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 # 33168
Name: Woolsey Operating Company, LLC
Address 1: 125 N MARKET STE 1000
Address 2:
City: WICHITA State: KS Zip: 67202 + 1729
Contact Person: DEAN PATTISSON
Phone: (316) 267-4379
CONTRACTOR: License # 34484
Name: Fossil Drilling, Inc.
Wellsite Geologist: BILL KLAVER
Purchaser: n/a

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 #:

09/12/2018	09/24/2018	09/25/2018
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No.: 15-077-22175-00-00
Spot Description: C NW NW NW
___ - NW - NW - NW Sec. 1 Twp. 32 S. R. 8 ☐ East ☑ West
330 Feet from ☑ North / ☐ South Line of Section
330 Feet from ☐ East / ☑ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☐ NE ☑ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)*, Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Harper
Lease Name: HUBBARD Well #: 1
Field Name: Crystal Springs NW
Producing Formation: n/a
Elevation: Ground: 1498 Kelly Bushing: 1510
Total Vertical Depth: 4920 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 225 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: 3600 ppm Fluid volume: 1800 bbls
Dewatering method used: Hauled to Disposal
Location of fluid disposal if hauled offsite:
Operator Name: Wildcat Oil & Gas LLC
Lease Name: Adelhardt SWD 1-7 License #: 31337
Quarter SW Sec. 7 Twp. 30 S. R. 8 ☐ East ☑ West
County: Kingman Permit #: D-30389.0

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:** Karen Ritter **Date:** 01/10/2019

Page Two

Operator Name: Woolsey Operating Company, LLC Lease Name: HUBBARD Well #: 1

Sec. 1 Twp. 32 S. R. 8 ☐ East ☑ West County: Harper

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 ☑ Yes ☐ No
(Attach Additional Sheets)

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

Geologist Report / Mud Logs ☑ Yes ☐ No

List All E. Logs Run:

Compensated Density / Neutron PE
Dual Induction
Sonic

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Herrington	1478	32
Douglas	3394	-1884
Marmaton	4170	-2660
Mississippian	4395	-2885
Simpson	4806	-3296

CASING RECORD ☑ New ☐ 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
Surface	12.25	8.625	23	225	60/40 poz	175	see ticket

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
____ Perforate ____ Protect Casing ____ Plug Back TD ____ 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: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)*			
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity	

DISPOSITION OF GAS:	METHOD OF COMPLETION:	PRODUCTION INTERVAL: Top	Bottom
☐ Vented ☐ Sold ☐ Used on Lease *(If vented, Submit ACO-18.)*	☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*		

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*

TUBING RECORD: Size: Set At: Packer At:

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Woolsey Operating Company, LLC
Well Name	HUBBARD 1
Doc ID	1422305

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.625	23	225	60/40 poz	175	see ticket

BASiC energy services, L.P.

TREATMENT REPORT

Customer: Woolsey Operating		Lease No.		Date: 9-13-18	
Lease: Hubbard #4		Well #: 1			
Field Order #: 17143	Station: Pratt Kansas	Casing: 8.625	Depth: 228'	County: Harper	State: KS
Type Job: 8.625 surface casing 2-42		Formation		Legal Description: 1-32s-08W	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size: 8.625	Tubing Size	Shots/Ft		Acid	RATE	PRESS	ISIP
Depth: 228	Depth	From	To	Pre Pad	Max		5 Min.
Volume: 14.5	Volume	From	To	Pad	Min		10 Min.
Max Press: 500	Max Press	From	To	Frac	Avg		15 Min.
Well Connection: 8rd	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth	Packer Depth	From	To	Flush	Gas Volume		Total Load

Customer Representative: Allen Dick | Station Manager: Justin Westerman | Treater: Ferris Harding

Service Units	78668	77686	86779	19959	21010						
Driver Names	Ferris	Josh	Josh	Tyler	Tyler						

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
0100					Arrive on location / safety meeting
0115					Rig up equipment
0505	100		10	5	Pump H2O Ahead
0515	20			3	Start mixing 60/40 poz @ 14.8 ppg
0520	100		~~20~~ 18	3	87 sx away @ 14.8 ppg
0527	100		37.7	3	175 sx away @ 14.8 ppg End cement
0528	80			3	Start Displacement
0530	80		13.5	4	End Displacement S/Shut in wedge
0600					Rig Down Leave Location
					Saw cement at beginning of
					Displacement = 13 BBLS To surface
					HOC-227' To surface

10244 NE Hiway 61 • P.O. Box 8613 • Pratt, KS 67124-8613 • (620) 672-1201 • Fax (620) 672-5383

Taylor Printing, Inc. 620-672-3656

ASiC energy services, L.P.

TREATMENT REPORT

Customer: Woolsey Operating	Lease No.	Date: 9-25-18	
Lease: Hubbard	Well #: 1		
Field Order #: 17341	Station: Pratt	Casing	Depth: 4920
County: Harper	State: Ks		
Type Job: Z-42 Plug to Abandon	Formation	Legal Description: 1-32S-08W	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size	Tubing Size	Shots/Ft		Acid: 165 sks 60/40 poz	RATE	PRESS	ISIP
Depth	Depth	From	To	Pre Pad: 4% Gel	Max		5 Min.
Volume	Volume	From	To	Pad	Min		10 Min.
Max Press	Max Press	From	To	Frac	Avg		15 Min.
Well Connection	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth	Packer Depth	From	To	Flush	Gas Volume		Total Load

Customer Representative: Allen Dick | Station Manager: Westerman | Treater: Mattai

Service Units	83353		27463		84981	19918					
Driver Names	Mattai		Hanson		Perez						

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
7:20					On location/safety meeting
—					1st plug @ 1300'
9:33		400	20	5	Pump 20 bbl water
9:37		400	9	5	Mix 35 sks 60/40 poz
9:39		300	5	5	Pump 5 bbl water
9:40		200	11	5	Pump 11 bbl mud
—					2nd plug @ 850'
10:13		300	10	5	Pump 10 bbl water
10:15		300	9	5	Mix 35 sks 60/40 poz
10:17		250	2	5	Pump 2 bbl water
10:18		175	5	5	Pump 5 bbl mud
—					3rd plug @ 275'
10:42		200	10	5	Pump 10 bbl water
10:44		175	9	5	Mix 35 sks 60/40 poz
10:46		150	1	5	Pump 1 bbl water
—					4th plug @ 60'
11:04			6		Mix 25 sks 60/40 poz/cmt to surf.
11:30			5/4		Plug rat + mouse hole
					Job complete
					Thank you!
					Mike Mattai
					Josh Jose

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Taylor Printing, Inc. 620-672-3656

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Woolsey Operating Co

125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63969 **DST#: 1**

Test Start: 2018.09.14 @ 23:53:48

GENERAL INFORMATION:

Formation: **Neva**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:47:35
Time Test Ended: 08:03:50

Test Type: Conventional Bottom Hole (Initial)
Tester: Leal Cason
Unit No: 74

Interval: 2024.00 ft (KB) To 2092.00 ft (KB) (TVD)
Total Depth: 2092.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

