

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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JAMES C. MUSGROVE

Petroleum Geologist, LLC
212 Main Street
P.O. Box 215
Claflin, KS 67525

Office (620) 588-4250

Res. Claflin (620) 587-3444

Mai Oil Operations, Inc.
Richard Family Partnership #1
SW-SE-NW-SW (1350' FSL & 775' FWL)
Section 35-17s-13w
Barton County, Kansas

Page 1

5 1/2" Production Casing Set

Contractor: Southwind Drilling Co. (rig #3)
Commenced: November 8, 2017
Completed: November 15, 2017
Elevation: 1832' K.B., 1830' D.F., 1824' G.L.
Casing program: Surface; 8 5/8" @ 453'
Production, 5 1/2" @ 3397'
Sample: Samples saved and examined 2800' to the Rotary Total Depth.
Drilling time: One (1) foot drilling time recorded and kept 2800' to the Rotary Total Depth.
Measurements: All depths measured from the Kelly Bushing.
Drill Stem Tests: There were five (5) Drill Stem Tests ran by Trilobite Testing Co.
Electric Log: By Eli Wireline Services, Dual Induction, Compensated Density/Neutron;
Micro Log

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	711	+1121
Base Anhydrite	738	+1094
Heebner	2992	-1160
Toronto	3008	-1176
Douglas	3021	-1189
Brown Lime	3084	-1252
Lansing	3095	-1263
Base Kansas City	3319	-1487
Conglomerate Chert	3322	-1490
Arbuckle	3328	-1496
Rotary Total Depth	3410	-1578
Log Total Depth	3411	-1579

(All tops and zones corrected to Electric Log Measurement)

SAMPLE ANALYSIS, SHOWS OF OIL, TESTING DATA, ETC.

TOPEKA SECTION

- 2912-2919' Limestone, white, gray, few fossiliferous, poor visible porosity; trace black stain, no free oil and no odor in fresh samples
- 2938-2946' Limestone, white, tan fossiliferous, fair fossil cast porosity, dark brown and black stain and saturation, show of free oil and questionable odor in fresh samples.

Drill Stem Test #1 2926-2950

Times: 30-30-45-45

Blow: Weak

**Recovery: 15' oil cut mud
(15% oil; 85% mud)**

**Pressures: ISIP 50 psi
FSIP 55 psi
IFP 9-13 psi
FFP 12-13 psi
HSH 1386-1374 psi**

- 2950-2976' Limestone, gray, finely crystalline, chalky; poor to fair porosity, plus gray chert.

TORONTO SECTION

- 3008-3020' Limestone, white/cream, finely crystalline, chalky; few dolomitic at base, no shows.

LANSING SECTION

- 3095-3100' Limestone, tan oolitic/fossiliferous, chalky, no shows.
- 3102-3110' Limestone, tan; fossiliferous, chalky; brown and dark brown stain trace of free oil and no odor in fresh samples.
- 3128-3134' Limestone, white, gray fossiliferous, chalky, poor visible porosity, trace brown stain trace of free oil and faint odor in fresh samples.
- 3148-3156' Limestone, tan, oolitic in part, fossiliferous, chalky poor visible porosity trace brown stain, trace of free oil and no odor in fresh samples.

Drill Stem Test #2 **3105-3166**

Times: 30-30-45-45
Blow: Weak
Recovery: 15' slightly oil cut mud
(5% oil; 95% mud)
Pressures: ISIP 77 psi
FSIP 80 psi
IFP 24-27 psi
FFP 25-29 psi
HSH 1524-1515 psi

- 3166-3180' Limestone, tan, finely crystalline, finely oolitic, slightly cherty (dense), no shows.
- 3183-3200' Limestone, gray white, oomoldic, chalky in part; fair porosity, now shows.
- 3226-3230' Limestone, gray, fossiliferous in part; poor visible porosity, trace gray stain, no free oil and no odor in fresh samples.
- 3244-3250' Limestone, gray, finely crystalline, finely oolitic, fair porosity, golden brown stain, show of free oil and faint odor in fresh samples.
- 3258-3270' Limestone, gray, tan, oolitic, few sub-oomoldic, chalky, trace dark brown stain, trace of free oil and no odor in fresh samples.
- 3240-3254' Limestone, tan, fine to medium crystalline, chalky, fossiliferous in part, trace brown and golden stain, show of free oil and no odor in fresh samples.
- 3265-3270' Limestone, gray, tan, finely crystalline; slightly cherty (dense)
- 3276-3290' Limestone, as above, increase in porosity, trace brown stain, trace of free oil and no odor in fresh samples.

Drill Stem Test #3 **3214-3286**

Times: 30-30-45-45
Blow: Weak
Recovery: 32' oil cut mud
(10% oil; 90% mud)
Pressures: ISIP 119 psi
FSIP 177 psi
IFP 29-32 psi
FFP 31-34 psi
HSH 1583-1560 psi

- 3290-3300' Limestone, gray, white, tan, chalky in part, poor visible porosity; no shows.
3311-3319' Limestone, tan, gray, fossiliferous, chalky, poor porosity, no shows.

CONGLOMERATE SECTION

- 3322-3326' Chert; white, cream, boney, black stain, no show of free oil and faint/fair odor in fresh samples.

ARBUCKLE SECTION

- 3328-3330' Dolomite, tan, sucrosic, poor visible porosity, trace brown stain, no free oil and faint odor in fresh samples.
3331-3340' Dolomite, as above, fair inter-crystalline and pinpoint porosity, golden brown stain, show of free oil and fair odor in fresh samples.

Drill Stem Test #4 **3301-3344**

Times: 45-30-45-60

Blow: Fair

Recovery: 80' clean oil
63' muddy oil
(65% oil; 35% mud)

Pressures: ISIP 995 psi
FSIP 975 psi
IFP 17-40 psi
FFP 43-61 psi
HSH 1634-1604 psi

- 3344-3355' Dolomite, tan; medium crystalline, fair porosity; brown stain, show of free oil and faint odor in fresh samples.

