Confidentiality Requested:
☐ Yes ☑ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

1368135

Form ACO-1
November 2016
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 30862
Name: Grunder Oil, LLC
Address 1: 122 S MAIN
Address 2:
City: ST JOHN State: KS Zip: 67576 + 2117
Contact Person: Fred Grunder
Phone: (620) 549-6422
CONTRACTOR: License # 33905
Name: Royal Drilling Inc
Wellsite Geologist: Keaton Jones
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 #:

08/22/2017 Spud Date or Recompletion Date
09/01/2017 Date Reached TD
09/02/2017 Completion Date or Recompletion Date

API No.: 15-185-23994-00-00
Spot Description:
NE - NW - NE - SW Sec. 14 Twp. 25 S. R. 13 ☐ East ☑ West
2407 Feet from ☐ North / ☑ South Line of Section
1704 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: Stafford
Lease Name: GRUNDER Well #: 2
Field Name:
Producing Formation: N/A
Elevation: Ground: 1927 Kelly Bushing: 1933
Total Vertical Depth: 4299 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 601 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: 7000 ppm Fluid volume: 560 bbls
Dewatering method used: Hauled to Disposal
Location of fluid disposal if hauled offsite:
Operator Name: Bobs Hauling
Lease Name: Rogers License #: 33779
Quarter NW Sec. 34 Twp. 23 S. R. 13 ☐ East ☑ West
County: stafford Permit #: D23350

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:** 10/25/2017

[redacted]

1368135

Operator Name: Grunder Oil, LLC Lease Name: GRUNDER Well #: 2

Sec. 14 Twp. 25 S. R. 13 ☐ East ☑ West County: Stafford

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 *(Attach Additional Sheets)*	☑ Yes	☐ No
Samples Sent to Geological Survey	☐ Yes	☑ No
Cores Taken	☐ Yes	☑ No
Electric Log Run	☑ Yes	☐ No
Geolgist Report / Mud Logs	☑ Yes	☐ No

List All E. Logs Run:

CDL CNL

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

Name	Top	Datum
Anhy	788	1155
Heebner	3485	-1552
Brown Lime	3634	-1701
Arbuckle	4297	-2364

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	24	601	common & 60/40 Poz	350	Celloflake, Calcium

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:
☐ Vented ☐ Sold ☐ Used on Lease *(If vented, Submit ACO-18.)*	☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*	Top / Bottom

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	Grunder Oil, LLC
Well Name	GRUNDER 2
Doc ID	1368135

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	24	601	common & 60/40 Poz	350	Celloflake, Calcium

TT MH 24

FIELD SERVICE TICKET

1718 13979 A

BASIC ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61
P.O. Box 8613
Pratt, Kansas 67124
Phone 620-672-1201

DATE TICKET NO.

DATE OF JOB 9/1/17 DISTRICT	NEW WELL ☒ OLD WELL ☐ PROD ☐ INJ ☐ WDW ☐ CUSTOMER ORDER NO.:
CUSTOMER Grunder Oil, Inc	LEASE Grunder WELL NO. 2
ADDRESS	COUNTY Stafford STATE Ks
CITY STATE	SERVICE CREW Scott, Mattal, EJ.
AUTHORIZED BY Fred Grunder	JOB TYPE: Plug to Abandon

EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS
66779 X	1.5				
19860 X	.4				

	DATE	AM PM	TIME
TRUCK CALLED			
ARRIVED AT JOB	9/1/17	AM PM	12:00
START OPERATION	9/1/17	AM PM	1:45
FINISH OPERATION	9/1/17	AM PM	5:15
RELEASED	9/1/17	AM PM	5:45
MILES FROM STATION TO WELL			

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).
The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: X Doug Bland
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	$ AMOUNT
CP103	60/40 POZ	SK	250		3000 00
CC200	Cement Gel	lb	430		107 50
E100	Unit Mileage Charge Pick up	MI	20		90 00
E101	Heavy Equipment Mileage	MI	40		300 00
E113	Proppant + Bulk Delivery	TM	215		537 50
CE205	Depth Charge 4001-5000'	4hr	1		2520 00
CE240	Blending + Mixing Charge	SK	250		350 00
5003	Service Supervisor	~~SK~~ EA	1		175 00

SUB TOTAL 7080 00

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON $	✓
MATERIALS	%TAX ON $	

TOTAL 3681 66

SERVICE REPRESENTATIVE Scott Mattal

FIELD SERVICE ORDER NO.

THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY X Doug Bland
(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

CLOUD LITHO - Abilene, TX

BASIC energy services, L.P.

TREATMENT REPORT

Customer: Grunder Oil Inc	Lease No.	Date: 9/1/17	
Lease: Grunder	Well # 2		
Field Order # 13979A	Station: Pratt KS	Casing	Depth
County: Stafford	State: KS		
Type Job: Plug to Abandon	Formation	Legal Description	

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size	Tubing Size	Shots/Ft		Acid	RATE	PRESS	ISIP
Depth	Depth	From	To	Pre Pad	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: Fred Grunder				Station Manager: Justin Westerman			Treater: Scott Graves					
Service Units	38450	76482	86779	70959	19860							
Driver Names	Scott	Mutfal	—	E.J.	—							

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	42991 Service Log
					On Location Safety Meeting Rig up
1:48	800			4	Pump H2O Spacer
1:52	400		15	4	Mix 50 sks 60/40 POZ
1:56	250		12.7	4	Pump H2O Spacer
1:57	400		5	7	Start Displacement
2:05	0		53.5 [redacted]	0	Shut down
					810'
3:31	250			5	Pump H2O Spacer
3:33	200		10	5	Mix 80 sks 60/40 POZ
[redacted]					[redacted]
3:37	175		20.37	5	Start Displacement [redacted]
3:40	0		9.5	0	Shut down
					250'
3:55	150			5	Pump H2O Spacer
3:56	100		5	5	Mix 50 sks 60/40 POZ
4:00	100		12.7	5	Start displacement
4:07	0		2	0	Shut down
					60'
5:05	0			3	Pump H2O Spacer
5:06	50		2	3	Mix 20 sks 60/40 POZ
5:08	0		5	0	Cement Circulated
5:10	0		.5	0	Shut down

BASIC energy services, L.P.

TREATMENT REPORT

Customer	Lease No.	Date
[illegible]		8/22/17
Lease	**Well #**	
[illegible]	2	

Field Order #	Station	Casing	Depth	County	State
15976 A	[illegible]	2 1/2	[illegible]	[illegible]	KS

Type Job	Formation	Legal Description
2 1/2 S. Face Pipe 242		

PIPE DATA		PERFORATING DATA		FLUID USED	TREATMENT RESUME		
Casing Size 2 1/2	Tubing Size	Shots/Ft		Acid	RATE	PRESS	ISIP
Depth [illegible]	Depth	From	To	Pre Pad	Max		5 Min.
Volume [illegible]	Volume	From	To	Pad	Min		10 Min.
Max Press 1500	Max Press	From	To	Frac	Avg		15 Min.
Well Connection 2 1/2	Annulus Vol.	From	To		HHP Used		Annulus Pressure
Plug Depth	Packer Depth	From	To	Flush	Gas Volume		Total Load

Customer Representative	Station Manager	Treater
[illegible]	[illegible]	[illegible]

Service Units											
Driver Names	[illegible]	[illegible]	[illegible]	—							

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
					[illegible]
					[illegible]
7:50	700			3	[illegible]
7:51	750		3	5.7	[illegible]
3:07	700		37	5.2	[illegible]
3:13	150		37.8	0	[illegible]
3:16					[illegible]
3:16	150			4.5	[illegible]
3:21	200		25	4.5	[illegible]
3:22	150		5	3.5	[illegible]
3:25	150		6	3.5	[illegible]
3:25	500			1	[illegible]
3:25	500			0	[illegible]
3:27					[illegible]
					[illegible]

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

BASIC ENERGY SERVICES
PRESSURE PUMPING & WIRELINE

10244 NE Hwy. 61
P.O. Box 8613
Pratt, Kansas 67124
Phone 620-672-1201

FIELD SERVICE TICKET

1718 13976 A

DATE TICKET NO.