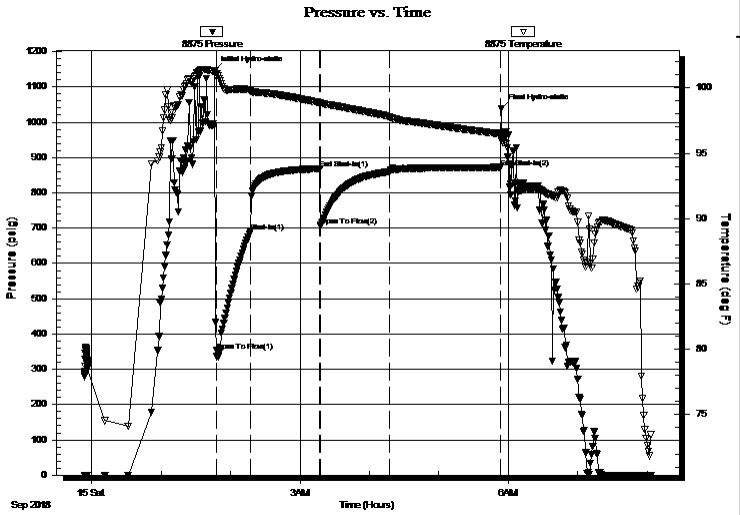
Reference Elevations: 1510.00 ft (KB)
1498.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8875 **Inside**

Press@RunDepth: 859.87 psig @ 2025.00 ft (KB)
Start Date: 2018.09.14 End Date: 2018.09.15
Start Time: 23:53:49 End Time: 08:03:50

Capacity: psig
Last Calib.: 2018.09.15
Time On Btm: 2018.09.15 @ 01:46:20
Time Off Btm: 2018.09.15 @ 05:53:50

TEST COMMENT: IF: Strong Blow , BOB in 30 seconds, Built to 236 inches, Died Off to 199 inches
ISI: No Blow Back
FF: Strong Blow , BOB in 1 minute, Built to 162 inches, Died Off to 98 inches
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1147.11	101.28	Initial Hydro-static
2	352.86	101.10	Open To Flow (1)
31	690.37	99.76	Shut-In(1)
91	868.19	98.84	End Shut-In(1)
92	706.89	98.82	Open To Flow (2)
152	859.87	97.75	Shut-In(2)
247	872.32	96.45	End Shut-In(2)
248	1038.67	96.17	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1197.00	Water	15.69
441.00	MCW 30%M 70%W	6.19

Gas Rates

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

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Woolsey Operating Co

125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63969 **DST#: 1**

Test Start: 2018.09.14 @ 23:53:48

GENERAL INFORMATION:

Formation: **Neva**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:47:35
Time Test Ended: 08:03:50

Test Type: Conventional Bottom Hole (Initial)
Tester: Leal Cason
Unit No: 74

Interval: 2024.00 ft (KB) To 2092.00 ft (KB) (TVD)
Total Depth: 2092.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

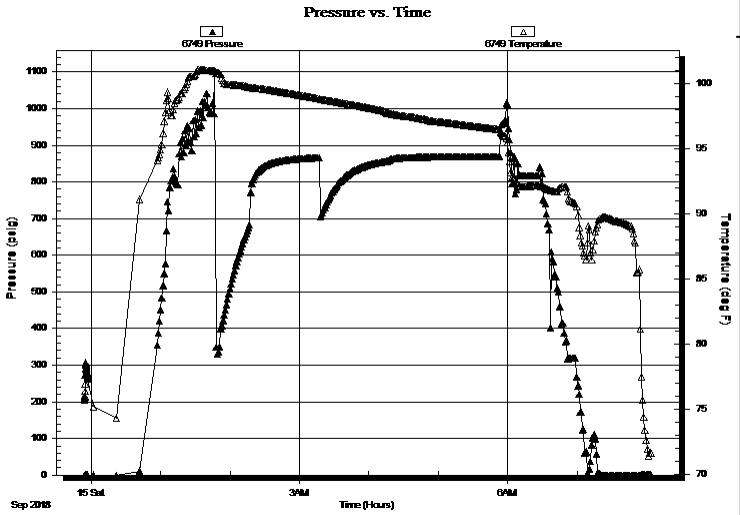
Reference Elevations: 1510.00 ft (KB)
1498.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 6749 **Outside**

Press@RunDepth: psig @ 2025.00 ft (KB)
Start Date: 2018.09.14 End Date: 2018.09.15
Start Time: 23:53:59 End Time: 08:04:00

Capacity: psig
Last Calib.: 2018.09.15
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Strong Blow , BOB in 30 seconds, Built to 236 inches, Died Off to 199 inches
ISI: No Blow Back
FF: Strong Blow , BOB in 1 minute, Built to 162 inches, Died Off to 98 inches
FSI: No Blow Back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
1197.00	Water	15.69
441.00	MCW 30%M 70%W	6.19

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Woolsey Operating Co

125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63969 **DST#: 1**

Test Start: 2018.09.14 @ 23:53:48

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:	68000 ppm
Viscosity:	27.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	83000.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1197.00	Water	15.689
441.00	MCW 30%M 70%W	6.186

