

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
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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) (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	Raymond Oil Company, Inc.
Well Name	SOWERS-DOWNING-HAACK UNIT 1
Doc ID	1373330

Tops

Name	Top	Datum
B/Anh	3267	195
Lans	4350	-888
Mun Crk	4474	-1012
Stk Sh	4556	-1094
Paw	4740	-1278
Myr Sta	4773	-1311
CK Sh	4818	-1356
Miss	5047	-1585
Total Depth	5140	n/a



DRILL STEM TEST REPORT

Prepared For: **Raymond Oil Co**

PO Box 48788
Wichita, KS 67201

ATTN: Kim Shoemaker

17-4-37W Cheyenne,KS

Sowers-Downing-Haack Unit #1

Start Date: 2017.10.31 @ 18:02:00

End Date: 2017.11.01 @ 02:05:20

Job Ticket #: 63165 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

ph: 785-625-4778 fax: 785-625-5620

Printed: 2017.11.06 @ 12:05:07

Raymond Oil Co
Sowers-Downing-Haack Unit #1
17-4-37W Cheyenne,KS
DST # 1
L/KC 140-180
2017.10.31



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Raymond Oil Co

PO Box 48788
Wichita, KS 67201

ATTN: Kim Shoemaker

Sowers-Downing-Haack Unit #1

17-4-37W Cheyenne, KS

Job Ticket: 63165

DST#: 1

Test Start: 2017.10.31 @ 18:02:00

GENERAL INFORMATION:

Formation: **L/KC 140-180**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 20:31:40

Time Test Ended: 02:05:20

Test Type: Conventional Bottom Hole (Initial)

Tester: Martine Salinas

Unit No: 82

Interval: 4467.00 ft (KB) To 4555.00 ft (KB) (TVD)

Reference Elevations: 3462.00 ft (KB)

Total Depth: 4555.00 ft (KB) (TVD)

3457.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 5.00 ft

Serial #: 8959

Inside

Press@RunDepth: 20.66 psig @ 4468.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2017.10.31

End Date:

2017.11.01

Last Calib.: 2017.11.01

Start Time: 18:02:01

End Time:

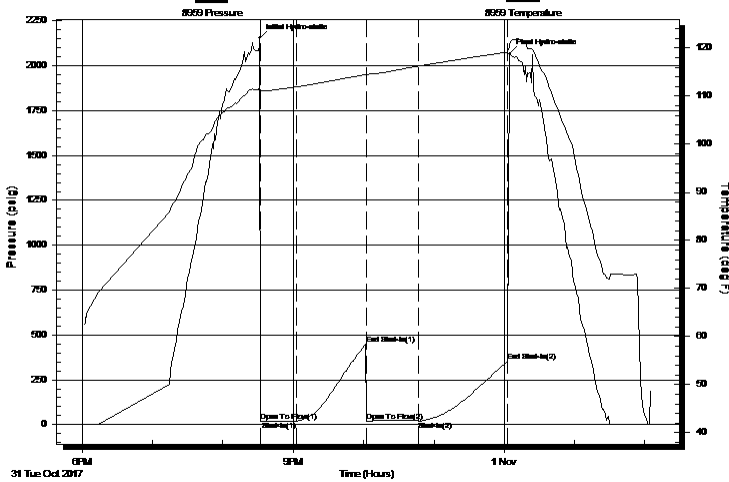
02:05:20

Time On Btm: 2017.10.31 @ 20:31:20

Time Off Btm: 2017.11.01 @ 00:04:39

TEST COMMENT: 30-IF-Surface blow built to 1 1/4"
60-ISI-Blow back built to 1 "
45-FF-Surface blow built to 1/4"
75-FSI-Blow back built to 1"

Pressure vs. Time



PRESSURE SUMMARY

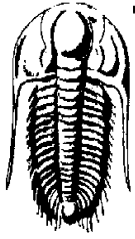
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2152.77	112.07	Initial Hydro-static
1	19.47	111.21	Open To Flow (1)
32	19.23	111.96	Shut-In(1)
91	448.28	114.51	End Shut-In(1)
92	20.05	114.30	Open To Flow (2)
136	20.66	116.27	Shut-In(2)
212	353.28	119.19	End Shut-In(2)
214	2066.32	120.92	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	100% Mud	0.14

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Raymond Oil Co
 PO Box 48788
 Wichita, KS 67201
 ATTN: Kim Shoemaker

Sowers-Downing-Haack Unit #1
17-4-37W Cheyenne,KS
 Job Ticket: 63165 **DST#: 1**
 Test Start: 2017.10.31 @ 18:02:00

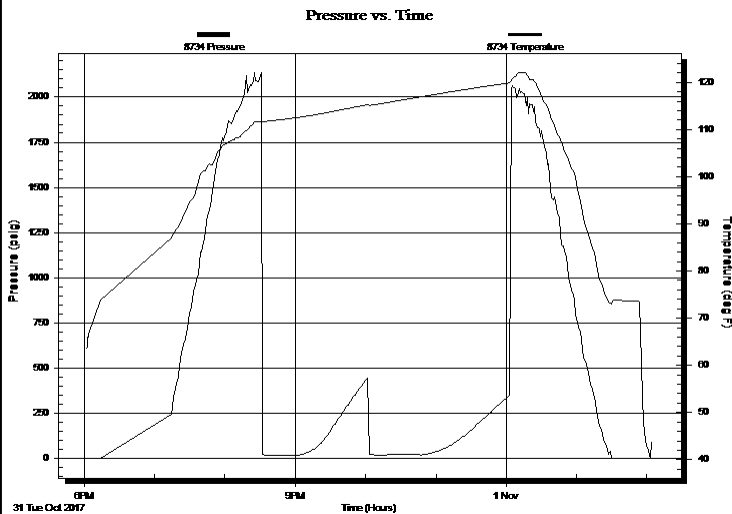
GENERAL INFORMATION:

Formation: **L/KC 140-180**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 20:31:40 Tester: Martine Salinas
 Time Test Ended: 02:05:20 Unit No: 82
 Interval: **4467.00 ft (KB) To 4555.00 ft (KB) (TVD)**
 Total Depth: 4555.00 ft (KB) (TVD) Reference Elevations: 3462.00 ft (KB)
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 3457.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8734 Outside

Press@RunDepth: psig @ 4468.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.10.31 End Date: 2017.11.01 Last Calib.: 2017.11.01
 Start Time: 18:02:01 End Time: 02:05:20 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30-IF-Surface blow built to 1 1/4"
 60-ISI-Blow back built to 1"
 45-FF-Surface blow built to 1/4"
 75-FSI-Blow back built to 1"



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
10.00	100% Mud	0.14

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Raymond Oil Co

Sowers-Downing-Haack Unit #1

PO Box 48788
Wichita, KS 67201

17-4-37W Cheyenne, KS

Job Ticket: 63165

DST#: 1

ATTN: Kim Shoemaker

Test Start: 2017.10.31 @ 18:02:00

Tool Information

Drill Pipe:	Length: 4467.00 ft	Diameter: 3.80 inches	Volume: 62.66 bbl	Tool Weight: 2500.00 lb
Heavy Wt. Pipe:	Length: 0.00 ft	Diameter: 2.75 inches	Volume: 0.00 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 62.66 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial 49000.00 lb
Depth to Top Packer:	4467.00 ft			Final 49000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	88.00 ft			
Tool Length:	116.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description

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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Shut In Tool	5.00			4444.00	
Hydraulic tool	5.00			4449.00	
Jars	5.00			4454.00	
Safety Joint	3.00			4457.00	
Packer	5.00			4462.00	28.00 Bottom Of Top Packer
Packer	5.00			4467.00	
Stubb	1.00			4468.00	
Recorder	0.00	8959	Inside	4468.00	
Recorder	0.00	8734	Outside	4468.00	
Perforations	18.00			4486.00	
Change Over Sub	1.00			4487.00	
Drill Pipe	62.00			4549.00	
Change Over Sub	1.00			4550.00	
Bullnose	5.00			4555.00	88.00 Bottom Packers & Anchor

Total Tool Length: 116.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Raymond Oil Co

Sowers-Downing-Haack Unit #1

PO Box 48788
Wichita, KS 67201

17-4-37W Cheyenne,KS

Job Ticket: 63165 **DST#: 1**

ATTN: Kim Shoemaker

Test Start: 2017.10.31 @ 18:02:00

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: 71.00 sec/qt

Cushion Volume:

bbf

Water Loss: 6.40 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2200.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
10.00	100% Mud	0.140

Total Length: 10.00 ft Total Volume: 0.140 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8959

