



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1168824  
OIL & GAS CONSERVATION DIVISION

Form ACO-1  
August 2013

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       SIOW
- Gas       D&A       ENHR       SIGW
- OG       GSW       Temp. Abd.
- 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 ENHR       Conv. to SWD
- Plug Back       Conv. to GSW       Conv. to Producer
- Commingled      Permit #: \_\_\_\_\_
- Dual Completion      Permit #: \_\_\_\_\_
- SWD      Permit #: \_\_\_\_\_
- ENHR      Permit #: \_\_\_\_\_
- GSW      Permit #: \_\_\_\_\_

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - \_\_\_\_\_

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
- Geologist Report Received
- UIC Distribution
- ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

1168824

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  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				

Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:	Size:	Set At:	Packer At:	Liner Run: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
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Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

<b>DISPOSITION OF GAS:</b> <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	<b>METHOD OF COMPLETION:</b> <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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Form	ACO1 - Well Completion
Operator	Sunflower Energy, LLC
Well Name	RPM Farms 1-19
Doc ID	1168824

Tops

Name	Top	Datum
Heebner Shale	4127	-1352
Lansing	4189	-1414
Stark Shale	4518	-1743
Swope	4521	-1746
Marmoton	4694	-1919
Pawnee	4782	-2007
Cherokee Shale	4822	-2047
St. Genevieve	5030	-2255
St. Louis A	5112	-2337
St. Louis B	5142	-2367



Conservation Division  
Finney State Office Building  
130 S. Market, Rm. 2078  
Wichita, KS 67202-3802



Phone: 316-337-6200  
Fax: 316-337-6211  
<http://kcc.ks.gov/>

Mark Sievers, Chairman  
Thomas E. Wright, Commissioner  
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

November 18, 2013

David E. Rice  
Sunflower Energy, LLC  
10801 MASTIN, STE 920  
OVERLAND PARK, KS 66210

Re: ACO1  
API 15-069-20449-00-00  
RPM Farms 1-19  
NW/4 Sec.19-27S-29W  
Gray County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,  
David E. Rice



**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Sunflower Energy  
 10801 Mastin Ste 920  
 Overland, Ks 66210  
 ATTN: Wes Hansen

**19-27-29 Gray, Ks**  
**RPM Farms 1-19**  
 Job Ticket: 54967      **DST#: 1**  
 Test Start: 2013.11.08 @ 20:14:00

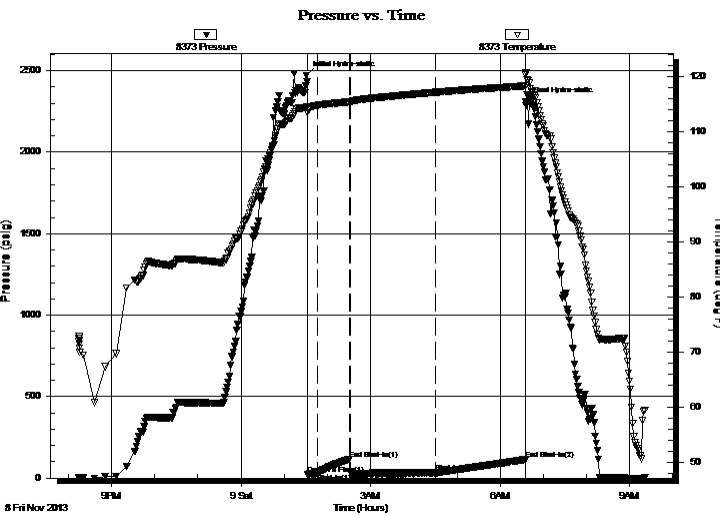
## GENERAL INFORMATION:

Formation: **Cherokee**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 01:32:00  
 Tester: Brandon Turley/ Tim  
 Time Test Ended: 09:21:00  
 Unit No: 60  
**Interval: 4890.00 ft (KB) To 4980.00 ft (KB) (TVD)**  
 Reference Elevations: 2778.00 ft (KB)  
 Total Depth: 4980.00 ft (KB) (TVD) 2768.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Good KB to GR/CF: 10.00 ft

## Serial #: 8373

Press @RunDepth: 34.08 psig @ ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.11.08 End Date: 2013.11.09 Last Calib.: 2013.11.09  
 Start Time: 20:14:05 End Time: 09:21:00 Time On Btm: 2013.11.09 @ 01:30:30  
 Time Off Btm: 2013.11.09 @ 06:35:00

TEST COMMENT: IFP-15- built to 1.25 in  
 ISP-45- No blow back  
 FF-120-built to 2in  
 FSI-120-no blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2469.37	114.39	Initial Hydro-static
2	21.35	113.43	Open To Flow (1)
16	28.40	114.70	Shut-In(1)
61	115.31	115.35	End Shut-In(1)
61	39.72	115.29	Open To Flow (2)
180	34.08	117.08	Shut-In(2)
304	113.05	118.21	End Shut-In(2)
305	2310.79	120.18	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
10.00	mud	0.05

## Gas Rates

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





**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Sunflower Energy

**19-27-29 Gray, Ks**

10801 Mastin Ste 920  
Overland, Ks 66210

**RPM Farms 1-19**

Job Ticket: 54967

**DST#: 1**

ATTN: Wes Hansen

Test Start: 2013.11.08 @ 20:14:00

## 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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 4900.00 ppm

Filter Cake: 1.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	mud	0.049

Total Length: 10.00 ft      Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

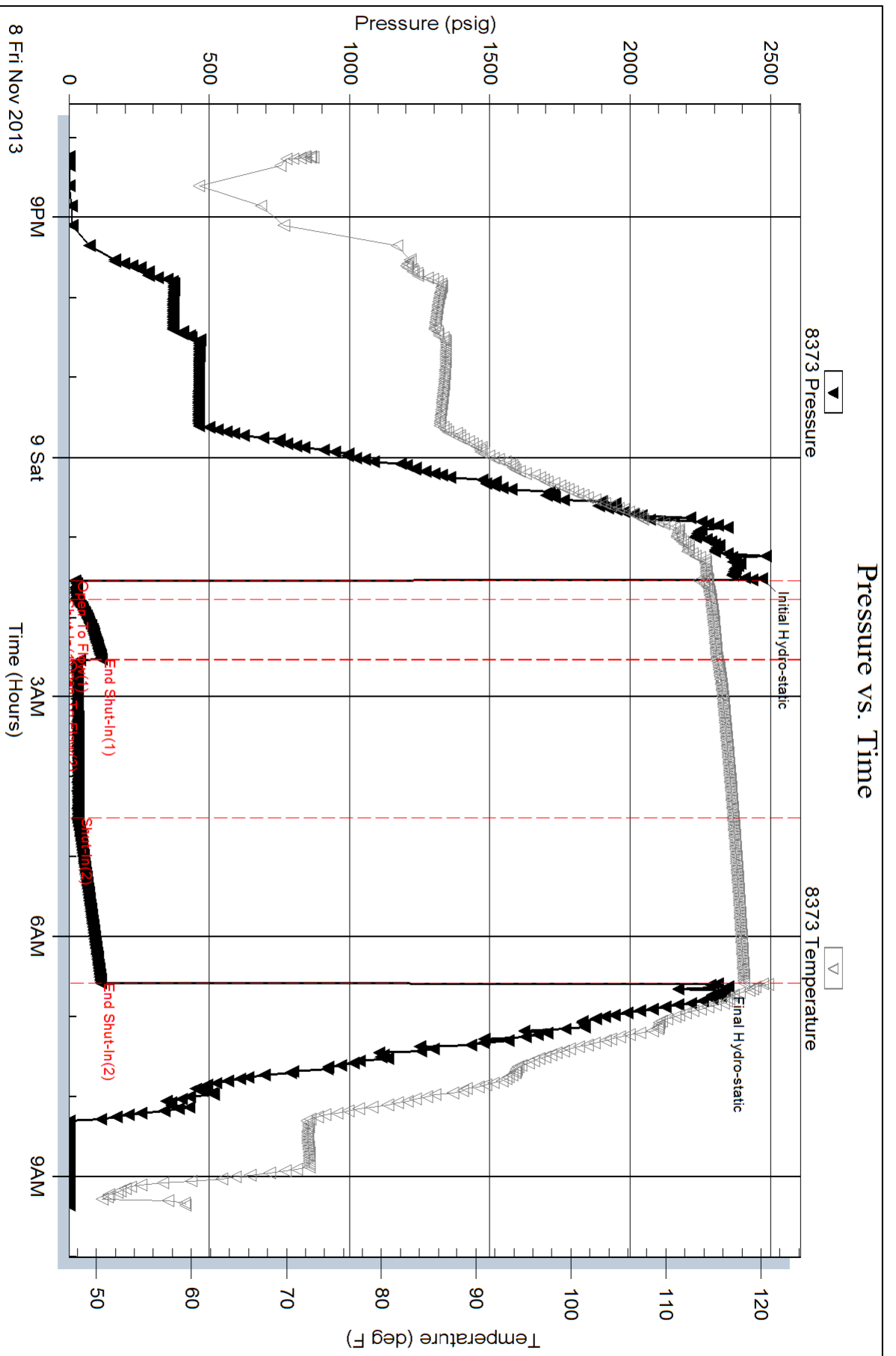
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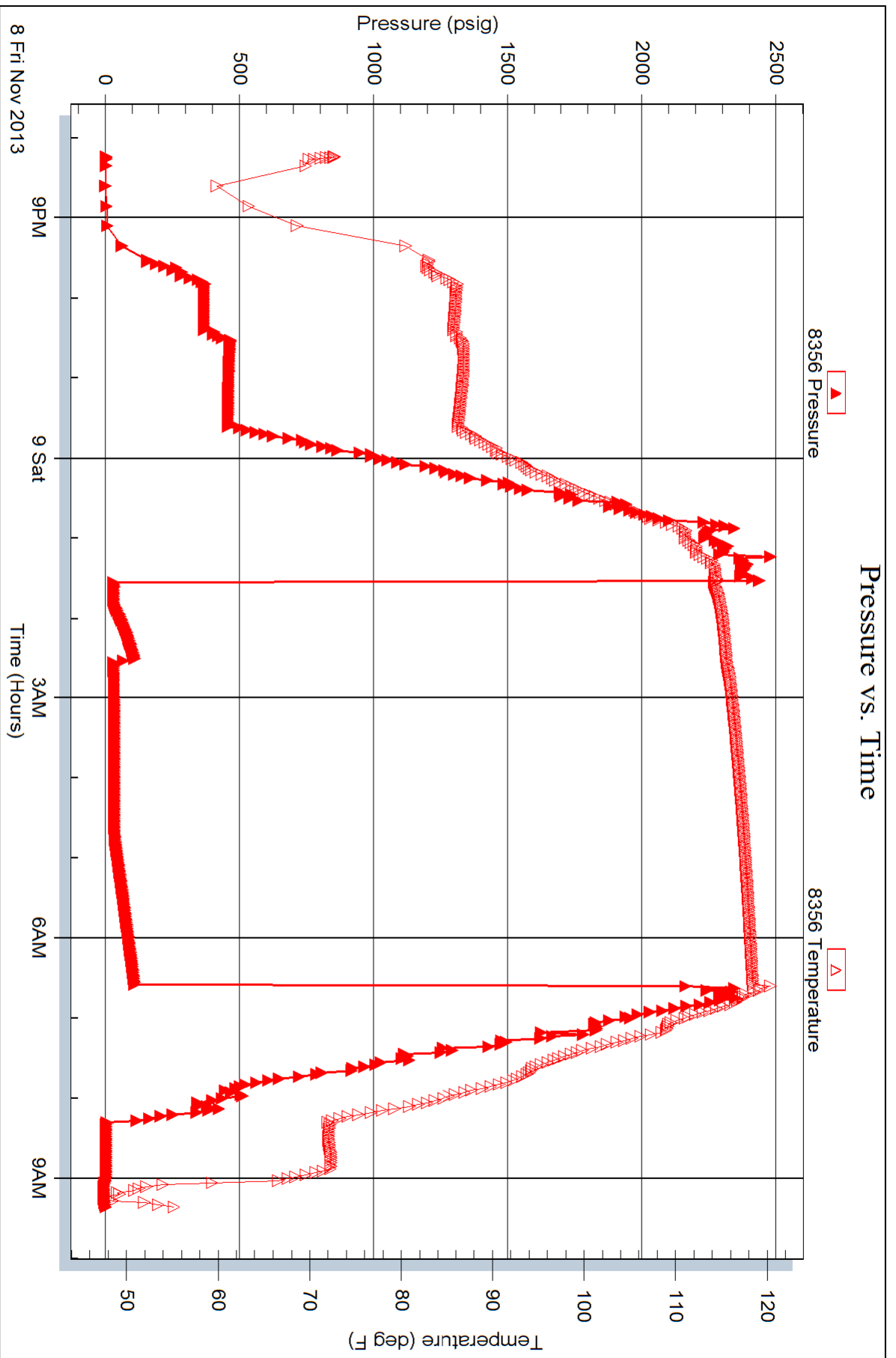
Laboratory Name:

Laboratory Location:

Recovery Comments:









**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Sunflower Energy  
 10801 Mastin Ste 920  
 Overland, Ks 66210  
 ATTN: Wes Hansen

**19-27-29 Gray, Ks**  
**RPM Farms 1-19**  
 Job Ticket: 54968 **DST#: 2**  
 Test Start: 2013.11.10 @ 05:41:40

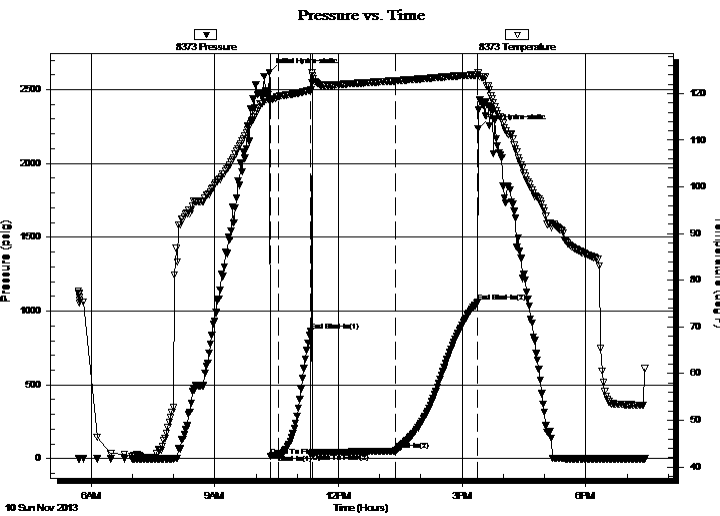
## GENERAL INFORMATION:

Formation: **St. Louis A**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 10:21:10  
 Time Test Ended: 19:27:10  
 Interval: **5102.00 ft (KB) To 5123.00 ft (KB) (TVD)**  
 Total Depth: 5123.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Tim Phillips  
 Unit No: 60  
 Reference Elevations: 2778.00 ft (KB)  
 2768.00 ft (CF)  
 KB to GR/CF: 10.00 ft

## Serial #: 8373

Press @ Run Depth: 54.82 psig @ ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.11.10 End Date: 2013.11.10 Last Calib.: 2013.11.10  
 Start Time: 05:41:45 End Time: 19:27:10 Time On Btm: 2013.11.10 @ 10:19:40  
 Time Off Btm: 2013.11.10 @ 15:23:10

TEST COMMENT: IFP-15- Blow died in 3 min  
 ISI-45-No blow back  
 FF-Flushed tool, built to 6.5 in  
 FSI-Built to 2in in 13 min, died back in 1 hr



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2616.63	118.83	Initial Hydro-static
2	18.43	118.53	Open To Flow (1)
13	27.56	119.37	Shut-In(1)
60	861.92	120.63	End Shut-In(1)
63	40.15	123.76	Open To Flow (2)
183	54.82	122.73	Shut-In(2)
303	1060.74	124.00	End Shut-In(2)
304	2236.72	124.40	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
62.00	SSOCM	0.30
0.00	GIP 220 ft	0.00

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC.**

**DRILL STEM TEST REPORT**

**FLUID SUMMARY**

Sunflower Energy

**19-27-29 Gray, Ks**

10801 Mastin Ste 920  
Overland, Ks 66210

**RPM Farms 1-19**

Job Ticket: 54968

**DST#: 2**

ATTN: Wes Hansen

Test Start: 2013.11.10 @ 05:41:40

**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: 66.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.60 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3400.00 ppm

Filter Cake: 1.00 inches

**Recovery Information**

Recovery Table

Length ft	Description	Volume bbbl
62.00	SSOCM	0.305
0.00	GIP 220 ft	0.000

Total Length: 62.00 ft      Total Volume: 0.305 bbl

Num Fluid Samples: 0

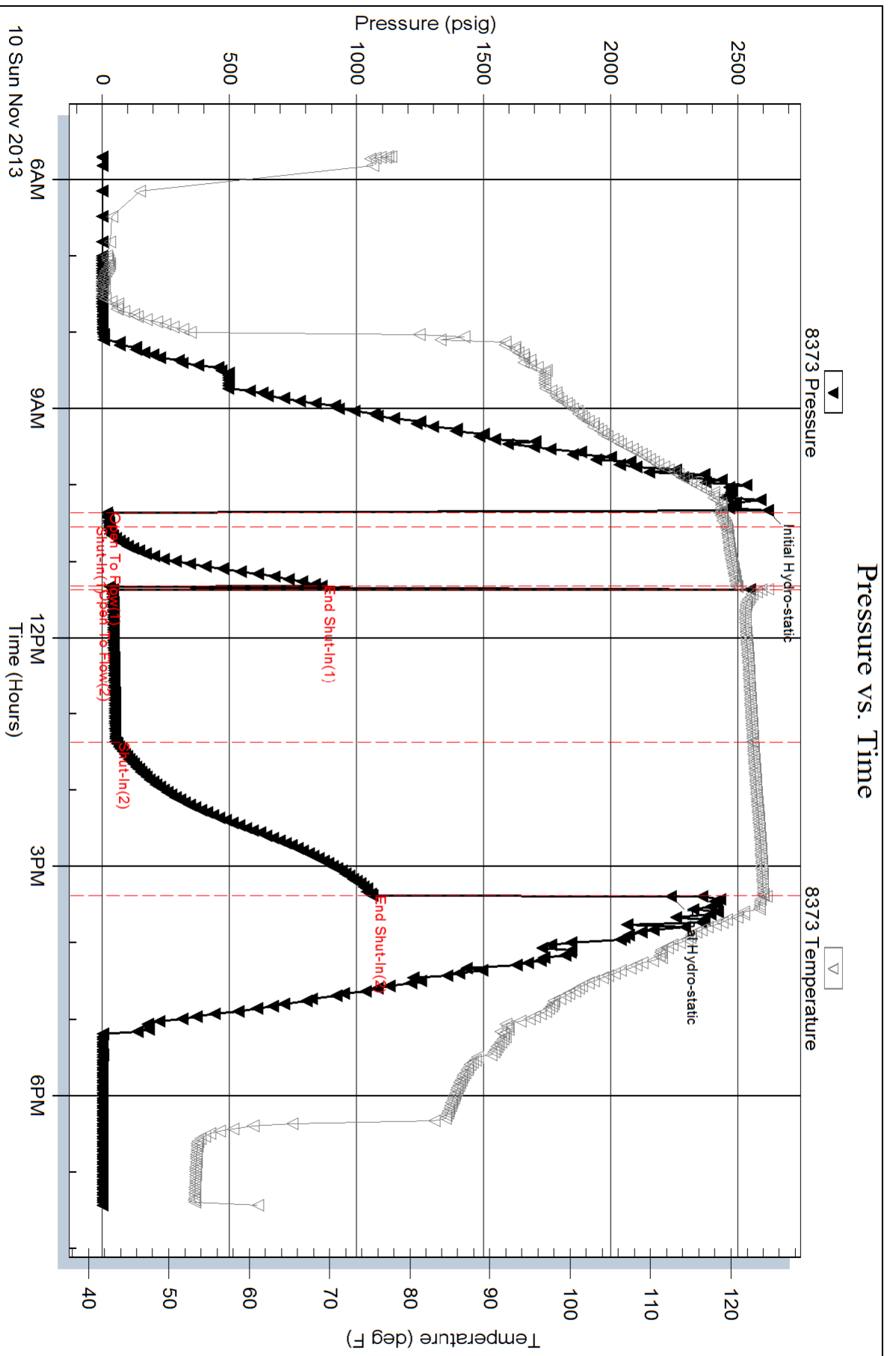
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Sunflower Energy  
 10801 Mastin Ste 920  
 Overland, Ks 66210  
 ATTN: Wes Hansen

**19-27-29 Gray, Ks**  
**RPM Farms 1-19**  
 Job Ticket: 55605      **DST#: 3**  
 Test Start: 2013.11.11 @ 08:54:00

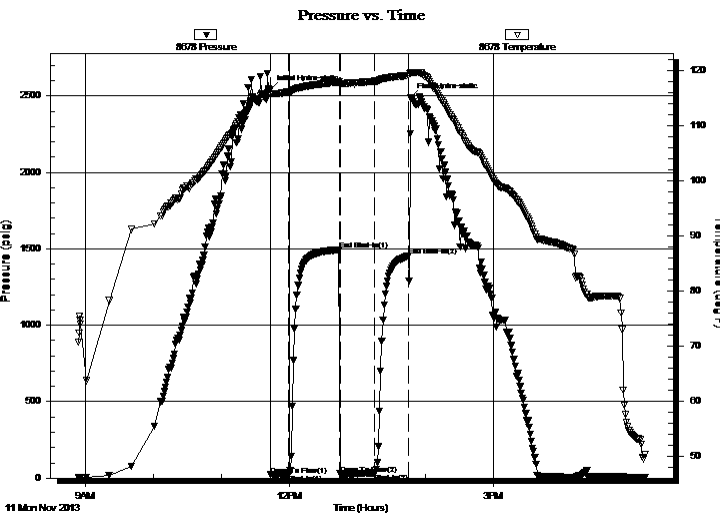
## GENERAL INFORMATION:

Formation: **St. Louis B**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 11:43:30  
 Time Test Ended: 17:13:45  
 Interval: **5138.00 ft (KB) To 5157.00 ft (KB) (TVD)**  
 Total Depth: 5157.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Good  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Bradley Walter  
 Unit No: 69  
 Reference Elevations: 2775.00 ft (KB)  
 2766.00 ft (CF)  
 KB to GR/CF: 9.00 ft

## Serial #: 8678

Press @ Run Depth: 34.15 psig @ ft (KB)      Capacity: 8000.00 psig  
 Start Date: 2013.11.11      End Date: 2013.11.11      Last Calib.: 2013.11.11  
 Start Time: 08:54:05      End Time: 17:13:44      Time On Btm: 2013.11.11 @ 11:43:15  
 Time Off Btm: 2013.11.11 @ 13:47:00

TEST COMMENT: IF: Surface blow, Died @ 7 min.  
 IS: No return.  
 FF: No blow. Flushed tool, No blow.  
 FS: No return.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2542.76	116.46	Initial Hydro-static
1	21.23	115.51	Open To Flow (1)
16	25.97	116.05	Shut-In(1)
61	1492.72	117.86	End Shut-In(1)
62	27.40	117.51	Open To Flow (2)
92	34.15	117.99	Shut-In(2)
122	1452.97	119.05	End Shut-In(2)
124	2490.00	119.49	Final Hydro-static

## Recovery

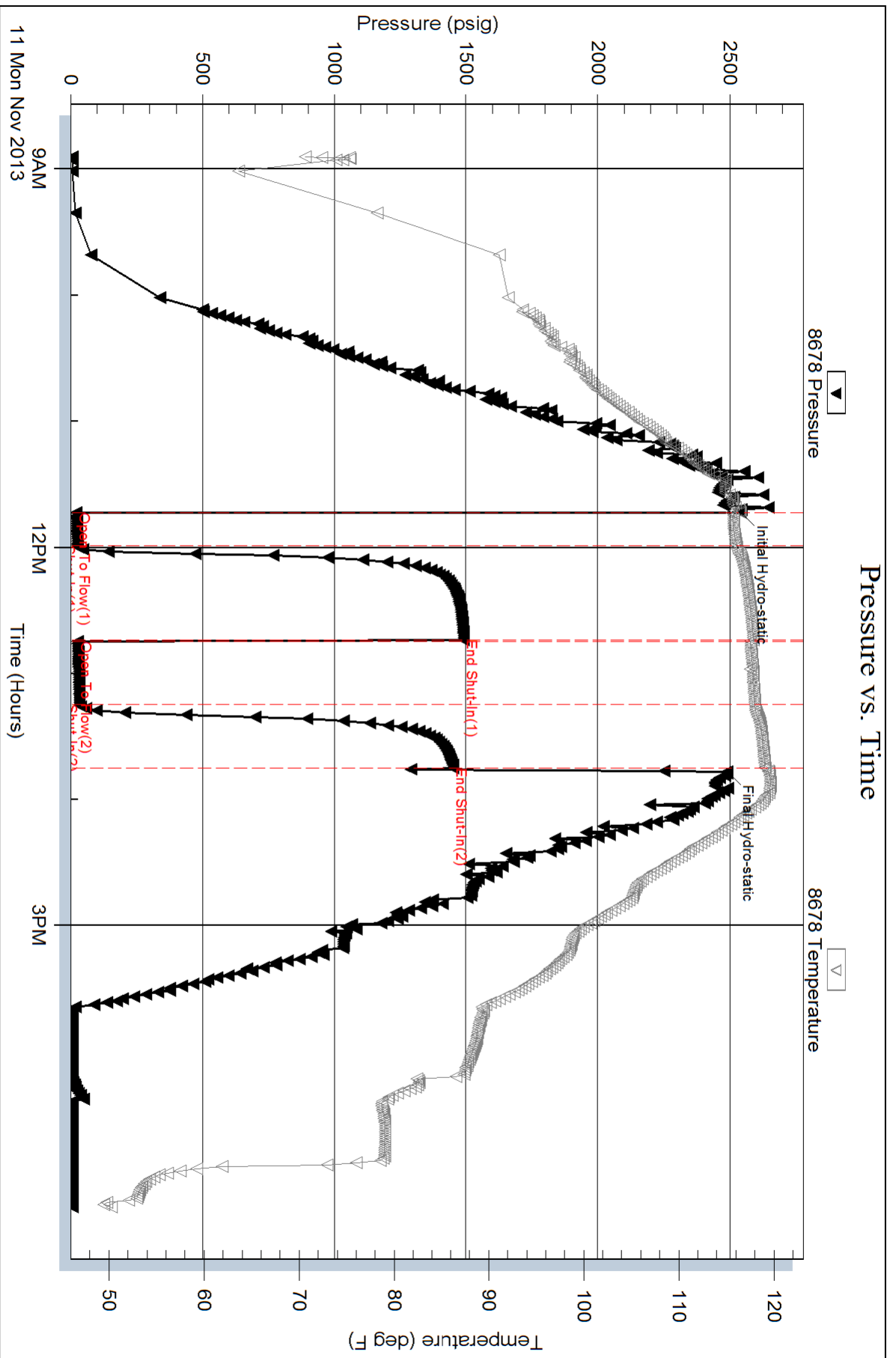
Length (ft)	Description	Volume (bbl)
15.00	mud 100m	0.07

