

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

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
--	---

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	Palomino Petroleum, Inc.
Well Name	WING-DVORACHEK 1
Doc ID	1365234

Tops

Name	Top	Datum
Stotler	3631	(-338)
Heebner Sh.	3991	(-698)
Toronto	4011	(-718)
Lansing	4042	(-749)
Muncie Creek	4211	(-918)
Stark Sh.	4297	(-1004)
Hushpuckney Sh.	4341	(-1048)
Base of KC	4380	(-1087)
Marmaton	4429	(-1136)
Altamont	4436	(-1143)
Pawnee	4511	(-1218)
Myrick St.	4556	(-1263)
Ft. Scott	4569	(-1276)
Cherokee Sh.	4598	(-1305)
Johnson	4687	(-1394)
Morrow	4740	(-1447)
Miss.	4823	(-1530)
LTD	4900	(-1607)

SWIFT



P. O. Box 466
Ness City, KS 67560
Off: 785-798-2300



Invoice

DATE	INVOICE #
6/27/2017	30397

BILL TO
Palomino Petroleum Inc. 4924 S E 84th Street Newton, KS 67114-8827

RECEIVED

JUL 01 2017

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1	Wing-Dvorac...	Logan	Express Well	Oil	Development	Cement Port Collar	Blaine
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				80	Miles	5.00	400.00
576D-D	Pump Charge - Deep Surface (> 500 Ft.) & Port Collars				1	Job	1,250.00	1,250.00
330	Swift Multi-Density Standard (MIDCON II)				240	Sacks	15.75	3,780.00T
276	Flocele				60	Lb(s)	2.25	135.00T
290	D-Air				2	Gallon(s)	42.00	84.00T
104	Port Collar Tool Rental				1	Each	200.00	200.00T
581D	Service Charge Cement				400	Sacks	1.50	600.00
583D	Drayage				1,592.16		0.75	1,194.12
	Subtotal							7,643.12
	Sales Tax Logan County						8.00%	335.92
We Appreciate Your Business!							Total	\$7,979.04



Services, Inc.

CHARGE TO: Palomin Petroleum
ADDRESS
CITY, STATE, ZIP CODE

TICKET 30397

WELL/PROJECT NO. #1 LEASE WINE-DURACHER COUNTY/PARISH Legan STATE KS CITY last DATE 27 Nov 17 OWNER
RIG NAME NO. 528255 JOB PURPOSE Development Cement Port Collar SHIPPED VIA WET DELIVERED TO location ORDER NO. 27 Nov 17

PAGE 1 OF

1. SERVICE LOCATIONS <u>Ness City, KS</u>	WELL/PROJECT NO. <u>#1</u>	LEASE <u>WINE-DURACHER</u>	COUNTY/PARISH <u>Legan</u>	STATE <u>KS</u>	CITY <u>last</u>	DATE <u>27 Nov 17</u>	OWNER
2. TICKET TYPE <input type="checkbox"/> SERVICE <input checked="" type="checkbox"/> SALES	CONTRACTOR	RIG NAME NO. <u>528255</u>	JOB PURPOSE <u>Development</u>	SHIPPED VIA <u>WET</u>	DELIVERED TO <u>location</u>	ORDER NO. <u>27 Nov 17</u>	
3. WELL TYPE <u>oil</u>	WELL CATEGORY <u>Development</u>	WELL PERMIT NO.	WELL LOCATION				
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT							
575				MILEAGE	80	mi.			5.00	400.00
576D				Ramp Charge	1	ea.			1250.00	1250.00
330				SWS cement	270	sk			15.75	3780.00
276				Flare	60	lb			2.95	135.00
29D				D- AIR	2	yeal			42.00	84.00
104				port collar opening tool rental	4 1/2	hr			200.00	200.00
581				service charge	400	sk			1.50	600.00
583				Druggal	39804	lb			2.95	1194.12

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS.
DATE SIGNED [Signature] TIME SIGNED 1:35
 AM
 P.M.

REMIT PAYMENT TO:
SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE	PAGE TOTAL	7643.12
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?					
WE UNDERSTOOD AND MET YOUR NEEDS?					
OUR SERVICE WAS PERFORMED WITHOUT DELAY?					
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?					
ARE YOU SATISFIED WITH OUR SERVICE?	<input checked="" type="checkbox"/> YES		<input type="checkbox"/> NO		
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND					TOTAL

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.
SWIFT OPERATOR [Signature] APPROVAL [Signature]
Thank You!



P. O. Box 466
Ness City, KS 67560
Off: 785-798-2300

RECEIVED

JUN 23 2017

Invoice

DATE	INVOICE #
6/19/2017	30589

BILL TO
Palomino Petroleum Inc. 4924 S E 84th Street Newton, KS 67114-8827

- Acidizing
- Cement
- Tool Rental

TERMS	Well No.	Lease	County	Contractor	Well Type	Well Category	Job Purpose	Operator
Net 30	#1	Wing-Dvorac...	Logan	WW Drilling Rig ...	Oil	Development	Cement 4 1/2 Lo...	David K.
PRICE REF.	DESCRIPTION				QTY	UM	UNIT PRICE	AMOUNT
575D	Mileage - 1 Way				90	Miles	5.00	450.00
578D-L	Pump Charge - Long String				1	Job	1,250.00	1,250.00
402-4	4 1/2" Centralizer				11	Each	55.00	605.00T
403-4	4 1/2" Cement Basket				1	Each	225.00	225.00T
404-4	4 1/2" Port Collar				1	Each	2,400.00	2,400.00T
406-4	4 1/2" Latch Down Plug & Baffle				1	Each	200.00	200.00T
407-4	4 1/2" Insert Float Shoe With Auto Fill				1	Each	275.00	275.00T
419-4	4 1/2" Rotating Head Rental				1	Each	200.00	200.00T
325	Standard Cement				125	Sacks	12.25	1,531.25T
284	Calseal				6	Sack(s)	30.00	180.00T
283	Salt				650	Lb(s)	0.20	130.00T
285	CFR-1				50	Lb(s)	4.50	225.00T
276	Flocele				50	Lb(s)	2.25	112.50T
330	Swift Multi-Density Standard (MIDCON II)				125	Sacks	15.75	1,968.75T
290	D-Air				3	Gallon(s)	42.00	126.00T
281	Mud Flush				500	Gallon(s)	1.25	625.00T
221	Liquid KCL (Clayfix)				4	Gallon(s)	25.00	100.00T
581D	Service Charge Cement				250	Sacks	1.50	375.00
583D	Drayage				1,148	Ton Miles	0.75	861.00
	Subtotal							11,839.50
	Sales Tax Barton County						7.50%	667.76

We Appreciate Your Business!

Total

\$12,507.26



Services, Inc.

TICKET 30589

PAGE 1 OF 2

CHARGE TO: Plumbing Petroleum
 ADDRESS: _____
 CITY, STATE, ZIP CODE: _____

1. SERVICE LOCATIONS <u>Address City KS</u>	WELL/PROJECT NO. <u>15</u>	LEASE <u>Wing-Doverchels</u>	COUNTY/PARISH <u>Logan</u>	STATE <u>KS</u>	CITY <u>Leola</u>	DATE <u>6-19-17</u>	OWNER <u>Same</u>
2. TICKET TYPE <input checked="" type="checkbox"/> SERVICE <input type="checkbox"/> SALES	CONTRACTOR <u>W&D Drilling</u>	RIG NAME/NO. <u>#10</u>	SHIPPED VIA <u>CT</u>	DELIVERED TO <u>Location</u>	WELL PERMIT NO.	ORDER NO.	
3. WELL TYPE <u>Oil</u>	WELL CATEGORY <u>Development</u>	JOB PURPOSE <u>Cement 4 1/2" Longstring</u>					
4. REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			DESCRIPTION	MILEAGE	QTY.	UM	QTY.	UM	UNIT PRICE	AMOUNT
		LOC	ACCT	DF								
575												
578					T-1k #112			90	wt		5.00	450.00
402					Pump Charge - Longstring			1	job		1250.00	1250.00
403					Centralizer			11	ea		55.00	605.00
404					Cement Basket			1	ea		225.00	225.00
406					Part Collar			1	ea		2400.00	2400.00
407					Latch Down Plug & Baffle			1	ea		200.00	200.00
419					Insert Flat Shoe w/ Aulo Fill			1	ea		275.00	275.00
					Rotating Head Rental			1	job		200.00	200.00

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY,** and **LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

DATE SIGNED: 6-19-17 TIME SIGNED: 0800 AM PM

SWIFT OPERATOR: David Kushn APPROVAL: _____

REMIT PAYMENT TO:
 SWIFT SERVICES, INC.
 P.O. BOX 466
 NESS CITY, KS 67560
 785-798-2300

SURVEY

OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?	AGREE	UN-DECIDED	DIS-AGREE
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			
ARE YOU SATISFIED WITH OUR SERVICE?	<input type="checkbox"/> YES	<input type="checkbox"/> NO	
<input type="checkbox"/> CUSTOMER DID NOT WISH TO RESPOND			

PAGE TOTAL #1: 5605.00
 PAGE TOTAL #2: 6234.50
 TOTAL: 11839.50

TOTAL: 19507.96

Thank You!



PO Box 466
Ness City KS 67560
Off: 785-798-2300

TICKET CONTINUATION

TICKET No. 4 30589

CUSTOMER Pelomino Petroleum

WELL Long-Durachek M1

DATE 6-19-17

PAGE 2 OF 2

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING			TIME	DESCRIPTION	WELL				UNIT PRICE	AMOUNT			
		LOC	ACCT	DF			QTY	U/M	QTY	U/M					
325		1				Standard Cement (EA-2)					125	sls	12.75	1531.25	
284		1				Calsol	5	%			6	sls	30.00	180.00	
283		1				Salt	10	%			650	lbs	00.20	130.00	
285		1				CFR-1	1/2	%			50	lbs	4.50	225.00	
276		1				Floccle	1/4	lb			50	lbs	2.25	112.50	
330		1				SMD Cement					125	sls	15.75	1968.75	
290		1				D-Air					3	gal	42.00	126.00	
281		1				Mixed Flush					500	gal	1.25	625.00	
221		1				Liquid KCL					4	gal	25.00	100.00	
581		1				SERVICE CHARGE					250		1.50	375.00	
583		1				MILEAGE CHARGE					90		00.75	861.00	
							TOTAL WEIGHT	25500		LOADED MILES	90		CUBIC FEET	1148	
													CONTINUATION TOTAL	6234.50	

JOB LOG

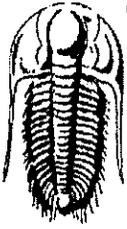
SWIFT Services, Inc.

