststn
-  Shale
-  Sandylms
-  Lms
-  Gry sh
-  Dtd
-  Dol
-  Carb sh
-  pipesymbol
-  unknown lith
-  Red shale

FOSSIL


-  Oomoldic
-  Fuss
-  Algae

MINERAL












-  Sltly
-  Sand
-  Dol
-  Chlorite
-  Anhy
-  Arggrn
-  Arg
-  Bent
-  Bit
-  Brecfrag
-  Calc
-  Carb
-  Chtdk
-  Chtlt
-  Dol

STRINGER






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

 Ssstrg





TEXTURE

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






OIL SHOW










-  Gas show
-  Even
-  Spotted
-  Ques
-  Dead

INTERVAL

-  Dst
-  Core
-  Dst
-  Straddle test tail pip

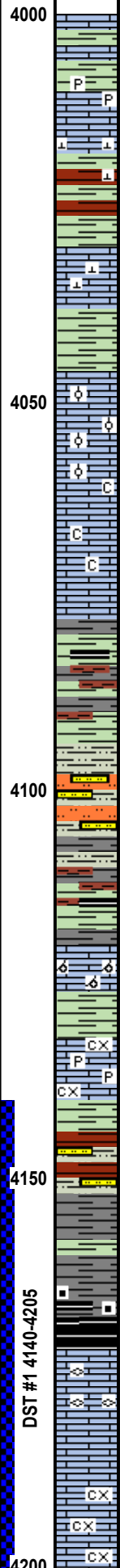
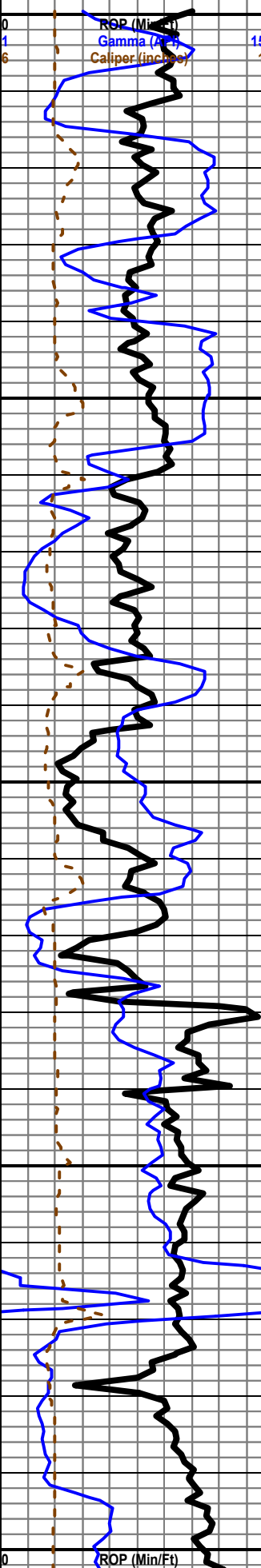
EVENT

-  Rft
-  Sidewall
-  Dst
-  Open hole
-  Perforations

Curve Track 1	Depth	Lithology	Geological Descriptions	Engineering Data
ROP (Min/Ft)  Gamma (API)  Caliper (inches) 		Oil Shows	Geological Descriptions	TG (Units)  C1 (units)  C2 (units)  C3 (units)  C4 (units)  C5 (units) 
ROP (Min/Ft) 5 Gamma (API) 150 Caliper (inches) 16	3950		Black Oak Exploration Frisbie Family 1-15 2180' FSL & 2300' FEL Sec. 15- 2s - 26w Rawlins Co, KS Drilling Company: Murfin Drilling Co Rig #3 785-443-1857 Tool Pusher: Jay Ruzicka 308-340-1089 Mud: Mud-Co Engineer(s): Reid Atkins 785-694-3741 Geologist, Clayton Camozzi on Location @ 3897' 11:30 PM March 15, 2019	Ran 9 joints of 23# New 8 5/8" surface casing. Tally @ 4'2". Set @ 420KB' Cement with 250 sacks of common, 2% gel, 3% calcium chloride. Cement did circulate. Plug down @ 12:15 am on 3-12-19 by Hurricane

GR & Cal Adjusted 5' (Up)
to match drill time. RTD
3860' LTD 3865'

Start Wet & Dry Samples @ 4000'



Limestone-White to off white, microcrystalline cryptocrystalline, very poor to no intercrystalline porosity, small streaks dark brown to black residual oil to dead stain, spotted fluorescence, instant slow stream cut, slow milky cut, no odor, no show free oil

Shale-light gray to dark green to red, brittle, to splintry. Scattered trace pyrite

Limestone-white to off white, brittle, microcrystalline trace fossiliferous matrix, recrystalline in part, abundant intergranular calcite crystals throughout, no visible porosity no show

Shale red to silver to trace green, hard dense to brittle, trace silt scattered throughout.