\* Recovery from multiple tests

## Gas Rates

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





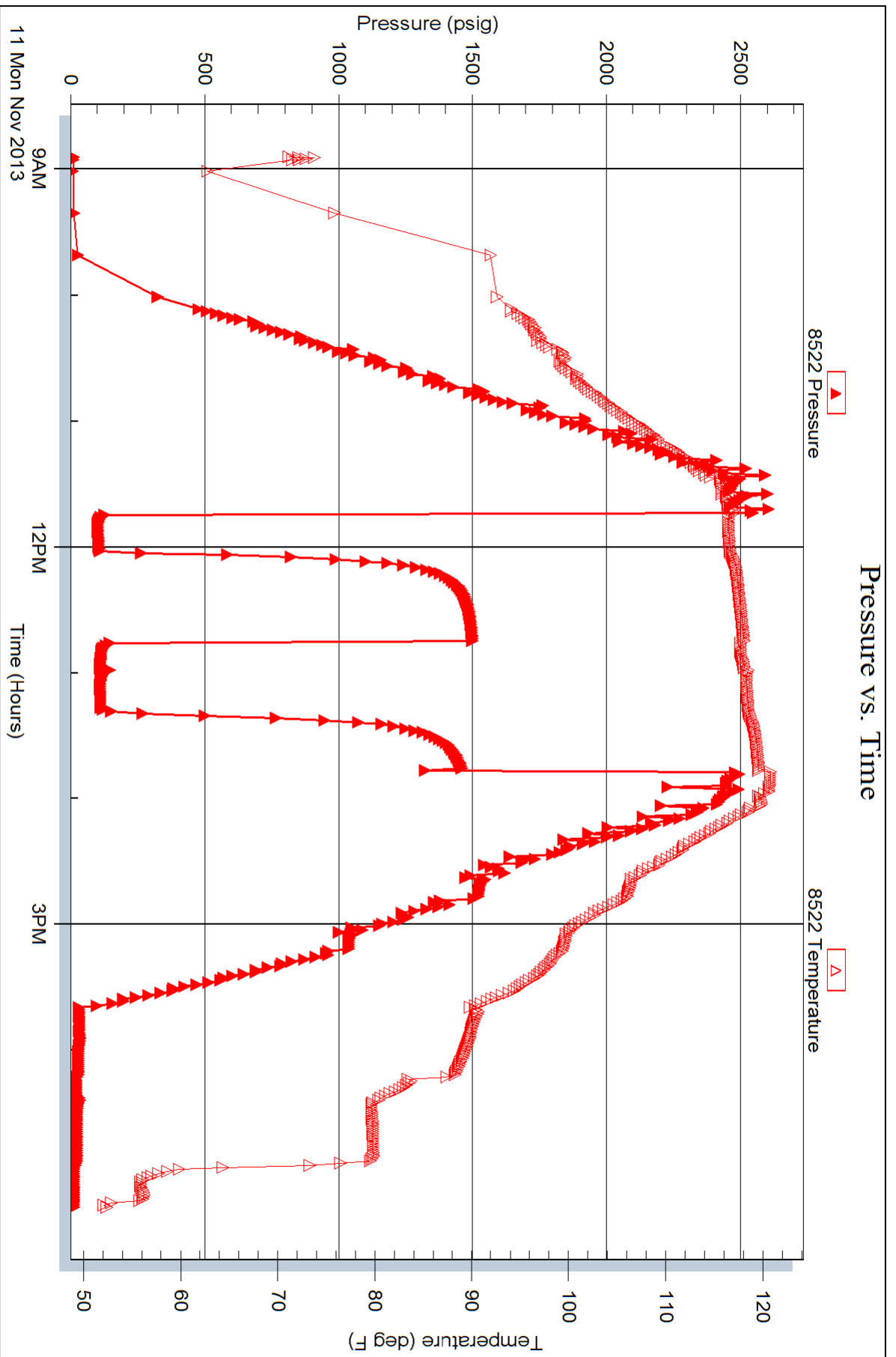


Serial #: 8522

Outside Sunflower Energy

RPM Farms 1-19

DST Test Number: 3





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Sunflower Energy  
 10801 Mastin Ste 920  
 Overland, Ks 66210  
 ATTN: Wes Hansen

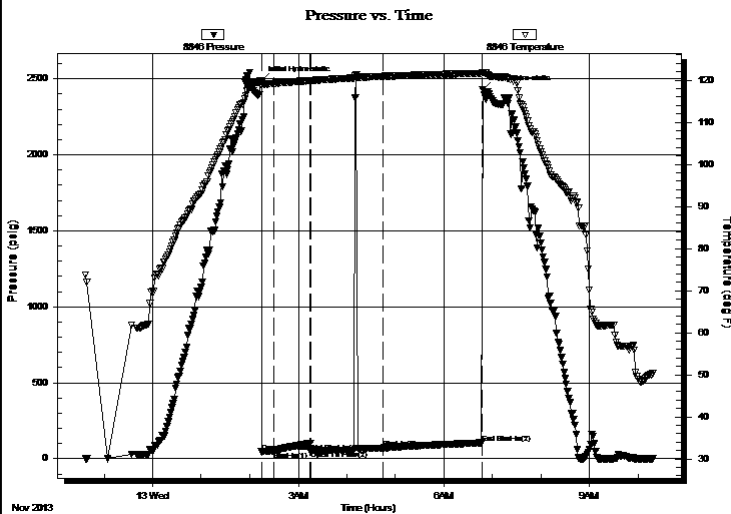
**19-27-29 Gray, Ks**  
**RPM Farms 1-19**  
 Job Ticket: 54698 **DST#: 4**  
 Test Start: 2013.11.12 @ 22:37:15

## GENERAL INFORMATION:

Formation: **Basel Penn Sand**  
 Deviated: No Whipstock: ft (KB)  
 Time Tool Opened: 02:14:30  
 Time Test Ended: 10:18:00  
 Interval: **4980.00 ft (KB) To 5040.00 ft (KB) (TVD)**  
 Total Depth: 5040.00 ft (KB) (TVD)  
 Hole Diameter: 7.88 inches Hole Condition: Fair  
 Test Type: Conventional Bottom Hole (Reset)  
 Tester: Mike Roberts  
 Unit No: 65  
 Reference Elevations: 2775.00 ft (KB)  
 2766.00 ft (CF)  
 KB to GR/CF: 9.00 ft

**Serial #: 8846 Inside**  
 Press@RunDepth: 70.21 psig @ 4981.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.11.12 End Date: 2013.11.13 Last Calib.: 2013.11.13  
 Start Time: 22:37:15 End Time: 10:18:00 Time On Btm: 2013.11.13 @ 02:14:15  
 Time Off Btm: 2013.11.13 @ 06:47:45

TEST COMMENT: IF: Built to 1" blow  
 IS: No return blow  
 FF: No blow --flushed tool--Weak surface blow died in 10 min.  
 FS: No return blow



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2487.40	119.81	Initial Hydro-static
1	45.06	118.67	Open To Flow (1)
16	50.41	119.25	Shut-In(1)
61	102.21	119.92	End Shut-In(1)
61	54.42	119.91	Open To Flow (2)
150	70.21	120.93	Shut-In(2)
273	104.22	121.67	End Shut-In(2)
274	2430.49	121.87	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	mud 100% m	0.34

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Sunflower Energy  
 10801 Mastin Ste 920  
 Overland, Ks 66210  
 ATTN: Wes Hansen

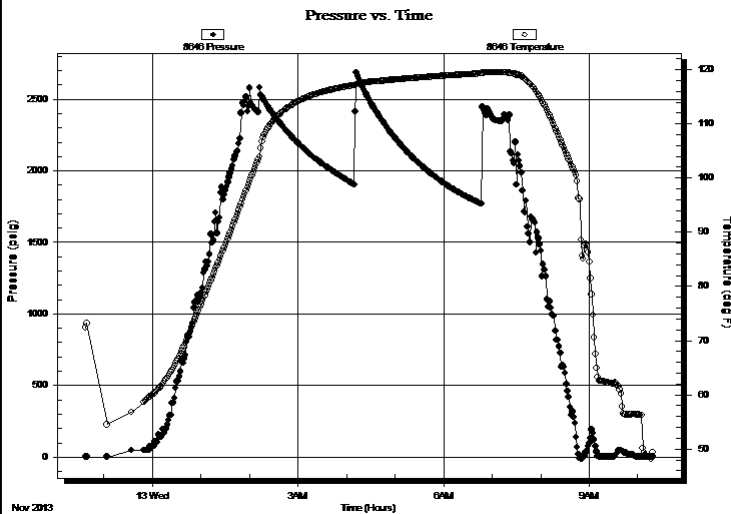
**19-27-29 Gray, Ks**  
**RPM Farms 1-19**  
 Job Ticket: 54698 **DST#: 4**  
 Test Start: 2013.11.12 @ 22:37:15

## GENERAL INFORMATION:

Formation: **Basel Penn Sand**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Reset)  
 Time Tool Opened: 02:14:30 Tester: Mike Roberts  
 Time Test Ended: 10:18:00 Unit No: 65  
 Interval: **4980.00 ft (KB) To 5040.00 ft (KB) (TVD)** Reference Elevations: 2775.00 ft (KB)  
 Total Depth: 5040.00 ft (KB) (TVD) 2766.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 9.00 ft

**Serial #: 8646 Below (Straddle)**  
 Press@RunDepth: psig @ 5234.00 ft (KB) Capacity: 8000.00 psig  
 Start Date: 2013.11.12 End Date: 2013.11.13 Last Calib.: 2013.11.13  
 Start Time: 22:37:15 End Time: 10:18:15 Time On Btm:  
 Time Off Btm:

**TEST COMMENT:** IF: Built to 1" blow  
 IS: No return blow  
 FF: No blow --flushed tool--Weak surface blow died in 10 min.  
 FS: No return blow



## PRESSURE SUMMARY

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

## Recovery

Length (ft)	Description	Volume (bbl)
70.00	mud 100% m	0.34

\* Recovery from multiple tests

## Gas Rates

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



**TRILOBITE  
TESTING, INC**

# DRILL STEM TEST REPORT

## FLUID SUMMARY

Sunflower Energy

19-27-29 Gray, Ks

10801 Mastin Ste 920  
Overland, Ks 66210

RPM Farms 1-19

Job Ticket: 54698

DST#: 4

ATTN: Wes Hansen

Test Start: 2013.11.12 @ 22:37:15

### Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.58 in<sup>3</sup>

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2400.00 ppm

Filter Cake: 1.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
70.00	mud 100% m	0.344