DATE 6-19-17 PAGE NO. 1

CUSTOMER Palomino Petroleum WELL NO. #1 LEASE Wing - Dvorachek JOB TYPE 4 1/2" Longstring TICKET NO. #30589

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	0700							on location 11.6# 4 1/2" 5"
								RTD - 4900' LTD - 4900' TP - 4901' SS - 40.37' P.C. - #58 2534' Casing - #1 #3 #5 #7 #9 #11 #12 #14 #16 #18 #57 Basket - #58
	0815							Start 4 1/2" 10 1/2" casing in well 11.6#
	1015							Drop Ball Circulate * Rotate *
	1115	6 1/2	12		✓	350		Pump 500 gal Mud Flush
		6 1/2	20		✓	350		Pump 20 Hbl KCL Flush
			11					Plug RH (30 shs)
	1130	4 1/2	36		✓	250		mix 95 shs SMD @ 12.5 ppg
		4 1/2	30		✓	250		mix 125 shs EA-2 @ 15.5 ppg
								wash out Pump / Lines Release Latch Down Plug
	1150	6 1/2	0		✓	100		Start Displacement KCL in 1st tank
		6 1/2	48		✓	250		Lift Pressure
		6 1/2	75		✓	800		Max lift Pressure
	1205	6 1/2	753		✓	1100		Land Latch Down Plug
								Release Pressure * Plug Hold *
								wash up trucks
	1230							Job Complete

Thank You
Dave Preston Isaac



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Richie Exploration Inc.
8100 E. 22nd St. N #700
P.O. Box 783188
Wichita KS 67278
ATTN: John Goldmith

26-15s-36w Logan Co KS

Wing-Dvorachek #1

Job Ticket: 63742 DST#: 1

Test Start: 2017.06.15 @ 07:11:23

GENERAL INFORMATION:

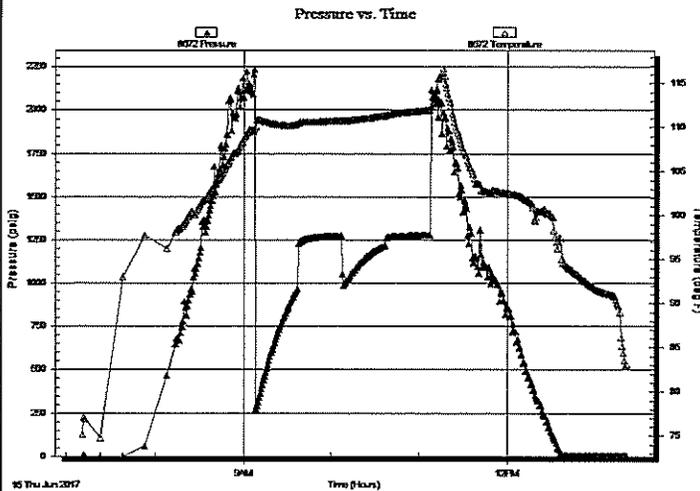
Formation: K
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:07:08
Time Test Ended: 13:20:23
Interval: 4296.00 ft (KB) To 4344.00 ft (KB) (TVD)
Total Depth: 4344.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Mike Roberts
Unit No: 81
Reference Elevations: 3293.00 ft (KB)
3288.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8672

Inside

Press@RunDepth: psig @ 4339.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2017.06.15 End Date: 2017.06.15 Last Calib.: 2017.06.15
Start Time: 07:11:15 End Time: 13:21:00 Time On Btm:
Time Off Btm:

TEST COMMENT: IF: BOB in 1 min.
IS: No return blow
FF: BOB in 1 min.
FS: No return blow



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
310.00	w cm 40%w 60% m	3.26
2046.00	sw 100% sw	28.70

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.
8100 E. 22nd St. N #700
P.O. Box 783188
Wichita KS 67278
ATTN: John Goldmith

26-15s-36w Logan Co KS
Wing-Dvorachek #1
Job Ticket: 63742 DST#: 1
Test Start: 2017.06.15 @ 07:11:23

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	0 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	17000 ppm
Viscosity:	55.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.19 in ³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3800.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
310.00	w cm 40%w 60%m	3.264
2046.00	sw 100% sw	28.700

Total Length: 2356.00 ft Total Volume: 31.964 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW= .336 @ 97.1= 17,000 ppm

Serial #: 6749

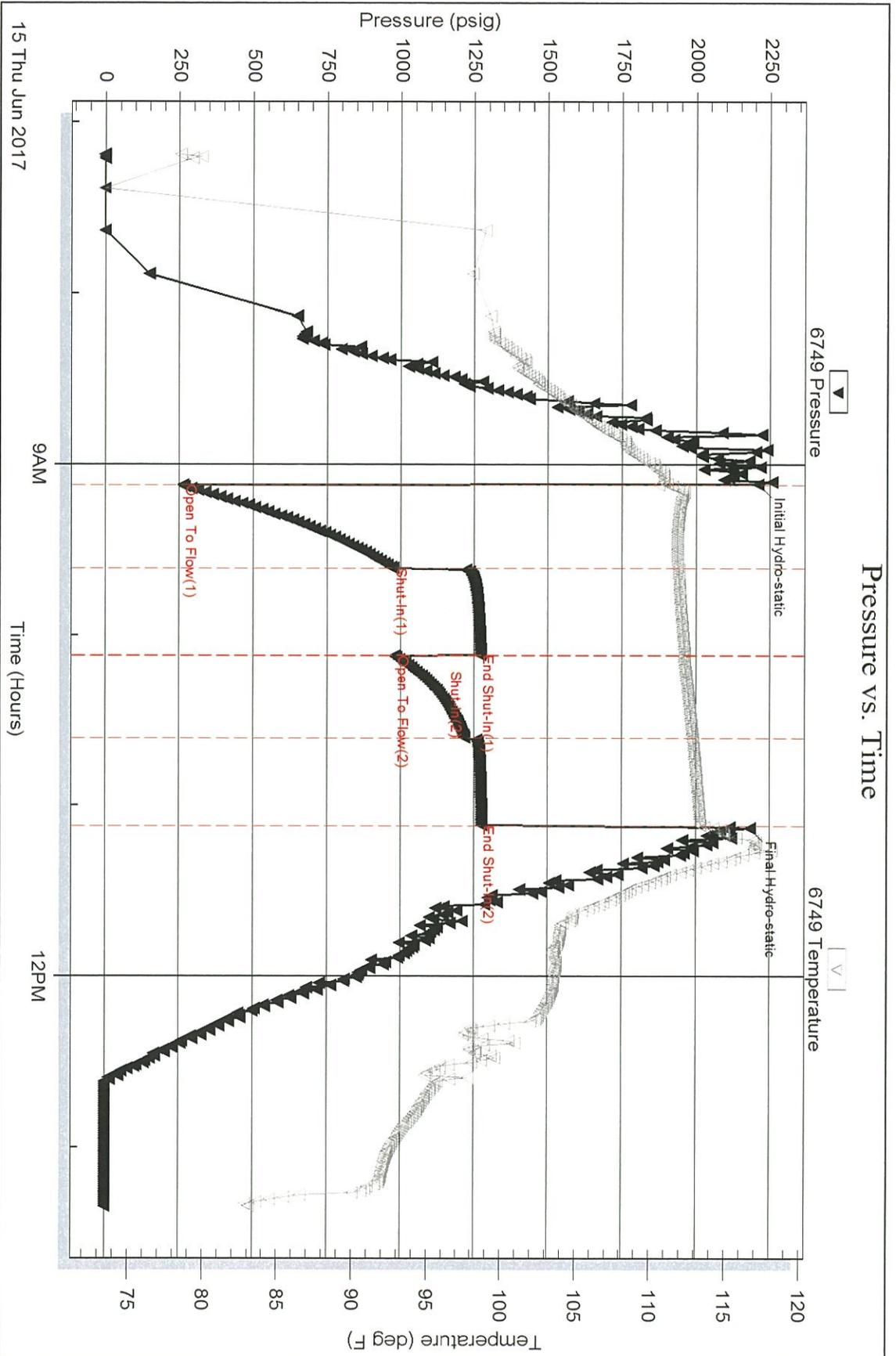
Outside

Richie Exploration Inc.

Wing-Dvorachek #1

DST Test Number: 1

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 63742

Printed: 2017.06.15 @ 14:47:56

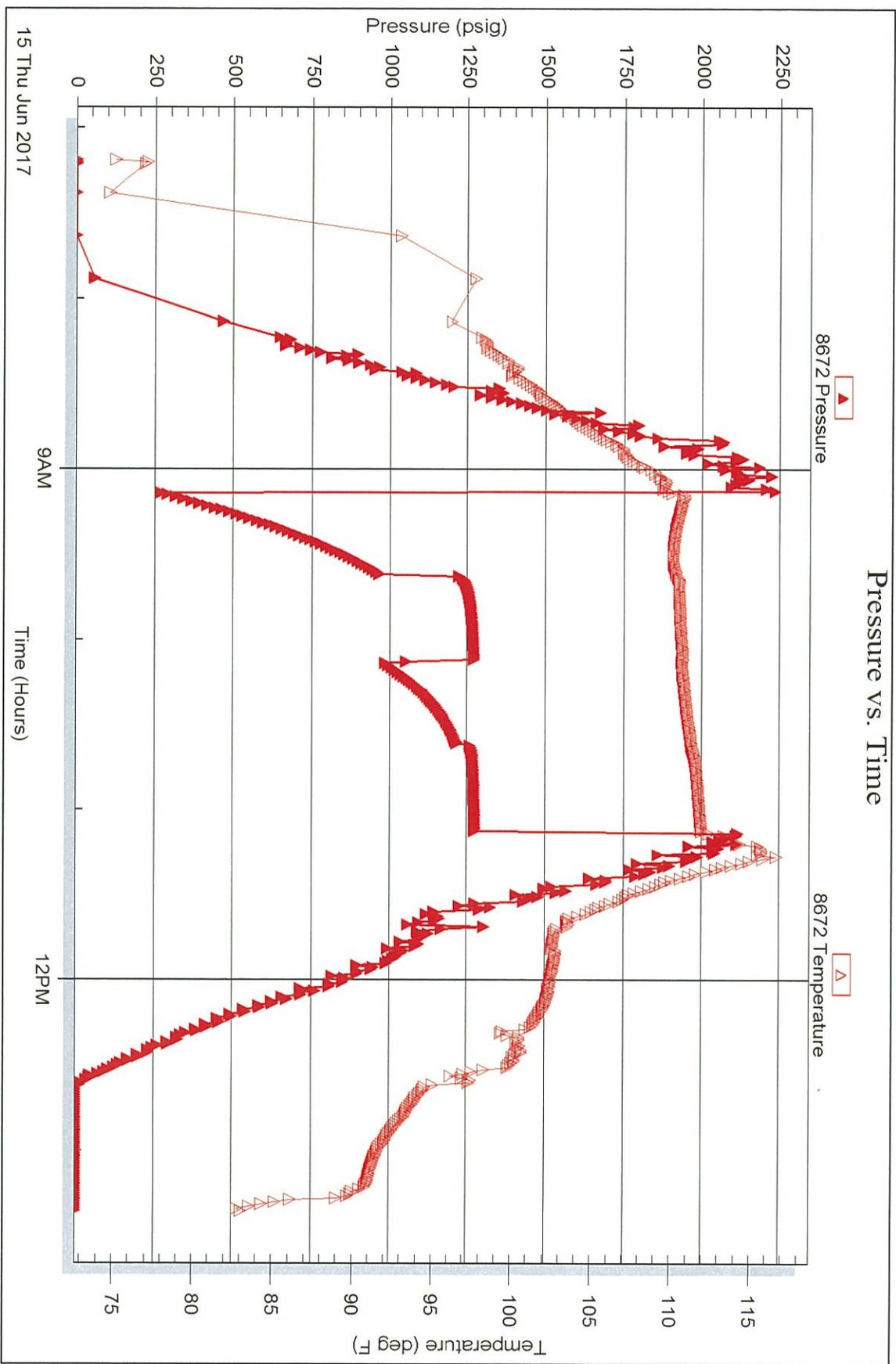
Serial #: 8672

Inside

Ritche Exploration Inc.