DATE OF JOB 5/22/17 DISTRICT	NEW WELL ☒ OLD WELL ☐ PROD ☐ INJ ☐ WDW ☐ CUSTOMER ORDER NO.:
CUSTOMER [illegible]	LEASE [illegible] WELL NO. 2
ADDRESS	COUNTY [illegible] STATE [illegible]
CITY STATE	SERVICE CREW [illegible]
AUTHORIZED BY [illegible]	JOB TYPE: [illegible]

EQUIPMENT#	HRS	EQUIPMENT#	HRS	EQUIPMENT#	HRS
[illegible]	[illegible]				
[illegible]	[illegible]				

	DATE	AM PM	TIME
TRUCK CALLED			
ARRIVED AT JOB	[illegible]	AM PM	[illegible]
START OPERATION	[illegible]	AM PM	[illegible]
FINISH OPERATION	[illegible]	AM PM	[illegible]
RELEASED	[illegible]	AM PM	[illegible]
MILES FROM STATION TO WELL			

CONTRACT CONDITIONS: (This contract must be signed before the job is commenced or merchandise is delivered).
The undersigned is authorized to execute this contract as an agent of the customer. As such, the undersigned agrees and acknowledges that this contract for services, materials, products, and/or supplies includes all of and only those terms and conditions appearing on the front and back of this document. No additional or substitute terms and/or conditions shall become a part of this contract without the written consent of an officer of Basic Energy Services LP.

SIGNED: [illegible]
(WELL OWNER, OPERATOR, CONTRACTOR OR AGENT)

ITEM/PRICE REF. NO.	MATERIAL, EQUIPMENT AND SERVICES USED	UNIT	QUANTITY	UNIT PRICE	$ AMOUNT
[illegible]	[illegible]	SK	[illegible]		
[illegible]	[illegible]	SK	[illegible]		
[illegible]	[illegible]	lb	[illegible]		
[illegible]	[illegible]	lb	797		
[illegible]	[illegible]	EA	1		
[illegible]	[illegible]	EA	1		
[illegible]	[illegible]	MI	[illegible]		
[illegible]	[illegible]	TM	[illegible]		
[illegible]	[illegible]	lbs	1		
[illegible]	[illegible]	CI	[illegible]		
[illegible]	[illegible]	EA	1		
[illegible]	[illegible]	Trip	1		

SUB TOTAL

CHEMICAL / ACID DATA:			

SERVICE & EQUIPMENT	%TAX ON $	
MATERIALS	%TAX ON $	
	TOTAL	5,057.37

SERVICE REPRESENTATIVE [illegible]	THE ABOVE MATERIAL AND SERVICE ORDERED BY CUSTOMER AND RECEIVED BY: [illegible]

(WELL OWNER OPERATOR CONTRACTOR OR AGENT)

FIELD SERVICE ORDER NO.

CLOUD LITHO - Abilene, TX

JONES OIL, LLC

KEATON JONES
CONSULTING PETROLEUM GEOLOGIST

GEOLOGIST REPORT
DRILLING TIME AND SAMPLE LOG

Operator: Grunder oil, LLC
Lease: Grunder   Well # 2
Field: Leiss
Location: 2407' FSL 1704' FWL
SEC. 14 TWP. 2S RGE. 13
County: Stafford State: KS

ELEVATION
KB: 1933
DF:
GL: 1927
All measurements are from the: K.B.

Contractor: Royal Drilling
Commenced: Completed:
Rotary Total Depth: 4299 Log Total Depth: 4297
Samples Saved from: 3100 to 4299
Drilling time kept from: 3100 to 4299
Samples examined from: 3100 to 4299
Geological Supervision: Surface to T.D.
Mud up @: 3000 Mud type: Chemical

CASING RECORD
Conductor:
Surface: 8-5/8 601'
Production:

ELECTRIC LOG SURVEYS
Compensated Density / Neutron Log

FORMATION	ELECTRIC LOG TOP	ELECTRIC LOG DATUM	SAMPLE TOP	SAMPLE DATUM	STRAT COMP
Anhy					
Heeb	3484	-1551			
Doug	3524	-1591			
BL	3634	-1701			
KC	3660	-1727			
B	3681	-1748			
F	3744	-1811			
H	3795	-1862			
J	3826	-1893			
K	3869	-1936			
L	3910	-1977			
Miss	3994	-2061			
Kind SD	4032	-2099			
Viola	4093	-2160			
Simp	4210	-2277			
ARB	4297	-2364			
R.T.D	4299	-2366			

14 / 2S / R 13 W

Reference well for structural comparison: API: 15-185-23994-00-00

DAILY PENETRATION: Date | Depth | Bit # | Size | Type | In | Out | Feet | Hours (BIT RECORD)

ZONES OF INTEREST: Formation | Interval | Description of Show | Log Analysis Ø SW

Remarks and Recommendations:

DRILL STEM TESTS: # | Interval | IFP | Time | ISIP | Time | FFP | Time | FSIP | Time | HP - FHP | Recovery

LEGEND

Anhydrite · Salt · Sandstone · Shale · Carb sh · Limestone · Ool.Lime · Chert · Dolomite

LOG 7710

DRILLING TIME IN MINUTES PER FOOT — Rate of Penetration Decreases (5" 10" 15" 20" 25") | DEPTH | LITHOLOGY | SAMPLE DESCRIPTIONS | OIL SHOWS | REMARKS

