



Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION 1051558  
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: \_\_\_\_\_

1051558

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> _____ <i>(Submit ACO-4)</i>	<b>PRODUCTION INTERVAL:</b> _____ _____
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# ALLIED CEMENTING CO., LLC. 040533

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

SERVICE POINT:  
*Medicine Lodge KS*

DATE <i>11 06 10</i>	SEC. <i>20</i>	TWP. <i>33s</i>	RANGE <i>09w</i>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
LEASE <i>Landwehr</i>	WELL # <i>A-1</i>		LOCATION			COUNTY <i>B</i>	STATE <i>KS</i>
OLD OR <u>NEW</u> (Circle one)							

CONTRACTOR *Tomcat #1*  
 TYPE OF JOB *Surface*  
 HOLE SIZE *14 3/4* T.D. *245*  
 CASING SIZE *10 3/4* DEPTH *243*  
 TUBING SIZE DEPTH  
 DRILL PIPE DEPTH  
 TOOL DEPTH  
 PRES. MAX *250* MINIMUM *-*  
 MEAS. LINE SHOE JOINT *N/A*  
 CEMENT LEFT IN CSG. *20'*  
 PERFS.  
 DISPLACEMENT *22 Bbls total Disp.*

OWNER *Woolsey*  
 CEMENT  
 AMOUNT ORDERED *230sx class "A" + 3%.c + 2%gel*

COMMON <i>A 230 sx</i>	@ <i>15.45</i>	<i>3553.50</i>
POZMIX	@	
GEL <i>4 sx</i>	@ <i>20.80</i>	<i>83.20</i>
CHLORIDE <i>8 sx</i>	@ <i>58.20</i>	<i>465.60</i>
ASC	@	
	@	
	@	
	@	
	@	
	@	
HANDLING <i>242</i>	@ <i>2.40</i>	<i>580.80</i>
MILEAGE <i>242/25/.10</i>		<i>605.00</i>
		TOTAL <i>5288.10</i>

### WELL FILE

- Regulatory Correspondence @
- Drill Comp Workovers @
- Tests / Meters Operations @

EQUIPMENT  
 PUMP TRUCK CEMENTER *D. Felio*  
 # *360-265* HELPER *M. Thimesch*  
 BULK TRUCK  
 # *381-290* DRIVER *R. Medrano*  
 BULK TRUCK  
 # DRIVER

**REMARKS:**

*Pipe on Bttm, Break Ckce., Pump Spacer, Mix 230sx Class A-342 cement, Start+Disp.w/ Fresh H<sub>2</sub>O, Wash up truck, See increase in PST, Slow Rate, Stop Pump at 22 Bbls total Disp. Shut'n, Cement Did Circ.*

**SERVICE**

DEPTH OF JOB <i>243</i>		
PUMP TRUCK CHARGE <i>1018</i>	=	
EXTRA FOOTAGE	@	
MILEAGE <i>25</i>	@ <i>7</i>	<i>175</i>
MANIFOLD <i>N/A</i>	@	
	@	
	@	
		TOTAL <i>1193</i>

CHARGE TO: *Woolsey Oper.*  
 STREET \_\_\_\_\_  
 CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

**PLUG & FLOAT EQUIPMENT**

<i>NONE</i>	@	
	@	
	@	
	@	
	@	
		TOTAL _____

To Allied Cementing Co., 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.

SALES TAX (If Any) \_\_\_\_\_  
 TOTAL CHARGES ~~*4560.00*~~  
 DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS ~~*4560.00*~~

PRINTED NAME *MIKE THARP*  
 SIGNATURE *Mike Tharp*

# ALLIED CEMENTING CO., LLC. 040543

Federal Tax I.D.# 20-5975804

REMIT TO P.O. BOX 31  
RUSSELL, KANSAS 67665

SERVICE POINT:  
*Medicine Lodge KS*

DATE <i>1/21/10</i>	SEC. <i>20</i>	TWP. <i>33s</i>	RANGE <i>09w</i>	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
LEASE <i>Landweir</i> WELL # <i>A-1</i>						COUNTY <i>Barber</i>	STATE <i>KS</i>
LOCATION				OLD OR NEW (Circle one)			

CONTRACTOR *Tomcat #1*

TYPE OF JOB *Rotary Plug*

HOLE SIZE *7 7/8* T.D. *50 50*

CASING SIZE *8 3/8* DEPTH *4972-250'*

TUBING SIZE DEPTH *4972*

DRILL PIPE *4 1/2* DEPTH *4972*

TOOL DEPTH

PRES. MAX *400* MINIMUM *—*

MEAS. LINE SHOE JOINT *N/A*

CEMENT LEFT IN CSG. *—*

PERFS.

DISPLACEMENT *Fresh H<sub>2</sub>O & Drilling Mud*

EQUIPMENT

OWNER *Woolsey*

CEMENT AMOUNT ORDERED *210sx 60:40:40/gel*

COMMON <i>A</i>	<i>126 sx</i>	@ <i>15.45</i>	<i>1946.70</i>
POZMIX	<i>84 sx</i>	@ <i>8.00</i>	<i>672.00</i>
GEL	<i>8 sx</i>	@ <i>20.80</i>	<i>166.40</i>
CHLORIDE		@	
ASC		@	
HANDLING	<i>218</i>	@ <i>2.40</i>	<i>523.20</i>
MILEAGE	<i>218/10/25</i>		<i>545.00</i>
			<b>TOTAL <i>3853.30</i></b>

WELL FILE

Regulatory Correspondence  
Comp Workovers  
Tests / Meters Operations

PUMP TRUCK # *352* CEMENTER *D. Felio*  
HELPER *J. Thimesch*

BULK TRUCK # *364* DRIVER *Cesar*

BULK TRUCK # DRIVER

**REMARKS:**

*Drill Pipe at 4972, Circ., Pump 8' Bbls Fresh H<sub>2</sub>O  
Spacers, Mix 50sx 60 40 cement Blend, Disp. w/ 3 Bbls  
Fresh & 6 1/2 Bbls Mud, Drill Pipe at 1400, Load Hole,  
Pump 8' Fresh Spacers, Mix 35sx 60 40, Disp. w/ 3 Bbls  
Fresh & 1 1/2 Bbls Mud, Drill Pipe at 900, Load Hole,  
Pump 8' spacers, Mix 35sx cement, Disp. w/ 3 Fresh &  
7 1/2 mud, Drill Pipe at 270, Load Hole, Pump 7 Bbls  
Spacers Mix 25sx, Disp. w/ 2 Bbls Fresh, Pipe at 60'  
Load Hole, Mix 25sx, Cement Circulated, Plug Rat  
Hole w/ 25sx, Plug mousehole w/ 15sx*

CHARGE TO: *Woolsey Oper.*

**SERVICE**

DEPTH OF JOB	<i>4972</i>		
PUMP TRUCK CHARGE	<i>2185.00</i>		
EXTRA FOOTAGE		@	
MILEAGE	<i>25</i>	@ <i>7.00</i>	<i>175.00</i>
MANIFOLD	<i>—</i>	@	
			<b>TOTAL <i>2360.00</i></b>

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

**PLUG & FLOAT EQUIPMENT**

<i>None</i>	@	
	@	
	@	
	@	
	@	
<b>TOTAL _____</b>		

To Allied Cementing Co., 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.