Total Length: 70.00 ft      Total Volume: 0.344 bbl

Num Fluid Samples: 0

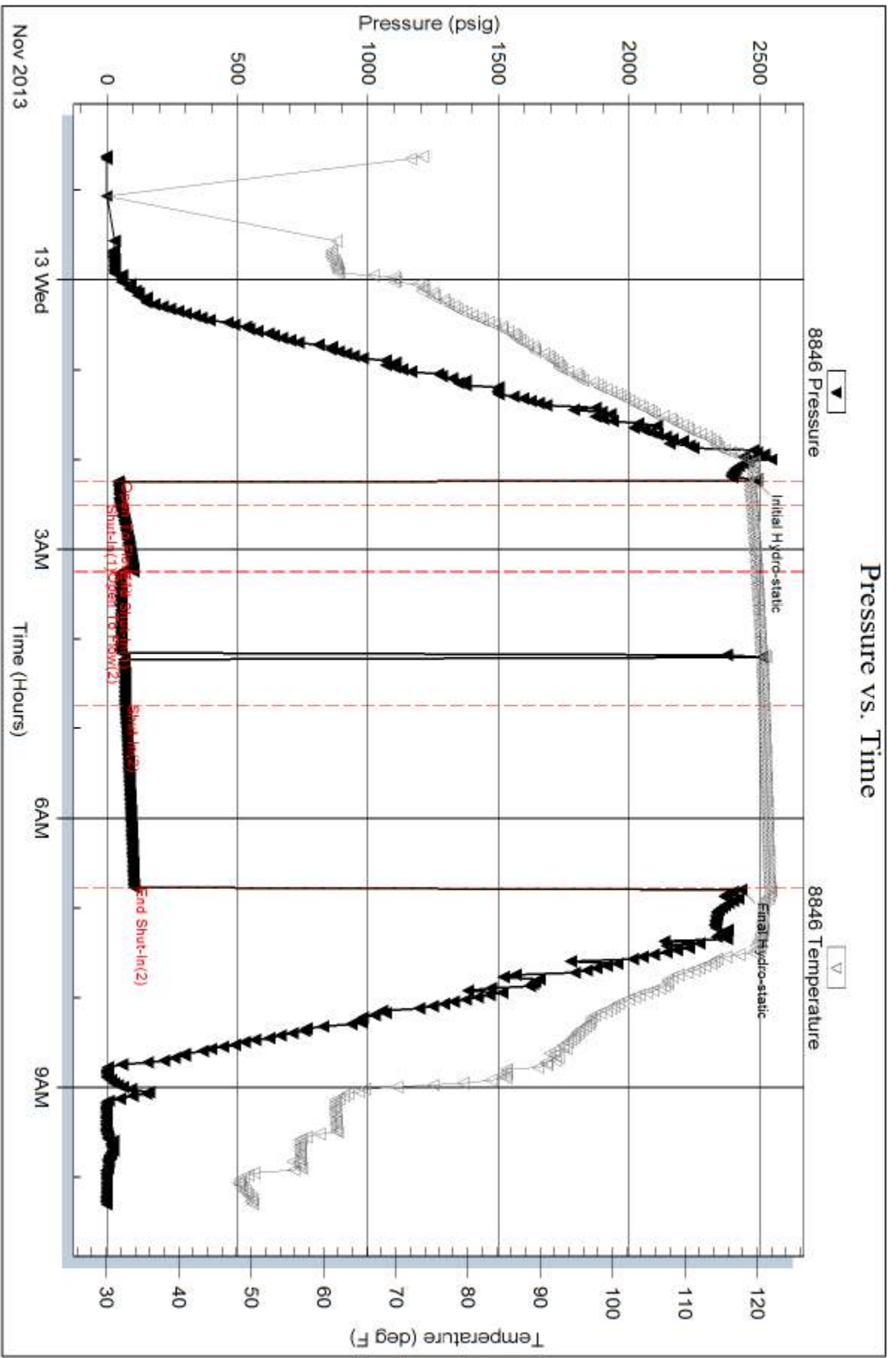
Num Gas Bombs: 0

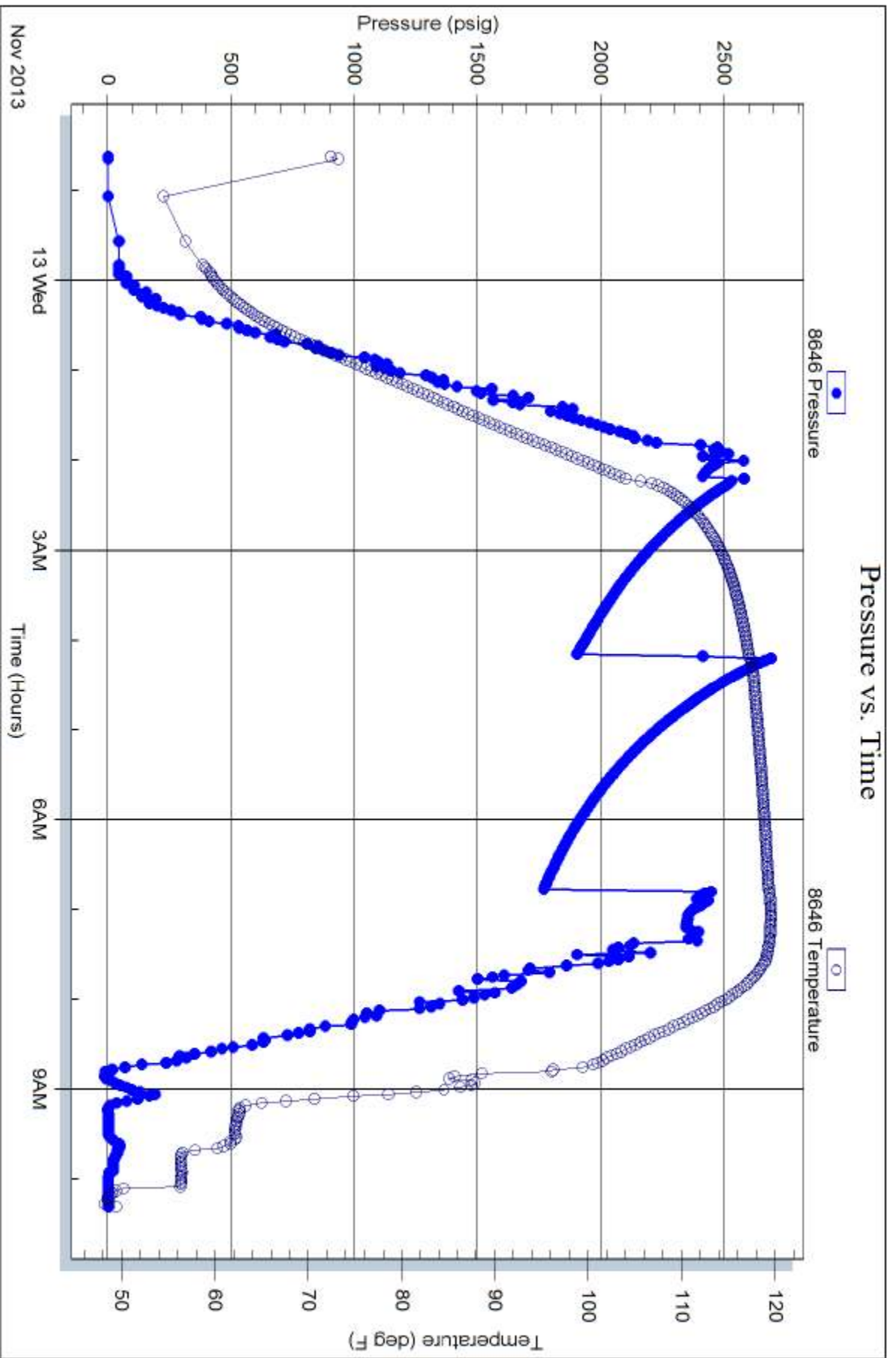
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







**WESLEY D. HANSEN Consulting Petroleum Geologist**

212 N. Market, Suite 257, Wichita, KS 67202  
Office: 316-267-7313 Cellular ; 316-772-6188

**KGS  
AAPG  
Kansas License #418**

## **LITHOLOGY STRIP LOG**

### **WellSight Systems**

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

**Well Name:** Sunflower Energy, LLC #1-19 RPM Farms Unit  
**Location:** 2649' FSL, 257' FWL of Section 19-27S-29W  
**License Number:** API: 15-069-20449 **Region:** Gray County, Kansas  
**Spud Date:** 10-31-2013 **Drilling Completed:** 11-13-2013  
**Surface Coordinates:** 2649' FSL, 257' FWL of Section 19-27S-29W

**Bottom Hole Vertical hole**  
**Coordinates:**  
**Ground Elevation (ft):** 2766' **K.B. Elevation (ft):** 2775'  
**Logged Interval (ft):** 4000' **To:** RTD **Total Depth (ft):** 5240'  
**Formation:** Mississippian at RTD  
**Type of Drilling Fluid:** Chemical - displaced at 3200'

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

### **OPERATOR**

**Company:** Sunflower Energy, LLC  
**Address:** 10801 Mastin  
Suite 920  
Overland Park, KS 66210

### **GEOLOGIST**

**Name:** Wesley D. Hansen  
**Company:** Wesley D. Hansen - Consulting Petroleum Geologist  
**Address:** 212 N. Market, Suite 257  
Wichita, KS 67202  
**Office:** 316-263-7313 **Cellular:** 316-772-6188

## COMMENTS

Contractor: Tomcat Drilling Rig #4  
 Pusher: Oscar Martinez

Surface Casing: 8 5/8" set at 1852' w/600 sx  
 Production Casing: P&A

Mud by: MudCo - Justin Whiting was the engineer

DST's by: Trilobite - Brandon Turley/Tim Phillips/Brad Walters/Mike Roberts were the testers

Logs by: Weatherford - MAI/MFE, MPD/MDN, MSS,

Deviation Surveys: 3/4 deg. @ 1025'; 1 1/4 deg. @ 1855'; 1/2 deg. @ 2243'; 1/4 deg. @ 4000'; 1 deg. @ 4980'; 3/4 deg. @ 5240'

Bit #	Size	MFG	Type	Depth Out	Footage Cut	Hours on bit
1	12 1/4"	HTC	B221B4	1855'	1770'	25 3/4
2	7 7/8"	HTC	BP506	4000'	2145'	37 1/2
3	7 7/8"	HTC	GX-20C	5240'	1240'	76 3/4

## FORMATION TOPS AND STRUCTURAL COMPARISON

FORMATION	SAMPLE TOPS		LOG TOPS		COMPARISON WELL	
	Depth	Datum	Depth	Datum	Sunflower Energy, LLC Ginest #1-30 2763' KB	
Stotler	not called		3513'	-738	-727	-11
Heebner Shale	4127'	-1352	4127'	-1352	-1347	-5
Lansing	4193'	-1418	4189'	-1414	-1411	-3
Stark Shale	4516'	-1741	4518'	-1743	-1737	-6
Swope	4519'	-1744	4521'	-1746	-1741	-5
Marmaton	4692'	-1917	4694'	-1919	-1927	+8
Pawnee	4779'	-2004	4782'	-2007	-2020	+13
Cherokee Shale	4821'	-2046	4822'	-2047	-2057	+10
St. Genvieve	5029'	-2254	5030'	-2255	-2256	+1
St. Louis "A"	5111'	-2336	5112'	-2337	-2345	+8
St. Louis "B"	5139'	-2364	5142'	-2367	-2397?	+30
RTD	5240'	-2465				
LTD			5243'	-2468		



# DRILL STEM TESTS

DST No. 1 Cherokee  
Interval: 4890'-4980'  
Times: 15-45-120-120  
Recovery: 10' mud  
FP: 21-28/39-34 SIP: 115-113  
HP: 2469-2310 BHT: 120 deg. F

IFP: weak blow bldg. to 1 1/4"  
ISIP: no return blow  
FFP: weak blow bldg. to 2"  
FSIP: no return blow

Serial #: 8373

Sunflower Energy

RPM Farms 1-19

DST Test Number: 1



# DRILL STEM TESTS

DST No. 2 St. Louis "A"  
 Interval: 5102'-5123'  
 Times: 15-45-120-120  
 Recovery: 220' GIP; 62' GCM with show oil  
 (10g, 90m - oil would not separate out)  
 FP: 18-27/40-54 SIP: 861-1060  
 HP: 2616-2236 BHT: 124 deg. F