Depth	Formation / Drilling time notes	Sample descriptions	Oil shows	Remarks
3,100				
~3190				Mud check 3190 8.7wt - 75 Vis 3500 ch
3,200				
50				
3300				
50				Vis-65 wt-8.4 LCM 2#
3400				Vis 57 wt 8.8 Lcm 2#
50	Heebner (-1553)			Vis 55 wt 8.8 LCM 2#
3500	Douglas			Vis 59 wt 8.9
50				
3600				Vis 55 wt 8.9
	Brown Lime (-1702)	Ls-Br-vry DSE + foss fxin		
50	Lansing KC (-1729)	Ls-Gry-medxln Highly foss DSE No shows		
	Lansing "B" (-1749) Ø	Ls-Br-Grey-mxln-foss No shows No odr		
	Ø	Ls-cr-Buff pinpoint Ø fxln No shows		
3700		Sh-Gray		
		Ls-Gry foss + frac DSE Large oolites in some No shows No odr		
		Sh-Gry-Blk		
50	Lansing "F" Ø CFS 3762	Ls-Br-chalky in part foss-mfxln No shows No odr		
		Ls-Br-foss-med xln oolitic DSE No shows No odr		
		Ls-Br-med xln foss-vry DSE oolic in sme-No shows		
3800	Lansing "H" (-1866) Ø CFS 3810	Ls-Br-medxln-Highly oolic/ooli No shows No odr		
50	Ø CFS 3854	Ls-Br-mxln oolic-ooli sli foss No shows No odr		
		Sh Gray		
	Lansing "K"	Ls-gray to light br-Vuggy Ø medxln-show heavy o+G sme free oil vry faint odr	●	
3900	Lansing "L" Ø	Shale Gray-Blk		
		Ls-wht-DSE-stain-No free oil faint odr-fxln foss in sme		
	CFS 3930	Shale-Blk		
50		Ls-ooli various colored sandy + cherty No shows		
		Various colored shales		
		Ls-Gray cherty ooli + DSE No shows		
	Mississippi			
4000		Ch-wht-frac vry DSE Show fo+G when broken Tripoli in sme + limy weak show faint odr if any	☼	
	Kinderhook			
		Ch-various colored DSE + Congl-Ls-ch-sh-chalky No shows		
50		Mstly ch + Ls vry DSE multi colored-sand in sme highly foss chrty No shows		
		multi colored shales + chert sme SS-Ls-foss-ch frac-No odr No shows		
	Viola (DST 1)	Ch-wht DSE-tripoli in mst oil stain along fract-Good show o+G fair odr	✷	DST (1) 4094-4160 Recovery 1346' Gip 40' Socm 2% 0 98% m FIF: 37 SIF: 33 FFF: 26 SFF: 33 ISI: 279 FSI: 188
4100		Ch-wht-DSE-fract No shows faint odr		
	Ø CFS 4125	Ch-highly weathered-DSE fo+G frac + faint odr		
		Ch-wht-DSE-frac No shows		
50	CFS 4160	As Above		9.5 wt 60 Vis 1# Lcm
		As Above		Strap 0.51 Long No Correction
		Ch-white-DSE-frac No shows		DST (2) 4201-4238 Recovery 5' Mud FIF: 22 SIF: 23 FFF: 25 SFF: 23 ISI: 1108 FSI 889
4200	(DST 2)	Sh-Blk-waxy		
	Simpson Sand	SS-clear-DSE Sub Rounded well sort Shaly-faint odr Sfo+G when broke	✷	
	Simpson Shale			9.5 wt 60 Vis 1# LCM
	CFS 4238	Sh-blue-gray sandy in spots		
50		As Above		DST (3) 4284-4299 Recovery 315' MWCO 40% O 40% wtr 252' MOCW 22% O 73% wtr 441' MOCW 20% O 75% wtr 882' wtr FIF: 131 SIF: 662 FFF: 663 SFF: 863 ISI: 1526 FSI: 1530
		As Above		
	CFS 4281	As Above		
	CFS 4289 (DST 3)	congl-sh-Ls-Dol-ch-frosty		
4300	Arbuckle Ø CFS-4299	Dol-Tan-Br-Sucrosic vuggy Ø ooli in mst DSE-faint odr S fo+G	●	Well D+A After Logs

DRILLING TIME Minutes/Foot (5" 10" 15" 20" 25") — Rate of Penetration Decreases | DEPTH | LITHOLOGY | SAMPLE DESCRIPTIONS | OIL SHOWS | REMARKS

CONTRACTOR Royal Drilling   LOCATION
LEASE Grunder   IP   SEC 14 TWP 2S RNG 13
ELEVATION 1927   RTD 1933   COUNTY Stafford STATE Kansas

DRILL STEM TEST REPORT

Grunder Oil LLC

122S Main St John KS 67576

ATTN: Keaton Jones

14-2s-13w Stafford

Grunder 2

Job Ticket: 63623 **DST#: 1**

Test Start: 2017.08.30 @ 16:55:32

GENERAL INFORMATION:

Formation: **viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:40:17
Time Test Ended: 22:41:32

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

Interval: 4094.00 ft (KB) To 4160.00 ft (KB) (TVD)
Total Depth: 4160.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

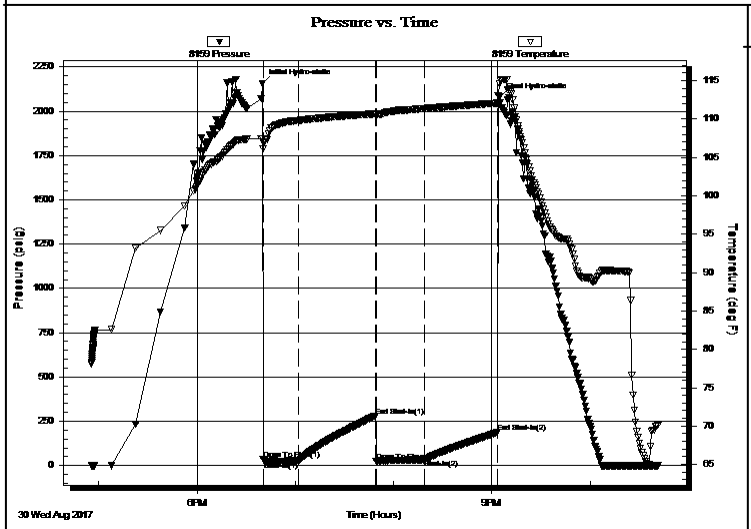
Reference Elevations: 1933.00 ft (KB)
1927.00 ft (CF)
KB to GR/CF: 6.00 ft

Serial #: 8159 **Inside**

Press@RunDepth: 32.60 psig @ 4095.00 ft (KB)
Start Date: 2017.08.30 End Date: 2017.08.30
Start Time: 16:55:33 End Time: 22:41:32

Capacity: 8000.00 psig
Last Calib.: 2017.08.30
Time On Btm: 2017.08.30 @ 18:39:47
Time Off Btm: 2017.08.30 @ 21:04:32

TEST COMMENT: IF: Fair Blow BOB 7 minutes
ISI: No Blow Back
FF: Strong Blow , BOB in 15 seconds
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2155.18	107.46	Initial Hydro-static
1	36.66	106.16	Open To Flow (1)
22	25.66	109.82	Shut-In(1)
69	279.50	110.70	End Shut-In(1)
70	22.11	110.63	Open To Flow (2)
100	32.60	111.38	Shut-In(2)
144	187.90	112.08	End Shut-In(2)
145	2079.03	114.56	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
0.00	1346 GIP	0.00
40.00	SOCM 2%O 98% M	0.56

Gas Rates

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

DRILL STEM TEST REPORT

Grunder Oil LLC

122S Main St John KS 67576

ATTN: Keaton Jones

14-2s-13w Stafford

Grunder 2

Job Ticket: 63623 **DST#: 1**

Test Start: 2017.08.30 @ 16:55:32

GENERAL INFORMATION:

Formation: **viola**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:40:17
Time Test Ended: 22:41:32

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

Interval: 4094.00 ft (KB) To 4160.00 ft (KB) (TVD)
Total Depth: 4160.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

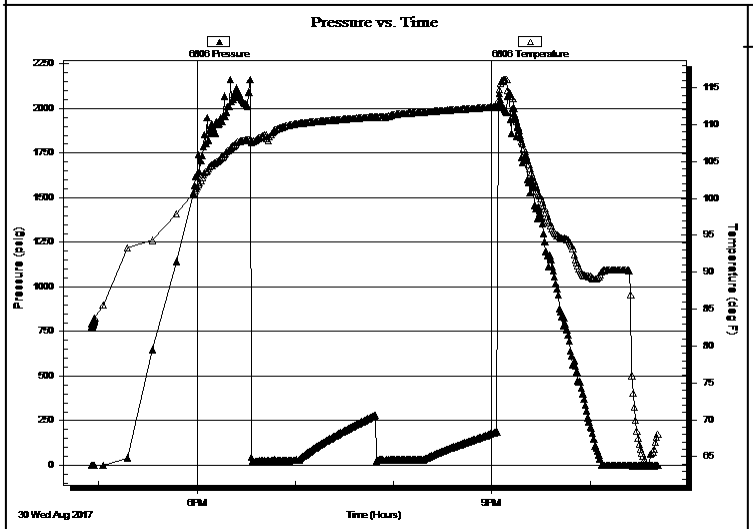
Reference Elevations: 1933.00 ft (KB)
1927.00 ft (CF)
KB to GR/CF: 6.00 ft

