

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)</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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TICKET 031170

CHARGE TO: Palmer Oil  
 ADDRESS  
 CITY, STATE, ZIP CODE

PAGE 1 OF 2

SERVICE LOCATIONS  
 1. New City KS  
 2. Wells  
 3. WIPROVER  
 4. oil

WELL/PROJECT NO. 2-20  
 CONTRACTOR

TICKET TYPE  
 SERVICE  
 SALES

WELL TYPE oil  
 INVOICE INSTRUCTIONS

COUNTY/PARISH Finney  
 RIG NAME/NO. 5  
 CITY Green City  
 STATE KS  
 DATE MAR 2 2008  
 ORDER NO.

DELIVERED TO location  
 WELL PERMIT NO. 20-26-33  
 WELL LOCATION

LEASE Willis  
 JOB PURPOSE cement deep surface

PRICE REFERENCE	SECONDARY REFERENCE/PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
		LOC	ACCT							
575		1			MILEAGE	100	mi		5.00	500.00
576D		1			Prep Charge	1	ea		1300.00	1300.00
400		1			Guide shoe	8 5/8	in	1 ea	350.00	350.00
401		1			insert float w/ fill up tube	8 5/8	in	1 ea	250.00	250.00
231		1			MUDFLUSH	500	gal		1.50	750.00
231		1			KCL liquid	2	gal		25.00	50.00
330		1			SMD cement	700	sk		16.25	11375.00
276		1			Flocote	150	lb		2.50	375.00
410		1			TOP PULS	8 5/8	in	1 ea	130.00	130.00
409		1			TURBOLIZER	8 5/8	in	3 ea	105.00	315.00
194		1			Play Container Rental	8 5/8	in	1 ea	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.

**X**

DATE SIGNED \_\_\_\_\_ TIME SIGNED \_\_\_\_\_  
 A.M.  
 P.M.

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

SURVEY 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?  
 YES  NO

AGREE UNDECIDED DISAGREE

PAGE TOTAL 1555.00  
~~15470.00~~  
 4185.43  
~~1965.43~~  
 19780.43

Finney TAX 7.65%  
 TOTAL 1573.20

TOTAL 2183.63

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR \_\_\_\_\_ APPROVAL \_\_\_\_\_

Thank You!

Invoice Number

71880195

Invoice Date

1/13/00

Invoice To

SMITH BROTHERS

Invoice From

SMITH BROTHERS

Invoice Description

1/13/00

Invoice Amount

1351.00

Invoice Balance

1351.00

Invoice Terms

Net 30

Invoice Status

PAID

Invoice Reference

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DATE: 2 MAR 18  
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TICKET NO. 31176  
 JOB TYPE: Cement deep service  
 LEASE: Willis  
 WELL NO.: 2-20  
 CUSTOMER: Palmer D-1

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)	TUBING	CASING	DESCRIPTION OF OPERATION AND MATERIALS
				T	C				
0800									on loc TRK III
0947									start 8 3/4 x 23 casing on well
1315									Drop ball - circulate well
1345	4	4	12						Pump 500 gal mud flush
	4	4	20						Pump 20 bbl RCA blank
1353	5	4 1/2	90						Mix 500 cement
	4 1/2	248	225						at 11.8 ppg
	4	265	100						at 12.5 ppg
	4	265	100						at 13.5 ppg
	4	265	1000						at 14.5 ppg
1510	6								Release plug - work out pipe string
1530	112								1100 hand plug → cement to surface { 5000 } Release pressure to track - done at up
1535									work track
1600									Job complete Track up Flt Blank, Issue, Squirt



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TICKET 031104

CHARGE TO: PALMER OIL Co.  
 ADDRESS  
 CITY, STATE, ZIP CODE

PAGE 1 OF 2

WELL/PROJECT NO. 2-20  
 CONTRACTOR DUKE DRIG # 5  
 LEASE WILKS  
 COUNTY/PARISH FINNEY  
 RIG NAME/NO.  
 STATE KS  
 CITY  
 SHIPPED VIA CT  
 DELIVERED TO LOCATION  
 WELL TYPE OIL  
 WELL CATEGORY DEVELOPMENT  
 JOB PURPOSE CEMENT 5 1/2" LONGSTRING  
 WELL PERMIT NO.  
 WELL LOCATION S/GARDEN CANY, KS

PRICE REFERENCE	SECONDARY REFERENCE/PART NUMBER	ACCOUNTING		DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
		LOC	ACCT							
575		1		MILEAGE # 112	100	ME			5.00	500.00
578		1		PUMP CHARGE - LONGSTRING	1	JOB	5398	FT	1300.00	1300.00
221		1		LIQUID KEL	2	GAL			250.00	500.00
281		1		MUDFLUSH	500	GAL			1.50	750.00
402		1		CENTRALIZERS	10	EA	5 1/2"		70.00	700.00
403		1		CEMENT BASKETS	2	EA			275.00	550.00
406		1		CATCH DOWN PLUG - BAFFLE	1	EA			250.00	250.00
407		1		INSERT FLOAT SHOE w/AUTO FILL	1	EA			325.00	325.00

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

**X**

DATE SIGNED 3-12-2018 TIME SIGNED 0730  A.M.  P.M.

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

**SURVEY**  
 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?  
 YES  NO  CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL #1 4425.00  
 #2 5612.25  
 FINNEY TAX 10037.25  
 7-0510 536.72  
 TOTAL 10573.97

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES: The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR WAYNE WILSON APPROVAL Kenneth M. Wilson

Thank You!