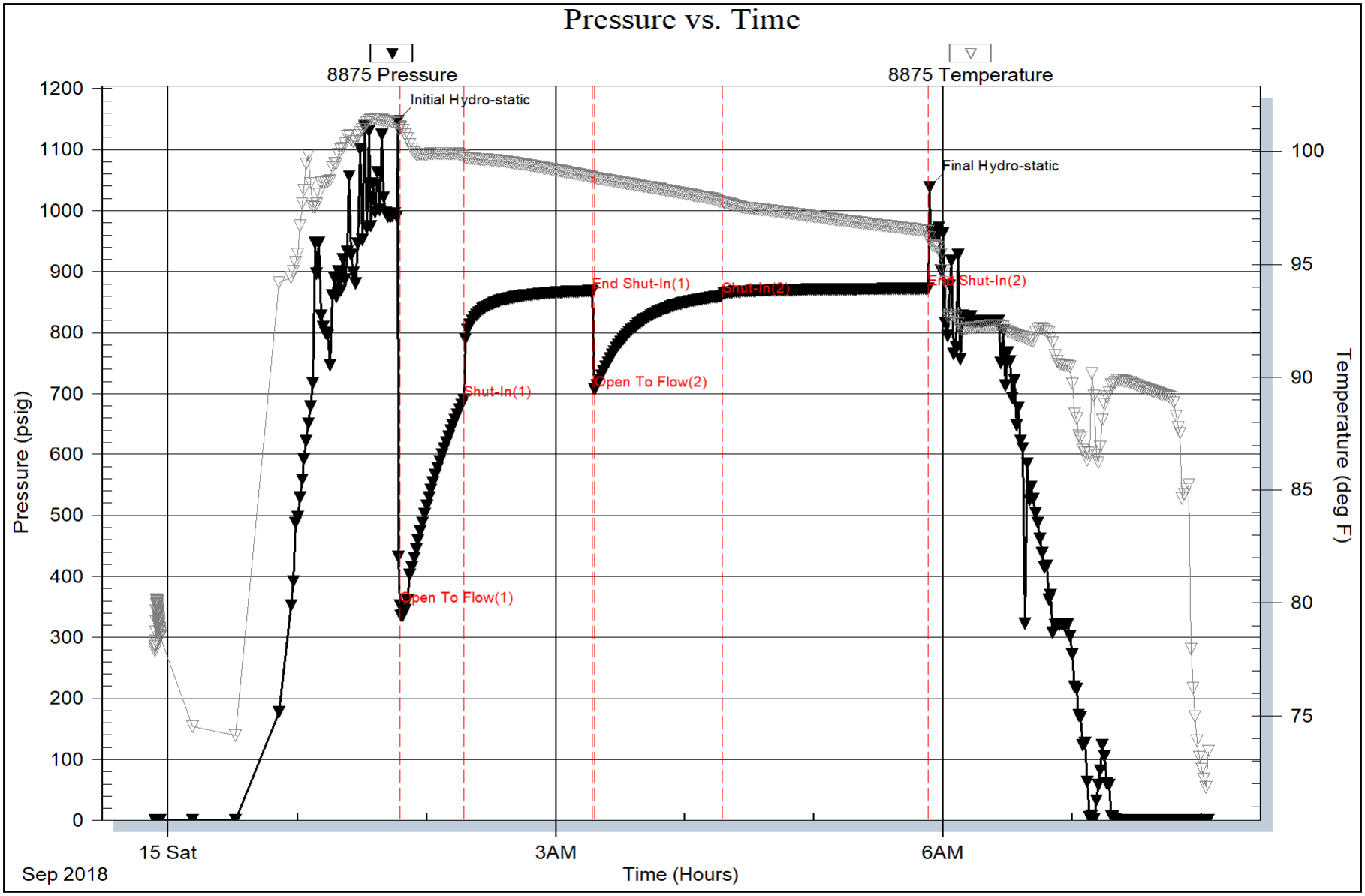
Total Length: 1638.00 ft Total Volume: 21.875 bbl

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

Laboratory Name: Laboratory Location:

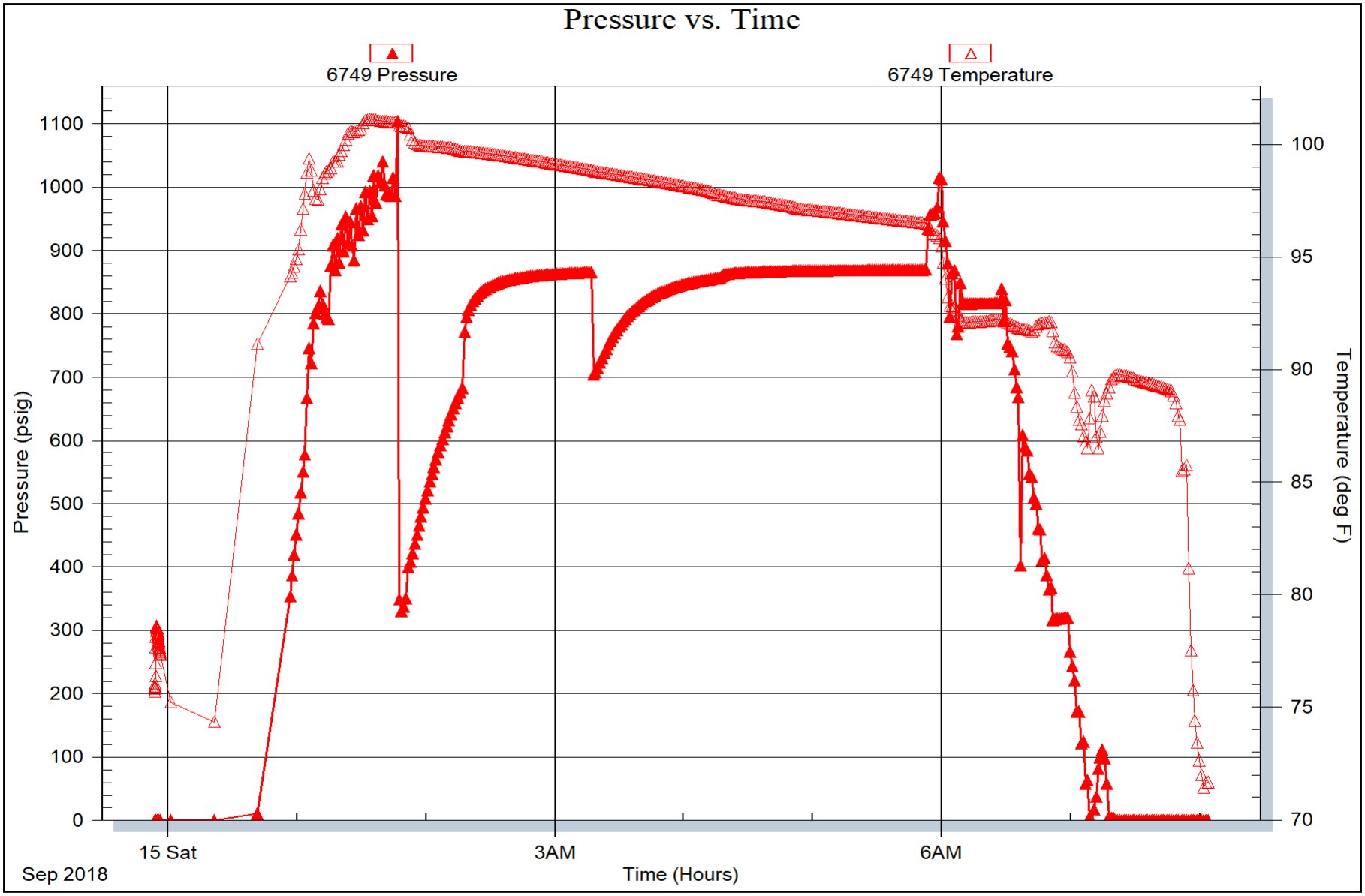
Recovery Comments: RW w as .11 @ 72 degrees

Serial #: 8875 **Inside** Woolsey Operating Co Hubbard 1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 63969 Printed: 2018.09.15 @ 14:12:49

Serial #: 6749 **Outside** Woolsey Operating Co Hubbard 1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 63969 Printed: 2018.09.15 @ 14:12:49

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Woolsey Operating Co
125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63970 **DST#: 2**

Test Start: 2018.09.15 @ 17:27:26

GENERAL INFORMATION:

Formation: **Indian Cave**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:41:58
Time Test Ended: 00:15:28

Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74

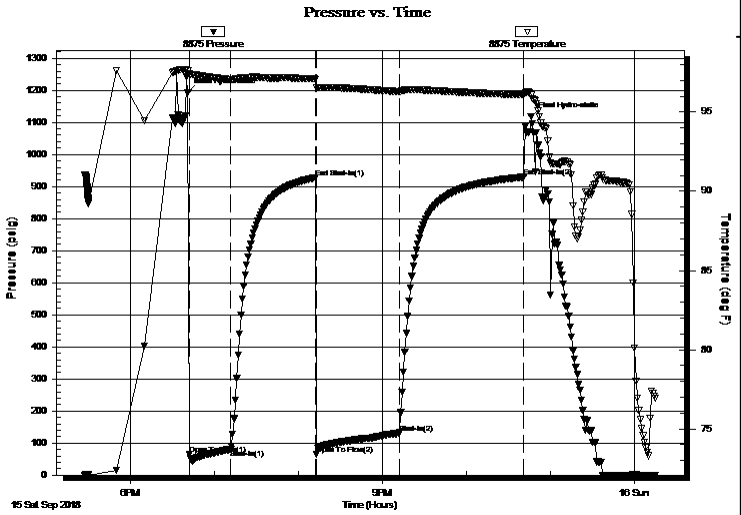
Interval: 2282.00 ft (KB) To 2318.00 ft (KB) (TVD)
Total Depth: 2318.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 1500.00 ft (KB)
1488.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8875 **Inside**

Press@RunDepth:	131.73 psig @	2283.00 ft (KB)		Capacity:	psig
Start Date:	2018.09.15	End Date:	2018.09.16	Last Calib.:	2018.09.16
Start Time:	17:27:27	End Time:	00:15:28	Time On Btm:	2018.09.15 @ 18:40:58
				Time Off Btm:	2018.09.15 @ 22:45:58

TEST COMMENT: IF: Strong Blow , BOB in 30 seconds, Built to 41 inches, Died Off to 15 inches
ISI: No Blow Back
FF: Strong Blow , BOB Immediate, Built to 372 inches
FSI: GTS 2 minutes into Bleed Off, 10 inch Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1192.44	97.64	Initial Hydro-static
1	64.29	97.44	Open To Flow (1)
31	80.81	97.05	Shut-In(1)
91	926.99	97.06	End Shut-In(1)
92	65.42	96.54	Open To Flow (2)
151	131.73	96.29	Shut-In(2)
240	929.83	96.13	End Shut-In(2)
245	1118.26	96.08	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	2010 GIP	0.00
121.00	MCW 10%M 90%W	0.60
141.00	GMCW 5%G 30%M 65%W	1.98

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Woolsey Operating Co
125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63970 **DST#: 2**

Test Start: 2018.09.15 @ 17:27:26

GENERAL INFORMATION:

Formation: **Indian Cave**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:41:58
Time Test Ended: 00:15:28

Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74

Interval: 2282.00 ft (KB) To 2318.00 ft (KB) (TVD)
Total Depth: 2318.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

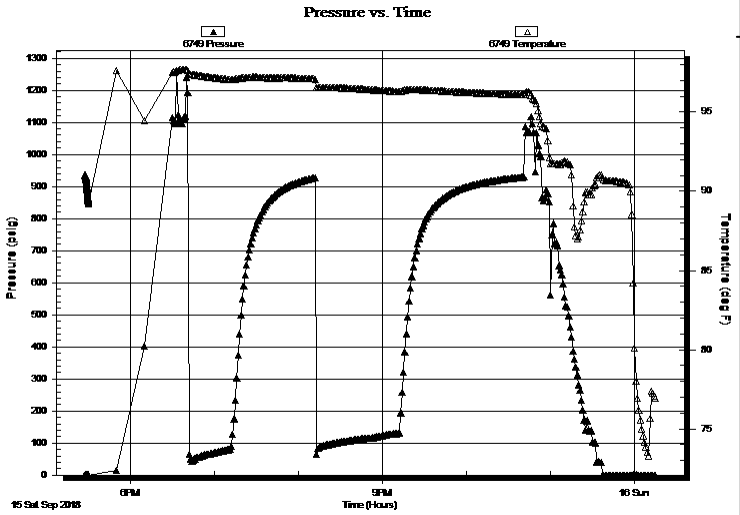
Reference Elevations: 1500.00 ft (KB)
1488.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 6749 **Outside**

Press@RunDepth: psig @ 2283.00 ft (KB)
Start Date: 2018.09.15 End Date: 2018.09.16
Start Time: 17:27:44 End Time: 00:15:45

Capacity: psig
Last Calib.: 2018.09.16
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Strong Blow , BOB in 30 seconds, Built to 41 inches, Died Off to 15 inches
ISI: No Blow Back
FF: Strong Blow , BOB Immediate, Built to 372 inches
FSI: GTS 2 minutes into Bleed Off, 10 inch Blow Back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
0.00	2010 GIP	0.00
121.00	MCW 10%M 90%W	0.60
141.00	GMCW 5%G 30%M 65%W	1.98

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Woolsey Operating Co

125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63970 **DST#: 2**

Test Start: 2018.09.15 @ 17:27:26

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	deg API
Mud Weight:	10.00 lb/gal	Cushion Length:	ft	Water Salinity:	75000 ppm
Viscosity:	32.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	71000.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
0.00	2010 GIP	0.000
121.00	MCW 10%M 90%W	0.595
141.00	GMCW 5%G 30%M 65%W	1.978

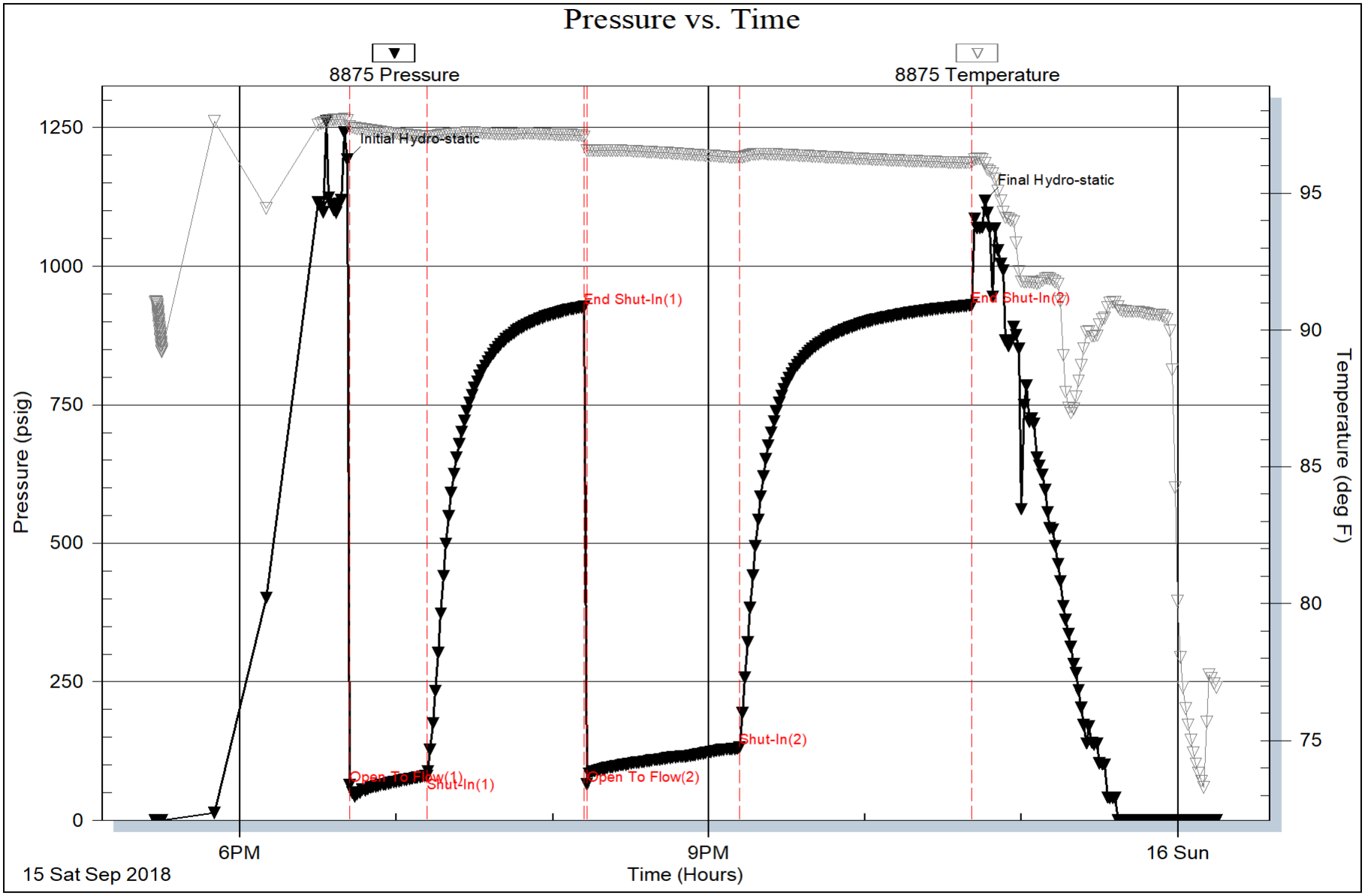
Total Length: 262.00 ft Total Volume: 2.573 bbl

