

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](mailto: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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**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  
Hert #7  
NW-SE-NW-SW (1662' FSL & 815' FWL)  
Section 13-15s-18w  
Ellis County, Kansas

Page 1

**5 1/2 Production Casing Set**

**Contractor:** Southwind Drilling Co. (rig #3)  
**Commenced:** February 16, 2018  
**Completed:** February 22, 2018  
**Elevation:** 1997' K.B., 1995' D.F., 1989' G.L.  
**Casing program:** Surface; 8 5/8" @ 1142'  
Production, 5 1/2" @ 3635'  
**Sample:** Samples saved and examined 3000' to the Rotary Total Depth.  
**Drilling time:** One (1) foot drilling time recorded and kept 3000' to the Rotary Total Depth.  
**Measurements:** All depths measured from the Kelly Bushing.  
**Drill Stem Tests:** There were three (3) Drill Stem Tests ran by Trilobite Testing Co.  
**Electric Log:** By Eli, Dual Induction; Compensated Density/Neutron Log and Micro Log.

<u>Formation</u>	<u>Log Depth</u>	<u>Sub-Sea Datum</u>
Anhydrite	1141	+856
Base Anhydrite	1185	+812
Topeka	2942	-945
Heebner	3230	-1233
Toronto	3250	-1253
Lansing	3277	-1280
Base Kansas City	3507	-1510
Conglomerate	3548	-1551
Arbuckle	3574	-1577
Rotary Total Depth	3640	-1643
Log Total Depth	3641	-1644

(All tops and zone(s) corrected to Electric Log Measurements)

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

**TOPEKA SECTION**

- 3156-3170' Limestone, tan, buff, few fossiliferous, scattered pinpoint porosity, brown spotty stain, no free oil and no odor in fresh samples.
- 3188-3210' Limestone, tan, finely crystalline, chalky, poor visible porosity, trace chert; tan, gray; boney, no shows.
- 3210-3220' Limestone, as above.
- 3220-3228' Limestone, tan, buff, finely crystalline, slightly chalky; poor visible porosity, no shows.

**TORONTO SECTION**

- 3250-3260' Limestone, tan, cream, finely crystalline, chalky; poor visible porosity, light brown stain, no show of free oil and no odor in fresh samples.

**LANSING SECTION**

- 3278-3290' Limestone, tan, cream, finely crystalline, few fossiliferous, chalky, poor scattered pinpoint type porosity, trace brown stain, no free oil and faint odor in fresh samples.
- 3301-3310' Limestone, tan, buff, slightly chalky, scattered vuggy type porosity, brown stain, show of free oil and strong odor in fresh samples.

**Drill Stem Test #1 3286-3319**

**Times: 15-15-15-15**

**Blow: Weak**

**Recovery: 5' mud**

**Pressures:**

ISIP	15	psi
FSIP	16	psi
IFP	17-15	psi
FFP	15-16	psi
HSH	1545-1544	psi

- 3318-3331' Limestone, white, cream, finely crystalline, poor visible porosity, no shows.
- 3341-3353' Limestone, white, oolitic; chalky in part, poorly developed porosity; no shows.
- 3355-3375' Limestone, white, cream oolitic, oomoldic, scattered oomoldic and vugular type porosity, no shows.
- 3381-3396' Limestone, cream, white, finely crystalline, few fossiliferous, poor visible porosity, no shows.
- 3418-3429' Limestone, tan, cream, fossiliferous, chalky; poor to fair pinpoint porosity, trace brown stain, no free oil and questionable odor in fresh samples.

3427-3442' Limestone, white, cream, finely crystalline, slightly oolitic, scattered vuggy type porosity, dark brown stain, show of free oil and fair odor in fresh samples.

**Drill Stem Test #2**

**3395-3454**

**Times: 30-45-45-60**

**Blow: Strong**

**Recovery: 965' gas in pipe  
25' gas cut mud  
(10% gas, 90% mud)**

**Pressures: ISIP 23 psi  
FSIP 27 psi  
IFP 14-23 psi  
FFP 27-54 psi  
HSH 1612-1611 psi**

3460-3470' Limestone, cream, white, finely crystalline, cherty in part, poor scattered porosity; no shows.

3475-3485' Limestone, white, tan, buff, finely crystalline, chalky in part, poor scattered porosity, trace white oolitic chert.

**MARMATON SECTION**

3539-3543' Limestone, tan, buff, slightly cherty, poor porosity, trace brown stain, no free oil and no odor.

**CONGLOMERATE SECTION**

3548-3556' Sand, white, clear quartzitic, medium to large grains, poorly sorted, plus orange and tan opaque chert.

3556-3575' Chert; tan, boney; scattered porosity, black stain, show of free oil, no odor in matrix of red shales.

**ARBUCKLE SECTION**

3575-3577' Dolomite, tan, white, fine to medium crystalline, poor visible porosity, trace brown stain, trace of free oil and faint odor in fresh samples.

3577-3580' Dolomite, white, medium crystalline, good inter-crystalline porosity, light brown stain, show of free oil and strong odor in fresh samples.