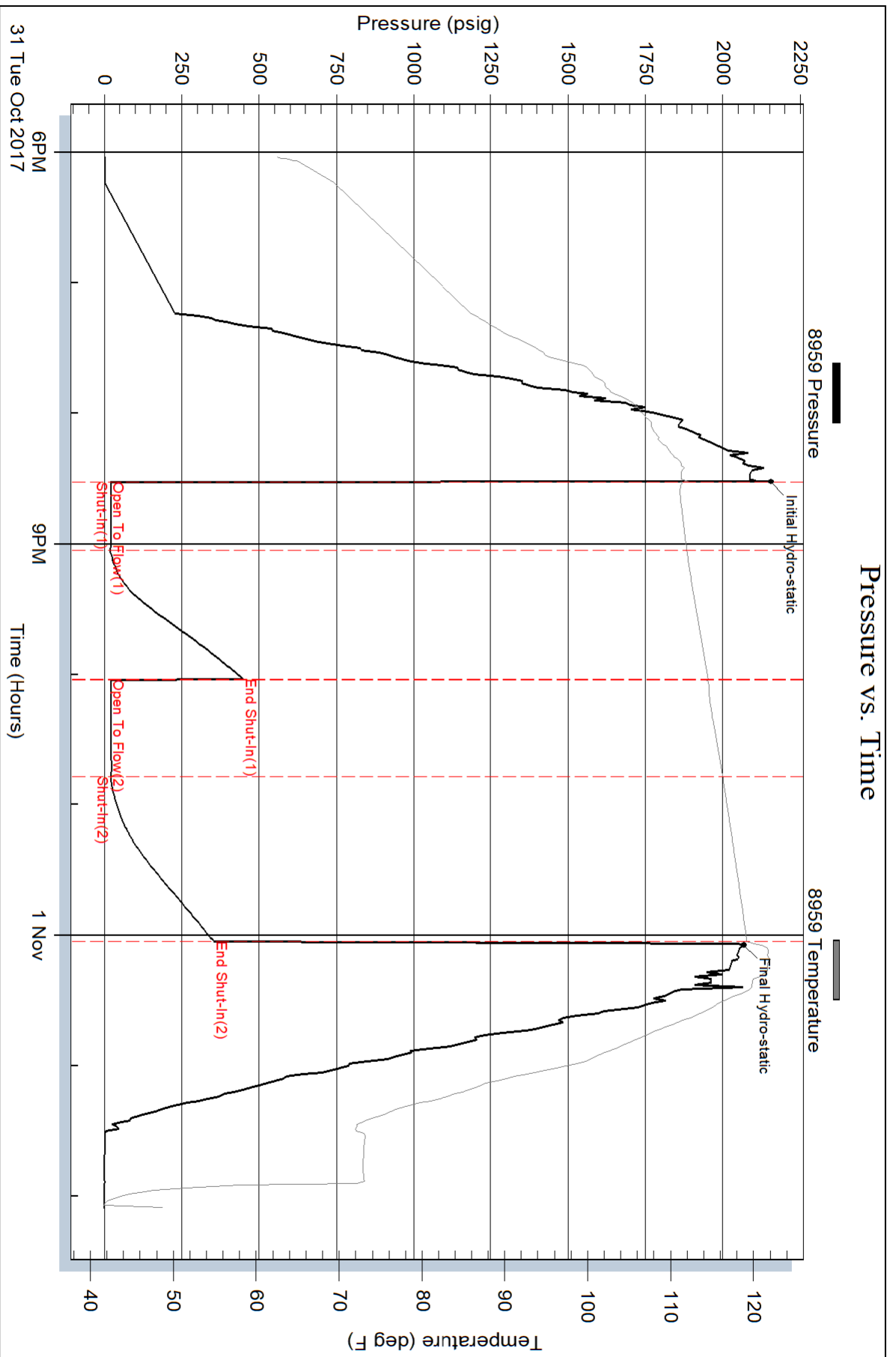
Inside

Raymond Oil Co

17-4-37W Cheyenne, KS

DST Test Number: 1

Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 63165

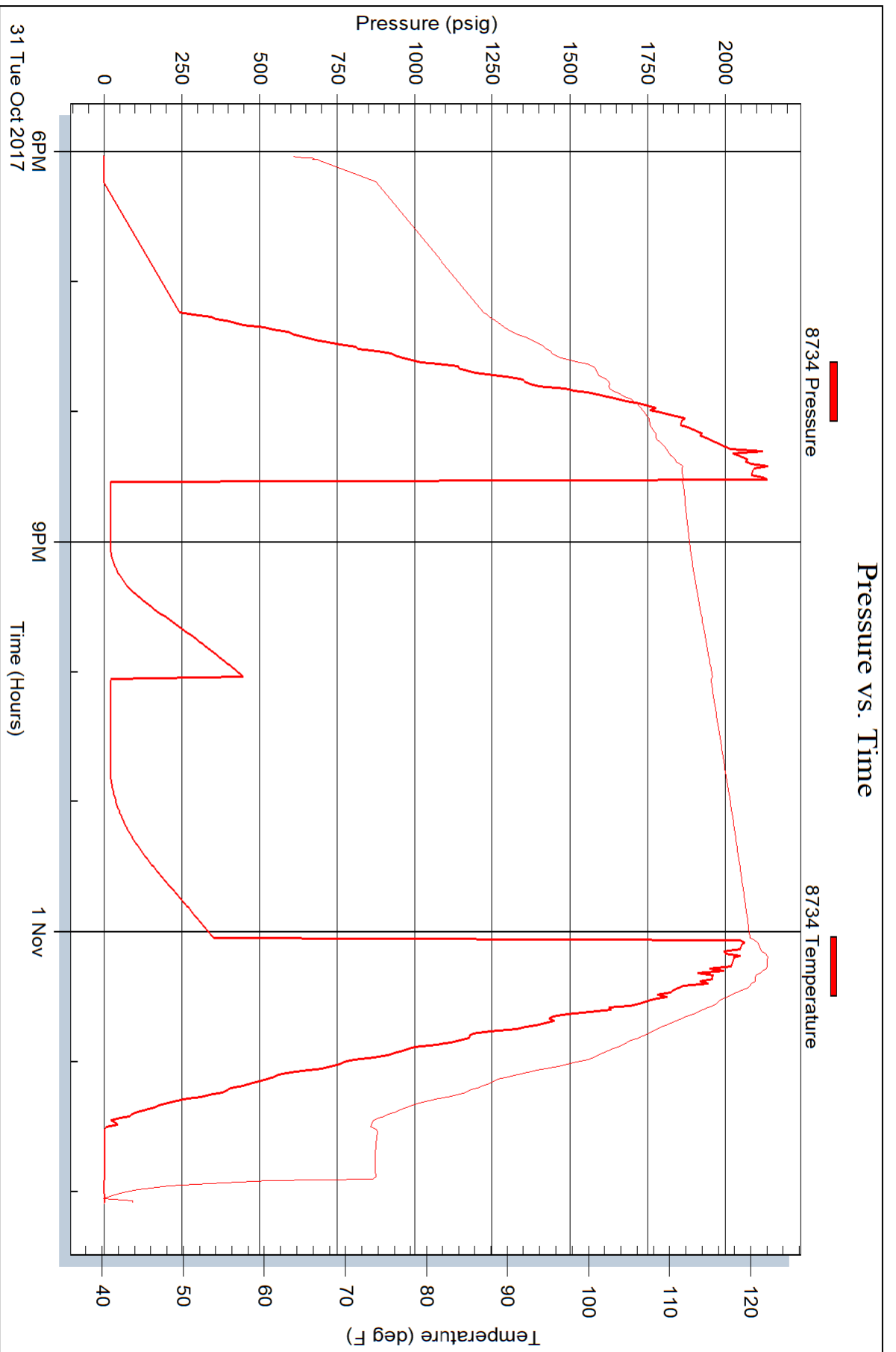
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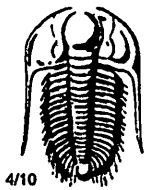
Serial #: 8734