SALES TAX (If Any) \_\_\_\_\_

TOTAL CHARGES ~~3853.30~~ \_\_\_\_\_

DISCOUNT \_\_\_\_\_ IF PAID IN 30 DAYS

PRINTED NAME *MARK HUGHERS*

SIGNATURE *Mark Hughes*

~~3853.30~~



# DRILL STEM TEST REPORT

Woolsey Operating Company LLC

**LandWehr A#1**

125 North Market Suite 1000  
Wichita Kansas 67202+1729

**20/33S/9W Harper**

Job Ticket: 15717

**DST#: 1**

ATTN: Curtis Covey

Test Start: 2010.11.14 @ 06:08:00

## GENERAL INFORMATION:

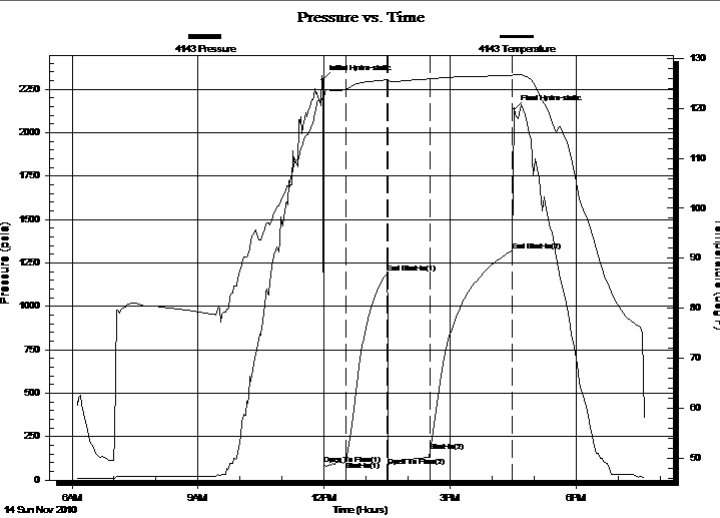
Formation: **Mississippian**  
 Deviated: No Whipstock: ft (KB)  
 Test Type: Conventional Bottom Hole (Initial)  
 Time Tool Opened: 11:59:53 Tester: Dylan E Ellis  
 Time Test Ended: 19:41:23 Unit No: 3345-Pratt-150  
 Interval: **4462.00 ft (KB) To 4482.00 ft (KB) (TVD)** Reference Elevations: 1358.00 ft (KB)  
 Total Depth: 4482.00 ft (KB) (TVD) 1349.00 ft (CF)  
 Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 9.00 ft

## Serial #: 4143

Inside

Press@RunDepth: 1320.80 psia @ 4478.00 ft (KB) Capacity: 5000.00 psia  
 Start Date: 2010.11.14 End Date: 2010.11.14 Last Calib.: 2010.11.14  
 Start Time: 06:08:00 End Time: 19:39:45 Time On Btm: 2010.11.14 @ 11:57:46  
 Time Off Btm: 2010.11.14 @ 16:31:46

**TEST COMMENT:** 1ST Opening 30 Minutes fair blow /bottom of bucket in 3 minutes blow w as steady  
 1ST Shut-In 60 Minutes yes blow back/it blew 1 inch at max and cut back to a surface blow  
 2ND Opening 60 Minutes stronger than the first blow /blew bottom of bucket in 30 seconds  
 2ND Shut-In 120 Minutes yes had blow back didnt make much more than surface



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2304.30	122.04	Initial Hydro-static
2	89.70	121.82	Open To Flow (1)
33	110.92	123.80	Shut-In(1)
92	1192.12	125.63	End Shut-In(1)
94	81.86	125.48	Open To Flow (2)
153	164.10	125.85	Shut-In(2)
271	1320.80	126.57	End Shut-In(2)
274	2133.97	126.73	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
60.00	Slightly Oil cut Mud	0.30
0.00	Oil 7% Mud 93%	0.00
60.00	Oil and Water cut Mud	0.30
0.00	Oil 40% Water 10% Mud 50%	0.00
60.00	Slightly Mud cut Oilly Water	0.30
0.00	Mud 15% Oil 25% Water 60%	0.00

## Gas Rates

Choke (inches)	Pressure (psia)	Gas Rate (Mcf/d)
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# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Woolsey Operating Company LLC

**LandWehr A#1**

125 North Market Suite 1000  
Wichita Kansas 67202+1729

**20/33S/9W Harper**

Job Ticket: 15717

**DST#: 1**

ATTN: Curtis Covey

Test Start: 2010.11.14 @ 06:08:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 43.00 sec/qt  
Water Loss: 10.40 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 6000.00 ppm  
Filter Cake: 1.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psia

Oil API: deg API  
Water Salinity: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
60.00	Slightly Oil cut Mud	0.295
0.00	Oil 7% Mud 93%	0.000
60.00	Oil and Water cut Mud	0.295
0.00	Oil 40% Water 10% Mud 50%	0.000
60.00	Slightly Mud cut Oily Water	0.295
0.00	Mud 15% Oil 25% Water 60%	0.000
60.00	Slightly Oil cut Muddy Water	0.471
0.00	Oil 10% Mud 20% Water 70%	0.000
0.00	Chlorides 86,000	0.000
0.00	Resistivity was .12@67 degrees	0.000

Total Length: 240.00 ft      Total Volume: 1.356 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