**Drill Stem Test #3** **3491-3580'**

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**Times:** 30-30-45-45

**Blow:** Strong

**Recovery:** 200' gas in pipe  
135' clean oil  
340' gassy muddy oil  
(20% gas; 50% oil; 30% mud)

**Pressures:** ISIP 741 psi  
FSIP 817 psi  
IFP 27-118 psi  
FFP 123-189 psi  
HSH 1669-1667 psi

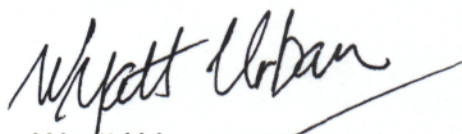
- 3580-3595' Dolomite, tan, white, medium crystalline, poor to fair scattered porosity, brown and dark brown stain, show of free oil and strong odor in fresh samples.
- 3595-3620' Dolomite, as above, decreasing stain, show of free oil and fair odor in fresh samples.
- 3620-3630' Dolomite, white, finely crystalline, poor to fair inter-crystalline porosity, light brown stain, no free oil and faint odor in fresh samples.
- 3630-3640' Dolomite, white, finely crystalline, poor inter-crystalline porosity; no show of oil and fair odor in fresh samples.

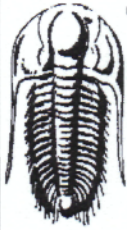
**Rotary Total Depth 3640**  
**Log Total Depth 3640**

**Recommendations:**

5 1/2" production casing was set and cemented on the Mai Oil Operations, Inc. Herl #7.

Respectfully yours,

  
Wyatt Urban  
Petroleum Geologist



**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Mai Oil Operations Inc  
 8411 Preston Rd STE 800  
 Dallas TX 75225-5520  
 ATTN: Kurt Mai, Wyatt Urb

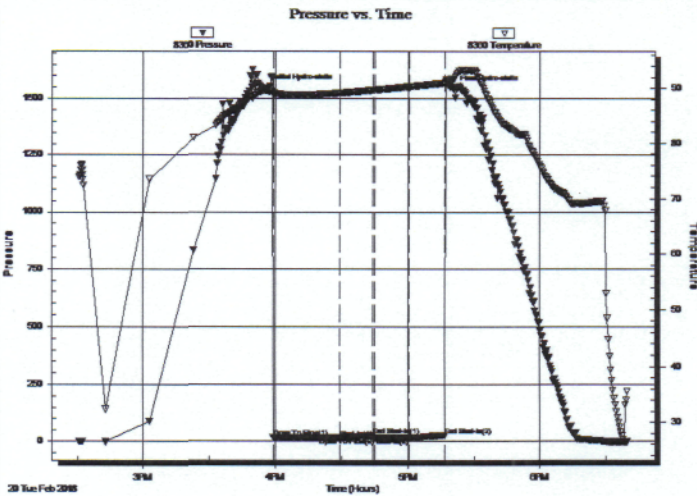
**13-15s-18w Ellis,KS**  
**Herl #7**  
 Job Ticket: 63514      **DST#: 1**  
 Test Start: 2018.02.20 @ 14:30:51

**GENERAL INFORMATION:**

Formation: **LKC A-C**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 15:59:01  
 Time Test Ended: 18:39:31  
 Interval: **3286.00 ft (KB) To 3319.00 ft (KB) (TVD)**  
 Total Depth: 3319.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Initial)  
 Tester: Ray Schwager  
 Unit No: 77  
 Reference Elevations: 1997.00 ft (KB)  
 1989.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8360**      **Inside**  
 Press@RunDepth: 16.57 psig @ 3291.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2018.02.20      End Date: 2018.02.20      Last Calib.: 2018.02.20  
 Start Time: 14:30:51      End Time: 18:39:31      Time On Btm: 2018.02.20 @ 15:56:01  
 Time Off Btm: 2018.02.20 @ 17:20:31

**TEST COMMENT:** 30-IFP-surface blow died in 23 min  
 15-ISIP-no blow  
 15-FFP-no blow  
 15-FSIP-no blow



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1545.16	89.49	Initial Hydro-static
3	17.38	88.95	Open To Flow (1)
33	15.77	89.14	Shut-In(1)
48	26.69	89.67	End Shut-In(1)
49	15.65	89.70	Open To Flow (2)
65	16.57	90.32	Shut-In(2)
81	27.19	90.98	End Shut-In(2)
85	1544.06	91.72	Final Hydro-static

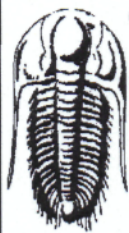
**Recovery**

Length (ft)	Description	Volume (bbl)
5.00	Mud	0.07

**Gas Rates**

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





**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**TOOL DIAGRAM**

Mai Oil Operations Inc

**13-15s-18w Ellis,KS**

8411 Preston Rd STE 800  
Dallas TX 75225-5520

**Herl #7**

Job Ticket: 63514

**DST#: 1**

ATTN: Kurt Mai, Wyatt Urb

Test Start: 2018.02.20 @ 14:30:51

**Tool Information**

Drill Pipe:	Length: 3297.00 ft	Diameter: 3.80 inches	Volume: 46.25 bbl	Tool Weight: 2200.00 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 46.25 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	32.00 ft			String Weight: Initial 36000.00 lb
Depth to Top Packer:	3286.00 ft			Final 36000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	33.00 ft			
Tool Length:	54.00 ft			
Number of Packers:	2	Diameter: 6.75 inches		