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

Laboratory Name: Laboratory Location:

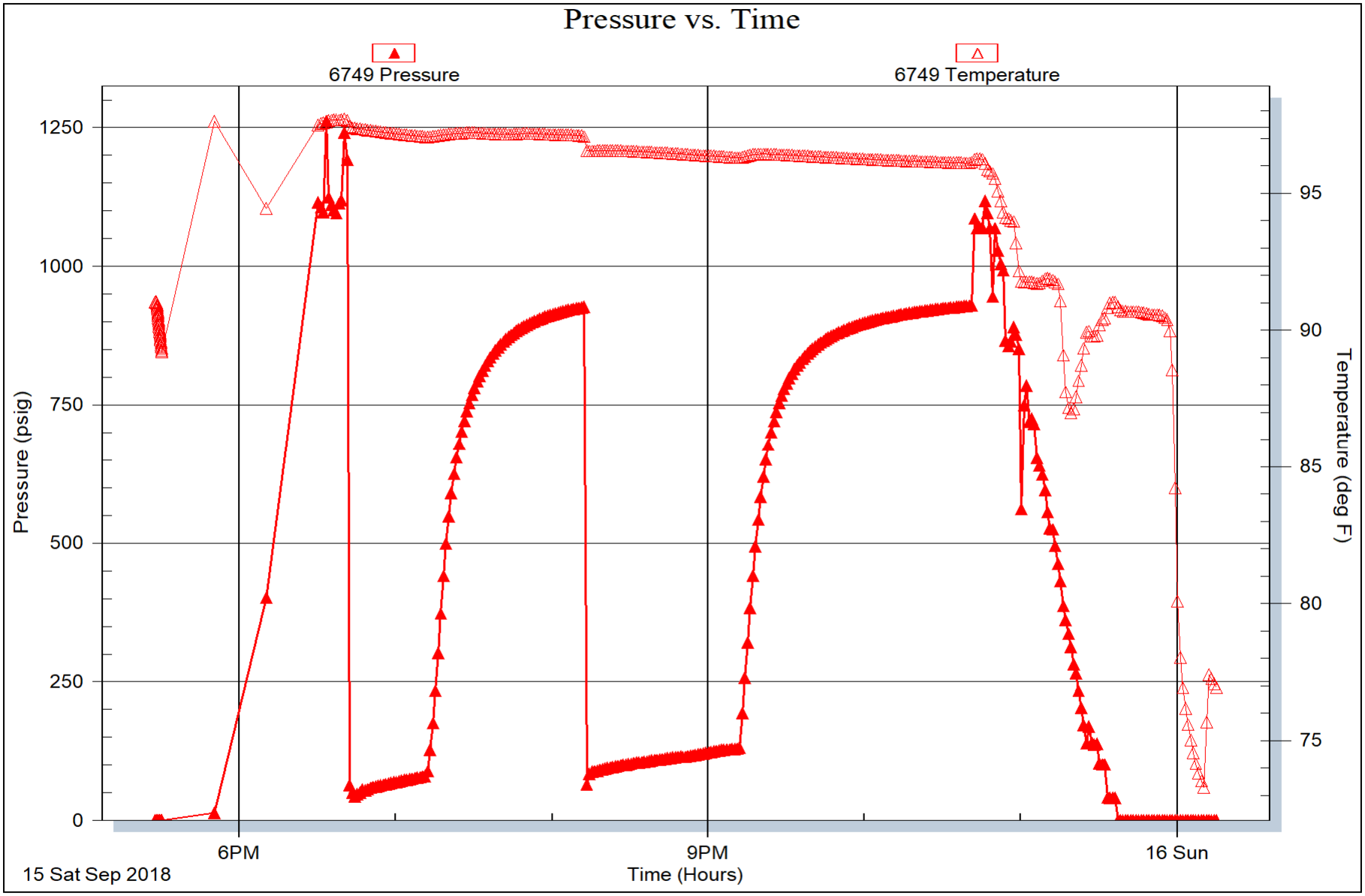
Recovery Comments: RW w as .12 @ 66 degrees

Serial #: 8875 **Inside** Woolsey Operating Co Hubbard 1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 63970 Printed: 2018.09.16 @ 07:06:57

Serial #: 6749 **Outside** Woolsey Operating Co Hubbard 1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 63970 Printed: 2018.09.16 @ 07:06:57

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Woolsey Operating Co

125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63971 **DST#: 3**

Test Start: 2018.09.23 @ 05:34:32

GENERAL INFORMATION:

Formation: **Mississippi**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:35:34
Time Test Ended: 13:26:34

Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74

Interval: 4399.00 ft (KB) To 4415.00 ft (KB) (TVD)
Total Depth: 4415.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