Wing-Dvorachek #1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 63742

Printed: 2017.06.15 @ 14:47:56



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.
8100 E. 22nd St. N#700
P.O. Box 783188
Wichita KS 67278
ATTN: John Goldmith

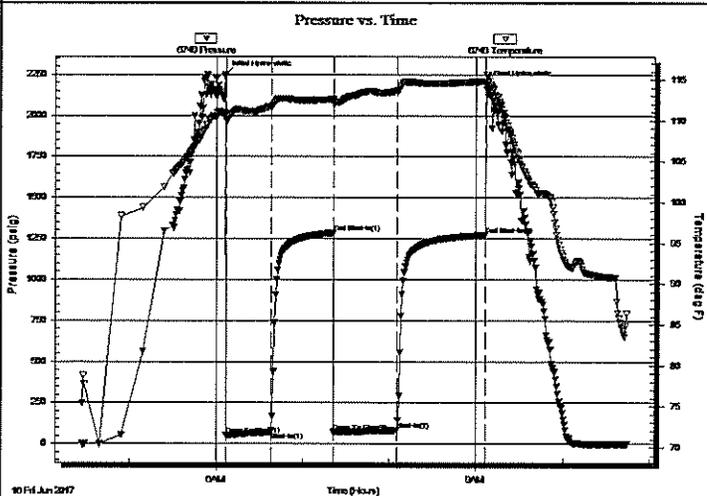
26-15s-36w Logan Co KS
Wing-Dvorachek #1
Job Ticket: 63743 DST#: 2
Test Start: 2017.06.16 @ 04:27:15

GENERAL INFORMATION:

Formation: **Altamont A**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:06:15
Time Test Ended: 10:44:45
Interval: **4430.00 ft (KB) To 4455.00 ft (KB) (TVD)**
Total Depth: **4455.00 ft (KB) (TVD)**
Hole Diameter: **7.88 inches** Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Mike Roberts
Unit No: 81
Reference Elevations: **3293.00 ft (KB)**
3288.00 ft (CF)
KB to GR/CF: **5.00 ft**

Serial #: 6749 Outside
Press@RunDepth: **81.23 psig @ 4430.00 ft (KB)** Capacity: **8000.00 psig**
Start Date: **2017.06.16** End Date: **2017.06.16** Last Calib.: **2017.06.16**
Start Time: **04:27:15** End Time: **10:44:45** Time On Btm: **2017.06.16 @ 06:06:00**
Time Off Btm: **2017.06.16 @ 09:07:15**

TEST COMMENT: IF: Built to 1 1/2" blow
IS: No return blow
FF: Built to 2" blow
FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2249.10	110.77	Initial Hydro-static
1	53.57	110.03	Open To Flow (1)
32	70.87	111.72	Shut-In(1)
75	1284.55	112.61	End Shut-In(1)
76	71.85	111.98	Open To Flow (2)
119	81.23	113.59	Shut-In(2)
181	1273.51	114.77	End Shut-In(2)
182	2187.37	115.58	Final Hydro-static

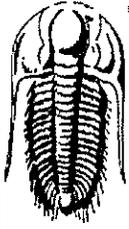
Recovery

Length (ft)	Description	Volume (bbl)
119.00	ocm 10%o 90%m (collars)	0.59
15.00	mco 20%m 80%o	0.21
30.00	free oil	0.42

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.

26-15s-36w Logan Co KS

8100 E. 22nd St. N #700

Wing-Dvorachek #1

P.O. Box 783188

Job Ticket: 63743

DST#: 2

Wichita KS 67278

Test Start: 2017.06.16 @ 04:27:15

ATTN: John Goldmith

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

31 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
119.00	ocm 10%o 90%m (collars)	0.585
15.00	mco 20%m 80%o	0.210
30.00	free oil	0.421

Total Length: 164.00 ft Total Volume: 1.216 bbl

Num Fluid Samples: 0

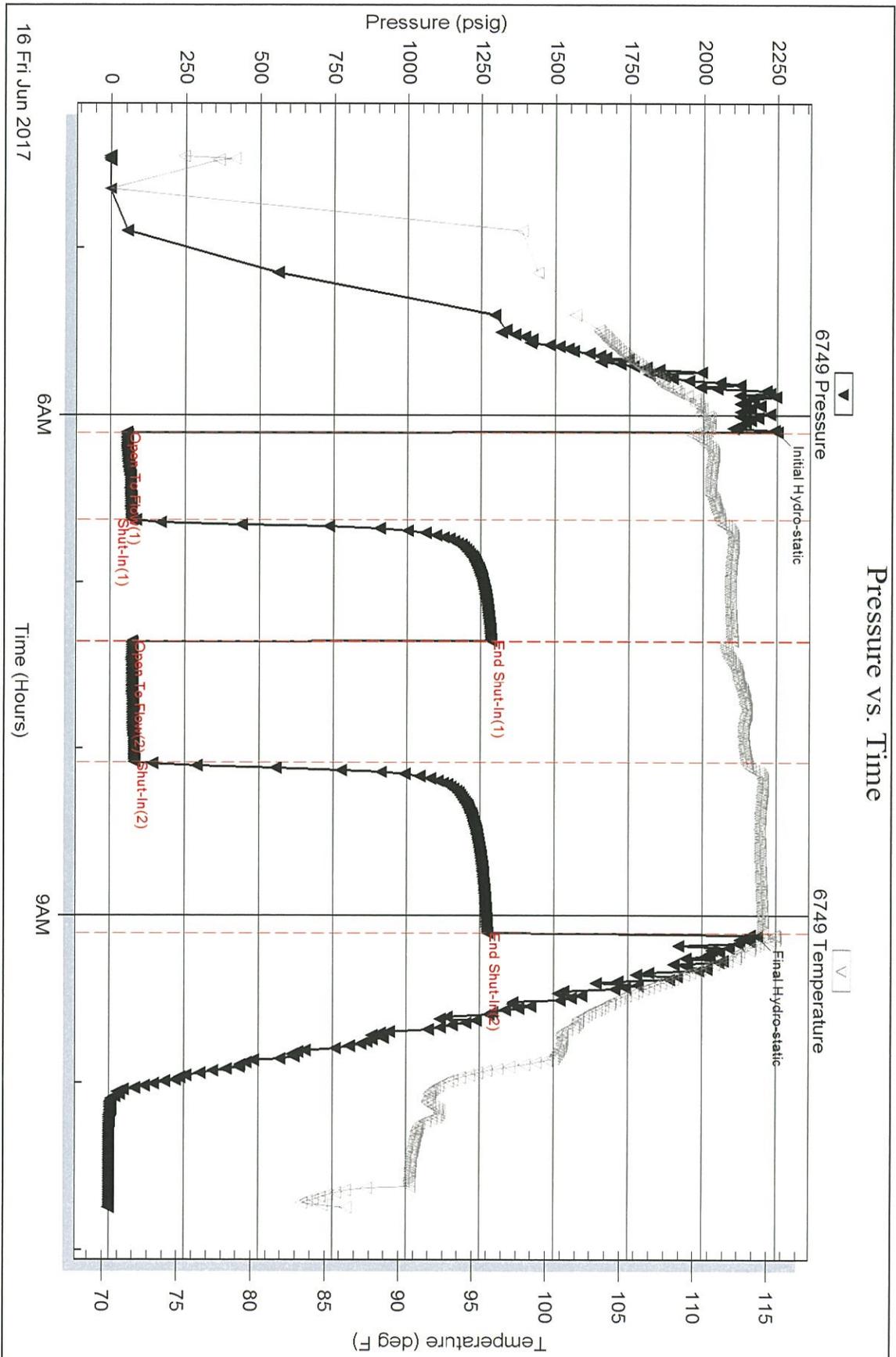
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: AP= 31 @ 60



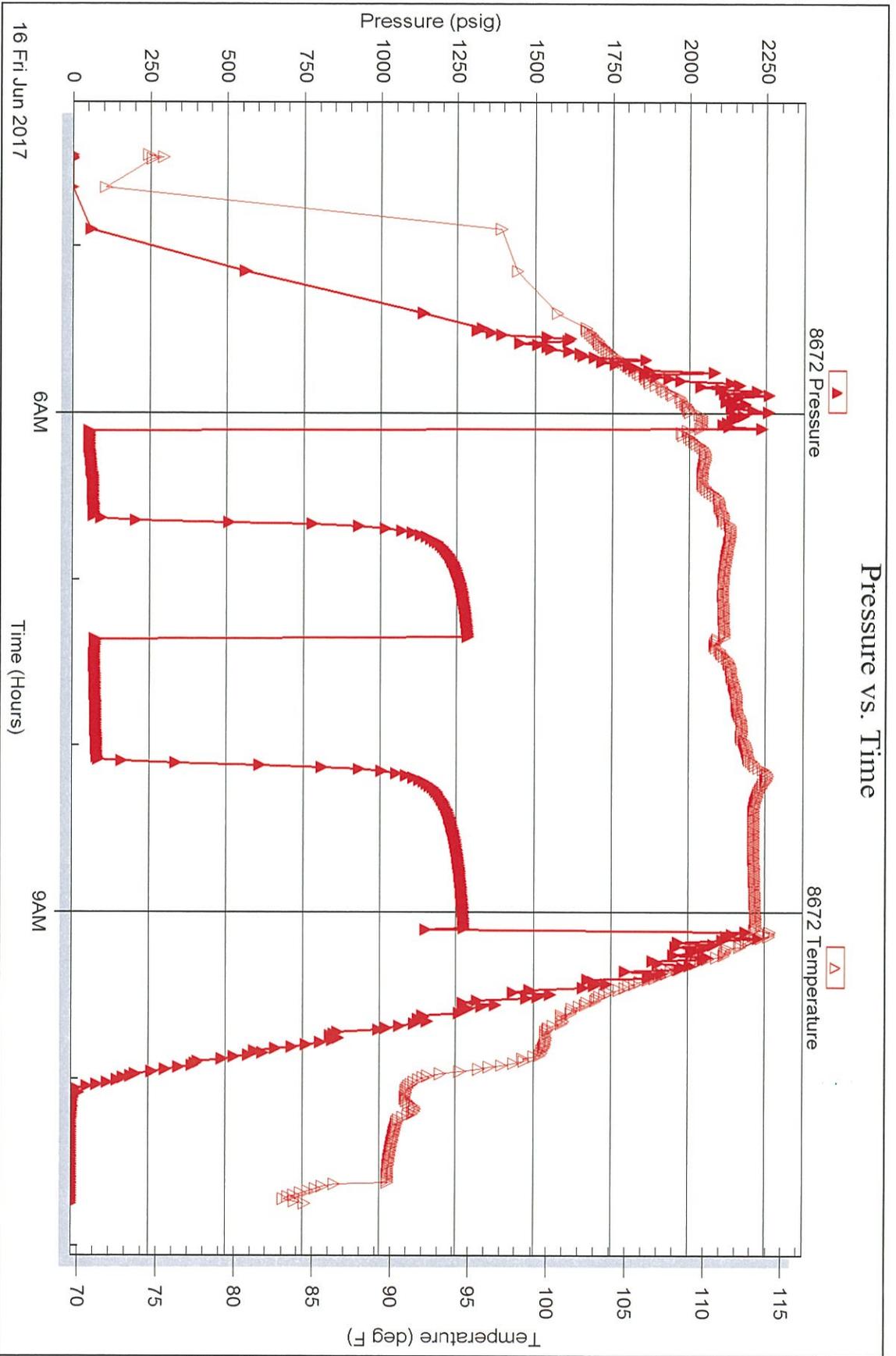
Serial #: 8672

Inside

Richie Exploration Inc.