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MTH

BURNER OIL CO.

031101

10/21/2018





# **Geological Report**

Palmer Oil, Inc.

**Willis #2-20**

379' FNL & 2310' FEL

Sec 20, T26s, R33w

Finney County, Kansas



**Palmer Oil, Inc.**



## General Data

Well Data: Palmer Oil, Inc.  
Willis #2-20  
379' FNL & 2310' FEL  
Sec. 20, T26s, R33w  
Finney County, Kansas  
API # 15-055-22480-00-00

Drilling Contractor: Duke Drilling Co. Rig #5

Geologist: Luke Thompson

Spud Date: March 1, 2018

Completion Date: March 13, 2018

Elevation 2922' G.L.  
2933' K.B.

Directions: From South side of Garden City, KS at the intersection of Main St. & Fulton St. – Now go 13.3 miles South & SE on Main St./Hwy. 83 business – Now go 4.5 miles West on TV Rd.– South into.

Casing: 1785' 8 5/8" 23# Surface Casing  
5398' 5 1/2" 15.5# Production Casing

Samples: 3850' to RTD 10' Wet & Dry

Drilling Time: 3800' to RTD

Electric Logs: Pioneer Energy Services "D. Schmidt"  
Stack Micro

Drillstem Tests: One-Trilobite Testing "Bradley Walter"

Problems: None Encountered

## Formation Tops

Willis #2-20

Sec. 20, T26s, R33w

379' FNL & 2310' FEL

<b>Heebner</b>	<b>3927</b>	<b>-994</b>
<b>Toronto</b>	<b>3948</b>	<b>-1015</b>
<b>Lansing</b>	<b>3978</b>	<b>-1045</b>
<b>Stark</b>	<b>4388</b>	<b>-1455</b>
<b>BKC</b>	<b>4522</b>	<b>-1589</b>
<b>Marmaton</b>	<b>4541</b>	<b>-1608</b>
<b>Pawnee</b>	<b>4635</b>	<b>-1702</b>
<b>Fort Scott</b>	<b>4675</b>	<b>-1742</b>
<b>Cherokee</b>	<b>4686</b>	<b>-1753</b>
<b>Morrow</b>	<b>4937</b>	<b>-2004</b>
<b>Chester</b>	<b>5050</b>	<b>-2117</b>
<b>St. Gen</b>	<b>5102</b>	<b>-2169</b>
<b>St. Louis</b>	<b>5146</b>	<b>-2213</b>
<b>RTD</b>	<b>5400</b>	<b>-2467</b>
<b>LTD</b>	<b>5400</b>	<b>-2467</b>

## Sample Zone Descriptions

**Marmaton (4561', -1628): Covered in DST #1**

Limestone, tan, peloidal oolitic packstone, slightly chalky, fair oolitic porosity (some Dolomitic recrystallization), fair odor, fair stain, good saturation, fair to good show of free oil when broke, scattered gold fluorescence, fair flush to stream cut. Gas 50 units hotwire.

# Drill Stem Tests

Trilobite Testing  
"Bradley Walter"

## DST #1

### Marmaton

Interval (4525' – 4580') Anchor Length 55'

IHP - 2271#

IFP - 30" – BOB 18.5 min

ISI - 45" – No Return

FFP - 45" – BOB 57 min

FSIP - 60" – No Return

FHP - 2249 #

BHT - 116° F

**Recovery:** 630' GIP

60' GMCO 45%G 30%O

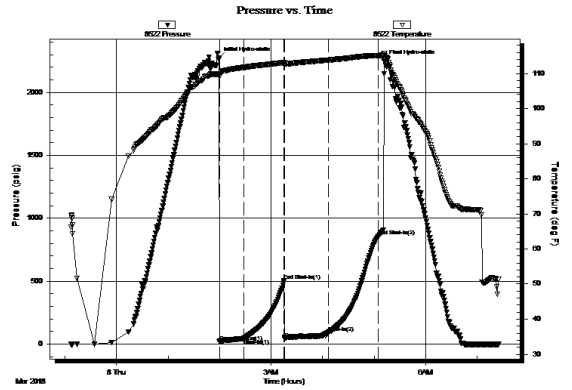
60' OCM 10%O

18-44#

502#

41-92#

857#



## Structural Comparison

	Palmer Oil, Inc. Willis #2-20 Sec. 20, T26s, R33w 379' FNL & 2310' FEL			Berexco, LLC. Elnora #2-20 Sec. 20, T26s, R33w 940' FNL & 1655' FWL			Palmer Oil, Inc. Willis #1-20 Sec. 20, T26s, R33w 2038' FNL & 737' FEL	
<u>Formation</u>								
Heebner	3927	-994	-3	3932	-991	16	3947	-1010
Lansing	3978	-1045	-3	3983	-1042	16	3998	-1061
Stark	4388	-1455	3	4399	-1458	20	4412	-1475
BKC	4522	-1589	-1	4529	-1588	17	4543	-1606
Marmaton	4541	-1608	-2	4547	-1606	21	4566	-1629
Pawnee	4635	-1702	-3	4640	-1699	11	4650	-1713
Fort Scott	4675	-1742	-6	4677	-1736	11	4690	-1753
Cherokee	4686	-1753	-1	4693	-1752	12	4702	-1765
Morrow	4937	-2004	-8	4937	-1996	18	4959	-2022
Chester	5050	-2117	-12	5046	-2105	-8	5046	-2109
St. Gen	5102	-2169	5	5115	-2174	22	5128	-2191
St. Louis	5146	-2213	3	5157	-2216	10	5160	-2223