Outside Raymond Oil Co

17-4-37W Cheyenne, KS

DST Test Number: 1





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63165

Well Name & No. 1 Sowers Downing Unit Test No. 1 Date 10-31-17
 Company Raymond Oil Company Inc. Elevation 3462 KB 3457 GL
 Address P.O. Box 48788 Wichita, KS 67201
 Co. Rep / Geo. Kim Shuckmaker Rig LD #1
 Location: Sec. 17 Twp. 4 S. Rge. 37 W. Co. Cheyenne State KS.

Interval Tested 4467-4555 Zone Tested L/KC 140-180 zones
 Anchor Length 88' Drill Pipe Run 4467 Mud Wt. 8.8
 Top Packer Depth 4462 Drill Collars Run — Vis 71
 Bottom Packer Depth 4467 Wt. Pipe Run — WL 6.4
 Total Depth 4555 Chlorides 2200 ppm System LCM 9#

Blow Description IF - S. blow built to 1 1/4"
ISI - Blow back built to 1"
FF - S. blow @ 12 mins. built to 1/4"
FSI - Blow back built to 1"

Rec	Feet of	%gas	%oil	%water	%mud
<u>10</u>	<u>Mud</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 10 BHT 121 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2153 Test 1150 T-On Location 15:50 10-31-17
 (B) First Initial Flow 19 Jars 250 T-Started 18:02
 (C) First Final Flow 19 Safety Joint 75 T-Open 20:32
 (D) Initial Shut-In 448 Circ Sub _____ T-Pulled 00:02
 (E) Second Initial Flow 20 Hourly Standby _____ T-Out 02:06 11-1-17
 (F) Second Final Flow 21 Mileage 115 RT & Z 172.50 Comments Tools loaded @
 (G) Final Shut-In 353 Sampler _____ 14:05 11-3-17
 (H) Final Hydrostatic 2066 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 800
 Day Standby 2.5d Total 2447.50
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1647.50

Approved By _____ Our Representative [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.



PRESSURE PUMPING LLC

PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

TICKET NUMBER 54909
LOCATION Oakley Ks
FOREMAN Jerry V

FIELD TICKET & TREATMENT REPORT CEMENT

Ks

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY	
10-24-17		Sowers-Dowling-Track	17	4S	37W	Cheyenne	
CUSTOMER		MCDonald U+31 55 U+16		TRUCK #	DRIVER	TRUCK #	DRIVER
MAILING ADDRESS		Raymond Oil		731	Cory D		
CITY		STATE	ZIP CODE	566	Seth O		

JOB TYPE Surface HOLE SIZE 12 1/4 HOLE DEPTH 390 CASING SIZE & WEIGHT 8 7/8 23#
 CASING DEPTH 387 DRILL PIPE _____ TUBING _____ OTHER _____
 SLURRY WEIGHT 15.2 SLURRY VOL 1.24 WATER gal/sk _____ CEMENT LEFT in CASING 257
 DISPLACEMENT 23661 DISPLACEMENT PSI _____ MIX PSI _____ RATE _____

REMARKS: Safety meeting, string up on LD circulate casing mix 280 sks com
3% CC 2% gel wash up + displace with 23661 fresh water + shot in
circulated approx 4661 top of

Cement did circulate

Thank you

Jerry crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CE0471	1	PUMP CHARGE	1150.00	1150.00
CE0002	60	MILEAGE	7.15	429.00
CE0710	13.16	ton mileage delivery	1.75	1381.80
CC5871	280 sks	surface blend II	24.00	6720.00
			Subtotal	9680.80
			-30%	2904.24
			Subtotal	6776.56
			SALES TAX	
			ESTIMATED TOTAL	

Ravin 3737

AUTHORIZATION _____ TITLE RW White DATE _____

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.



