



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1194291  
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: \_\_\_\_\_

1194291

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 <i>(Attach Additional Sheets)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Log	Formation (Top), Depth and Datum	<input type="checkbox"/> Sample
Samples Sent to Geological Survey	<input type="checkbox"/> Yes <input type="checkbox"/> No	Name	Top	Datum
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:				

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:  Yes  No

Date of First, Resumed Production, SWD or ENHR. \_\_\_\_\_ Producing Method:  
 Flowing  Pumping  Gas Lift  Other *(Explain)* \_\_\_\_\_

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> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____	<b>PRODUCTION INTERVAL:</b> _____ _____
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# ALLIED OIL & GAS SERVICES, LLC 059843

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT:  
*Medicine Lodge / KS*

DATE <i>11-20-13</i>	SEC. <i>16</i>	TWP. <i>35s</i>	RANGE <i>12W</i>	CALLED OUT <i>2:30 PM</i>	ON LOCATION <i>5:30 PM</i>	JOB START <i>8:45 PM</i>	JOB FINISH <i>9:15 PM</i>
LEASE <i>Hanson</i>	WELL # <i>#1</i>	LOCATION <i>Handwritten, 1/2 E, South on</i>			COUNTY <i>Barber</i>	STATE <i>KS</i>	
OLD OR NEW (Circle one) <i>NEW</i>				<i>Main Lease Rd, Bear West of South</i>			

CONTRACTOR *Fossil #3* OWNER *Woolsey*

TYPE OF JOB *Surface*

HOLE SIZE *17 1/2* T.D. *222*

CASING SIZE *13 3/8* DEPTH *206 + 15' 8 1/2*

TUBING SIZE DEPTH

DRILL PIPE DEPTH

TOOL DEPTH

PRES. MAX *300 test/500#* MINIMUM *---*

MEAS. LINE SHOE JOINT *N/A*

CEMENT LEFT IN CSG. *20'*

PERFS.

DISPLACEMENT *30 Bbls Fresh H<sub>2</sub>O*

### EQUIPMENT

PUMP TRUCK CEMENTER *D. Feli'o*

# *471-265* HELPER *R. Gilley*

BULK TRUCK

# *421-290* DRIVER *C. Rackley*

BULK TRUCK

# DRIVER

### REMARKS:

*Pipe on Btm, Break Circ. w/truck, Pressure test, Pump Spacers, Mix 300sx A 3#2 cement, Start Disp. w/ Fresh H<sub>2</sub>O, See Steady increase in Pres, Slow Rate, Stop Pump at 30 Bbls Fresh H<sub>2</sub>O, Shwin, - Cement Did Circ.*

**WELL FILE**

Regulatory Correspondence

Drig / Comp Workovers

Tests / Meters Operations

CHARGE TO: *Woolsey*

STREET

CITY STATE ZIP

To: Allied Oil & Gas Services, LLC.

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

PRINTED NAME *MIKE THARP*

SIGNATURE *[Signature]*

CEMENT AMOUNT ORDERED *300sx class A + 3%cc + 2% gel*

COMMON *A 300 SX @ 17.90 5370.00*

POZMIX @

GEL *6 SX @ 23.40 140.40*

CHLORIDE *11 SX @ 64.00 704.00*

ASC @

@

@

@

@

@

@

@

@

HANDLING *324.50 @ 2.48 804.76*

MILEAGE *14.80/25/2.60 962.00*

TOTAL *7981.16*

### SERVICE

DEPTH OF JOB *222'*

PUMP TRUCK CHARGE *1512 23*

EXTRA FOOTAGE @

MILEAGE *25 @ 7.70 192.50*

MANIFOLD *N/A @ N/A*

*Light Vehicle 25 @ 4.40 110.00*

@

TOTAL *1814.75*

DEC 17 2013

### PLUG & FLOAT EQUIPMENT

*None* @

@

@

@

@

TOTAL

SALES TAX (If Any)

TOTAL CHARGES *9795.91*

DISCOUNT IF PAID IN 30 DAYS

*NET 7640.80*

# ALLIED OIL & GAS SERVICES, LLC 062406

Federal Tax I.D. # 20-8651475

REMIT TO P.O. BOX 93999  
SOUTHLAKE, TEXAS 76092

SERVICE POINT:  
*Medicine Lodge, ks*

DATE <i>12-2-2013</i>	SEC. <i>16</i>	TWP. <i>35S</i>	RANGE <i>12W</i>	CALLED OUT <i>6:30 pm</i>	ON LOCATION <i>12:00 pm</i>	JOB START <i>6:10 am</i>	JOB FINISH <i>6:10 pm</i>
LEASE <i>Ohlson</i>			WELL # <i>1</i>	LOCATION <i>H Greener, ks 1 1/2 east</i>		COUNTY <i>Berber</i>	STATE <i>Ks</i>
OLD OR (NEW) (Circle one)			South into				

CONTRACTOR *Fossil*  
 TYPE OF JOB *Production*  
 HOLE SIZE *7 7/8* T.D. *5523'*  
 CASING SIZE *5 1/2 IS.5* DEPTH *5461'*  
 TUBING SIZE \_\_\_\_\_ DEPTH \_\_\_\_\_  
 DRILL PIPE \_\_\_\_\_ DEPTH \_\_\_\_\_  
 TOOL \_\_\_\_\_ DEPTH \_\_\_\_\_  
 PRES. MAX \_\_\_\_\_ MINIMUM \_\_\_\_\_  
 MEAS. LINE \_\_\_\_\_ SHOE JOINT *45'*  
 CEMENT LEFT IN CSG. \_\_\_\_\_  
 PERFS. \_\_\_\_\_  
 DISPLACEMENT *131 bbls 2% KCL water*

OWNER *Woolsey Operating*  
 CEMENT  
 AMOUNT ORDERED *90sx 60' 40' 40' 60'*  
*125sx Class A + 10% Gyp + 10% Losses*  
*6 # Kalseal - 8% FLI 60' 40' # Pluses*  
*15 Gals Clapro*  
 COMMON *Class A 54sx @ 17.90 966.60*  
 POZMIX *36 sx @ 9.35 336.60*  
 GEL *3 sx @ 23.40 70.20*  
 CHLORIDE @ \_\_\_\_\_  
 ASC @ \_\_\_\_\_  
*Class A 125 sx @ 21.20 2650.00*  
*SALT 13 sx @ 26.35 342.55*  
*Kalseal 750 # @ 8.9 667.50*  
*Gypseal 23 sx @ 37.60 864.80*  
*Flooseal 32 # @ 2.97 95.04*  
*FL-160 94 # @ 18.90 1776.60*  
*KCL 13 Gals @ 34.40 447.20*  
 HANDLING *265 @ 2.48 657.20*  
 MILEAGE *11.31/25/2.60 735.15*  
 TOTAL *9609.44*

EQUIPMENT  
 PUMP TRUCK CEMENTER *Darin F*  
 # *471-265* HELPER *Justin B.*  
 BULK TRUCK  
 # *356-250* DRIVER *Ron G.*  
 BULK TRUCK  
 # \_\_\_\_\_ DRIVER \_\_\_\_\_

REMARKS:  
*Pipe on bottom & break circulation*  
*Pressure test to 2,000 psi, mix 40sx*  
*for Rat & mouse holes, mix 50sx Sequencer*  
*Cement, mix 125sx 40' cement, shut*  
*down, Release plug, Start displacement*  
*lift pressure 90 90 bbls, Skurge to*  
*3 bpm 90 120 bbls, bump plug 90 131*  
*bbls, 1000-1500 psi, float dis move*

SERVICE  
 DEPTH OF JOB *5461*  
 PUMP TRUCK CHARGE *2765 IS*  
 EXTRA FOOTAGE @ \_\_\_\_\_  
 MILEAGE *25 @ 7.70 192.50*  
 MANIFOLD *Hessarents,* @ \_\_\_\_\_  
*LV 25 @ 4.40 110.00*  
 TOTAL *3368.25*

CHARGE TO: *Woolsey Operating*  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

## WELL FILE

Regulatory Correspondence  
 Drg / Comp Workovers  
 Tests / Meters Operations

DEC 3 U 2013

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

PLUG & FLOAT EQUIPMENT  
*5 1/2*  
 1-Rubber Plug @ *51.25*  
 1-Guide Shoe @ *153.10*  
 1-BFD Float Collar @ *406.20*  
 12-Turbolizers @ *48.30 579.60*  
 20-Scratchers @ *36.00 720.00*  
 TOTAL *1910.15*

PRINTED NAME *X MIKE THARP*

SALES TAX (If Any) \_\_\_\_\_  
 TOTAL CHARGES *14,887.84*  
 DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS  
*NET 12,032.74*

SIGNATURE *X Mike Tharp*

Thank you!!!





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Woolsey Operating Co LLC

**16 35s 12w Barber, KS**

125 N Market Ste 1000  
Wichita KS 67202-1729

**OHLSON # 1**

Job Ticket: 55793

**DST#: 1**

ATTN: Bill Klaver

Test Start: 2013.11.26 @ 23:45:00

### GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: 1403.00 ft (KB)

Time Tool Opened: 00:00:00

Time Test Ended: 05:00:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Jim Svaty

Unit No: 54

**Interval: 4760.00 ft (KB) To 4924.00 ft (KB) (TVD)**

Reference Elevations: 1403.00 ft (KB)

Total Depth: 4924.00 ft (KB) (TVD)

1389.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 14.00 ft

**Serial #: 8289 Outside**

Press @ Run Depth: psig @ 4767.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.27

End Date: 2013.11.27

Last Calib.: 2013.11.27

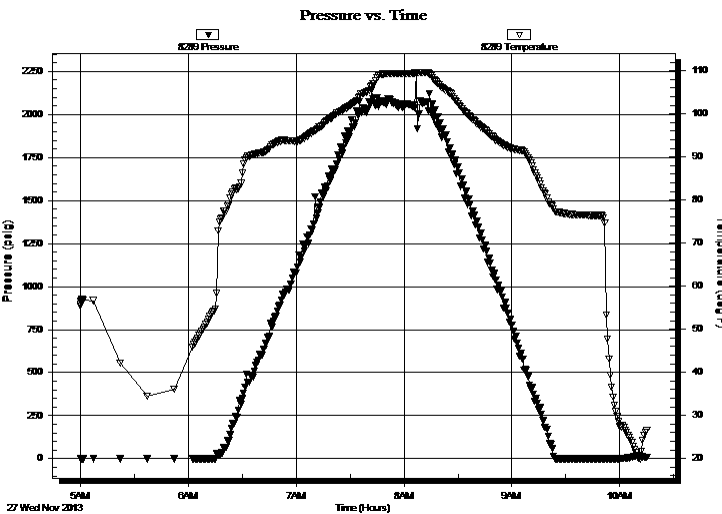
Start Time: 05:00:02

End Time: 10:15:00

Time On Btm:

Time Off Btm:

**TEST COMMENT:** Hit Bridge 550 - 600 Feet From Bottom Pulled Test. Missrun



### PRESSURE SUMMARY

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

### Recovery

### Gas Rates

Length (ft)	Description	Volume (bbl)

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



**TRILOBITE  
TESTING, INC.**

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Woolsey Operating Co LLC

**16 35s 12w Barber,KS**

125 N Market Ste 1000  
Wichita KS 67202-1729

**OHLSON # 1**

Job Ticket: 55793

**DST#: 1**

ATTN: Bill Klaver

Test Start: 2013.11.26 @ 23:45:00

## 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: 50.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.98 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl

Total Length:                      ft      Total Volume:                      bbl

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

Laboratory Name:                      Laboratory Location:

Recovery Comments:

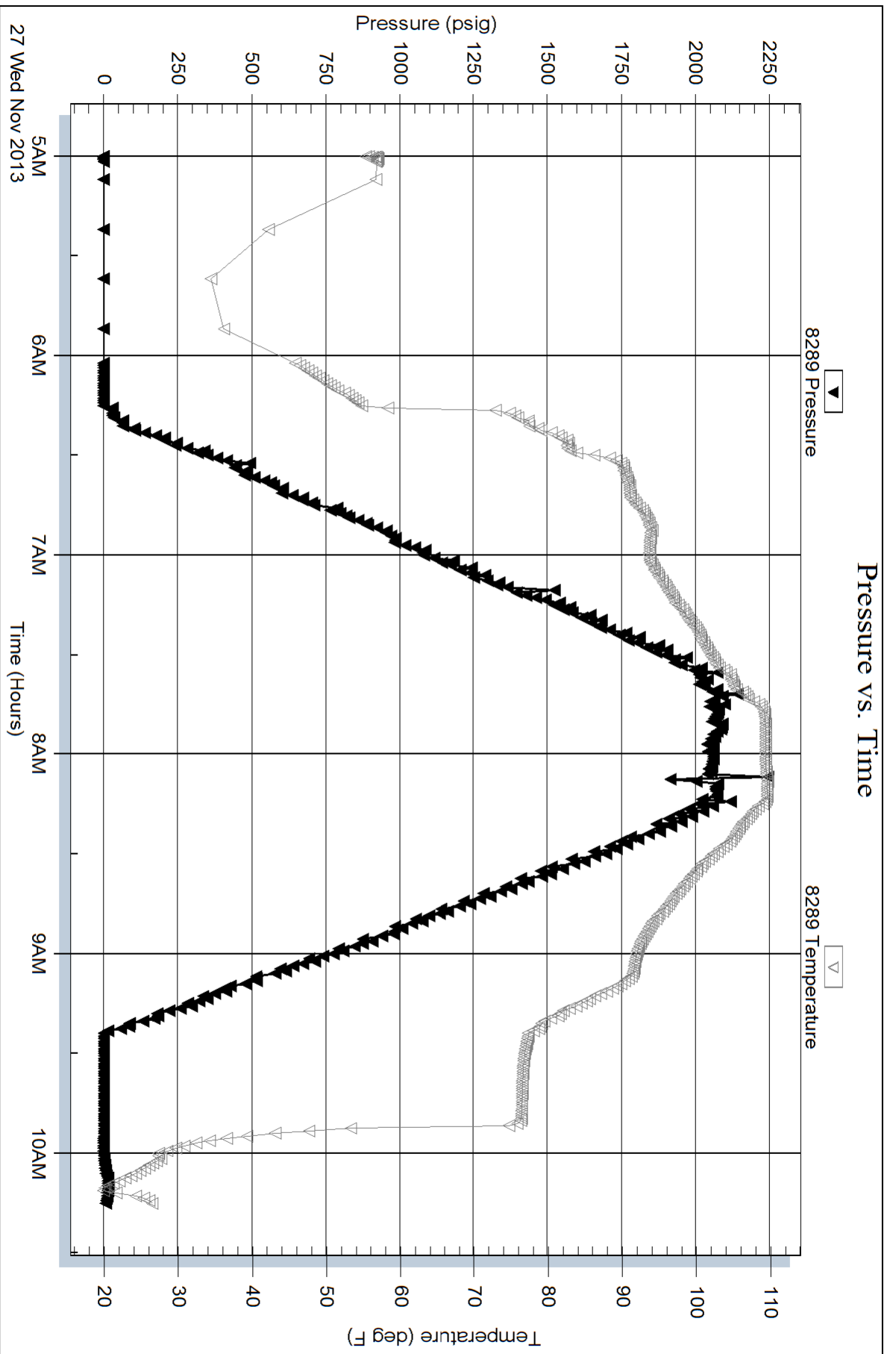


Serial #: 8289

Outside Woodsey Operating Co LLC

OHLSON # 1

DST Test Number: 1





**TRILOBITE TESTING, INC.**

# DRILL STEM TEST REPORT

Woolsey Operating Co LLC

**16 35s 12w Barber**

125 N Market Ste 1000  
Wichita KS 67202-1729

**OHLSON # 1**

Job Ticket: 55794

**DST#: 2**

ATTN: Bill Klaver

Test Start: 2013.11.27 @ 12:00:00

## GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: 1403.00 ft (KB)

Time Tool Opened: 13:58:30

Time Test Ended: 22:02:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jim Svaty

Unit No: 54

**Interval: 4760.00 ft (KB) To 4924.00 ft (KB) (TVD)**

Reference Elevations: 1403.00 ft (KB)

Total Depth: 4924.00 ft (KB) (TVD)

1389.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 14.00 ft

**Serial #: 8289 Outside**

Press @ Run Depth: 191.24 psig @ 4767.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.27

End Date: 2013.11.27

Last Calib.: 2013.11.27

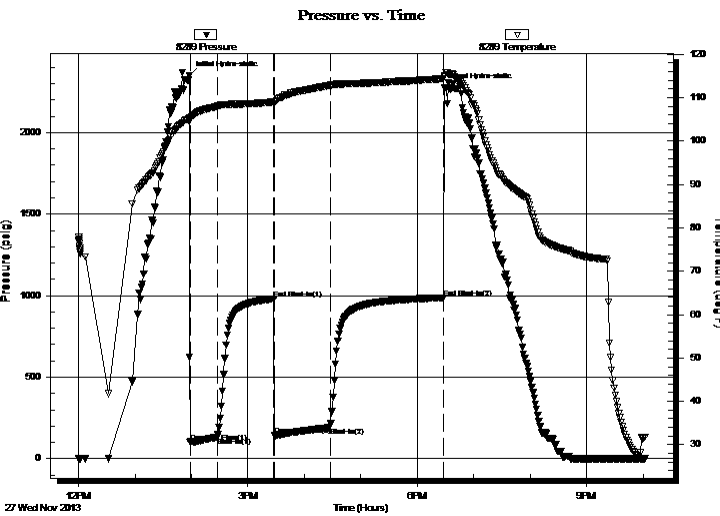
Start Time: 12:00:02

End Time: 22:02:15

Time On Btm: 2013.11.27 @ 13:57:45

Time Off Btm: 2013.11.27 @ 18:28:45

**TEST COMMENT:** 30-IFP- BOB in 4 min.  
60-ISIP- No Blow  
60-FFP- BOB in 11min.  
120-FSIP- Surface Blow Building to 1/2in. in 10min. Died Back in 22min.



## PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2351.35	105.29	Initial Hydro-static
1	100.66	105.20	Open To Flow (1)
30	133.12	108.02	Shut-In(1)
90	980.34	108.97	End Shut-In(1)
91	145.22	108.65	Open To Flow (2)
150	191.24	112.82	Shut-In(2)
271	986.13	114.38	End Shut-In(2)
271	2273.41	114.88	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
120.00	OMCW 3%o 40%m 57%w	0.59
124.00	OSM 1%0 99%m	1.21
112.00	Mud 100%	1.57
0.00	508 GIP	0.00

\* Recovery from multiple tests

## Gas Rates

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



# TRILOBITE TESTING, INC.

## DRILL STEM TEST REPORT

Woolsey Operating Co LLC

**16 35s 12w Barber**

125 N Market Ste 1000  
Wichita KS 67202-1729

**OHLSON # 1**

Job Ticket: 55794

**DST#: 2**

ATTN: Bill Klaver

Test Start: 2013.11.27 @ 12:00:00

### GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: 1403.00 ft (KB)

Time Tool Opened: 13:58:30

Time Test Ended: 22:02:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jim Svaty

Unit No: 54

**Interval: 4760.00 ft (KB) To 4924.00 ft (KB) (TVD)**

Total Depth: 4924.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1403.00 ft (KB)

1389.00 ft (CF)

KB to GR/CF: 14.00 ft

**Serial #: 8789 Inside**

Press@RunDepth: psig @ 4767.00 ft (KB)

Start Date: 2013.11.27

End Date:

2013.11.27

Start Time: 12:00:02

End Time:

22:02:15

Capacity: 8000.00 psig

Last Calib.:

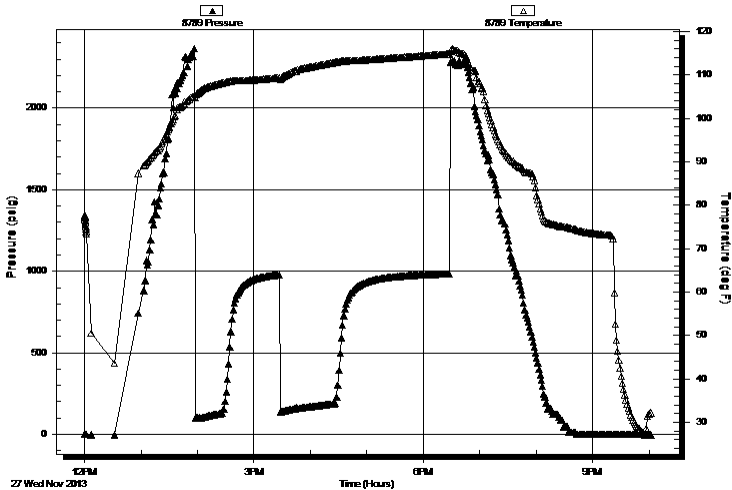
2013.11.27

Time On Btm:

Time Off Btm:

**TEST COMMENT:** 30-IFP- BOB in 4 min.  
60-ISIP- No Blow  
60-FFP- BOB in 11min.  
120-FSIP- Surface Blow Building to 1/2in. in 10min. Died Back in 22min.

Pressure vs. Time



### PRESSURE SUMMARY

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

### Recovery

Length (ft)	Description	Volume (bbl)
120.00	OMCW 3%o 40%o 57%w	0.59
124.00	OSM 1%o 99%o	1.21
112.00	Mud 100%	1.57
0.00	508 GIP	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**

Woolsey Operating Co LLC

**16 35s 12w Barber**

125 N Market Ste 1000  
Wichita KS 67202-1729

**OHLSON # 1**

Job Ticket: 55794

**DST#: 2**

ATTN: Bill Klaver

Test Start: 2013.11.27 @ 12:00:00

## 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:

60000 ppm

Viscosity: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.97 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 8000.00 ppm

Filter Cake: 2.00 inches

## Recovery Information

Recovery Table

Length ft	Description	Volume bbbl
120.00	OMCW 3%o 40%m 57%w	0.590
124.00	OSM 1%0 99%m	1.211
112.00	Mud 100%	1.571
0.00	508 GIP	0.000

Total Length: 356.00 ft

Total Volume: 3.372 bbl

Num Fluid Samples: 0

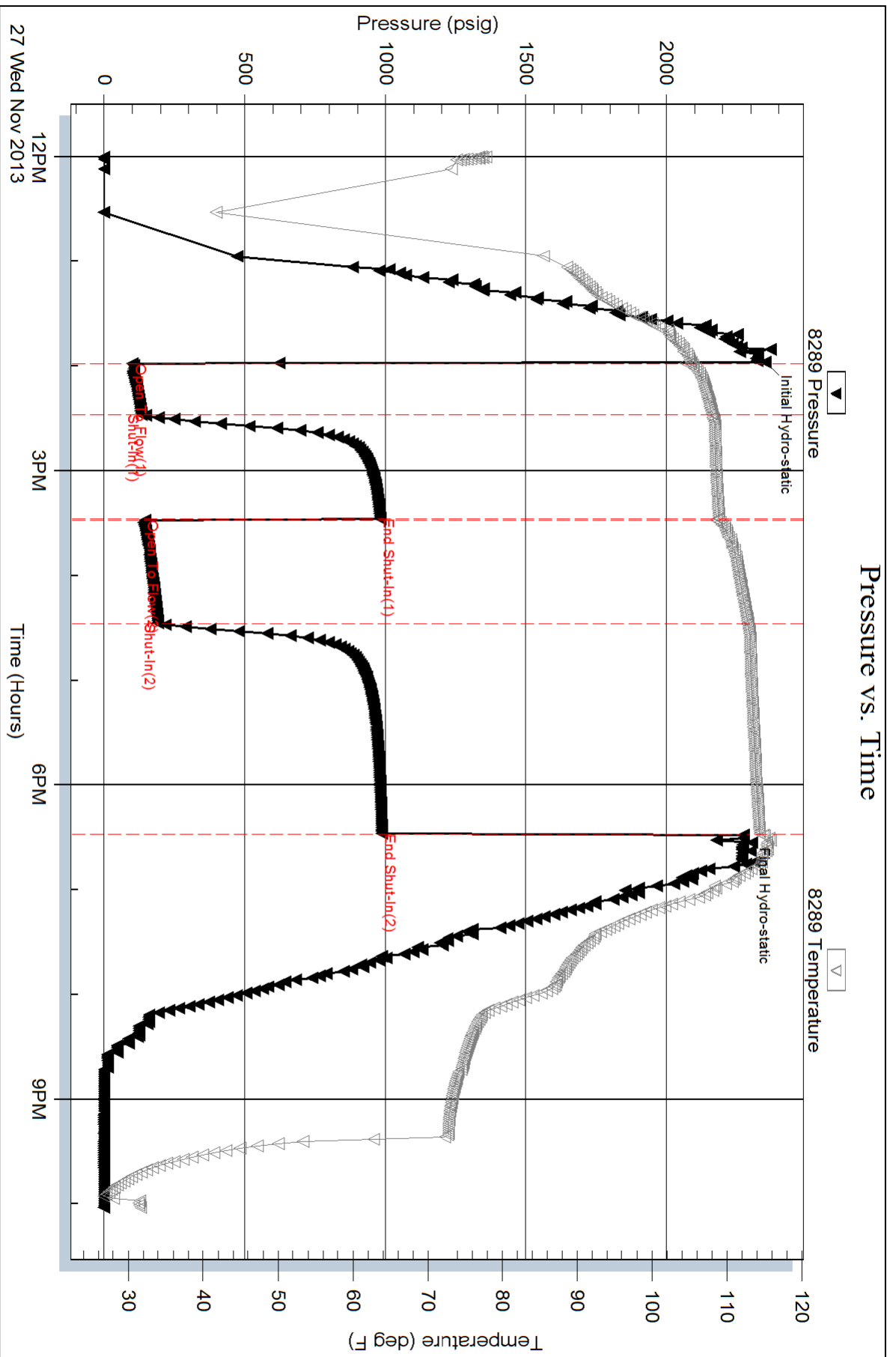
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: .280 @ 32