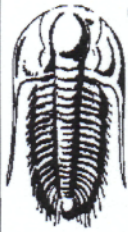
Tool Comments:

**Tool Description**

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

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3266.00	
Shut In Tool	5.00			3271.00	
Hydraulic tool	5.00			3276.00	
Packer	5.00			3281.00	21.00 Bottom Of Top Packer
Packer	5.00			3286.00	
Stubb	1.00			3287.00	
Perforations	4.00			3291.00	
Recorder	0.00	8360	Inside	3291.00	
Recorder	0.00	8673	Outside	3291.00	
Perforations	25.00			3316.00	
Bullnose	3.00			3319.00	33.00 Bottom Packers & Anchor

**Total Tool Length: 54.00**



**TRILOBITE  
TESTING, INC.**

### DRILL STEM TEST REPORT

**FLUID SUMMARY**

Mai Oil Operations Inc

**13-15s-18w Ellis,KS**

8411 Preston Rd STE 800  
Dallas TX 75225-5520

**Herl #7**

Job Ticket: 63514

**DST#: 1**

ATTN: Kurt Mai, Wyatt Urb

Test Start: 2018.02.20 @ 14:30:51

#### 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: 60.00 sec/qt

Cushion Volume:

bbl

Water Loss: 7.15 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
5.00	Mud	0.070

Total Length: 5.00 ft      Total Volume: 0.070 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

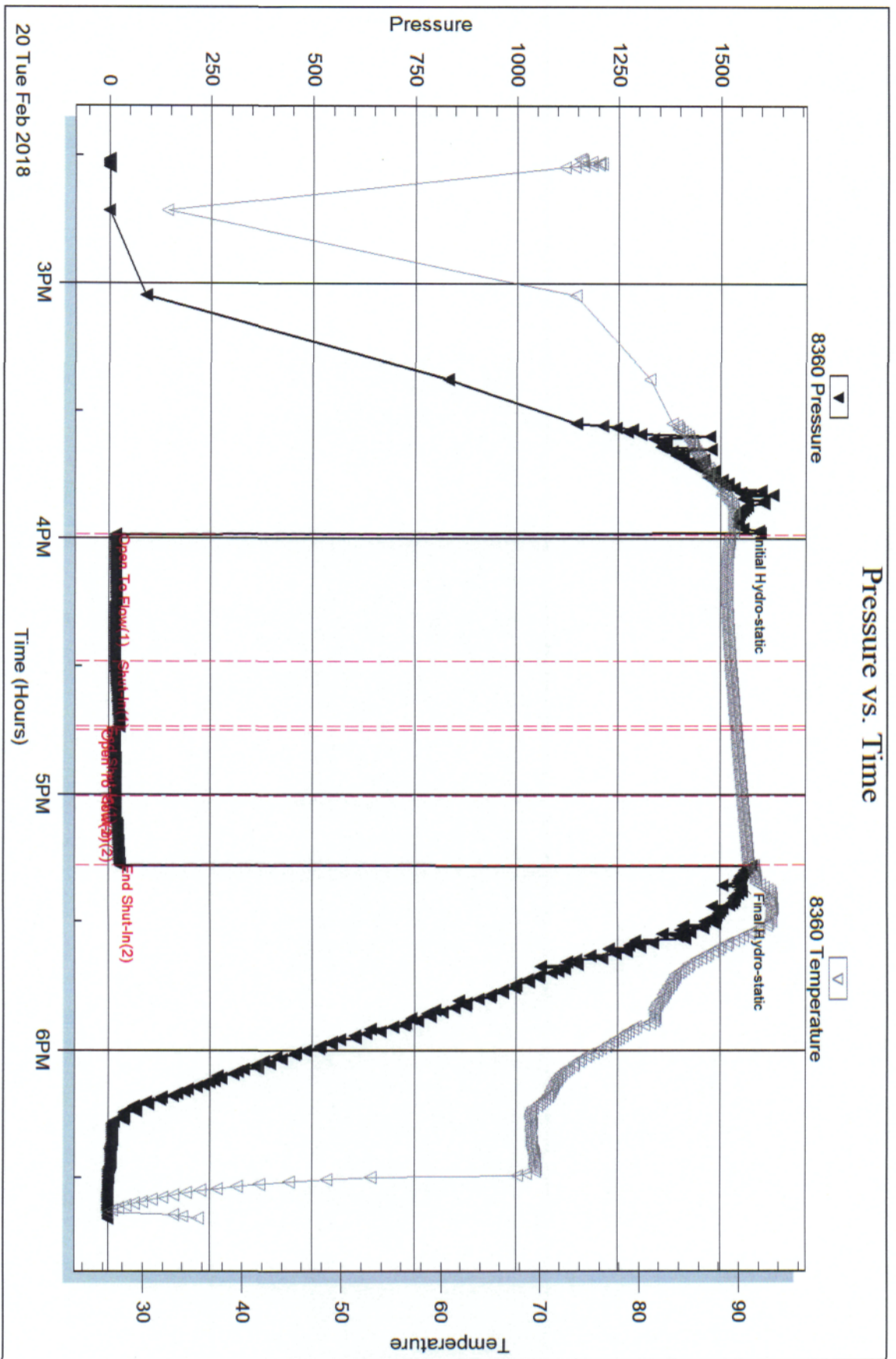
Recovery Comments:

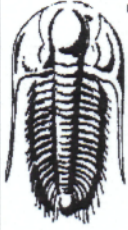
Serial #: 8360

Inside Mai Oil Operations Inc

Well #7

DST Test Number: 1





**TRILOBITE TESTING, INC.**

**DRILL STEM TEST REPORT**

Mai Oil Operations Inc  
 8411 Preston Rd STE 800  
 Dallas TX 75225-5520  
 ATTN: Kurt Mai, Wyatt Urb

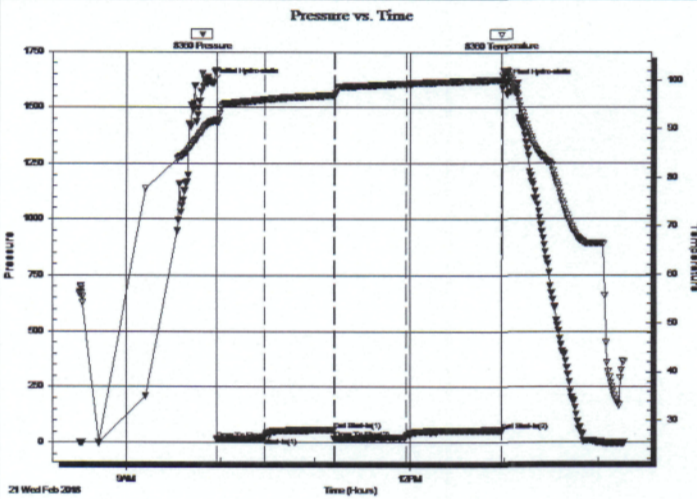
**13-15s-18w Ellis,KS**  
**Herl #7**  
 Job Ticket: 63515      **DST#: 2**  
 Test Start: 2018.02.21 @ 08:30:13

**GENERAL INFORMATION:**

Formation: **LKC H-I**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 09:57:23  
 Time Test Ended: 14:16:07  
 Interval: **3395.00 ft (KB) To 3454.00 ft (KB) (TVD)**  
 Total Depth: 3454.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Ray Schwager  
 Unit No: 77  
 Reference Elevations: 1997.00 ft (KB)  
 1989.00 ft (CF)  
 KB to GR/CF: 8.00 ft

**Serial #: 8360**      **Inside**  
 Press@RunDepth: 27.29 psig @ 3398.00 ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2018.02.21      End Date: 2018.02.21      Last Calib.: 2018.02.21  
 Start Time: 08:30:13      End Time: 14:16:07      Time On Btm: 2018.02.21 @ 09:55:08  
 Time Off Btm: 2018.02.21 @ 13:00:52

**TEST COMMENT:** 30-IFP-BOB in 3 min  
 45--ISIP-surface blow back  
 45-FFP-BOB in 3 min  
 60-FSIP-no blow back



**PRESSURE SUMMARY**

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1612.69	91.60	Initial Hydro-static
3	14.12	91.33	Open To Flow (1)
33	23.20	95.99	Shut-In(1)
77	56.31	96.88	End Shut-In(1)
78	17.43	96.89	Open To Flow (2)
123	27.29	99.31	Shut-In(2)
184	54.80	100.09	End Shut-In(2)
186	1611.88	102.03	Final Hydro-static

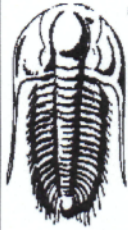
**Recovery**

Length (ft)	Description	Volume (bbl)
25.00	GCM 10%G90%M	0.35
0.00	965' GIP	0.00

\* 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

13-15s-18w Ellis,KS

8411 Preston Rd STE 800  
Dallas TX 75225-5520

Herl #7

Job Ticket: 63515

DST#: 2

ATTN: Kurt Mai, Wyatt Urb

Test Start: 2018.02.21 @ 08:30:13

### Tool Information

Drill Pipe:	Length: 3394.00 ft	Diameter: 3.80 inches	Volume: 47.61 bbl	Tool Weight:	2200.00 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose:	45000.00 lb
			<u>Total Volume: 47.61 bbl</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	36000.00 lb
Depth to Top Packer:	3395.00 ft			Final	37000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	59.00 ft				
Tool Length:	80.00 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			3375.00	
Shut In Tool	5.00			3380.00	
Hydraulic tool	5.00			3385.00	
Packer	5.00			3390.00	21.00 Bottom Of Top Packer
Packer	5.00			3395.00	
Stubb	1.00			3396.00	
Perforations	2.00			3398.00	
Recorder	0.00	8360	Inside	3398.00	
Recorder	0.00	8673	Outside	3398.00	
Blank Spacing	33.00			3431.00	
Perforations	20.00			3451.00	
Bullnose	3.00			3454.00	59.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>		<b>80.00</b>			



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Mai Oil Operations Inc

**13-15s-18w Ellis,KS**

8411 Preston Rd STE 800  
Dallas TX 75225-5520

**Herl #7**

Job Ticket: 63515

**DST#: 2**

ATTN: Kurt Mai , Wyatt Urb

Test Start: 2018.02.21 @ 08:30:13

**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: 53.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.15 in<sup>3</sup>