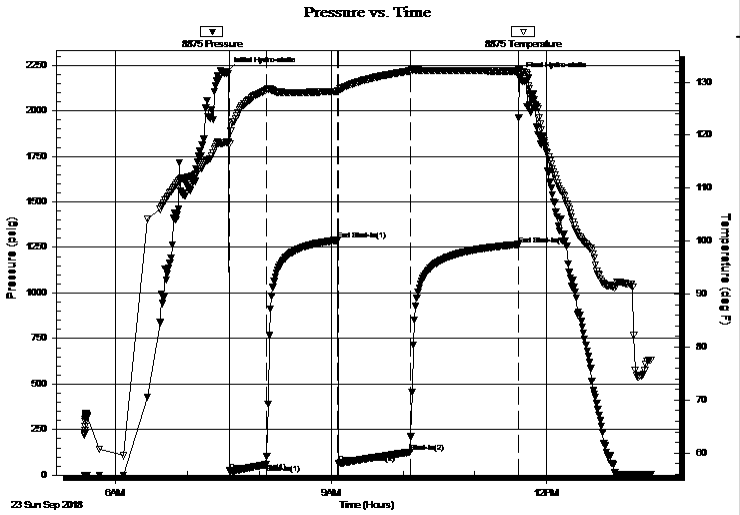
Reference Elevations: 1500.00 ft (KB)
1488.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 8875 **Inside**

Press@RunDepth: 126.55 psig @ 4400.00 ft (KB)
Start Date: 2018.09.23 End Date: 2018.09.23
Start Time: 05:34:33 End Time: 13:26:34

Capacity: psig
Last Calib.: 2018.09.23
Time On Btm: 2018.09.23 @ 07:33:19
Time Off Btm: 2018.09.23 @ 11:37:19

TEST COMMENT:
IF: Fair Blow , Built to 6.5 inches
ISI: No Blow Back
FF: Fair Blow , Built to 6.75 inches
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2214.13	118.64	Initial Hydro-static
3	22.63	118.41	Open To Flow (1)
33	57.02	128.46	Shut-In(1)
93	1289.76	128.28	End Shut-In(1)
93	62.37	128.28	Open To Flow (2)
153	126.55	132.12	Shut-In(2)
243	1266.54	132.12	End Shut-In(2)
244	2188.82	132.10	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
186.00	Water	2.61
10.00	VSOMCW 2%O 14%M 84%W	0.14

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

Woolsey Operating Co

125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63971 **DST#: 3**

Test Start: 2018.09.23 @ 05:34:32

GENERAL INFORMATION:

Formation: **Mississippi**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 07:35:34
Time Test Ended: 13:26:34

Test Type: Conventional Bottom Hole (Reset)
Tester: Leal Cason
Unit No: 74

Interval: 4399.00 ft (KB) To 4415.00 ft (KB) (TVD)
Total Depth: 4415.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

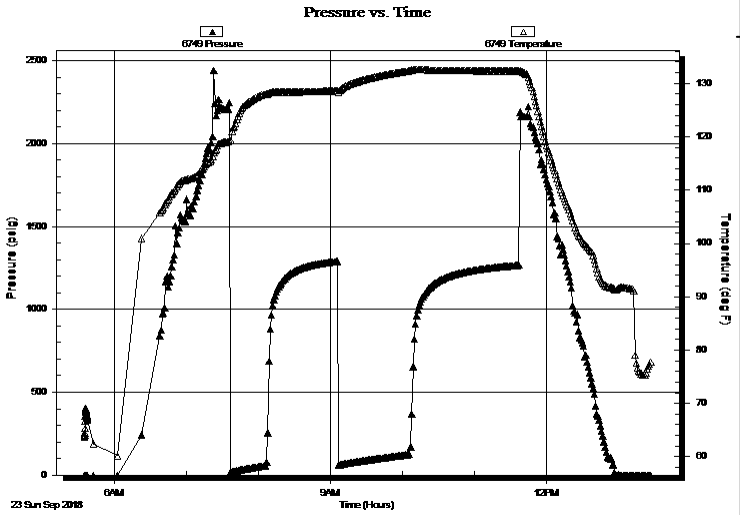
Reference Elevations: 1500.00 ft (KB)
1488.00 ft (CF)
KB to GR/CF: 12.00 ft

Serial #: 6749 **Outside**

Press@RunDepth: psig @ 4400.00 ft (KB)
Start Date: 2018.09.23 End Date: 2018.09.23
Start Time: 05:34:49 End Time: 13:26:50

Capacity: psig
Last Calib.: 2018.09.23
Time On Btm:
Time Off Btm:

TEST COMMENT:
IF: Fair Blow , Built to 6.5 inches
ISI: No Blow Back
FF: Fair Blow , Built to 6.75 inches
FSI: No Blow Back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
186.00	Water	2.61
10.00	VSOMCW 2%O 14%M 84%W	0.14

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Woolsey Operating Co

125 N Market Ste 1000
Wichita, KS 67202

ATTN: Bill Klaver

1-32S-8W Harper

Hubbard 1

Job Ticket: 63971 **DST#: 3**

Test Start: 2018.09.23 @ 05:34:32

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:	68000 ppm
Viscosity:	55.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.58 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4500.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	Water	2.609
10.00	VSOMCW 2%O 14%M 84%W	0.140

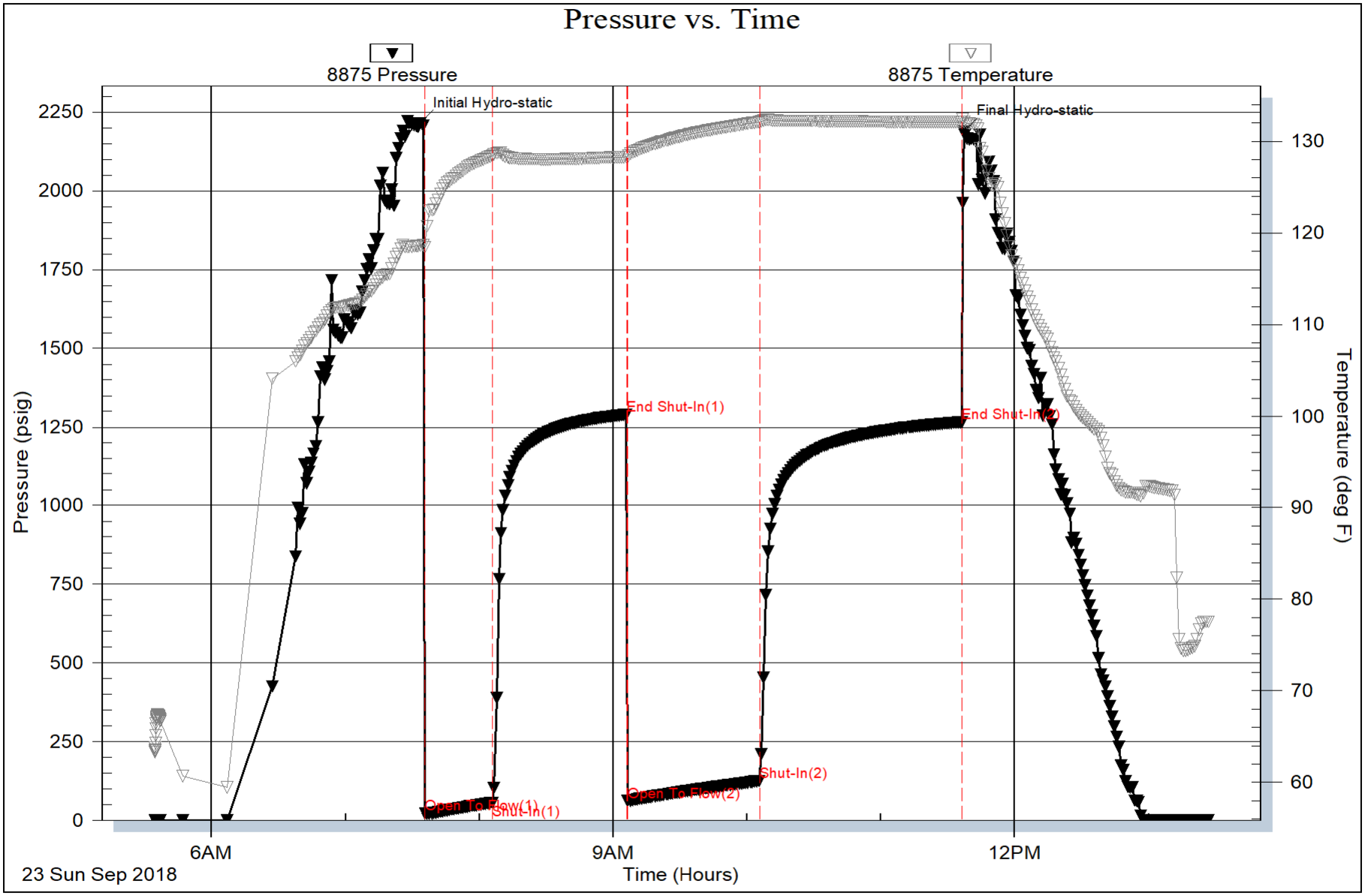
Total Length: 196.00 ft Total Volume: 2.749 bbl