Serial #: 6806 **Outside**

Press@RunDepth: psig @ 4095.00 ft (KB)
Start Date: 2017.08.30 End Date: 2017.08.30
Start Time: 16:55:33 End Time: 22:41:32

Capacity: 8000.00 psig
Last Calib.: 2017.08.30
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Fair Blow BOB 7 minutes
ISI: No Blow Back
FF: Strong Blow , BOB in 15 seconds
FSI: No Blow Back



PRESSURE SUMMARY

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

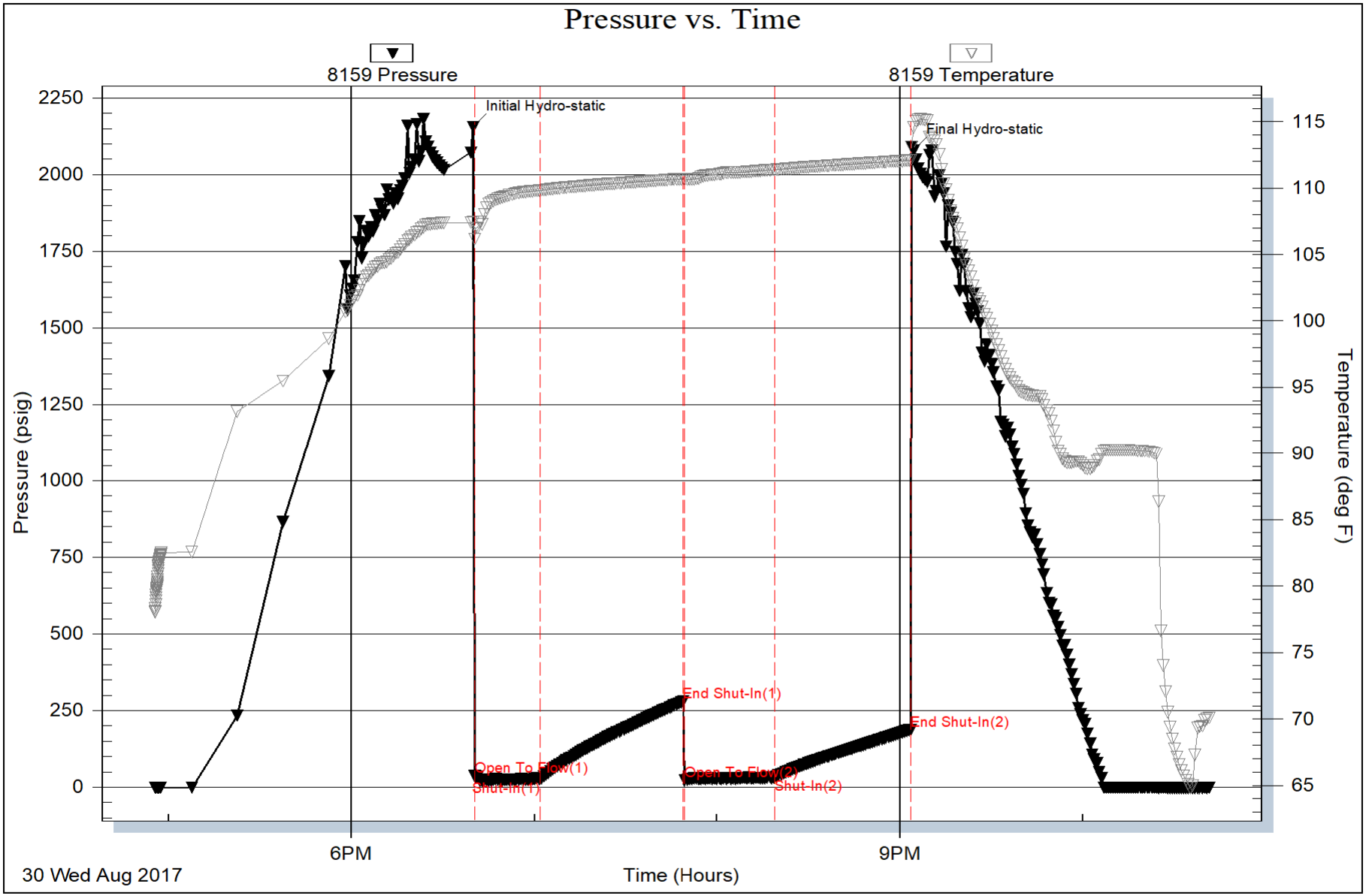
Recovery

Length (ft)	Description	Volume (bbl)
0.00	1346 GIP	0.00
40.00	SOCM 2%O 98% M	0.56

Gas Rates

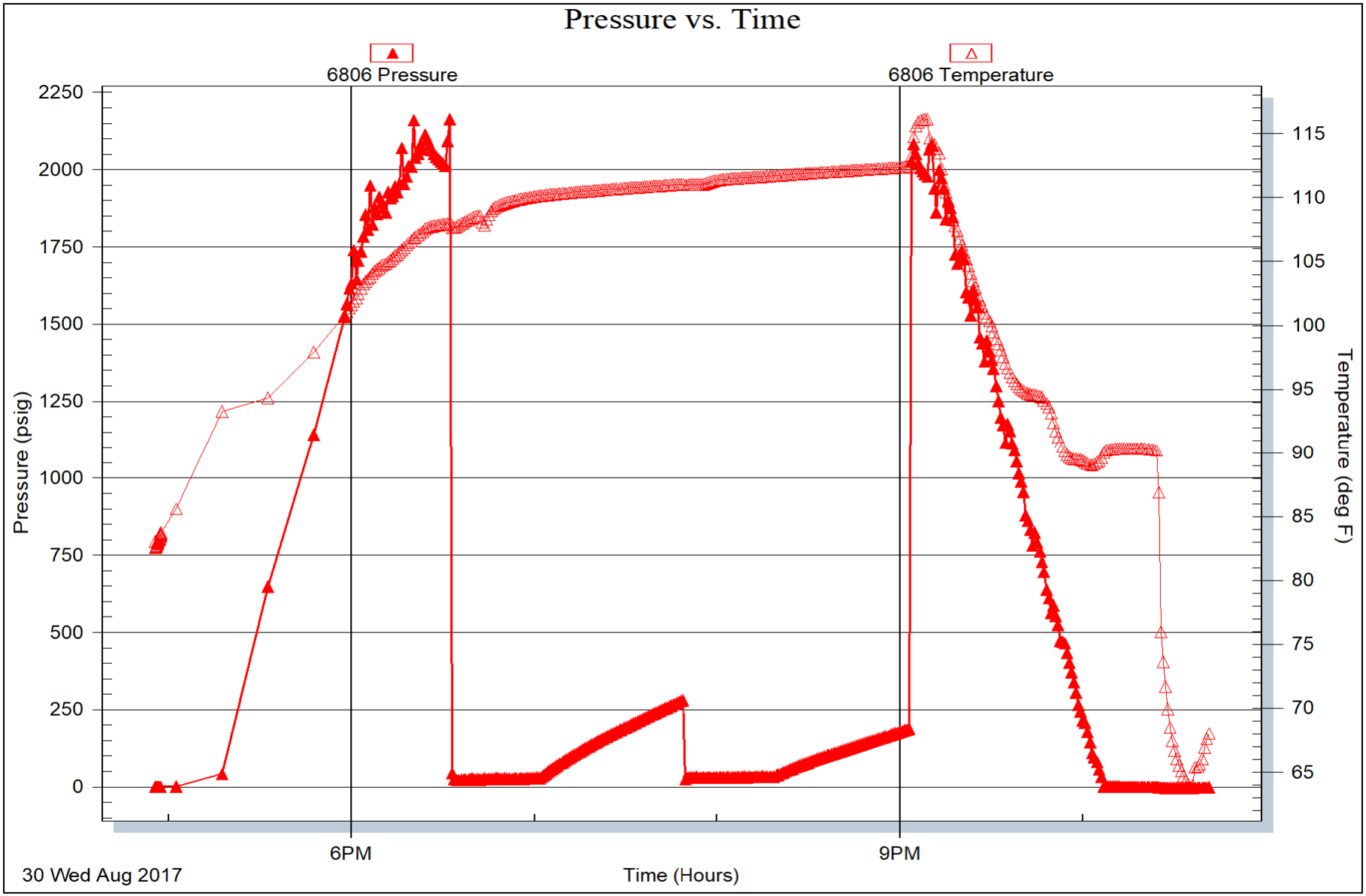
	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