Gas Cushion Type:

Gas Cushion Pressure:

psig

Resistivity: ohm.m

Salinity: 2000.00 ppm

Filter Cake: 1.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbl
25.00	GCM 10%G90%M	0.351
0.00	965' GIP	0.000

Total Length: 25.00 ft      Total Volume: 0.351 bbl

Num Fluid Samples: 0

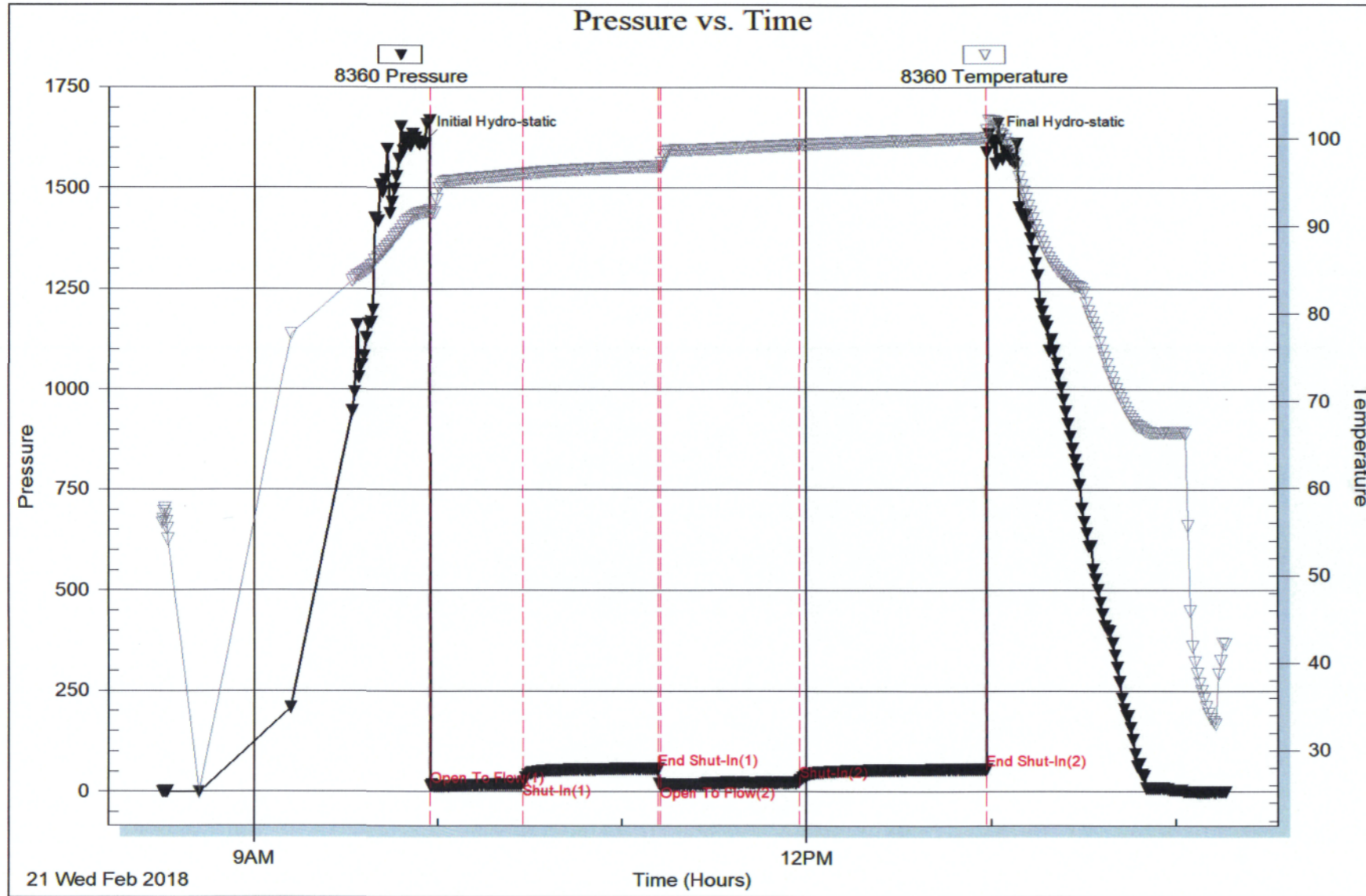
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE  
TESTING, INC.**

## DRILL STEM TEST REPORT

Mai Oil Operations Inc

**13-15s-18w Ellis,KS**

8411 Preston Rd STE 800  
Dallas TX 75225-5520

**Herl #7**

Job Ticket: 63516

**DST#: 3**

ATTN: Kurt Mai, Wyatt Urb

Test Start: 2018.02.22 @ 04:15:38

### GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:31:48

Time Test Ended: 09:51:17

Test Type: Conventional Bottom Hole (Reset)

Tester: Ray Schwager

Unit No: 77

Interval: **3491.00 ft (KB) To 3580.00 ft (KB) (TVD)**

Reference Elevations: 1997.00 ft (KB)

Total Depth: 3580.00 ft (KB) (TVD)

