

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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GLOBAL OIL FIELD SERVICES, LLC

24 S. Lincoln
 RUSSELL, KS 67665

Invoice

Date	Invoice #
12/17/2019	13906

Bill To
HERTEL OIL COMPANY 704 E 12TH ST HAYS KS 67601

PAID
 12-24-19
 14296

P.O. No.	Terms	Project
BRAUN#1-2	Due on receipt	

Quantity	Description	Rate	Amount
150	COMMON CEMENT	16.50	2,475.00
5	CALCIUM-CHLORIDE	80.00	400.00
3	BENTONITE GEL	30.00	90.00
158	HANDLING	1.90	300.20
	BULK MILEAGE	158.00	158.00
1	TRI-PLEX PUMP CHARGE FOR SURFACE	850.00	850.00
10	HEAVY EQUIPMENT. ONE WAY	6.50	65.00
10	LMV- ONE WAY	2.75	27.50
	15% DISCOUNT IF PAID WITHIN 15 DAYS OF INVOICE	6.50%	0.00
	ELLIS CO SALES TAX		

Thank you for your business.

Phone #	Fax #
785-445-3525	785-445-3526

Total \$4,365.70

GLOBAL OIL FIELD SERVICES, LLC

10700

REMIT TO 24 S. Lincoln
Russell, KS 67665

SERVICE POINT: Russell KS

DATE <u>12-4-19</u>	SEC. <u>3</u>	TWP. <u>13</u>	RANGE <u>10W</u>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH <u>8:30 PM</u>
LEASE <u>B...</u>	WELL #. <u>1-2</u>	LOCATION <u>1.874441 N 25th Ave Russell KS</u>			COUNTY <u>Ellis</u>	STATE <u>KS</u>	
OLD OR NEW (CIRCLE ONE)							

CONTRACTOR Global Oil Field Services, LLC

TYPE OF JOB Surface

HOLE SIZE _____ T.D. _____

CASING SIZE _____ DEPTH _____

TUBING SIZE _____ DEPTH _____

DRILL PIPE _____ DEPTH _____

TOOL _____ DEPTH _____

PRES. MAX _____ MINIMUM _____

MEAS. LINE _____ SHOE JOINT _____

CEMENT LEFT IN CSG. 25

PERFS _____

DISPLACEMENT _____

EQUIPMENT _____

PUMP TRUCK CEMENTER ...

_____ HELPER ...

BULK TRUCK _____

_____ DRIVER ...

BULK TRUCK _____

_____ DRIVER _____

OWNER ...

CEMENT AMOUNT ORDERED _____

COMMON _____ @ _____

POZMIX _____ @ _____

GEL _____ @ _____

CHLORIDE _____ @ _____

ASC _____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

HANDLING _____ @ _____

MILEAGE _____

TOTAL _____

REMARKS:

Handwritten notes in the remarks section, including job details and equipment used.

CHARGE TO: Global Oil Field Services, LLC

STREET _____

CITY _____ STATE _____ ZIP _____

Global Oil Field Services, LLC

You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME _____

SIGNATURE [Signature]

SERVICE

DEPTH OF JOB _____

PUMP TRUCK CHARGE _____

EXTRA FOOTAGE _____ @ _____

MILEAGE _____ @ _____

MANIFOLD _____ @ _____

_____ @ _____

_____ @ _____

TOTAL _____

PLUG & FLOAT EQUIPMENT

_____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

_____ @ _____

TOTAL _____

SALES TAX (If Any) _____

TOTAL CHARGES _____

DISCOUNT _____ IF PAID IN 30 DAYS



DRILL STEM TEST REPORT

Prepared For: **Hertel Oil Company LLC**

704 E 12th St
Hays KS 67601+3440

ATTN: Jason Alm

Braun #1-2

2-14S-17W Ellis,KS

Start Date: 2019.12.13 @ 14:28:00

End Date: 2019.12.13 @ 22:49:02

Job Ticket #: 66370 DST #: 1

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

Printed: 2019.12.16 @ 11:25:25



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC
 704 E 12th St
 Hays KS 67601+3440
 ATTN: Jason Alm

2-14S-17W Ellis,KS

Braun #1-2

Job Ticket: 66370

DST#: 1

Test Start: 2019.12.13 @ 14:28:00

GENERAL INFORMATION:

Formation: **LKC A - C**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 18:55:32 Tester: Spencer J Staab
 Time Test Ended: 22:49:02 Unit No: 84
 Interval: **3213.00 ft (KB) To 3270.00 ft (KB) (TVD)** Reference Elevations: 1953.00 ft (KB)
 Total Depth: 3270.00 ft (KB) (TVD) 1945.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

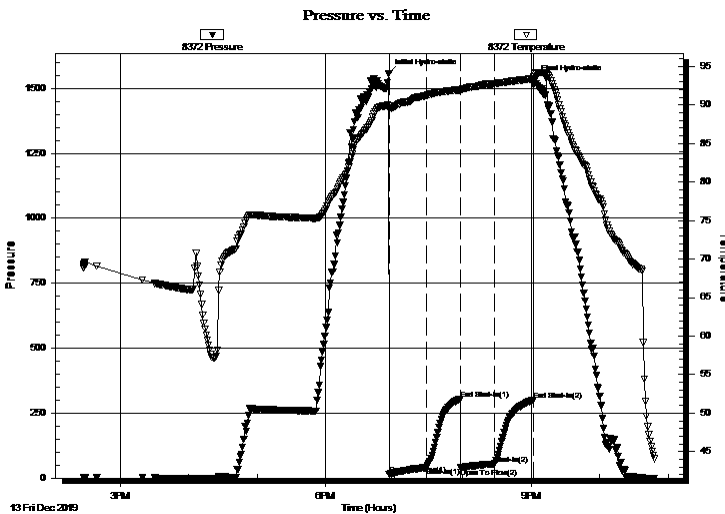
Serial #: 8372

Inside

Press@RunDepth: 54.12 psig @ 3217.00 ft (KB) Capacity: psig
 Start Date: 2019.12.13 End Date: 2019.12.13 Last Calib.: 2019.12.13
 Start Time: 14:28:01 End Time: 22:49:02 Time On Btm: 2019.12.13 @ 18:55:17
 Time Off Btm: 2019.12.13 @ 21:03:17

TEST COMMENT: 30-IF-Weak; Built 4"
 30-ISI-No Return
 30-FF-Weak; Built to 1 1/2"
 30-FSI-No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1557.68	89.85	Initial Hydro-static
1	14.14	89.48	Open To Flow (1)
33	40.27	91.25	Shut-In(1)
63	304.34	91.96	End Shut-In(1)
63	39.57	91.96	Open To Flow (2)
93	54.12	92.75	Shut-In(2)
127	300.48	93.42	End Shut-In(2)
128	1532.00	94.06	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
80.00	OSM 100%M	0.59

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC
 704 E 12th St
 Hays KS 67601+3440
 ATTN: Jason Alm

2-14S-17W Ellis,KS
Braun #1-2
 Job Ticket: 66370 **DST#: 1**
 Test Start: 2019.12.13 @ 14:28:00

GENERAL INFORMATION:

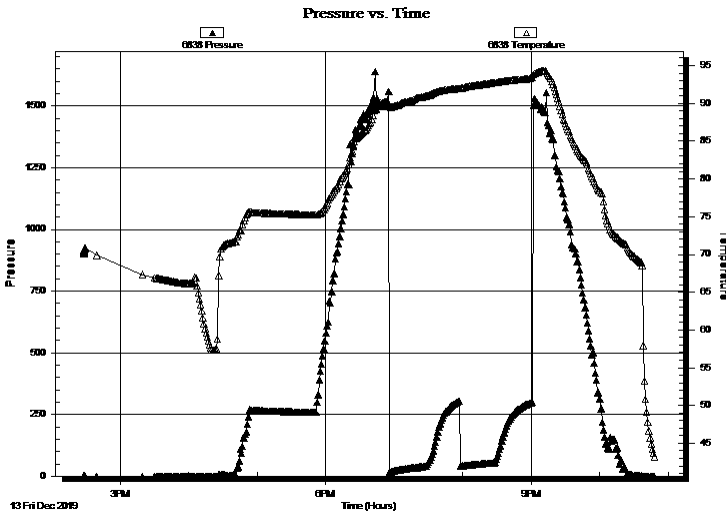
Formation: **LKC A - C**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Initial)
 Time Tool Opened: 18:55:32 Tester: Spencer J Staab
 Time Test Ended: 22:49:02 Unit No: 84
 Interval: **3213.00 ft (KB) To 3270.00 ft (KB) (TVD)** Reference Elevations: 1953.00 ft (KB)
 Total Depth: 3270.00 ft (KB) (TVD) 1945.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

Serial #: 6838 Inside

Press@RunDepth: psig @ 3217.00 ft (KB) Capacity: psig
 Start Date: 2019.12.13 End Date: 2019.12.13 Last Calib.: 2019.12.13
 Start Time: 14:28:01 End Time: 22:49:02 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30-IF-Weak; Built 4"
 30-ISI-No Return
 30-FF-Weak; Built to 1 1/2"
 30-FSI-No Return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
80.00	OSM 100%M	0.59

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66370

DST#: 1

ATTN: Jason Alm

Test Start: 2019.12.13 @ 14:28:00

Tool Information

Drill Pipe:	Length: 2938.00 ft	Diameter: 3.82 inches	Volume: 41.65 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 275.00 ft	Diameter: 2.75 inches	Volume: 2.02 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:	49000.00 lb
			<u>Total Volume: 43.67 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	20.00 ft			String Weight: Initial	48000.00 lb
Depth to Top Packer:	3213.00 ft			Final	48000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	57.00 ft				
Tool Length:	77.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3194.00	
Shut In Tool	5.00			3199.00	
Hydraulic tool	5.00		Fluid	3204.00	
Packer	5.00			3209.00	20.00 Bottom Of Top Packer
Packer	4.00			3213.00	
Stubb	1.00			3214.00	
Perforations	2.00			3216.00	
Change Over Sub	1.00			3217.00	
Recorder	0.00	6838	Inside	3217.00	
Recorder	0.00	8372	Inside	3217.00	
Drill Pipe	32.00			3249.00	
Change Over Sub	1.00			3250.00	
Perforations	17.00			3267.00	
Bullnose	3.00			3270.00	57.00 Bottom Packers & Anchor

Total Tool Length: 77.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66370

DST#: 1

ATTN: Jason Alm

Test Start: 2019.12.13 @ 14:28:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 56.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 7000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
80.00	OSM 100%M	0.588