Drill Stem Test #5 **3344-3355**

Times: 30-30-30-45

Blow: Good

Recovery: 205' muddy water

Pressures: ISIP 1019 psi
FSIP 1019 psi
IFP 30-82 psi
FFP 84-124 psi
HSH 1662-1637 psi

- 3355-3370' Dolomite, as above, plus white boney chert, no shows.
3370-3390' Dolomite, white, gray, medium crystalline, good inter-crystalline porosity, trace white, chalk and white chert.

Mai Oil Operations, Inc.
Richard Family Partnership #1
SW-SE-NW-SW (1350' FSL & 775' FWL)
Section 35-17s-13w
Barton County, Kansas

Page 5

3390-3410' Dolomite, gray, white, tan, medium and coarse crystalline, fair to good inter-crystalline porosity, plus chert, white, oolitic, boney. Trace gray, white opaque chert.

Rotary Total Depth 3410
Log Total Depth 3411

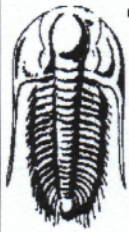
Recommendations:

5 ½' production casing was set and cemented on the Mai Oil Operations, Inc., Richard Family Partnership #1.

Respectfully yours,

James C. Musgrove
James C. Musgrove
Petroleum Geologist





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations, Inc.
 8411 Preston Rd. Ste. 800
 Dallas, TX 75225
 ATTN: Jim Musgrove

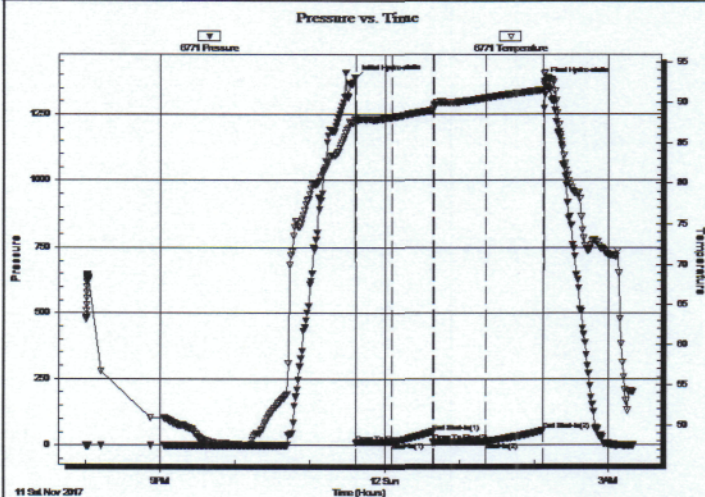
Richard Family Partnership #1
35-17S-13W Barton,KS
 Job Ticket: 63110 **DST#: 1**
 Test Start: 2017.11.11 @ 19:59:57

GENERAL INFORMATION:

Formation: **Topeka**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:36:48
 Time Test Ended: 03:20:18
 Interval: **2926.00 ft (KB) To 2950.00 ft (KB) (TVD)**
 Total Depth: 2950.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Brannan Lonsdale
 Unit No: 73
 Reference Elevations: 1832.00 ft (KB)
 1824.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 6771 **Inside**
 Press@RunDepth: 13.42 psig @ 2927.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.11 End Date: 2017.11.12 Last Calib.: 2017.11.12
 Start Time: 19:59:58 End Time: 03:20:18 Time On Btm: 2017.11.11 @ 23:36:18
 Time Off Btm: 2017.11.12 @ 02:08:18

TEST COMMENT: 30- IF- Built very slow ly to 1"
 30- IS- No blow
 45- FF- Built very slow ly to 1"
 45- FS- No blow



PRESSURE SUMMARY

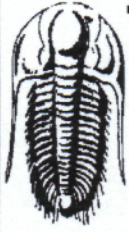
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1385.72	88.12	Initial Hydro-static
1	9.22	87.93	Open To Flow (1)
29	13.28	88.13	Shut-In(1)
62	50.21	89.02	End Shut-In(1)
63	11.78	89.62	Open To Flow (2)
105	13.42	90.55	Shut-In(2)
151	55.30	91.55	End Shut-In(2)
152	1374.03	93.50	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	OCM, 15%O 85%M	0.21

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

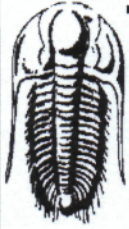
Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63110 **DST#: 1**
Test Start: 2017.11.11 @ 19:59:57

Tool Information

Drill Pipe:	Length: 2919.00 ft	Diameter: 3.82 inches	Volume: 41.38 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - 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: 44000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 29000.00 lb
Depth to Top Packer:	2926.00 ft			Final 30000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	24.00 ft			
Tool Length:	44.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			2907.00	
Shut In Tool	5.00			2912.00	
Hydraulic tool	5.00			2917.00	
Packer	5.00			2922.00	20.00 Bottom Of Top Packer
Packer	4.00			2926.00	
Stubb	1.00			2927.00	
Recorder	0.00	6771	Inside	2927.00	
Recorder	0.00	8524	Outside	2927.00	
Perforations	20.00			2947.00	
Bullnose	3.00			2950.00	24.00 Bottom Packers & Anchor
Total Tool Length:	44.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63110 **DST#: 1**
Test Start: 2017.11.11 @ 19:59:57

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	34 deg API
Mud Weight: 8.00 lb/gal	Cushion Length:	Water Salinity:	ppm
Viscosity: 51.00 sec/qt			
Water Loss: 8.57 in ³	Cushion Volume:		
Resistivity: ohm.m	Gas Cushion Type:		
Salinity: 3800.00 ppm	Gas Cushion Pressure:		
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	OCM, 15%O 85%M	0.213

Total Length: 15.00 ft Total Volume: 0.213 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Serial #: 6771