Wing-Dvorachek #1

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63743

Printed: 2017.06.16 @ 13:12:21



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.
8100 E. 22nd St. N #700
P.O. Box 783188
Wichita KS 67278
ATTN: John Goldmith

26-15s-36w Logan Co KS
Wing-Dvorachek #1
Job Ticket: 63744 DST#: 3
Test Start: 2017.06.16 @ 17:44:15

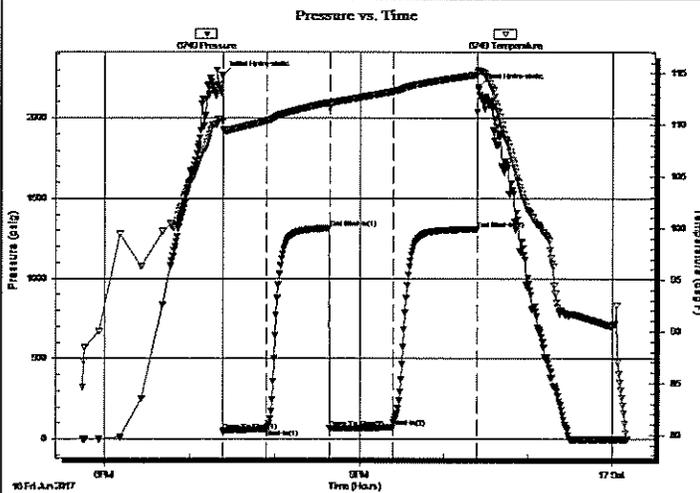
GENERAL INFORMATION:

Formation: **Altqmont "B"**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 19:23:15 Tester: Mike Roberts
Time Test Ended: 00:10:30 Unit No: 81

Interval: **4454.00 ft (KB) To 4478.00 ft (KB) (TVD)** Reference Elevations: 3293.00 ft (KB)
Total Depth: **4454.00 ft (KB) (TVD)** 3288.00 ft (CF)
Hole Diameter: **7.88 inches** Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 6749 **Outside**
Press@RunDepth: **71.34 psig @ 4455.00 ft (KB)** Capacity: **8000.00 psig**
Start Date: **2017.06.16** End Date: **2017.06.17** Last Calib.: **2017.06.17**
Start Time: **17:44:15** End Time: **00:10:30** Time On Btm: **2017.06.16 @ 19:23:00**
Time Off Btm: **2017.06.16 @ 22:24:30**

TEST COMMENT: IF: Built to 1/4" blow
IS: No return blow
FF: Built to weak surface blow and died in 7 min.
FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2267.83	110.32	Initial Hydro-static
1	50.74	109.57	Open To Flow (1)
31	62.24	110.42	Shut-In(1)
76	1314.32	112.19	End Shut-In(1)
76	68.08	111.59	Open To Flow (2)
121	71.34	113.23	Shut-In(2)
181	1309.34	114.86	End Shut-In(2)
182	2191.51	115.32	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
119.00	ocm 5%o 95%m (collars)	0.59
5.00	free oil 100 %o	0.07

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.
8100 E. 22nd St. N#700
P.O. Box 783188
Wichita KS 67278
ATTN: John Goldmith

26-15s-36w Logan Co KS
Wing-Dvorachek #1
Job Ticket: 63744 **DST#: 3**
Test Start: 2017.06.16 @ 17:44:15

Mud and Cushion Information

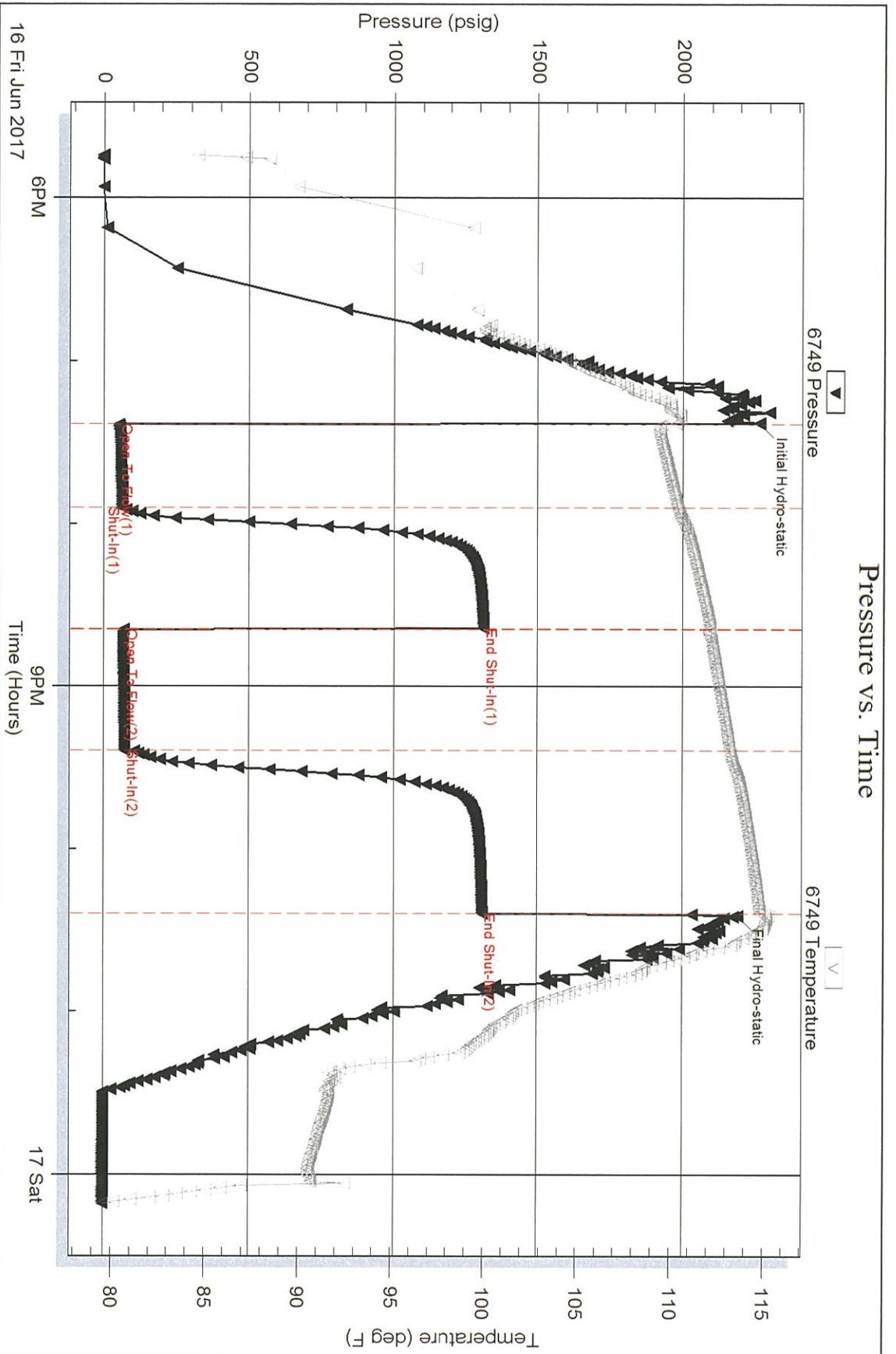
Mud Type: Gel Chem	Cushion Type:	Oil API:	29 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.97 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 6000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
119.00	ocm 5%o 95%m (collars)	0.585
5.00	free oil 100 %o	0.070

Total Length: 124.00 ft Total Volume: 0.655 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: API= 29@60



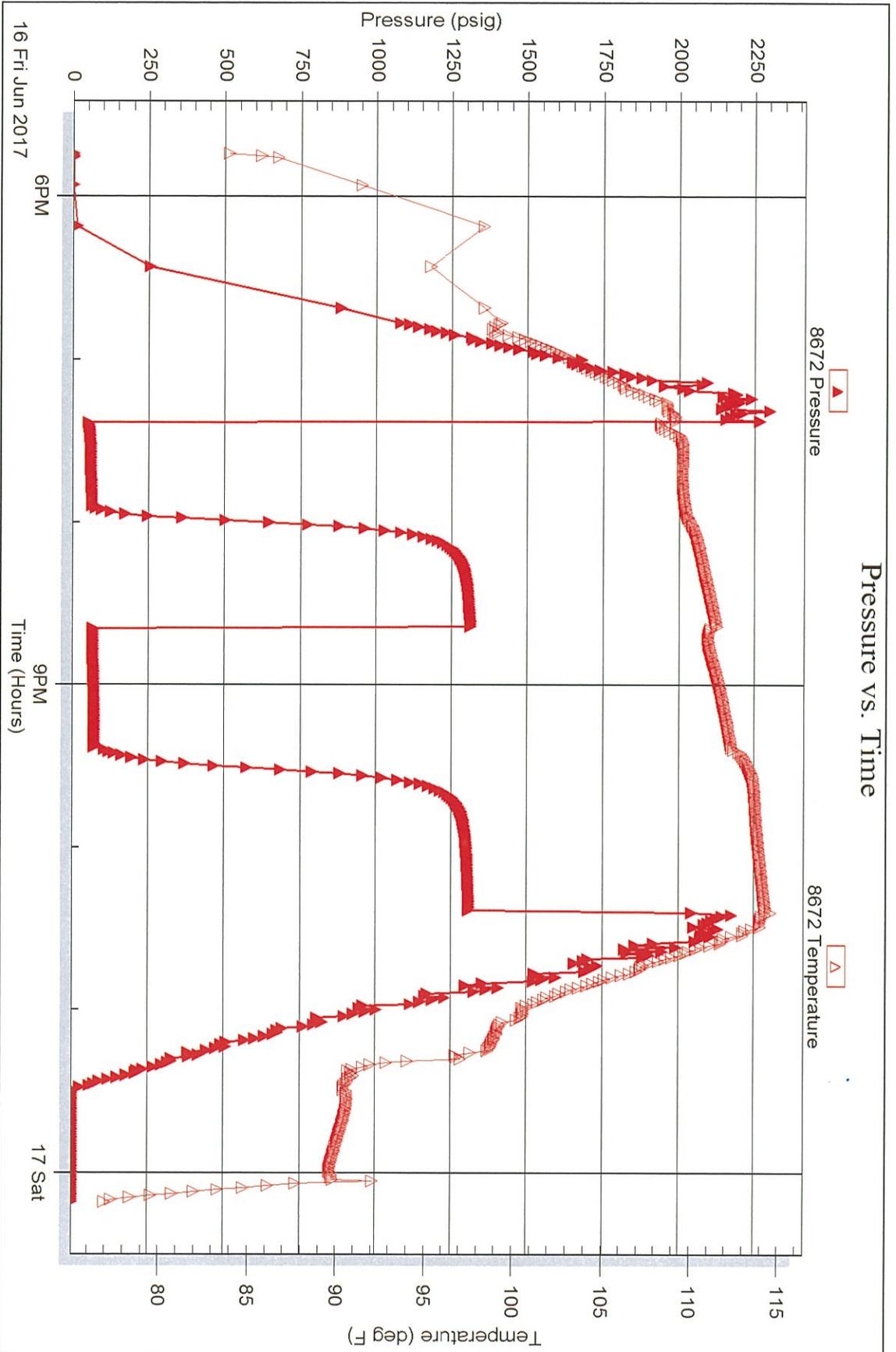
Serial #: 8672

Inside

Ritchie Exploration Inc.