## Summary

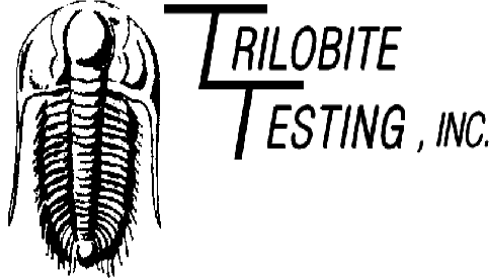
The location for the Willis #2-20 well was found via 3-D seismic survey. The new well ran structurally as expected. One drill stem test was conducted, which recovered commercial quantities of oil. After all the gathered data had been examined, the decision was made to run 5 ½" casing to further evaluate the Willis #2-20 well.

## Perforations

<b>Primary:</b>	<b>Marmaton</b>	<b>1<sup>st</sup></b>	<b>(4571' – 4576')</b>
		<b>2<sup>nd</sup></b>	<b>(4563' – 4568')</b>
		<b>3<sup>rd</sup></b>	<b>(4550' – 4554')</b>
		<b>4<sup>th</sup></b>	<b>(4541' – 4546')</b>
<b>Secondary:</b>	<b>Lansing C</b>		<b>(4019' – 4023')</b>
			<b>(4027' – 4031') Shoot if no fluid above</b>
	<b>Morrow Sand</b>		<b>(5045' – 5052')</b>
			<b>(4992' – 5002')</b>
<b>Before Abandonment:</b>	<b>St. Louis B</b>		<b>(5245' – 5250')</b>
	<b>Chester Sand</b>		<b>(5086' – 5092') Tight</b>
	<b>Atoka</b>		<b>(4874' – 4878')</b>
	<b>Lansing G</b>		<b>(4241' – 4244') Tight</b>

Respectfully Submitted,

Lukas Thompson  
American Warrior, Inc.



## DRILL STEM TEST REPORT

Prepared For: **Palmer Oil, Inc**

PO Box 399  
Garden City, KS 67846

ATTN: Luke Thompson

**20-26s-33w Finney,KS**

**Willis #2-20**

Start Date: 2018.03.07 @ 23:07:00

End Date: 2018.03.08 @ 07:25:30

Job Ticket #: 65283                      DST #: 1

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

Printed: 2018.03.12 @ 15:46:07

Palmer Oil, Inc  
Willis #2-20  
20-26s-33w Finney,KS  
DST # 1  
Marmaton  
2018.03.07



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

Palmer Oil, Inc  
 PO Box 399  
 Garden City, KS 67846  
 ATTN: Luke Thompson

**Willis #2-20**  
**20-26s-33w Finney,KS**  
 Job Ticket: 65283 **DST#: 1**  
 Test Start: 2018.03.07 @ 23:07:00

## GENERAL INFORMATION:

Formation: **Marmaton**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 01:59:45  
 Time Test Ended: 07:25:30  
 Interval: **4525.00 ft (KB) To 4580.00 ft (KB) (TVD)**  
 Total Depth: 4580.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 2933.00 ft (KB)  
 2922.00 ft (CF)  
 KB to GR/CF: 11.00 ft

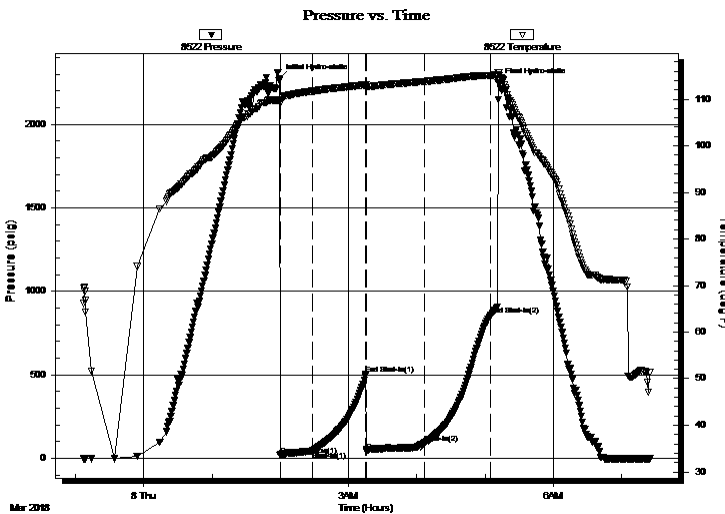
## Serial #: 8522

Inside

Press@RunDepth: 91.99 psig @ 4526.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.03.07 End Date: 2018.03.08 Last Calib.: 2018.03.08  
 Start Time: 23:07:05 End Time: 07:25:29 Time On Btm: 2018.03.08 @ 01:59:30  
 Time Off Btm: 2018.03.08 @ 05:11:30

TEST COMMENT: IF: Built to 18.5".  
 IS: No return.  
 FF: Built to 57"  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2270.97	109.87	Initial Hydro-static
1	17.57	109.17	Open To Flow (1)
29	43.79	111.74	Shut-In(1)
76	502.07	113.06	End Shut-In(1)
77	40.58	112.74	Open To Flow (2)
128	91.99	113.79	Shut-In(2)
186	856.68	115.12	End Shut-In(2)
192	2249.01	115.60	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	gmco 45g 25m 30o	0.30
60.00	ocm 10o 90m	0.30
0.00	630' GIP	0.00