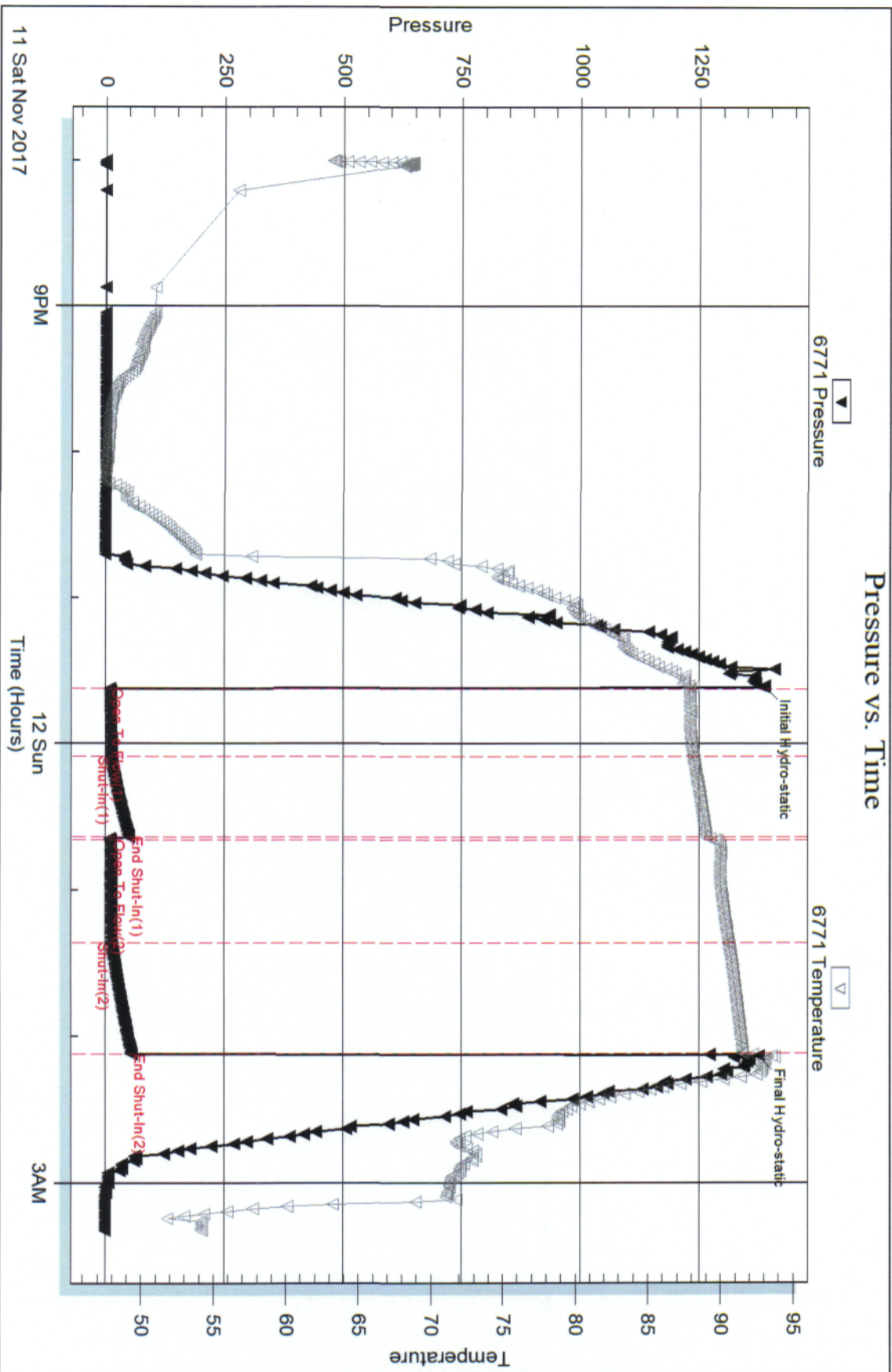
Inside

Mai Oil Operations, Inc.

35-17S-13W Barton, KS

DST Test Number: 1

Pressure vs. Time



Tribolite Testing, Inc

Ref. No: 63110

Printed: 2017.11.15 @ 08:37:41



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

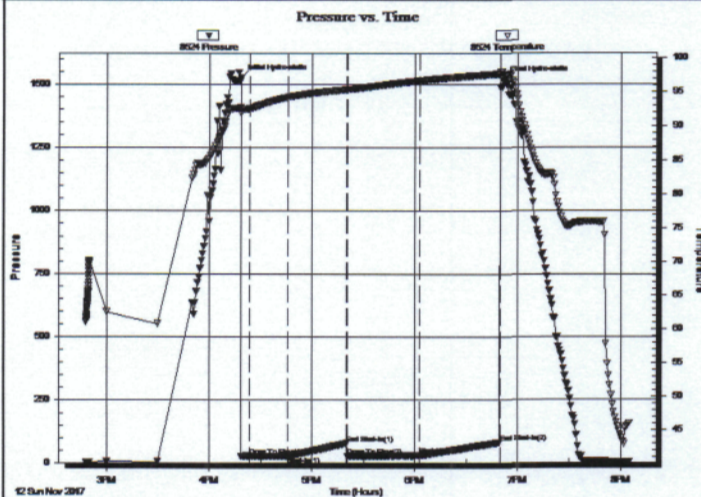
Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63111 **DST#: 2**
Test Start: 2017.11.12 @ 14:47:36

GENERAL INFORMATION:

Formation: **LKC "B-F"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:23:27
Time Test Ended: 20:05:12
Test Type: Conventional Bottom Hole (Reset)
Tester: Brannan Lonsdale
Unit No: 73
Interval: **3105.00 ft (KB) To 3166.00 ft (KB) (TVD)**
Reference Elevations: 1832.00 ft (KB)
Total Depth: 3166.00 ft (KB) (TVD) 1824.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GRVCF: 8.00 ft

Serial #: 8524 Outside
Press@RunDepth: 28.90 psig @ 3106.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2017.11.12 End Date: 2017.11.12 Last Calib.: 2017.11.12
Start Time: 14:47:37 End Time: 20:05:12 Time On Btm: 2017.11.12 @ 16:18:12
Time Off Btm: 2017.11.12 @ 18:51:12

TEST COMMENT: 30- IF- Built slow ly to 2"
30- ISI- No blow
45- FF- Built slow ly to 2"
45- FSI- No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1523.57	92.68	Initial Hydro-static
6	24.37	92.53	Open To Flow (1)
28	27.07	94.23	Shut-In(1)
62	77.45	95.39	End Shut-In(1)
63	25.20	95.39	Open To Flow (2)
105	28.90	96.68	Shut-In(2)
152	79.86	97.68	End Shut-In(2)
153	1515.43	97.56	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
15.00	SOCM, 5%O 95%M	0.21