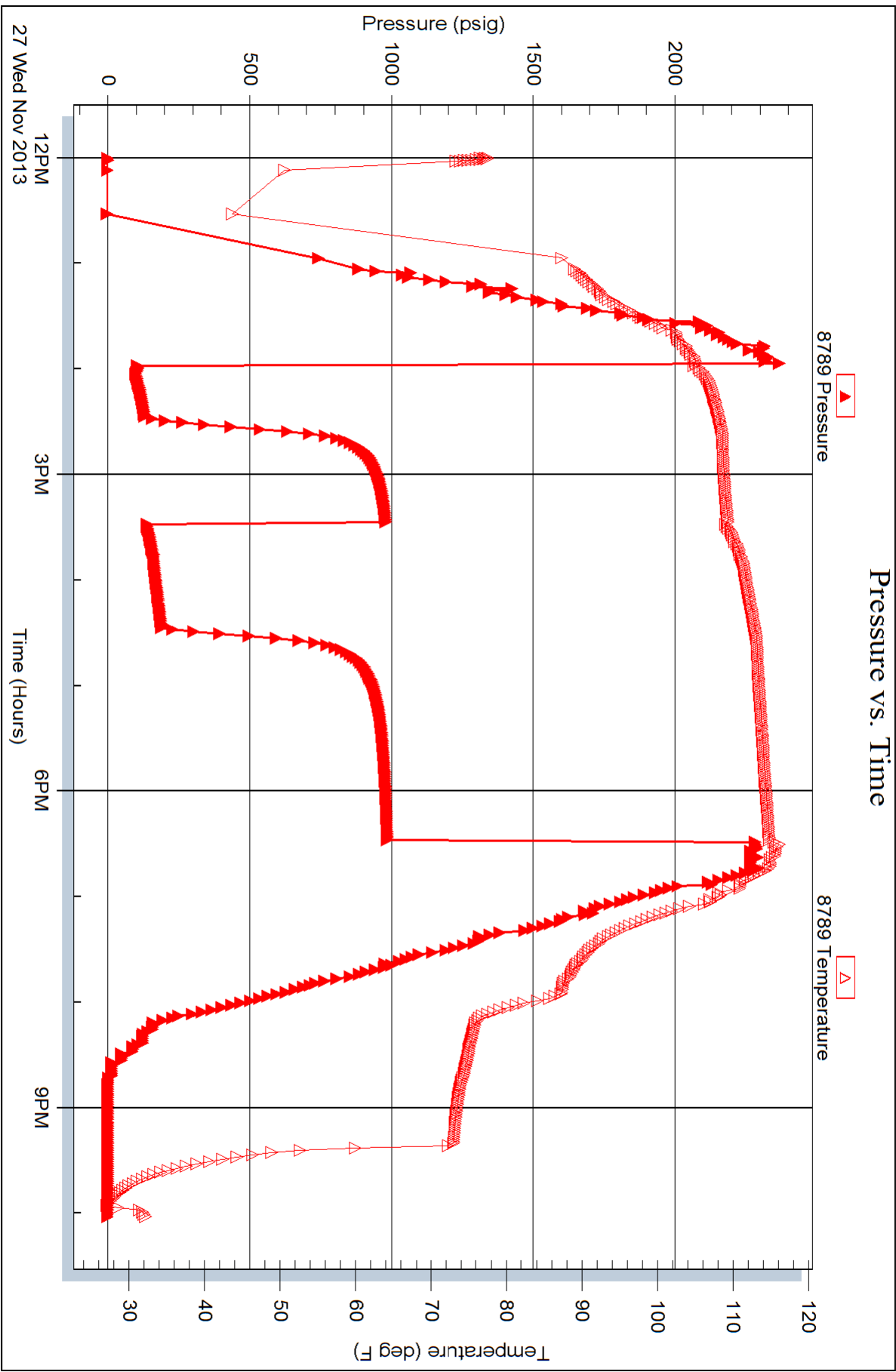
Serial #: 8789

Inside

Woodsey Operating Co LLC

OHLSON # 1

DST Test Number: 2





**TRILOBITE TESTING, INC**

# DRILL STEM TEST REPORT

Woolsey Operating Co LLC

**16 35s 12w Barber**

125 N Market Ste 1000  
Wichita KS 67202-1729

**OHLSON # 1**

Job Ticket: 55795

**DST#: 3**

ATTN: Bill Klaver

Test Start: 2013.11.30 @ 04:44:00

## GENERAL INFORMATION:

Formation: **Simpson F Dolomite**

Deviated: No Whipstock: 1403.00 ft (KB)

Time Tool Opened: 07:21:30

Time Test Ended: 13:31:00

Test Type: Conventional Bottom Hole (Reset)

Tester: Jim Svaty

Unit No: 54

**Interval: 5362.00 ft (KB) To 5386.00 ft (KB) (TVD)**

Reference Elevations: 1403.00 ft (KB)

Total Depth: 5386.00 ft (KB) (TVD)

1389.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 14.00 ft

**Serial #: 8289 Outside**

Press@RunDepth: 33.66 psig @ 5363.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.30

End Date:

2013.11.30

Last Calib.: 2013.11.30

Start Time: 04:44:02

End Time:

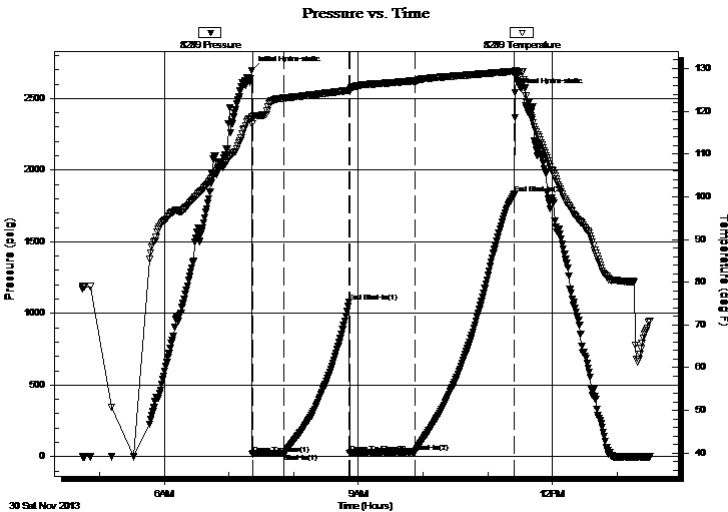
13:31:00

Time On Btm: 2013.11.30 @ 07:21:15

Time Off Btm: 2013.11.30 @ 11:25:30

**TEST COMMENT:** 30-IFP- Surface Blow Building to 8in.  
60-ISIP- Surface Blow in 3 1/2 min. Building to 1/8in.  
60-FFP- BOB in 30sec.  
90-FSIP- No Blow

## PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2695.70	118.71	Initial Hydro-static
1	17.35	117.16	Open To Flow (1)
30	25.26	123.07	Shut-In(1)
90	1080.27	124.90	End Shut-In(1)
91	26.28	124.58	Open To Flow (2)
151	33.66	127.09	Shut-In(2)
244	1831.81	129.32	End Shut-In(2)
245	2539.30	129.58	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
40.00	OCM 15%o 85%m	0.20
0.00	957 GIP	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

Woolsey Operating Co LLC

**16 35s 12w Barber**

125 N Market Ste 1000  
Wichita KS 67202-1729

**OHLSON # 1**

Job Ticket: 55795

**DST#: 3**

ATTN: Bill Klaver

Test Start: 2013.11.30 @ 04:44:00

### 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: 58.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.16 in<sup>3</sup>

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 8.00 inches

### Recovery Information

Recovery Table

Length ft	Description	Volume bbl
40.00	OCM 15%o 85%m	0.197
0.00	957 GIP	0.000

Total Length: 40.00 ft      Total Volume: 0.197 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

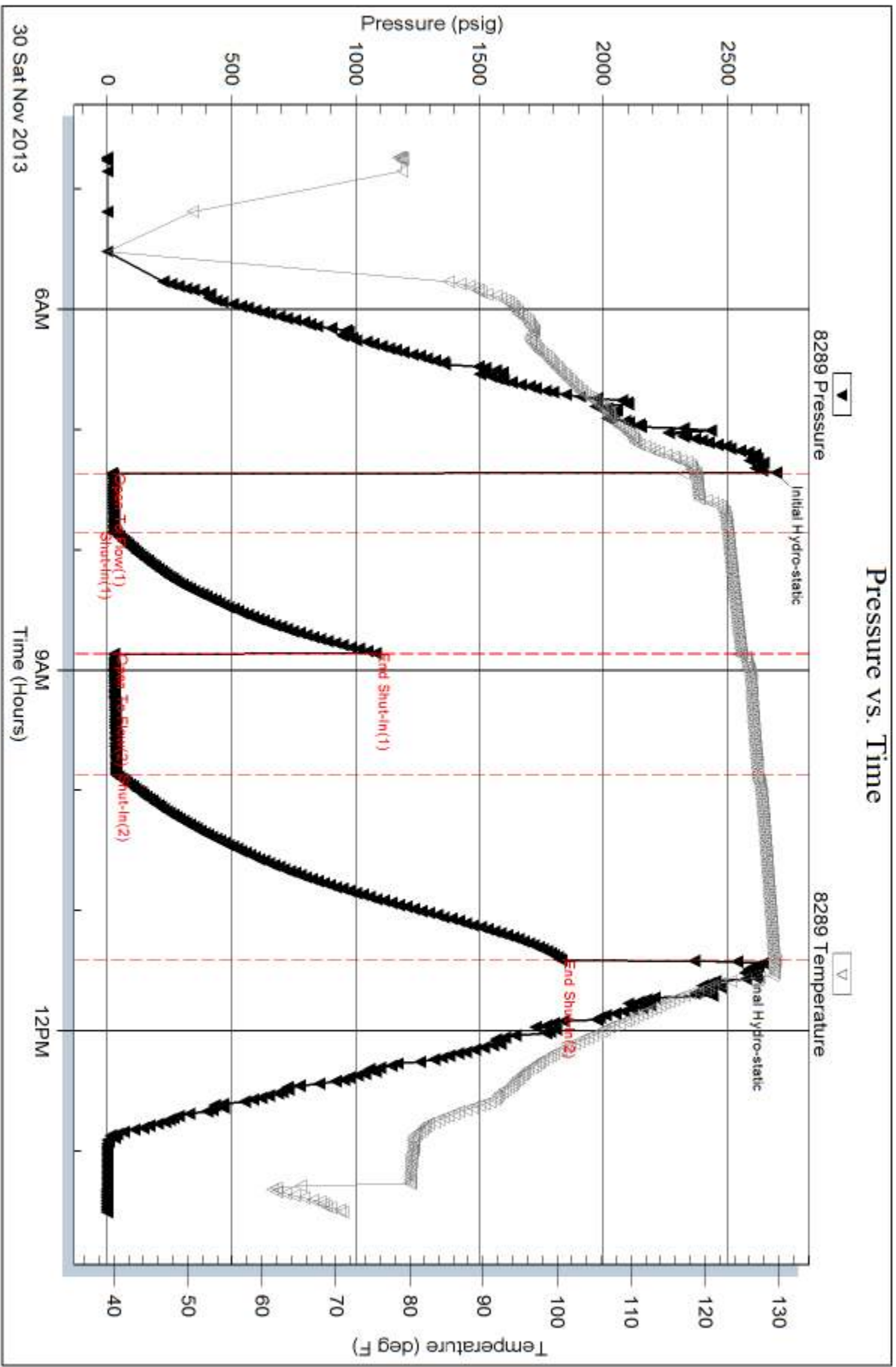
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