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Palmer Oil, Inc  
 PO Box 399  
 Garden City, KS 67846  
 ATTN: Luke Thompson

**Willis #2-20**  
**20-26s-33w Finney,KS**  
 Job Ticket: 65283 **DST#: 1**  
 Test Start: 2018.03.07 @ 23:07:00

**Tool Information**

Drill Pipe:	Length: 4302.00 ft	Diameter: 3.80 inches	Volume: 60.35 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: 230.00 ft	Diameter: 2.25 inches	Volume: 1.13 bbl	Weight to Pull Loose: 88000.00 lb
			<u>Total Volume: 61.48 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	34.00 ft			String Weight: Initial 76000.00 lb
Depth to Top Packer:	4525.00 ft			Final 77000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	55.00 ft			
Tool Length:	82.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

<b>Tool Description</b>	<b>Length (ft)</b>	<b>Serial No.</b>	<b>Position</b>	<b>Depth (ft)</b>	<b>Accum. Lengths</b>
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Change Over Sub	1.00			4499.00	
Shut In Tool	5.00			4504.00	
Hydraulic tool	5.00			4509.00	
Jars	5.00			4514.00	
Safety Joint	2.00			4516.00	
Packer	5.00			4521.00	27.00 Bottom Of Top Packer
Packer	4.00			4525.00	
Stubb	1.00			4526.00	
Recorder	0.00	8522	Inside	4526.00	
Recorder	0.00	8319	Outside	4526.00	
Perforations	18.00			4544.00	
Change Over Sub	1.00			4545.00	
Drill Pipe	31.00			4576.00	
Change Over Sub	1.00			4577.00	
Bullnose	3.00			4580.00	55.00 Bottom Packers & Anchor

**Total Tool Length: 82.00**



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Palmer Oil, Inc  
 PO Box 399  
 Garden City, KS 67846  
 ATTN: Luke Thompson

**Willis #2-20**  
**20-26s-33w Finney,KS**  
 Job Ticket: 65283      **DST#: 1**  
 Test Start: 2018.03.07 @ 23:07:00

## 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:	0 ppm
Viscosity: 47.00 sec/qt	Cushion Volume: bbl		
Water Loss: 10.98 in <sup>3</sup>	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 2000.00 ppm			
Filter Cake: 1.00 inches			

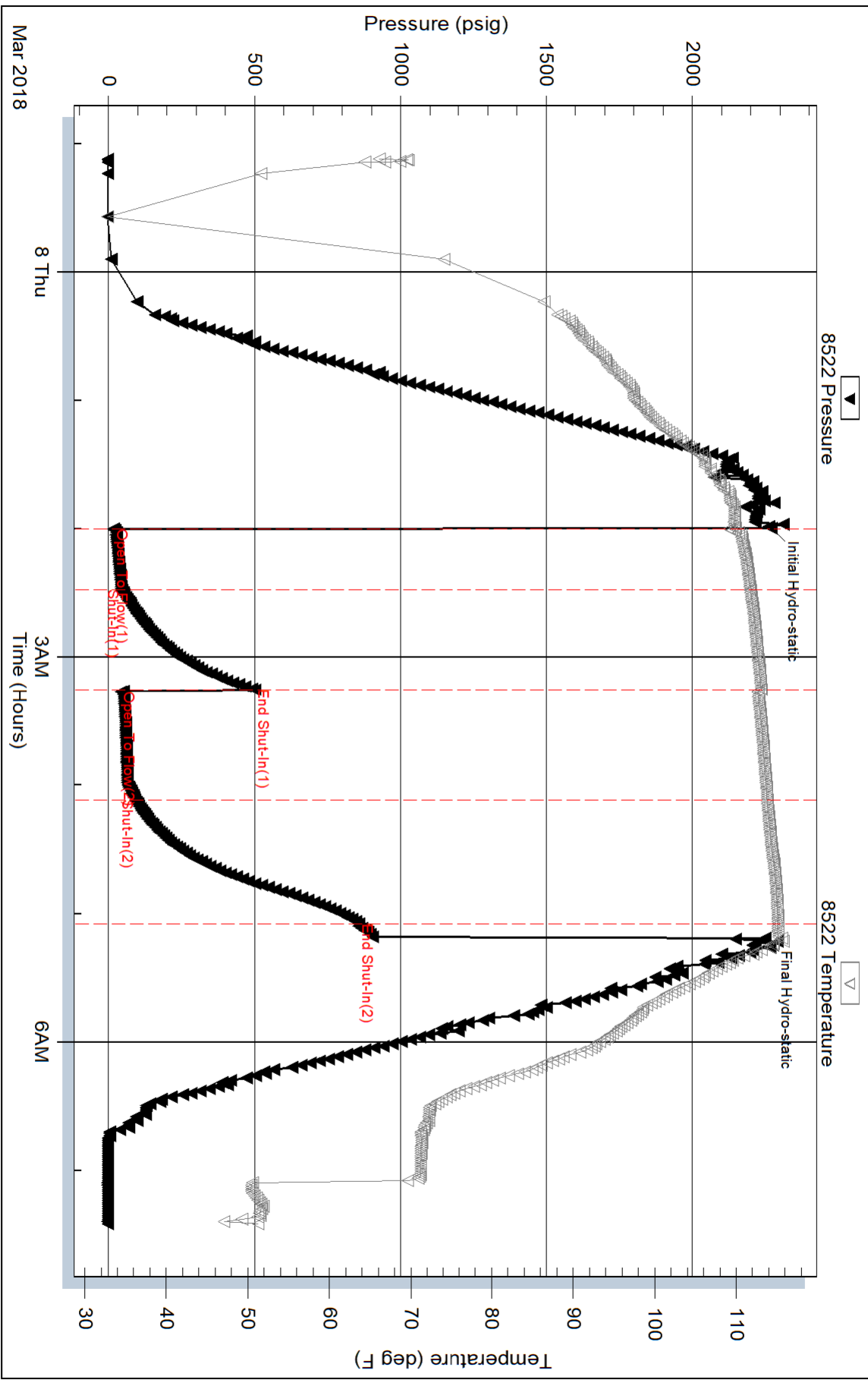
## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	gmco 45g 25m 30o	0.295
60.00	ocm 10o 90m	0.295
0.00	630' GIP	0.000