Limestone off white to light brown to streaks brown black, microcrystalline, very poor to no visible intercrystalline porosity, very slight fracturing, trace calcite crystals, trace scattered stain, dull yellow to scattered yellow fluorescence, instant milky flush cut, fair slow stream cut, light brown ring in dish, no odor no show free oil

Limestone (4048')-white to off white to trace cream, very fine to fine crystalline matrix, trace poorly sorted very fine oolites, poor intercrystalline porosity to trace poor interoolitic porosity, light brown stain in 10% scattered throughout, dull yellow fluorescence, fair flush cut to fair slow stream cut, no odor, no show free oil

Topeka 4052 (-717)

Limestone cream to light brown to trace white scattered throughout, very fine crystalline matrix to scattered oolitic matrix, poor to fair interoolitic porosity in part, small trace vugular porosity, poor intercrystalline porosity, fair streaky stain in 30%, poor/fair vugular porosity in part. Live oil slowly bleeding from vugs, Live oil in tray, dull yellow fluorescence, good instant flush cut, fair slow stream cut, brown leach left on dish, slight oil odor, poor/fair show free oil

Limestone off white to cream, hard dense, microcrystalline, cryptocrystalline to scattered oolitic matrix, very poor to no interoolitic porosity to no intercrystalline porosity, trace scattered stain in 2%, scattered dull yellow to no flo, no odor, no show free oil, scattered spotted pyrite throughout, scattered chalk

Shale gray to green to red and black stringer, hard to brittle, waxy, slight trace splintry carbonaceous black shale, slight trace very fine siltstone.

Siltstone light gray to red with of white limy silt throughout, small trace carbonaceous black shale, calcareous matrix, very fine sub round to trace sub angular quartz grains, fair to good intergranular porosity, fair sorting, trace spotted pyrite in part No show

Shale gray to green to red and black stringer, hard to brittle, waxy slight trace splintry carbonaceous black shale, Trace very fine siltstone as above dull yellow mineral flo

Limestone off white to cream, oomoldic matrix scattered throughout, trace recrystalline matrix, fair interoomoldic porosity to poor intercrystalline porosity, dead oil stain in 20%, dull yellow flo scattered throughout, fair flush cut to fair slow stream cut, no odor, no visible show live oil.

Limestone-cream to light gray, microcrystalline to cryptocrystalline throughout, no intercrystalline porosity, dull yellow mineral fluorescence. Trace spotted pyrite in part, no cut, no show

Shale light gray to red, brittle, scattered very fine grained silt stringers throughout,

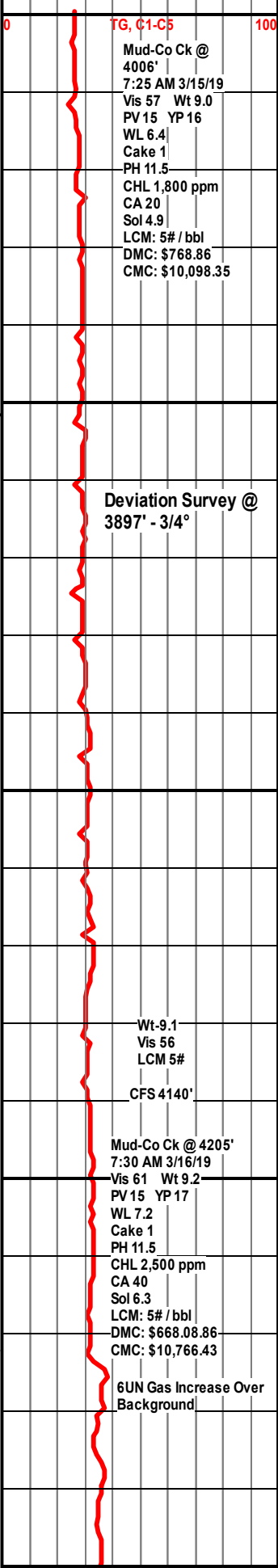
Shale gray to dark, hard to brittle, slightly waxy, scattered shards carbonaceous black shale

