

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 Date Reached TD Completion Date or
Recompletion Date 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	G&M 1-4
Doc ID	1462465

All Electric Logs Run

DIL
DUCP
MEL
BHCS



CEMENT TREATMENT REPORT

Customer:	Black oak	Well:	G and M 1-4	Ticket:	ICT1945
City, State:	Oakley KS	County:	Decatur	Date:	4/17/2019
Field Rep:	Arturo	S-T-R:	4-2-26R	Service:	Cement

Downhole Information	
Hole Size:	12.25
Hole Depth:	283
Casing Size:	8.625
Casing Depth:	275.5
Tubing / Liner:	in
Depth:	ft
Tool / Packer:	
Depth:	
Displacement:	16.27

Slurry	
Weight:	14.8 # / sk
Water / Sk:	6 7/8
Yield:	1.41
Bbls / Ft.:	0.0652
Depth:	273 ft
Volume:	bbls
Excess:	100%
Total Slurry:	43
Total Sacks:	170 sk

Cement Blend		
Product	%	#
Class A	100.0	15980
Gel	2.0	320
CaCl	3.0	480
Metso		
KolSeal		
PhenoSeal	0.3	42
Salt		
Total		16,822

TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
7:30 PM				Arrive on location					
7:35 PM				Hold Safety meeting					
7:40 PM				Rig up equipment					
7:55 PM				Start running casing					
8:30 PM				Casing on bottom					
8:35 PM				Rig circulates					
8:45 PM	4.5	180.0	43.0	Mix 170 sks					
8:52 PM	4.5	200.0	16.5	Displace					
9:00 PM		180.0		Plug down shut in					
9:20 PM				Rig down					
9:30 PM				Leave Location					


CREW		UNIT	SUMMARY		
Cementer:	Dane Retzloff	78.0	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Michael Rebarcheck	230.0	4.5 bpm	186.67 psi	59.50 bbls
Bulk #1:	John Polley	242.0			
Bulk #2:	Paul Williams				



HURRICANE SERVICES INC

Customer: Black Oak		Lease & Well #: G and M 1-4		Date: 4/23/2019			
Service District: Oakley,KS		County & State: Decatur KS		Legals S/I/R: 4/2/26w			
Job Type: PTA		<input type="checkbox"/> PROD <input type="checkbox"/> INJ <input type="checkbox"/> SWD		New Well? <input type="checkbox"/> YES <input type="checkbox"/> No			
Job #: ICT1958		Ticket #: ICT1958					
Equipment #	Driver	Job Safety Analysis - A Discussion of Hazards & Safety Procedures					
78	Dane	<input type="checkbox"/> Hard hat	<input type="checkbox"/> Gloves	<input type="checkbox"/> Lockout/Tagout	<input type="checkbox"/> Warning Signs & Flagging		
181/256	Kale	<input type="checkbox"/> H2S Monitor	<input type="checkbox"/> Eye Protection	<input type="checkbox"/> Required Permits	<input type="checkbox"/> Fall Protection		
230	Josh	<input type="checkbox"/> Safety Footwear	<input type="checkbox"/> Respiratory Protection	<input type="checkbox"/> Slip/Trip/Fall Hazards	<input type="checkbox"/> Specific Job Sequence/Expectations		
		<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 the Oakley,KS service center							
Product/Service Code	Description	Unit of Measure	Quantity		Net Amount		
M010	Heavy Equipment Mileage	mi	80.00		\$272.00		
M015	Light Equipment Mileage	mi	80.00		\$136.00		
M020	Ton Mileage	tm	912.00		\$1,162.80		
C010	Cement Pump	ea	1.00		\$637.50		
CP055	Type H plug cement	sack	255.00		\$2,663.86		
FE290	8 5/8" Wooden Plug	ea	1.00		\$127.50		
Customer Section: On the following scale how would you rate Hurricane Services Inc.?					Net:	\$4,999.66	
Based on this job, how likely is it you would recommend HSI to a colleague?			Total Taxable	\$ -	Tax Rate:		
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>			State tax laws deem certain products and services used on new wells to be sales tax exempt. Hurricane Services relies on the customer provided well information above to make a determination if services and/or products are tax exempt.			Sale Tax:	\$ -
Unlikely 1 2 3 4 5 6 7 8 9 10 Extremly Likely			Total:			\$	4,999.66
HSI Representative: <i>Dane Riefeloff</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.

 _____ **CUSTOMER AUTHORIZATION SIGNATURE**



CEMENT TREATMENT REPORT

Customer: Black Oak	Well: G and M 1-4	Ticket: ICT1958
City, State:	County: Decatur	Date: 4/23/2019
Field Rep: Arturo	S-T-R: 4/2/26w	Service: Cement

Downhole Information	
Hole Size:	7.875
Hole Depth:	
Casing Size:	
Casing Depth:	
Casing weight	
Depth:	
Tool / Packer:	
Depth:	
Displacement:	bbls

Slurry	
Weight:	13.8 # / sx
Water / Sk:	6 8/9 gal / sx
Yield:	1 3/7 ft³ / sx
Bbls / Ft.:	0.01422
Depth:	ft
Volume:	bbls
Excess:	%
Total Slurry:	64.5 bbls
Total Sacks:	255 sx

Cement Blend		
Product	%	#
Class A	60.0	14382
Poz	40.0	7548
Gel	4.0	877
Flo Seal	0.3	64
KolSeal		
PhenoSeal		
Salt		

Total		22,871
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TIME	RATE	PSI	BBLs	REMARKS	TIME	RATE	PSI	BBLs	REMARKS
8:45 PM				Arrive on location					
8:50 PM				Safety meeting					
8:55 PM				Rig up equipment					
12:30 AM	4.0	200.0	42.0	Mix 50 sks @ 2025 and displace					
1:20 AM	5.5	300.0	42.0	Mix 100 sks @ 1175 and displace					
1:40 AM	4.0	180.0	12.5	Mix 50 sks @ 325 and displace					
2:20 AM	3.0	100.0	14.0	Top 40 10sks RH 30sks MH 15 sks					
2:35 AM				Wash up					
2:50 AM				Rig down					
3:15 AM				Depart					

CREW		UNIT	SUMMARY		
Cementer:	Dane Retzloff	78	Average Rate	Average Pressure	Total Fluid
Pump Operator:	Josh Mosier	230	4.125 bpm	195.00 psi	110.50 bbls
Bulk #1:	Kale Ochs	181/250			
Bulk #2:					

3' Up-Hole Correction
Geolog Vs E-log

DRILLING WELL				
G&M 1-4				
1880 FSL / 2970 FEL 4 - 2S - 26W				
2543 KB				

Formation	Sample	Sub-Sea	Log	Sub-Sea
STONE CORRAL	2005	538	2004	539
NEVA	2763	-220	2766	-223
TOPEKA	3157	-614	3155	-612
LECOMPTON	3266	-723	3266	-723
HEENBER	3320	-777	3319	-776
LANSING	3361	-818	3360	-817
LANSING "B" Zone	3387	-844	3387	-844
LANSING "D" Zone	3399	-856	3398	-855
LANSING "G" Zone	3435	-892	3437	-894
LANSING "H" Zone	3464	-921	3462	-919
LANSING "J" Zone	3507	-964	3506	-963
LANSING "K" Zone	3524	-981	3521	-978
BKC	3562	-1019	3561	-1018
GRANITE	NDE			
Total Depth	3650	-1107	3647	-1104

COMPARISON WELL			
Carter 1		Leben Drlg: D&A	
360 FSL / 3660 FEL 33 - 1S - 26W			
2488 KB		Structural Relationship	

Log	Sub-Sea	Sample	Log
1950	538	0	1
2710	-222	2	-1
3099	-611	-3	-1
3211	-723	0	0
3264	-776	-1	0
3307	-819	1	2
3334	-846	2	2
3345	-857	1	2
3383	-895	3	1
3413	-925	4	6
3453	-965	1	2
3473	-985	4	7
3508	-1020	1	2
3624	-1136		
3665	-1177		

COMPARISON WELL			
Schwab "A" 2-5		Murfin: PRODUCER	
660 FSL / 1980 FEL 5 - 2S - 26W			
2594 KB		Structural Relationship	

Log	Sub-Sea	Sample	Log
2041	553	-15	-14
2793	-199	-21	-24
3184	-590	-24	-22
3296	-702	-21	-21
3350	-756	-21	-20
3388	-794	-24	-23
3416	-822	-22	-22
3427	-833	-23	-22
3465	-871	-21	-23
3495	-901	-20	-18
3537	-943	-21	-20
3555	-961	-20	-17
3592	-998	-21	-20
NDE			
3690	-1096		



DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration LLC**

1474 S St Paul St
Denver CO 80210

ATTN: Clayton Camozzi

G&M #1-4

4-2S-26W Decatur,KS

Start Date: 2019.04.20 @ 20:30:00

End Date: 2019.04.21 @ 02:36:46

Job Ticket #: 65355 DST #: 1

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

Printed: 2019.04.23 @ 12:00:30



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Oak Exploration LLC

4-2S-26W Decatur,KS

1474 S St Paul St
Denver CO 80210

G&M #1-4

Job Ticket: 65355

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.04.20 @ 20:30:00

GENERAL INFORMATION:

Formation: **LKC B-D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:37:31

Time Test Ended: 02:36:46

Test Type: Conventional Bottom Hole (Initial)

Tester: Shawn Wheelbarger

Unit No: 76

Interval: 3372.00 ft (KB) To 3409.00 ft (KB) (TVD)

Reference Elevations: 2543.00 ft (KB)

Total Depth: 3409.00 ft (KB) (TVD)

2536.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 6731

Inside

Press@RunDepth: 23.27 psig @ 3373.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.04.20

End Date:

2019.04.21

Last Calib.: 2019.04.21

Start Time: 20:30:01

End Time:

02:36:46

Time On Btm: 2019.04.20 @ 22:37:16

Time Off Btm: 2019.04.21 @ 00:50:16

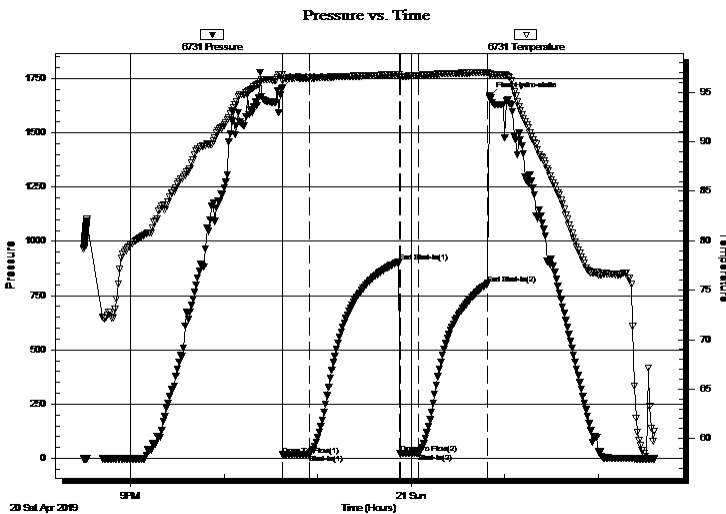
TEST COMMENT: 15-IF-Blow built to 1/2"

60-ISI-No blow back

10-FF-No blow

45-FSI-No blow

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1706.32	96.80	Initial Hydro-static
1	16.60	96.13	Open To Flow (1)
18	20.43	96.44	Shut-In(1)
75	904.12	96.78	End Shut-In(1)
76	21.56	96.52	Open To Flow (2)
88	23.27	96.70	Shut-In(2)
132	805.15	97.00	End Shut-In(2)
133	1668.51	96.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud w ith 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

4-2S-26W Decatur, KS

1474 S St Paul St
Denver CO 80210

G&M #1-4

Job Ticket: 65355

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.04.20 @ 20:30:00

GENERAL INFORMATION:

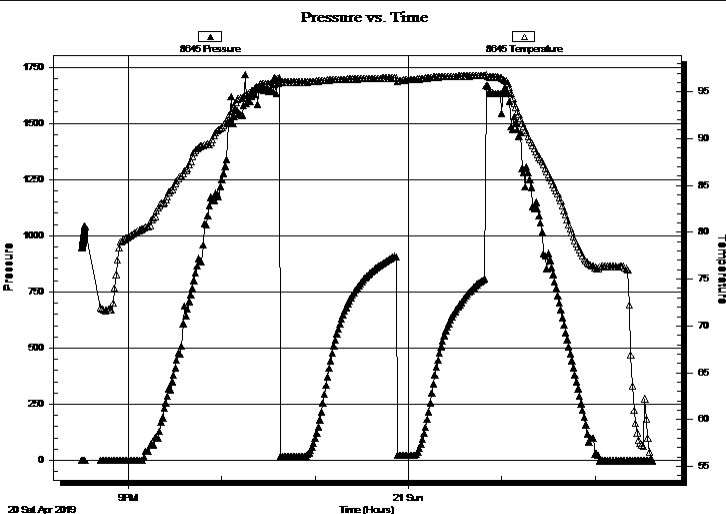
Formation: **LKC B-D**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 22:37:31
 Tester: Shawn Wheelbarger
 Time Test Ended: 02:36:46
 Unit No: 76
 Interval: **3372.00 ft (KB) To 3409.00 ft (KB) (TVD)**
 Reference Elevations: 2543.00 ft (KB)
 Total Depth: 3409.00 ft (KB) (TVD)
 2536.00 ft (CF)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 KB to GR/CF: 7.00 ft

Serial #: 8645

Outside

Press@RunDepth: psig @ 3373.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.20 End Date: 2019.04.21 Last Calib.: 2019.04.21
 Start Time: 20:30:01 End Time: 02:37:01 Time On Btm:
 Time Off Btm:

TEST COMMENT: 15-IF-Blow built to 1/2"
 60-ISI-No blow back
 10-FF-No blow
 45-FSI-No blow



PRESSURE SUMMARY

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

Recovery

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

4-2S-26W Decatur,KS

1474 S St Paul St
Denver CO 80210

G&M #1-4

Job Ticket: 65355

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.04.20 @ 20:30:00

Tool Information

Drill Pipe:	Length: 3170.00 ft	Diameter: 3.80 inches	Volume: 44.47 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: 210.00 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose: 78000.00 lb
			<u>Total Volume: 45.50 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	37.00 ft			String Weight: Initial 74000.00 lb
Depth to Top Packer:	3372.00 ft			Final 74000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	37.00 ft			
Tool Length:	66.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3344.00	
Shut In Tool	5.00			3349.00	
Hydraulic tool	5.00		Inside	3354.00	
Jars	5.00			3359.00	
Safety Joint	3.00			3362.00	
Packer	5.00			3367.00	29.00 Bottom Of Top Packer
Packer	5.00			3372.00	
Stubb	1.00			3373.00	
Recorder	0.00	8645	Outside	3373.00	
Recorder	0.00	6731	Inside	3373.00	
Perforations	33.00			3406.00	
Bullnose	3.00			3409.00	37.00 Bottom Packers & Anchor

Total Tool Length: 66.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration LLC

4-2S-26W Decatur,KS

1474 S St Paul St
Denver CO 80210

G&M #1-4

Job Ticket: 65355

DST#: 1

ATTN: Clayton Camozzi

Test Start: 2019.04.20 @ 20:30:00

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: 7.18 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud w ith oil spots, 100%M	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

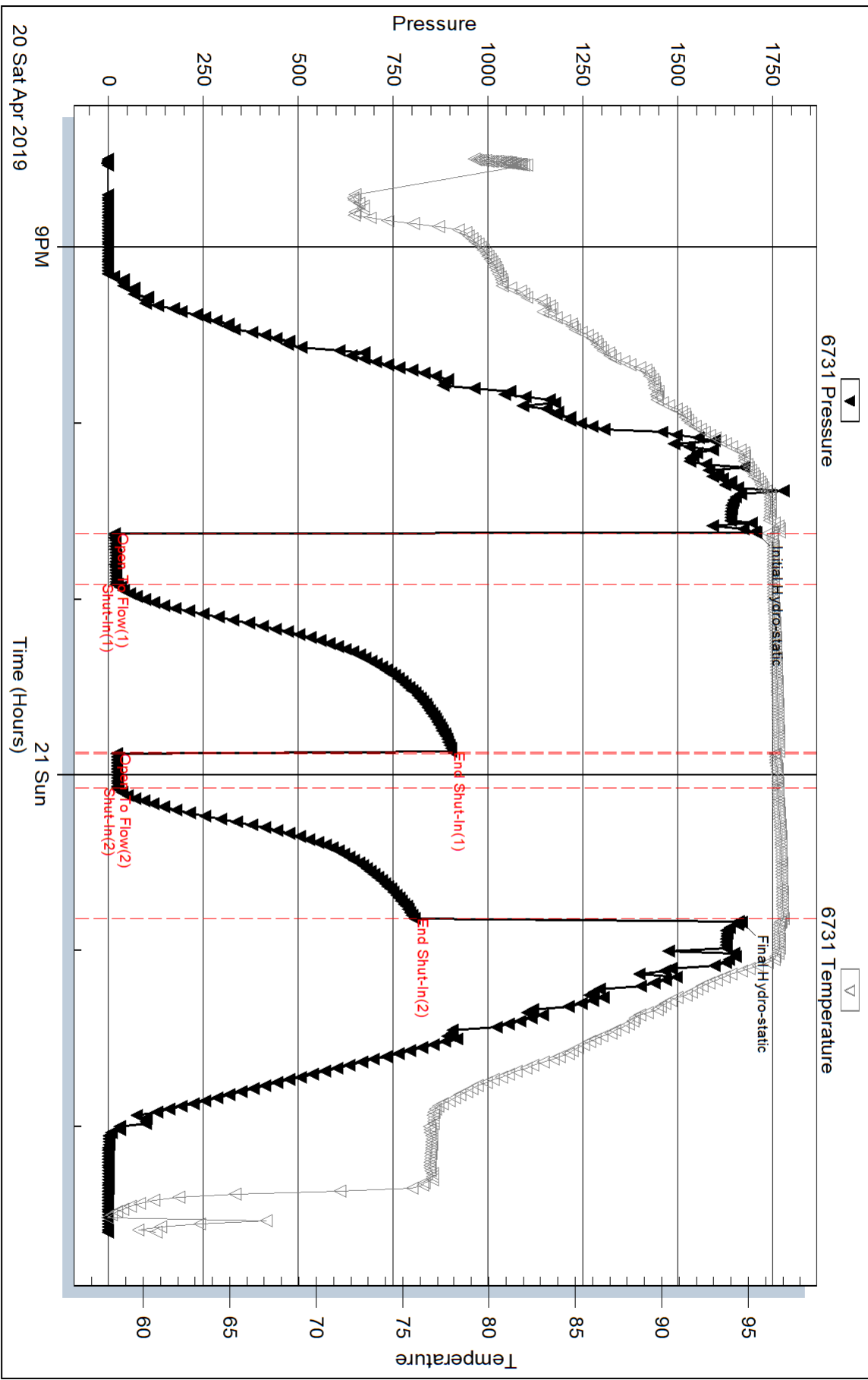
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