Total Length: 80.00 ft Total Volume: 0.588 bbl

Num Fluid Samples: 0

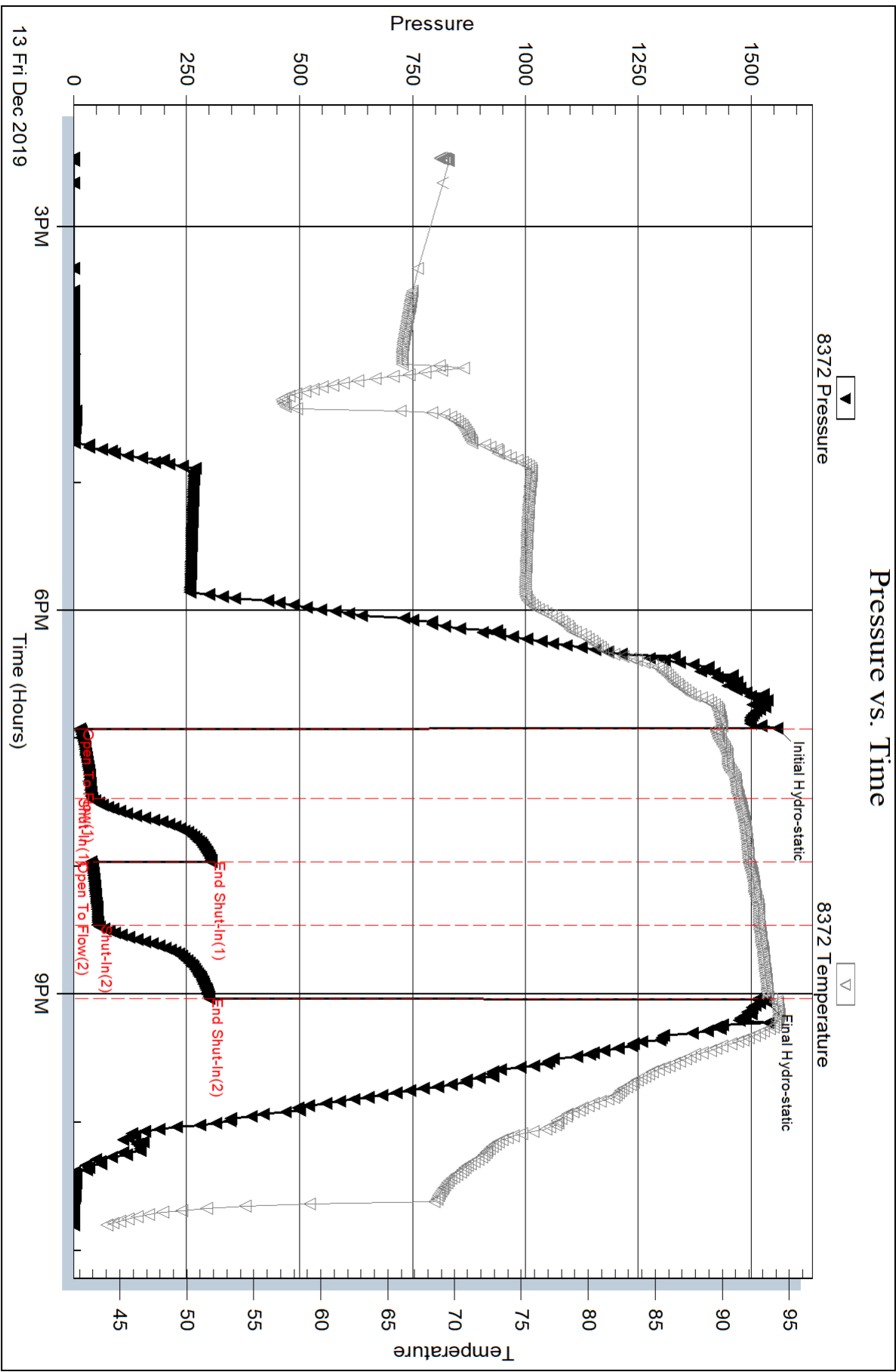
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM



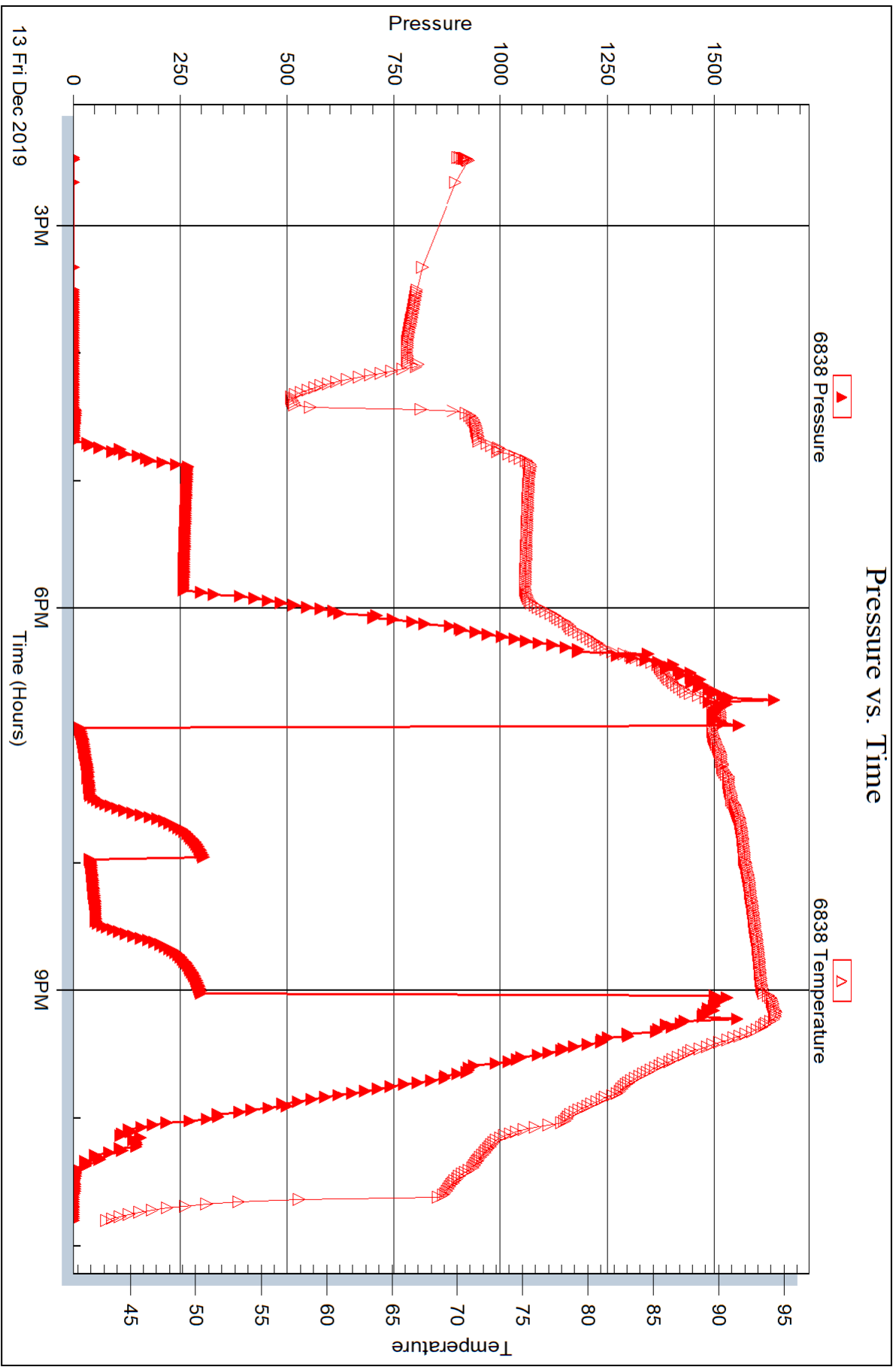
Serial #: 6838

Inside

Hertel Oil Company LLC

Braun #1-2

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 66370

Printed: 2019.12.16 @ 11:25:26



DRILL STEM TEST REPORT

Prepared For: **Hertel Oil Company LLC**

704 E 12th St
Hays KS 67601+3440

ATTN: Jason Alm

Braun #1-2

2-14S-17W Ellis,KS

Start Date: 2019.12.14 @ 13:05:00

End Date: 2019.12.14 @ 19:24:02

Job Ticket #: 66371 DST #: 2

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

Printed: 2019.12.16 @ 11:24:47



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC
 704 E 12th St
 Hays KS 67601+3440
 ATTN: Jason Alm

2-14S-17W Ellis,KS

Braun #1-2

Job Ticket: 66371

DST#: 2

Test Start: 2019.12.14 @ 13:05:00

GENERAL INFORMATION:

Formation: **LKC H - J**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:51:32
 Time Test Ended: 19:24:02
 Interval: **3348.00 ft (KB) To 3425.00 ft (KB) (TVD)**
 Total Depth: 3425.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J Staab
 Unit No: 84
 Reference Elevations: 1953.00 ft (KB)
 1945.00 ft (CF)
 KB to GR/CF: 8.00 ft

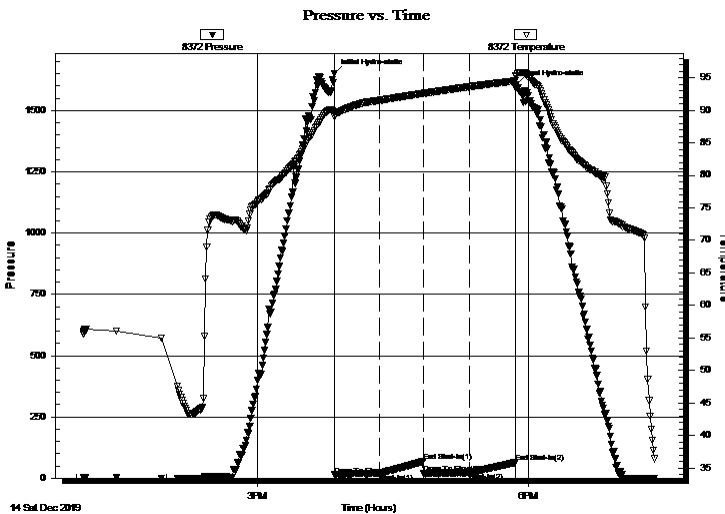
Serial #: 8372

Inside

Press@RunDepth: 23.22 psig @ 3351.00 ft (KB) Capacity: psig
 Start Date: 2019.12.14 End Date: 2019.12.14 Last Calib.: 2019.12.14
 Start Time: 13:05:01 End Time: 19:24:02 Time On Btm: 2019.12.14 @ 15:51:17
 Time Off Btm: 2019.12.14 @ 17:52:02

TEST COMMENT: 30-IF-Weak; Built to 1 1/4"
 30-ISI-No Return
 30-FF-Weak; Built to 1"
 30-FSI-No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1651.86	89.64	Initial Hydro-static
1	13.54	89.00	Open To Flow (1)
30	19.73	91.51	Shut-In(1)
59	68.00	92.58	End Shut-In(1)
60	18.10	92.60	Open To Flow (2)
90	23.22	93.62	Shut-In(2)
120	64.01	94.54	End Shut-In(2)
121	1606.46	95.20	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OSM 100%M	0.15

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Hertel Oil Company LLC
704 E 12th St
Hays KS 67601+3440
ATTN: Jason Alm