Total Length: 120.00 ft      Total Volume: 0.590 bbl  
 Num Fluid Samples: 0      Num Gas Bombs: 0      Serial #:  
 Laboratory Name:      Laboratory Location:  
 Recovery Comments:

### Pressure vs. Time

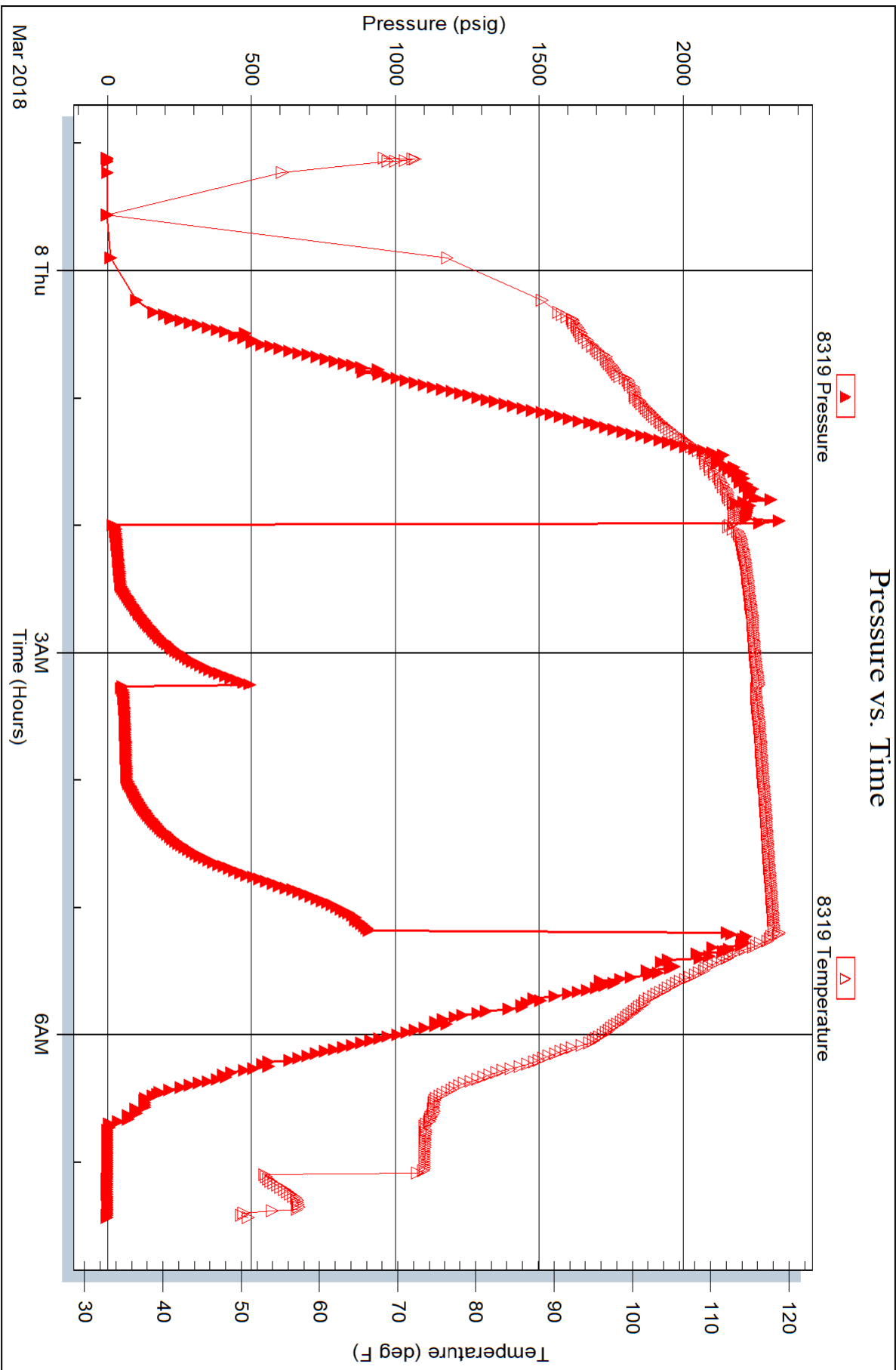


Serial #: 8319

Outside Palmer Oil, Inc

20-26s-33w Finney,KS

DST Test Number: 1





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. **65283**

Well Name & No. Willis #2-20 Test No. 1 Date 3/8/2018  
 Company Palmer Oil, Inc Elevation 4525 KB 4580 GL  
 Address PO Box 399 Garden City ks 67846  
 Co. Rep / Geo. Luke Thompson Rig Duke #5  
 Location: Sec. 20 Twp. 26S Rge. 33W Co. Finney State Ks

Interval Tested 4525-4580 Zone Tested Marmaton  
 Anchor Length 55' Drill Pipe Run 4302 Mud Wt. 9.4  
 Top Packer Depth 4520 Drill Collars Run 239 Vis 47  
 Bottom Packer Depth 4525 Wt. Pipe Run 0 WL 11  
 Total Depth 4580 Chlorides 27000 ppm System LCM 4#  
 Blow Description IF Built to 18.5"  
ISI No return.  
FF Built to 57"  
FST No return.