Wing-Dvorachek #1

DST Test Number: 3



Wellsite Services, LLC

John Goldsmith
(316) 640-0236

427 Roosevelt St.
Cheney, KS 67025

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

Well Name: #1 Wing-Dvorachek
API: 15-109-21507
Location: 1595' FNL, 122' FWL, SECTION 26-15S-36W
License Number: #4767
Spud Date: 06/10/2017
Surface Coordinates: LAT: 38.7257853
LONG: -101.2981045
Bottom Hole Vertical hole
Coordinates: 1/4 Degree Deviation
Ground Elevation (ft): 3288'
Logged Interval (ft): 3700' To: RTD
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical

Region: Logan County
Drilling Completed: 6/18/17
K.B. Elevation (ft): 3293'
Total Depth (ft): 4900'

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

OPERATOR

Company: Ritchie Exploration Inc.
Address: 8100 E. 22nd St. N. Bldg. #700
Wichita, KS 67226
(316) 691-9500

GEOLOGIST

Name: John Goldsmith
Company: Wellsite Services LLC
Address: 427 Roosevelt St
Cheney, KS 67025
(316) 640-0236

RIG RECORDS

Contractor: WW Drilling Rig #10
Tool Pusher: Ricky Hilgers

Collar Tally: 480'

Pump: National K-380
Liner & Stroke: 6 x 14

BIT RECORDS

Size:	Type:	Footage:	Condition:	Hours:	Serial #:
12 1/4"	Sm-tooth	0-231'	RR	2.5'	RH 6605
7 7/8"	Sm-F27	231'-4900'	New	110.5	RJ 2927

COMMENTS

Surface Casing: 5 joints of 8 5/8" set at 231'
Production Casing: 4.5" production casing installed.
Mud by: MudCo
DST's by: Trilobite Testing
Logs by: Pioneer Energy Services (DIL, CN-CD, ML)
RTD=4900' LTD=4900'

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Stotler	3632'	-339	3631'	-338
Heebner Shale	3992'	-699	3991'	-698
Toronto	4013'	-720	4011'	-718
Lansing	4042'	-749	4042'	-749
Muncie Creek Shale	4212'	-919	4211'	-918
Stark Shale	4298'	-1005	4297'	-1004
Hushpuckney Shale	4342'	-1049	4341'	-1048
Base of KC	4380'	-1087	4380'	-1087
Marmaton	4427'	-1134	4429'	-1136
Altamont	4436'	-1143	4436'	-1143
Pawnee	4512'	-1219	4511'	-1218
Myrick Station	4556'	-1263	4556'	-1263
Ft Scott	4569'	-1276	4569'	-1276
Cherokee Shale	4598'	-1305	4598'	-1305
Johnson Zone	4688'	-1395	4687'	-1394
Morrow	4740'	-1447	4740'	-1447
Mississippian	4823'	-1530	4823'	-1530
RTD	4900'	-1607		
LTD			4900'	-1607

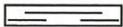
DSTs

DST #1 "LKC K" 4296'-4344' 6-15-17 30-30-30-30
 1st Blw: Blw blt to BOB in 1 min (No BB)
 2nd Blw: Blw blt to BOB in 1 min (No BB)
 IFP: 262-974# ISIP: 1271# FFP: 979-1218# FSIP: 1275#
 Hyd: 2210-2183#
 Rec: 300' WCM (60% WTR), 2046' Wtr.

DST #2 "Altamont A" 4429'-4455' 6-16-17 30-45-45-60
 1st Blw: Blw blt to 1.5" in 30min (No BB)
 2nd Blw: Blw blt to 2" in 45min (No BB)
 IFP: 53-70# ISIP: 1284# FFP: 71-81# FSIP: 1273#
 Hyd: 2249-2187#
 Rec: 30' FO, 15' MCO (80% Oil), 119' OCM (10% Oil).

DST #3 "Altamont B" 4454'-4478' 6-16-17 30-45-45-60
 1st Blw: Blw blt to 1/4" in 30min (No BB)
 2nd Blw: Wk surf blow died in 7min (No BB)
 IFP: 50-62# ISIP: 1314# FFP: 68-71# FSIP: 1309#
 Hyd: 2267-2191#
 Rec: 5' FO, 119' OCM (5% Oil).

ROCK TYPES

 Anhy	 Dol	 Slst	 Gry sh
 Cht	 Lmst	 Ss	 Sandylms
 Congl	 Shale	 Carb sh	 Shaly ls

ACCESSORIES

EVENTS

-  Circ
-  Conn

FOSSIL

-  Brach
-  Crin
-  Foram



Fossil



Gastro



Oolite



Plant



Fuss



Oolcast

MINERAL



Calc



Chtdk



Chtlt



Glau



Hvymin



Nodule



Pyr



Sil



Sulphur

TEXTURE



Chalky



Crsxln

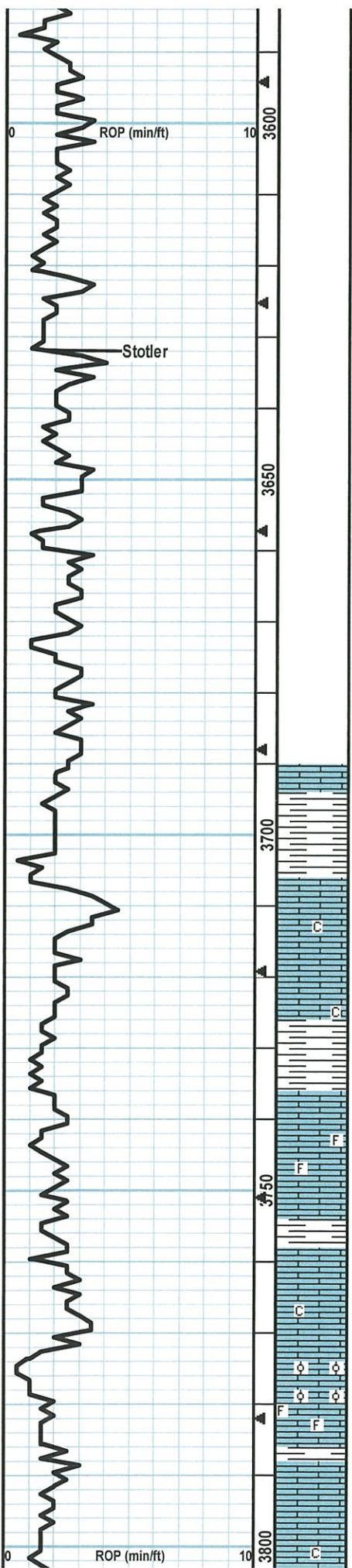


Finexln



Microxln

ROP ROP (min/ft)	Depth	Lithology	CFS Point	Oil Shows	Geological Descriptions	Remarks
0	10					Survey @ 231' = 1 Degree
2550					<p>Morning Activity/Report</p> <p>June 10, 2017: Spud @ 2:30 p.m.</p> <p>6/11/17: Drlg @ 740'</p> <p>6/12/17: Drlg @ 2830'</p> <p>6/13/17: Drlg @ 3650'</p> <p>6/14/17: CFS @ 4094'</p> <p>6/15/17: Running DST #1 @ 4344'</p> <p>6/16/17: Running DST #2 @ 4455' (DST #3 Later)</p> <p>6/17/17: Drlg @ 4530'</p> <p>6/18/17: Drlg @ 4795' (TD @ 4900')</p>	<p>Anhydride @ 2554' (+738)</p>
3500						<p>B/Anydride @ 2574' (+718)</p> <p>MudCo Check #2 @ 2974' 06/12/17 @ 10:20am Wt: 9.4 Vis: 32 pH: 7.0 Filt: n/c Chr: 71K LCM: 3#</p> <p>Displace the mud system @ 3453' (720bbbls)</p>
3550					<p>1' Drilling Time Recordred @ 3500'</p>	



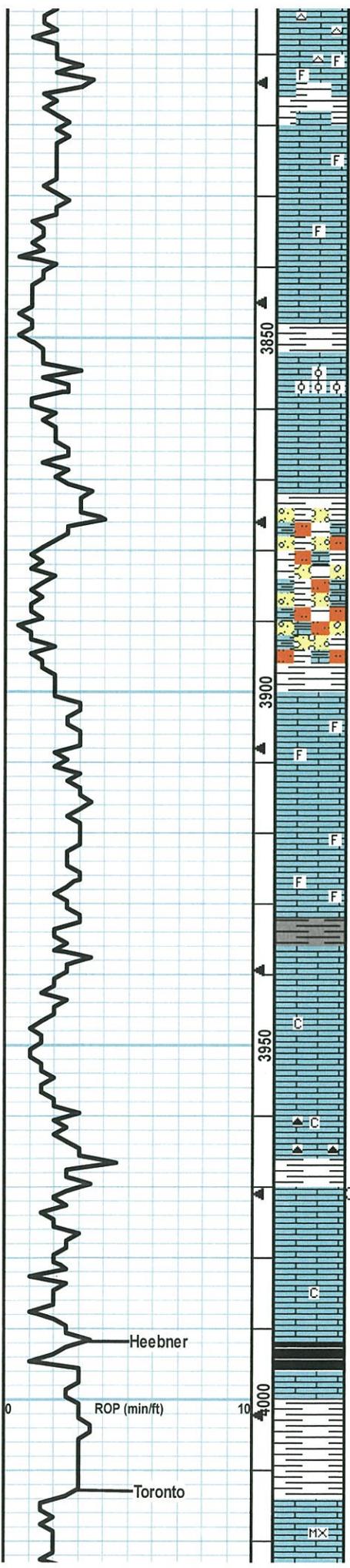
Starting catching 10' Samples beginning @ 3700' on 6/13/2017

- LS: gry/tan, slight mott, fn xln, fw foss frags, dense, firm, tr-nvp, no odr, ns.
- LS: gry/lt tan, slight mott, fn xln, sm dense, tr-nvp, no odr, ns.
- LS: lt tan/lt gry, mostly sing, fn xln, dense, tr-nvp, no odr, ns.
- LS: lt tan/lt gry, mostly sing, fn xln, sm dense, many brittle, tr-nvp, no odr, ns.
- LS: drk gry/lt gry, mott, fn xln, many foss, tr-nvp, sm SH: drk gry, silty, no odr, ns.
- LS: lt gry/lt tan, many sing, fn xln, sm brittle, fw SH: gry, silty, soft, no odr, ns.
- LS: lt tan, sing, fn xln, fw ool in prt, tr-nvp, sm dense, many brittle, no cup odr, ns.
- LS: lt tan, slight mott in prt, fn xln, fw foss frags, brittle, sm pr infoss por, no cup odr, ns.