**Woolsey Operating Company, LLC**

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

Measured Depth Log

**Well Name:** OHLSON #1  
**Location:** Section 16 - Township - 35 South - Range 12 West  
**License Number:** 15-007-24110-00-00 **Region:** Barber County, Kansas  
**Spud Date:** November 20, 2013 **Drilling Completed:** December 1, 2013  
**Surface Coordinates:** NE1/4 NE1/4 NE1/4  
400' FNL & 600' FEL  
**Bottom Hole Coordinates:**  
**Ground Elevation (ft):** 1389' **K.B. Elevation (ft):** 1401'  
**Logged Interval (ft):** 3500' **To:** 5523' **Total Depth (ft):** 5523'  
**Formation:** Kansas City Group ----> Simpson Group  
**Type of Drilling Fluid:** Chemical Mud displaced at 3433'  
Printed by WellSight Log Viewer 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, Joel Gearhart  
**Company:** Woolsey Operating Co. LLC  
**Address:** 125 N. Market, Wichita Kansas, 67202

## COMMENTS

Surface Casing: Spud at 2:30 pm on November 20, 2013, ran 5 joints of new 13 3/8" X 48#/ft casing to 221' KB (tally 206.7') with 300 sx Class A cement, 2% gel, 3% cc. Plug down at 9:15 pm on November 20, 2013. Cement did circulate.

Production Casing: 5 1/5" X 15.5#/ft

Deviation Surveys: .5 at 221', 1/4 at 2038', 1/2 at 2513', 1/2 at 3021', 1/2 at 3559', 3/4 at 4065" 1/2 at 4605', 1/4 at 4924', 1 at 5523'

Pipe Strap @ 4924', Board: 4954.06', Strap 4951.79'. Strap 2.27' short to the board, no correction was made to the board.

Fossil Drilling Rig 3 Bit Record:

- 1) 17 1/2" Reed RT RR in at 0' out at 221'. 3.25 hours
- 2) 7 7/8" Varel HE-21 in at 221' out at 4924'. 4063'/99.5 hours
- 4) 7 7/8" Varel HE-29 RT in at 4924', out at 5523', 599'/51.5 hours

Gas Detector: Woolsey Operationg Company, Gas Trailer #2

Mud System: Chemical Mud, Mud-Co. Brad Bortz, Engineer

DSTs: Trilobite Testing, Jim Svaty, Tester

E-Logs: Nabors Completion and Production Services, Dual Induction Laterolog w/SP, CNL-FDC w/PE, Gamma Ray and Caliper.

## DSTs

DST #1 4760'-4924' Misrun, tool hit bridge 620' off bottom on trip in with the tool, cussed but could not get through.


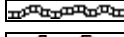
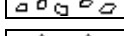
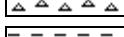


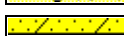




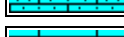
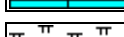

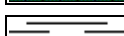




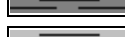

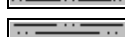

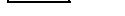








DST #2 4760'-4924', 30"-60"-60"-120", Fair blow built to BOB 4 minutes into IFP. BOB 11 minutes into FFP. Recovered: 508' GIP, 112' Mud, 124' OSM (1% Oil, 99% Mud), 120' OCWM (3% Oil, 40% Mud, 57% Water). IHP 2351, IFP 100-133, ISIP 980, FFP 145-191, FSIP 986, FHP 2273. BHT 115 degrees. Chlorides 60,000 ppm, (mud system was 8,000 ppm) API Rw .280 @ 32 degrees

DST #3 Simpson 'F' Dolomite. 5362'-5384', 30"-60"-60"-90", Fair blow built to 7" during IFP. SB BOB immediately on FFP. Recovered: 957' GIP, 40 OCM (15% Oil, 85% Mud). IHP 2695, IFP 17-25, ISIP 1080, FFP 26-33, FSIP 1831, FHP 2539. BHT 129 degrees.















































































## CREWS

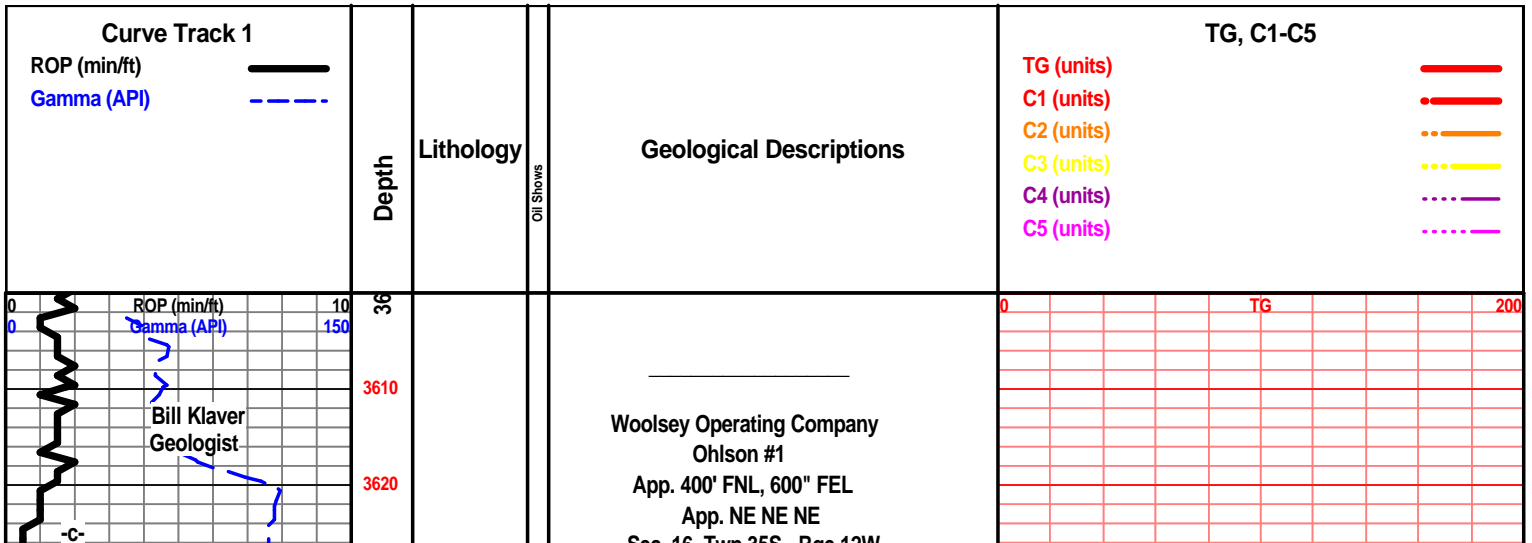
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 Daniel Orrantea, Days  
 Ron Burns, Evening  
 Andres Maestas, Morning  
 Terry Christenson, Relief

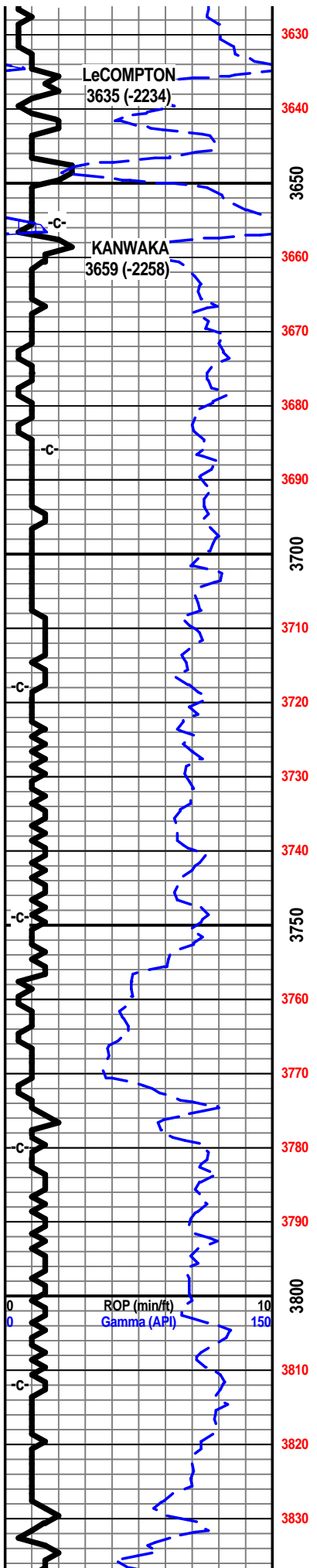
## ROCK TYPES

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

<b>MINERAL</b>  Anhy  Arg  Bent  Bit  Brecfrag  Calc  Carb  Chtdk  Chtlt  Dol  Ferrpel  Ferr  Glau  Gyp  Marl  Nodule  Phos  Pyr  Salt  Sandy  Silt	 Chlorite  Dol  Sand  Slty  <b>FOSSIL</b>  Algae  Amph  Belm  Bioclst  Brach  Bryozoa  Cephal  Coral  Crin  Echin  Fish  Foram  Fossil  Gastro  Oolite  Ostra	 Pelec  Pellet  Pisolite  Plant  Strom  Fuss  Oomoldic  <b>STRINGER</b>  Anhy  Arg  Bent  Coal  Dol  Gyp  Ls  Mrst  Slststrg  Ssstrg  Carbsh  Clystn  Dol	 Grysh  Gryslt  Lms  Sandylms  Sh  Slststn  <b>TEXTURE</b>  Boundst  Chalky  Cryxln  Earthy  Finexln  Grainst  Lithogr  Microxln  Mudst  Packst  Wackest
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Sec. 10 Twp 35S Rge 12W  
 Hardtner Field  
 Barber County, Kansas  
 API # 15-007-24110-00-00

Offset comparison wells for structural control included Woolsey Operating Co's Platt GU #4, S 1/2 SE SE, 9-35S-R12W and Redland Petroleum's Gregory 16-2, C NW NE, 16-35S-R12W.

One minute drill time was recorded from 3600' to rotary total depth. Ten foot drilling and circulating samples were gathered from 4500' to rotary total depth. All samples were delivered to the Survey at the completion of the test.

7 am Progress:

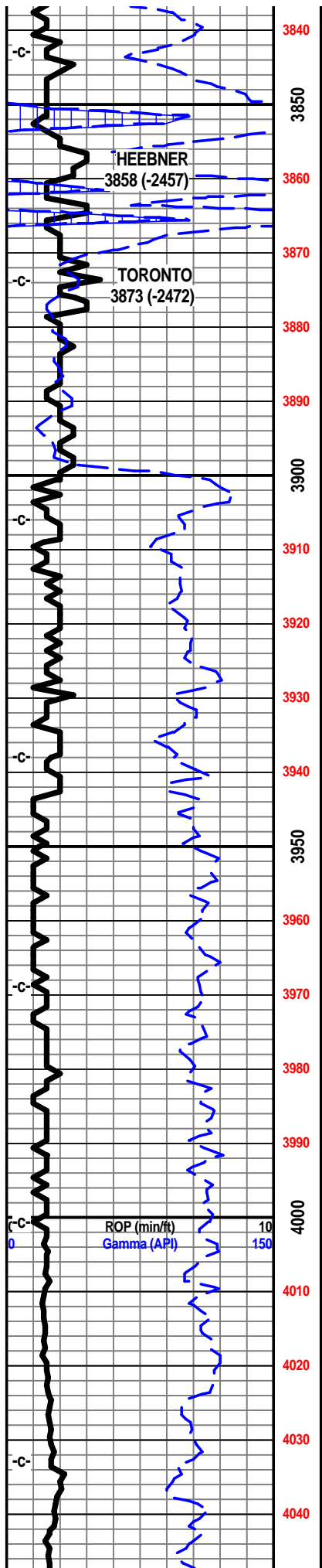
- November 20, 2013 MIRT/SPUD
- November 21, 2013 Drilling at 251'
- November 22, 2013 Drilling at 1720'
- November 23, 2013 Drilling at 2670'
- November 24, 2013 Drilling at 3425'
- November 25, 2013 Drilling at 4302'
- November 26, 2013 Drilling at 4757'
- November 27, 2013 DST #1 at 4924'
- November 28, 2013 Drilling at 4992'
- November 29, 2013 Drilling at 5250'
- November 30, 2013 DST #3 at 5384'
- December 1, 2013 RTD of 5523' at 8 am
- E-logs out at 3:30 pm