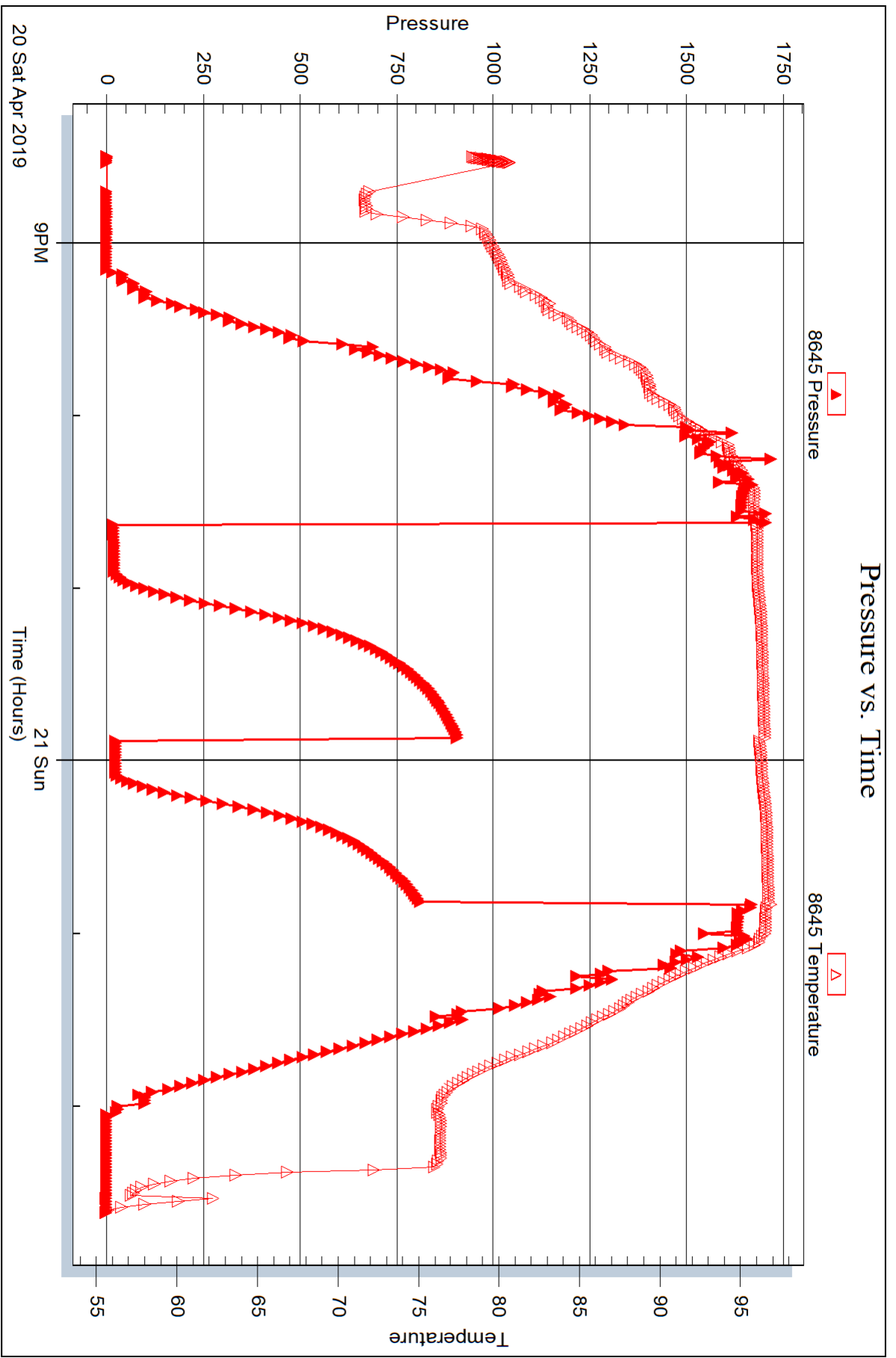


Serial #: 8645

Outside Black Oak Exploration LLC

G&M#1-4

DST Test Number: 1





DRILL STEM TEST REPORT

Prepared For: **Black Oak Exploration LLC**

1474 S St Paul St
Denver CO 80210

ATTN: Clayton Camozzi

G&M #1-4

4-2S-26W Decatur,KS

Start Date: 2019.04.21 @ 17:09:00

End Date: 2019.04.22 @ 00:34:31

Job Ticket #: 65356 DST #: 2

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

Printed: 2019.04.23 @ 11:56:58



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

4-2S-26W Decatur,KS

1474 S St Paul St
Denver CO 80210

G&M #1-4

Job Ticket: 65356

DST#: 2

ATTN: Clayton Camozzi

Test Start: 2019.04.21 @ 17:09:00

GENERAL INFORMATION:

Formation: **LKC H-K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:07:16

Time Test Ended: 00:34:31

Test Type: Conventional Bottom Hole (Reset)

Tester: Shawn Wheelbarger

Unit No: 76

Interval: 3450.00 ft (KB) To 3544.00 ft (KB) (TVD)

Reference Elevations: 2543.00 ft (KB)

Total Depth: 3544.00 ft (KB) (TVD)

2536.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: 6731

Inside

Press@RunDepth: 429.03 psig @ 3451.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.04.21

End Date:

2019.04.22

Last Calib.:

2019.04.22

Start Time: 17:09:01

End Time:

00:34:31

Time On Btm:

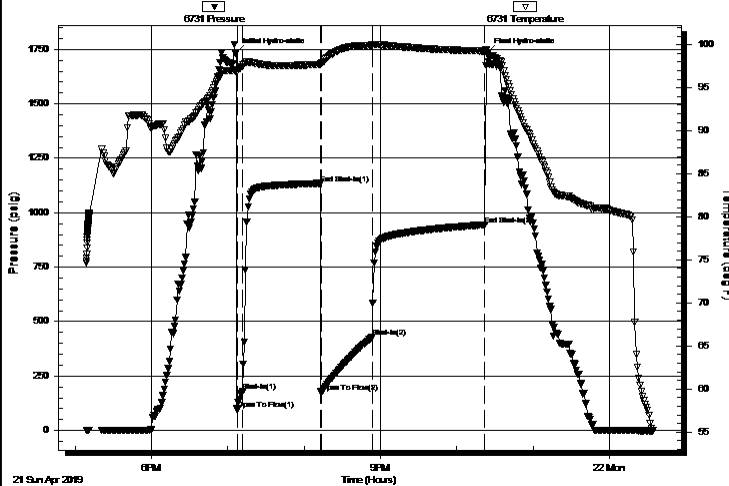
2019.04.21 @ 19:06:31

Time Off Btm:

2019.04.21 @ 22:24:01

TEST COMMENT: 5-IF-4" of blow @ open, built to BOB in 4 1/2 mins
60-ISI-No blow back
40-FF-3" blow @ open built to BOB in 5 mins
90-FSI-No Blow