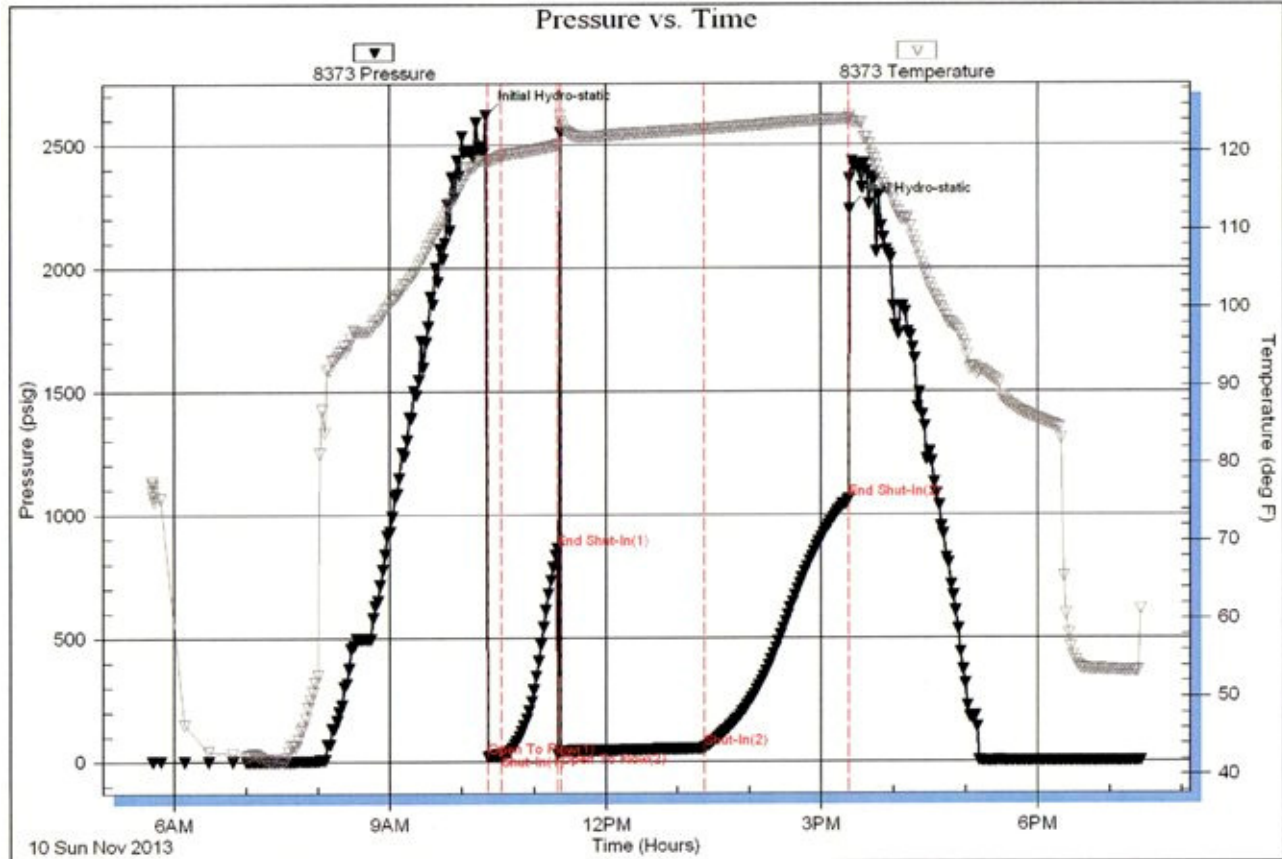
IFP: weak surface blow, died in 3 minutes  
 ISIP: no return blow  
 FFP: flushed tool, blow built to 6 1/2 inches  
 FSIP: 2 inch return blow, died in one hour

Serial #: 8373

Sunflower Energy

RPM Farms 1-19

DST Test Number: 2



Tribble Testing, Inc

Ref. No: 54968

Printed: 2013.11.10 @ 19:42:30

# DRILL STEM TESTS

DST No. 3 St. Louis "B"  
Interval: 5138'-5157'  
Times: 15-45-30-30  
Recovery: 15' mud, no shows  
FP: 21-26/27-34 SIP: 1493-1453  
HP: 2543-2490 BHT: 119 deg. F

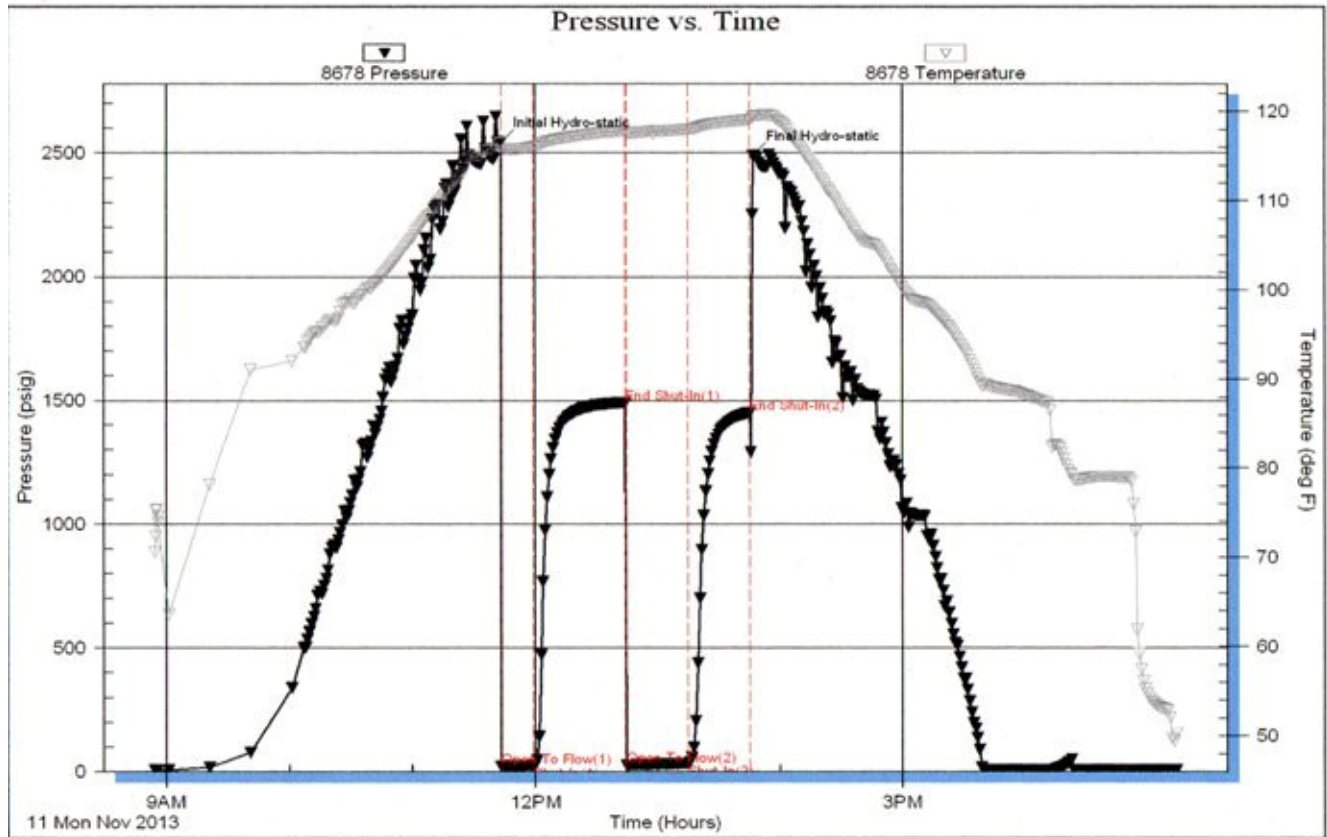
IFP: surface blow, died in 7 minutes  
ISIP: no return blow  
FFP: no blow, flushed tool, no help  
FSIP: no return blow

Serial #: 8678

Inside Sunflower Energy

RPM Farms 1-19

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 55805

Printed: 2013.11.11 @ 17:21:33

# DRILL STEM TESTS

DST No. 4 Basal Penn. Sand  
 Interval: 4980'-5040' Straddle Test  
 Times: 15-45-90-120  
 Recovery: 70' mud  
 FP: 45-50/54-70 SIP: 102-104  
 HP: 2487-2430 BHT: 124 deg. F

IFP: weak blow built to 1"  
 ISIP: no return blow  
 FFP: no blow, flushed tool, weak surface  
 blow, died in 10 minutes  
 FSIP: no return blow

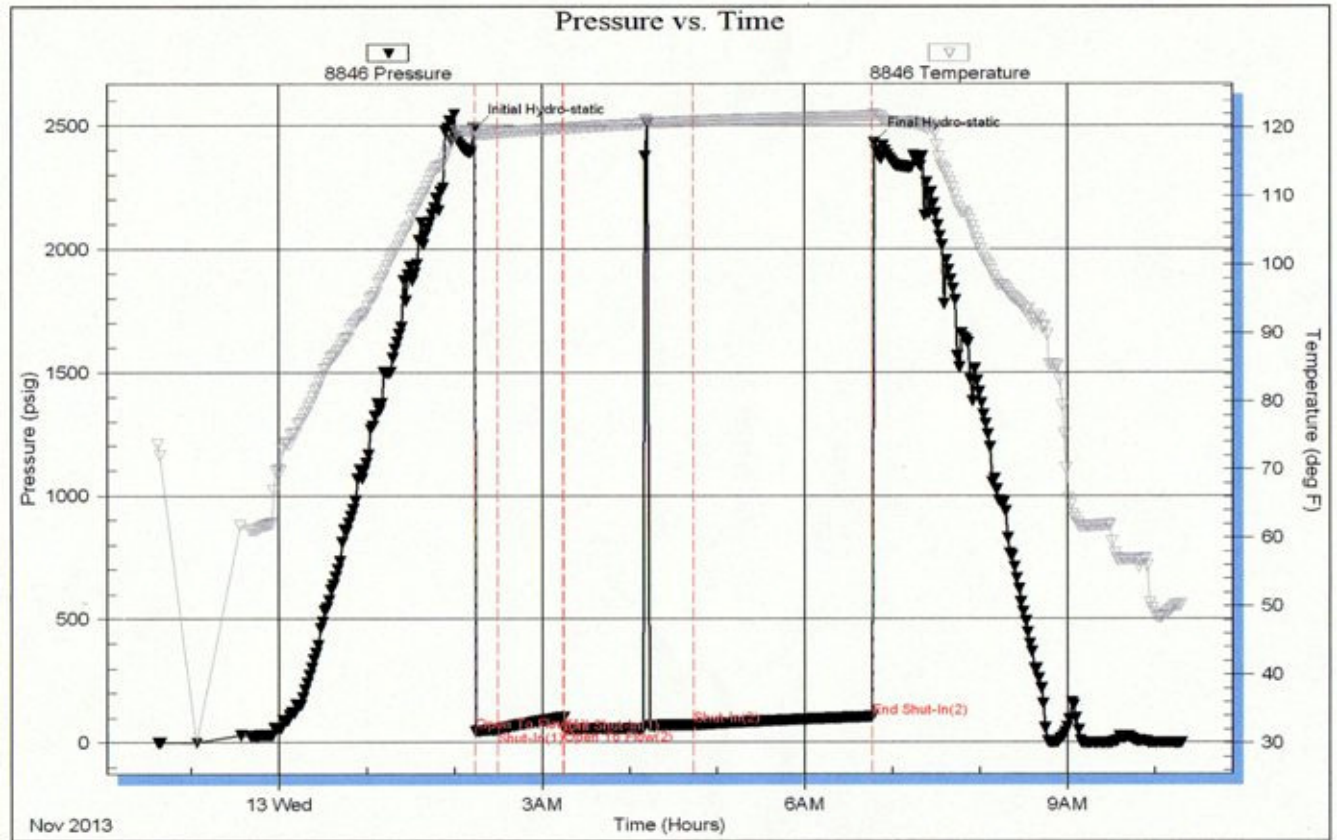
Serial #: 8846

Inside

Sunflower Energy

RPM Farms 1-19

DST Test Number: 4


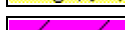




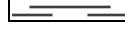
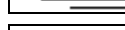




Trilobite Testing, Inc




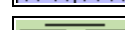



Ref. No: 54698

Printed: 2013.11.13 @ 10:36:17

## ROCK TYPES

 Anhy  
 Cht  
 Coal  
 Congl  
 Dol  
 Gyp  
 Lmst

 Salt  
 Shale  
 Shcol  
 Shgy  
 Sltst  
 Ss  
 Carb sh

 Dol  
 Dtd  
 Gry sh  
 Sandylms  
 Shale  
 Sltstn  
 Shlyslts

 Sltys  
 Sdy dolo  
 Silty dolo  
 Shy dolo  
 Shaly ls

## ACCESSORIES

### FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite

- Plant
- Strom
- Fuss
- Oomold

### MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr

- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Chlorite
- Dol
- Sand
- Slty

### STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbstn
- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

## OTHER SYMBOLS

### INTERVALS

- Core
- Dst
- Dst

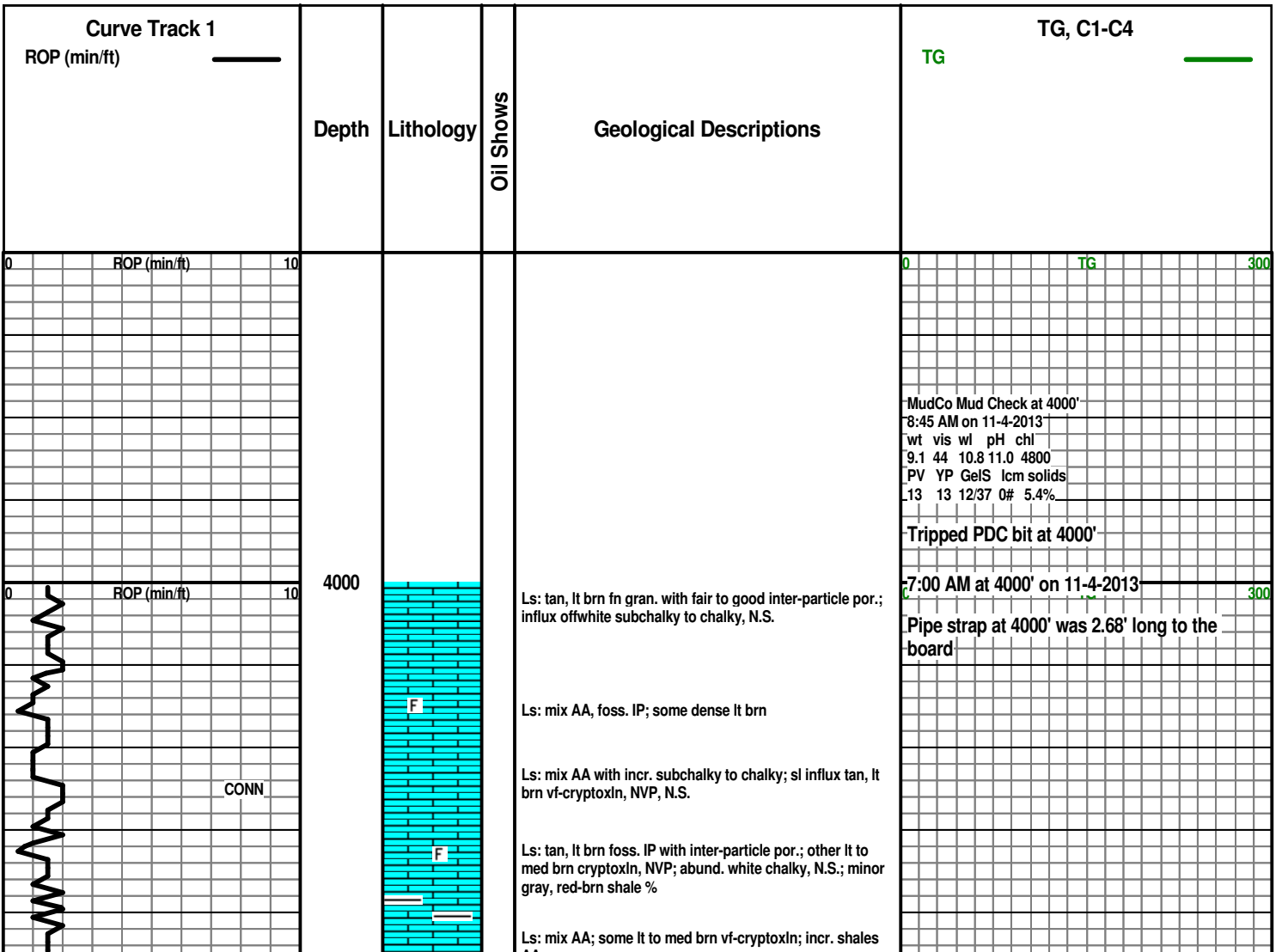
### EVENTS

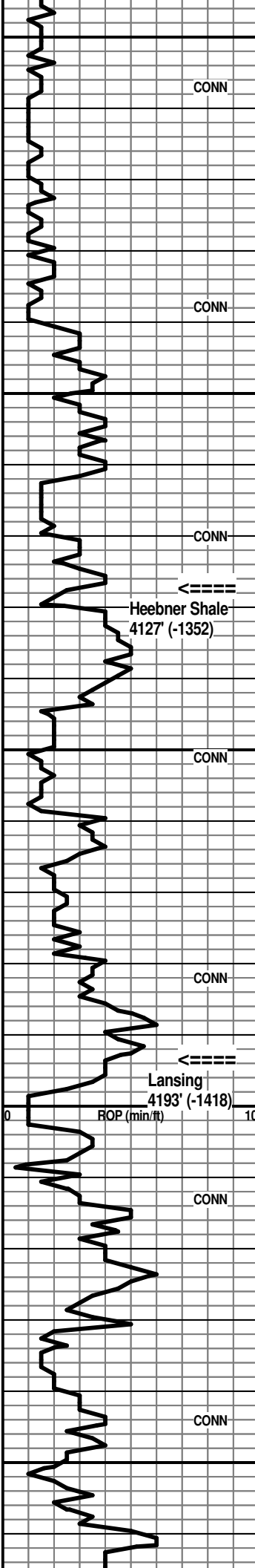
- Rft
- Dst top/base

### OIL SHOWS

- Even
- Spotted
- Quest.

- Trace
- Dead
- Gas show





4050

CONN

CONN

4100

CONN

4150

CONN

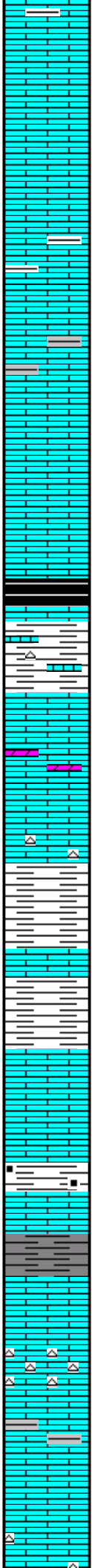
4200

CONN

4250

Heebner Shale  
4127' (-1352)

Lansing  
4193' (-1418)



AA

Ls: decr. chalky; more lt to med brn vf-cryptoxln, mottled IP; some shales AA

Ls: lt to med brn vf-cryptoxln, NVP; scatt. white chalky; some lt to med gray shale

Ls: predom. various dense AA; some med to dark brn cryptoxln; Sh: incr. med to dark gray

Ls: med to dark gray, gray-brn vf-cryptoxln, NVP; Sh: common dark gray to black calcar.

Ls: influx tan, lt brn, lt gray vf-cryptoxln; decr. dark gray dense Ls; decr. shale %

Ls: various tan, lt to med brn vfxln dense; lesser mic-vfxln, subchalky IP

40' spl - Ls: med to dark brn, gray-brn cryptoxln; Sh: sl influx black carbon.

Sh: dark gray to black; Ls: still common med to dark gray, dark brn cryptoxln and offwhite, tan mic-vfxln dense; occ gray opq chert

Ls: influx offwhite, tan mic-fnxln with inter-particle por.; influx white chalky; occ tan vfxln dolomite, N.S.

Ls: influx lt to med brn and gray predom. cryptoxln; sl influx offwhite chert

Sh: lt to med gray

90' spl - Ls: tan, lt brn mic-vfxln, some pp por.; offwhite, tan mic-vfxln dense, subchalky IP

4200' spl - influx Sh: lt to med gray, some dark gray and red-brn

Sh: vc gray, soft mushy

Ls: tan, lt to med brn vf-cryptoxln; lesser mottled lt to med brn granular, NVP, N.S.; some white chalky, N.S.

Sh: some lt to med gray with carbon. laminae

Ls: lt to med brn vfxln dense; some med to dark brn cryptoxln

Ls: predom. lt to med brn granular, NVP; lesser offwhite, tan mic-vfxln dense, subchalky IP, some white chalky; Sh: med to dark gray

50' spl - flood Ls: offwhite, tan mic-vfxln dense with flood Chert: offwhite, tan, opq, sharp

Ls: offwhite, tan dense AA; lt to med brn cryptoxln; Sh: incr. med to dark gray

Ls: tan, offwhite mic-vfxln dense

Ls: lt to med brn, gray-brn cryptoxln, NVP; scatt. lt gray chert

**Heebner Shale 4127' (-1352)**

**Lansing 4193' (-1418)**

0 TG 300

Ls: various tan, lt to med brn vf-cryptoxln and mic-vfxln dense, subchalky IP; scatt. tan, lt brn chert

Ls: predom. lt to med brn, gray-brn, med gray vf-cryptoxln; Sh: sl incr. med to dark gray

Ls: predom. lt to med brn cryptoxln; other tan, lt brn, offwhite mic-vfxln dense; Sh: dark gray to black

Ls: influx mottled med to dark gray and brn dense and dark brn, dark gray cryptoxln; some dark gray to black shale

4300

20' spl - Ls: flood tan, lt brn vf-cryptoxln and tan, offwhite mic-vfxln dense; sl influx tan, lt brn and offwhite opq chert

Ls: mix AA with influx Chert: dark gray, dark brn opq, mottled IP

Ls: various brn and gray mixed and mottled mic-vfxln dense; some dark brn, dark gray cryptoxln; scatt. dark cherts AA

50' spl - Ls: various lt to med brn, gray mottled fn-vfxln, dense; trace tan vfxln with poor scatt. fluor., poss. faint odor, nfo, no stain, no cut

4350

60' spl - Ls: flood offwhite, tan mic-vfxln dense; with lt to dark gray opq chert, N.S.

70' spl - Ls: mix AA with good influx Chert: dove gray and med gray opq; sl pungent odor, N.S.

CFS 4370" 30" spl - Ls: lt to med brn cryptoxln and tan, lt brn mic-vfxln dense; influx tan, brn oolitic with good fn-med oomoldic por., some white chalky; Chert med to dark gray, N.S.; 60" spl - Ls: mix AA, cherty AA, trace tan oolitic chert, N.S.

Ls: med brn and gray cryptoxln to sl oolitic, poor-NVP, some white chalky; Sh: some med to dark gray

90' spl - Ls: flood tan, lt brn, lt gray mic-vfxln dense, some pp por., subchalky IP; lesser lt brn, lt gray granular to cryptoxln with some inter-particle and small vug. por.; scatt. cherts

Ls: influx lt to med brn cryptoxln; abund. tan, offwhite mic-vfxln dense; Chert: incr. dove gray, gray-brn opq

4400

Ls: mix AA with some lt gray vfxln shaly; dove gray chert AA

Ls: lt brn granular with inter-particle and small vug. por., N.S.

Ls: tan, lt gray, some lt brn cryptoxln; common offwhite, tan mic-vfxln dense, subchalky IP

Ls: predom. various cryptoxln AA, rare vug. por.

CFS 4431' 30" spl - Ls: AA; 60" spl - Ls: mix AA with sl influx tan, lt brn oolitic to granular with oomoldic, inter-particle and vug. por., N.S.; influx offwhite subchalky to chalky with pp por., N.S.

4450

Sh: sl influx med gray; Ls: predom. various tan, lt brn granular to cryptoxln, some inter-particle and vug. por. with offwhite micxln matrix, N.S.

60' spl - Ls: sl influx tan, offwhite oolitic with some fair oomoldic por., no vis. shows; sl odor and fluor. in soft chalky Ls

Ls: flood lt to med brn cryptoxln, NVP; lesser tan, brn granular with poor-NVP

Ls: scatt. lt brn, tan granular with inter-particle por. and offwhite micxln with pp por., N.S.

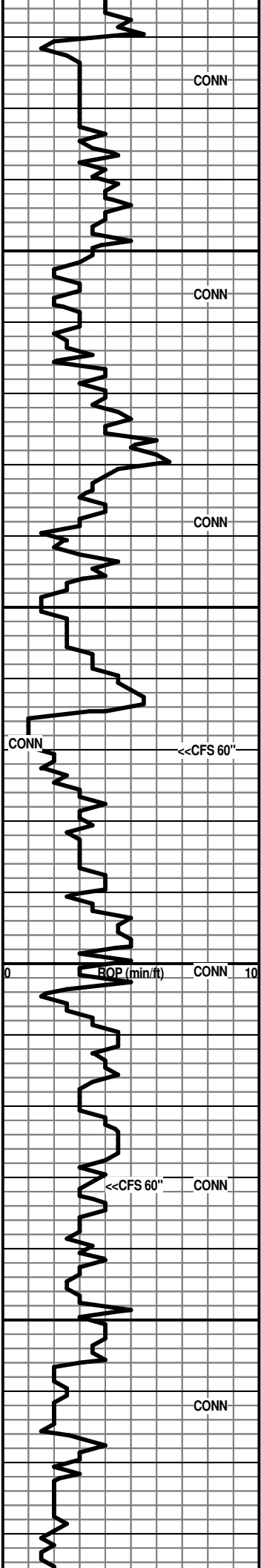
Ls: lt to med brn cryptoxln

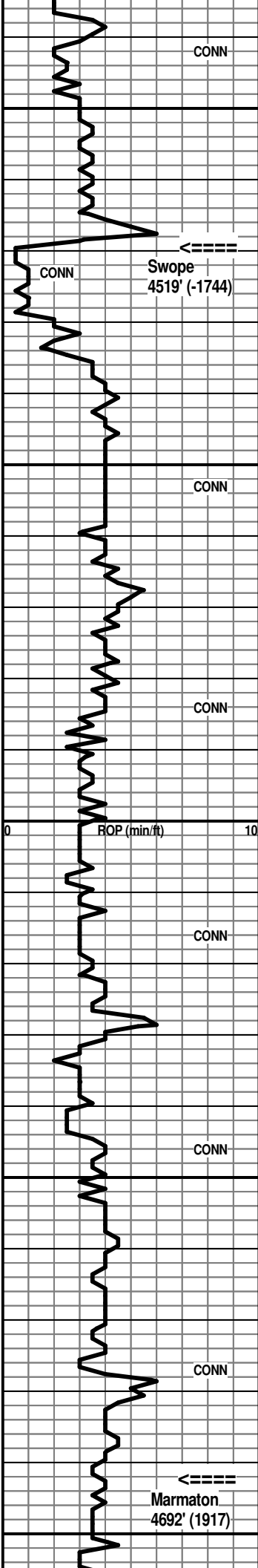
Ls: offwhite, tan mic-vfxln dense, subchalky; fair influx white chalky, N.S.