2-14S-17W Ellis,KS

Braun #1-2

Job Ticket: 66371

DST#: 2

Test Start: 2019.12.14 @ 13:05:00

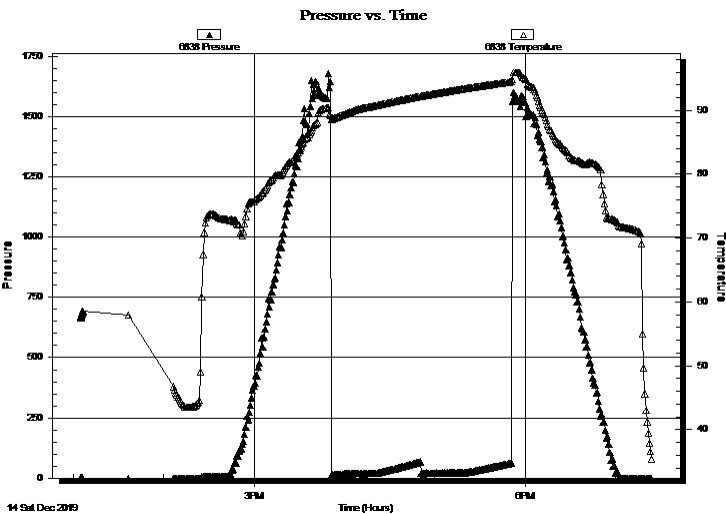
GENERAL INFORMATION:

Formation: **LKC H - J**
 Deviated: No Whipstock: ft (KB)
 Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 15:51:32 Tester: Spencer J Staab
 Time Test Ended: 19:24:02 Unit No: 84
Interval: 3348.00 ft (KB) To 3425.00 ft (KB) (TVD)
 Reference Elevations: 1953.00 ft (KB)
 Total Depth: 3425.00 ft (KB) (TVD) 1945.00 ft (CF)
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

Serial #: 6838 Inside

Press@RunDepth: psig @ 3351.00 ft (KB) Capacity: psig
 Start Date: 2019.12.14 End Date: 2019.12.14 Last Calib.: 2019.12.14
 Start Time: 13:05:01 End Time: 19:24:02 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30-IF-Weak; Built to 1 1/4"
 30-ISI-No Return
 30-FF-Weak; Built to 1"
 30-FSI-No Return



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
20.00	OSM 100%M	0.15

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66371

DST#: 2

ATTN: Jason Alm

Test Start: 2019.12.14 @ 13:05:00

Tool Information

Drill Pipe:	Length: 3066.00 ft	Diameter: 3.82 inches	Volume: 43.46 bbl	Tool Weight: 2000.00 lb
Heavy Wt. Pipe:	Length: 275.00 ft	Diameter: 2.75 inches	Volume: 2.02 bbl	Weight set on Packer: 25000.00 lb
Drill Collar:	Length: 0.00 ft	Diameter: 2.25 inches	Volume: 0.00 bbl	Weight to Pull Loose: 60000.00 lb
			<u>Total Volume: 45.48 bbl</u>	Tool Chased ft
Drill Pipe Above KB:	13.00 ft			String Weight: Initial 50000.00 lb
Depth to Top Packer:	3348.00 ft			Final 50000.00 lb
Depth to Bottom Packer:	ft			
Interval between Packers:	77.00 ft			
Tool Length:	97.00 ft			
Number of Packers:	1	Diameter: 6.75 inches		
Tool Comments:				

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3329.00	
Shut In Tool	5.00			3334.00	
Hydraulic tool	5.00		Fluid	3339.00	
Packer	5.00			3344.00	20.00 Bottom Of Top Packer
Packer	4.00			3348.00	
Stubb	1.00			3349.00	
Perforations	1.00			3350.00	
Change Over Sub	1.00			3351.00	
Recorder	0.00	6838	Inside	3351.00	
Recorder	0.00	8372	Inside	3351.00	
Drill Pipe	63.00			3414.00	
Change Over Sub	1.00			3415.00	
Perforations	7.00			3422.00	
Bullnose	3.00			3425.00	77.00 Bottom Packers & Anchor

Total Tool Length: 97.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66371

DST#: 2

ATTN: Jason Alm

Test Start: 2019.12.14 @ 13:05:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length: ft

Water Salinity: ppm

Viscosity: 51.00 sec/qt

Cushion Volume: bbl

Water Loss: 8.37 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure: psig

Salinity: 9500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	OSM 100%M	0.147

Total Length: 20.00 ft Total Volume: 0.147 bbl

Num Fluid Samples: 0

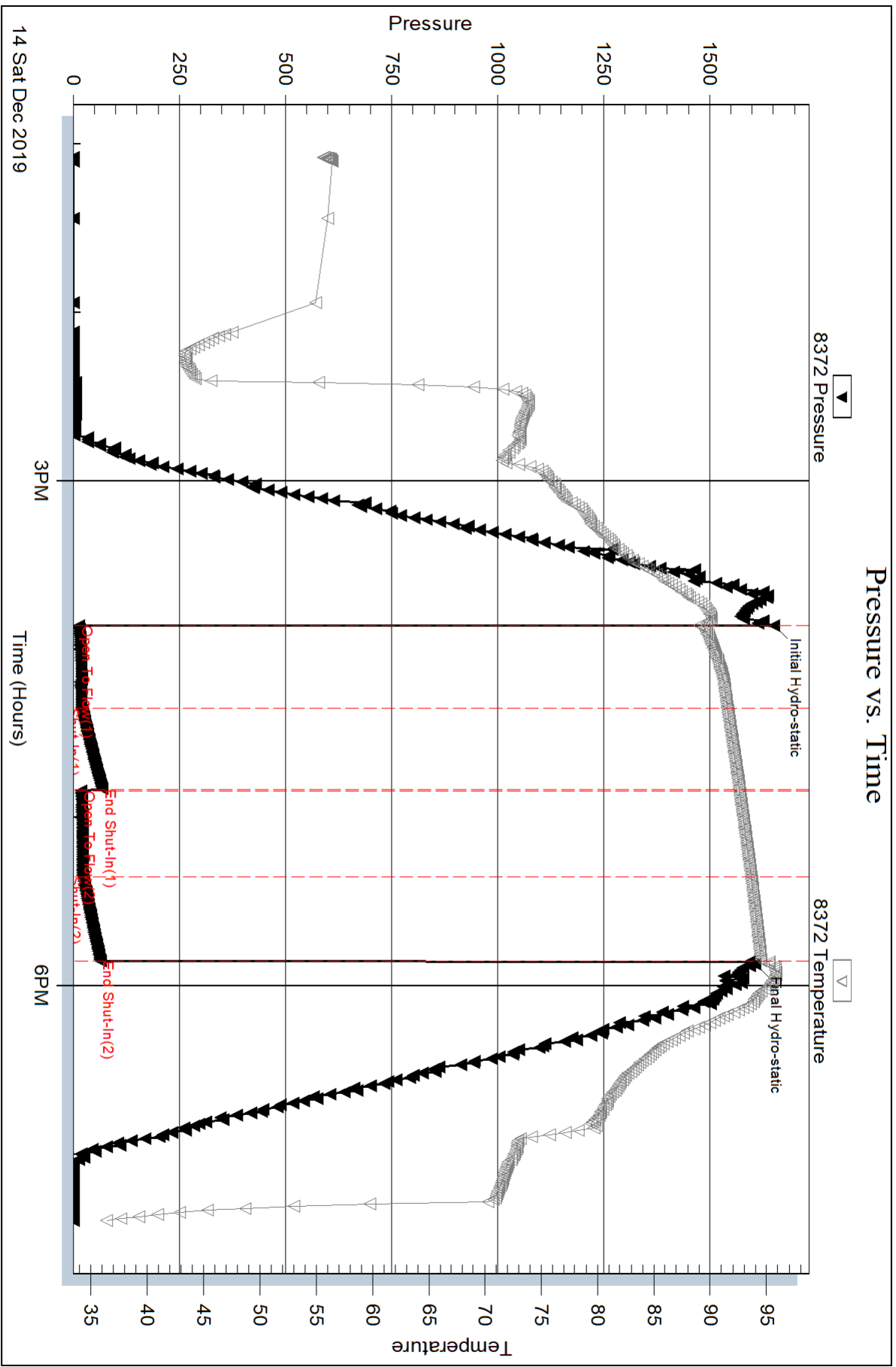
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM



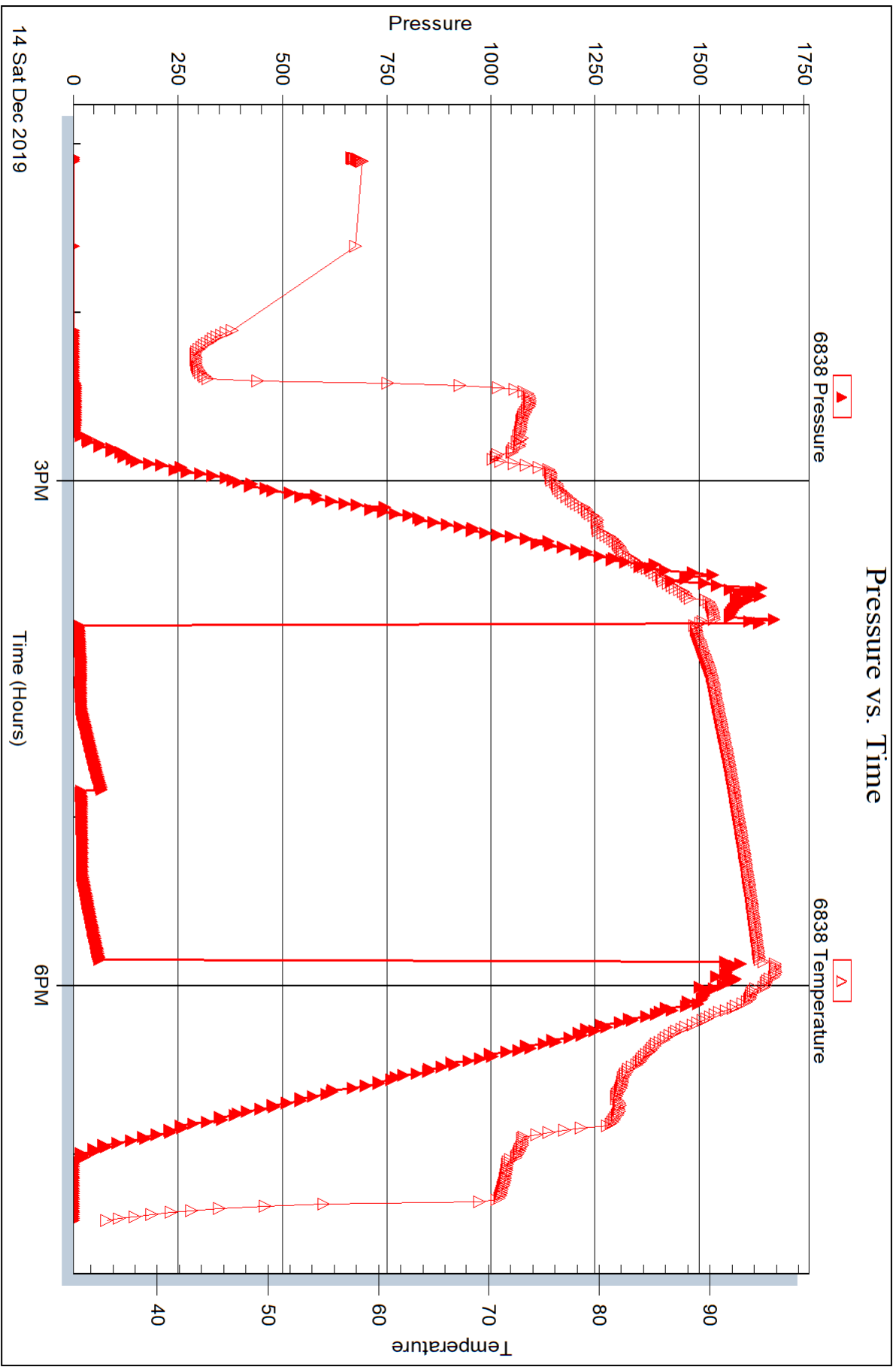
Serial #: 6838

Inside

Hertel Oil Company LLC

Braun #1-2

DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 66371

Printed: 2019.12.16 @ 11:24:48



DRILL STEM TEST REPORT

Prepared For: **Hertel Oil Company LLC**

704 E 12th St
Hays KS 67601+3440

ATTN: Jason Alm

Braun #1-2

2-14S-17W Ellis,KS

Start Date: 2019.12.15 @ 04:46:00

End Date: 2019.12.15 @ 12:51:02

Job Ticket #: 66372 DST #: 3

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

Printed: 2019.12.16 @ 11:15:28



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC
 704 E 12th St
 Hays KS 67601+3440
 ATTN: Jason Alm