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1735.38	97.05	Initial Hydro-static
1	95.27	96.88	Open To Flow (1)
5	178.01	97.45	Shut-In(1)
66	1134.14	97.70	End Shut-In(1)
67	177.38	97.81	Open To Flow (2)
107	429.03	99.95	Shut-In(2)
196	944.78	99.26	End Shut-In(2)
198	1733.04	98.79	Final Hydro-static

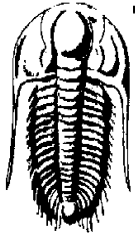
Recovery

Length (ft)	Description	Volume (bbl)
625.00	MCW W/ oil spots 90%W, 10%M	6.85
190.00	WCM W/ oil spots 50%M, 50%W	2.67
60.00	MCW W/ oil spots 70%M, 30%W	0.84

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Oak Exploration LLC

1474 S St Paul St
Denver CO 80210

ATTN: Clayton Camozzi

4-2S-26W Decatur, KS

G&M #1-4

Job Ticket: 65356

DST#: 2

Test Start: 2019.04.21 @ 17:09:00

GENERAL INFORMATION:

Formation: **LKC H-K**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 19:07:16
 Time Test Ended: 00:34:31
Interval: 3450.00 ft (KB) To 3544.00 ft (KB) (TVD)
 Total Depth: 3544.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches
 Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Shawn Wheelbarger
 Unit No: 76
 Reference Elevations: 2543.00 ft (KB)
 2536.00 ft (CF)
 KB to GR/CF: 7.00 ft

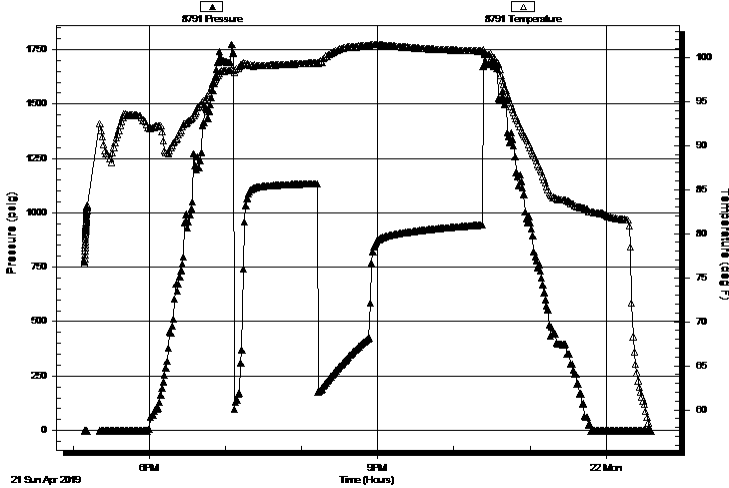
Serial #: 8791

Outside

Press@RunDepth: psig @ 3451.00 ft (KB)
 Start Date: 2019.04.21 End Date: 2019.04.22
 Start Time: 17:09:01 End Time: 00:35:01
 Capacity: 8000.00 psig
 Last Calib.: 2019.04.22
 Time On Btm:
 Time Off Btm:

TEST COMMENT: 5-IF-4" of blow @ open, built to BOB in 4 1/2 mins
 60-ISI-No blow back
 40-FF-3" blow @ open built to BOB in 5 mins
 90-FSI-No Blow

Pressure vs. Time



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
625.00	MCW W/ oil spots 90%W, 10%M	6.85
190.00	WCM W/ oil spots 50%M, 50%W	2.67
60.00	MCW W/ oil spots 70%M, 30%W	0.84

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

4-2S-26W Decatur,KS

1474 S St Paul St
Denver CO 80210

G&M #1-4

Job Ticket: 65356

DST#: 2

ATTN: Clayton Camozzi

Test Start: 2019.04.21 @ 17:09:00

Tool Information

Drill Pipe:	Length: 3234.00 ft	Diameter: 3.80 inches	Volume: 45.36 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 210.00 ft	Diameter: 2.25 inches	Volume: 1.03 bbl	Weight to Pull Loose: 90000.00 lb
			<u>Total Volume: 46.39 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	23.00 ft			String Weight: Initial 80000.00 lb
Depth to Top Packer:	3450.00 ft			Final 82000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	94.00 ft			
Tool Length:	123.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3422.00	
Shut In Tool	5.00			3427.00	
Hydraulic tool	5.00		Inside	3432.00	
Jars	5.00			3437.00	
Safety Joint	3.00			3440.00	
Packer	5.00			3445.00	29.00 Bottom Of Top Packer
Packer	5.00			3450.00	
Stubb	1.00			3451.00	
Recorder	0.00	8791	Outside	3451.00	
Recorder	0.00	6731	Inside	3451.00	
Perforations	20.00			3471.00	
Blank Spacing	65.00			3536.00	
Perforations	5.00			3541.00	
Bullnose	3.00			3544.00	94.00 Bottom Packers & Anchor

Total Tool Length: 123.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Black Oak Exploration LLC

4-2S-26W Decatur,KS

1474 S St Paul St
Denver CO 80210

G&M #1-4

Job Ticket: 65356

DST#: 2

ATTN: Clayton Camozzi

Test Start: 2019.04.21 @ 17:09:00

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:

54000 ppm

Viscosity: 56.00 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: 2.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
625.00	MCW W/ oil spots 90%W, 10%M	6.854
190.00	WCM W/ oil spots 50%M, 50%W	2.665
60.00	MCW W/ oil spots 70%M, 30%W	0.842

Total Length: 875.00 ft Total Volume: 10.361 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

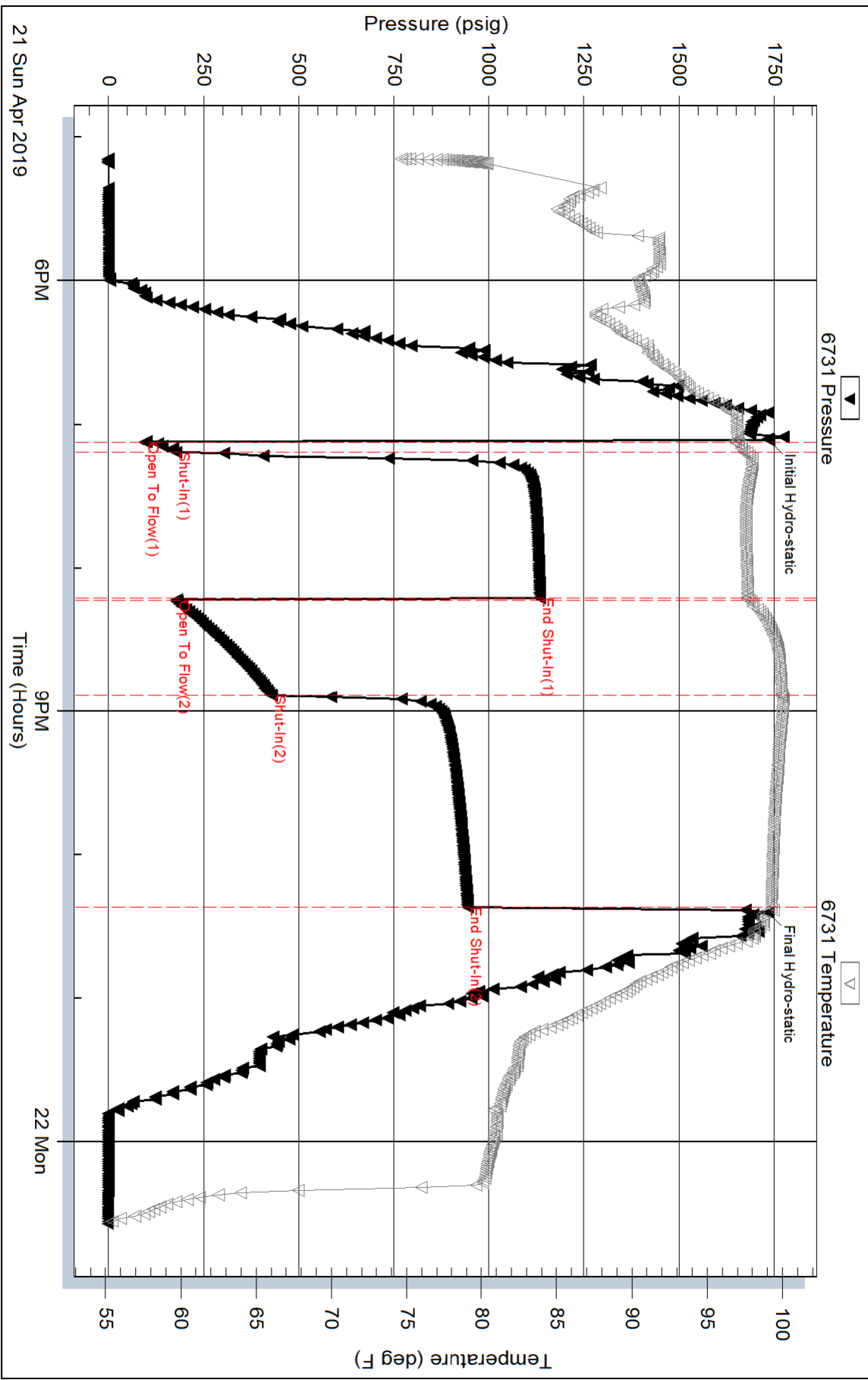
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW .182@ 57 deg F 54000PPM