Rec	Feet of	%gas	%oil	%water	%mud
<u>60</u>	<u>GMCO</u>	<u>45</u>	<u>30</u>	<u>25</u>	
<u>60</u>	<u>OCM</u>		<u>10</u>	<u>90</u>	
	<u>630' GJP</u>				

Rec Total 120 BHT 115 Gravity — API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic <u>2271</u>	<input checked="" type="checkbox"/> Test <u>1150</u>	T-On Location <u>2230</u>
(B) First Initial Flow <u>18</u>	<input checked="" type="checkbox"/> Jars <u>250</u>	T-Started <u>2307</u>
(C) First Final Flow <u>44</u>	<input checked="" type="checkbox"/> Safety Joint <u>75</u>	T-Open <u>0202 3/8</u>
(D) Initial Shut-In <u>502</u>	<input checked="" type="checkbox"/> Circ Sub <u>NK</u>	T-Pulled <u>0602</u>
(E) Second Initial Flow <u>41</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>0730</u>
(F) Second Final Flow <u>92</u>	<input checked="" type="checkbox"/> Mileage <u>115 RT x2</u> <u>230</u>	Comments <u>P/V Tool 3/9</u>
(G) Final Shut-In <u>657</u>	<input type="checkbox"/> Sampler	<u>1400</u>
(H) Final Hydrostatic <u>2249</u>	<input type="checkbox"/> Straddle	<input type="checkbox"/> Ruined Shale Packer
Initial Open <u>30</u>	<input type="checkbox"/> Shale Packer	<input type="checkbox"/> Ruined Packer
Initial Shut-In <u>45</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>45</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>60</u>	<input type="checkbox"/> Day Standby	Total <u>1705</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
	Sub Total <u>1705</u>	

Approved By \_\_\_\_\_

Our Representative 

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.**

# DRILL STEM TEST REPORT

Palmer Oil, Inc  
 PO Box 399  
 Garden City, Ks 67846  
 ATTN: Luke Thompson

**Willis #2-20**  
**20 26s 33w Finney,KS**  
 Job Ticket: 65283 **DST#: 1**  
 Test Start: 2018.03.07 @ 23:07:00

## GENERAL INFORMATION:

Formation: **Marmaton**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 01:59:45  
 Time Test Ended: 07:25:30  
 Interval: **4525.00 ft (KB) To 4580.00 ft (KB) (TVD)**  
 Total Depth: 4580.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Bradley Walter  
 Unit No: 78  
 Reference Elevations: 2933.00 ft (KB)  
 2922.00 ft (CF)  
 KB to GR/CF: 11.00 ft

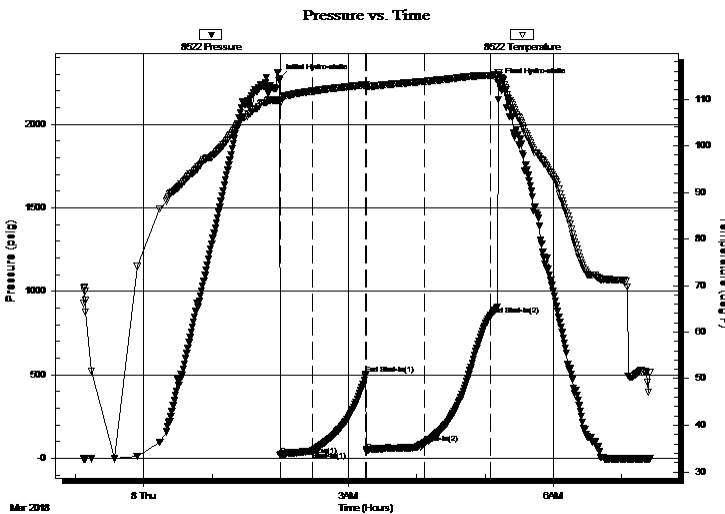
## Serial #: 8522

Inside

Press@RunDepth: 91.99 psig @ 4526.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2018.03.07 End Date: 2018.03.08 Last Calib.: 2018.03.08  
 Start Time: 23:07:05 End Time: 07:25:29 Time On Btm: 2018.03.08 @ 01:59:30  
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TEST COMMENT: IF: Built to 18.5".  
 IS: No return.  
 FF: Built to 57"  
 FS: No return.