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63111 **DST#: 2**
Test Start: 2017.11.12 @ 14:47:36

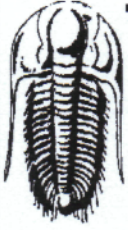
Tool Information

Drill Pipe:	Length: 3107.00 ft	Diameter: 3.82 inches	Volume: 44.04 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - 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: 41000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	22.00 ft			String Weight: Initial 31000.00 lb
Depth to Top Packer:	3105.00 ft			Final 31000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	61.00 ft			
Tool Length:	81.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3086.00	
Shut In Tool	5.00			3091.00	
Hydraulic tool	5.00			3096.00	
Packer	5.00			3101.00	20.00 Bottom Of Top Packer
Packer	4.00			3105.00	
Stubb	1.00			3106.00	
Recorder	0.00	6771	Inside	3106.00	
Recorder	0.00	8524	Outside	3106.00	
Perforations	23.00			3129.00	
Change Over Sub	1.00			3130.00	
Drill Pipe	32.00			3162.00	
Change Over Sub	1.00			3163.00	
Bullnose	3.00			3166.00	61.00 Bottom Packers & Anchor

Total Tool Length: 81.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63111 **DST#: 2**
Test Start: 2017.11.12 @ 14:47:36

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 8.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 51.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.56 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 3800.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
15.00	SOCM, 5%O 95%M	0.213

Total Length: 15.00 ft Total Volume: 0.213 bbl

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

Laboratory Name: Laboratory Location:

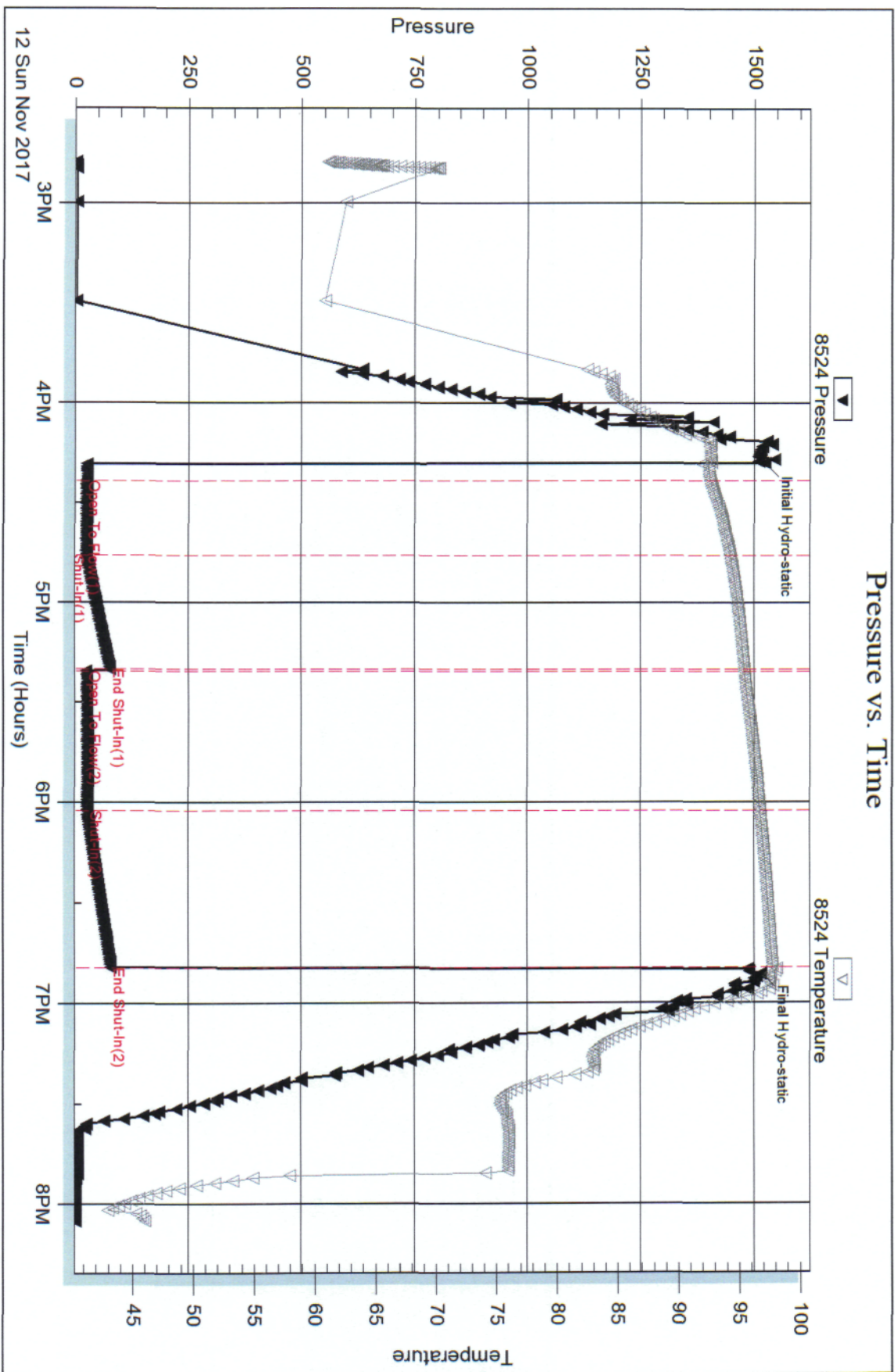
Recovery Comments:

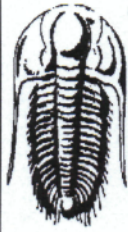
Serial #: 8524

Outside Mai Oil Operations, Inc.