1989.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GRVCF: 8.00 ft

### Serial #: 8360

Inside

Press@RunDepth: 189.74 psig @ 3493.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2018.02.22

End Date:

2018.02.22

Last Calib.: 2018.02.22

Start Time: 04:15:38

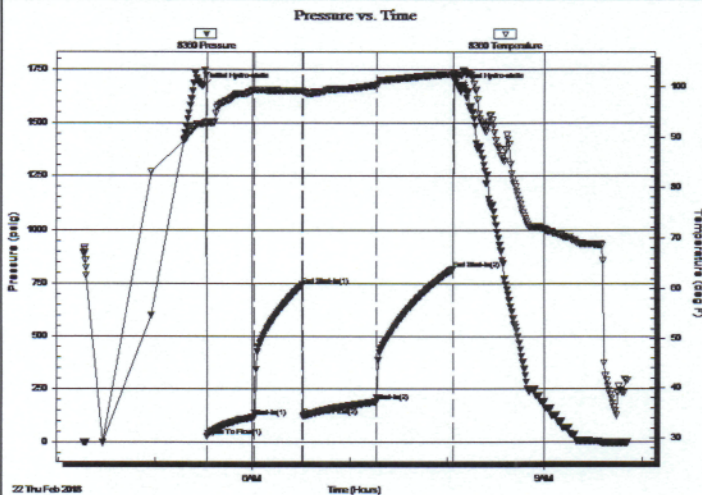
End Time:

09:51:17

Time On Btm: 2018.02.22 @ 05:29:18

Time Off Btm: 2018.02.22 @ 08:07:03

TEST COMMENT: 30-IFP-w eak to BOB in 6 min  
30-ISIP-no blow back  
45-FFP-w eak to BOB in 14 min  
45-FSIP-no blow back



### PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1669.75	92.71	Initial Hydro-static
3	27.63	92.60	Open To Flow (1)
32	118.92	99.35	Shut-In(1)
62	741.77	99.24	End Shut-In(1)
62	123.06	99.04	Open To Flow (2)
107	189.74	100.33	Shut-In(2)
155	817.53	102.55	End Shut-In(2)
158	1667.92	102.49	Final Hydro-static

### Recovery

Length (ft)	Description	Volume (bbl)
135.00	CO	1.89
340.00	GMO 20%G30%M50%O	4.77
0.00	200' GIP	0.00

\* 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

**13-15s-18w Ellis,KS**

8411 Preston Rd STE 800  
Dallas TX 75225-5520

**Herl #7**

Job Ticket: 63516

**DST#: 3**

ATTN: Kurt Mai, Wyatt Urb

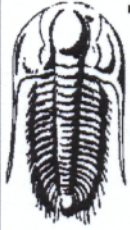
Test Start: 2018.02.22 @ 04:15:38

**Tool Information**

Drill Pipe:	Length: 3487.00 ft	Diameter: 3.80 inches	Volume: 48.91 bbl	Tool Weight: 2200.00 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: 0.00 ft	Diameter: 0.00 inches	Volume: 0.00 bbl	Weight to Pull Loose: 50000.00 lb
			<u>Total Volume: 48.91 bbl</u>	Tool Chased 0.00 ft
Drill Pipe Above KB:	17.00 ft			String Weight: Initial 38000.00 lb
Depth to Top Packer:	3491.00 ft			Final 40000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	89.00 ft			
Tool Length:	110.00 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			3471.00	
Shut In Tool	5.00			3476.00	
Hydraulic tool	5.00			3481.00	
Packer	5.00			3486.00	21.00 Bottom Of Top Packer
Packer	5.00			3491.00	
Stubb	1.00			3492.00	
Perforations	1.00			3493.00	
Recorder	0.00	8360	Inside	3493.00	
Recorder	0.00	8673	Outside	3493.00	
Blank Spacing	64.00			3557.00	
Perforations	20.00			3577.00	
Bullnose	3.00			3580.00	89.00 Bottom Packers & Anchor
<b>Total Tool Length:</b>		<b>110.00</b>			



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**Herl #7**

Job Ticket: 63516

**DST#: 3**

ATTN: Kurt Mai , Wyatt Urb

Test Start: 2018.02.22 @ 04:15:38

**Mud and Cushion Information**

Mud Type: Gel Chem

Cushion Type:

Oil API:

32 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.15 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
135.00	CO	1.894
340.00	GMO 20%G30%M50%O	4.769
0.00	200' GIP	0.000