PRESSURE PUMPING LLC

PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

TICKET NUMBER 54958
LOCATION Oakley Ks
FOREMAN Walt Dinkel

FIELD TICKET & TREATMENT REPORT CEMENT

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY	
11-3-17		Sowers-Downing ^{Hack unit #1}	17	45	37W	Cheyenne	
CUSTOMER		MAILING ADDRESS		TRUCK #	DRIVER	TRUCK #	DRIVER
Raymond Oil		Bird City 3E Twp 31-5-5 1/4W		753	Travis Williams		
CITY		STATE	ZIP CODE	460	Kieth Carswell		

JOB TYPE PTA HOLE SIZE _____ HOLE DEPTH _____ CASING SIZE & WEIGHT _____
 CASING DEPTH _____ DRILL PIPE _____ TUBING _____ OTHER _____
 SLURRY WEIGHT _____ SLURRY VOL _____ WATER gal/sk _____ CEMENT LEFT in CASING _____
 DISPLACEMENT _____ DISPLACEMENT PSI _____ MIX PSI _____ RATE _____

REMARKS: Safety Meeting, set up on LD Dng, Plug as ordered

50 - sks @ 240 sks 60% opor, 4% cel, 1/4 # Flo Seal
100 - sks @
50 - sks @ 420
10 sks @ 40
30 sks in Rt.

Thank You
Walt + crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
C00450	1	PUMP CHARGE	1,500 ⁰⁰	1,500 ⁰⁰
C00002	60	MILEAGE	7 ¹⁵	429 ⁰⁰
C00710	10.32	Tow Mileage Delivery	1 ⁷⁵	1,083 ⁶⁰
CC5829	240 sks	Lite-Weight Blend Y	16 ⁰⁰	3,840 ⁰⁰
CC6075	60 #	Flo Seal	3 ⁰⁰	180 ⁰⁰
CP8228	1	8 5/8 Wooden Plug	165 ⁰⁰	165 ⁰⁰
				7,197 ⁶⁰
		Less 30% Disc	-2,159 ²⁸	5,038 ³²
		SALES TAX		
		ESTIMATED TOTAL		

Ravin 3737 AUTHORIZATION David Z Boes TITLE _____ DATE _____

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form.

KIM B. SHOEMAKER

CONSULTING GEOLOGIST

316-684-9709 * WICHITA, KS

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY RAYMOND OIL COMPANY, INC.

LEASE # 1 SAWERS-DOWNING-HARK UNIT

FIELD WILDCAT

LOCATION 133' ESL 1/4 2397' FWL

SEC 17 TWP 4S RGE 37W

COUNTY CHEYENNE STATE KANSAS

CONTRACTOR L.D. DRILLING, INC.

SPUD 10-24-17 COMP 11-4-17

RTD 5155 LTD 5140*

MUD UP 3502 TYPE MUD CHEMICAL

SAMPLES SAVED FROM 3700 TO 5155

DRILLING TIME KEPT FROM 3700 TO 5155

SAMPLES EXAMINED FROM 3700 TO 5155

GEOLOGICAL SUPERVISION FROM 4000 TO 5155

GEOLOGIST ON WELL Kim B. SHOEMAKER

ELEVATIONS

KB 3462

DF _____

GL 3457

Measurements Are All
From 3462 KB

CASING

SURFACE 8 5/8" @ 387'
PRODUCTION _____

ELECTRICAL SURVEYS

Dual Ind, Dens - N. / Mils

FORMATION TOPS	LOG	SAMPLES
ANKYDRITE	3228 + 254	3230 + 232
B/ANL	3267 + 195	3270 + 192
HEGNER	4296 - 834	4299 - 837
LANSING	4350 - 888	4350 - 888
B/KC	4611 - 1149	4610 - 1148
PAWNEE	4740 - 1278	4737 - 1275
FORT SCOTT	4792 - 1330	4792 - 1330
CHEROYE	4818 - 1356	4818 - 1356
MISSISSIPPI	5048 - 1586	5050 - 1588

17					
0					

REMARKS

- 10-24-17 SPUD
- 10-25 @ 390'
- 10-26 @ 1920'
- 10-27 @ 2860'
- 10-28 @ 3537'
- 10-29 @ 3883'
- 10-30 @ 4284'
- 10-31 @ 4538'
- 11-1 @ 4585'
- 11-2 @ 4925'
- 11-3 @ 5155'
- 11-4 @ 5155'

API: 15-023-21471

*: LTD was 15' shallow (fill)
Tops were 1-2' diff. than Log

LEGEND



91-11



Anhydrite Salt Sandstone Shale Carb sh Limestone Ool. Lime Chert Dolomite

DRILLING TIME IN MINUTES
PER FOOT
Rate of Penetration increases



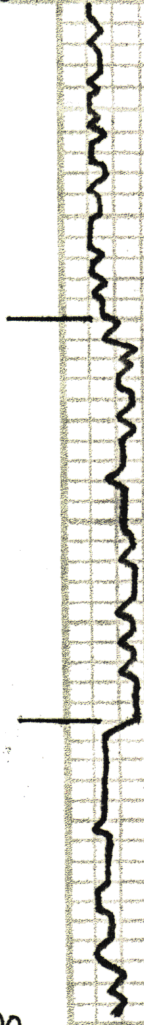
5" 10" 15" 20" 25"

LITHOLOGY

DEPTH
3200

SAMPLE DESCRIPTIONS

REMARKS



Sh. Gy. DK Gy.

sh. Pd Silty

ANHYDRITE 3230+ 232

Gyp. wt. Cr. Ltg.

Gyp. wt. Ltg. Cr.

B/ANH. 3270+ 192

sh. Blue-Gw.