35-17S-13W Barton, KS

DST Test Number: 2





TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Mai Oil Operations, Inc.
 8411 Preston Rd. Ste. 800
 Dallas, TX 75225
 ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
 Job Ticket: 63112 **DST#: 3**
 Test Start: 2017.11.13 @ 07:21:12

GENERAL INFORMATION:

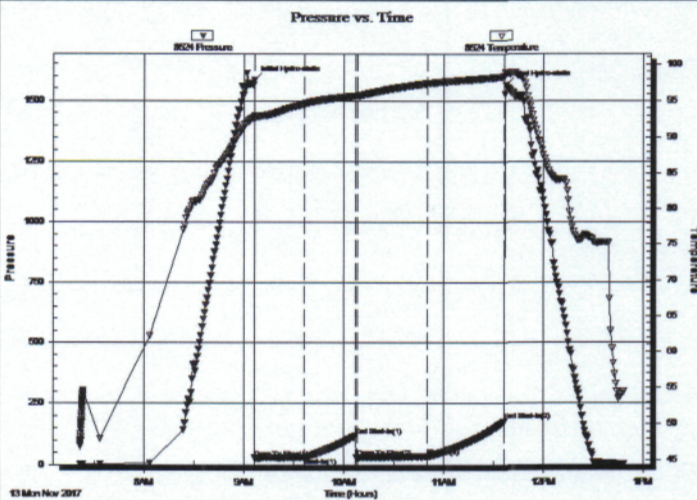
Formation: **LKC "H-J"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:06:33
 Time Test Ended: 12:48:33
 Interval: **3214.00 ft (KB) To 3286.00 ft (KB) (TVD)**
 Total Depth: 3286.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Brannan Lonsdale
 Unit No: 73
 Reference Elevations: 1832.00 ft (KB)
 1824.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8524

Outside

Press@RunDepth: 33.54 psig @ 3215.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.11.13 End Date: 2017.11.13 Last Calib.: 2017.11.13
 Start Time: 07:21:13 End Time: 12:48:33 Time On Btm: 2017.11.13 @ 09:06:18
 Time Off Btm: 2017.11.13 @ 11:37:48

TEST COMMENT: 30- IF- Slow ly built to 2"
 30- IS- No blow
 45- FF- Slow ly built to 3"
 45- FS- No blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1582.96	92.94	Initial Hydro-static
1	28.52	92.56	Open To Flow (1)
31	31.59	94.62	Shut-In(1)
61	119.25	95.68	End Shut-In(1)
62	30.71	95.70	Open To Flow (2)
104	33.54	97.36	Shut-In(2)
151	176.91	98.28	End Shut-In(2)
152	1560.44	98.74	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
32.00	OCM, 10%O 90%M	0.45

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63112 **DST#: 3**
Test Start: 2017.11.13 @ 07:21:12

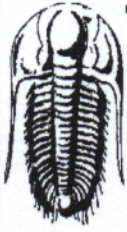
Tool Information

Drill Pipe: Length: 3203.00 ft	Diameter: 3.82 inches	Volume: 45.40 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe: Length: ft	Diameter: inches	Volume: - 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: 47000.00 lb
	Total Volume: - bbl		Tool Chased 0.00 ft
Drill Pipe Above KB: 9.00 ft			String Weight: Initial 33000.00 lb
Depth to Top Packer: 3214.00 ft			Final 33000.00 lb
Depth to Bottom Packer: ft			
Interval between Packers: 72.00 ft			
Tool Length: 92.00 ft			
Number of Packers: 2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3195.00	
Shut In Tool	5.00			3200.00	
Hydraulic tool	5.00			3205.00	
Packer	5.00			3210.00	20.00 Bottom Of Top Packer
Packer	4.00			3214.00	
Stubb	1.00			3215.00	
Recorder	0.00	6771	Inside	3215.00	
Recorder	0.00	8524	Outside	3215.00	
Perforations	4.00			3219.00	
Change Over Sub	1.00			3220.00	
Drill Pipe	62.00			3282.00	
Change Over Sub	1.00			3283.00	
Bullnose	3.00			3286.00	72.00 Bottom Packers & Anchor

Total Tool Length: 92.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63112 **DST#: 3**
Test Start: 2017.11.13 @ 07:21:12

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: 48.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.58 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 7300.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
32.00	OCM, 10%O 90%M	0.454

Total Length: 32.00 ft Total Volume: 0.454 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