E-Log Tops:

- Herington 1939 (-538)
- Onaga 2814 (-1413)
- Wabaunsee 2874 (-1473)
- LeCompton 3633 (-2232)
- Kanwaka 3656 (-2255)
- Elgin Sand 3752 (-2351)
- Heebner 3856 (-2455)
- Toronto 3867 (-2466)
- Douglas Group 3896 (-2495)
- Douglas Shale 3940 (-2539)
- Haskell not developed
- Stalnaker 4205 (-2804)
- Quindaro 4396 (-2995)
- Kansas City 'F' 4406 (-3005)
- Kansas City 'G' (Iola) 4429 (-3028)
- Kansas City 'H' (Drum) 4482 (-3081)
- Kansas City 'I' (Dennis) 4511 (-3110)
- Stark Shale 4558 (-3157)
- Kansas City 'J' (Swope) 4573 (-3172)
- Hushpuckney Shale 4590 (-3189)
- Kansas City 'K' (Hertha) 4603 (-3202)
- B/Kansas City 4637 (-3236)
- Pawnee 4737 (-3336)
- Cherokee Group 4790 (-3389)
- Cherokee Sand 4821 (-3420)
- Mississippian Unc. 4852 (-3451)
- C3 4852 (-3451)

Scale Change  
 TG 0 100

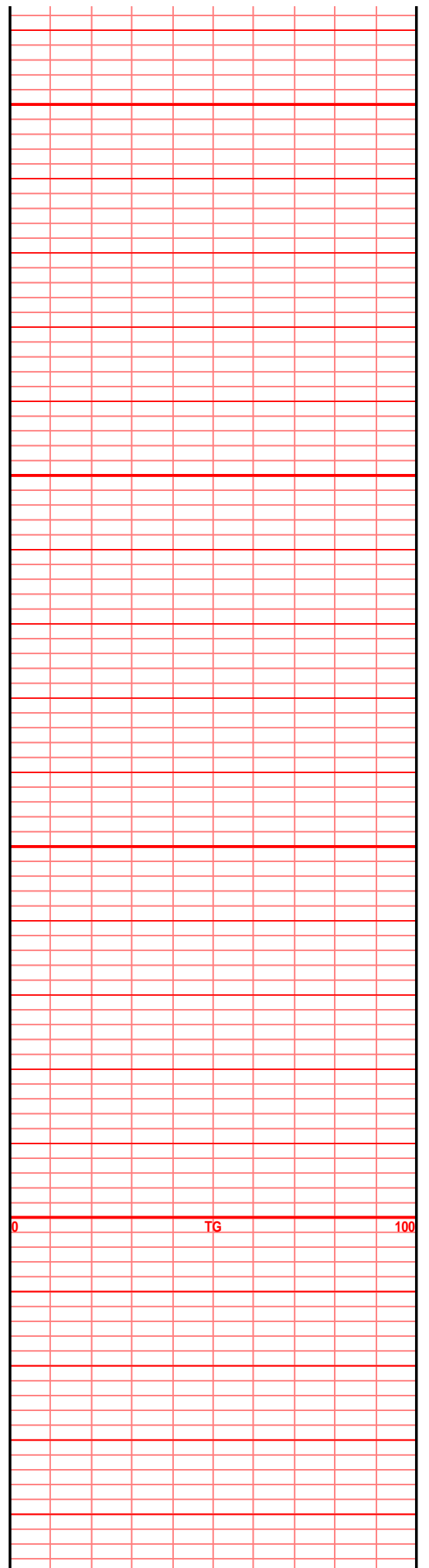
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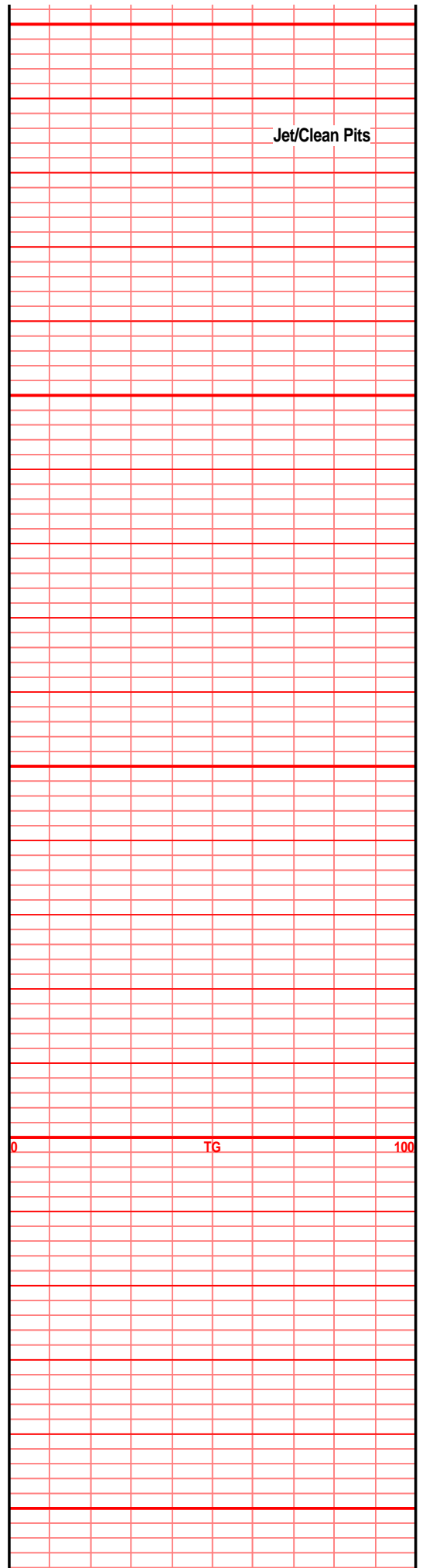
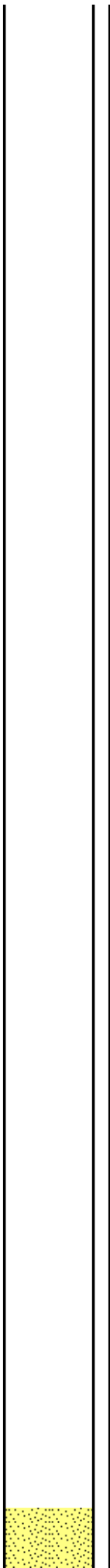
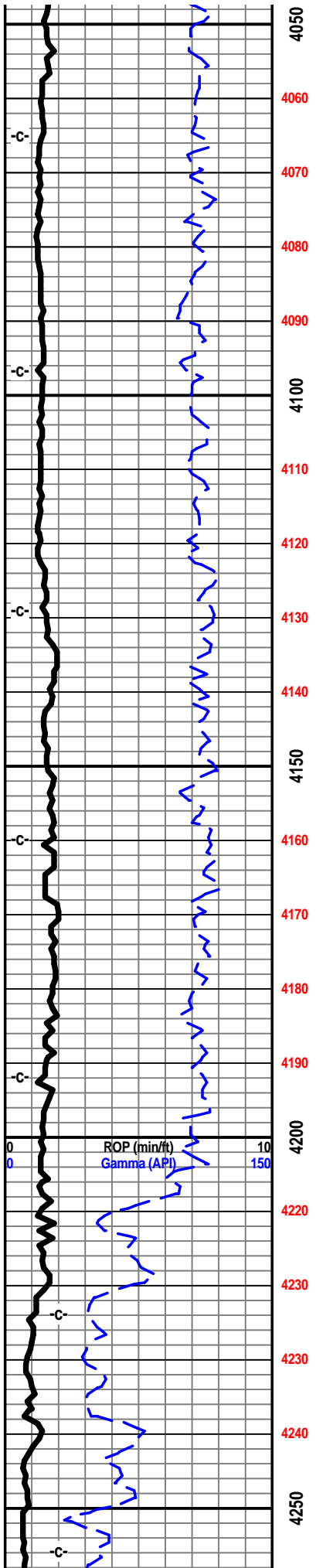


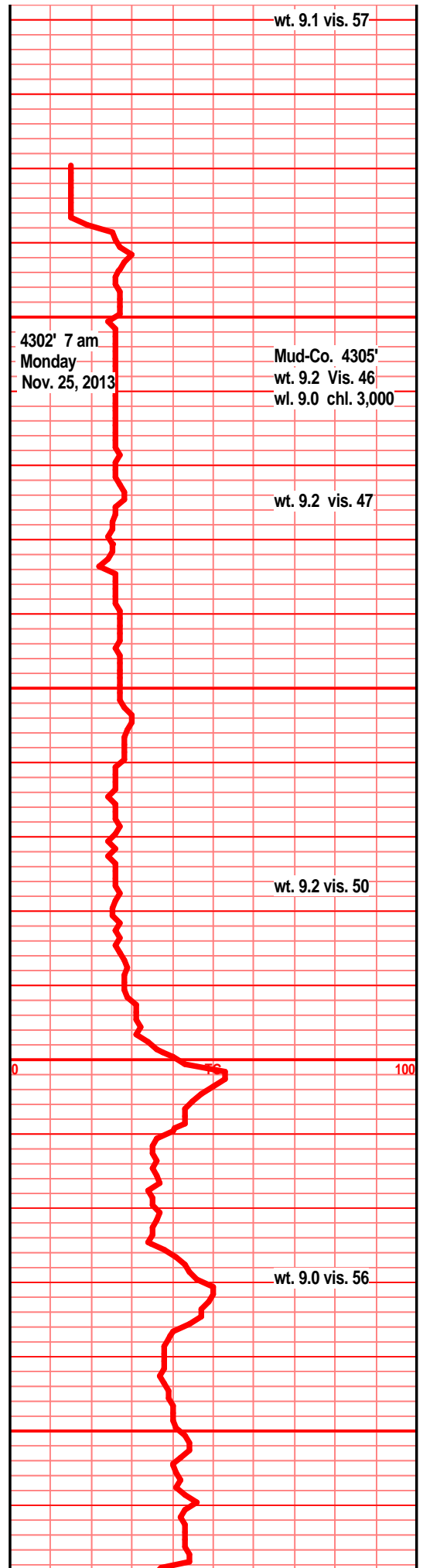
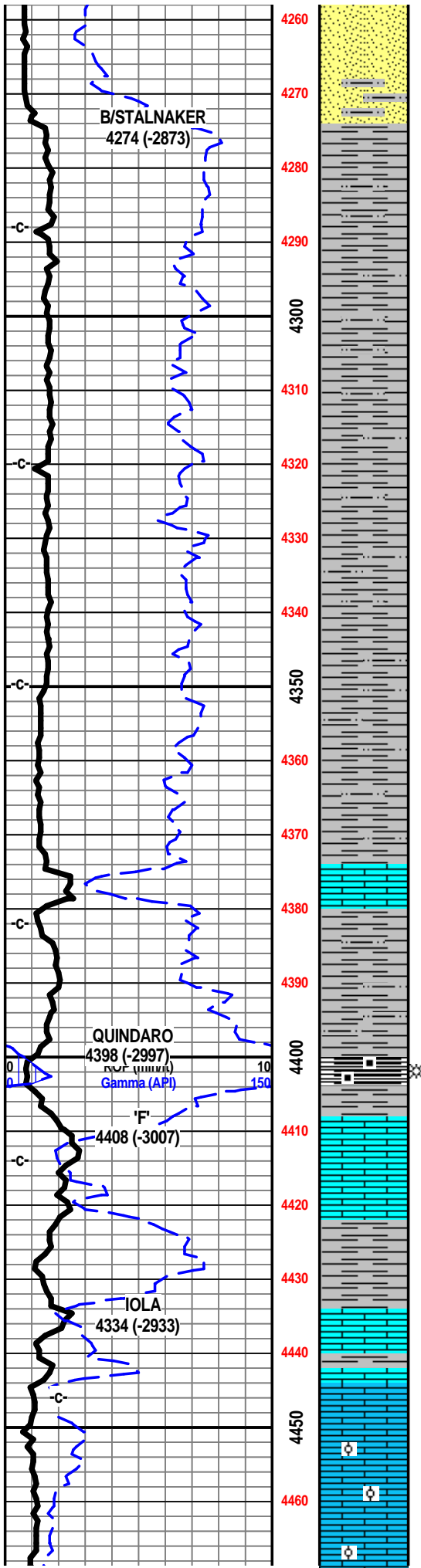
- C2 4924 (-3523)
- C1 5005 (-3604)
- Osage 5078 (-3677)
- Northview Shale 5098 (-3697)
- Compton 5116 (-3715)
- Kinderhook 5134 (-3733)
- Woodford 5207 (-3806)
- Misener Zone 5230 (-3829)
- Viola 5263 (-3862)
- Simpson Group 5376 (-3975)
- Simpson "F" Dolomite 5378 (-3977)
- Simpson "D" Sand 5390 (-3989)
- Simpson "Wilcox" 5397 (-3996)
- McLish Shale 5480 (-4079)
- LTD 5522 (-4121)