4500' spl - Ls: flood white chalky and offwhite subchalky

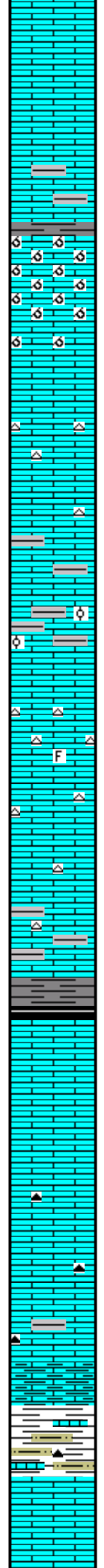
MudCo Mud Check at 4369'  
8:40 AM on 11-5-2013  
wt vis wl pH chl  
9.2 51 8.8 10.5 3400  
PV YP GeS lcm solids  
.16 17 17/48 2# 6.3%

0 TG 300





4500  
4550  
4600  
4650  
4700



Ls: mix med brn cryptoxln and tan, offwhite mic-vfxln dense, subchalky IP; some tan, offwhite with pp por. and trace lt brn granular with inter-particle por. N.S.

20' spl - Ls: predom. lt to med brn cryptoxln and tan, offwhite dense AA, some white chalky; Sh: sl influx med to dark gray, some with carbon. laminae

Ls: med brn, gray-brn cryptoxln; Sh: dark gray

40' spl - Ls: flood lt to med brn oolitic with good to exc. small oomoldic por., sucrosic IP, N.S.

Ls: influx lt to med brn cryptoxln, mottled with gray IP; tan, offwhite mic-vfxln dense, NVP, N.S.

Ls: lt to med brn, lt gray vf-cryptoxln, NVP; offwhite mic-vfxln dense; Chert: sl influx lt to med gray, lt brn opq to subtransl

Ls: mix AA with more med brn cryptoxln; sl influx lt gray vfxln, sl shaly; Sh: lt to med gray; some cherts AA

Ls: mix med brn and gray-brn cryptoxln and offwhite, tan mic-vfxln dense, subchalky IP; scatt. lt gray, offwhite oolitic with poor-fair oomoldic por.; Sh: influx med to dark gray

Ls: mix AA; decr. shale %

4600' spl - Chert: influx lt to med brn, gray opq, sharp; Ls: tan, lt brn cryptoxln, foss. IP, NVP; common offwhite, tan mic-vfxln dense

Ls: predom. offwhite, lt gray, tan mic-vfxln dense; scatt. med to dark brn, gray-brn opq chert

Ls: very predom. AA; some lt gray cryptoxln

Ls: good influx med to dark gray dense, shaly with med to dark gray shales; scatt. gray chert

40' spl - Ls: med to dark gray shaly with med to dark gray to black shales; influx med to dark brn, gray-brn cryptoxln Ls

50' spl - Ls: flood lt to med brn, sl mottled granular, NVP; common lt to med brn, gray-brn cryptoxln; some tan, lt brn, offwhite mic-vfxln with pp and inter-particle por., N.S.

Ls: lt to med brn, med gray vf-cryptoxln, NVP; some mottled brn/gray, NVP and tan mic-vfxln dense; scatt. mottled gray/brn chert

Ls: predom. med brn, med gray, gray-brn cryptoxln, NVP; occ dark brn, dark gray opq chert; Sh: minor med to dark gray

Ls: various cryptoxln AA; influx med gray vfxln dense, shaly IP; Sh: sl incr. med to dark gray; scatt. dark chert AA

90' spl - Ls: good influx med to dark gray dense, shaly; Sh: incr. med to dark gray with some lt gray siltst; influx Chert: dark brn to black opq

Sh: dark gray to black with some imbedded Ls clasts; scatt. siltst AA; Ls: dark dense, mottled, dark cherts AA

10' spl - flood Ls: tan cryptoxln and tan mic-vfxln dense; some lt to med gray shaly; Sh: lt to med gray; trace tan oolitic chert

Swope 4519' (-1744)

7:00 AM at 4680' on 11-6-2013

Marmaton 4692' (1917)



Ls: mix AA with lt to med brn, lt gray cryptoxln; some med to dark gray shale

Ls: predom. lt to med brn cryptoxln, some sl mottled granular; common tan, offwhite mic-vfxln dense, subchalky IP; minor med gray shale

Ls: various tan, lt brn, lt gray vf-cryptoxln, NVP; tan, offwhite mic-vfxln dense AA

Ls: mix AA with some granular to sl oolitic, NVP; common offwhite subchalky to chalky

60' spl - Ls: good influx tan, lt brn granular, sl foss., sl oolitic, poor-NVP, N.S.; lesser tan, lt brn cryptoxln and offwhite, tan mic-vfxln dense

Ls: very predom. mottled granular, sl foss., sl oolitic AA; lesser offwhite, tan subchalky

80' spl - Ls: good influx lt to med brn cryptoxln; still only minor shale %

90' spl - Ls: decr. cryptoxln, more tan, brn granular and oolitic, NVP; influx tan, offwhite mic-vfxln dense; influx Chert: lt to med brn, offwhite, lt gray opq; Sh: some dark gray to black carbon.

4800' spl - Ls: predom. offwhite, tan mic-vfxln dense; lesser lt to med brn cryptoxln, sl cherty; some shales AA

10' spl - Sh: influx black carbon., common lt to med gray with some carbon. laminae; Ls: lt to med brn, gray vfxln dense, some dark brn cryptoxln; common tan, offwhite dense AA

CFS 4810' 30" spl - Ls: lt to med gray vf-cryptoxln, shaly IP; tan, offwhite dense AA; 60" spl - Ls: influx med to dark brn, gray-brn cryptoxln and mottled brn granular, poor-NVP, N.S.; Sh: dark gray to black; scatt. mottled gray chert

Sh: more black carbon.; Ls: influx med brn cryptoxln; lesser tan, offwhite mic-vfxln dense

40' spl - Ls: mix AA with sl influx tan fenestral bryozoan fragments, some poor intra-particle por., N.S.

50' spl - Sh: flood dark gray to black, carbon. IP; with Ls: dark brn cryptoxln and med to dark gray vf-cryptoxln, some shaly IP

Ls: predom. various brn and gray AA; sl influx mottled brn/gray granular, NVP; Sh: decr. % AA

Ls: med to dark brn cryptoxln, lesser med gray cryptoxln; sl influx dark brn oolitic with spar matrix; scatt. dark brn and gray chert, oolitic IP

80' spl - Sh: flood dark gray to black, carbon. IP; Ls: various brn, gray cryptoxln to mottled granular to oolitic, NVP, N.S.; cherts AA

90' spl - Ls: flood lt to med gray, gray-brn vfxln dense, silty IP; very minor shale %

Ls: various tan, lt brn mix of mic-fxln, NVP and lt brn granular, sl foss., NVP; lesser lt brn cryptoxln; several chips tan vfxln, NVP with mnrl fluor., N.S.

10' spl - Ls: good influx med to dark brn, some gray cryptoxln, NVP; sl influx offwhite subchalky; 1-2 chips tan fr-vfxln with spotty fluor., vsl odor, vsl sfo on break, slow bldg. gas bubbles, tight

20' spl - flood Sh: dark gray to black carbon. trace crinoid fragments; Ls: various brn, gray cryptoxln, sl mottled IP

30' spl - Ls: predom. med to dark brn cryptoxln; lesser tan, offwhite mic-vfxln dense; several chips tan, lt brn mic-vfxln with patchy to sat. stain, vsl odor, vsl sfo and sg, tight; sl influx dark brn chert

MudCo Mud Check at 4737'  
9:20 AM on 11-6-2013  
wt vis wl pH chl  
9.3 47 8.4 11.0 2600  
PV YP GelS lcn solids  
15 15 14/43 4# 7.0%

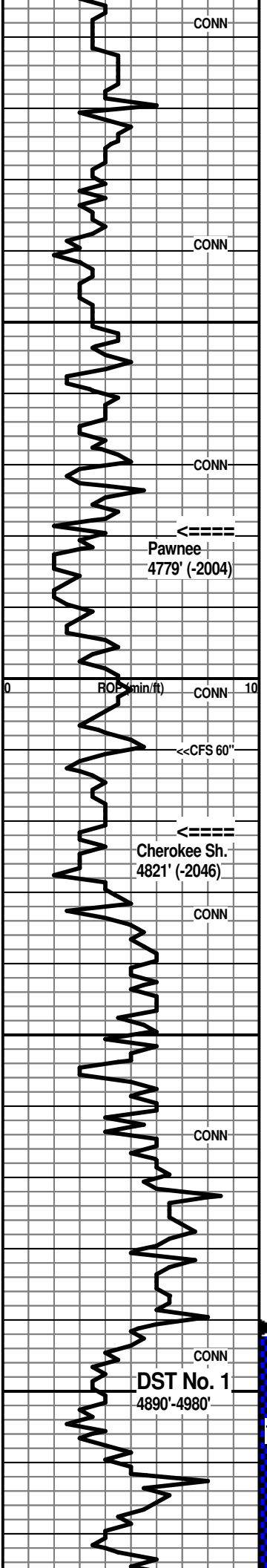
16 unit increase  
Pawnee 4779' (-2004)

0 TG 300  
10 unit increase

8 unit increase  
Cherokee Sh. 4821' (-2046)

trace show

slight shows  
DST No. 1 Cherokee



4750

4800

4850

4900

CONN

CONN

CONN

CONN

CONN

CONN

CONN

Pawnee  
4779' (-2004)

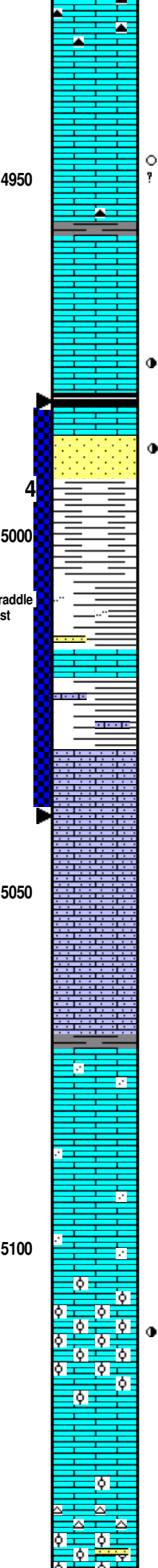
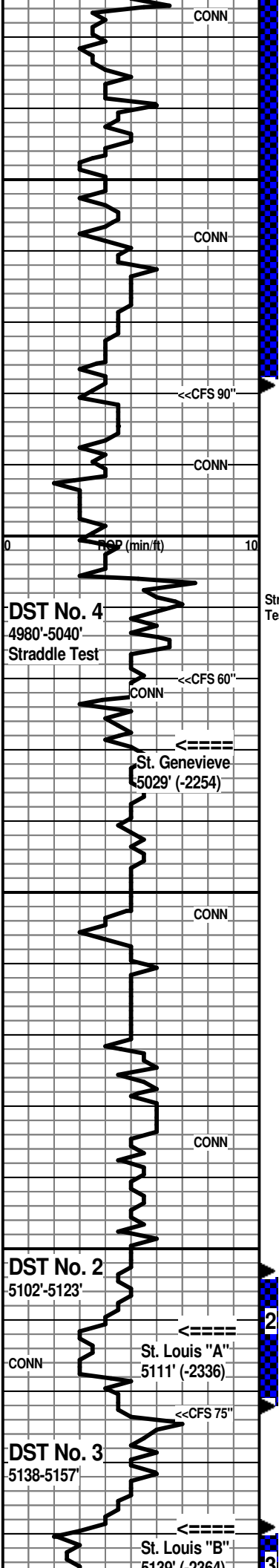
Cherokee Sh.  
4821' (-2046)

DST No. 1  
4890'-4980'

ROF (min/ft)

CFS 60'

1



40' spl - Ls: med to dark brn cryptoxln with sl influx dark gray cryptoxln, NVP; influx black opq chert

Ls: various cryptoxln AA with decr. chert; some lt brn sl granular and lt gray vfxln dense Ls's

60' spl - Ls: mix cryptoxln AA with influx mottled gray/brn fn granular with micxln matrix; influx offwhite, tan mic-vfxln dense, subchalky IP; one chip brn cryptoxln with edge fluor.

Ls: influx lt gray vfxln dense, shaly to silty; lt to med brn cryptoxln; scatt. dark brn chert; Sh: minor dark gray to black

80' spl - Ls: good influx smooth med to dark brn cryptoxln

CFS 4980' 30" spl - Ls: med to dark brn, dark gray to black cryptoxln, NVP, N.S.; scatt. chips of dark brn with vug. por. with dark brn stain in vugs, faint odor, trace minute oil droplets, no fluor.; 60"/90" spls - Ls: various cryptoxln AA; 3-4 chips with vug. por and shows; sl influx offwhite, tan mic-vfxln dense; minor % dark gray to black shale

90'/5000' spls - Ls: var. AA; influx mottled brn/gray granular, poor-NVP, N.S.; Sh: vc gray to black, with influx green and gray-green; Sst: tan vvf, calcar., scatt. clusters with inter-gran. por., most with sat. dark brn stain, vsI odor, sl sfo on break, slow bldg. gas bubbles, no fluor., tight; some with only patchy to no stain

10' spl - strong influx Sh: lt to med gray, lesser dark gray, red-brn, black; decr. Sst and Ls AA

20' spl - Sh: very predom. lt to med gray with influx red-brn, silty IP

CFS 5020' 30" spl - Sh: lt-med gray, red-brn, lt maroon, green, lt purple; scatt. vvf calcar. Sst; 60" spl - Sh: multi-colored AA; some Ls: med brn, gray, pinkish-red cryptoxln and sl mottled gray/brn granular

30' spl - Sh: flood reddish maroon; Ls: sl influx offwhite, lt gray, tan finely arenaceous

40' spl - Ls: strong influx predom. lt gray, offwhite finely arenaceous with micxln matrix, N.S.