Sh. Pd.

3300

Mud ✓ @ 3591

VIS: 5.1 WT: 8.6

Wt: 7.2 CHL: 2300

Samples are Lagged

3700



Sh. Silty. Lt Blue-Gy.

Sh. Sil. ch. Lt Blue-Gy. Fa. V. Fa. G. Sil. Rd.

ls. wt. chky.

ls. Fa. Foss. Calceitic

Sh. Rd. Bl. Sdy. Silty.

Sh. Rd. Sdy.

Sh. Rd.

ls. Tn. G. Sil. Foss. Foss.

Δ Orange

ls. wt. Purple chky.

Sh. Sdy. silty.

Sh. Rd. Silty.

ls. wt. Si. Foss. Chky.

Sh. Rd.

ls. Lt. G. V. Si. Foss.

Sh. Rd.

3800

3900

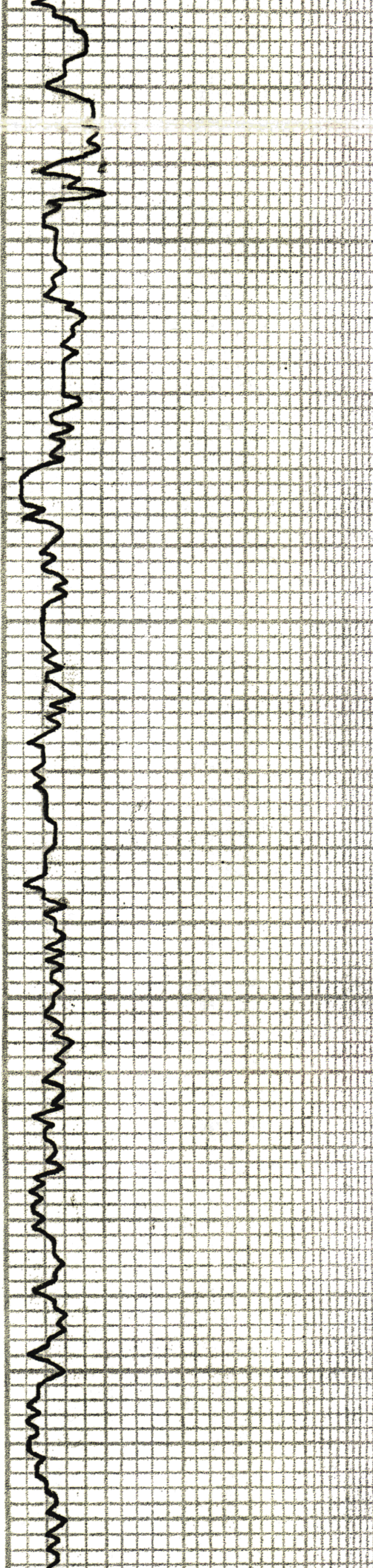
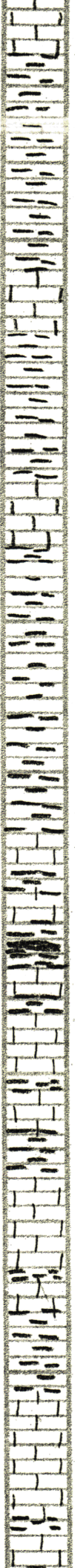
- BIT TRIP @ 3883

VIS: 67

WT: 8.9

WL: 8.8

CHL: 3000



LS. Gry. Sil Foss.

Sh. DK G.

Sh. Rd.

LS. Brn DK Bl V Sil Foss.

Sh. Rd.

LS. w/ Sil Foss. LS. w/ V. Foss. SUE.

LS. Br G. Sil Foss.

Sh. Rd.

Sh. DK G.

LS. G. Sil Foss.

Sh. DK G. BLK.

LS. Tn Sil Foss.

Sh. L G. G. Silky.

LS. w/ Sil Foss Sil Chlby.

Sh. Rd.

LS. w/ Sil Foss Foss. Co. lentic.

LS. w/ Sil Foss. w/ BLK dd. SUE.

4000

4100

Sd. Cl. G. Fa. G. Sub. Rd.

Sh. Rd.

Ls. w/ Pale. sh.

Ls. Ta. f. Sh. Foss.

Sh. Rd. Lt. Rd.

Ls. Ta. w/ Foss.

Sh. Rd.

Ls. w/ Sh. Foss. Sli. A

4200

Sh. Silty. G. G.

Ls. w/ Sli. Foss. Sli. Chly.

Ls. G. Sli. Foss.

Ls. G. Sli. Foss.

Sh. G. DK. G.

Sh. G.

Ls. Ta. w/ Foss. V. Sli. A

Ls. Ta. Sli. A

4300

HEEBNER 4299 - 837
Sh. DK. G.

Ls. G. V. Sli. Foss. V. Sli. A

Sd. G. G. V. Fa. Fa. G. Sub. Rd.

VIS: 56 WT: 9.2
WL: 8.0 CML: 2500

Sh. Silty. Pink s

LS. wt. Sli. Foss. w/ Blk. Taray str.

Sh. Rd. DK Rd

LANSING 4350-888

LS. wt. Sli. Foss.

Sdy. sh. LG. V. Pale. Sub. Rd.

Sh. Rd.