Total Length: 475.00 ft      Total Volume: 6.663 bbl

Num Fluid Samples: 0

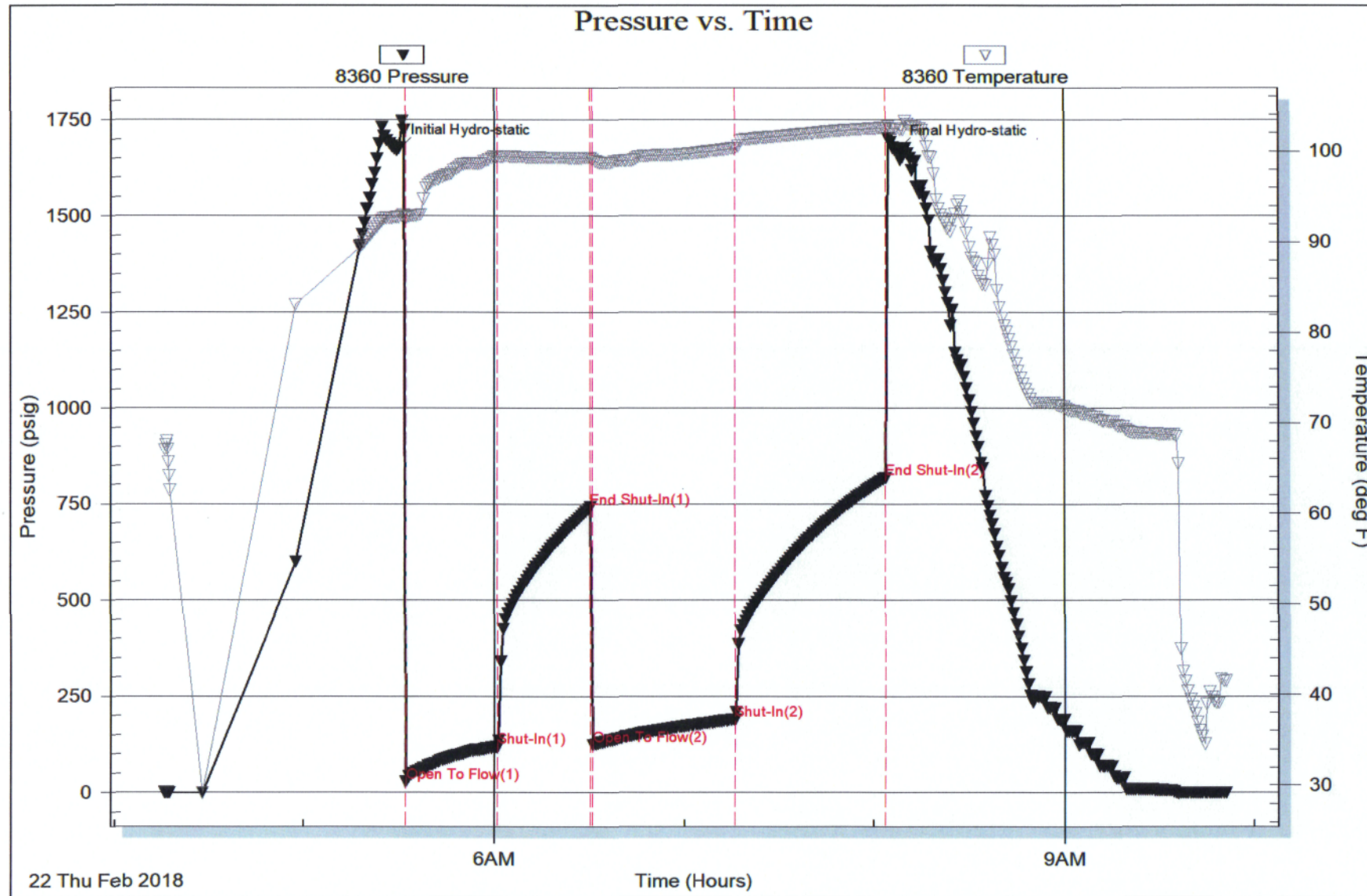
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