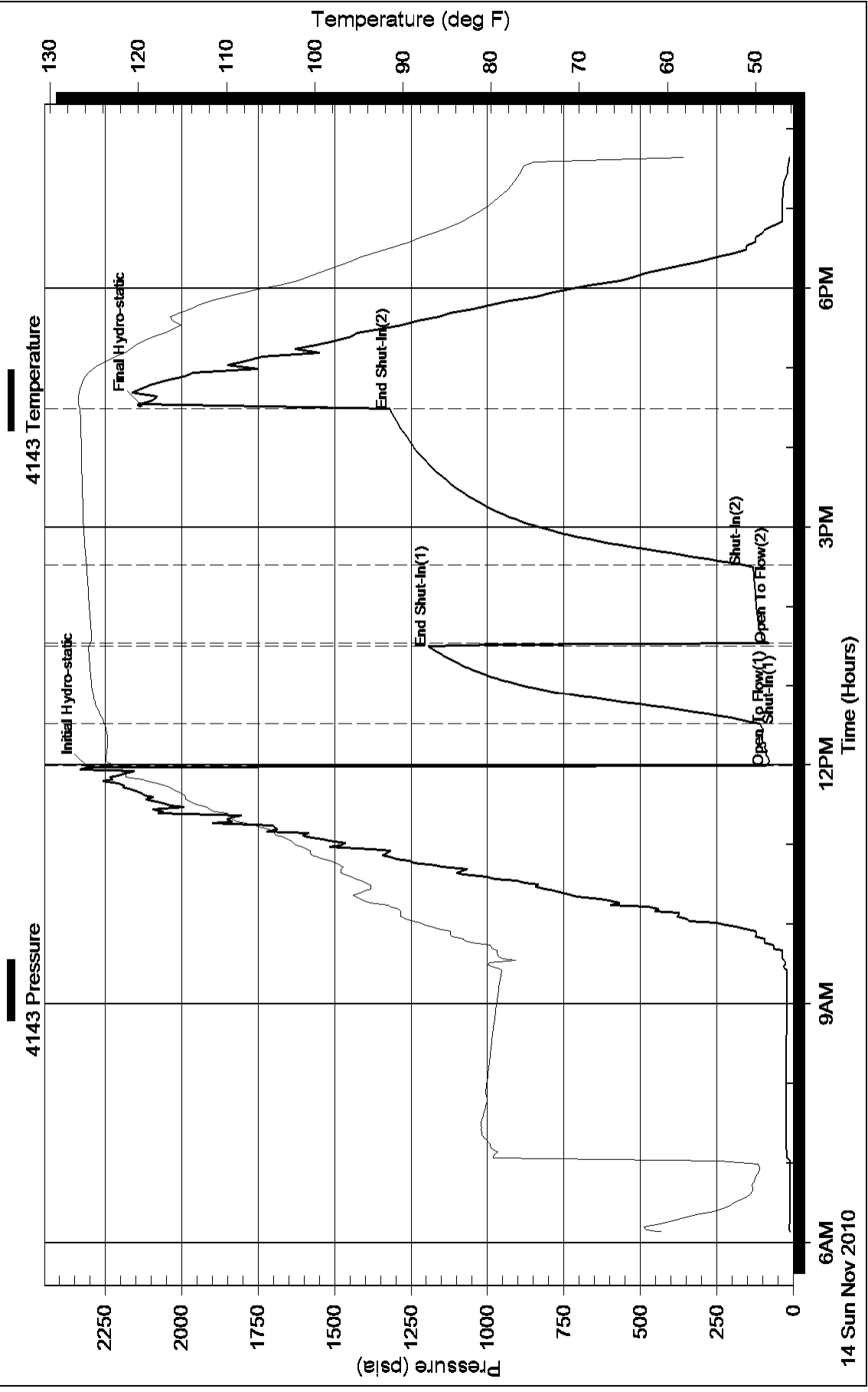
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

### Pressure vs. Time





# DRILL STEM TEST REPORT

Woolsey Operating Company LLC

**LandWehr A#1**

125 North Market Suite 1000  
Wichita Kansas 67202+1729

**20/33S/9W Harper**

Job Ticket: 15718

**DST#: 2**

ATTN: Curtis Covey

Test Start: 2010.11.17 @ 01:32:00

## GENERAL INFORMATION:

Formation: **Wilcox Sand**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 05:53:00

Time Test Ended: 13:13:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Dylan E Ellis

Unit No: 3345-Pratt-150

**Interval: 4790.00 ft (KB) To 4824.00 ft (KB) (TVD)**

Reference Elevations: 1358.00 ft (KB)

Total Depth: 4824.00 ft (KB) (TVD)

1349.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 9.00 ft

**Serial #: 4143**

**Inside**

Press@RunDepth: 1719.36 psia @ 4820.00 ft (KB)

Capacity: 5000.00 psia

Start Date: 2010.11.17

End Date: 2010.11.17

Last Calib.: 2010.11.18

Start Time: 01:32:00

End Time: 13:11:46

Time On Btm: 2010.11.17 @ 05:51:46

Time Off Btm: 2010.11.17 @ 09:55:46

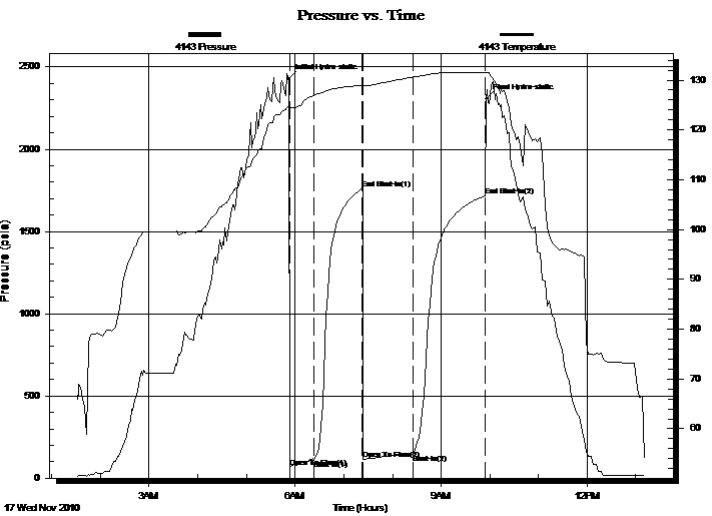
## TEST COMMENT:

1ST Opening 30 Minutes weak blow /blow built to 3 inches into the bucket of water

1ST Shut-In 60 Minutes no blow back

2ND Opening 60 Minutes dead/but after 36 minutes very weak surface blow /built to under surface 0.50 inches

2ND Shut-In 90 Minutes no blow back



## PRESSURE SUMMARY

Time (Min.)	Pressure (psia)	Temp (deg F)	Annotation
0	2429.56	124.71	Initial Hydro-static
2	64.64	124.60	Open To Flow (1)
32	110.51	126.93	Shut-In(1)
91	1759.67	128.95	End Shut-In(1)
93	115.57	128.88	Open To Flow (2)
153	146.00	130.58	Shut-In(2)
243	1719.36	131.54	End Shut-In(2)
244	2305.93	131.53	Final Hydro-static

## Recovery

Length (ft)	Description	Volume (bbl)
20.00	Muddy Water 40% Mud 60% Water	0.10
60.00	Watery Mud Water 10% Mud 90%	0.30
60.00	Watery Mud Water 5% Mud 95%	0.30
60.00	Water cut Mud Water 15% Mud 85%	0.30
0.00	Chlorides 31,000.0	0.00
0.00	Resistivity .30 @ 56 degrees	0.00

## Gas Rates

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





# DRILL STEM TEST REPORT

**FLUID SUMMARY**

Woolsey Operating Company LLC

**LandWehr A#1**

125 North Market Suite 1000  
Wichita Kansas 67202+1729

**20/33S/9W Harper**

Job Ticket: 15718

**DST#: 2**

ATTN: Curtis Covey

Test Start: 2010.11.17 @ 01:32:00

## Mud and Cushion Information

Mud Type: Gel Chem  
Mud Weight: 9.00 lb/gal  
Viscosity: 48.00 sec/qt  
Water Loss: 10.40 in<sup>3</sup>  
Resistivity: ohm.m  
Salinity: 6000.00 ppm  
Filter Cake: 1.00 inches

Cushion Type:  
Cushion Length: ft  
Cushion Volume: bbl  
Gas Cushion Type:  
Gas Cushion Pressure: psia

Oil API: deg API  
Water Salinity: ppm

## Recovery Information

Recovery Table

Length ft	Description	Volume bbl
20.00	Muddy Water 40%Mud 60% Water	0.098
60.00	Watery Mud Water 10% Mud 90%	0.295
60.00	Watery Mud Water 5% Mud 95%	0.295
60.00	Water cut Mud Water 15% Mud 85%	0.295
0.00	Chlorides 31,000.0	0.000
0.00	Resistivity .30 @ 56 degrees	0.000

Total Length: 200.00 ft      Total Volume: 0.983 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