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

Laboratory Name: Laboratory Location:

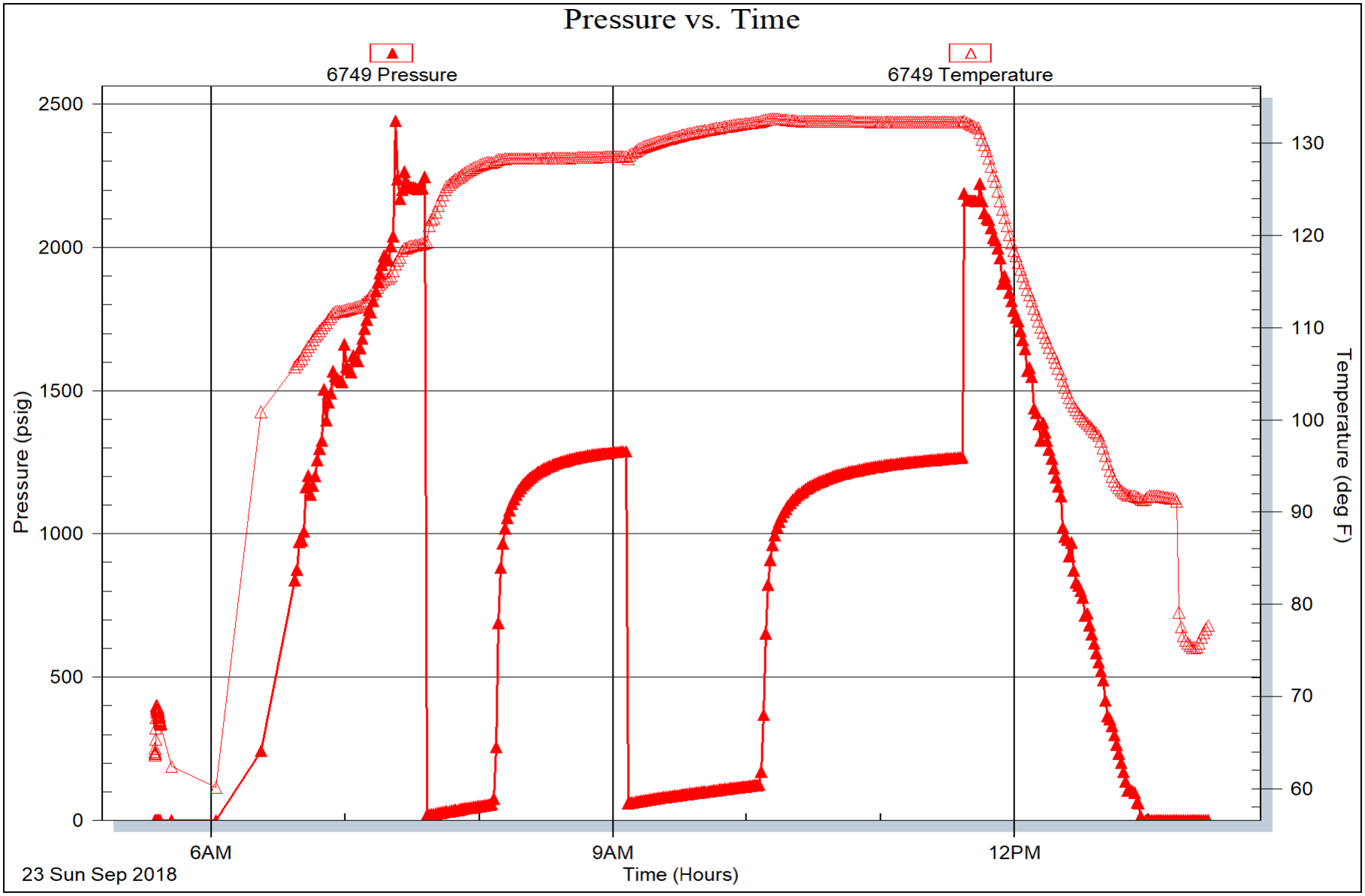
Recovery Comments: RW w as .1 @ 80 degrees

Serial #: 8875 **Inside** Woolsey Operating Co Hubbard 1 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 63971 Printed: 2018.09.23 @ 14:36:20

Serial #: 6749 **Outside** Woolsey Operating Co Hubbard 1 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 63971 Printed: 2018.09.23 @ 14:36:20

Woolsey Operating Company, LLC

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	HUBBARD #1		
Location:	Section 1 - Township 32 South - Range 8 West		
License Number:	33168	Region:	Harper County, Kansas
Spud Date:	September 12, 2018	Drilling Completed:	
Surface Coordinates:	C NW NW NW 330' FNL & 330' FWL		
Bottom Hole Coordinates:			
Ground Elevation (ft):	1498'	K.B. Elevation (ft):	1510'
Logged Interval (ft):	2000' To:	Total Depth (ft):	
Formation:	Council Grove >>>>Simpson		
Type of Drilling Fluid:	Chemical Mud		

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Woolsey Operating Company,LLC
Address: 125 N. Market, Suite 1000
Wichita, KS 67202

GEOLOGIST

Name: Bill Klaver
Company: Woolsey Operating Co. LLC
Address: 125 N. Market, Wichita Kansas, 67202