Stotler @ 3632' (-339)

MudCo Check #3 @ 3712'
 06/13/17 @ 9:50am
 Wt: 8.8 Vis: 62
 pH: 11.5 Filt: 6.4
 Chlr: 3.3K LCM: 1#

LS: lt tan/lt tan, sing, fn xln, sm dense, brittle



sub-chlky, tr-nvp, fw SH: gry, silty, no odr, ns.

LS: lt tan, fw lt gry, sing, fn xln, fw foss frags, brittle, chlky, tr-nvp, fw Chert: wht, foss, sharp, no odr, ns.

LS: gry, mott, fn xln, fw flakey, fw foss, tr-nvp, fw pcs w/ drk gils dead stns, no movmnt, no fluor, no odr.

LS: gry/lt tan, mott, fn xln, fw foss, brittle, sub-chlky, tr-nvp, no odr, ns.

LS: lt tan, sing, fn xln, sm v ool, brittle, v chlky, tr-pr intool por in fw, abund pur chl, no odr, ns.

LS: lt tan, sing, fn xln, mostly dense, sm chlky, tr-nvp, fw pcs pur chl, no odr, ns.

LS: lt tan/lt gry, sing, fn xln, sm dense, brittle, sub-chlky in fw, tr-nvp, no odr, ns.

LS: lt gry/lt tan, sm foss, many brittle, sub-chlky, tr-nvp, fw SH: gry, silty, soft, no odr, ns.

LS: gry/tan, slight mott, fn xln, foss in prt, fw brittle, tr-nvp, sm SH: gry/brn, silty, no odr, ns.

LS: lt tan, mostly sing, fn xln, sub-chlky, brittle, tr-nvp, no cup odr, ns.

LS: lt tan/lt gry, mostly sing, fn xln, fw foss frags, brittle, sub-chlky, tr-pr ppt por, no odr, ns.

LS: gry/lt tan, mostly sing, fn xln, fw foss frags, sm brittle, tr-nvp, no odr, ns.

LS: lt tan/lt gry, sing, fn xln, mostly dense, sub-chlky, sm brittle, tr-nvp, no odr, ns.

LS: lt tan, sing, fn xln, many dense, many brittle, sub-chlky, fw pcs pr ppt intxn por, fw Chert: lt tan, foss, sharp, no odr, ns.

LS: gry/tan, fn xln, many dense, sm brittle, sub-chlky in prt, tr-nvp, sm SH: gry/brn, silty, no odr, ns.

LS: tan/lt gry, sing, fn xln, mostly dense, sm brittle, sub-chlky, tr-nvp, svrl SH: blk/drk gry, silty, soft, carb, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, fw foss frags, firm, tr-nvp, 2-3 pcs w/ lght brn spttd stns, no fluor/cut, nsfo, no cup odr, svrl SH: gry/brn.

LS: gry/tan, slight mott, fn xln, dense, sub-chlky in prt, tr-nvp, svrl SH: gry/brn, silty, no odr, ns.

LS: crm/lt tan, micro-fn xln, mostly dense, brittle, sm chlky, tr-nvp, fw pcs pur chl, no cup odr, ns.

**Short Trip 35
Stands @ 3971'**

CFS @ 3971'
(20"/45")

Heeber @ 3992' (-699)

Toronto @ 4013' (-720)

CFS @ 4033'
(30"/60")

Lansing @ 4042' (-752)

CFS @ 4060'
(30"/60")

MudCo Check #4 @ 4094'
06/14/17 @ 8:00am
Wt: 9.0 Vis: 55
pH: 11.0 Filt: 7.2
Chlr: 3.8K LCM: 1#

CFS @ 4094'
(30"/60")

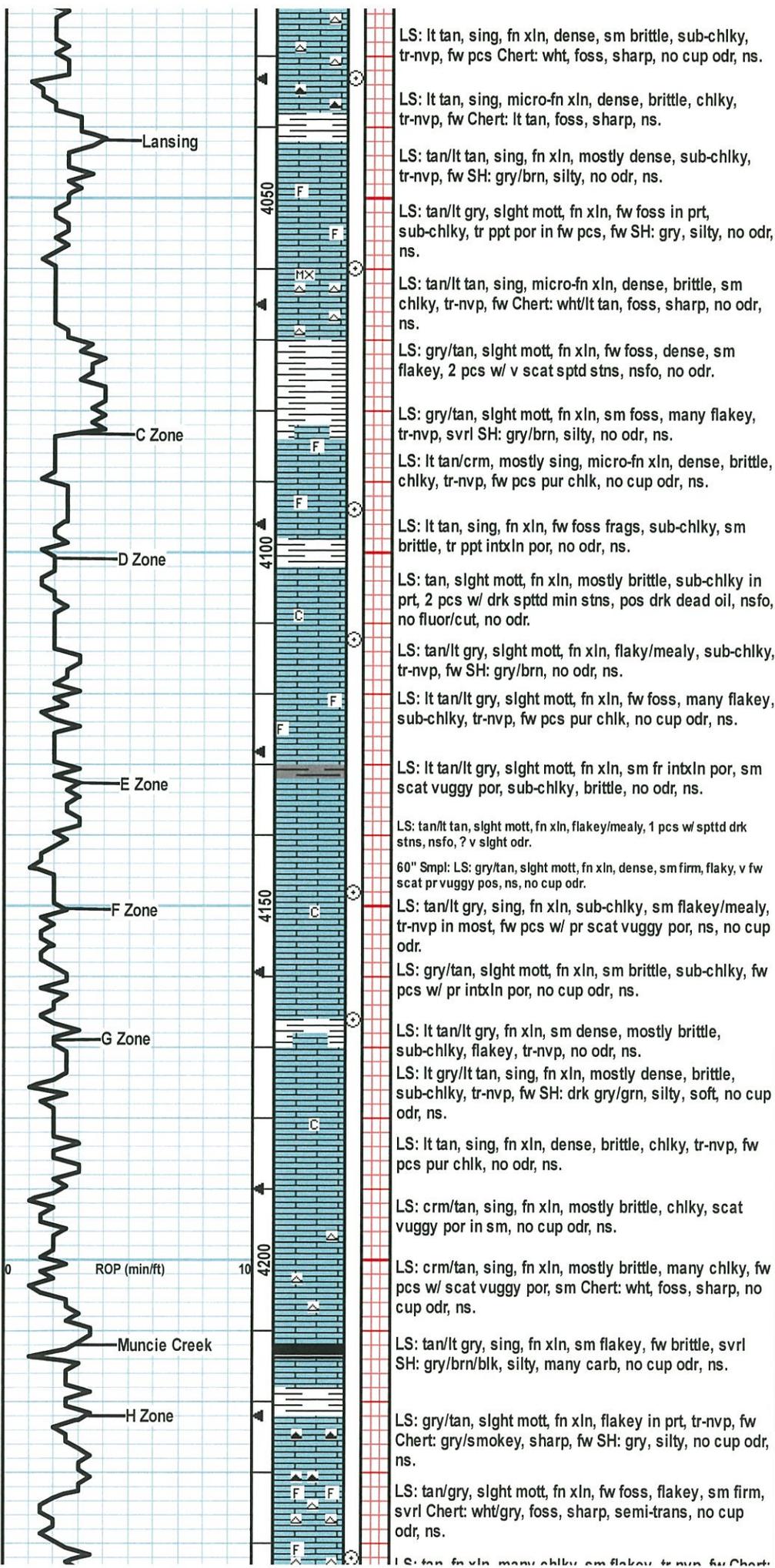
CFS @ 4112'
(30"/60")

CFS @ 4148'
(30"/60")

CFS @ 4166'
(30"/60")

Muncie Creek @ 4212' (-920)

CFS @ 4242'
(30"/60")



LS: It tan, sing, fn xln, dense, sm brittle, sub-chlky, tr-nvp, fw pcs Chert: wht, foss, sharp, no cup odr, ns.

LS: It tan, sing, micro-fn xln, dense, brittle, chlky, tr-nvp, fw Chert: It tan, foss, sharp, ns.

LS: tan/lt tan, sing, fn xln, mostly dense, sub-chlky, tr-nvp, fw SH: gry/brn, silty, no odr, ns.

LS: tan/lt gry, slight mott, fn xln, fw foss in prt, sub-chlky, tr ppt por in fw pcs, fw SH: gry, silty, no odr, ns.

LS: tan/lt tan, sing, micro-fn xln, dense, brittle, sm chlky, tr-nvp, fw Chert: wht/lt tan, foss, sharp, no odr, ns.

LS: gry/tan, slight mott, fn xln, fw foss, dense, sm flakey, 2 pcs w/ v scat sptd stns, nsfo, no odr.

LS: gry/tan, slight mott, fn xln, sm foss, many flakey, tr-nvp, svrl SH: gry/brn, silty, no odr, ns.

LS: It tan/crm, mostly sing, micro-fn xln, dense, brittle, chlky, tr-nvp, fw pcs pur chl, no cup odr, ns.

LS: It tan, sing, fn xln, fw foss frags, sub-chlky, sm brittle, tr ppt intxn por, no odr, ns.

LS: tan, slight mott, fn xln, mostly brittle, sub-chlky in prt, 2 pcs w/ drk spttd min stns, pos drk dead oil, nsfo, no fluor/cut, no odr.

LS: tan/lt gry, slight mott, fn xln, flakey/mealy, sub-chlky, tr-nvp, fw SH: gry/brn, no odr, ns.

LS: It tan/lt gry, slight mott, fn xln, fw foss, many flakey, sub-chlky, tr-nvp, fw pcs pur chl, no cup odr, ns.

LS: It tan/lt gry, slight mott, fn xln, sm fr intxn por, sm scat vuggy por, sub-chlky, brittle, no odr, ns.

LS: tan/lt tan, slight mott, fn xln, flakey/mealy, 1 pcs w/ spttd drk stns, nsfo, ? v slight odr.

60" Smpl: LS: gry/tan, slight mott, fn xln, dense, sm firm, flakey, v fw scat pr vuggy pos, ns, no cup odr.

LS: tan/lt gry, sing, fn xln, sub-chlky, sm flakey/mealy, tr-nvp in most, fw pcs w/ pr scat vuggy por, ns, no cup odr.

LS: gry/tan, slight mott, fn xln, sm brittle, sub-chlky, fw pcs w/ pr intxn por, no cup odr, ns.

LS: It tan/lt gry, fn xln, sm dense, mostly brittle, sub-chlky, flakey, tr-nvp, no odr, ns.

LS: It gry/lt tan, sing, fn xln, mostly dense, brittle, sub-chlky, tr-nvp, fw SH: drk gry/grn, silty, soft, no cup odr, ns.

LS: It tan, sing, fn xln, dense, brittle, chlky, tr-nvp, fw pcs pur chl, no odr, ns.

LS: crm/tan, sing, fn xln, mostly brittle, chlky, scat vuggy por in sm, no cup odr, ns.