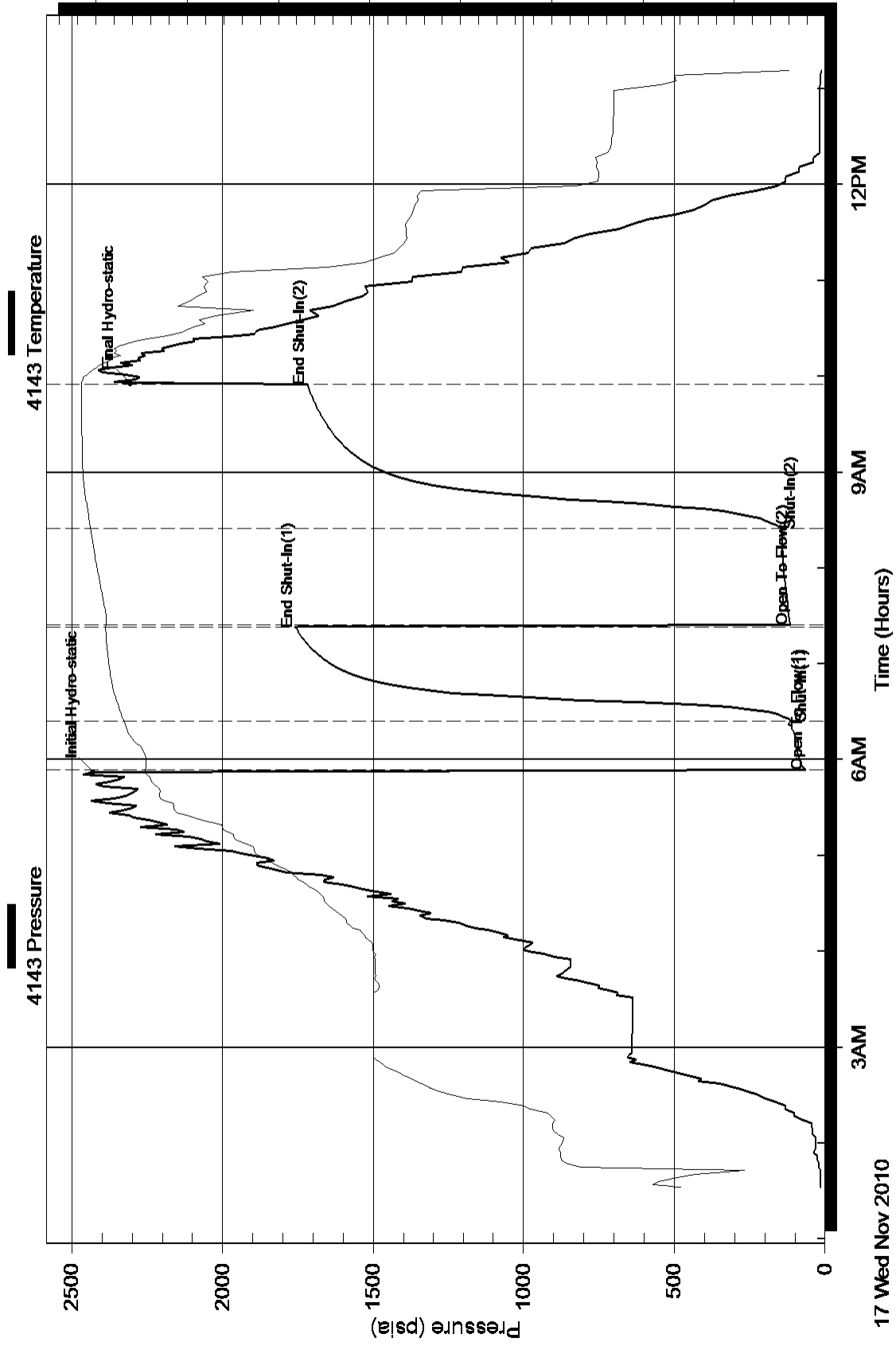
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

# Pressure vs. Time



# Covey

## The Well Watchers

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

Well Name: LANDWEHR A #1

Location: Section 20 - Township 33 South - Range 9 West

License Number: 15-077-21,714 - 00-00

Region: Harper County, KS.

Spud Date: 6 November 2010

Drilling Completed: 19 November 2010

Surface Coordinates: 990' FNL & 990' FEL  
( SW NE NE)

Bottom Hole Coordinates:

Ground Elevation (ft): 1,347'

K.B. Elevation (ft): 1,356'

Logged Interval (ft): 3,100' MD To: 5,050' MD Total Depth (ft): 5,050' MD

Formation: LeCompton Limeston -----> Arbuckle

Type of Drilling Fluid: Chemical; Low Solids (non-dispersed)

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

### OPERATOR

Company: WOOLSEY OPERATING COMPANY, LLC

Address: 125 North Water, Suite 1000

Wichita, Kansas 67202

(316) 267-4379

Geologist:

Marc Summervill

Dean Patisson

### GEOLOGIST

Name: Curtis Covey

Company: COVEY - The Well Watchers

Address: 6548 Bedford Circle

Derby, Kansas 67037

Office: (316) 776 - 0367

[wellsitegeo1@gmail.com](mailto:wellsitegeo1@gmail.com)

Cell: (316) 217-4679

**FORMATION TOPS**

Formation	Rotary Sample Depth (Datum)	E-log Depth (Datum)
LeCompton LS .....	3,208' (-1,852') .....	3,208' (-1,852')
Kanwaka SH .....	3,226' (-1,870') .....	3,224' (-1,868')
Elgin SD .....	3,280' (-1,924') .....	3,280' (-1924')
Heebner SH .....	3,426' (-2,070') .....	3,428' (-2,072')
Toronto LS .....	3,439' (-2,083') .....	3,440' (-2,084')
Douglas Gp .....	3,456' (-2,100') .....	3,462' (-2,106')
Haskell Lm .....	3,681' (-2,325') .....	3,680' (-2,324')
Stalnaker Sd .....	3,730' (-2,374') .....	3,732' (-2,376')
KC .....	4,003' (-2,647') .....	4,004' (-2,648')
Stark SH .....	4,140' (-2,784') .....	4,140' (-2,784')
Hushpuckney SH .....	4,176' (-2,820') .....	4,178' (-2,822')
B / KC .....	4,210' (-2,854') .....	4,210' (-2,854')
Pawnee LS .....	4,328' (-2,972') .....	4,330' (-2,974')
Cherokee Gp .....	4,378' (-3,022') .....	4,376' (-3,020')
Mississippian .....	4,452' (-3,096') .....	4,448' (-3,092')
Kinderhook Sh .....	4,644' (-3,288') ? .....	4,646' (-3,390')
Woodford Sh .....	4,701' (-3,346') ? .....	4,704' (-3,348')
Viola .....	4,736' (-3,380') ? .....	4,740' (-3,384')
Wilcox Sand .....	4,816' (-3,460') .....	4,820' (-3,464')
McLish Sand .....	4,952' (-3,596') .....	4,956' (-3,600')
Arbuckle .....	4,983' (-3,627') ? .....	4,972' (-3,616')

RTD: 5,050'    LTD: 5,053'    ATD: 5,054'

E-Loggers: Halliburton  
Liberal, Kansas

Rotary sample depth is 1' low to 4' higher than E-logger's depth.