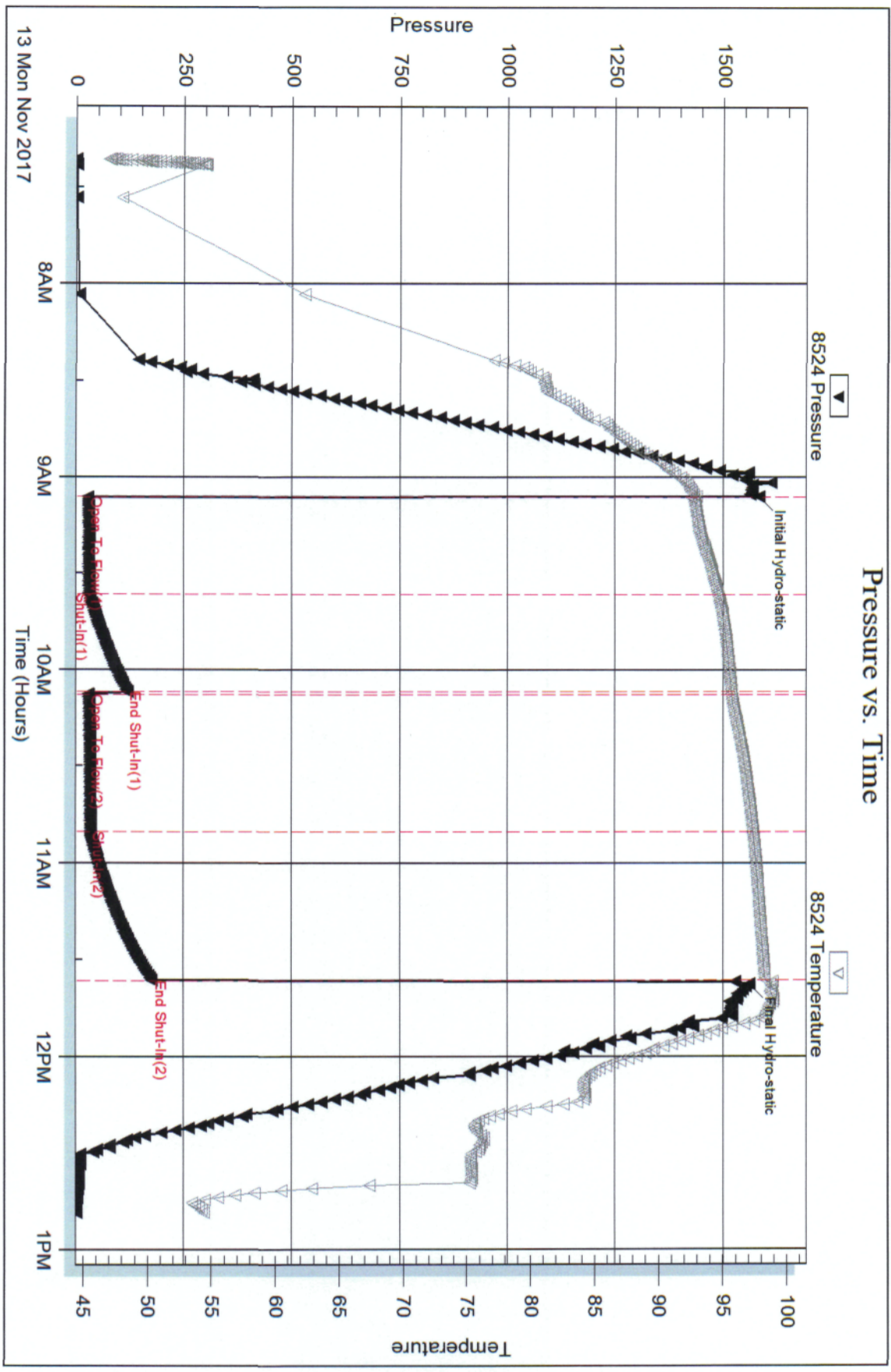
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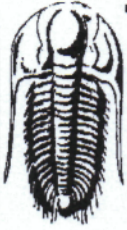
Outside Mai Oil Operations, Inc.

35-17S-13W Barton, KS

DST Test Number: 3

Pressure vs. Time





**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63113 **DST#: 4**
Test Start: 2017.11.13 @ 22:36:57

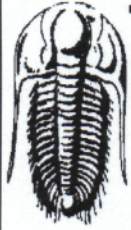
Tool Information

Drill Pipe:	Length: 3297.00 ft	Diameter: 3.82 inches	Volume: 46.74 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - 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:	41000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
				String Weight: Initial	32000.00 lb
Drill Pipe Above KB:	16.00 ft			Final	33000.00 lb
Depth to Top Packer:	3301.00 ft				
Depth to Bottom Packer:	ft				
Interval between Packers:	43.00 ft				
Tool Length:	63.00 ft				
Number of Packers:	2	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3282.00	
Shut In Tool	5.00			3287.00	
Hydraulic tool	5.00			3292.00	
Packer	5.00			3297.00	20.00 Bottom Of Top Packer
Packer	4.00			3301.00	
Stubb	1.00			3302.00	
Recorder	0.00	6771	Inside	3302.00	
Recorder	0.00	8524	Outside	3302.00	
Perforations	5.00			3307.00	
Change Over Sub	1.00			3308.00	
Drill Pipe	32.00			3340.00	
Change Over Sub	1.00			3341.00	
Bullnose	3.00			3344.00	43.00 Bottom Packers & Anchor

Total Tool Length: 63.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63113 **DST#: 4**
Test Start: 2017.11.13 @ 22:36:57

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 34 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 46.00 sec/qt	Cushion Volume: bbl	
Water Loss: 9.58 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 7700.00 ppm		
Filter Cake: inches		

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
63.00	MCO, 35%M 65%O	0.893
79.00	CO	1.120

Total Length: 142.00 ft Total Volume: 2.013 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Serial #: 6771