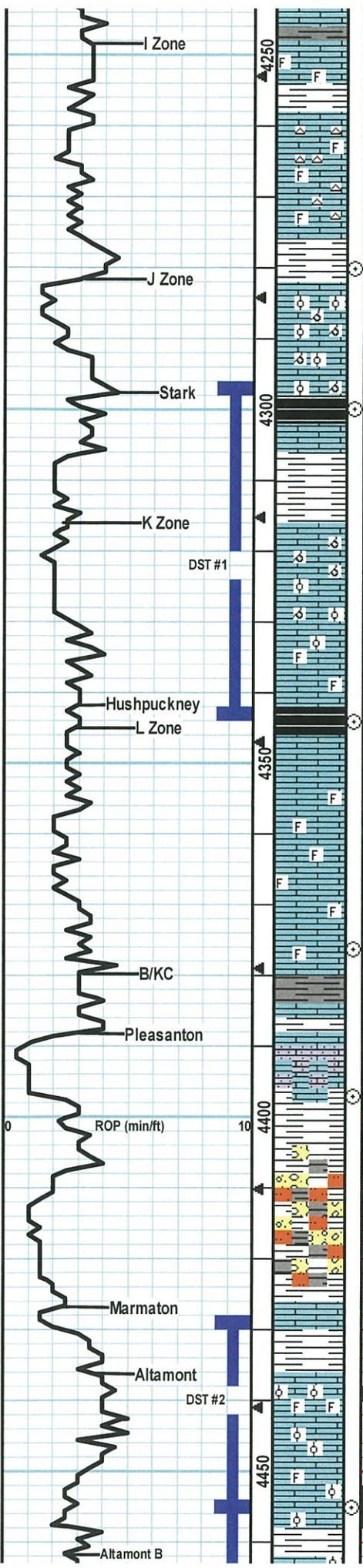
LS: crm/tan, sing, fn xln, mostly brittle, many chlky, fw pcs w/ scat vuggy por, sm Chert: wht, foss, sharp, no cup odr, ns.

LS: tan/lt gry, sing, fn xln, sm flakey, fw brittle, svrl SH: gry/brn/blk, silty, many carb, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, flakey in prt, tr-nvp, fw Chert: gry/smokey, sharp, fw SH: gry, silty, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, fw foss, flakey, sm firm, svrl Chert: wht/gry, foss, sharp, semi-trans, no cup odr, ns.

LS: tan, fn xln, many chlky, sm flakey, tr-nvp, fw Chert: wht, foss, sharp, no cup odr, ns.



wh, sharp, frac por on edg, v sml min stns, vssfo, no cup odr.

LS: gry/tan, slight mott, fn xln, many flakey, tr-pr intxn por in fw, svrl Chert: wht, foss, sharp, svrl SH: gry, silty, soft, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, many flakey/mealy, sub-chlky, tr-nvp, fw Chert: wht/opaque, foss, sharp, no odr, ns.

LS: tan/gry, slight mott, fn xln, sm dense, many flakey, sub-chlky, tr-nvp, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, many dense, sm flakey, tr-nvp, fw pcs Chert: wht, foss, sharp, no odr, ns.

LS: crm/lt tan, sing, fn xln, sm v ool, many brittle, tr-pr intool por in v fw, no cup odr, ns.

LS: crm/lt tan, slight mott, fn xln, sm v ool, mostly brittle, sm gd oolcast por, fw intool por, no cup odr, ns.

SH: blk, silty, carb, no odr, ns.

SH: gry/brn, silty, soft, sm blk and carb, no cup odr, ns.

LS: gry/tan, fn xln, dense, hard, tr-nvp, 1 pcs w/ lght brn patchy stn, wk-? fluor, nsfo, no cup odr.

LS: tan/lt brn, slight mott, fn xln, mostly dense, sm scat vuggy por, oolcast, drk hvy stns in por in 4 pcs, dul yel fluor, strm cut, no cup odr.

LS: tan/gry, mott in prt, fn xln, sm foss, many ool, brittle, chlky in prt, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, foss in prt, sm ool, chlky, tr-nvp, fw SH: gry, silty, soft, no cup odr, ns.

SH: blk/drk gry, silty, soft, carb, no odr, ns.

LS: gry/lt tan, slight mott, fn xln, fw foss frags, sub-chlky, many flakey/mealy, tr-nvp, svrl SH: gry/brn, silty, soft, no cup odr, ns.

LS: gry, slight mott, fn xln, many foss, many brittle, sub-chlky, tr-nvp, fw SH: gry, silty, soft, no odr, ns.

LS: gry/tan, slight mott, fn xln, foss, many firm, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: gry, mott, fn xln, mostly foss, flakey, sub-chlky, sm brittle, tr-nvp, sm SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, many foss, sm brittle, sub-chlky, tr-nvp, no cup odr, ns.

LS: tan/lt gry, mott, fn xln, grainy, sandy, lrg sub-ang xls, slw acid react, gd intxn por no cup odr, no show.

LS: gry/tan, mott, fn xln, foss in prt, many flakey, sm grainy/sandy nod, fr-gd intxn por, svrl SH: gry/brn, silty, soft, no odr, ns.

LS: gry/tan, slight mott, fn xln, firm, tr-nvp, abund SH: gry/brn/grn, silty, soft, fw StStn: drk gry, v soft, gritty, no cup odr, ns.

LS: gry/lt tan, slight mott, fn xln, foss w/ crin/brach, sub-chlky, sm brittle, tr-nvp, fw pcs pur chl, no odr, ns.

LS: tan/gry, slight mott, fn xln, sm firm, tr-nvp, fw SH: gry, silty, soft, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, foss in prt, fw ool, sm brittle, sm fr intxn/intfoss por, 7 pcs w/ spttd brn stns, min gas bubs on break, wk cup odr.

LS: tan/lt gry, mott, fn xln, sm foss, fw v ool, fr intool/intfoss, fr cup odr, fr sfo in svrl pcs/try, dul yel fluor, strm cut.

LS: tan, fn xln, sm v ool, fr-gd intool por, svrl pcs w/ drk hvy stns in por, sml sphr oil clng to rx chp, fr sfo on brk, wk cup odr, gd fluor/cut.

CFS @ 4280'
(30"/60")

MudCo Check #5 @ 4314'
06/15/17 @ 8:00am
Wt: 9.2 Vis: 54
pH: 10.5 Filt: 7.2
Chlr: 5.0K LCM: 1#

Stark @ 4298' (-1005)

CFS @ 4300'
(30"/60")

DST #1 "LKC K" 4296'-4344'
6-15-17 30-30-30-30
1st Blw: Blw blt to BOB in 1 min (No BB)
2nd Blw: Blw blt to BOB in 1 min (No BB)
IFP: 262-974# ISIP: 1271# FFP:
979-1218# FSIP: 1275#
Hyd: 2210-2183#
Rec: 300' WCM (60% WTR), 2046' Wtr.

CFS @ 4344'
(30"/60")

Hushpuckney @ 4342' (-1049)

Survey @ 4344' = 1 Degree

CFS @ 4376'
(30"/60")

Base of KC @ 4380' (-1087)

CFS @ 4397'
(30"/60")

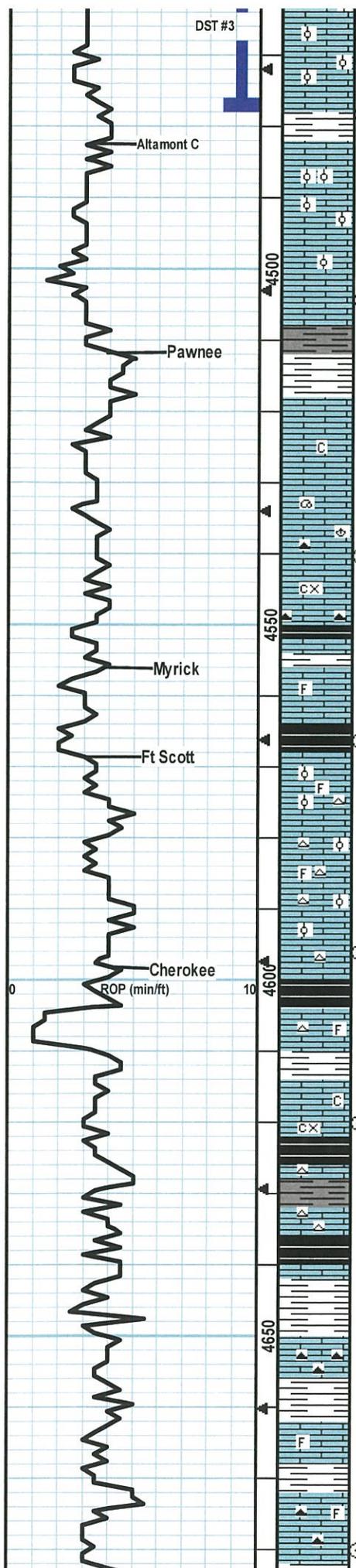
DST #2 "Altamont A"
4429'-4455' 6-16-17
30-45-45-60
1st Blw: Blw blt to 1.5" in 30min (No BB)
2nd Blw: Blw blt to 2" in 45min (No BB)
IFP: 53-70# ISIP: 1284# FFP:
71-81# FSIP: 1273#
Hyd: 2249-2187#
Rec: 30' FO, 15' MCO (80% Oil),
119' OCM (10% Oil).

Marmaton @ 4427' (-1134)

Altamont @ 4436' (-1143)

CFS @ 4455'
(30"/60")

MudCo Check #6 @ 4455'
06/16/17 @ 9:15am
Wt: 9.2 Vis: 53
pH: 10.0 Filt: 8.0
Chlr: 6.0K LCM: 1#



flakey, no cup odr, ns.
 LS: lt tan, slight mott, fn xln, sm ool, many dense, sm brittle, sub-chlky in prt, 1 pcs w/ pos lght bm stns, ? fluor, no cut, nsfo, no cup odr.
 LS: gry/tan, slight mott, fn xln, many dense, sm brittle, v fw pcs w/ patchy bm stns, nsfo, no cup odr, svrl SH: drk gry/blu, silty.