COMMENTS

Surface Casing: Spud at 9:45 pm on 9/12/2018. Set 5 joints of 8 5/8" X 23#/ft new casing at 225' KB (tally 221') w/ 175 sx 60/40 poz (by Basic). Plug down 5:45 am on 9/13/2018. Cement did circulate. Plug back to approx. 2403' at 3002' w/175 sx common.
Production Casing:

Deviation Surveys: 3/4 at 227', 1/2 at 1032', 3/4 at 1509', 3/4 at 2092', 1 at 2318', 1 at 2617', 5 at 2999', 5 at 3002', (see detail)
Pipe Strap @ 2092', Strap: 2110.29', Board: 2110.12, strap .17' long to the board
Fossil Drilling Rig #3 Bit Record:
1) 12 1/4" Varrel RR in at 0' out at 227'
2) 7 7/8" Hughs Tool DP 606X PDC in at 227' out at 3002', 40 hr
3) 7 7/8" Varel HE-21 in at 2456' (plugged back depth) out 2791'
4) 7 7/8" Hughs Tool DP 606X in at 2791',

Gas Detector: Pason Systems (Unmanned unit)
Mud System: Mud-Co. Brad Bortz, Engineer
DSTs: Trilobite Testing, Leal Cason, Tester
E-Logs: ELI, CNL-FDC w/PE, GR & Caliper, Dual Induction Laterolog w/SP, Sonic, Micro
Hawkeye Directional: Blake Reid (MWD), Kennith Holland (Directional Driller)
Alan Dick, Woolsey Company Man

DSTs

DST #1 Neva, 2024'-2092', 30"-60"-60"-90", SB BOB in 30 seconds, Rec: 441' MCW (30%M 70%W), 1197' SW, (chl: 68, 000 ppm). IHP 1147, IFP 353-690, ICIP 868, FFP 707-859, FCIP 872, FHP 1039, BHT 96 deg.

DST #2 Indian Cave, 2282'-2318', 30"-60"-60"-90", SB BOB in 30 seconds, GTS at end of FFP, Rec: 2010' GIP, 141' GCMW (5%G 30%M 65%W), 121' MCW. IHP 1192, IFP 64-81, ICIP 927, FFP 65-132, FCIP 930, FHP 1118, BHT 97. Rw .17 @ 66 deg, chl: 75,000 ppm

DST #3 Mississippi, 4399'-4415', 30"-60"-60"-90", Fair 6" blow, Rec: 10' SOCMW (2%O, 14%M, 84%W), 186' SW, API Rw 0.1 @ 80 deg, chl. 68,000 ppm. IHP 2214, IFP 23-57, ICIP 1290, FFP 62-126, FCIP 1267, FHP 2198, BHT 1332 deg

CREWS

Rick Barringer, Tool Pusher
Pablo Luna, Days
Chris Staats, Evening
Kevin Clifft, Morning

ROCK TYPES

Anhy	Shy dolo	Sltst	Shale 3
Bent	Dol	Ss	Silty dol
Brec	Gyp	Black sh	Dol lmst
Cht	Sdy lmst	Gry sh	Dol 2
Clyst	Lmst	Shale	Granite wash
Coal	Mrlst	Shysltst	Lmst
Congl	Salt	Sltysh	Calc dol
Sdy dolo	Shale	Ss 2	Shale 3

ACCESSORIES

MINERAL	Chlorite	Pelec	Grysh
Anhy	Dol	Pellet	Gryslt
Arg	Sand	Pisolite	Lms
Bent	Slty	Plant	Sandylms
Bit	**FOSSIL**	Strom	Sh
Brecfrag	Algae	Fuss	Sltstn
Calc	Amph	Oomoldic	
Carb	Belm		**TEXTURE**
Chtdk	Bioclst	**STRINGER**	Boundst
Chtlt	Brach	Anhy	Chalky
Dol	Bryozoa	Arg	Cryxln
Ferrpel	Cephal	Bent	Earthy
Ferr	Coral	Coal	Finexln
Glau	Crin	Dol	Grainst
Gyp	Echin	Gyp	Lithogr
Marl	Fish	Ls	Microxln
Nodule	Foram	Mrst	Mudst
Phos	Fossil	Sltstrg	Packst
Pyr	Gastro	Ssstrg	Wackest
Salt	Oolite	Carbsh	
Sandy	Ostra	Clystn	
Silt		Dol	

Curve Track 1	Depth	Lithology	Oil Shows	Geological Descriptions	TG, C1-C5
ROP (min/ft) Gamma (API)					TG (units) C1 (units) C2 (units) C3 (units) C4 (units) C5 (units)

Bill Klaver
Geologist

Woolsey Operating Co. LLC
Hubbard #1
C NW NW NW
330' FNL & 330' FWL
Sec. 1 - Twp 32S - Rge 8W
Harper County, Kansas
Field: Crystal Springs NW
GL 1498' KB 1510'
API # 15-077-22175-00-00

Drill time was recorded from 2000' to rotary total depth. Samples were collected from 2100' to rotary total depth. All samples were delivered to the Survey at the completion of the test.

The following tests were used or structual comparison: Robinson-Sweetman's Troyer #1-A, SW NE NE NE, 2-32S-8W. Landes Expl-Sentinel Res's Wilson #1, C SE SW, 36-31S-8W. Pickrell Drilling's Alford #1, C NW SE, 35-31S-8W.

7 am Daily Progress:

September 12, 2018 MIRT/Spud
September 13, 2018 WOC
September 14, 2018 Drilling at 1401'
September 15, 2018 DST #1 at 2092'
September 16, 2018 Drilling at 2480'
September 17, 2018 WOC at 3002'
September 18, 2018 Drill plug @ 2728'
September 19, 2018 Drilling at 2825'
September 20, 2018 Drilling at 3344'
September 21, 2018 Drilling at 3715'
September 22, 2018 Drilling at 4018'
September 23, 2018 DST #3 at 4415'
September 24, 2018 CFS at 4810' in Simpson. Evening E-logs.

Scale Change

Close spl box

Test Pason Gas

Propane cocktail

lst lt gry tan f vfn xln dns blky ang soft art silty, crumbly gran in prt

lst off wht lt gry ff vf xln gran soft mushy in prt, tr foss tr calc fill, arg silty gritty, shl gry drk gry calc

shl gry gry blk, drk gry, silty gritty calc, lst tan off wht gry f xln blky ang gran arg, silty,

shl gry dkr gry, lst, dolo in prt, f v xln dns hrd blky ang, sub chlky gran foss frags, calc xln fill

lst tan lt brn f sli med xln, blky ang gran tr sub chlky pcs, calc xln fill, inter xln por, foss frags, tr ool in prt, sndy gritty in prt, tr glau, inter gran por, tr bright UV, gas bubs

DST #1
2024'-2092'
30"-60"-60"-90"
SB BOB
Rec: 441' MCW
1197' SW
IHP 1147
IFP 353-690
ICIP 868
FFP 707-859
FCIP 872
FHP 1039
BHT 96

lst tan lt gry brn f xln blky dns hrd arg, silty, foss frags, calc xln fill

CFS 2092'

sh/ gry gry blk silty gritty gran, lst tan gry f xln gran gritty silty arg tr foss frags