**DAILY DRILLING STATUS -- NOVEMBER**

14-3/4" Hole	7-7/8" Hole	7-7/8" Hole
6 Nov -- Spud @ 10am. Drill to 245'. Run 10-3/4" casing. Set casing @ 245'. Cemented w/ 230 sx Class A (2% gel+3%CC). [Allied] Cement did circulate. Plug down @ 8pm. WOC.	9 Nov -- 6am @ 2,360'. 10 -- Displace Mud @ 3,050'. 6am @ 3,165'. 11 -- 6am @ 3,960'. 12 -- S/T: 20 stands @ 4,350'. Very Tite. 6am @ 4,350'. T/O to check for hole(s) in pipe. R/R draw-work's blocks.	15 Nov -- Resume Drilling @ 1:30am. 6am @ 4,537'. Reduced WOB 8-12M (uncorrected) @100-120+ RPM. 16 -- 6am @ 4,724'. WOB 8-12M (uncorrected) @ 100-120+ RPM. 17 -- 6am @ 4,824'. WOB 8-12M (uncorrected) @ 100-120+ RPM. DST #2: WILCOX SD (4,790'-4,824') 18 -- 6am @ 4,824'. Resumed Drilling @ 6:42am. WOB 8 -12M (uncorrected) @ 100-120+ RPM. 19 -- 6am @ 4,962'. WOB 8 -12M (uncorrected) @ 100-120+ RPM. RTD (5,050') @ 5:45pm. Start & .... 20 -- Finish E-LOG. [Halliburton]
7 Nov -- WOC. 7am @ 245'. Under surface casing @ 10am with PDC bit.	13 -- 6am @ 4,350'. Resumed drilling @ 9am. Reportedly hole crooked 2.5 deg @4,372' (twice). Reduced to WOB 15M (uncorrected) @ 100-120+ RPM.	
8 -- 6am @ 1,774'. Bit Trip @ 2,041'.  7-7/8" Hole PDC: 225' --> 2,041'.	14 -- Start & .... 6am @ 4,482'. .... Finish DST #1: MISS (4,462' - 4,482').	

## DST #1 - MISS CHERT

Rotary Depth: 4,462' - 4,482'  
Logger's Depth: 4,460' - 4,480'

IFP: 61# - 100# / 30"  
ISIP: 1,188# / 60"  
FFP: 72# - 155# / 60"  
FSIP: 1,316# / 120"  
128 deg F  
MH: 2,295# - 2,067#

Recovery: 60' Gas in Pipe  
60' OIL cut Wtr (7%,93%M)  
60' SI Watry cut OILY Mud (10%W,40%O,50%W)  
60' SI Mud & OIL cut Water (15%M,25%O,60%W)  
60' SI OIL & Mud cut Water (10%O,20%M,70%W)  
Total Fluid: 240'  
IF: BOB 3 minutes, Fair Steady Blow.  
ISI: Weak Blow building to 1 inch.  
FF: BOB in 30 seconds.  
FSI: Weak Surface Blow.

Recovery Water: (86,000 ppm)  
System Water: (6,000 ppm)

Recovery Water -  
Mud Engineer = (91,000 ppm)

Reported Rw =  
0.12 ohms @ 67 deg F

Superior Testing, Inc.  
Great Bend, KS.

## DST #2 - WILCOX SANDSTONE

Rotary Depth: 4,790' - 4,824'  
Logger's Depth: 4,792' - 4,826'

IFP: 57# - 105# / 30"  
ISIP: 1,754# / 60"  
FFP: 107# - 136# / 60"  
FSIP: 1,715# / 90"  
133 deg F  
MH: 2,425# - 2,340#

Recovery: Gassy odor thorough out.  
60' Muddy Water (40%M,60%W)  
60' SI Watery Mud (10%W,90%M)  
60' SI Watery Mud (5%M,95%W)  
60' Watery Mud (15%W,85%M)  
Total Fluid: 240'  
IF: Weak Blow, built to 3 inches.  
ISI: No Blow back.  
FF: Dead Blow;  
then after 36 minutes, Very Weak Surface Blow.  
FSI: No Blow back.

Recovery Water: (31,000 ppm)  
System Water: (6,000 ppm)

Recovery Water -  
Mud Engineer = (33,000 ppm)

Reported Rw =  
0.30 ohms @ 56 deg F

Superior Testing, Inc.  
Great Bend, KS.

## HOLE DEVIATION (245' - 5,050') & STRAPS

DEPTH / TVD	— INCLINATION	AZIMUTH	NORTH	SOUTH	EAST	WEST	DOGLEG deg/100'
245' /	-- 0.50 (Surface)						
997' /	-- 0.25						
1,575' /	-- 1.25						
1,870' /	-- 0.75						
2,041' /	-- 0.75 (Bit Trip)						
2,526' /	-- 0.25						
3,031' /	-- 0.50						
3,534' /	-- 0.50						
4,039' /	-- 0.75						
4,382' /	-- 2.50 (Survey #1)						
4,382' /	-- 2.50 (Survey #2)						
4,414' /	-- 2.75						
4,446' /	-- 2.25						
4,482' /	-- 2.25 (DST #1)						
4,505' /	-- 2.25						
4,537' /	-- 2.50						
4,568' /	-- 2.50						
4,597' /	-- 2.75						
4,628' /	-- 1.75						
4,660' /	-- 1.50						
4,692' /	-- 3.00 (Survey #1)						
4,692' /	-- 2.50 (Survey #2)						
4,724' /	-- 2.25						
4,755' /	-- 1.25						
4,786' /	-- 2.25						
4,818' /	-- 1.50						
4,824' /	-- 1.00 (DST #2)						
4,849' /	-- 0.75						
4,880' /	-- 1.25						
4,912' /	-- 2.00						
4,943' /	-- 2.25 (not 2 as reported by contractor)						
5,036' /	-- 0.75						
5,050' /	-- 0.75 (RTD)						

**STRAP OUT FOR DST #1**

Board: 4,508.79'  
Strap: 4,490.91'  
Diff: 17.88'

**STRAP IN FOR DST #1**

Board: 4,508.79'  
Strap: 4,505.77'  
Diff: 3.02'

### TOMCAT DRILLING, LLC.

100 South Main, # 508  
Wichita, Kansas 67202

(316) 262-8554

Drilling Rig #1 - (620) 309-8164

Toolpusher: Glenn Payne (620) 282-9164

Mud Pump(s):  
Main: Ideco MM-550  
6" x 15" @ 60 SPM.

Standby: National K-538  
6-1/2" x 14 @ 48 SPM.

Pump Pressure: 900 - 1,000 psi @ standpipe.

Dry Wt of Collars: 46,318#  
[485' x 95.5#/ft = 46,318#]

Drill Collars: 6-7/16" OD x 2-3/8" ID  
Buoyancy Wt of Collars: 39,972#  
[46,318# x .863 (9.0ppg) = 39,972#]

Available WOB: 33,976#  
[39,972# x .85 = 33,976#]

Contractor reports running  
30 - 32M on bit  
[At & See Conc @ 3,377' for details]  
Tension on drill string - 5,996#  
[15% Design Factor]  
to keep drill string straight.

Weight Indicator light by 18%; therefore,  
30-32M showing has true WOB 35,400 - 37,760M.

@ 4,372' on, WOB reduced from 32M to 8 - 15M (uncorrected).