Oil and Gas Show Legend

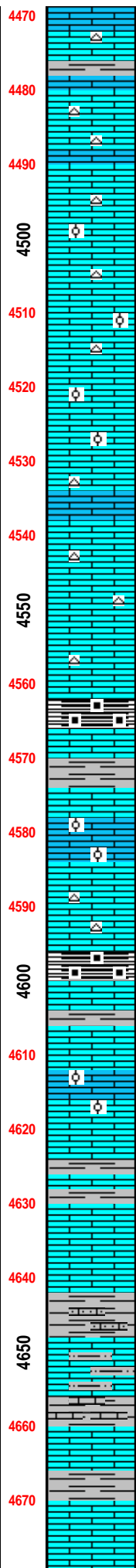
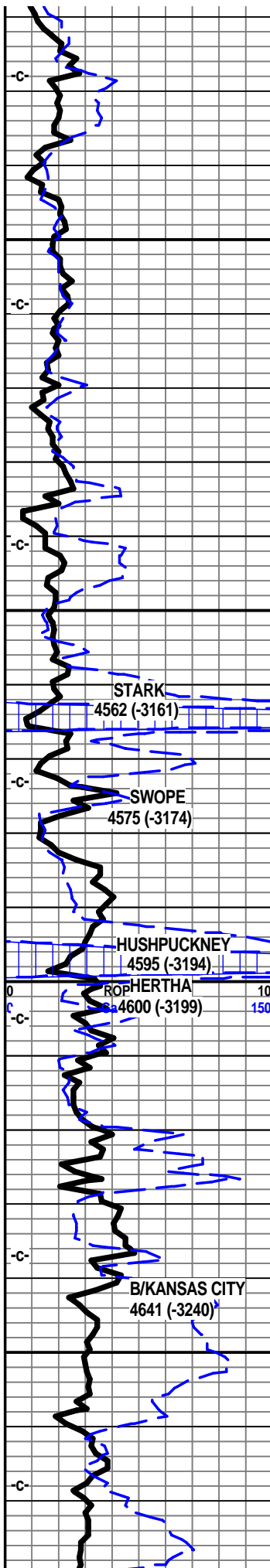
- ⊗ Gas
- Even Stain/Saturation
- ◐ Spotted Stain/Saturation
- Questionable
- ◑ Dead/Gilsonitic











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Ist off wht crm off tan f sli med xln gran soft sub chlky foss frags, foss mold por, tr chrt, chrt off wht tan shrp frsh

Ist wht crm tan f xln blk ang sub chlky, foss frags, foss ool, foss mold, inter xln por,

Ist wht off wht crm f xln, blk ang sub chlky foss frags, foss ool, inter xln, mstly dns hrd, chrt wht off wht shrp frsh

Ist off wht crm tan, f xln blk ang sub chlky foss frags foss ool, chrt off wht lt gry shrp frsh

Ist off wht crm tan f xln blk ang sub chlky mstly dns hrd foss frags, inter xln por tr moldic por

Ist crm off tan lt gry f xln gran blk ang hrd dns, sub chlky foss frags tr ool, inter xln por, chrt tan drk gry shrp frsh

Ist tan crm off wht, f sli med xln in prt, sub chlky, foss frags, foss ool, inter xln por foss mold por, tr tan drk brn ool/oomoldic f sli med xln Ist

shl drk gry blk, blk carb, gas bubs on brk, Ist tan crm gry f xln blk ang dns hrd foss frags

Ist crm tan lt tan/gry f sln gran blk ang sub chlky foss frags, moldic pp por, chrt tan gry shrp frsh opa

Ist crm tan tr lt brn f sli med xln, gran blk ang dns, sub chlky, foss frags, foss ool, oomold, inter xln por, pp por, chrt off wht lt gry shrp frsh opa

shl gry drk gry blk, blk carb, wxy grsy text, abun gas bubs on brk

Ist crm tan lt gry in prt, f xln blk ang dns, tr sub chlky, foss frags, foss ool, calc xln fill, pp moldic por

Ist crm tan off wht, f sli med xln gran blk ang sub chlky foss frags, calc xln fill

Ist crm buff tan lt brn f xln blk ang hrd dns, tr sub chlky, foss frags, gran, chrt gry brn shrp frsh opa

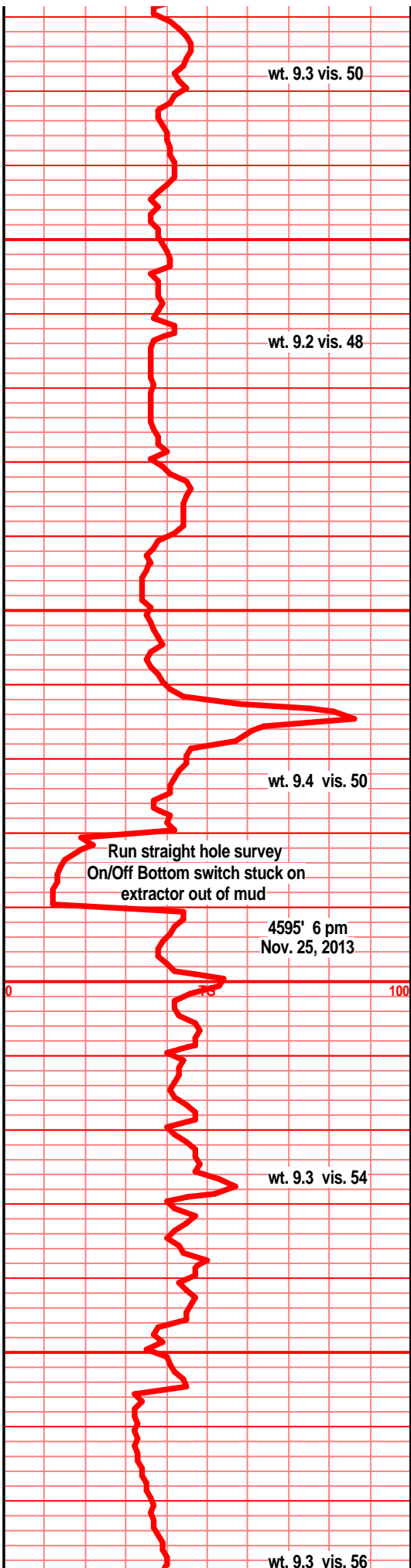
Ist grn gry tan f vr xln dns hrd blk ang arg, tr sub chlky, micro foss frags, chrt drk gry brn shrp frsh foss opa

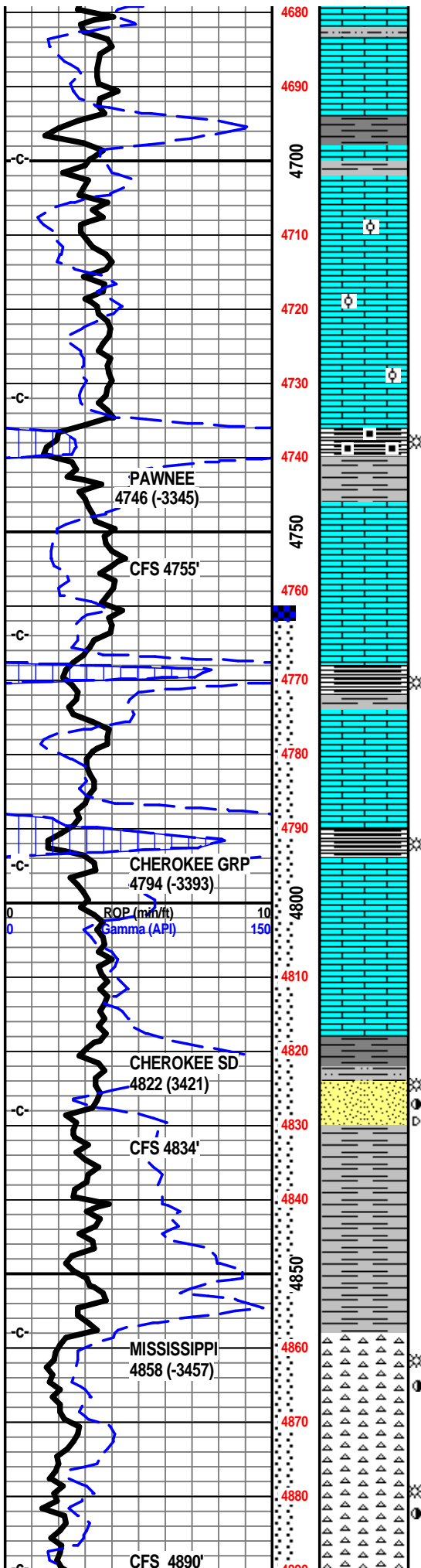
shl gry med gry brn, silty gritty calc, Ist tan gry lt brn f xln dns hrd blk ang arg

shl gry brn, gry brn, silty gritty calc, Ist tan gry brn f vf xln dns gritty arg silty

Ist cm tan brn f vf xln dns hrd blk ang arg, tr silty, shl gry green silty gritty calc

Ist crm tan lt brn/gry f vf xln dns hrd blk ang dns, tr foss frags, tr silty gritty arg, chrt tan brn shrp frsh





lst crm buff tan f xln, dns blk ang tr micro xln, tr sub chlky, some micro foss frags,

shl gry med/drk gry, silty, gritty, firm,

lst buff crm lt tan f vf xln blk ang dns, tr sub chlky, micro foss frags, micro ool in prt

lsr buff crm lt tan, f vf xln dns hrd blk ang, tr sub chlky, tr micro foss frags, micro ool/pelletal,

lst buff crm tan lt tan f vf xln blk ang dns hrd, tr sub chlky, mstly hrd firm, micro foss frags,

lst crm buff tan f vf xln dns hrd blk ang, tr sub chlky, micro foss frags, foss ool

shl gry dkr gry blk, blk carb, wxy grsy text, abun gas bubs on brk

lst crm semi buff tan, f tr vfn xln, blk ang dns hrd, tr sub chlky, foss frags, micro ool/pelletal, tr inter xln por, mstly calc xln fill, NS

lst off tan lt gry tan f sli vf xln blk ang dns hrd, foss frags, micro foss frags, calc xln fill, some sub chlky

shl gry, drk gry blk, blk carb in prt, silty gritty blk ang pcs, lst aa in sample

lst crm tan lt gry/brn f vf xln dns hrd blk ang pcs, micro foss frags/ool, tr sub chlky, calc xln fill

lst crm lt gry tan f vf xln dns hrd blk ang, tr sub chlky, foss frags, micro ool/pelletal,

shl gry, drk gry blk, blk carb, wxy grsy text, lst tan lt gry f vf xln, dns hrd blk ang, foss frags, micro ool, tr arg,

lst tan crm lt gry/brn f vf xln dns hrd blk ang arg, micro foss frags, incr gry green silty gritty shls

lst as above, and shl gry med gry green, tr blue gry to vary color, silty gritty, gran