LS. wt. LG. Sli. Foss. P. Vis. p. DK Rd. Blk. dd. Str.

Sh. Rd.

LS. wt. V. Sli. Foss. Sli. A

LS. LG. Dm.

Sh. L.

Sh. DK. G.

LS. Gp. Foss. P. Vis. p. DK Rd. w/ Str. No odor

Sh. DK. G.

LS. Th. Foss. Sli. Calc. 7/16

LS. Gp. Dm.

MUNCIE CREEK 4472-1010

Sh. Blk. Carb.

Sh. Rd. G.

LS. wt. LG. Sli. Foss. P. Vis. p. DK Rd. dd. Str. VSSFO. No Floor. No odor

LS. wt. Sli. Foss.

LS. Gp. V. Sli. Foss. Sli. Calc. 7/16

Sdy. sh. LG. V. Pale. Sub. Rd.

Sh. Rd.

DST (1)

V. L. 06

DST (1) 4467-4555

1st OPEN: Blow built to 1 1/4"

2nd OPEN: " " " 1/4"

30-60-45.75

Rec. 10' Mvd

FP: 1979 20-21'

SIP: 448-353'

Temp. 121°F

4400

4500

WL: 6.1 CHL: 2200

ls. Lt. G. V. Sil. Foss. V. Sil. Ch. L. 221271c

ls. wt. Sil. Foss. Sil. Ch. L.

STARK 4554-1092

V L O G

Sh. Rd.

ls. G. Ta. V. Sil. Foss. V. Sil. A

Sh. L. Lk.

Δ Dmpc

ls. wt. Sil. Foss. V. Sil. Ch. L.

MUSHPUCKNEY

V L O G

Sh. Blk Carb.

Vis: 68 WT: 8.7

WL: 8.0 CHL: 2400

ls. wt. G. Foss.

4600

B/KC 4610-1148

V L O G

Sh. L. G. Lk. Sdy. G. G. V. F. G. w/ Blk Flaky Str.

ls. L. G. V. Sil. Foss.

Sh. Rd. Silty

ls. G. V. Sil. Foss.