Oread 4172 (-837)

Limestone cream to light brown, fine crystalline to microcrystalline matrix, fossiliferous hash with abundant fusulinids in calcareous matrix throughout, good intercrystalline porosity to good interoolitic porosity, dark brown oil stain in 60%, samples bleeding oil, good odor, dull yellow flo throughout to bright white yellow flo in 15%, excellent instant flush cut to good slow stream cut good show free oil

Limestone cream to light tan, hard to brittle, microcrystalline cryptocrystalline matrix, very poor to no intercrystalline porosity, no show free oil

Limestone off white to cream, cryptocrystalline to microcrystalline matrix, trace scattered oil on



Mud-Co Ck @ 4006'
7:25 AM 3/15/19
Vis 57 Wt 9.0
PV 15 YP 16
WL 6.4
Cake 1
PH 11.5
CHL 1,800 ppm
CA 20
Sol 4.9
LCM: 5# / bbl
DMC: \$768.86
CMC: \$10,098.35

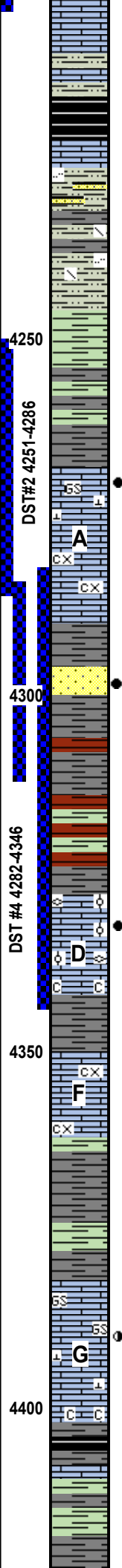
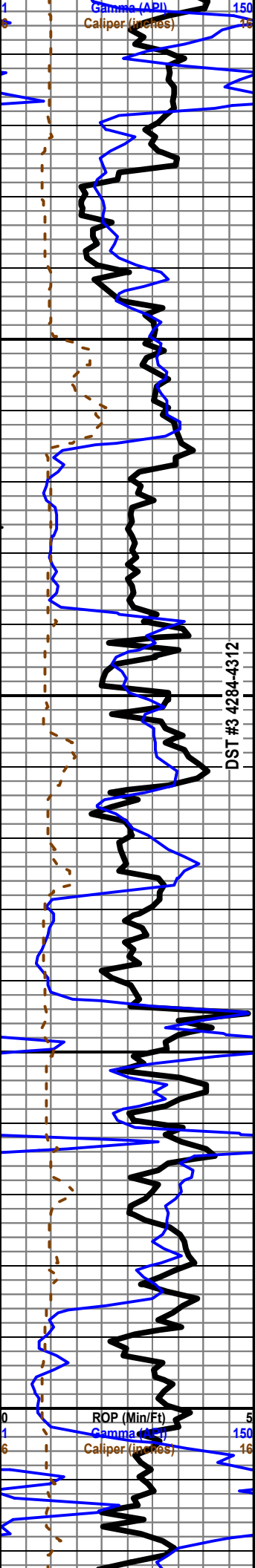
Deviation Survey @ 3897' - 3/4°

Wt-9.1
Vis 56
LCM 5#
CFS 4140'

Mud-Co Ck @ 4205'
7:30 AM 3/16/19
Vis 61 Wt 9.2
PV 15 YP 17
WL 7.2
Cake 1
PH 11.5
CHL 2,500 ppm
CA 40
Sol 6.3
LCM: 5# / bbl
DMC: \$668.08.86
CMC: \$10,766.43

6UN Gas Increase Over Background

CFS 4205' TG, C1-C5 100



Heebner 4215 (-880)

Shale black carbonaceous splintry, fissile

Shaly siltstone scattered throughout, small trace sand stringer, dark gray to black to trace scattered light gray, dense to brittle, glauconite in part, calcareous silty matrix, splintry carbonaceous black shale scattered throughout, no fluorescence, trace bitumine, no show

Shale dark gray to gray to trace white, hard dense, to brittle scattered throughout, no fluorescence

Lansing 4268 (-933)