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2270.97	109.87	Initial Hydro-static
1	17.57	109.17	Open To Flow (1)
29	43.79	111.74	Shut-In(1)
76	502.07	113.06	End Shut-In(1)
77	40.58	112.74	Open To Flow (2)
128	91.99	113.79	Shut-In(2)
186	856.68	115.12	End Shut-In(2)
192	2249.01	115.60	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	gmco 45g 25m 30o	0.30
60.00	ocm 10o 90m	0.30
0.00	630' GIP	0.00

## Gas Rates

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







**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Palmer Oil, Inc

**Willis #2-20**

PO Box 399  
Garden City, Ks 67846

**20 26s 33w Finney,KS**

Job Ticket: 65283

**DST#: 1**

ATTN: Luke Thompson

Test Start: 2018.03.07 @ 23:07:00

## 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:

0 ppm

Viscosity: 47.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.99 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	gmco 45g 25m 30o	0.295
60.00	ocm 10o 90m	0.295
0.00	630' GIP	0.000

Total Length: 120.00 ft

Total Volume: 0.590 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8522

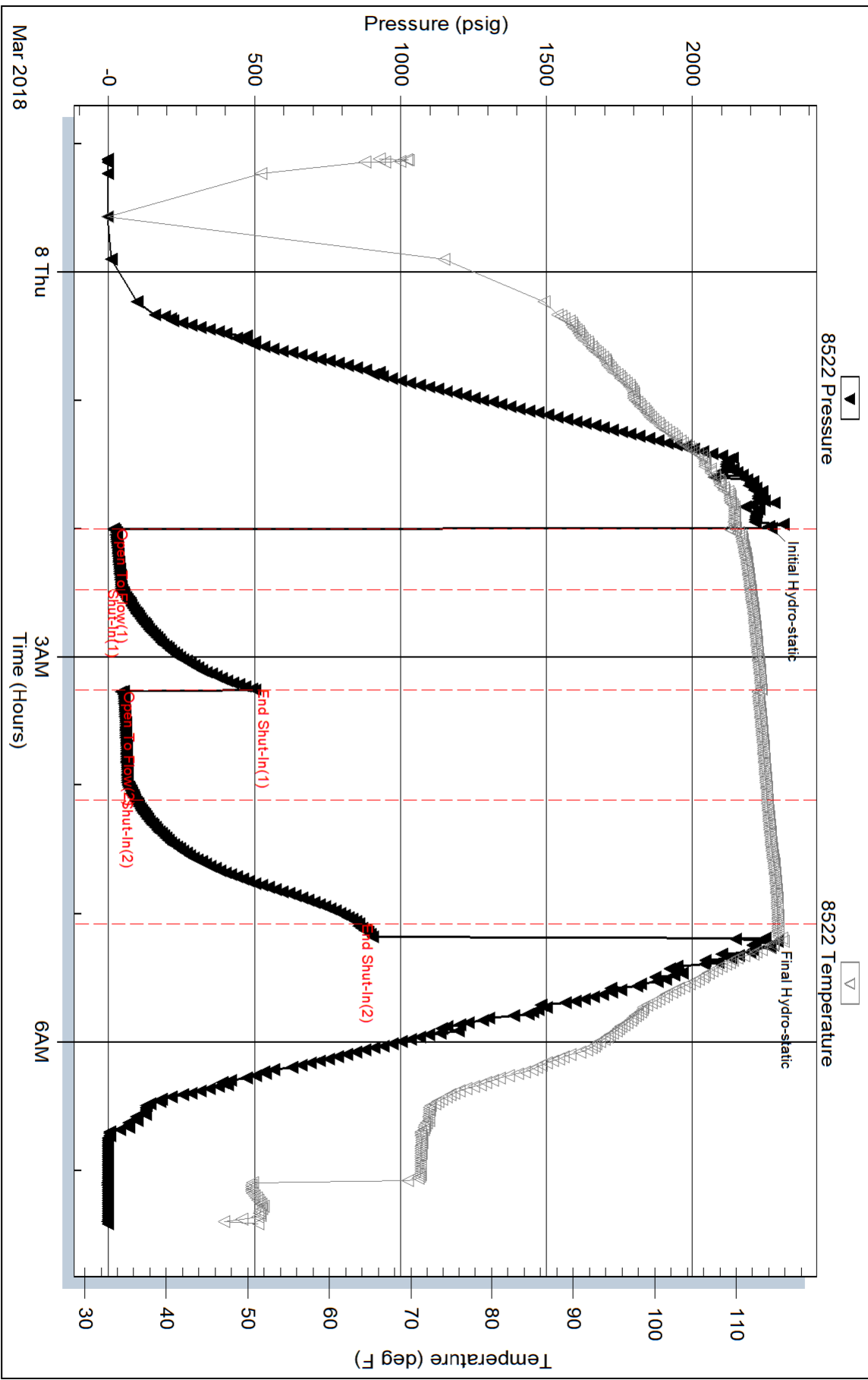
Inside

Palmer Oil, Inc

20 26s 33w Finney, KS

DST Test Number: 1

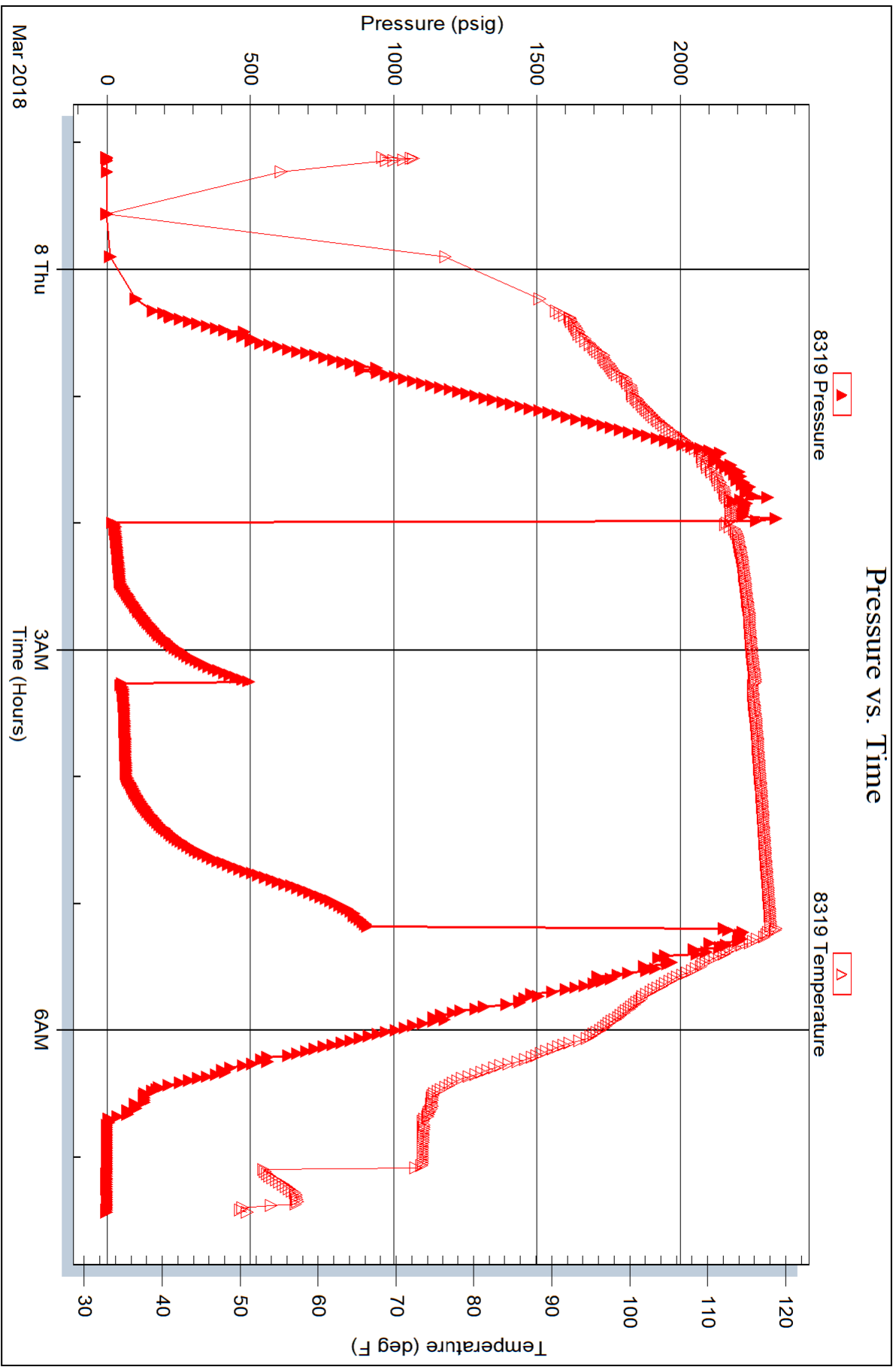
### Pressure vs. Time



Trilobite Testing, Inc

Ref. No: 65283

Printed: 2018.03.08 @ 08:21:30





# Palmer Oil, Inc.

Luke Thompson - Geologist  
 3118 Cummings Rd  
 Garden City, KS 67846  
 (785) 493-1254 cell  
 (620) 275-5067 office

WELL: Willis #2-20	API #: 15-055-22480-00-00	LOCATION: Finney County, KS 379' FNL & 2310' FEL 20-26s-33w	Elevation KB: 2933' GL: 2922'