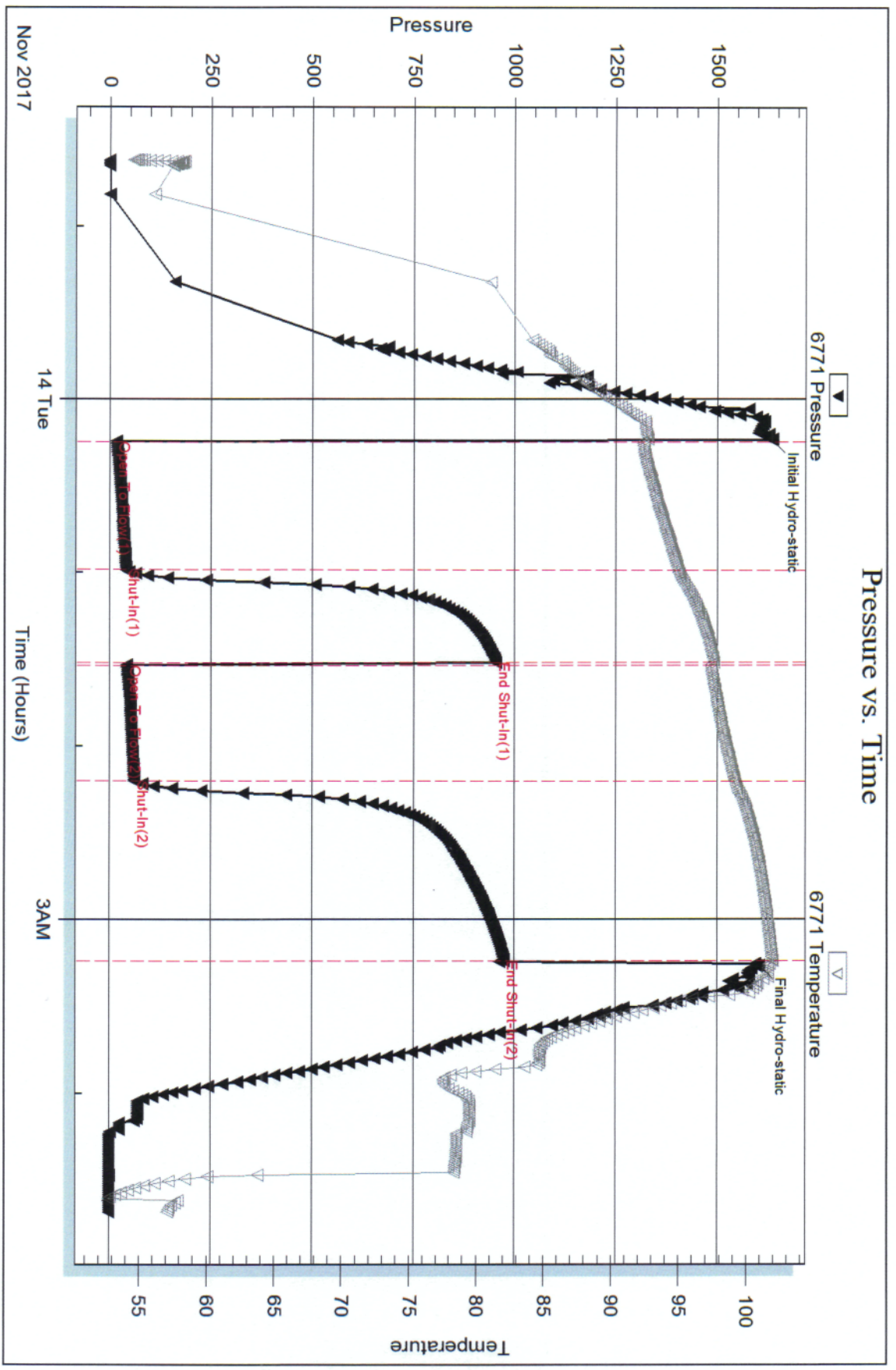
Inside

Mai Oil Operations, Inc.

35-17S-13W Barton, KS

DST Test Number: 4

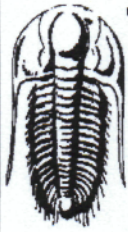
Pressure vs. Time



Trilobe Testing, Inc

Ref. No: 63113

Printed: 2017.11.15 @ 08:33:04



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63114 DST#: 5
Test Start: 2017.11.14 @ 09:50:06

Tool Information

Drill Pipe:	Length: 3328.00 ft	Diameter: 3.82 inches	Volume: 47.18 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: inches	Volume: - 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: 37000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	4.00 ft			String Weight: Initial 32000.00 lb
Depth to Top Packer:	3344.00 ft			Final 34000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	11.00 ft			
Tool Length:	31.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3325.00	
Shut In Tool	5.00			3330.00	
Hydraulic tool	5.00			3335.00	
Packer	5.00			3340.00	20.00 Bottom Of Top Packer
Packer	4.00			3344.00	
Stubb	1.00			3345.00	
Recorder	0.00	6771	Inside	3345.00	
Recorder	0.00	8524	Outside	3345.00	
Perforations	7.00			3352.00	
Bullnose	3.00			3355.00	11.00 Bottom Packers & Anchor
Total Tool Length:	31.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Mai Oil Operations, Inc.
8411 Preston Rd. Ste. 800
Dallas, TX 75225
ATTN: Jim Musgrove

Richard Family Partnership #1
35-17S-13W Barton,KS
Job Ticket: 63114 DST#: 5
Test Start: 2017.11.14 @ 09:50:06

Mud and Cushion Information

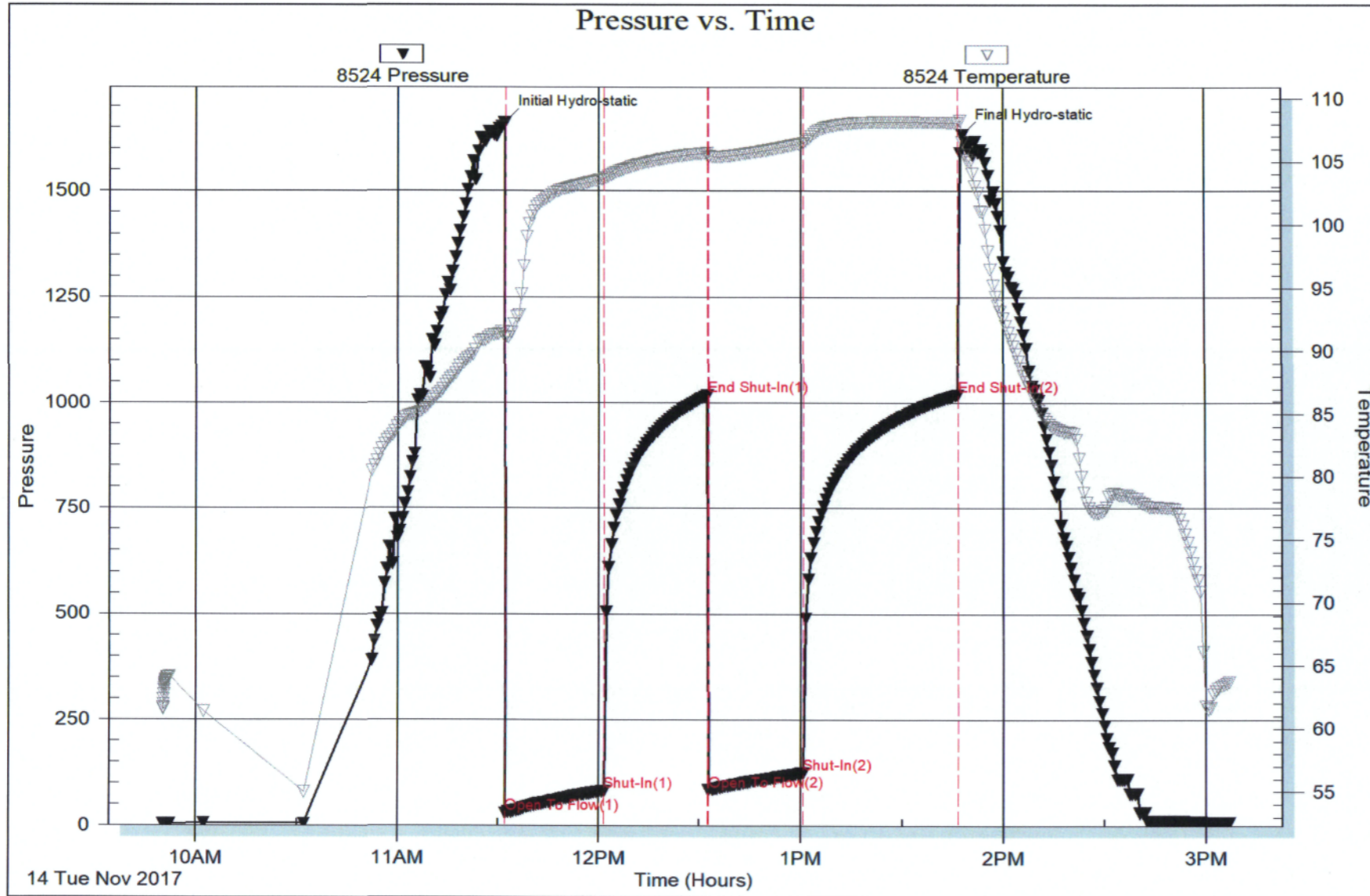
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	28000 ppm
Viscosity: 47.00 sec/qt	Cushion Volume: bbl		
Water Loss: 8.78 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 8000.00 ppm			
Filter Cake: inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
205.00	MW, 10%M 90%W	2.906