LS: lt tan/lt gry, slight mott, fn xln, many foss/ool, mostly dense, many firm-hrd, tr-nvp, svrl SH: gry/brn, silty, no cup odr, ns.
 LS: tan/lt gry, slight mott, fn xln, sm ool, dense, sm firm, fw brittle, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.
 LS: tan/lt tan, slight mott, fn xln, sm ool, mostly dense, sm firm, fw brittle, sub-chlky in v fw, tr-nvp, no cup odr, ns.
 LS: gry/lt tan, slight mott, fn xln, fw ool, dense, sm flakey/mealy, sub-chlky, tr-nvp, svrl SH: drk gry/grn/brn, silty, no cup odr, ns.
 SH: drk gry/brn/grn, silty, soft, no cup odr, ns.
 LS: gry/tan, sing, fn xln, mostly dense, many firm, sub-chlky, fw flakey, tr-nvp, no cup odr, no sho.
 LS: gry, mott, fn xln, foss w/ gast/brach, flakey, sub-chlky, sm firm, tr-nvp, no cup odr, ns.
 LS: gry/drk tan, mott, fn-crs xln, foss, dense, flakey, hard, tr-nvp, fw Chert: gry, foss, sharp, no cup odr, ns.
 SH: blk/drk gry, silty, soft, many carb, no cup odr, ns.
 LS: gry/tan, slight mott, fn xln, fw foss, sm dense, many brittle, sub-chlky, tr-nvp, fw pcs SH: gry, silty, no odr, ns.
 SH: blk/drk gry, silty, soft, mostly carb, no odr, ns.
 LS: gry/lt brn, mott, fn xln, foss/ool, many dense/firm, tr-nvp, fw Chert: wht/gry, foss/ool, sharp, no cup odr, ns.
 LS: gry/tan, mott, fn xln, sm foss/ool, mostly dense, sm firm, fw sub-chlky, tr-nvp, sm Chert: gry/smokey, foss, sharp, no cup odr, ns.
 LS: drk tan/gry, mott, fn xln, sm ool, tr-nvp, fw pcs w/ drk mins stns, no fluor/cut, nsfo, fw Chert: gry/wht, foss, sharp, no odr, ns.
 SH: blk/drk gry, silty, soft, many carb, fw LS: lght brn/gry, mott, fn xln, foss, dense, hard, tr-nvp, fw Chert: gry, foss, sharp, no cup odr, ns.
 LS: lt tan/gry, slight mott, fn xln, sm ool, fw flakey, many v chlky, dense, and v brittle, gritty like, tr-nvp, no cup odr, ns.
 LS: gry/tan, mostly sing, fn xln, sub-chlky, sm brittle, prntxln por in sm, sm SH: drk gry, silty, no cup odr, ns.
 LS: gry/lt brn, mott, fn-crs xln, dense, firm, flakey, tr-pr intxln por, abund SH: blk/gry, silty, sm soft, sm carb, no cup odr, ns.
 LS: gry/lt brn, slight mott, fn xln, many dense, fw flakey, mostly hard, tr-nvp, fw Chert: wht/gry, foss, sharp, sm SH: gry/blk, silty, no odr, ns.
 LS: gry/lt brn, slight mott, fn xln, many dense, mostly hard, fw grainy, tr-nvp, fw SH: gry/brn, silty, no odr, ns.
 LS: gry/lt brn, slight mott, fn xln, fw foss, dense, firm, tr-nvp, fw Chert: lt brn, foss, sharp, svrl SH: gry/brn, silty, soft, no cup odr, ns.
 LS: gry/lt brn, slight mott, fn xln, v fw foss frags, dense, sm flakey, mostly hard, tr-nvp, fw SH: gry/brn, silty, no odr, ns.
 LS: gry/tan, slight mott, fn xln, fw foss, dense, firm, sm flakey/mealy, tr-nvp, fw Chert: gry, smokey, foss, sharp, no odr, ns.

DST #3 "Altamont B"
 4454'-4478' 6-16-17
 30-45-45-60
 1st Blw: Blw bit to 1/4" in 30min (No BB)
 2nd Blw: Wk surf blow died in 7min (No BB)
 IFF: 50-62# ISIP: 1314# FFP: 68-71# FSIP: 1309#
 Hyd: 2267-2191#
 Rec: 5' FO, 119' OCM (5% Oil).

CFS @ 4478' (30"/60")

CFS @ 4504' (30"/60")

Pawnee @ 4512' (-1219)

MudCo Check #7 @ 4535'
 06/17/17 @ 7:30am
 Wt: 9.2 Vis: 58
 pH: 9.0 Filt: 11.2
 Chlr: 9.0K LCM: 2#

CFS @ 4540' (30"/60")

Myrick @ 4556' (-1263)

CFS @ 4566' (30"/60")

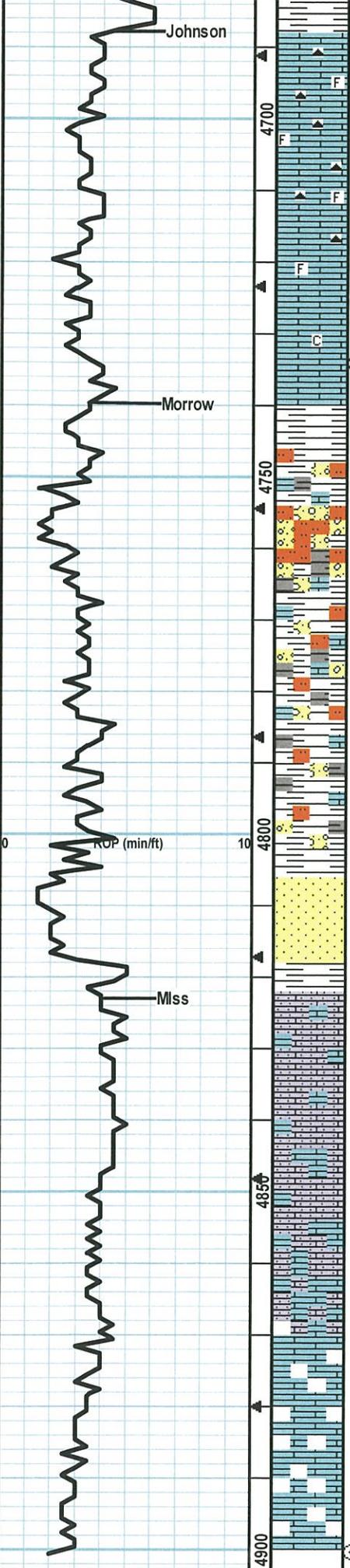
Ft Scott @ 4569' (-1276)

CFS @ 4596' (30"/60")

Cherokee @ 4598' (-1305)

CFS @ 4620' (30"/60")

CFS @ 4680' (30"/60")



SH: gry/brn, silty, soft, fw LS: lt brn, micro-fn xln, dense, sm v hard, tr-nvp, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, fw foss, sm dense, many brittle, fw flakey, tr-nvp, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, sm foss, mostly firm, many flakey/mealy, tr-nvp, fw Chert: lt brn/gry, smokey, foss, sharp, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, fw foss, mostly dense, sm flakey, sub-chlky in prt, tr-nvp, fw Chert: brn, foss, sharp, no cup odr, ns.

LS: gry/lt tan, slight mott, fn xln, fw foss frags, many dense, sm flakey, sub-chlky, tr-nvp, fw Chert: gry, foss, sharp, no odr, ns.

LS: gry/lt tan, slight mott, fn xln, dense, sm flakey, sub-chlky, tr-nvp, fw SH: gry/drk gry, silty, soft, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, dense, mostly firm, tr-nvp, svrl SH: gry/brn, silty, sm v soft, no cup odr, ns.

SH: gry/drk brn, silty, med crush, fw SlitStn: lght gry, gritty, soft, fw LS: gry, fn xln, dense, tr-nvp, no cup odr, ns.

SH: gry/blu/grn/brn, sm withrd, med crush, fw Slit/SndStn: fn grn, dirty, friable tr-nvp, no odr, ns.

SH: gry/blu/brn, silty, soft, fw friable, sm SlitStn: gry/brn, gritty, v soft, no cup odr, ns.

Much of the Same as above, sm LS: gry/tan, fn xln, dense, sm flakey, sub-chlky, tr-nvp, no cup odr, ns.

SH: gry/brn/blu/grn, silty, soft, fw SlitStn: gry/brn, gritty, v soft, fw LS: gry/tan, slight mott, fn xln, sm dense, sub-chlky, fw flakey/mealy, tr-nvp, no cup odr, ns.

Abund SH: gry/brn, silty, fw LS: gry/lt brn, flakey, tr-nvp, fw SS: crm/wht, slight arg, sub-ang, sm firm, fw glauc, tr-pr intgrn por, no cup odr, ns.

SS: gry/blu, sub rnd in prt, sil cem, soft, v arg, tr-pr intgrn por, abund SH: gry/brn, silty, no cup odr, ns.

LS: crm/lt tan, fn xln, sandy/gritty, firm, tr-nvp, still larg infx of SH in smple, Most likely slough from Morrow.

LS: crm/lt tan, sandy/gritty, sm chlky, tr-nvp, sm firm, tr-nvp, no cup odr, ns.

LS: crm/lt tan, sandy/gritty, chlky, mostly brittle, tr-nvp, abund SH: gry/brn, silty, sm withrd, no cup odr, ns.

LS: crm/lt tan, sm sandy/gritty, chlky, brittle, fw dense, firm, tr-nvp, abund SH: gry/brn, silty, no odr, ns.

LS: crm/lt tan, sm sandy/gritty, chlky, brittle, fw dense, firm, flakey, no por, nsfo, no cup odr.

Lrg infx of SH: gry/brn, silty, soft, mostly likely slough from above, fw LS: tan/gry, fn xln, dense, fw flakey, tr-nvp, no cup odr, ns.

Almost straight Shale, 1-2 pcs of LS per smple tray.

Johnson @ 4688' (-1395)

CFS @ 4734'
(30"/60")

Morrow @ 4740 (-1447)

MudCo Check #8 @ 4786'
06/18/17 @ 6:40am
Wt: 9.3 Vis: 57
pH: 10.0 Filt: 8.8
Chlr: 8.8K LCM: 2#

Mississippi @ 4823' (-1530)

Large influx of Shale. Most likely uphole slough.

CFS @ 4900'

RTD: 4900' (-1607)
LTD: 4900' (-1607)

(30"/60")

Survey @ 4900' = 1/4 Degree



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.
 8100 E 22nd St. N#700
 P.O. Box 783188
 Wichita KS 67278
 ATTN: John Goldmith

26-15s-36w Logan Co KS

Wing-Dvorachek #1

Job Ticket: 63742 DST#: 1

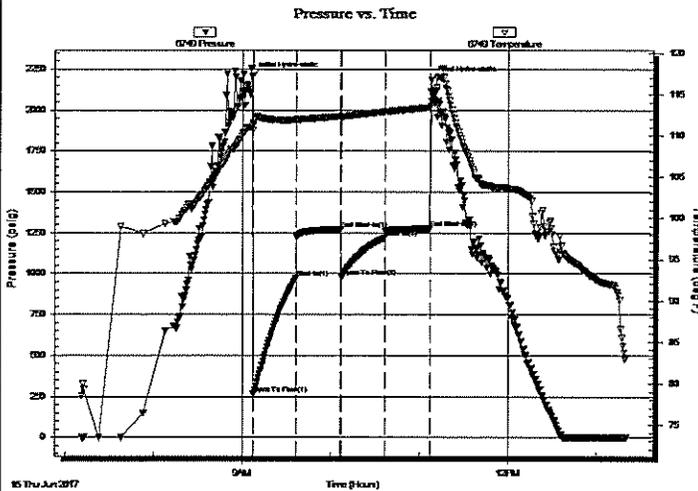
Test Start: 2017.06.15 @ 07:11:23

GENERAL INFORMATION:

Formation: K
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:07:08
 Time Test Ended: 13:20:23
 Interval: 4296.00 ft (KB) To 4344.00 ft (KB) (TVD)
 Total Depth: 4344.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 3293.00 ft (KB)
 3288.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6749 Outside
 Press@RunDepth: 1218.21 psig @ 4339.00 ft (KB)
 Start Date: 2017.06.15 End Date: 2017.06.15 Capacity: 8000.00 psig
 Start Time: 07:11:23 End Time: 13:20:23 Last Calib.: 2017.06.15
 Time On Btm: 2017.06.15 @ 09:06:53
 Time Off Btm: 2017.06.15 @ 11:07:53

TEST COMMENT: IF: BOB in 1 min.
 IS: No return blow
 FF: BOB in 1 min.
 FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2210.52	111.15	Initial Hydro-static
1	262.82	110.61	Open To Flow (1)
30	974.93	111.87	Shut-In(1)
60	1271.80	112.34	End Shut-In(1)
61	979.13	112.26	Open To Flow (2)
90	1218.21	112.87	Shut-In(2)
121	1275.30	113.39	End Shut-In(2)
121	2183.57	114.24	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
310.00	w cm 40%w 60%m	3.26
2046.00	sw 100% sw	28.70

Gas Rates

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