Serial #: 8159 **Inside** Grunder Oil LLC Grunder 2 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 63623 Printed: 2017.08.31 @ 00:36:38

Serial #: 6806 **Outside** Grunder Oil LLC Grunder 2 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 63623 Printed: 2017.08.31 @ 00:36:39

DRILL STEM TEST REPORT

Grunder Oil LLC

122S Main St John KS 67576

ATTN: Keaton Jones

14-2s-13w Stafford

Grunder 2

Job Ticket: 63624 **DST#: 2**

Test Start: 2017.08.31 @ 08:42:17

GENERAL INFORMATION:

Formation: **Simpson**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:38:47
Time Test Ended: 14:05:32

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

Interval: 4201.00 ft (KB) To 4238.00 ft (KB) (TVD)
Total Depth: 4238.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

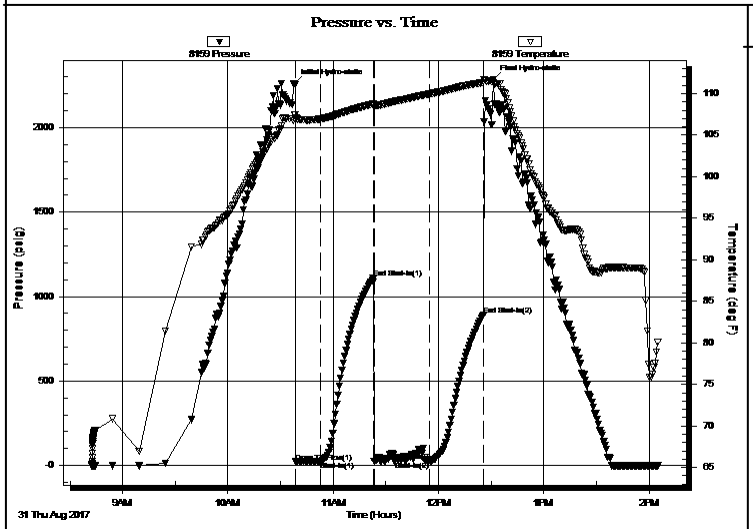
Reference Elevations: 1933.00 ft (KB)
1927.00 ft (CF)
KB to GR/CF: 6.00 ft

Serial #: 8159 **Inside**

Press@RunDepth: 23.28 psig @ 4202.00 ft (KB)
Start Date: 2017.08.31 End Date: 2017.08.31
Start Time: 08:42:18 End Time: 14:05:32

Capacity: 8000.00 psig
Last Calib.: 2017.08.31
Time On Btm: 2017.08.31 @ 10:38:02
Time Off Btm: 2017.08.31 @ 12:31:17

TEST COMMENT: IF: Weak Surface Blow
ISI: No Blow Back
FF: Weak Surface Blow
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2261.17	107.45	Initial Hydro-static
1	21.73	106.86	Open To Flow (1)
15	24.95	106.96	Shut-In(1)
45	1107.81	108.74	End Shut-In(1)
46	22.88	108.32	Open To Flow (2)
77	23.28	109.94	Shut-In(2)
108	889.18	111.34	End Shut-In(2)
114	2284.85	111.36	Final Hydro-static

Recovery

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

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Grunder Oil LLC

122S Main St John KS 67576

ATTN: Keaton Jones

14-2s-13w Stafford

Grunder 2

Job Ticket: 63624 **DST#: 2**

Test Start: 2017.08.31 @ 08:42:17

GENERAL INFORMATION:

Formation: **Simpson**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:38:47
Time Test Ended: 14:05:32

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

Interval: 4201.00 ft (KB) To 4238.00 ft (KB) (TVD)
Total Depth: 4238.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

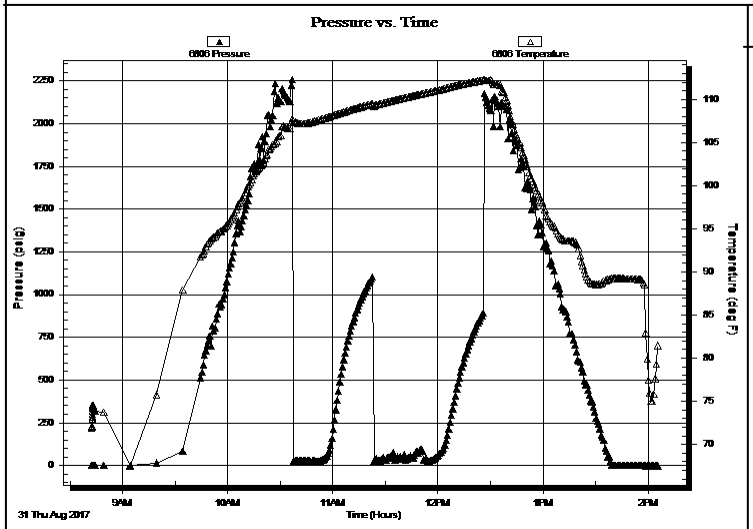
Reference Elevations: 1933.00 ft (KB)
1927.00 ft (CF)
KB to GR/CF: 6.00 ft

Serial #: 6806 **Outside**

Press@RunDepth: psig @ 4202.00 ft (KB)
Start Date: 2017.08.31 End Date: 2017.08.31
Start Time: 08:42:18 End Time: 14:05:47

Capacity: 8000.00 psig
Last Calib.: 2017.08.31
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Weak Surface Blow
ISI: No Blow Back
FF: Weak Surface Blow
FSI: No Blow Back



PRESSURE SUMMARY

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

Recovery

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

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Grunder Oil LLC

122S Main St John KS 67576

ATTN: Keaton Jones

14-2s-13w Stafford

Grunder 2

Job Ticket: 63624 **DST#: 2**

Test Start: 2017.08.31 @ 08:42:17

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:	ppm
Viscosity:	60.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.58 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	7000.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	Mud	0.070