Limestone cream to tan, brittle, subsucrosic to scattered sucrosic to recrystalline matrix with imbedded calcite xls, fair to good intercrystalline porosity throughout, good scattered vugular porosity in 20%, possible fracture porosity in part, good oil stain in 60%, dull yellow spotted fluorescence, good instant flush cut, fair slow stream cut, tan leach left on dish, faint oil odor, samples bleeding oil, good show free oil, pyrite in part,

Sandstone off white to tan to gray throughout, very fine grain, poorly sorted sub angular to angular quartz grains, very brittle, good intergranular porosity, very small trace calcareous cement, 10% of grains have yellow flourescence and light brown oil stain in 90% of sample, bleeding light brown oil. Remaining grains have globular waxy oil stain in 10% with little to no flourescence, abundant waxy heavy oil when broken, fair show free oil in tray.

Shale dark gray to gray to red to trace green, hard dense to very brittle scattered throughout, no fluorescence

Lansing D 4329 (-994)

Limestone white to cream to scattered light tan, oolitic to fossiliferous hash in calcareous matrix, trace large calcite crystals scattered throught, fair interoolitic porosity to fair interfossiliferous porosity, light brown oil stain in 50%, dull yellow fluorescence, good instant flush cut to fair slow stream cut, samples slowly bleeding, light brown ring on dish, fair show free oil, abundant fussionilids, soft white chalk on bottom.

Limestone cream to dark tan, very hard dense, cryptocrystalline mtarix, no visible porosity, dull yellow mineral fluorescence, no cut no show.

Shale light gray to small trace green, brittle, trace fissile, no fluorescence

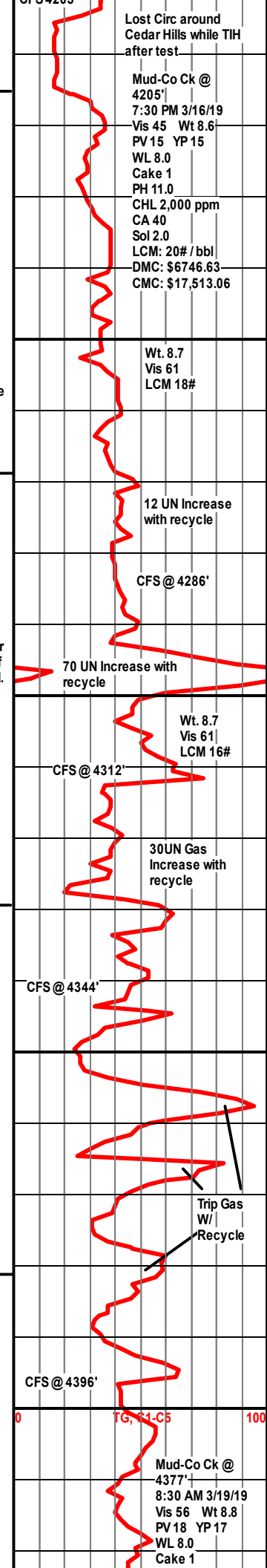
Lansing G 4381 (-1046)

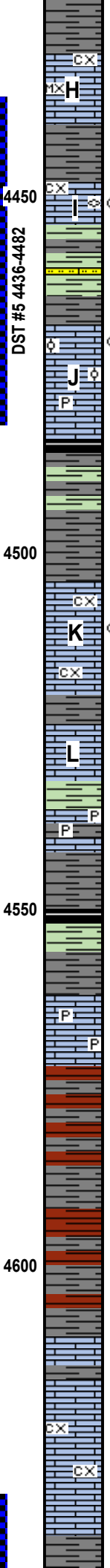
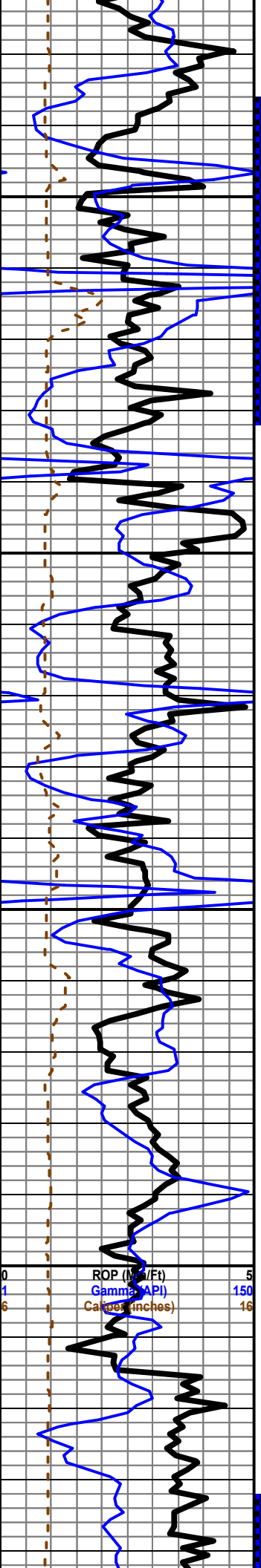
Limestone cream to tan, brittle, subsucrosic matrix with scattered medium vugs, recrystallized matrix in part, abundant large subangular calcite crystals in matrix, good intercrystalline porosity, good scattered vugular porosity, scattered fracture porosity, light brown oil stain in 60%, faint oil odor, dull yellow fluorescence to small trace spotted bright yellow in part, poor instant flush cut to good slow stream cut, scattered samples bleeding oil, scattered globular oil in tray, Fair show