On main hole (tri-cone), 80 RPM.

### BIT RECORD

DATE	SIZE	TYPE	JET SIZE	DEPTH IN / OUT	CUM. FT.	HOURS	ROP
6 Nov	14-3/4"	HTC GTX-91	14 - 16 - 16 - 16	0' / 245'	245'	7.00	35.0
7 Nov	7-7/8"	HTC DP506E	6 / 15's	245' / 2,041'	1,796'	29.00	61.9
8 Nov	7-7/8"	HTC EP-664S	15 - 15 - 15	2,041' / 5,050'	3,009'	144.75	20.8

## ROCK TYPES

### POROSITY

	Earthy
	Fenest
	Fracture
	Inter
	Moldic
	Organic
	Pinpoint
	Vuggy

### LITHOLOGY

	Anhy
	Bent
	Brec
	Cht
	Clyst
	Coal
	Granite wash
	Congl
	Dol lmst
	Silty dol
	Calc dol
	Dol 2
	Dol
	Gyp
	Igne
	Lmst 2

	Lmst
	Meta
	Mrlst
	Salt
	Shale 3
	Shale 3
	Shale
	Shcol
	Shgy
	Sltst
	Ss
	Till
	Ss 2

### MINERAL

	Mica
	Anhy
	Arggrn
	Arg
	Bent
	Bit
	Brecfrag
	Calc
	Carb
	Chtdk
	Chtlt
	Dol

	Feldspar
	Ferrpel
	Ferr
	Glau
	Gyp
	Hvymin
	Kaol
	Marl
	Minxl
	Nodule
	Phos
	Pyr
	Salt
	Sandy
	Silt
	Sil
	Sulphur
	Tuff
	Copper
	Ooliticastic
	Oolite
	Sucrosic
	Dark specks

	Silty dol
	Anhy
	Arg
	Bent
	Chert
	Coal
	Dol
	Dol ls
	Gyp
	Ls
	Mrst
	Calc dol
	Sltstrg
	Ssstrg
	Chalk