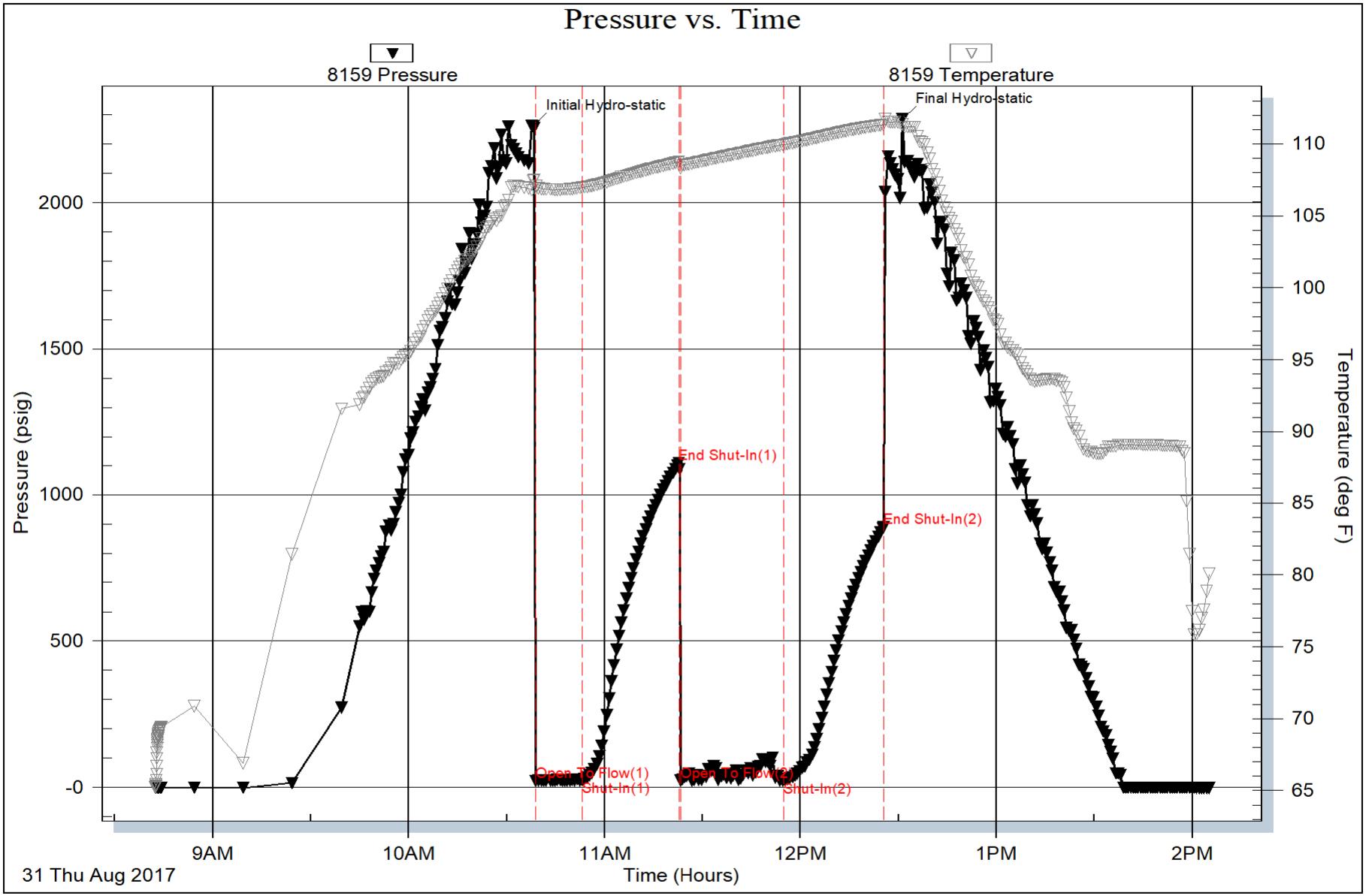
Total Length: 5.00 ft Total Volume: 0.070 bbl

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

Laboratory Name: Laboratory Location:

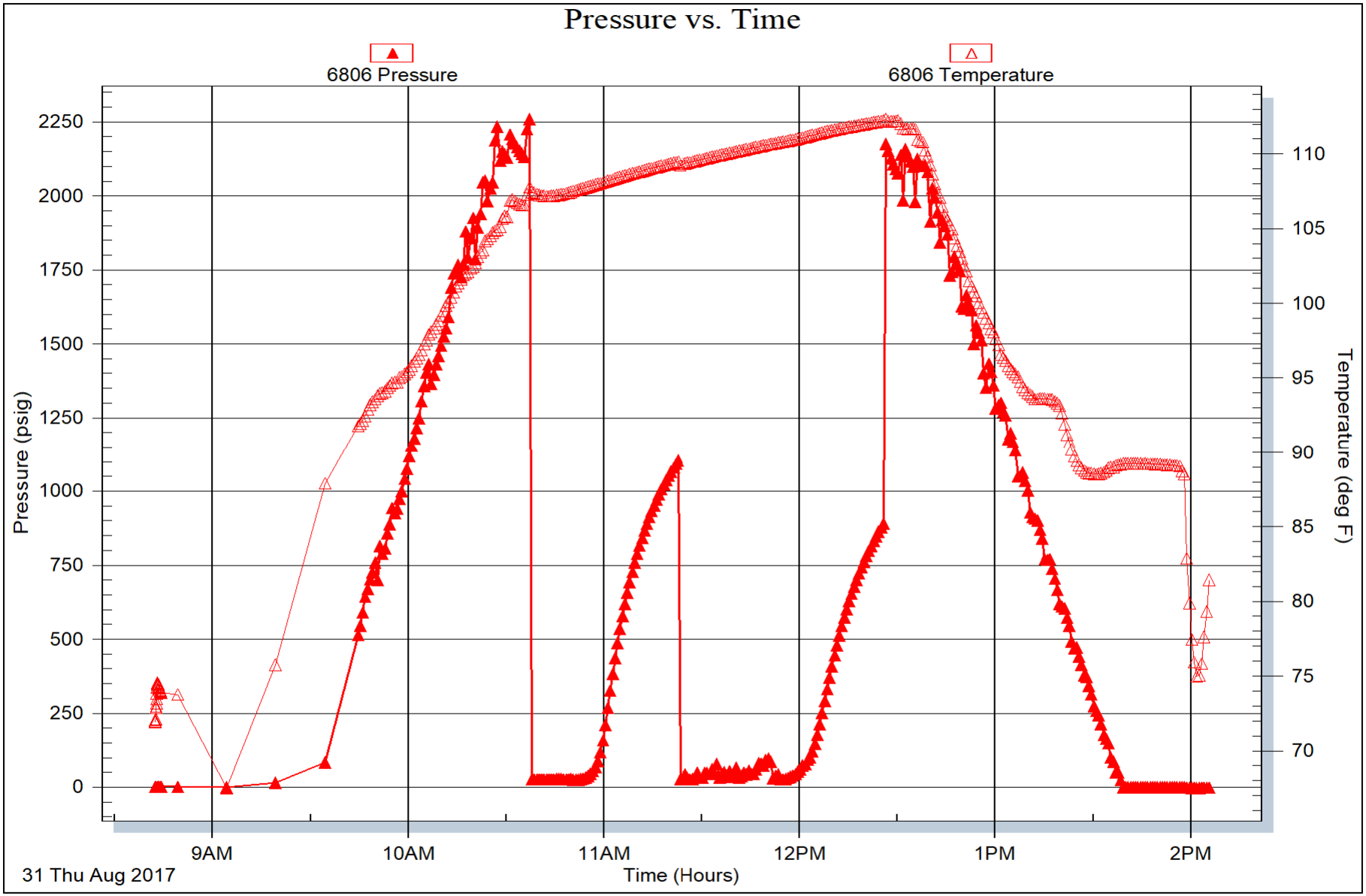
Recovery Comments:

Serial #: 8159 **Inside** Grunder Oil LLC Grunder 2 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 63624 Printed: 2017.08.31 @ 14:29:48

Serial #: 6806 **Outside** Grunder Oil LLC Grunder 2 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 63624 Printed: 2017.08.31 @ 14:29:49

DRILL STEM TEST REPORT

Grunder Oil LLC

122S Main St John KS 67576

ATTN: Keaton Jones

14-2s-13w Stafford

Grunder 2

Job Ticket: 63625 **DST#: 3**

Test Start: 2017.09.01 @ 00:18:12

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:42:27
Time Test Ended: 08:16:12

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

Interval: 4284.00 ft (KB) To 4299.00 ft (KB) (TVD)
Total Depth: 4299.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

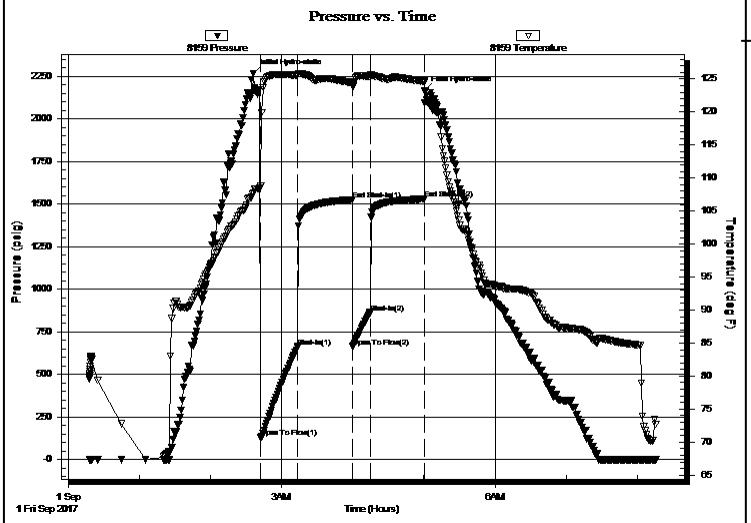
Reference Elevations: 1933.00 ft (KB)
1927.00 ft (CF)
KB to GR/CF: 6.00 ft

Serial #: 8159 **Inside**

Press@RunDepth: 863.57 psig @ 4285.00 ft (KB)
Start Date: 2017.09.01 End Date: 2017.09.01
Start Time: 00:18:13 End Time: 08:16:12

Capacity: 8000.00 psig
Last Calib.: 2017.09.01
Time On Btm: 2017.09.01 @ 02:36:27
Time Off Btm: 2017.09.01 @ 05:00:42

TEST COMMENT: IF: Strong Blow BOB 90 Seconds
ISI: No Blow Back
FF: Strong Bolw BOB 90 Seconds
FSI: No Blow Back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2267.68	107.67	Initial Hydro-static
6	131.34	108.75	Open To Flow (1)
38	662.62	125.52	Shut-In(1)
84	1525.80	124.43	End Shut-In(1)
84	661.95	123.97	Open To Flow (2)
99	863.57	125.38	Shut-In(2)
144	1530.59	124.63	End Shut-In(2)
145	2166.69	124.45	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
882.00	Water	12.37
441.00	MOCW 5%M 20%O 75%W	6.19
252.00	MOCW 5%M 22%O 73%W	3.53
315.00	MWCO 20%M 40%W 40%O	4.42

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Grunder Oil LLC

122S Main St John KS 67576

ATTN: Keaton Jones

14-2s-13w Stafford

Grunder 2

Job Ticket: 63625 **DST#: 3**

Test Start: 2017.09.01 @ 00:18:12

GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:42:27
Time Test Ended: 08:16:12

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

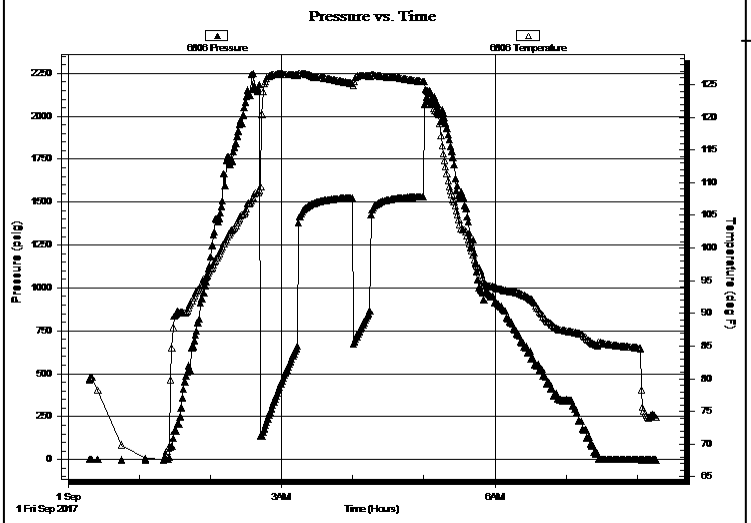
Interval: 4284.00 ft (KB) To 4299.00 ft (KB) (TVD)
Total Depth: 4299.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 1933.00 ft (KB)
1927.00 ft (CF)
KB to GR/CF: 6.00 ft

Serial #: 6806 **Outside**
Press@RunDepth: psig @ 4285.00 ft (KB)
Start Date: 2017.09.01 End Date: 2017.09.01
Start Time: 00:18:13 End Time: 08:16:12

Capacity: 8000.00 psig
Last Calib.: 2017.09.01
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: Strong Blow BOB 90 Seconds
ISI: No Blow Back
FF: Strong Bolw BOB 90 Seconds
FSI: No Blow Back



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
882.00	Water	12.37
441.00	MOCW 5%M 20%O 75%W	6.19
252.00	MOCW 5%M 22%O 73%W	3.53
315.00	MWCO 20%M 40%W 40%O	4.42

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Grunder Oil LLC

122S Main St John KS 67576

ATTN: Keaton Jones

14-2s-13w Stafford

Grunder 2

Job Ticket: 63625 **DST#: 3**

Test Start: 2017.09.01 @ 00:18:12

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:	42000 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	9.99 in³	Gas Cushion Type:			
Resistivity:	ohm.m	Gas Cushion Pressure:	psig		
Salinity:	7500.00 ppm				
Filter Cake:	0.02 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
882.00	Water	12.372
441.00	MOCW 5%M 20%O 75%W	6.186
252.00	MOCW 5%M 22%O 73%W	3.535
315.00	MWCO 20%M 40%W 40%O	4.419