2-14S-17W Ellis,KS

Braun #1-2

Job Ticket: 66372

DST#: 3

Test Start: 2019.12.15 @ 04:46:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 07:37:32
 Time Test Ended: 12:51:02
 Interval: **3454.00 ft (KB) To 3507.00 ft (KB) (TVD)**
 Total Depth: 3270.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J Staab
 Unit No: 84
 Reference Elevations: 1953.00 ft (KB)
 1945.00 ft (CF)
 KB to GR/CF: 8.00 ft

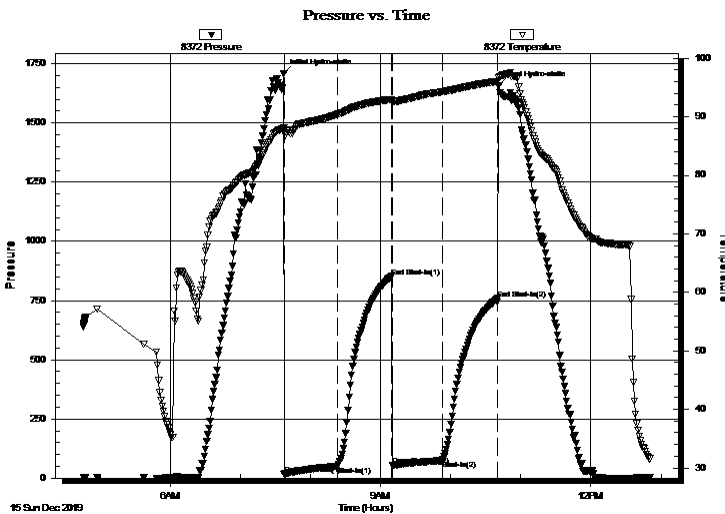
Serial #: 8372

Inside

Press@RunDepth: 74.81 psig @ 3458.00 ft (KB) Capacity: psig
 Start Date: 2019.12.15 End Date: 2019.12.15 Last Calib.: 2019.12.15
 Start Time: 04:46:01 End Time: 12:51:02 Time On Btm: 2019.12.15 @ 07:37:17
 Time Off Btm: 2019.12.15 @ 10:41:17

TEST COMMENT: 45-IF-Weak; Built to 4"
 45-ISI-Weak Surface
 45-FF-Weak; Built to 3 1/2"
 45-FSI-Weak Surface

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1709.42	88.11	Initial Hydro-static
1	15.56	87.67	Open To Flow (1)
46	50.43	90.41	Shut-In(1)
93	850.45	92.92	End Shut-In(1)
93	54.06	92.73	Open To Flow (2)
136	74.81	94.27	Shut-In(2)
183	758.59	96.06	End Shut-In(2)
185	1656.41	96.69	Final Hydro-static

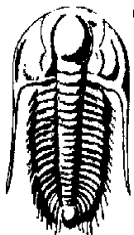
Recovery

Length (ft)	Description	Volume (bbl)
100.00	GOM 10%G 30%O 60%M	0.73
30.00	GO 10%G 90%O	0.22

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66372

DST#: 3

ATTN: Jason Alm

Test Start: 2019.12.15 @ 04:46:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:37:32

Time Test Ended: 12:51:02

Test Type: Conventional Bottom Hole (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: 3454.00 ft (KB) To 3507.00 ft (KB) (TVD)

Reference Elevations: 1953.00 ft (KB)

Total Depth: 3270.00 ft (KB) (TVD)

1945.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 6838

Inside

Press@RunDepth: psig @ 3458.00 ft (KB)

Capacity: psig

Start Date: 2019.12.15

End Date:

2019.12.15

Last Calib.:

2019.12.15

Start Time: 04:46:01

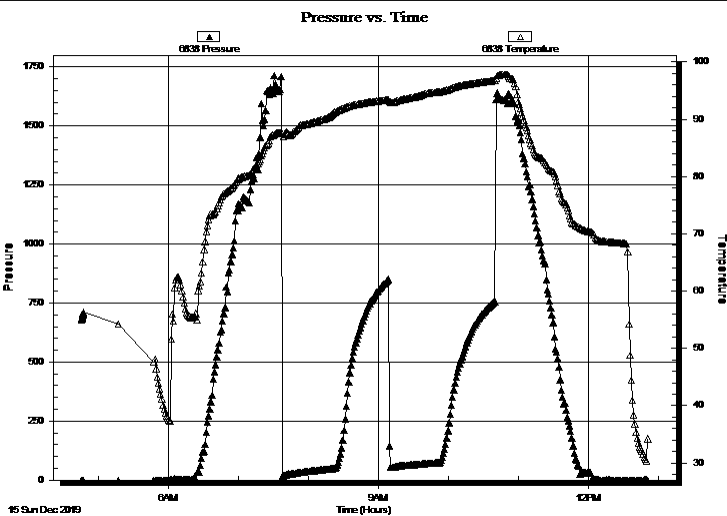
End Time:

12:51:02

Time On Btm:

Time Off Btm:

TEST COMMENT: 45-IF-Weak; Built to 4"
45-ISI-Weak Surface
45-FF-Weak; Built to 3 1/2"
45-FSI-Weak Surface



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
100.00	GOM 10%G 30%O 60%M	0.73
30.00	GO 10%G 90%O	0.22

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66372

DST#: 3

ATTN: Jason Alm

Test Start: 2019.12.15 @ 04:46:00

Tool Information

Drill Pipe:	Length: 3190.00 ft	Diameter: 3.82 inches	Volume: 45.22 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 275.00 ft	Diameter: 2.75 inches	Volume: 2.02 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:	54000.00 lb
			<u>Total Volume: 47.24 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	31.00 ft			String Weight: Initial	50000.00 lb
Depth to Top Packer:	3454.00 ft			Final	50000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	53.00 ft				
Tool Length:	73.00 ft				
Number of Packers:	1	Diameter:	6.75 inches		
Tool Comments:					

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3435.00	
Shut In Tool	5.00			3440.00	
Hydraulic tool	5.00		Fluid	3445.00	
Packer	5.00			3450.00	20.00 Bottom Of Top Packer
Packer	4.00			3454.00	
Stubb	1.00			3455.00	
Perforations	2.00			3457.00	
Change Over Sub	1.00			3458.00	
Recorder	0.00	6838	Inside	3458.00	
Recorder	0.00	8372	Inside	3458.00	
Drill Pipe	32.00			3490.00	
Change Over Sub	1.00			3491.00	
Perforations	13.00			3504.00	
Bullnose	3.00			3507.00	53.00 Bottom Packers & Anchor

Total Tool Length: 73.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66372

DST#: 3

ATTN: Jason Alm

Test Start: 2019.12.15 @ 04:46:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.39 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 9500.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
100.00	GOM 10%G 30%O 60%M	0.735
30.00	GO 10%G 90%O	0.220

Total Length: 130.00 ft

Total Volume: 0.955 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

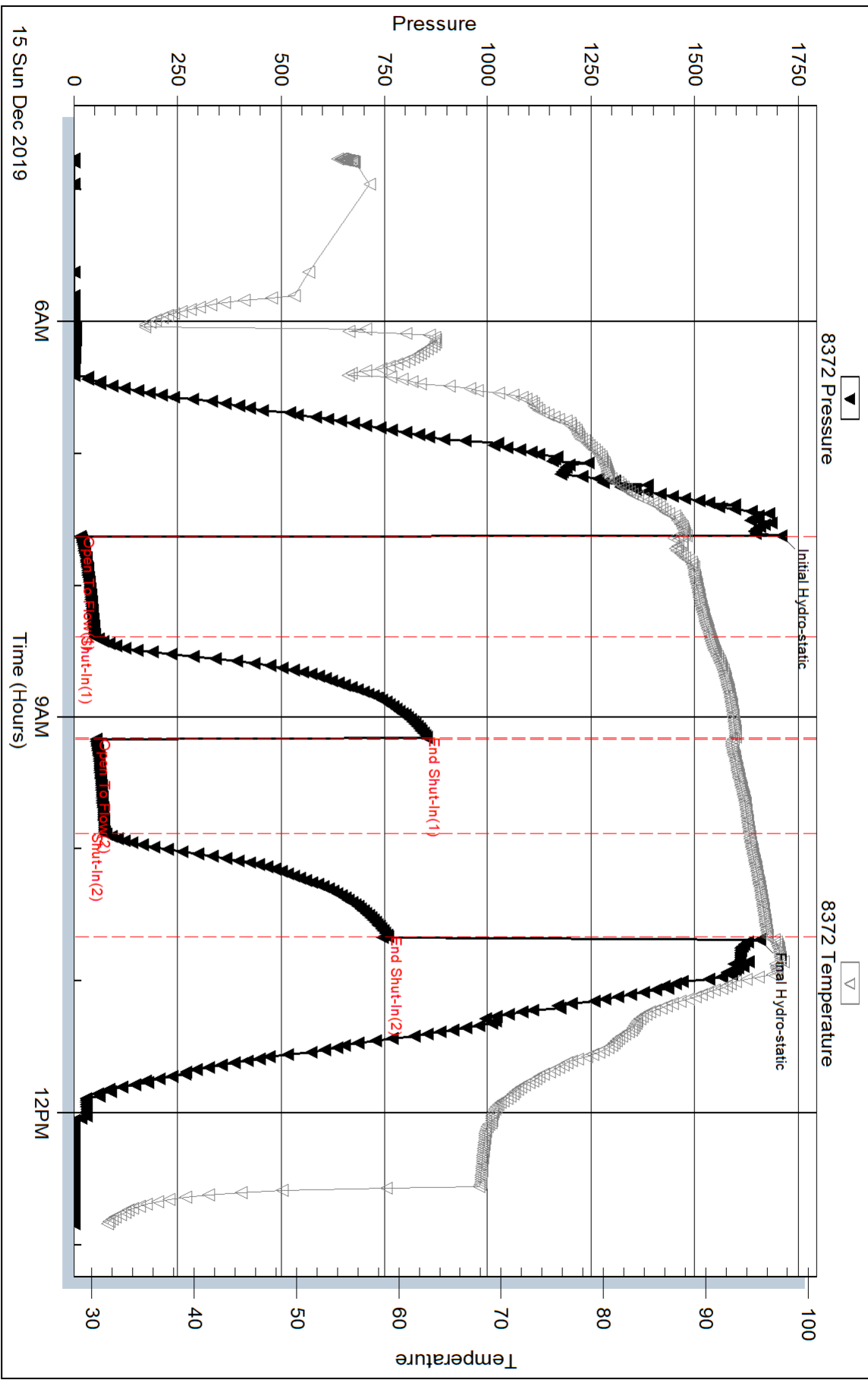
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM

Pressure vs. Time



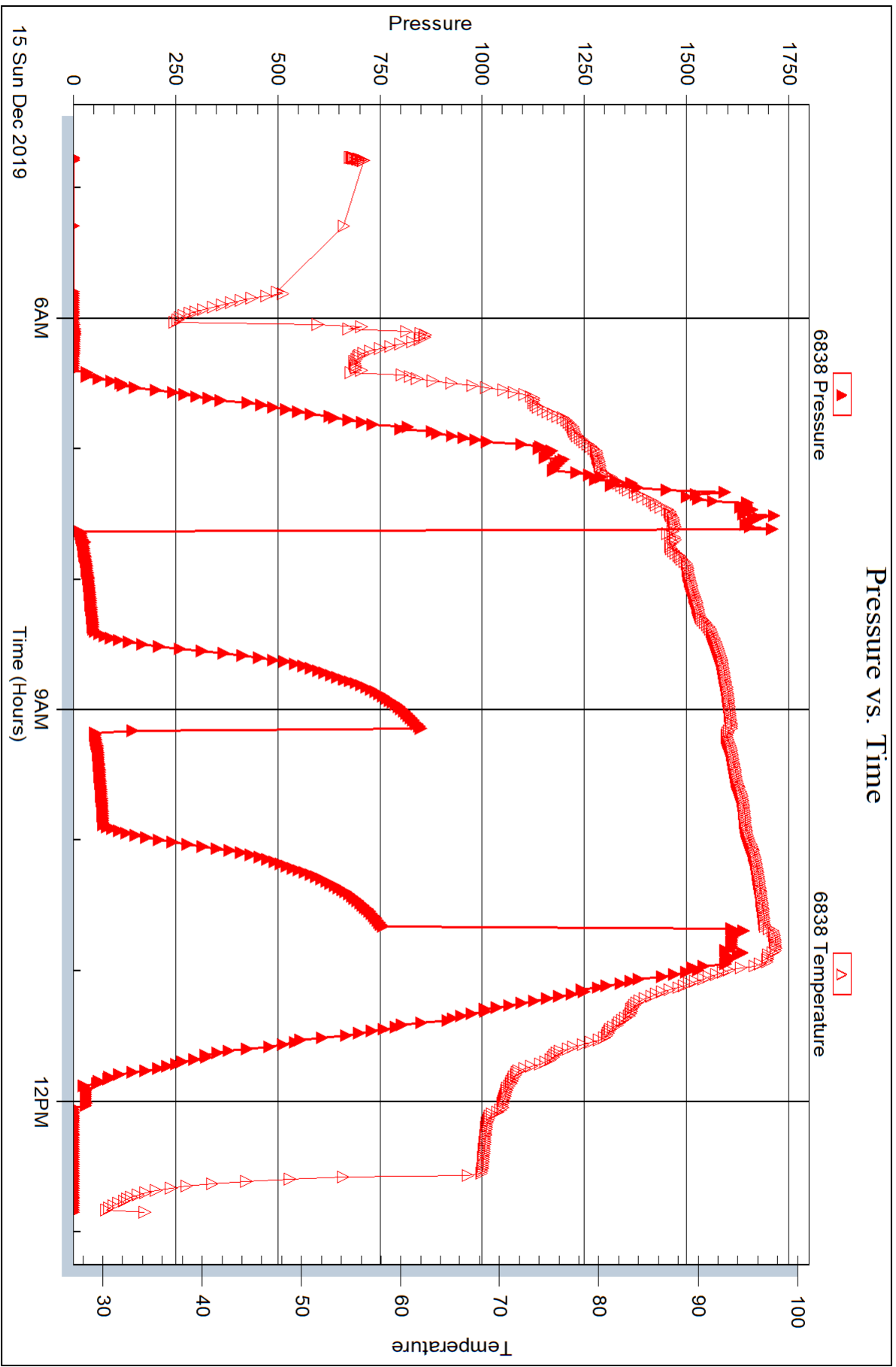
Serial #: 6838

Inside

Hertel Oil Company LLC

Braun #1-2

DST Test Number: 3





DRILL STEM TEST REPORT

Prepared For: **Hertel Oil Company LLC**

704 E 12th St
Hays KS 67601+3440

ATTN: Jason Alm

Braun #1-2

2-14S-17W Ellis,KS

Start Date: 2019.12.16 @ 01:30:00

End Date: 2019.12.16 @ 07:09:02

Job Ticket #: 66373 DST #: 4

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

Printed: 2019.12.16 @ 11:13:56



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC
 704 E 12th St
 Hays KS 67601+3440
 ATTN: Jason Alm

2-14S-17W Ellis,KS

Braun #1-2

Job Ticket: 66373

DST#: 4

Test Start: 2019.12.16 @ 01:30:00

GENERAL INFORMATION:

Formation: **Arbuckle**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 03:26:32
 Time Test Ended: 07:09:02
 Interval: **3509.00 ft (KB) To 3526.00 ft (KB) (TVD)**
 Total Depth: 3572.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Straddle (Reset)
 Tester: Spencer J Staab
 Unit No: 84
 Reference Elevations: 1953.00 ft (KB)
 1945.00 ft (CF)
 KB to GR/CF: 8.00 ft

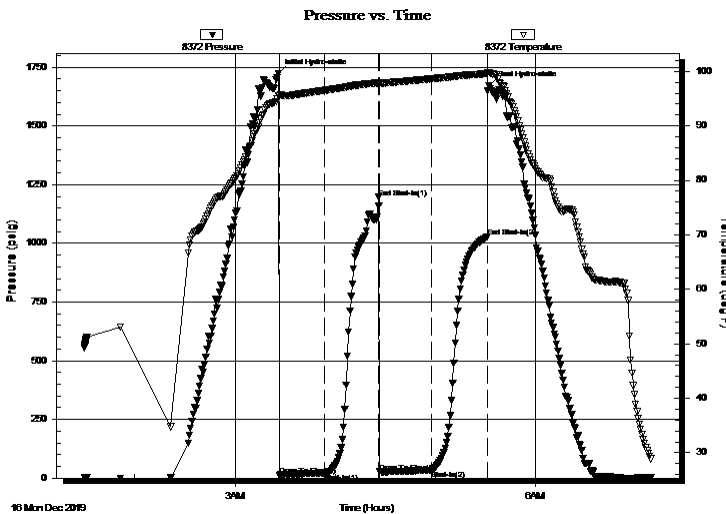
Serial #: 8372

Inside

Press@RunDepth: 33.82 psig @ 3514.00 ft (KB) Capacity: psig
 Start Date: 2019.12.16 End Date: 2019.12.16 Last Calib.: 2019.12.16
 Start Time: 01:30:01 End Time: 07:09:02 Time On Btm: 2019.12.16 @ 03:26:02
 Time Off Btm: 2019.12.16 @ 05:32:02

TEST COMMENT: 30-IF-Weak; Built to 1/2"
 30-ISI-No Return
 30-FF-Very Weak Surface
 30-FSI-No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1724.12	95.51	Initial Hydro-static
1	12.39	95.44	Open To Flow (1)
28	22.51	96.51	Shut-In(1)
60	1195.70	97.86	End Shut-In(1)
61	26.38	97.73	Open To Flow (2)
92	33.82	98.61	Shut-In(2)
125	1028.86	99.59	End Shut-In(2)
126	1670.72	99.72	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
55.00	HOCM 30%O 70%M	0.40
5.00	CO 100%O	0.04

Gas Rates

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

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hertel Oil Company LLC

2-14S-17W Ellis, KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66373

DST#: 4

ATTN: Jason Alm

Test Start: 2019.12.16 @ 01:30:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:26:32

Time Test Ended: 07:09:02

Test Type: Conventional Straddle (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: **3509.00 ft (KB) To 3526.00 ft (KB) (TVD)**

Reference Elevations: 1953.00 ft (KB)

Total Depth: 3572.00 ft (KB) (TVD)

1945.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 6838 Inside

Press@RunDepth: psig @ 3514.00 ft (KB)

Capacity: psig

Start Date: 2019.12.16

End Date: 2019.12.16

Last Calib.: 2019.12.16

Start Time: 01:30:01

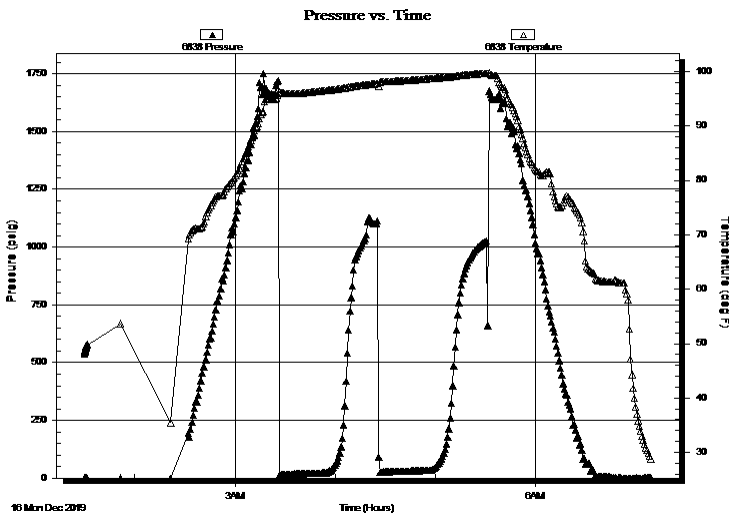
End Time: 07:09:02

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF-Weak; Built to 1/2"
30-ISI-No Return
30-FF-Very Weak Surface
30-FSI-No Return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
55.00	HOCM 30%O 70%M	0.40
5.00	CO 100%O	0.04

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Hertel Oil Company LLC

704 E 12th St
Hays KS 67601+3440

ATTN: Jason Alm

2-14S-17W Ellis,KS

Braun #1-2

Job Ticket: 66373

DST#: 4

Test Start: 2019.12.16 @ 01:30:00

GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 03:26:32

Time Test Ended: 07:09:02

Test Type: Conventional Straddle (Reset)

Tester: Spencer J Staab

Unit No: 84

Interval: 3509.00 ft (KB) To 3526.00 ft (KB) (TVD)

Reference Elevations: 1953.00 ft (KB)

Total Depth: 3572.00 ft (KB) (TVD)

1945.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8875 Below (Straddle)

Press@RunDepth: psig @ 3539.00 ft (KB)

Capacity: psig

Start Date: 2019.12.16

End Date:

2019.12.16

Last Calib.:

2019.12.16

Start Time: 01:30:01

End Time:

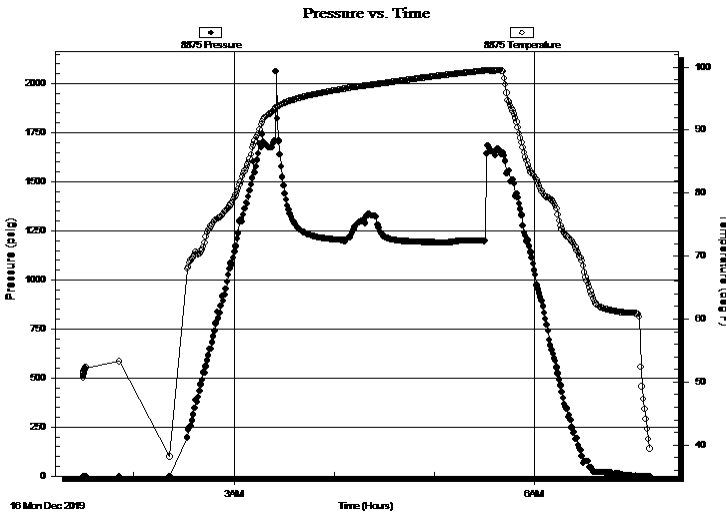
07:09:02

Time On Btm:

Time Off Btm:

TEST COMMENT: 30-IF-Weak; Built to 1/2"
30-ISI-No Return
30-FF-Very Weak Surface
30-FSI-No Return

PRESSURE SUMMARY



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

Recovery

Length (ft)	Description	Volume (bbl)
55.00	HOCM 30%O 70%M	0.40
5.00	CO 100%O	0.04

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66373

DST#: 4

ATTN: Jason Alm

Test Start: 2019.12.16 @ 01:30:00

Tool Information

Drill Pipe:	Length: 3225.00 ft	Diameter: 3.82 inches	Volume: 45.72 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: 275.00 ft	Diameter: 2.75 inches	Volume: 2.02 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:	55000.00 lb
			<u>Total Volume: 47.74 bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	11.00 ft			String Weight: Initial	52000.00 lb
Depth to Top Packer:	3509.00 ft			Final	52000.00 lb
Depth to Bottom Packer:	3575.00 ft				
Interval between Packers:	66.00 ft				
Tool Length:	86.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			
Tool Comments:					

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
------------------	-------------	------------	----------	------------	----------------

Change Over Sub	1.00			3490.00	
Shut In Tool	5.00			3495.00	
Hydraulic tool	5.00		Fluid	3500.00	
Packer	5.00			3505.00	20.00 Bottom Of Top Packer
Packer	4.00			3509.00	
Stubb	1.00			3510.00	
Perforations	2.00			3512.00	
Change Over Sub	1.00			3513.00	
Perforations	1.00			3514.00	
Recorder	0.00	6838	Inside	3514.00	
Recorder	0.00	8372	Inside	3514.00	
Perforations	10.00			3524.00	
Blank Off Sub	1.00			3525.00	
Top Packer	4.00			3529.00	
Stubb	1.00			3530.00	
Perforations	8.00			3538.00	
Change Over Sub	1.00			3539.00	
Recorder	0.00	8875	Below	3539.00	
Drill Pipe	32.00			3571.00	
Change Over Sub	1.00			3572.00	
Bullnose	3.00			3575.00	66.00 Bottom Packers & Anchor

Total Tool Length: 86.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Hertel Oil Company LLC

2-14S-17W Ellis,KS

704 E 12th St
Hays KS 67601+3440

Braun #1-2

Job Ticket: 66373

DST#: 4

ATTN: Jason Alm

Test Start: 2019.12.16 @ 01:30:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

35 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 44.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 10.79 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 16000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
55.00	HOCM 30%O 70%M	0.404
5.00	CO 100%O	0.037

Total Length: 60.00 ft

Total Volume: 0.441 bbl

Num Fluid Samples: 0

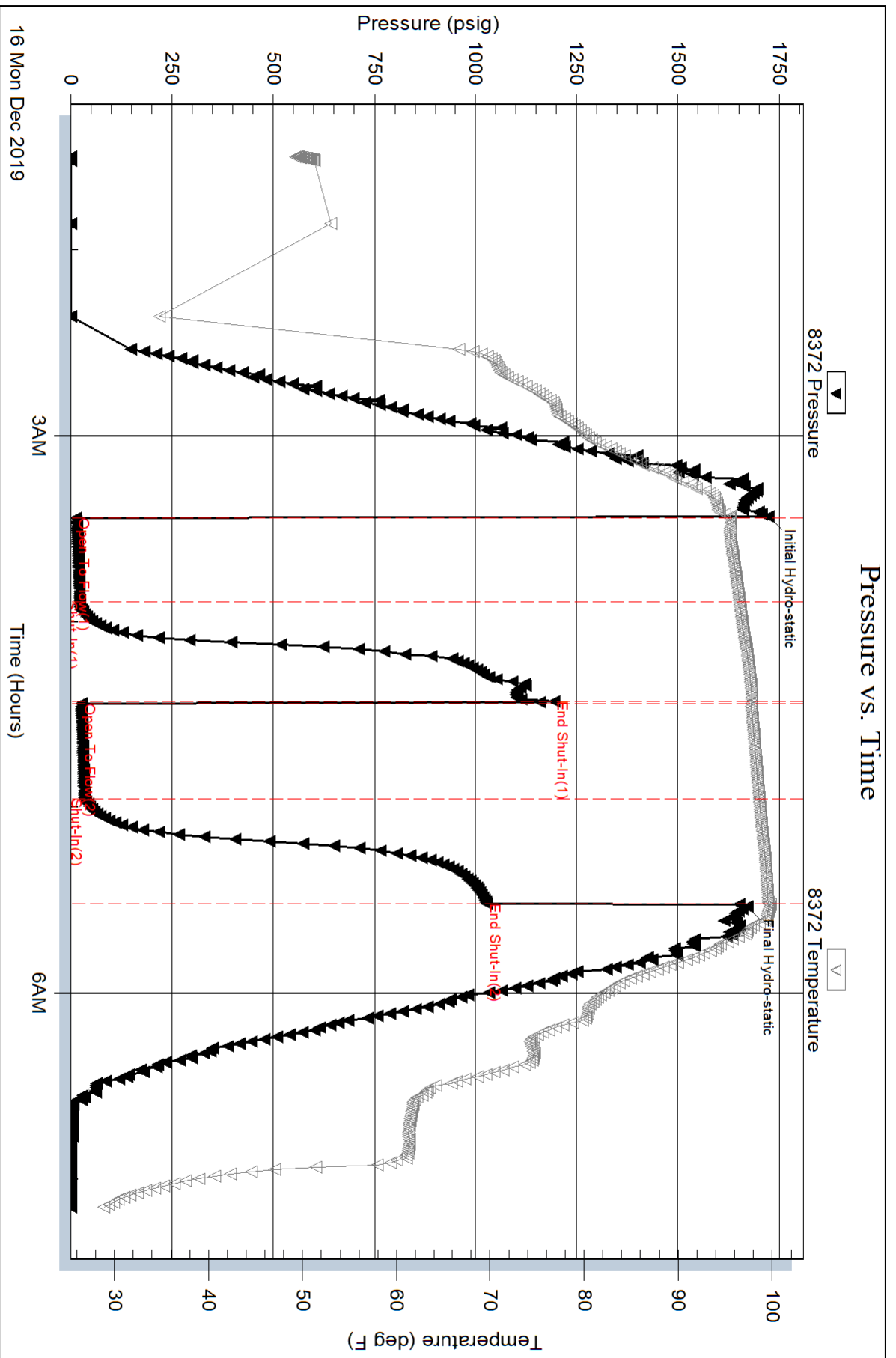
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: 2#LCM