Pressure vs. Time

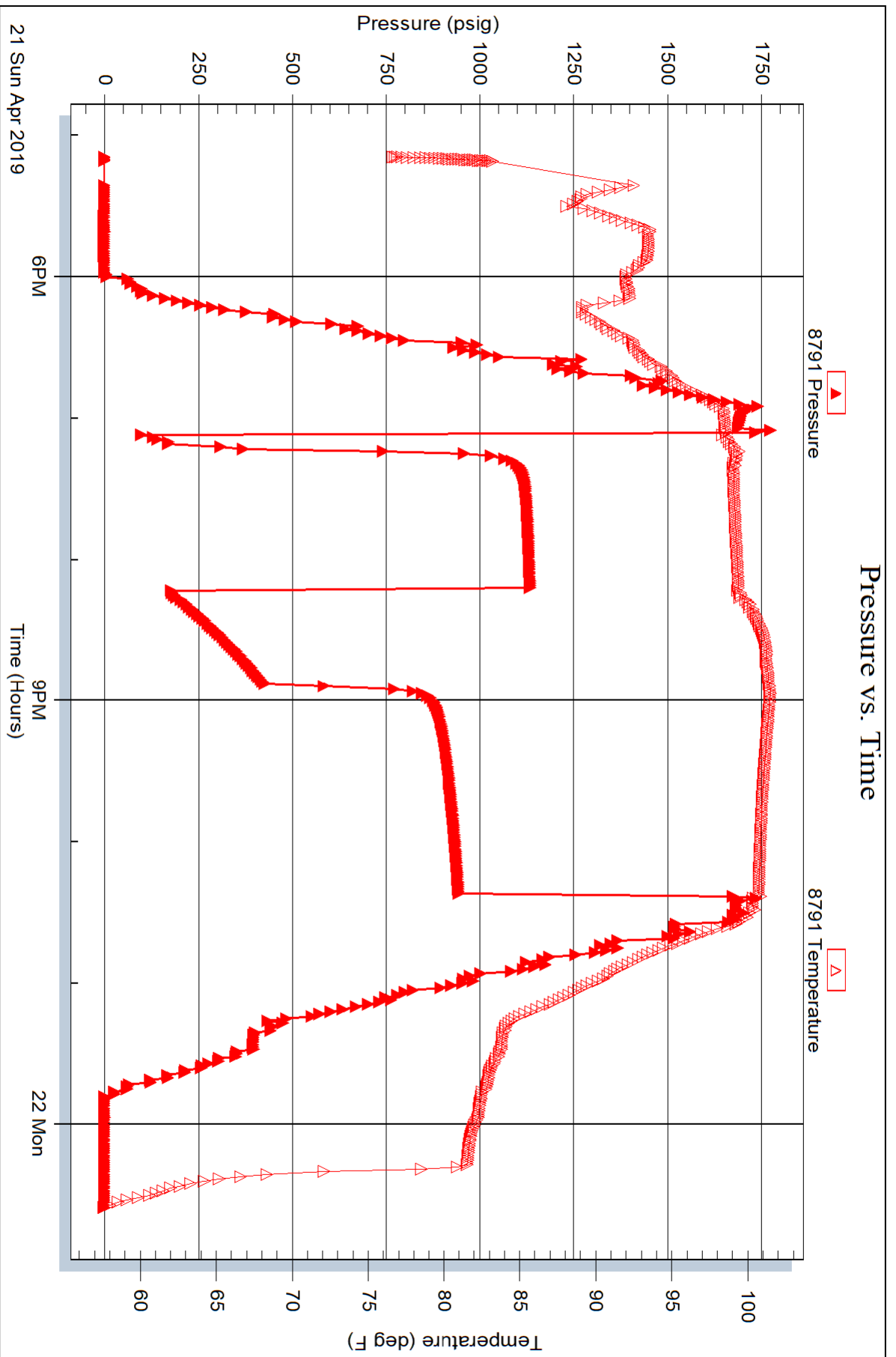


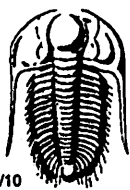
Serial #: 8791

Outside Black Oak Exploration LLC

G&M#1-4

DST Test Number: 2





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65355

Well Name & No. G+M #1-4 Test No. 1 Date 4-20-19
 Company Black Oak Exploration LLC Elevation 2543 KB 2536 GL
 Address 1474 S St Paul St Denver CO 80210
 Co. Rep / Geo. Clayton Camozzi Rig Murfin 7
 Location: Sec. 4 Twp. 25 Rge. 26 W Co. Decatur State KS

Interval Tested 3372 - 3409 Zone Tested Lansing B-D
 Anchor Length 37 Drill Pipe Run ~~3170~~ 3170 Mud Wt. 9.2
 Top Packer Depth 3367 Drill Collars Run 210 Vis 6.3
 Bottom Packer Depth 3372 Wt. Pipe Run - WL 7.2
 Total Depth 3409 Chlorides 600 ppm System LCM 5

Blow Description IF Blow built to 1/2"
ISI No Blow back
FF No blow
FSL No blow

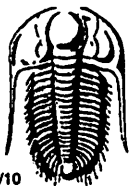
Rec	Feet of	%gas	%oil	%water	%mud
<u>5</u>	<u>Mud w/ oil spots</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 5' BHT 97° Gravity - API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 1706 Test _____ T-On Location 19 10 4-20
 (B) First Initial Flow ~~17~~ 17 Jars _____ T-Started 20 30
 (C) First Final Flow 20 Safety Joint _____ T-Open 22:38
 (D) Initial Shut-In ~~904~~ 904 Circ Sub _____ T-Pulled 00 48 4-21
 (E) Second Initial Flow 22 Hourly Standby _____ T-Out ~~02:30~~ 02:30
 (F) Second Final Flow 23 Mileage 4.3 RT Comments _____
 (G) Final Shut-In 865 Sampler _____
 (H) Final Hydrostatic 166A Straddle _____ Ruined Shale Packer _____

Initial Open 15 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 60 Extra Packer _____ Extra Copies _____
 Final Flow 10 Extra Recorder _____ Sub Total _____
 Final Shut-In 45 Day Standby _____ Total _____
 Accessibility _____ MP/DST Disc't _____
 Sub Total _____

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 65356

Well Name & No. G+M #1-4 Test No. 2 Date 4-21-19
 Company Black Oak Exploration Elevation 2543 KB 2536 GL
 Address 14745 st Paul st Denver CO 80210
 Co. Rep / Geo. Clayton Camozzi Rig Mustin #7
 Location: Sec. 4 Twp. 25 Rge. 26W Co. Decatur State KS

Interval Tested 3450 3544 Zone Tested Lansing H-K
 Anchor Length 94 Drill Pipe Run 3234 Mud Wt. 9.2
 Top Packer Depth 3445 Drill Collars Run 210 Vis 56
 Bottom Packer Depth 3450 Wt. Pipe Run - WL 7.2
 Total Depth 3544 Chlorides 1000 ppm System LCM 5
 Blow Description IF 4" of blow @ open built to BOB in 4 1/2 mins
ISI No blow back
FF ~~bleed~~ 3" of blow @ open built to BOB in 5 mins
FSI No blow

Rec	Feet of	%gas	%oil	%water	%mud
<u>190</u>	<u>WCM w/oil spots</u>	<u>trace</u>	<u>50</u>	<u>50</u>	
<u>625</u>	<u>MCLW w/oil spots</u>	<u>trace</u>	<u>90</u>	<u>10</u>	
<u>60</u>	<u>MCLW w/oil spots</u>	<u>trace</u>	<u>70</u>	<u>30</u>	

Rec Total 875 BHT ~~967~~ Gravity - API RW 182 @ 57 °F Chlorides 54000 ppm

(A) Initial Hydrostatic ~~1706~~ 1735 Test _____ T-On Location 16:45
 (B) First Initial Flow 95 77 Jars _____ T-Started 17:09
 (C) First Final Flow 178 20 Safety Joint _____ T-Open 19:06
 (D) Initial Shut-In 1134 ~~701~~ Circ Sub _____ T-Pulled 22:22
 (E) Second Initial Flow 177 22 Hourly Standby _____ T-Out 00:25 4-22
 (F) Second Final Flow 429 23 Mileage 43 RT x2 Comments Rel. Released
 (G) Final Shut-In 945 ~~803~~ Sampler _____ @ 1900 4-22-19
 (H) Final Hydrostatic ~~767~~ 1733 Straddle _____
 Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total _____
 Day Standby _____ Total _____
 Accessibility _____ MP/DST Disc't _____
 Sub Total _____