ls. Lt. G. Silty

Sh. L. G. Silty

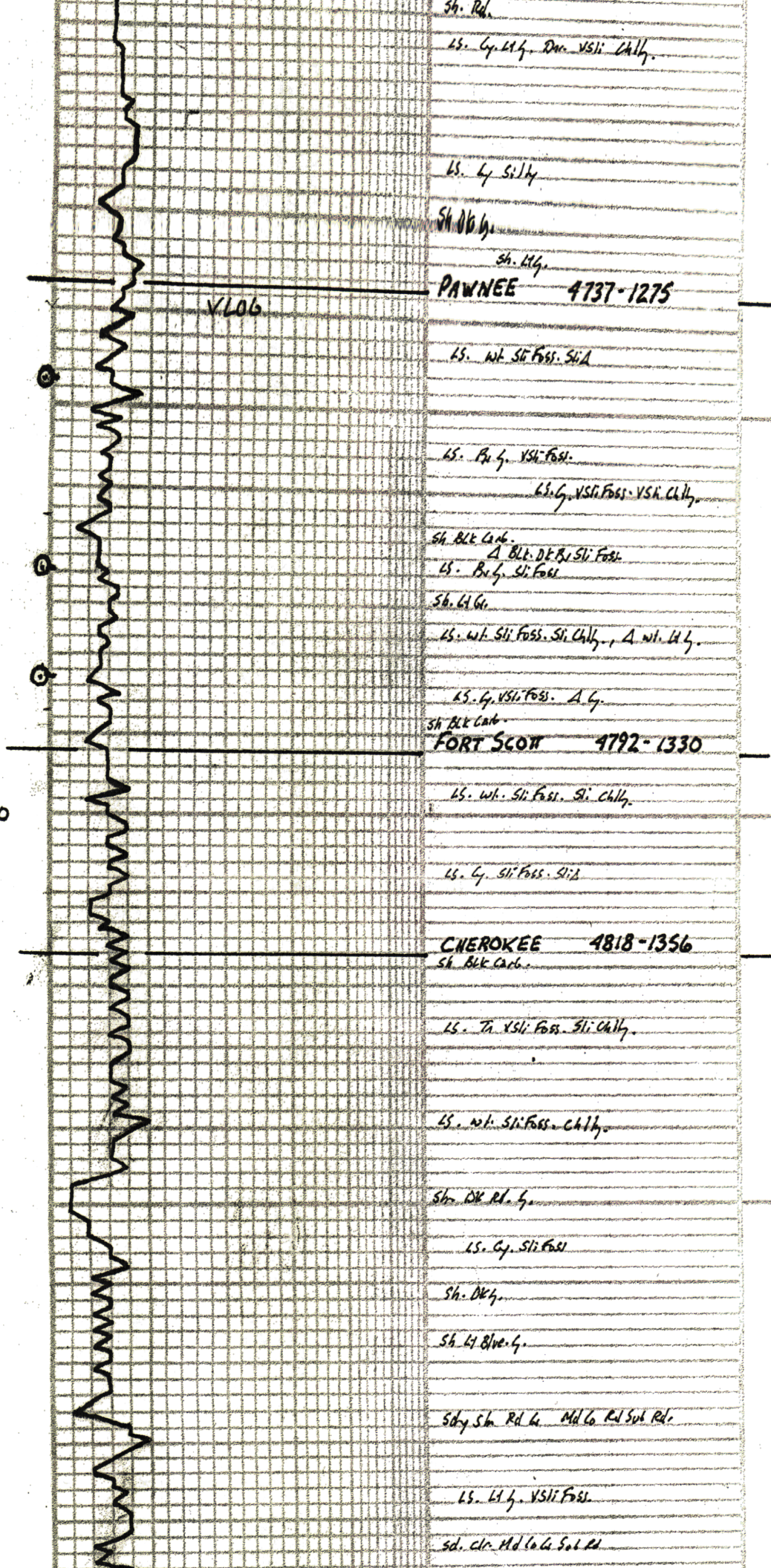
Sh. Rd. G. Silty

ls. Clr. Reel. Material w/ Pyrite spec.

Sh. Rd.

4700

ls. G. Dnc.



sh. Red.

ls. Gy. Lt. f. Dm. vsli chly.

ls. Gy. Silty

sh. blk carb.

sh. blk.

PAWNEE 4737-1275

V.L06

ls. wt. sil. foss. sh. chly.

ls. blk. f. vsli. foss.

ls. f. vsli. foss. vsli. chly.

sh. blk carb.

A blk. dk. bl. sil. foss.

ls. blk. f. sil. foss.

sh. blk carb.

ls. wt. sil. foss. sh. chly., A wt. blk. f.

ls. f. vsli. foss. A f.

sh. blk carb.

FORT SCOTT 4792-1330

4800

ls. wt. sil. foss. sh. chly.

ls. f. sil. foss. sh. chly.

CHEROKEE 4818-1356

sh. blk carb.

ls. Th. vsli. foss. sh. chly.

ls. wt. sil. foss. chly.

sh. dk. rd. f.

ls. Gy. sil. foss.

sh. dk. f.

sh. lt. blue. f.

sh. sh. rd. h. Mid Co. rd. sub. rd.

ls. blk. f. vsli. foss.

sd. chr. Mid Co. rd. sub. rd.

4900

LS. wh. Sdy.

Sh. Yellow. G.

Sdy. Sh. Blue. G.

Sdy. wh. Cl. Lt. Blue. Md. Co. Rd. Sub. Rd.

VIS: 58 WT: 8.9

WL: 8.8 CNL: 2300

Sd. Yellow. Md. Co. G. Rd. w/ Fe spots.

Sh. Rd.

Sd. wh. Cl. Md. Co. G. Rd. Sub. Rd.

Sh. Lt. Blue. G.

Sd. wh. Cl. Md. Co. G. Sub. Rd.

Sh. Lt. Blue. Macrom

5000

Sdy. Sh. Lt. Blue. Md. Co. G. Rd. Sub. Rd.

Sh. Lt. G. DE G.

Sh. Lt. G. w/ Ab. G.

MISSISSIPPI 5050-1588

Dol. G. Fa. G.

Sh. Lt. G.

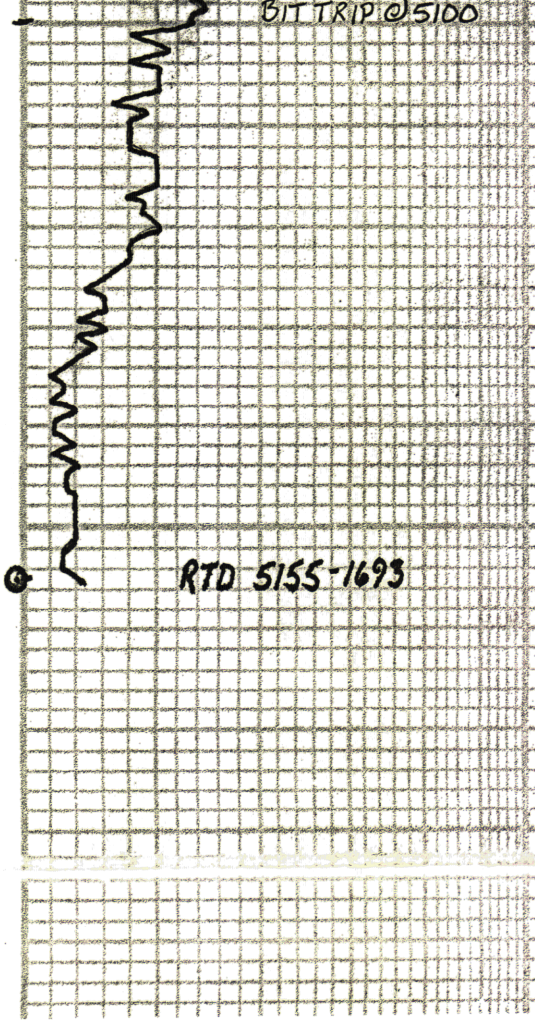
Dol. G. v. Fa. G.

Dol. G. v. Fa. G.

LS. G. Sh. Foss. Sh. A

5100

BITTRIP @ 5100



LS. wt. Fa. Foss. Calartic

LS. Tan. Sl. Foss. Calartic

Dol. wt. V Foss

Δ wt. Ltg. Fresh Cut

Δ wt. Gy. Sl. Foss.