# QUALITY OILWELL CEMENTING, INC.

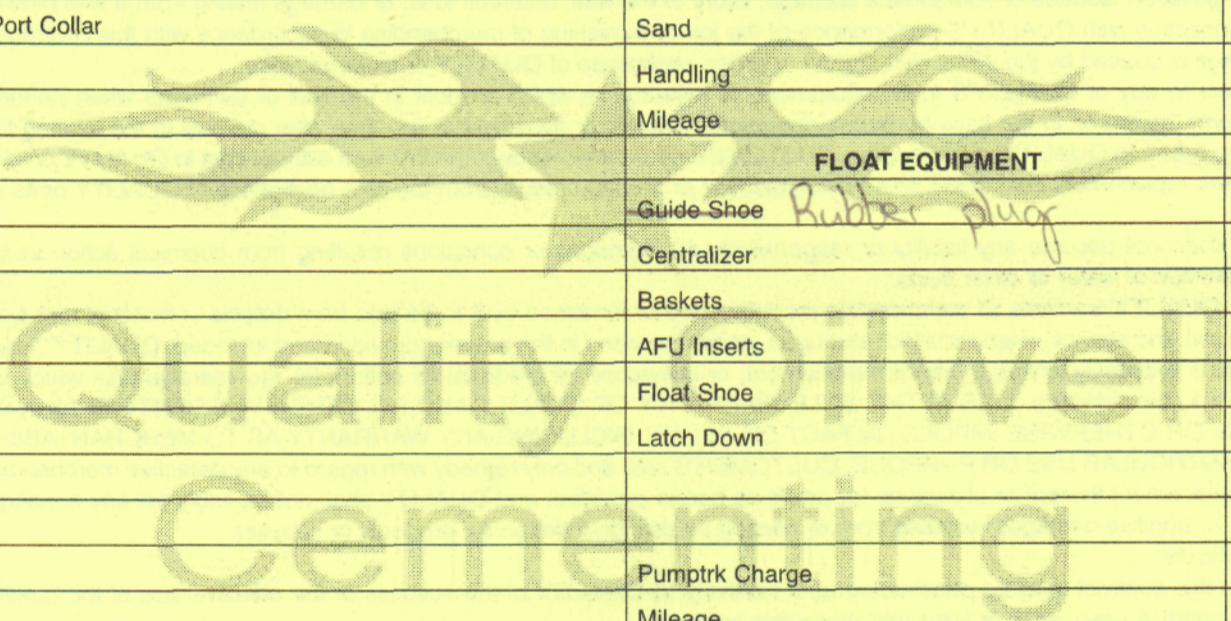
Federal Tax I.D.# 20-2886107

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

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

No. 654

Date	2-17-18	Sec.	13	Twp.	15	Range	18	County	Ellis	State	Ks	On Location		Finish	2:30 PM
Lease								Location							
Herl								Hay's - S to Chetola Gold Rd, Cold Hay's							
Contractor				Southwind				Well No.				7			
Type Job				Surface				Owner				(Mark) 2 E, 1/2 N, E1/4			
Hole Size				12 1/4"				T.D.				1144'			
Csg.				8 5/8"				Depth				1144'			
Tbg. Size								Depth							
Tool								City				State			
Cement Left in Csg.								The above was done to satisfaction and supervision of owner agent or contractor.							
Meas Line				Displace				Cement Amount Ordered				450 60/40 4 1/2 CC 2 1/2 Gel			
EQUIPMENT								Common							
Pumptrk 17 No.				Cementer				Travis				Poz. Mix			
Bulktrk 19 No.				Driver				David				Gel.			
Bulktrk p.u. No.				Driver				Rick				Calcium			
JOB SERVICES & REMARKS								Hulls							
Remarks: Cement did Circulate								Salt							
Rat Hole								Flowseal							
Mouse Hole								Kol-Seal							
Centralizers								Mud CLR 48							
Baskets								CFL-117 or CD110 CAF 38							
D/V or Port Collar								Sand							
								Handling							
								Mileage							
								FLOAT EQUIPMENT							
								Guide Shoe Rubber plug							
								Centralizer							
								Baskets							
								AFU Inserts							
								Float Shoe							
								Latch Down							
								Pumptrk Charge							
								Mileage							
								Tax							
								Discount							
X Signature								Total Charge							



# 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. **710**

Date	2-23-18	Sec.	13	Twp.	15	Range	18	County	Ellis	State	KS	On Location		Finish	6:45 AM
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Location Navy's mark 2E 1/2W E1110

Lease	HPC1	Well No.	7	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				
Type Job	Production String				
Hole Size	7 7/8	T.D.	3640	Charge To	Man O'1
Csg.	5 1/2 14#	Depth	3639	Street	
Tbg. Size		Depth		City	State
Tool		Depth		The above was done to satisfaction and supervision of owner agent or contractor.	
Cement Left in Csg.	19.71	Shoe Joint	19.71	Cement Amount Ordered <u>1600 60/40 10/1 Salt 2/60 1/4# Flt</u>	
Meas Line		Displace	88 1/4 BX	<u>1000 gal mud clear</u>	

**EQUIPMENT**

Pumptrk	No. 20	Cementer		Common	
		Helper		Poz. Mix	
Bulktrk	No.	Driver		Gel.	
Bulktrk	No. 3	Driver		Calcium	

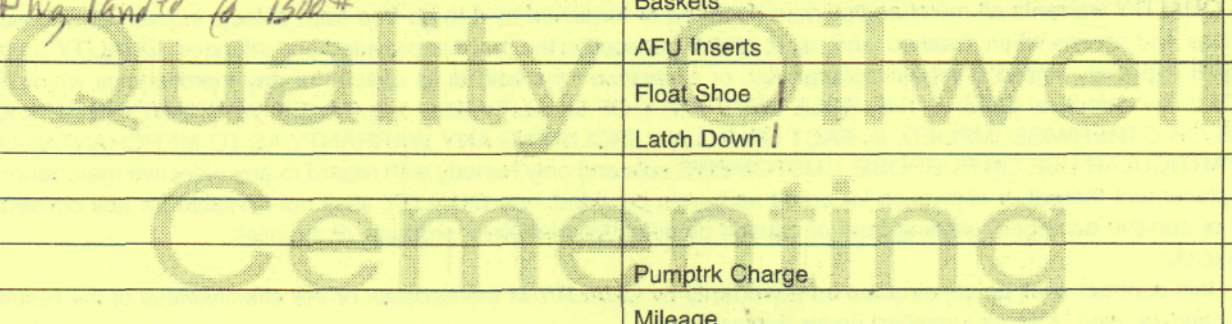
**JOB SERVICES & REMARKS**

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

5 1/2 sp @ 3639 Ins @ 3619  
For Creston Pump 1000 gal mud  
Open 10BL space Plug Reboiler  
Cement 5 1/2 with 130SK Clear  
Lines + Displace Plug  
Plug landed @ 1500 FT

**FLOAT EQUIPMENT**

Guide Shoe	
Centralizer	9
Baskets	
AFU Inserts	
Float Shoe	
Latch Down	1



Pumptrk Charge		Tax	
Mileage		Discount	
Signature	<u>[Signature]</u>	Total Charge	