### SHOW

	Oil
	Spotted
	Ques
	Dead
	Gas
	Oil/gas
	Bed contact

### STRINGER

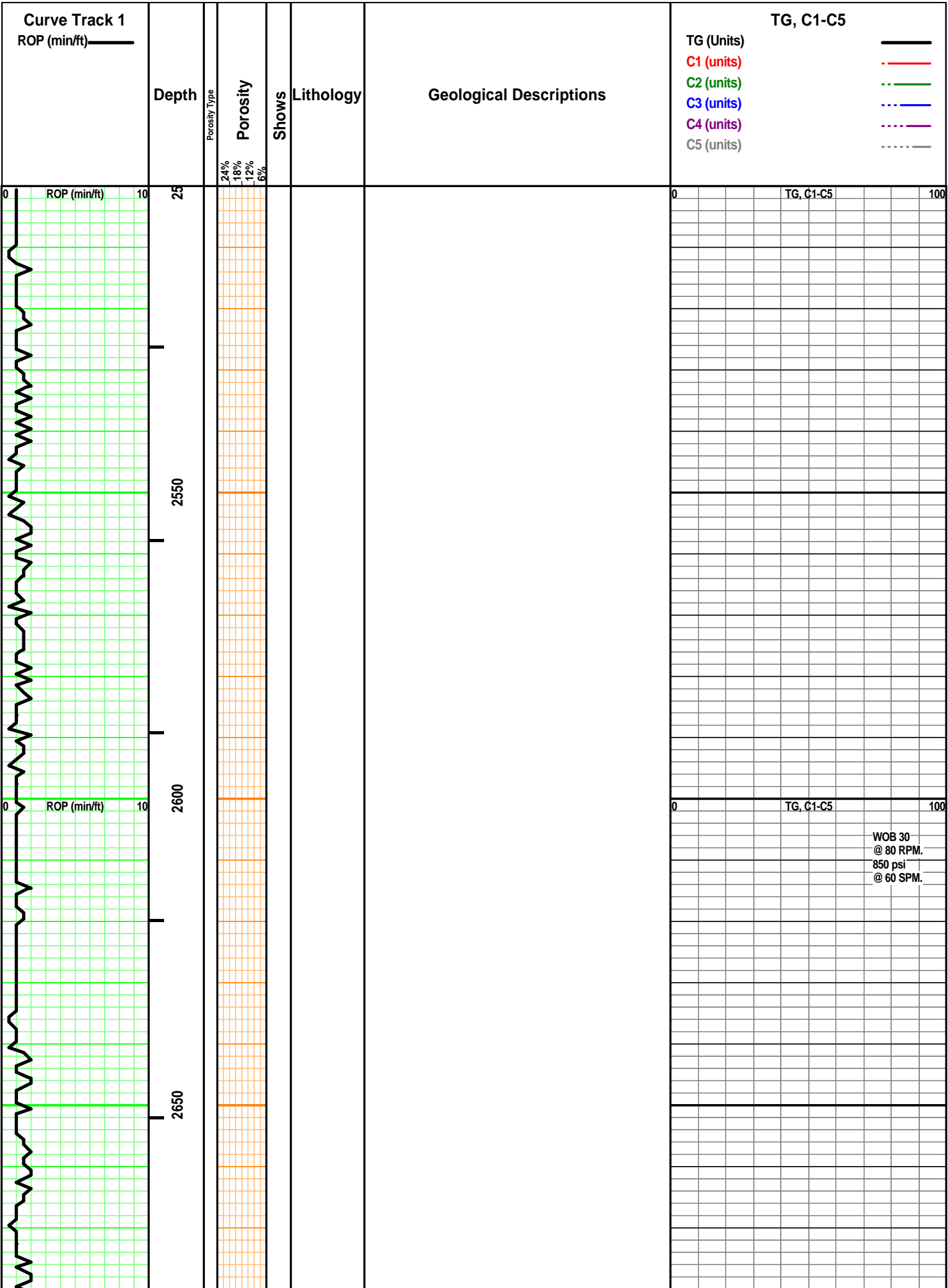
	Dol ls
--	--------

## ACCESSORIES

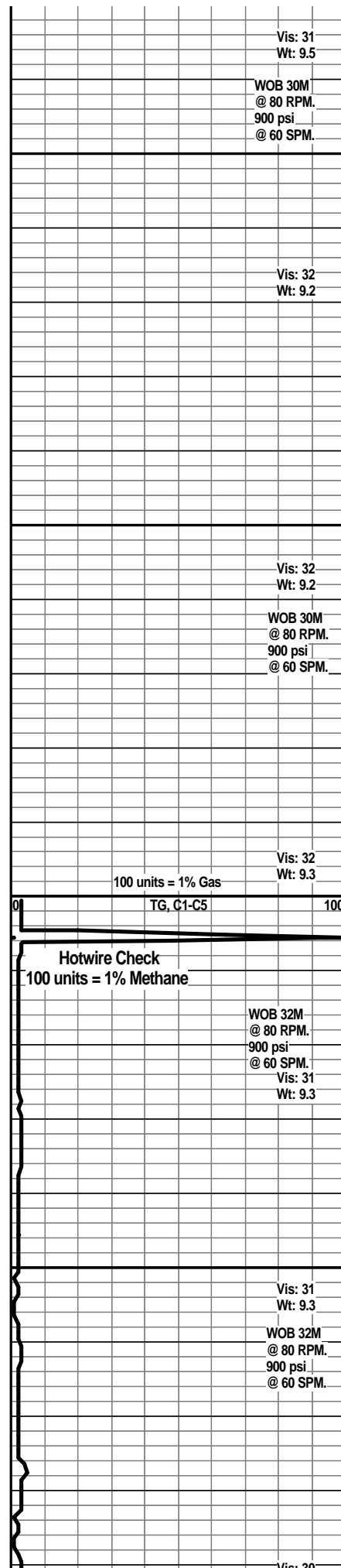
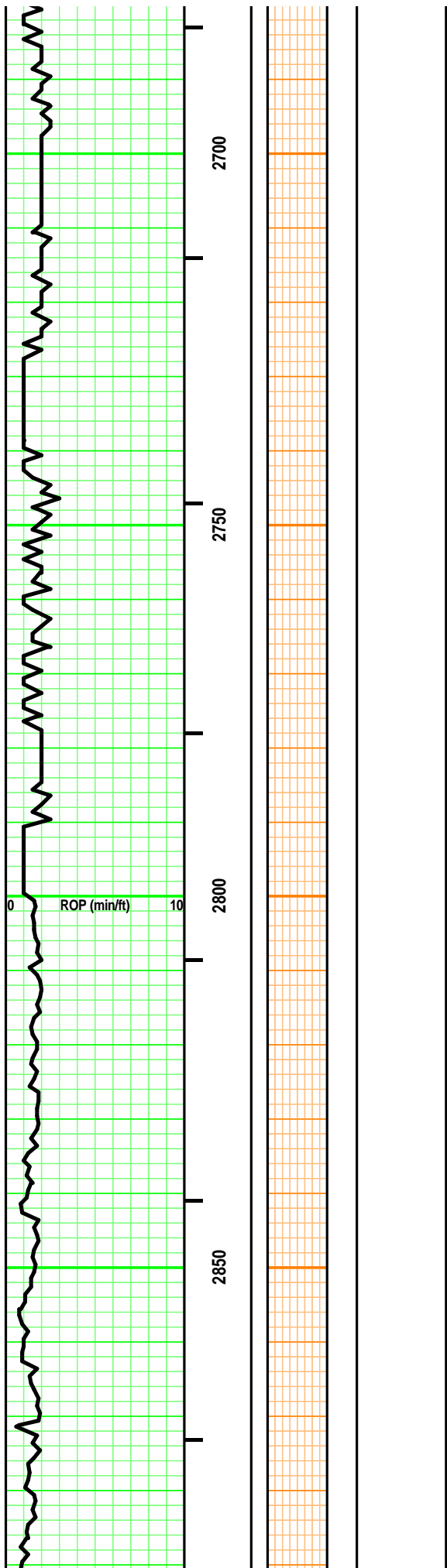
	Algae		Cephal		Foram		Pellet
	Amph		Coral		Fossil		Pisolite
	Belm		Spore		Gastro		Plant
	Bioclst		Crin		Oolite		Strom
	Brach		Echin		Ostra		
	Bryozoa		Fish		Pelec		

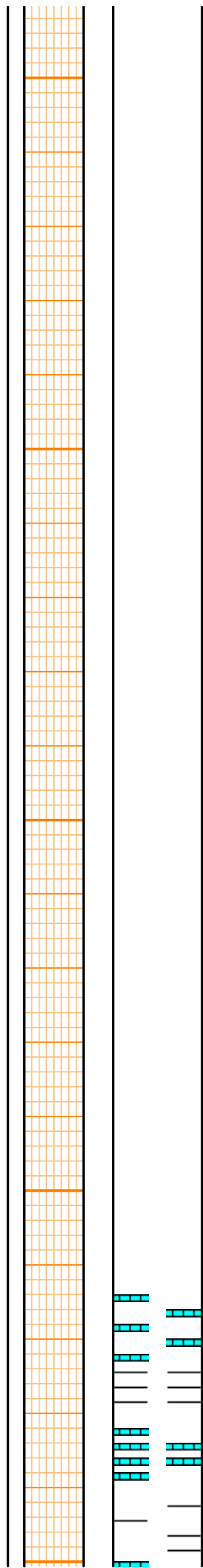
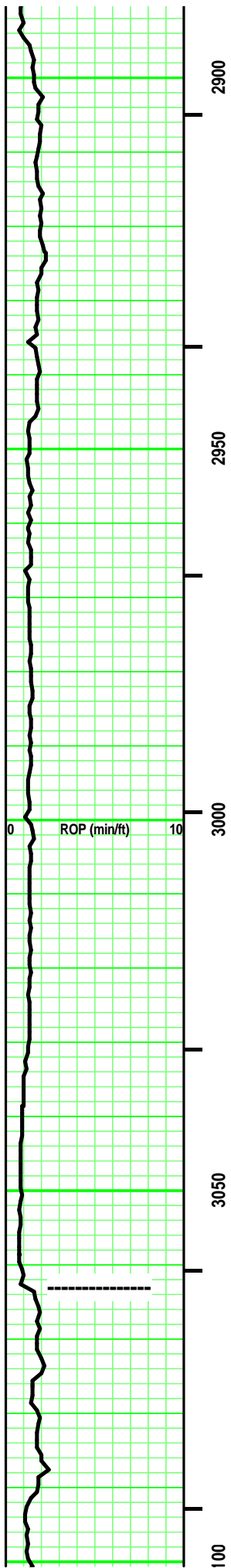
## OTHER SYMBOLS

	Lost circluation		Bit trip		Jammed core		Sidewall
	Circulate for sample 2	<b>INTERVAL</b>		<b>EVENT</b>			
	Circulate for samples		Core		Connection		
	Rtd		Dst		Rft		





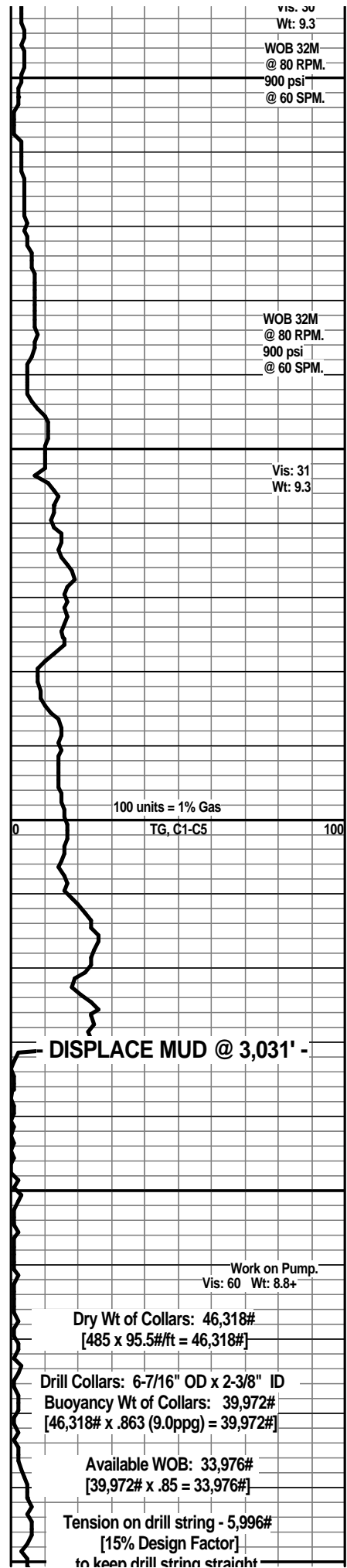




----- **TOPEKA 3,063' (-1,707')**

pcs LS - Tan/ some Lt Gray. Sing. VF/ XF-xln. xln por. tr Re-xln. some fossil frags. Firm. tr vis por.

lots SH - tr Lt/ mostly Med and some Dark Gray. Sing. tr silty in part.



vis. 30  
Wt: 9.3  
WOB 32M @ 80 RPM.  
900 psi @ 60 SPM.