Ls: flood AA; some tan, lt brn fn granular with micxln matrix

Ls: common finely arenaceous AA; incr. tan, lt brn fn granular with micxln matrix

Ls: predom. finely arenaceous AA

80' spl - Ls: predom. AA; some fn granular with micxln matrix, trace pyritic; Sh: sl influx dark gray

90' spl - Ls: flood tan, offwhite fn granular with micxln matrix, sandy IP

Ls: tan fn granular with micxln to subchalky matrix, sandy IP

Ls: AA

20' spl - Ls: flood tan, lt brn fn to med granular, sl oolitic with micxln matrix, N.S.; scatt. oolite clusters with gen. poor inter-oolitic por. with lt stain, vsI lt odor, sl sfo; common white chalky, oolitic IP

CFS 5123' 30" spl - Ls: common chalky AA with tan oolitic with chalky matrix; lesser tan oolitic with spar matrix, NVP, N.S.; 75" spl - Ls: influx lt brn sl mottled more granular, NVP, N.S.

Ls: lt to med brn fn to med granular with fn-vfxln matrix, N.S.

Ls: lt to med brn granular, poor-NVP, sl oolitic IP, N.S.

50' spl - Ls: AA, more offwhite subchalky; sl influx gray to blue-gray chert

CFS 5153' 20" spl - Ls: flood tan, cream oolitic with micxln

Interval: 4890'-4980'  
 Times: 15-45-120-120  
 IFP: weak blow bldg. to 1 1/4"  
 ISIP: no return blow  
 FFP: weak blow bldg. to 2"  
 FSIP: no return blow  
 Recovery: 10' mud  
 FP: 21-28/39-34 SIP: 115-113  
 HP: 2469-2310 BHT: 120 deg. F

**trace show**

MudCo Mud Check at 4980'  
 8:45 AM on 11-7-2013  
 wt vis wl pH chl  
 9.3 52 8.0 10.5 2600  
 PV YP GeIS lcm solids  
 17 18 17/53 4# 7.0%

**slight shows**

7:00 AM at 4980' on 11-(7 to 9)-2013

**good shows - tight**

Drawworks shaft for cat head broke coming out for DST No. 1 - rig is down for repairs  
 Lost about 29 hours - started out for DST # 1 again at 5:30 PM on 11-8-2013

MudCo Mud Check at 4980' TG 300  
 8:30 AM on 11-9-2013  
 wt vis wl pH chl  
 9.3 66 7.6 11.0 3400  
 PV YP GeIS lcm solids  
 22 20 18/61 2.5# 7.0%

**St. Genevieve 5029' (-2254)**

DST No. 4 Basal Penn. Sand  
 Interval: 4980'-5040' Straddle Test  
 Times: 15-45-90-120  
 IFP: weak blow built to 1"  
 ISIP: no return blow  
 FFP: no blow, flushed tool, weak surface  
 blow, died in 10 minutes  
 FSIP: no return blow  
 Recovery: 70' mud  
 FP: 45-50/54-70 SIP: 102-104  
 HP: 2487-2430 BHT: 124 deg. F

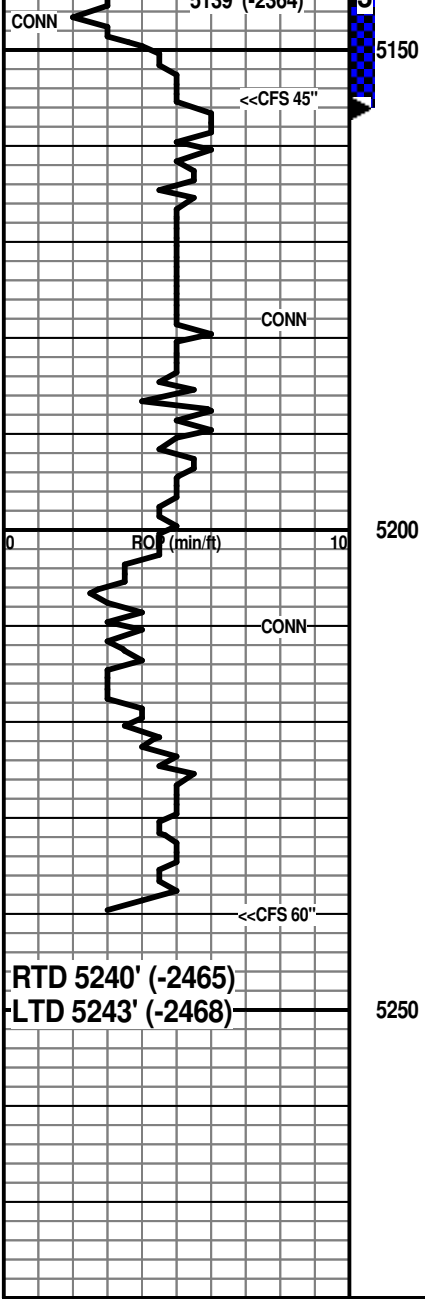
DST No. 2 St. Louis "A"  
 Interval: 5102'-5123'  
 Times: 15-45-120-120  
 IFP: weak surface blow, died in 3 minutes  
 ISIP: no return blow  
 FFP: flushed tool, blow built to 6 1/2 inches  
 FSIP: 2 inch return blow, died in one hour  
 Recovery: 220' GIP; 62' GCM with show oil (10g, 90m - oil would not separate out)  
 FP: 18-27/40-54 SIP: 861-1060  
 HP: 2616-2236 BHT: 124 deg. F

**slight shows 3-4 unit increase**

7:00 AM at 5123' on 11-10-2013

MudCo Mud Check at 5123'  
 8:45 AM on 11-10-2013  
 wt vis wl pH chl  
 9.3 64 8.8 10.5 2400  
 PV YP GeIS lcm solids  
 20 23 18/56 3# 7.0%

**no shows**



to subchalky matrix, soft; common white chalky; sl influx lt gray vvfg soft calcar. Sst, N.S.; 45" spl - Ls: mix AA with more lt to med brn granular, oolitic IP, NVP, N.S.

Ls: offwhite, lt gray, lt brn finely arenaceous to granular with micxn matrix

Ls: tan, lt gray fn-med granular and sandy AA

Ls: tan, lt brn fn-med granular, occ vsl glauc. with imbedded qtz grains; some mottled dark gray granular with qtz grains; spls have good influx Sh: gray-green, med gray, some brnsh gray

5200' spl - shaly AA; Ls: lt to med brn fn to med granular with some imbedded qtz grains; good influx Chert: lt to med brn subtransl

10' spl - only minor shale; Ls: tan, lt brn fn to med granular with micxn matrix and tan, lt brn granular with subchalky to chalky matrix; much decr. chert

20' spl - Ls: flood tan, lt brn cryptoxln and tan mic-vfxln dense; strong influx Chert: offwhite, tan opq

30' spl - Ls: influx offwhite subchalky to chalky; tan, lt brn oolitic to granular with micxn matrix, N.S.; spls becoming shaly again, med to dark gray, red-brn

40' spl - very shaly - mottled red-green, dark red-maroon, red-brn, mottled gray/green; some gray, lt brn cryptoxln Ls

CFS 5240' spls - very shaly AA; Ls: lt to med brn granular to cryptoxln; occ brn chert

After review of sample shows, DST results and open hole log evaluation, the decision was made to plug the #1-19 RPM Farms Unit as a dry hole.

Respectfully submitted,

Wesley D. Hansen  
Petroleum Geologist  
Kansas Licnse No. 418

NO SHOWS

7:00 AM at 5157' on 11-11-2013

MudCo Mud Check at 5157'  
6:50 AM on 11-11-2013  
wt vis wl pH chl  
9.3 65 8.8 10.5 2000  
PV YP GelS lcm solids  
20 23 18/56 2# 7.0%

DST No. 3 St. Louis "B"  
Interval: 5138'-5157'  
Times: 15-45-30-30  
IFP: surface blow, died in 7 minutes  
ISIP: no return blow  
FFP: no blow, flushed tool, no help  
FSIP: no return blow  
Recovery: 15' mud, no shows  
FP: 21-26/27-34 SIP: 1493-1453  
HP: 2543-2490 BHT: 119 deg. F

0 TG 300

RTD reached at 5:00 AM 11-12-2013  
CFS/CTCH 1 1/2 hours - drop survey - TOFL

MudCo Mud Check at 5240'  
8:35 AM on 11-12-2013  
wt vis wl pH chl  
9.2 55 7.6 11.0 2400  
PV YP GelS lcm solids  
17 21 18/54 2# 6.3%

Reserve Pit  
Est. volume 800 bbls  
Chl. 7800  
Mud Cost: \$24,730.60

Date 11-1-13 District Cibola Ticket No. 52250  
 Company Sunflower Energy Rig Tomcat  
 Lease KPM Farms Well No. 1-19  
 County Gray State KS  
 Location \_\_\_\_\_ Field \_\_\_\_\_

CEMENT DATA:

Spacer Type: H<sub>2</sub>O  
 Amt. \_\_\_\_\_ Sks Yield \_\_\_\_\_ ft<sup>3</sup>/sk Density \_\_\_\_\_ PPG

LEAD: Pump Time \_\_\_\_\_ hrs. Type CLASS A 700cc  
2% Sodium Metasilicate excess 10# 110  
 Amt. 450 Sks Yield 3.00 ft<sup>3</sup>/sk Density 11.4 PPG

TAIL: Pump Time \_\_\_\_\_ hrs. Type CLASS C  
240cc 150 Excess \_\_\_\_\_

Amt. \_\_\_\_\_ Sks Yield \_\_\_\_\_ ft<sup>3</sup>/sk Density \_\_\_\_\_ PPG

WATER: Lead \_\_\_\_\_ gals/sk Tail \_\_\_\_\_ gals/sk Total \_\_\_\_\_ Bbls.

Pump Trucks Used 531-541  
 Bulk Equip. 472-554 774-744

Float Equip: Manufacturer Weather

Shoe: Type \_\_\_\_\_ Depth \_\_\_\_\_

Float: Type \_\_\_\_\_ Depth \_\_\_\_\_

Centralizers: Quantity 5 Plugs Top \_\_\_\_\_ Btm. \_\_\_\_\_

Stage Collars \_\_\_\_\_

Special Equip. Cement basket at 600'

Disp. Fluid Type \_\_\_\_\_ Amt. \_\_\_\_\_ Bbls. Weight \_\_\_\_\_ PPG

Mud Type \_\_\_\_\_ Weight \_\_\_\_\_ PPG

CASING DATA: Conductor  PTA  Squeeze  Misc   
 Surface  Intermediate  Production  Liner   
 Size 8 7/8 Type \_\_\_\_\_ Weight 34 Collar \_\_\_\_\_

Casing Depths: Top \_\_\_\_\_ Bottom 1050

Drill Pipe: Size \_\_\_\_\_ Weight \_\_\_\_\_ Collars \_\_\_\_\_

Open Hole: Size 12 1/4 T.D. 1855 ft. P.B. to \_\_\_\_\_ ft.

CAPACITY FACTORS:

Casing: Bbls/Lin. ft. \_\_\_\_\_ Lin. ft./Bbl. \_\_\_\_\_

Open Holes: Bbls/Lin. ft. \_\_\_\_\_ Lin. ft./Bbl. \_\_\_\_\_

Drill Pipe: Bbls/Lin. ft. \_\_\_\_\_ Lin. ft./Bbl. \_\_\_\_\_

Annulus: Bbls/Lin. ft. \_\_\_\_\_ Lin. ft./Bbl. \_\_\_\_\_

Bbls/Lin. ft. \_\_\_\_\_ Lin. ft./Bbl. \_\_\_\_\_

Perforations: From \_\_\_\_\_ ft. to \_\_\_\_\_ ft. Amt. \_\_\_\_\_

COMPANY REPRESENTATIVE \_\_\_\_\_

CEMENTER Greg Brya

TIME	PRESSURES PSI		FLUID PUMPED DATA			REMARKS
	AM/PM	DRILL PIPE CASING	ANNULUS	TOTAL FLUID	Pumped Per Time Period	
1:00pm						On location at 1:00pm.
7:30		1500				Pressure test 1500psi
7:31		200		10	-	4 H <sub>2</sub> O ahead spacer 10 bbls
7:34		200		245	-	5 Mixing lead cement at 11.4
8:10		200		352	-	4 Mixing tail cement at 14.8
8:25		6		-	-	Shut down to release plug
8:28		100		115	-	5 Plug left head displacement 115 bbls
8:47		1200		-	-	- Landed plug. 100 bbls of cement to surface. Head holding. Everything good. Thank you