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### Lithology Key

	Limestone		Black Shale
	Shaley Limestone		Shale
	Sandy Limestone		Silty Shale
	Fossil Limestone		Siltstone
	Cherty Limestone		Shaley Sandstone
	Oolitic Limestone		Sandstone
	Silty Limestone		Cherty Shale
	Shale Interbed		Dolomite
	Limestone Interbed		CFS

### Curve Data:

Geologist: Luke Thompson (American Warrior, Inc.)  
 Drilling Contractor: Duke Rig #5  
 Drilling time from: 3800' - TD  
 Samples from: 3850' - RTD  
 Geological Supervision from: 3850' - TD  
 Correlating Log: Elнора #2-20 (20-26s-33w)  
 Surface Casing: 1785' 8 5/8" 23#  
 Production Casing: 5398' 5 1/2" 15.5#  
 RTD: 5400'  
 LTD: 5400'

Formation	Top	Lea	Datum	Top	Datum	Sample	Correlating Well	Structural Comparison
Heebner	3927		-994	3928	-995		-3	
Toronto	3948		-1015	3948	-1015		-3	
Lansing	3978		-1045	3976	-1043		-3	
BKC	4388		-1455	4390	-1457		3	
Marmaton	4522		-1589	4519	-1586		-1	
Pawnee	4541		-1608	4538	-1605		-2	
Fort Scott	4635		-1702	4636	-1703		-3	
Cherokee	4675		-1742	4675	-1742		-6	
Morrow	4937		-2004	4938	-2005		-8	
Chester	5050		-2117	5056	-2123		-12	
St. Gen	5102		-2169	5100	-2167		5	
St. Louis	5146		-2213	5149	-2216		3	
TD	5400		-2467	5400	-2467			

Status: Oil

Conclusion: The location for the Willis #2-20 was found via 3-D seismic survey. The well was low to the Elнора #2-20 as expected. One DST was conducted, which recovered commercial quantities of oil. The decision was made to run 5 1/2" production casing to further evaluate the Willis #2-20.