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

BLACK OAK



EXPLORATION

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

Well Name: G&M 1-4
Well Id:
Location: Section 4 - 2S - 26W Decatur Co, Kansas
License Number: API # 15-039-21261-0000
Spud Date: 4/17/2019
Surface Coordinates: 1880 FSL & 2970 FEL
Region: Wildcat
Drilling Completed: 4/22/2019

Bottom Hole
Coordinates:
Ground Elevation (ft): 2538' K.B. Elevation (ft): 2543'
Logged Interval (ft): 3100 To: 3650 Total Depth (ft): 3650
Formation: Lansing Kansas City
Type of Drilling Fluid: Chemical Gel/Polymer Fresh Water -Based

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

OPERATOR

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

GEOLOGIST

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

REMARKS

After review of the open hole logs, DST data and geological log data it was recommended to plug and abandon the G&M 1-4. The sample will be delivered, processed and available for review at the KGS Library located in Wichita, Kansas. Note; there is a 3' uphole correction on the E-logs vs Geolog. The gamma ray curve has been shifted 3' deeper to match the drill time on this log.
Respectfully, Clayton Camozzi

Black Oak Exploration, LLC

WELL COMPARISON SHEET

Company: Black Oak Exploration, LLC
 1474 S St Paul St
 Denver, CO 80210
 Contact: Clayton Camozzi 303-968-4999 (Cell)

Well: G&M 1-4
 Location: 1880 FSL / 2970 FEL
 4 - 2S - 26W

Elevation: 2543' KB 2538' GL
 Field: Wildcat
 API No: 15-039- 21261-0000
 Surface Casing: 8 5/8" set @ 283' KB

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

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

3' Up-Hole Correction
 Geolog Vs E-log

Formation	DRILLING WELL			COMPARISON WELL			COMPARISON WELL			Progr			
	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Log				
G&M 1-4	1880 FSL / 2970 FEL 4 - 2S - 26W			Carter 1			Schwab "A" 2-5			Murfin: PRODUCER			
STONE CORRAL	2005	538	2004	538	0	1	1950	538	2041	553	-15	-14	0
NEVA	2763	-220	2766	-223	2	-1	2710	-222	2793	-199	-21	-24	-5
TOPEKA	3157	-614	3155	-612	3	-1	3099	-611	3184	-590	-24	-22	-9
LECOMPTON	3266	-723	3266	-723	0	0	3211	-723	3296	-702	-21	-21	-6
HEENBER	3320	-777	3319	-776	-1	0	3264	-776	3350	-756	-21	-20	-6
LANSING	3361	-818	3360	-817	1	2	3307	-819	3388	-794	-24	-23	-7
LANSING "B" Zone	3387	-844	3387	-844	2	2	3334	-846	3416	-822	-22	-22	-5
LANSING "D" Zone	3399	-856	3398	-855	1	2	3345	-857	3427	-833	-23	-22	-6
LANSING "G" Zone	3435	-892	3437	-894	3	1	3383	-895	3465	-871	-21	-23	-4
LANSING "H" Zone	3464	-921	3462	-919	4	6	3413	-925	3495	-901	-20	-18	-3
LANSING "J" Zone	3507	-964	3506	-963	1	2	3453	-965	3537	-943	-21	-20	-5
LANSING "K" Zone	3524	-981	3521	-978	4	7	3473	-985	3555	-961	-20	-17	-3
BKC	3562	-1019	3561	-1018	1	2	3508	-1020	3592	-998	-21	-20	-5
GRANITE	NDE						3624	-1136	NDE				
Total Depth	3650	-1107	3647	-1104			3665	-1177	3690	-1096			



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Black Oak Exploration LLC

4/2S/26W

1474 S St Paul St
Denver CO80210

G & M #1-4

Job Ticket: 65355

DST#: 1

ATTN: Clayton Comozzi

Test Start: 2019.04.20 @ 20:30:00

GENERAL INFORMATION:

Formation: **Lansing B-D**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 22:37:31

Time Test Ended: 02:36:46

Test Type: Conventional Bottom Hole (Initial)

Tester: Shawn Wheelbarger

Unit No: 76

Interval: **3372.00 ft (KB) To 3409.00 ft (KB) (TVD)**

Total Depth: 3409.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 2543.00 ft (KB)

2536.00 ft (CF)

KB to GR/CF: 7.00 ft

Serial #: 6731

Inside

Press@RunDepth: 23.27 psig @ 3373.00 ft (KB)

Start Date: 2019.04.20

End Date:

2019.04.21

Start Time: 20:30:01

End Time:

02:36:46

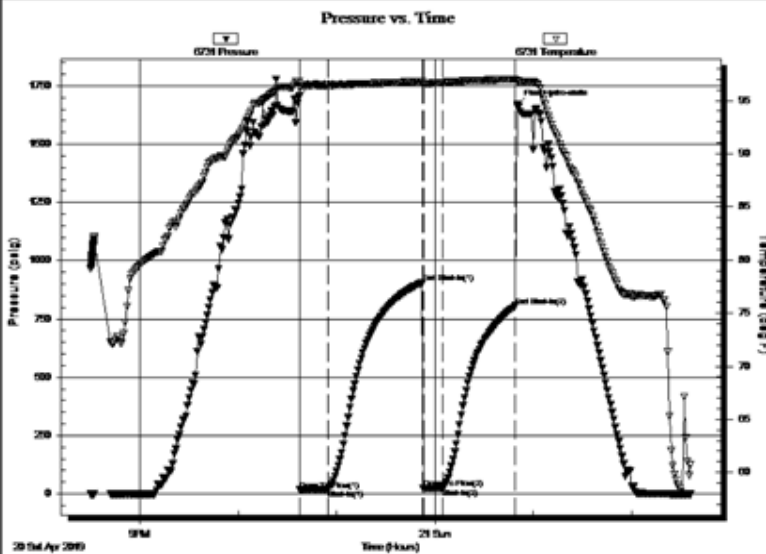
Capacity: 8000.00 psig

Last Calib.: 2019.04.21

Time On Btm: 2019.04.20 @ 22:37:16

Time Off Btm: 2019.04.21 @ 00:50:16

TEST COMMENT: 15-IF-Blow built to 1/2"
60-ISI-No blow back
10-FF-No blow
45-FSI-No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1706.32	96.80	Initial Hydro-static
1	16.60	96.13	Open To Flow (1)
18	20.43	96.44	Shut-In(1)
75	904.12	96.78	End Shut-In(1)
76	21.56	96.52	Open To Flow (2)
88	23.27	96.70	Shut-In(2)
132	805.15	97.00	End Shut-In(2)
133	1668.51	96.83	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	Mud with 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

4/2S/26W

1474 S St Paul St
Denver CO80210

G & M #1-4

Job Ticket: 65356

DST#: 2

ATTN: Clayton Comozzi

Test Start: 2019.04.21 @ 17:09:00

GENERAL INFORMATION:

Formation: **Lansing H-K**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 19:07:16

Time Test Ended: 00:34:31

Test Type: Conventional Bottom Hole (Reset)

Tester: Shawn Wheelbarger

Unit No: 76

Interval: **3450.00 ft (KB) To 3544.00 ft (KB) (TVD)**

Reference Elevations: 2543.00 ft (KB)

Total Depth: 3544.00 ft (KB) (TVD)

2536.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 7.00 ft

Serial #: **6731**

Inside

Press@RunDepth: 429.03 psig @ 3451.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.04.21

End Date:

2019.04.22

Last Calib.: 2019.04.22

Start Time: 17:09:01

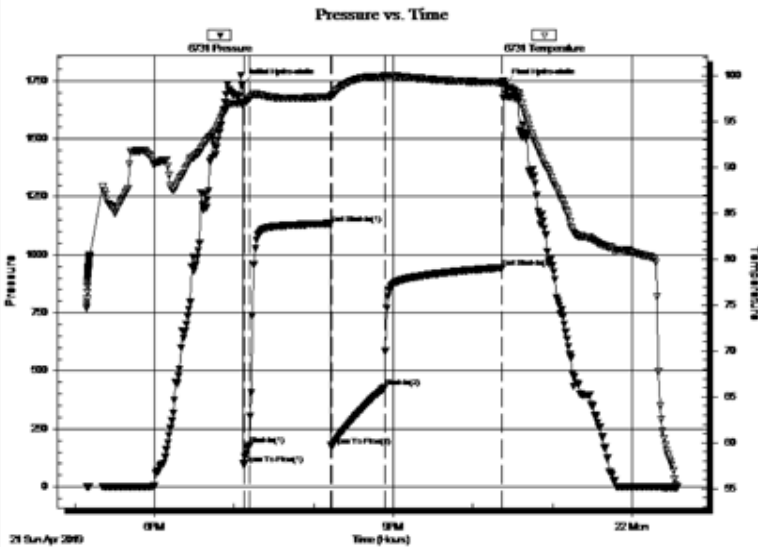
End Time:

00:34:31

Time On Btm: 2019.04.21 @ 19:06:31

Time Off Btm: 2019.04.21 @ 22:24:01

TEST COMMENT: 5-IF-4" of blow @ open, built to BOB in 4 1/2 mins
60-ISI-No blow back
40-FF-3" blow @ open built to BOB in 5 mins
90-FSI-No Blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1735.38	97.05	Initial Hydro-static
1	95.27	96.88	Open To Flow (1)
5	178.01	97.45	Shut-In(1)
66	1134.14	97.70	End Shut-In(1)
67	177.38	97.81	Open To Flow (2)
107	429.03	99.95	Shut-In(2)
196	944.78	99.26	End Shut-In(2)
198	1733.04	98.79	Final Hydro-static

Recovery


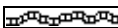
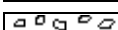

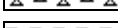


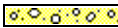






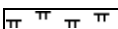


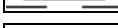
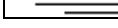
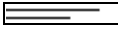

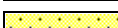

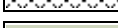


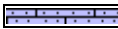



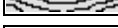
Length (ft)	Description	Volume (bbl)
625.00	MCW W/ oil spots 90%W, 10%M	6.85
190.00	WCM W/ oil spots 50%M, 50%W	2.67
60.00	MCW W/ oil spots 70%M, 30%W	0.84

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
-  Slstst
-  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












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

- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymn
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff








Ssstrg





TEXTURE

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






OIL SHOW










-  Gas show
-  Even
-  Spotted
-  Ques
-  Dead

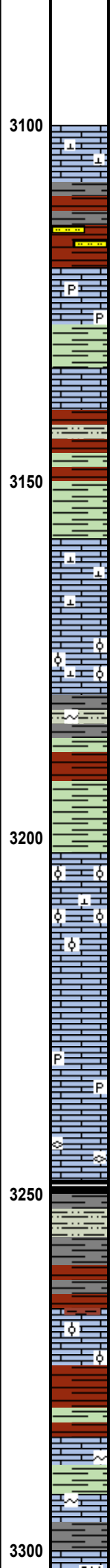
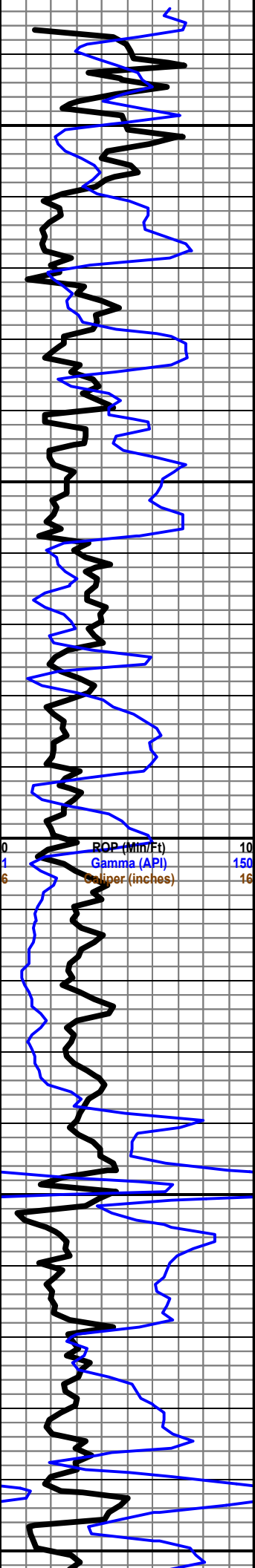
INTERVAL

-  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) 
0 ROP (Min/Ft) 10 1 Gamma (API) 150 6 Caliper (inches) 16	3050		Black Oak Exploration G&M 1-4 1880' FSL & 2970' FEL Sec. 4- 2S - 26W Decatur Co, KS Drilling Company: Murfin Drilling Co Rig #7 785-443-5616 Tool Pusher: Arturo Cabezas 785-470-7203 Geologist, Clayton Camozzi on Location @ 3022' 6:20 PM April 19, 2019 Mud: Morgan Mud	0 TG, C1-C5 30 Ran 6 joints of 23# New 8 5/8" surface casing. Tally @ 275.20'. Set @ 283KB' Cement with 170 sacks of common, 2% gel, 3% calcium chloride. Cement did circulate. Plug down @ 9:00 pm on 4-17-19 by Hurricane
GR curve shifted 3' downhole to match drill time				



Start Wet & Dry Samples @ 3100'

Limestone, white to light brown, microcrystalline, scattered cryptocrystalline, large fassulinid in a dense calcareous matrix, very poor to no visible porosity, no odor no stain, mineral fluorescence throughout, no show free oil, large calcite crystals scattered through

Shale, red to scattered gray, very soft, gummy to hard dense in part, no fluorescence no show, no show. Scattered light gray calcareous silstone in part

Limestone white to cream, microcrystalline throughout, scattered cryptocrystalline, no visible porosity no odor no show, scattered pyrite in part

Limestone as above

Shale light brown to red, gummy to very soft, no show, trace very fine sub angular well sorted silstone, fair to good intergranular porosity, no odor, no fluorescence, no show

Topeka 3157 (-614)

Limestone cream to light brown, microcrystalline throughout to trace large sub angular to sub round, poorly sorted to few pieces well sorted calcite grains in a dense calcareous matrix, calcite veins, poor to fair intergranular porosity to no visible porosity, no odor, no stain, mineral fluorescence, no show

Limestone as above

Limestone light brown to off white, hard dense, microcrystalline scattered throughout, scattered oolitic in a dense calcareous matrix, trace shale stringers in part, poor to no visible porosity, no odor, mineral fluorescence throughout, no show free oil, large calcite veins in part, trace light gray silstone, glauconite in part, no show

Shale light gray to scattered green to scattered red, hard dense to scattered brittle to scattered gummy, no fluorescence no show

Limestone, white to light brown, hard dense, microcrystalline scattered oolitic in a dense calcareous matrix, very poor to no visible porosity, no odor no stain, scattered mineral fluorescence, no show, soft white chalk scattered throughout, calcite crystals

Limestone, white hard dense, microcrystalline to scattered cryptocrystalline matrix, trace recrystalline matrix, poor to no visible porosity, no odor, no stain, mineral fluorescence throughout, no cut, no show free oil, calcite veins in part, chalk, scattered pyrite

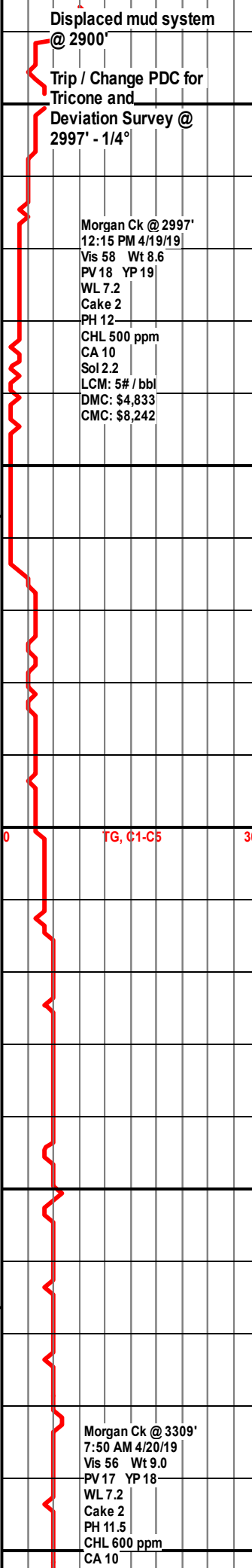
Shale black soft carbonaceous, splintery, scattered red soft gummy, Siltstone, very fine quartz grains in a calcareous matrix, trace shale inclusions, fair intergranular porosity, no stain, no fluorescence, no show free oil. Trace scattered light gray limestone hard dense, cryptocrystalline, no porosity, no stain no show free oil, trace fassulinids in part