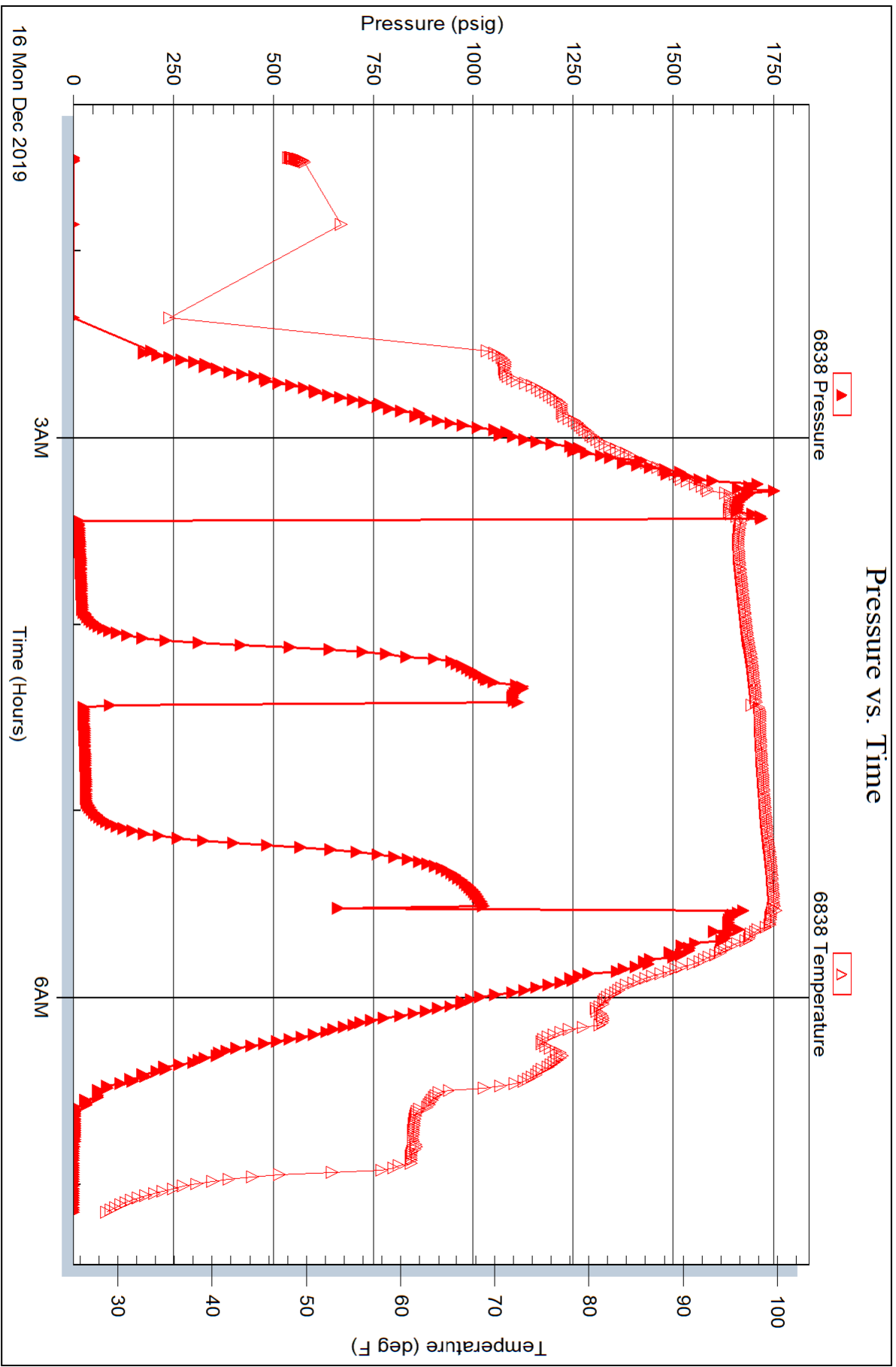
Serial #: 6838

Inside

Hertel Oil Company LLC

Braun #1-2

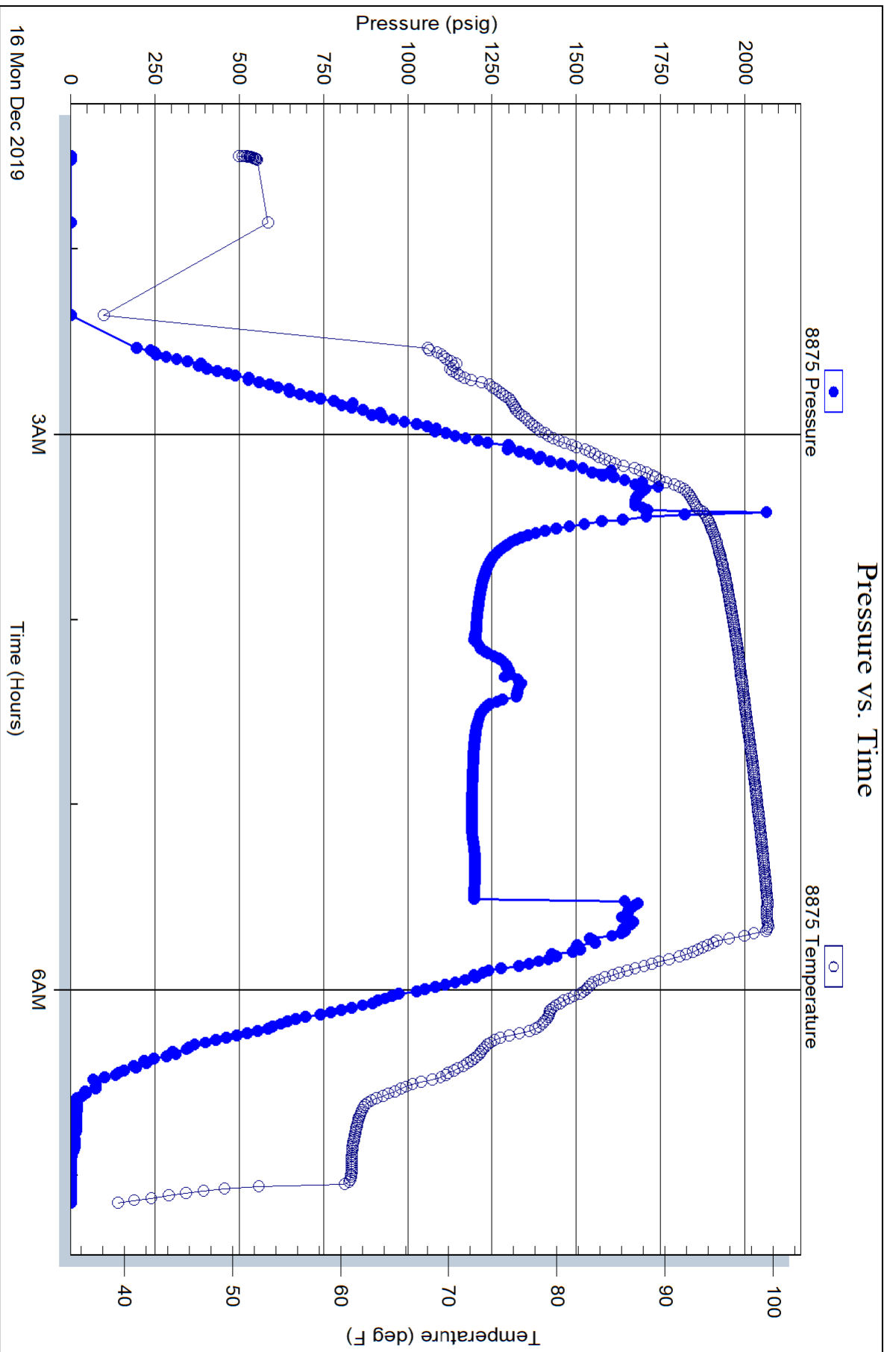
DST Test Number: 4

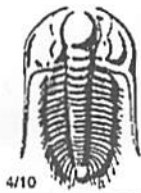


Trilobite Testing, Inc

Ref. No: 66373

Printed: 2019.12.16 @ 11:13:57





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66370

NO.

Well Name & No. Brown #1-2 Test No. 1 Date 12/13/2019
 Company Hertel Oil Co Elevation 1953' KB 1945' GL
 Address 704 E 12th St Hays KS 67601+3440
 Co. Rep / Geo. Jason Alm Rig Discovery #2
 Location: Sec. 2 Twp 14s Rge. 7W Co. Ellis State KS

Interval Tested 3213' - 3270' Zone Tested LHC 'a-c'
 Anchor Length 57' Drill Pipe Run 2938' Mud Wt. 8.7
 Top Packer Depth 3205' Drill Collars Run — Vis 56
 Bottom Packer Depth 3213' Wt. Pipe Run 275' WL 8
 Total Depth 3270' Chlorides 7000 ppm System LCM 2 1/2#

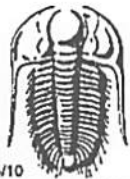
Blow Description 97 - Weak; Built to 4"
95 - No Return
77 - Weak; Built to 1 1/2"
75 - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>80</u>	<u>CSM</u>			<u>100</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 80' BHT 93° Gravity — API RW — @ — F Chlorides — ppm

(A) Initial Hydrostatic <u>1557</u>	<input checked="" type="checkbox"/> Test <u>1200</u>	T-On Location <u>14:02</u>
(B) First Initial Flow <u>14</u>	<input type="checkbox"/> Jars	T-Started <u>14:28</u>
(C) First Final Flow <u>40</u>	<input type="checkbox"/> Safety Joint	T-Open <u>18:53</u>
(D) Initial Shut-In <u>304</u>	<input type="checkbox"/> Circ Sub	T-Pulled <u>20:53</u>
(E) Second Initial Flow <u>39</u>	<input type="checkbox"/> Hourly Standby	T-Out <u>22:49</u>
(F) Second Final Flow <u>54</u>	<input checked="" type="checkbox"/> Mileage <u>2027</u> 20	Comments <u>Stopped gang in the hole to work on brakes</u>
(G) Final Shut-In <u>300</u>	<input type="checkbox"/> Sampler	<input type="checkbox"/> EM Tool
(H) Final Hydrostatic <u>1532</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>30</u>	<input type="checkbox"/> Extra Packer	<input type="checkbox"/> Extra Copies
Final Flow <u>30</u>	<input type="checkbox"/> Extra Recorder	Sub Total <u>0</u>
Final Shut-In <u>30</u>	<input type="checkbox"/> Day Standby	Total <u>1220</u>
	<input type="checkbox"/> Accessibility	MP/DST Disc't
Sub Total <u>1220</u>		

Approved By _____ Our Representative Spencer J. Stahl Thanks!
 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.
 785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66371

NO.

Well Name & No. Braun #1-2 Test No. 2 Date 12/14/2019
 Company Hordel Oil Co LLC Elevation 1953 KB 1945 GL
 Address 704 E 127th St Hays KS 67601 +3440
 Co. Rep / Geo. Jason Alm Rig Discovery #2
 Location: Sec. 2 Twp 14s Rge. 17w Co. Ellis State KS

Interval Tested 3348' - 3425' Zone Tested LKC H-J
 Anchor Length 77' Drill Pipe Run 3066' Mud Wt. 8.9
 Top Packer Depth 3343' Drill Collars Run - Vls 51
 Bottom Packer Depth 3348' Wt. Pipe Run 275' WL 8.4
 Total Depth 3425 Chlorides 9500 ppm System LCM 2#

Blow Description 77-Weak; Built to 1/4"
1st - No Return
77-Weak; Built to 1"
7st - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>20'</u>	<u>OSM</u>			<u>100%</u>	
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud
Rec	Feet of	%gas	%oil	%water	%mud

Rec Total 20' BHT 94° Gravity - API RW - @ - °F Chlorides - ppm
 (A) Initial Hydrostatic 1651 Test 1200 T-On Location 12:25
 (B) First Initial Flow 13 Jars - T-Started 13:05
 (C) First Final Flow 19 Safety Joint - T-Open 15:45
 (D) Initial Shut-In 68 Circ Sub - T-Pulled 17:45
 (E) Second Initial Flow 18 Hourly Standby - T-Out 19:21
 (F) Second Final Flow 23 Mileage 2027 20 Comments -
 (G) Final Shut-In 64 Sampler -
 (H) Final Hydrostatic 1606 Straddle - EM Tool -

Initial Open 30 Shale Packer - Ruined Shale Packer -
 Initial Shut-In 30 Extra Packer - Ruined Packer -
 Final Flow 30 Extra Recorder - Extra Copies -
 Final Shut-In 30 Day Standby - Sub Total 0
 Sub Total 1220 Accessibility - Total 1220
 MP/DST Disc't -

Approved By _____ Our Representative Spencer J. [Signature] Thanks!
 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.

785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66372

NO.

Well Name & No. Braun #1-2 Test No. 3 Date 12/15/2019
 Company Hertel Oil Co LLC Elevation 1953 KB 1945' GL
 Address 704 E 127th St Hays KS 67601 + 3440
 Co. Rep / Geo. Jason Alm Rig Discovery
 Location: Sec. 2 Twp 14s Rge. 17w Co. Ellis State Ks

Interval Tested 3454' - 3507' Zone Tested Arbuckle
 Anchor Length 53' Drill Pipe Run _____ Mud Wt. 8.9
 Top Packer Depth 3449' Drill Collars Run 0' Vls 51
 Bottom Packer Depth 3454' Wt. Pipe Run 275' WL 8.4
 Total Depth 3507' Chlorides 9500 ppm System LCM 2#

Blow Description J7 - Weak; Built to 4"
J5J - Weak Surface
J7 - Weak; Built to 3 1/2"
J5J - Weak Surface

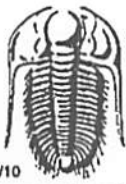
Rec	Feet of	%gas	%oil	%water	%mud
<u>100'</u>	<u>GOM</u>	<u>10</u>	<u>30</u>	<u>60</u>	
<u>30'</u>	<u>GO</u>	<u>10</u>	<u>90</u>		
____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____

Rec Total 130' BHT 96° Gravity 35° API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 1709 Test 1200 T-On Location 04:25
 (B) First Initial Flow 15 Jars _____ T-Started 04:46
 (C) First Final Flow 50 Safety Joint _____ T-Open 07:35
 (D) Initial Shut-In 850 Circ Sub _____ T-Pulled 10:35
 (E) Second Initial Flow 54 Hourly Standby _____ T-Out 12:49
 (F) Second Final Flow 74 Mileage 2027 20 Comments _____
 (G) Final Shut-In 758 Sampler _____
 (H) Final Hydrostatic 1656 Straddle _____ EM Tool _____
 Initial Open 45 Shale Packer _____ Ruined Shale Packer _____
 Initial Shut-In 45 Extra Packer _____ Ruined Packer _____
 Final Flow 45 Extra Recorder _____ Extra Copies _____
 Final Shut-In 45 Day Standby _____ Sub Total 0
 Sub Total 1220 Accessibility _____ Total 1220
 Sub Total 1220 MP/DST Disc't _____

Approved By _____ Our Representative _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket 66373

NO.