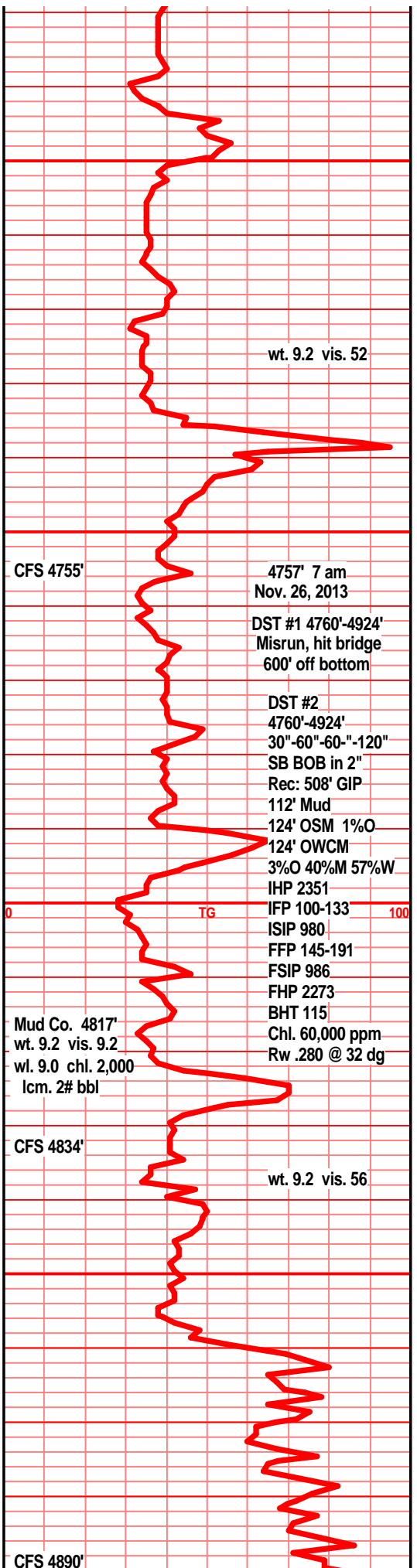
sst brn drk brn clstrs, f vf grnd, sub ang grns, w/srted, w/cem, tr sub fria, mstly tite, blk ang hrd clstrs, tr quartzitic text, ques odor, filmy SFO on brk, sli sho gas bubs on brk, gilsonitic stain

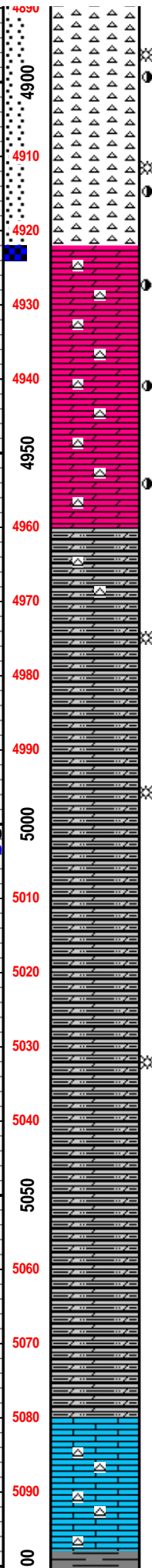
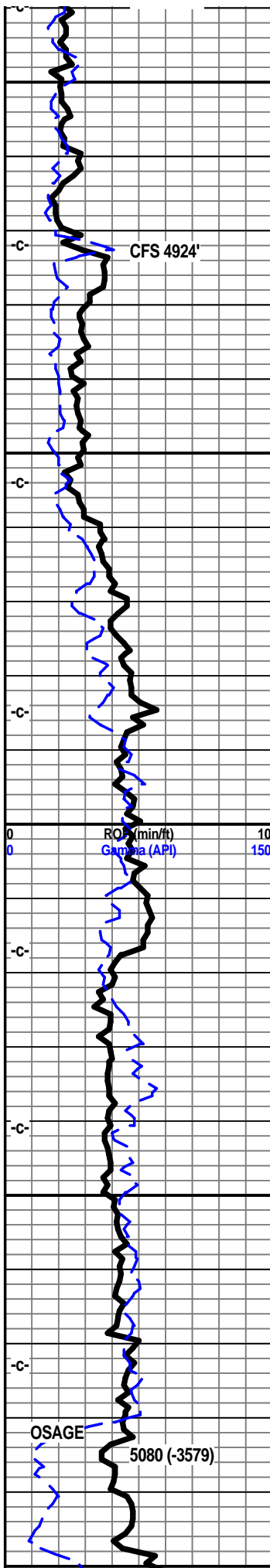
shl gry, gry brn green, reddish, tr yellow, vari color, lst tan brn f mic xln dns hrd blk ang arg silty

shl gry brn silty gritty, splintery, shls gry blue green silty gritty

chrt wht off wht, bone wht, shrp frsh blk ang pcs, tr off wht tan sli orange/yellow tinted, chrt wht off wht bone wht with sli weath edges/inclusions, pp sli moldic por, drk brn/blk stain, filmy RBSFO, filmy SFO, abun gas bubs, good odor

chrt wht off wht shrp frsh blk ang pcs, sub opa, with drk brn/blk stained sli weath edges/sides, pp moldic por, drk brn blk stain, drk brn blk SFO, tr sli grsy SFO, less odor, gas bubs, chrt off wht sli tan to vry lt brn, weath gran text, weath pp moldic por, tan brn stain, fair gas/SFO on brk, odor on brk, abun drk brn/blk oil droplets floating on spl water.





chrt wht off wht tr bone wht, tr off wht tan, shrp frsh blkly ang cloudy, sub opaq pcs, NVP/NS, chrt off wht lt tan shrp blkly ang with gran weath text edge/sides, weath pp moldic por, weath text inclusions, tan brn stain, fair gas/SFO on brk, lt transl SFO on gas bub brk, sli odor in all, abun drk brn/blk sli dead sli grsy oil droplets floating on spl water

chrt off wht tr bone wht, shrp frsh blkly sub opaq, chrt wht off wht shrp frsh with weath gran text edge, pp moldic por, drk brn/blk stain, fair to good odor, chrt wht/gry green brn mott, weath gran trip text, pp moldic gd vug por, drk tan brn/blk stain, gd sho gas bubs/SFO on break, much drk brn hvy floating oil droplets on spl wtr

dolo crm tan lt gry/tan f vf xln gran blkly and dns hrd, tr soft/chlky/silty, tr vf ang sd grn inclu, tr glau, tr sli inter xln por, tan brn stain, drk tan/brn SFO, odor, floaters, tr tan/wht sli weath chrt inclu w/pp moldic por, drk tan brn stain, SFO

dolo crm tan lt off gry f vf xln gran, tr silty, blkly ang pcs, tr vf ang snd grn inclu, tr sub chlky/soft, tr inter xln por, drk tan brn stain, odor, drk tan brn SFO, w/tan off wht sli weath text chrt inclu, pp moldic por, drk tan brn stain

dolo tan off wht lt gry f vf xln, gran, silty, gritty, snd grn inclu, tr glau, tr inter xln por, mstly tite dns, tr tan brn stain, faint odor, chrt wht tan shrp frsh opaq

dolo tan off wht, tan/gry, bec drk w/depth f vf xln dns hrd blkly ang pcs, sli clkly/silty text, tr glau, vf sub ang snd grn inclu,

dolo, silty dolo, gry bec gry med drk gry, silty gritty blkly ang pcs, shls silts, drk gry, dolo text, tr chrt lt gry shrp frsh opaq

dolo silty shly dolo, drk gry, f vf xln gran gritty silty arg

dolo, silty dolo, med/drk gry silty gritty arg, shls drk med drk gry silty gritty

dolo silty dolo, gry med/drkk gry silty gritty, silts/shls drk gry med drk gry

dolo silty dolo, drk med drk gry silty gritty, arg,

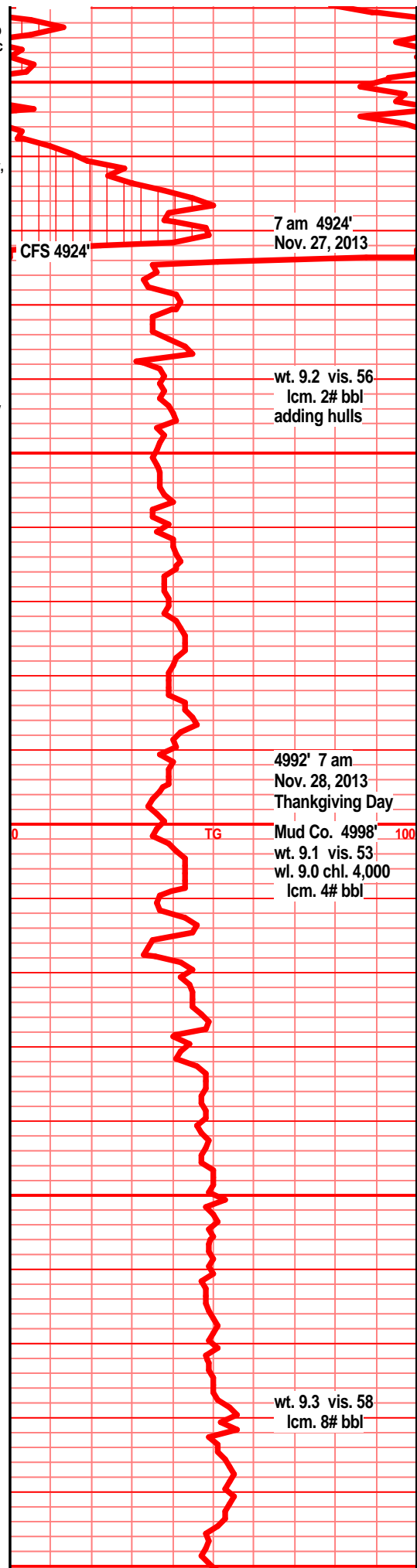
dolo silty dolo, shly silty gritty gran dolo, silts

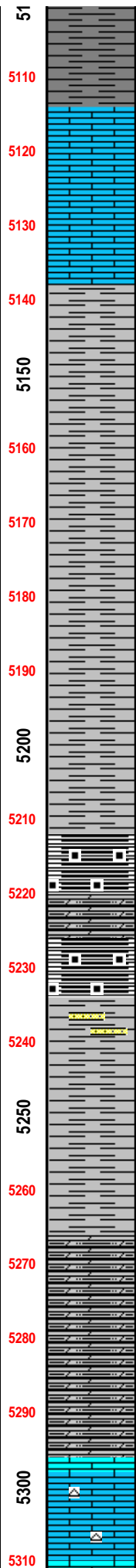
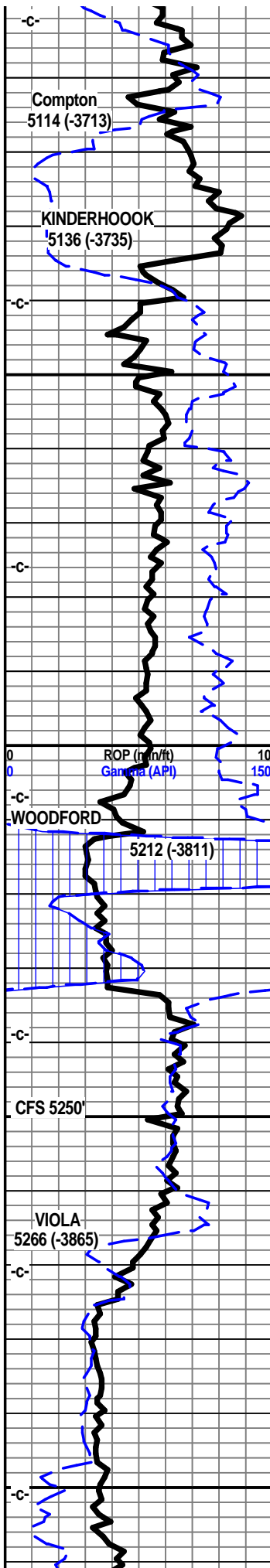
drk gry med drk gry silty dolo, fnly xln text, gritty ang arg pcs

dolo, silty dolo, med drk gry, gritty silty, micro xln text, arg, shls drk gry silty gritty

dolo, silty gritty dolo, vf/micro xln text, drk med/drk gry silty gritty, arg tr gas bubs

lst wht off wht crm f sli med xln dns hrd blkly ang tr sub chlky, tr glau, tr foss mold calc filled, much crs calc xln fill, chrt wht shrp opaq





shl gry green, drk blue/green slick grsy, silty in prt

5110  
1st crm dull tan w/sl gry lt green tint, f xln blk ang dns hrd, tr micro foss frags, tr sli sub chlky, tr calc xln fill

5120  
1st crm off wht lt gry tan, tr gry green tint, f xln msly dns massive, tr sub chlky, tr micro foss frags,

5130  
1st off wth, dull gry wht f xln blk and dns hrd, tr sub chlky, tr calc xln fill

5140

5150  
shl gry pale gry silty, med gry greenish, sli gritty, tr spintery, tr gas bubs, vfn clr sub ang snd grn inclu