Abundant soft white chalk

Shale black, waxy, carbanaceous

Shale light gray to green, soft dense to scattered hard, fissile, waxy in part, soft white chalk scattered throughout, small





Limestone white to tan, hard dense, microcrystalline to cryptocrystalline, no intercrystalline porosity, dull yellow mineral fluorescence, no odor no show

Limestone off white to cream, hard to brittle, microcrystalline to fossiliferous hash / large fussionilids in calcareous matrix, poor to no intercrystalline porosity to scattered fair interfossiliferous porosity, no odor, slight oil stain in 10%, dull yellow mineral fluorescence through, no flush cut, no odor, questionable to no show.

Shale light gray to green, trace siltsone scattered throughout, brittle, no fluorescence

Lansing J 4468 (-1133)

Limestone whit to cream, dense, microcrystalline to very small trace scattered subsucrosic to trace oolitic in calcareous matrix, very poor to no intercrystalline porosity, poor interoolitic porosity, streaky / spotted black oil stain in 60%, no oil odor very dull yellow to no fluorescence, good instant flush cut to poor slow stream cut. Very small trace free oil in tray, poor show, pyrite

Shale black, soft, waxy carbonaceous

Shale light gray to trace green, soft to hard micaceous in part, no fluorescence

Limestone white to cream, microcrystalline, very poor to no intercrystalline porosity, trace possible fractured porosity with calcite crystals, possible light brown stain along fracture plains, scattered spotted dull fluorescence to mineral fluorescence throughout, no odor, questionable to no show free oil

Limestone cream to white, microcrystalline cryptocrystalline matrix, no visible porosity, dull yellow mineral fluorescence to no fluorescence. No show free oil

BKC 4532 (-1198)

Limestone off white to trace gray to scattered brown, microcrystalline cryptocrystalline matrix, no intercrystalline porosity, no odor, no cut, very dull yellow mineral fluorescence to no fluorescence, no show free oil, pyrite

Shale gray ot trace green to small trace black carbonaceous shale, soft to hard, blocky to fissile. No fluorescence

Limestone off white to cream hard dense to small trace brittle, very poor to no intercrystalline porosity, no stain, very dull mineral to no fluorescence, no odor no show free oil. Trace pyrite

Shale light gray to gray to red, hard to brittle, scattered blocky to fissile in part, No fluorescence

Shale light gray to gray to red, hard to brittle, blocky throughout to dense fissile in part, No fluorescence

Limestone gray to very small trace brown, cryptocrystalline matrix, no intercrystalline porosity, slight trace very dull yellow fluorescence to no fluorescence, no odor, no no show free oil.