Well Name & No. Brown #1-2 Test No. 4 Date 12/16/2019
 Company Hertel Oil Co LLC Elevation 1953' KB 1945' GL
 Address 704 E 12th St Hays Ks 67601 +3440
 Co. Rep / Geo. Jason Alm Rig Discovery #2
 Location: Sec. 2 Twp 14s Rge. 17w Co. Ellis State Ks

Interval Tested 3509' - 3526' Zone Tested Arbuckle
 Anchor Length 17' 46' tail Drill Pipe Run 3225' Mud Wt. 9.3
 Top Packer Depth 3509' Drill Collars Run — Vis 44
 Bottom Packer Depth 3526' Wt. Pipe Run 275' WL 10.8
 Total Depth 3572' Chlorides 16,000 ppm System LCM 2#

Blow Description J7-Weak; Built to 1/2"
JSJ - No Return
77 - Very Weak Surface
78 - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>55'</u>	<u>HOXM</u>	<u>30</u>		<u>70</u>	
<u>5'</u>	<u>CO</u>	<u>100</u>			

Rec Total 60' BHT 99° Gravity 35 API RW — @ — °F Chlorides — ppm

(A) Initial Hydrostatic 1724 Test 1200 T-On Location 00:15
 (B) First Initial Flow 12 Jars — T-Started 01:30
 (C) First Final Flow 22 Safety Joint — T-Open 03:20
 (D) Initial Shut-In 1195 Circ Sub — T-Pulled 05:20
 (E) Second Initial Flow 26 Hourly Standby — T-Out 07:06
 (F) Second Final Flow 33 Mileage 2027 20 Comments loaded after test
 (G) Final Shut-In 1028 Sampler —
 (H) Final Hydrostatic 1670 Straddle 600 EM Tool —
 Shale Packer — Ruined Shale Packer —
 Extra Packer — Ruined Packer —
 Extra Recorder — Extra Copies —
 Day Standby — Sub Total 0
 Accessibility — Total 1820
 Sub Total 1820 MP/DST Disc't —

Approved By _____ Our Representative Spencer J. Strub Thanks!
 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.
 785-259-0056

Geological Report

Braun #1-2

1150' FSL & 2260' FEL

Sec. 2 T14s R17w

Ellis County, Kansas



Hertel Oil Company, LLC.

General Data

Well Data: Hertel Oil Company, LLC.
Braun #1-2
1150' FSL & 2260' FEL
Sec. 2 T14s R17w
Ellis County, Kansas
API # 15-051-26981-0000

Drilling Contractor: Discovery Drilling Co. Inc. Rig #2

Geologist: Jason T Alm

Spud Date: December 9, 2019

Completion Date: December 16, 2019

Elevation: 1945' Ground Level
1953' Kelly Bushing

Directions: Victoria KS. West 1 ½ miles on Golf Course Rd.
North into location.

Casing: 221' 8 5/8" surface casing

Samples: 10' wet and dry, 2900' to RTD

Drilling Time: 2800' to RTD

Electric Logs: ELI "Jason Cappellucci"
CNL/CDL, DIL, MEL

Drillstem Tests: Four, Trilobite Testing, Inc. "Spencer Staab"

Problems: During the initial shut in for DST #4 the packer must have slipped during the last few minutes causing a false shut in reading of 1195#. I have omitted the last few minutes of the shut in for my reports giving the corrected reading of 1111#.

Remarks: Deviation survey @ 3270' 2 ½ degree.

Formation Tops

Formation	Hertel Oil Company, LLC.
	Braun #1-2
	Sec. 2 T14s R17w
	1150' FSL & 2260' FEL
Anhydrite	1121' +832
Base	1164' +789
Topeka	2935' -982
Heebner	3186' -1233
Toronto	3206' -1253
Lansing	3234' -1281
Stark	3423' -1470
BKC	3459' -1506
Arbuckle	3486' -1533
LTD	3572' -1619
RTD	3570' -1617

Significant Sample Zone Descriptions

- LKC C** **(3257' -1304): Covered in DST #1**
 Ls – Fine crystalline, oolitic in part with fair oomoldic and scattered inter-crystalline porosity, slight show of free oil when broken, light odor, dull spotted yellow fluorescents
- LKC J** **(3404' -1451): Covered in DST #2**
 Ls – Fine crystalline, oolitic packstone with good oomoldic porosity, light to fair oil stain in part, few rocks with light spotted saturation, slight show of free oil when broken, fair spotted yellow fluorescents, light odor.
- Arbuckle** **(3486' -1533): Covered in DST #3,4**
 Dolo – Fine to medium rhombic crystalline with fair inter-crystalline and scattered vuggy porosity, light to good oil stain in porosity, light to fair scattered saturation, fair show of free oil when broken and show of free oil on cup, light to fair odor, light spotted yellow-green fluorescents.

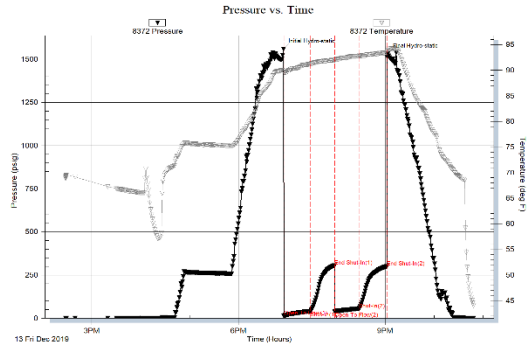
Drill Stem Tests
Trilobite Testing, Inc.
“Spencer Staab”

DST #1 LKC A thru C

Interval (3213' – 3270') Anchor Length 57'

IHP	– 1558 #	
IFP	– 30" – Built to 4 in.	14-40 #
ISI	– 30" – Dead	304 #
FFP	– 30" – Built to 1 ½ in.	39-54 #
FSI	– 30" – Dead	300 #
FHP	– 1532 #	
BHT	– 94°F	

Recovery: 80' Oil Spotted Mud

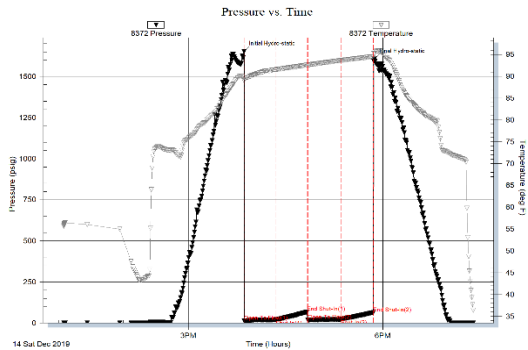


DST #2 LKC H thru J

Interval (3348' – 3425') Anchor Length 77'

IHP	– 1651 #	
IFP	– 30" – Built to 1 ¼ in.	13-19 #
ISI	– 30" – Dead	68 #
FFP	– 30" – Built to 1 in.	18-23 #
FSI	– 30" – Dead	64 #
FHP	– 1606 #	
BHT	– 94°F	

Recovery: 20' Oil Spotted Mud

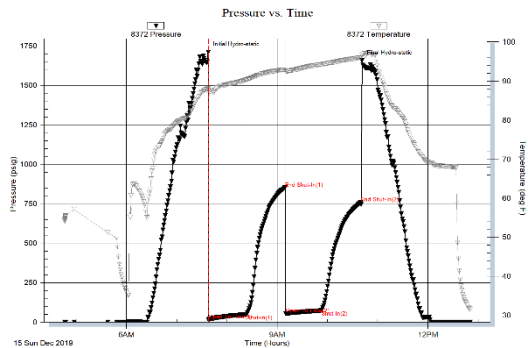


DST #3 Arbuckle

Interval (3454' – 3507') Anchor 53'

IHP	– 1709 #	
IFP	– 45" – Built to 4 in.	15-50 #
ISI	– 45" – Weak Surface Blow	850 #
FFP	– 45" – Built to 3 ½ in.	54-75 #
FSI	– 45" – Weak Surface Blow	759 #
FHP	– 1656 #	
BHT	– 96°F	

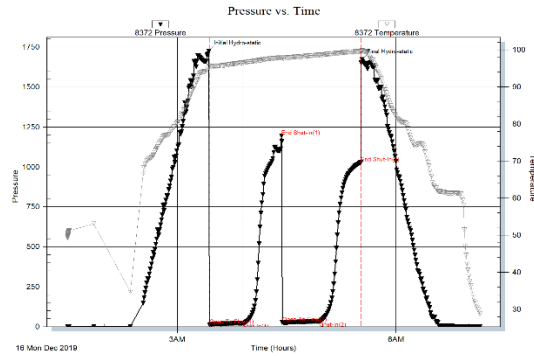
Recovery: 30' Clean Oil
100' GOCM 30% Oil



DST #4 Arbuckle

Interval (3509' – 3526') Anchor 17', Tail 46'

- IHP – 1724 #
- IFP – 30" – Built to ½ in. 12-23 #
- ISI – 30" – Dead 1111 #
- FFP – 30" – Weak Surface Blow 26-34 #
- FSI – 30" – Dead 1029 #
- FHP – 1671 #
- BHT – 99°F



Recovery: 5' Clean Oil
 55' HOCM 30% Oil

Structural Comparison

	Hertel Oil Company, LLC. Braun #1-2 Sec. 2 T14s R17w 1150' FSL & 2260' FEL	RP Nixon Oil Ops J Braun #1 Sec. 2 T14s R17w SE NW SW 1120' +831 NA		Edward P Leiker Braun #1 Sec. 2 T14s R17w 1650' FSL & 990' FEL	
Formation					
Anhydrite	1121' +832	1120' +831	(+1)	NA	NA
Base	1164' +789	NA	NA	NA	NA
Topeka	2935' -982	2929' -978	(-4)	2930' -975	(-7)
Heebner	3186' -1233	3180' -1228	(-5)	3182' -1227	(-6)
Toronto	3206' -1253	3199' -1248	(-5)	3202' -1247	(-6)
Lansing	3234' -1281	3228' -1277	(-4)	3228' -1273	(-4)
Stark	3423' -1470	3418' -1466	(-4)	3416' -1461	(-9)
BKC	3459' -1506	3454' -1502	(-4)	3454' -1499	(-7)
Arbuckle	3486' -1533	Not Reached	NR	3526' -1571	(+38)

Summary

The location for the Braun #1-2 was found via Geological Study. The new well ran structurally as expected via the study. Four Drill Stem Tests were conducted, all of which were negative. After all gathered data had been examined the decision was made to plug and abandon the Braun #1-2 well.

Respectfully Submitted,

Jason T Alm
 Hard Rock Consulting, Inc.
 AAPG # 10134582