5160  
shl gry drk med gry, brn tint, silty soft gritty pyritic

5170  
shl drk med drk gry silty soft gritty, vf sub ang snd grn inclu, gas bubs

5180  
shl gry med drk gry green, tr red tinted, silty gritty, platy, flky tr splintery

5190  
shl drk gry, med gry, reddish tint in prt, silty gritty, soft, gas bubs

5200  
shl gry drk med drk gry, reddish tint, silty soft, tr gritty, platy bedded, gas bubs

5210  
shl gry med drk gry silty gritty. platy, bedded,

5220  
shl, dolo shl, drk gry, blk, mstly blk, deep/drk brownish blk, tr blk carb text, silty, gritty, blk ang soft pcs, pyritic, dull min copper grains, abun gas bubs, filmy cond show on brk,

5230  
shl drk gry blk, deep red/brn/blk, blk ang pcs, silty dolo text in prt, soft gran in prt, abun gas bubs, filmy cond sho on brk

5240  
shl gry lt/med gry, silty gritty, silty dolo text, tr sndy text, tr w/small snd grn inclu, msly soft, tr gas bubs, sst (1-2 clstrs) wht f grnd, sub ang grns, prly srted, soft, gran, hvy calc/dolo fill, blk ang pcs, NS

5250  
shl sli dolo shl, lt gry, lt gry greenish, silty gritty. tr vry fn grnd subang sd grn inclu

5260  
shl gry lt med gry dilty soft mushy, gritty silty

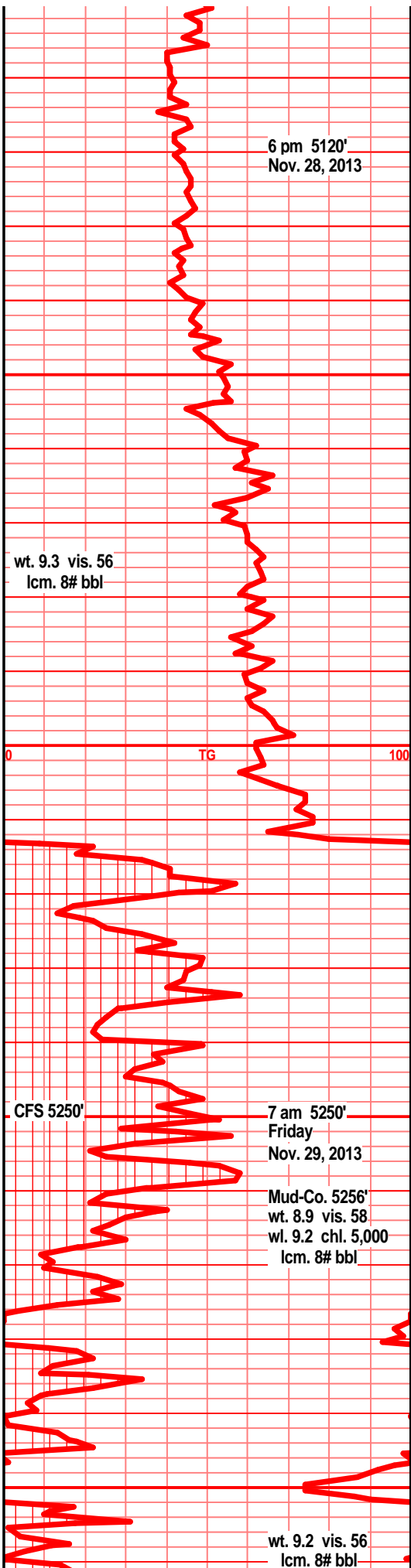
5270  
dolo, shly dolo, gry red brn vfnly xln sub text, gritty silty, tr gas bubs

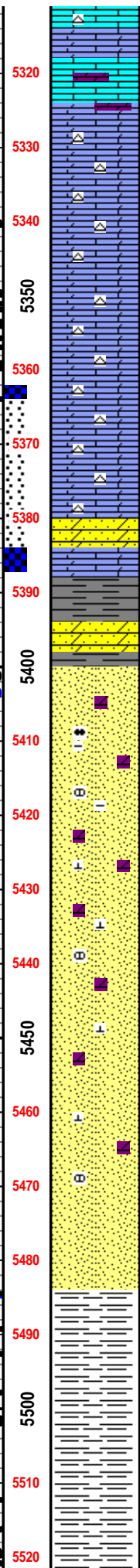
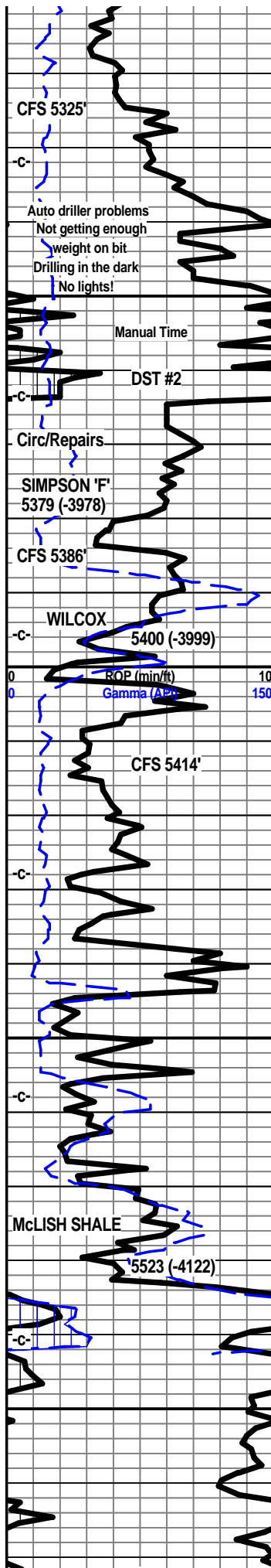
5280  
dolo, silty shly dolo, gry tan lt red/brn, silty gritty soft much, tr gas bubs

5290  
dolo silty dolo, lt med gry gran gritty, soft mushy in prt, pyritic, gas bubs

5300  
1st wht off wht, wht lt gry mott, f med xln, blk ang pcs, calc xln fill, crs calc xln fill in prt, tr foss frags, tr pyritic, calc filled foss molds, fair inter xln por, chrt wht lt gry shrp frsh foss, ool, frags NS

5310





ist wnt orr wnt it gry r xin gran sort musny sub  
 chlky, 1st tr dolo, off wht lt gry/gry mott, f sli  
 med xln, blk ang pcs, tr crs calc xln text, inter  
 xln por, pyritic in prt, foss frags, calc fill foss  
 molds, tr chrt wht tan shrp frsh opa q foss frags  
 NS

1st, dolo in prt, tan dull tan brn f vf xln blk ang  
 dns hrd pcs, dull tan brn shrp frsh semi opa q  
 chrt inclu, chrt dull tan brn shrp frsh opa q

1st, dolo in prt, off wht tan dull brn, tr sub chlky  
 soft gran, mstly dull tan brn f vf xln dns hrd  
 blk ang chrty pcs, dull tan brn chrt inclu, chrt  
 dull tan brn shrp frsh opa q, tr with tan brn dolo  
 f xln edge

dolo 1st, tan drk tan dull brn f vf xln dns hrd  
 blk ang, tr foss frags, tan brn chrt inclu, chrt  
 tan dull brn shrp frsh opa q

dolo 1st, tan drk brn dul tan brn f vf xln dns hrd  
 blk ang, chrty aa, chrt dull gry tan brn shrp  
 frsh semi opa q

dolo, sndy dolo, drk brn, drk reddish brn, f med  
 xln, sli suc text, sndy text, clr sub ang f grnd  
 sd grn inclu, gd inter xln, bleeding gas bubs,  
 fair/gd odor, fair sho lt transl SFO, gd gas &  
 transl SFO on brk

shl gry blue/gry teal green, snd grn inclu, sst lt  
 gry grn, tr gry clr, f grnd, sub ang grns, prly  
 srted, vv/cem, tr sub fria, arg, pyritic, silic cem  
 blk ang dns clstrs

sst wht off wht clstrs, sub ang/sub rded grns,  
 fair to well srted, sub fria to tite, prly cem, silic  
 cem, inter gran por, dolo in prt, dead flky  
 gilsonit stain, tr filmy dead oil smear

sst wht frosted, off wht lt tan/gry clstrs, f grnd,  
 sug and/sub rded grns, fair/well srted, sub fria  
 to tr tite blk ang, fair/well cem silic cem, tr rare  
 gas bub, dead gilsonitc flakes

sst wht, off wht tr tan, tr tan lt gry f grnd, sub  
 ang/sub rded grns, fair, tr prly srted, sub fria to  
 tite, msly prly cem, silic cem, tr min fill, tr dead  
 flky gilson stain, rare gas bub

sst wht f tr vf grnd, sub rded to rded grns, tr  
 sub ang, mstly w/srted, sub fria and tite, tr inter  
 gran por, mostly tite, silic cem, tr w/flky gilson  
 stain, tr mineral fill/specks

sst wht off wht, f tr vf grnd, sub ang/sub rded  
 grns, fair to msly w/srted, fair to prly cem, inter  
 gran por, sub fria and tite, mineral fill, tr dolo  
 text fill, silic cem, tr chlorite,

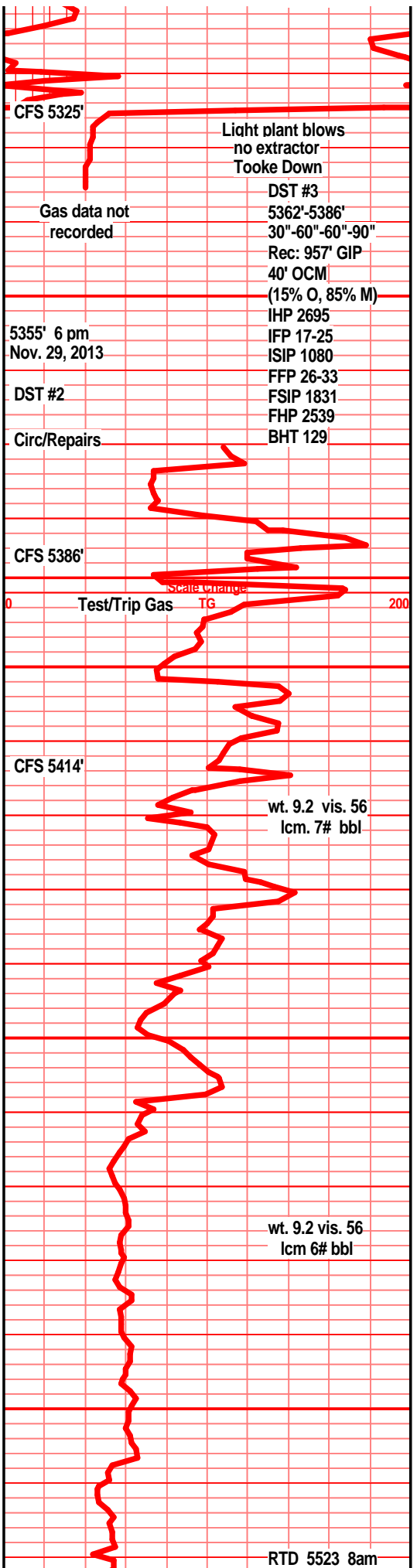
shl gry green silty gritty sndy, w/snd grn inclu,  
 sst wht crm/wht clstrs, f tr vf grnd, sub ang to  
 sub rded grns, fair to well srted, fair to prly cem,  
 inter gran por, silic cem, tr calc fill, tr glau,  
 some dolo xln fill,

sst aa, shl drk gry. gry/blk, green, dark teal  
 green, pyritic, silty, much snd grn inclu

shl gry, drk gry blk, drk gry green, drk teal  
 green, silty, slick wxy text

shl gry dkr gry green teal green, silty wxy sli  
 grsy test, snd grn inclu, pyritic

shl drk gry/green, drk gry blk teal green silty  
 gritty in prt, slick wxy grsy text in prt, snd grn



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inclu, pyritic in some

Woolsey Operating Company  
Ohlson #1  
App. 400' FNL, 600' FEL  
App. NE NE NE  
Sec. 16 - Twp 35S - Rge 12W  
Hardtner Field  
Barber County Kansas  
API # 15-007-24110-00-00

ROP (min/ft) 10  
Gamma (API) 150

Bill Klaver

Geologist

Circ/Log

Sunday  
Dec. 1 2013

0 TG 200

Bill Klaver

Geologist