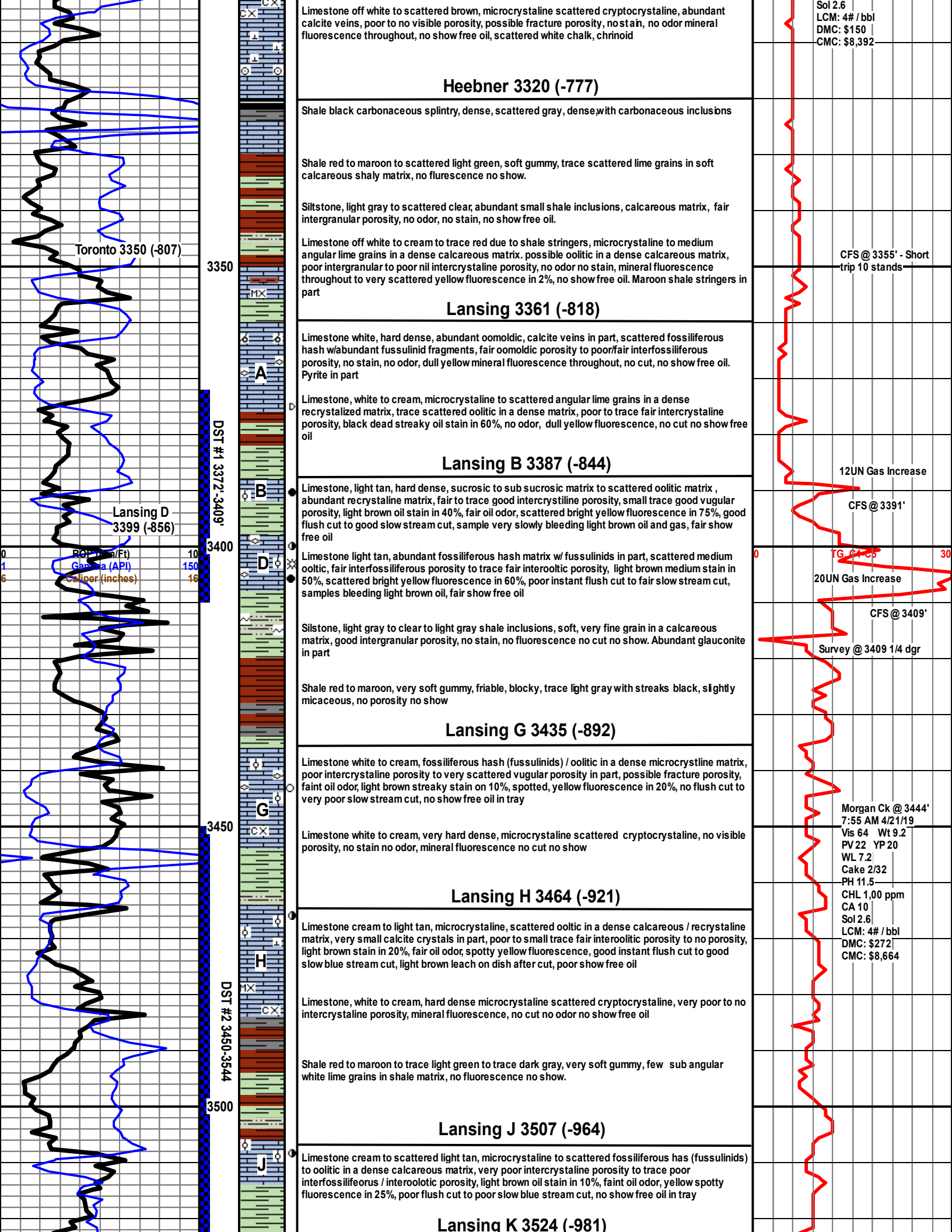
LeCompton 3266 (-723)

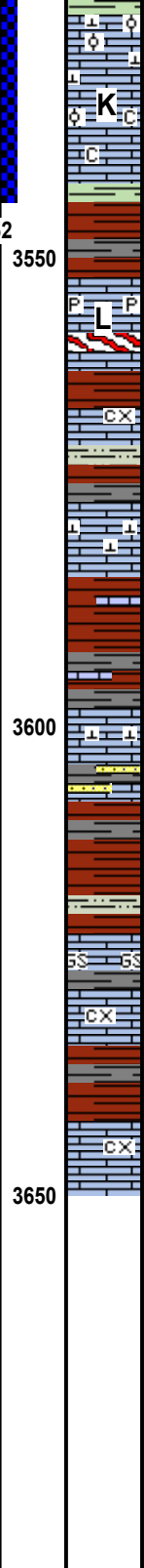
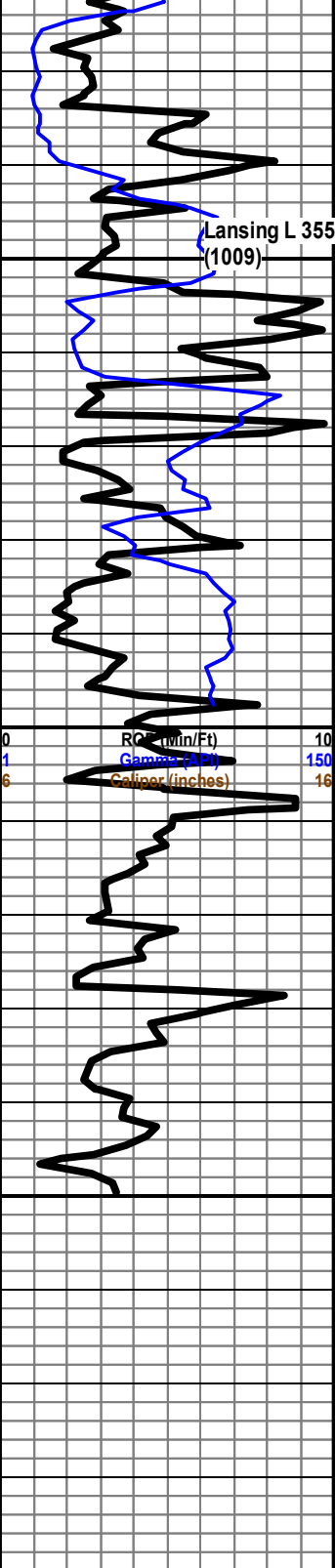
Limestone off white, hard dense, microcrystalline, abundant oolitic in a dense microcrystalline calcareous matrix, very poor to no visible porosity, no stain, no odor, mineral fluorescence scattered throughout, no show free oil, red shale stringer in part

Shale red to maroon, very soft to gummy, trace sub angular lime grains in part no show

Limestone off white to scattered light gray, microcrystalline throughout to scattered medium sub angular poorly sorted lime grains in a dense calcareous matrix, poor intergranular to no visible porosity, no odor, no stain, mineral fluorescence throughout, no show free oil, abundant glauconite in part







Limestone white to off white, microcrystalline throughout to trace oolitic in a dense calcareous matrix to scattered recrystalline matrix with large clear calcite, possible trace oomoldic matrix, poor to fair intercrystalline porosity to possible fracture, light brown oil stain in 20%, poor spotty yellow fluorescence, fair flush cut to fair slow stream cut, poor show free oil, soft white chalk scattered throughout

Shale light gray to green, hard to brittle, splintery to blocky, micaceous in part, no porosity, no show free oil

Limestone white to cream, very hard dense, cryptocrystalline throughout, no visible porosity, no stain, no odor, mineral fluorescence throughout, no show free oil, pyrite scattered throughout, 2 pieces quartz and splintery quartz fragments

BKC 3562 (-1019)

Shale red to maroon to scattered light tan to scattered light gray, very gummy to splintery, soft dense, small trace scattered silstone, no porosity no show

Limestone cream to tan to scattered light purple, hard dense, microcrystalline to recrystalline matrix, trace maroon shale stringers throughout matrix, poor to no intercrystalline porosity, no stain, no fluorescence, no cut, no odor, no show free oil, Calcite crystals in part

Shale abundant red to maroon, very gummy / muddy, trace small angular lime grains in matrix no visible porosity no show

Limestone white to cream, hard dense, subsucrosic to sucrosic, dense calcareous matrix, very poor intercrystalline porosity, no stain no cut no show. Small trace scattered light gray silstone

Shale abundant red to maroon, very gummy / muddy, trace small angular lime grains in matrix no visible porosity no show. Scattered light gray calcareous very fine grain silstone scattered throughout, no show

Limestone cream to light tan, microcrystalline to scattered sucrosic in a dense calcareous matrix, to scattered cryptocrystalline, hard to very hard, no intercrystalline porosity, no stain, no odor, no cut, no show free oil

Shale red to light gray to scattered dark yellow, hard dense, friable, gummy to splintery, no porosity no show

Limestone of white to cream, hard dense microcrystalline scattered cryptocrystalline, no visible porosity, no stain no cut no show free oil

TD 3650' @ 11:05 AM CDT 4-22-2019

Weatherford On Location @ 4:00PM CDT 4-22-19