Total Length: 205.00 ft Total Volume: 2.906 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: RW: .26@62deg



QUALITY OILWELL CEMENTING, INC.

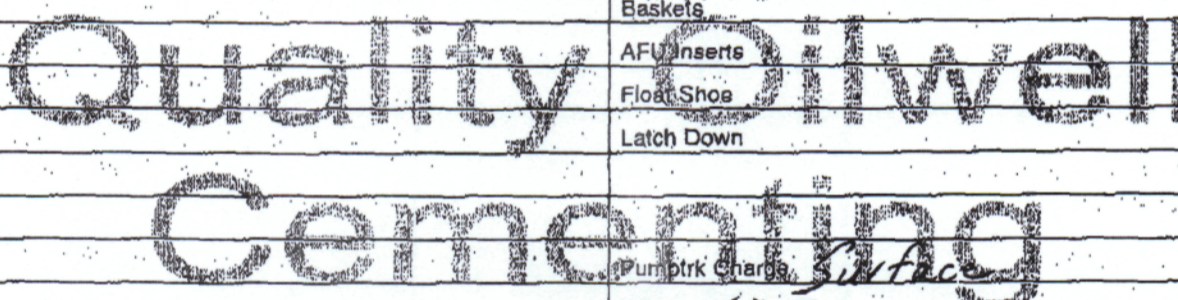
Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 443

Date	11-9-17	Sec.	35	Twp.	17	Range	13	County	Barton	State	Ks	On Location		Finish	4:00 AM
Lease								Richard Family Partnership				Location: Haysington, Ks - 2E, 1/4 N, E1 into			
Contractor								Southwind #3				Owner			
Type Job								Surface				To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.			
Hole Size								12 1/4"				Charge To			
Csg.								8 5/8"				Main oil operations			
Tbg. Size												Street			
Tool												City			
Cement Left in Csg.								20'				State			
Shoe Joint								20'				The above was done to satisfaction and supervision of owner agent or contractor.			
Meas Line								Displace 27 1/2 BUS				Cement Amount Ordered 225 60/40 4% CL 2% 60/			
EQUIPMENT															
Pumptrk 16								No. Cementer				Common 135'			
								Helper Travis				Poz. Mix 90			
Bulktrk 14								No. Driver				Gel. 5			
								Jordan				Calcium 10			
Bulktrk p.u.								No. Driver							
								Rick							
JOB SERVICES & REMARKS															
Remarks:								Cement d.d Circulate							
Rat Hole															
Mouse Hole															
Centralizers								Mud CLR 48							
Baskets								CFL-117 or CD110 CAF 38							
D/V or Port Collar								Sand							
								Handling 40							
								Mileage							
FLOAT EQUIPMENT															
								Float Shoe Wood plug							
								Centralizer							
								Baskets							
								AFU Inserts							
								Float Shoe							
								Latch Down							
								Pumptrk Charge Surface							
								Mileage 1.5							
								Tax							
								Discount							
								Total Charge							
Signature								<i>[Signature]</i>							



QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 448

Date	Sec.	Twp.	Range	County	State	On Location	Finish
11-15-17	35	17	13	Barton	Ks		9:45 AM

Lease	Richardson Family	Location	Harrison - 2E, 1/8 N, E1 into
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Well No.	1	Owner	To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.
Contractor	Southwind #3	Charge To	mai oil operations
Type Job	Long string	Street	
Hole Size	7 7/8"	City	
Csg. Size	5 1/2" 14#	State	
Tbg. Size		The above was done to satisfaction and supervision of owner agent or contractor.	
Tool		Cement Amount Ordered	160 60/40 10% Salt 2% Gel 1/4" Fl. sol
Cement Left in Csg.	27.74'	Shoe Joint	27.74'

Meas Line	Displace	82 1/4 BUS	1000 gal Mud Clear 48
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EQUIPMENT			
Pumptrk	No.	Cementer Helper	
	18	Travis	
Bulktrk	No.	Driver	
	9	Jordan	
Bulktrk	No.	Driver	
	pu	Rick	

JOB SERVICES & REMARKS	
Remarks:	Hulls
Rat Hole	Salt
Mouse Hole	Flowseal
Centralizers	Kol-Seal
Baskets	Mud CLR 48
D/V or Port Collar	CFL-117 or CD110 CAF 38
plug Rathole	Sand
Casing	Handling
Pump	Mileage

FLOAT EQUIPMENT	
of 1120	Guide Shoe
Released + held	Centralizer 14
1st pressure 700 #	Baskets
Land plug to 1500 #	AFU Inserts
	Float Shoe
	Latch Down

Pumptrk Charge	
Mileage	
	Tax
	Discount
	Total Charge

X Signature *Kend*