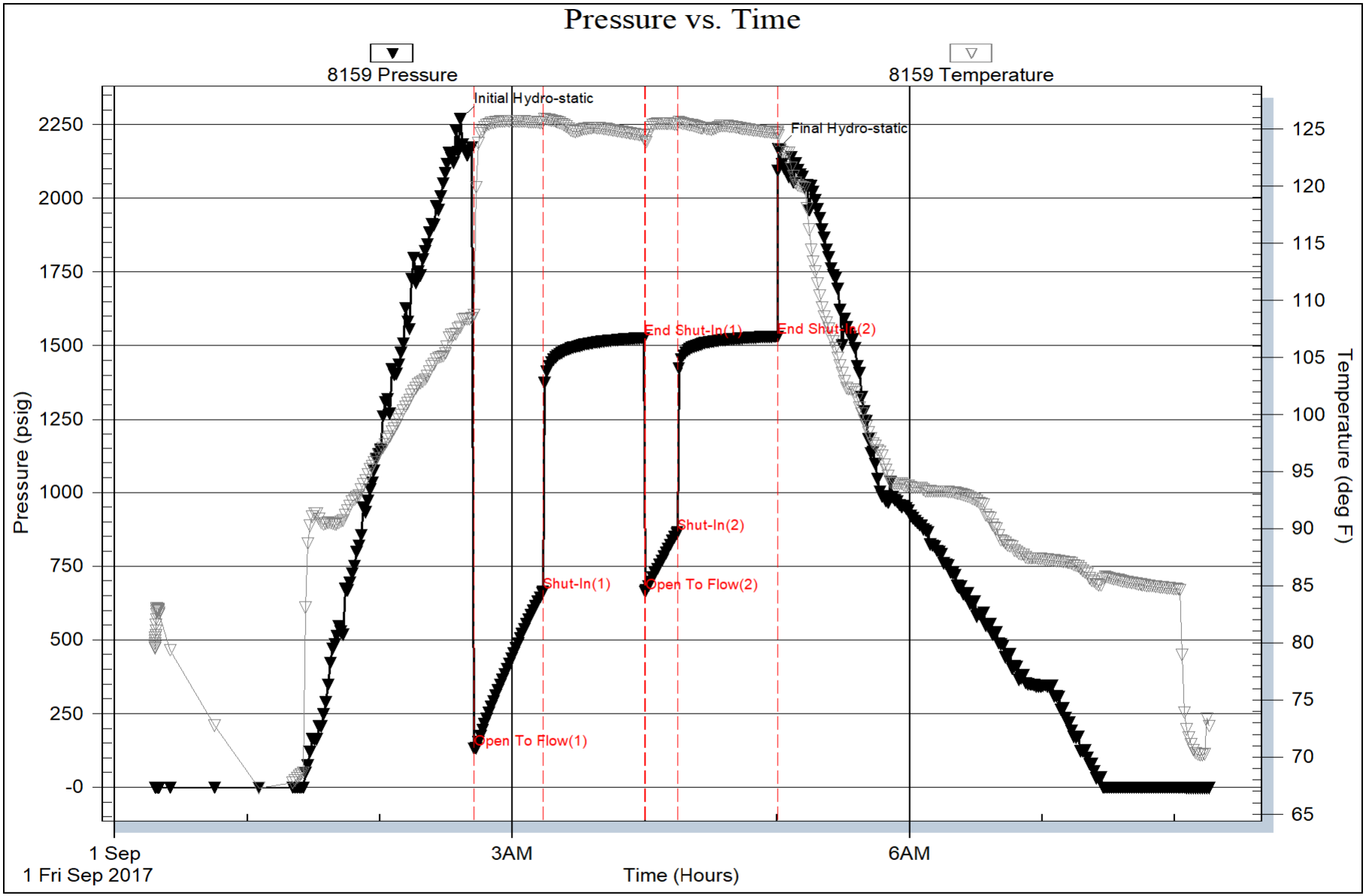
Total Length: 1890.00 ft Total Volume: 26.512 bbl

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

Laboratory Name: Laboratory Location:

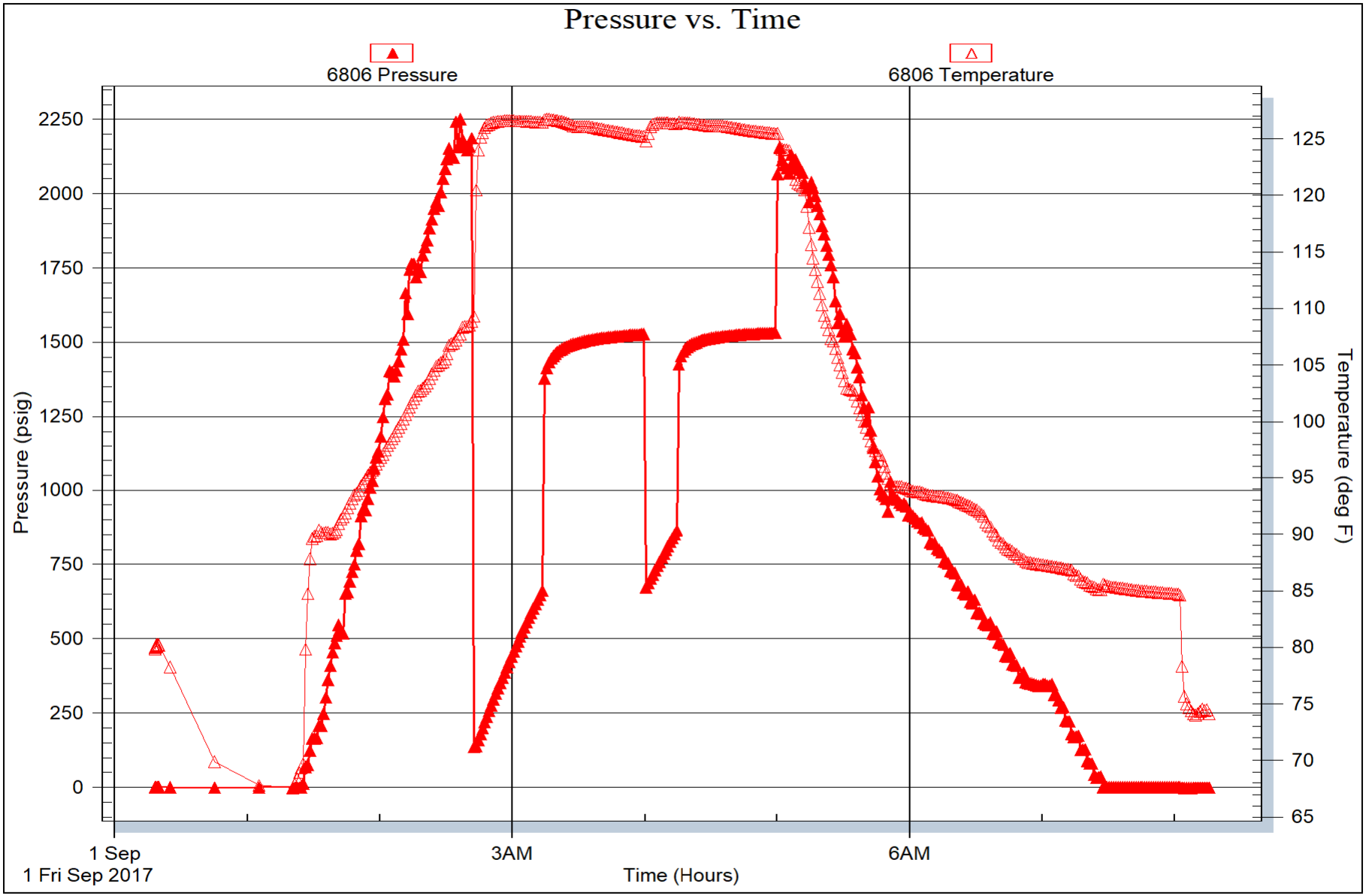
Recovery Comments: RW was .21 @ 57degrees

Serial #: 8159 **Inside** Grunder Oil LLC Grunder 2 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 63625 Printed: 2017.09.01 @ 08:39:47

Serial #: 6806 **Outside** Grunder Oil LLC Grunder 2 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 63625 Printed: 2017.09.01 @ 08:39:47