Limestone - As above

Shale gray blocky hard dense, micaceous, trace scattered carbonaceous black shale, no fluorescence

PH 10.0
CHL 1,500 ppm
CA 40
Sol 3.6
LCM: 14# / bbl
DMC: \$1238.47
CMC: \$20,621.93

CFS @ 4482'

Mud-Co Ck @ 4535'
7:40 AM 3/11/19
Vis 61 Wt 8.8
PV 17 YP 15
WL 7.2
Cake 1
PH 10.0
CHL 1,800 ppm
CA 20
Sol 3.5
LCM: 10# / bbl
DMC: \$606.16
CMC: \$21,228.09

0 TG, C1-C5 100

ROP (M/Ft) 5
Gamma (API) 150
Caliper (inches) 16

Labette Shale 4647 (-1312)

Limestone cream to tan, hard cryptocrystalline throughout, por to nil intercrystalline porosity, dull yellow mineral fluorescence, no cut or stain, no show free oil

Limestone light tan to cream, subsucrosic throughout to trace oolitic / calcareous matrix, good intercrystalline porosity to trace vugular porosity in part, scattered fair oolitic porosity in part, light brown oil stain in 80%, fair oil odor, scattered spotted bright yellow fluorescence in 30%, dull yellow flush cut to fair slow stream cut, good show dark brown free oil in tray, translucent rainbow show on top of water, abundant free oil in dimple dish after acid.

Limestone cream to light gray, hard, dense, cryptocrystalline matrix, no visible porosity, dull yellow mineral fluorescence throughout no cut no show.

Lower Pawnee 4688 (-1353)

Limestone white to cream, hard dense, microcrystalline cryptocrystalline matrix, very poor to no visible intercrystalline porosity, no fluorescence, no odor, no cut no show free oil, trace pyrite scattered throughout

Limestone cream to light gray, cryptocrystalline matrix throughout, no intercrystalline porosity, very dull yellow to no mineral fluorescence, no stain, no cut, no odor no show, trace pyrite

Fort Scott 4720 (-1385)

Limestone off white to cream, hard dense, microcrystalline matrix, trace recrystalline matrix, poor to no intercrystalline porosity, very poor to no fracture porosity, veins filled with dense calcite, no stain, no odor no cut no show. Trace pyrite. Abundant black carbonaceous shale.

Cherokee Shale 4742 (-1399)

Limestone cream to very light gray, hard to soft in part, microcrystalline, trace recrystalline matrix, no intercrystalline porosity, trace very possible poor fracture with calcite veins, no odor, no fluorescence no show.

Limestone cream to light brown, microcrystalline matrix, trace scattered recrystalline, poor intercrystalline to no fracture porosity due to calcite veins, no stain no fluorescence no cut no show

Limestone cream to light gray to trace light brown, hard to soft, sub sucrosic, trace shale inclusions in matrix, fair intercrystalline in part to poor intercrystalline porosity throughout, no stain, dull yellow mineral fluorescence, no cut, no show oil

Limestone cream to light brown, har tot soft microcrystalline to trace subsucrosic in a dense calcarous matrix, very poor to no intercrystalline porosity, no stain, no fluorescence, no cut no show oil.

Limestone off white to cream, hard to soft, microcrystalline to scattered subsucrosic round calcite grains in dark red shaly calcareous matrix, poor intercrystalline porosity, no stain no fluorescence no cut no show. Scattered green friable shale

Sandstone, of white translucent grains in a light blue calcareous matrix very fine grains, sub round, fair sorting, poor to fair intergranular porosity, dull yellow mineral fluorescence throughout to scattered no fluorescence, no stain, no cut no show trace glauconite

Shale dark red to maroon, sand grains included, soft dense slightly waxy, no fluorescence, small trace sand grains as above

Sandy lime, very fine grain sub angular to round in a calcareous matrix, shale inclusions, trace possible scattered mica in part, trace glauconite, fair intercrystalline porosity, dull yellow to no mineral fluorescence throughout, no odor, no cut no show oil

Sandstone off white to light red, hard dense. very fine quartz grains, sub angular to round, fair to trace good intergranular porosity, no odor, no fluorescence, no cut no show oil. Sandy shale red hard dense to scattered soft.

Sandstone, maroon to red, possible arcotic, hard dense, very fine grain sub round, to round quartz grains, fair sorting, fair to good intergranular porosity, no stain, no fluorescence no cut no show

DST #6 4632-4699

4700

4750

4800

4850

0
1
6

POB (Min/Ft) 5
Gamma (API) 150
Caliper (inches) 16

CFS @ 4699'

Trip Gas

Mud-Co Ck @ 4700'
8:40 AM 3/21/19
Vis 65 Wt 9.0
PV 17 YP 18
WL 8.8
Cake 1
PH 10.0
CHL 1,500 ppm
CA 40
Sol 4.7
LCM: 8# lbs/bbl
DMC: \$735.11
CMC: \$21,963.20

TG, C1-C5 100

CFS @ 4860