WOB 32M @ 80 RPM.  
900 psi @ 60 SPM.

Vis: 31  
Wt: 9.3

100 units = 1% Gas  
TG, C1-C5

**DISPLACE MUD @ 3,031' -**

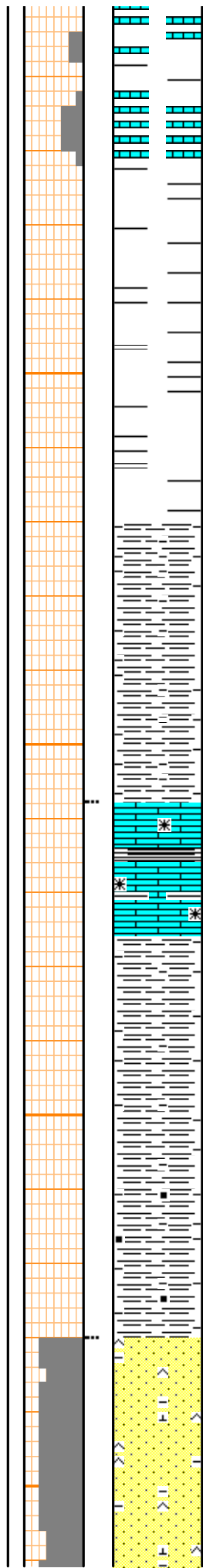
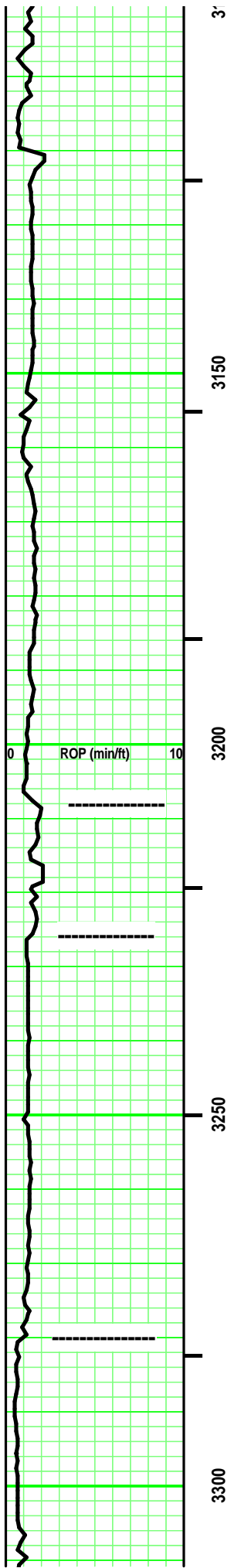
Work on Pump.  
Vis: 60 Wt: 8.8+

Dry Wt of Collars: 46,318#  
[485 x 95.5#/ft = 46,318#]

Drill Collars: 6-7/16" OD x 2-3/8" ID  
Buoyancy Wt of Collars: 39,972#  
[46,318# x .863 (9.0ppg) = 39,972#]

Available WOB: 33,976#  
[39,972# x .85 = 33,976#]

Tension on drill string - 5,996#  
[15% Design Factor]  
to keep drill string straight



pcs LS - Tans/ tr Lt Gray. Sing/tr Mot. VF-/ XF-/ Micro-xln. xln & tr part por. some fossil frags. some subchalky. tr Re-xln. partly Friable. tr/ Fair vis por.

lots SH - tr Lt/ mostly Med and some Dark Gray. Sing. tr silty in part.

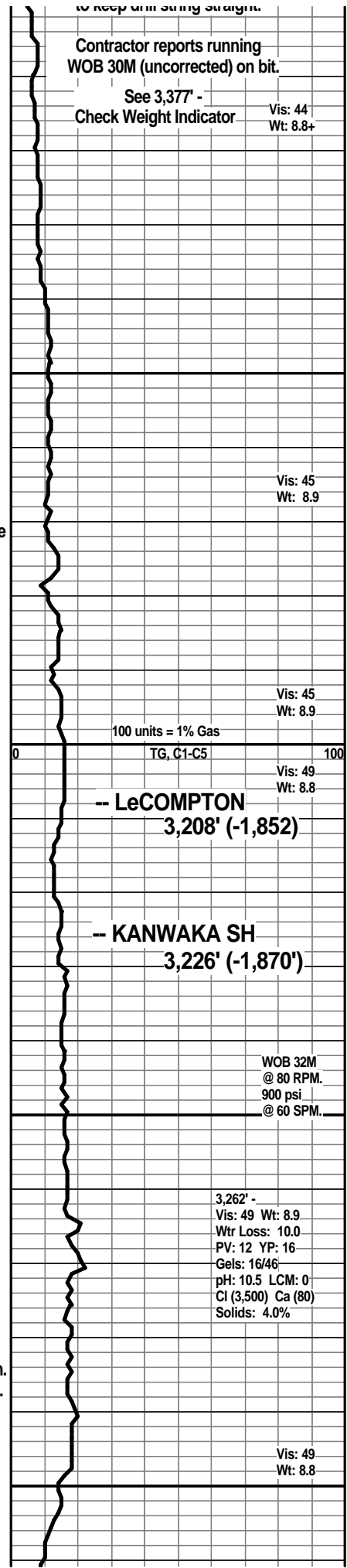
SH - mostly Med Gray/ tr to some Lt Gray. Sing. rare minute carb flecks. tr silty in part. Massive.

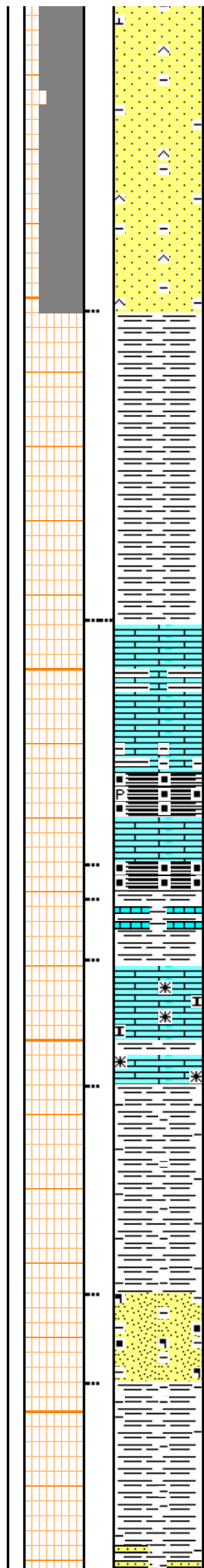
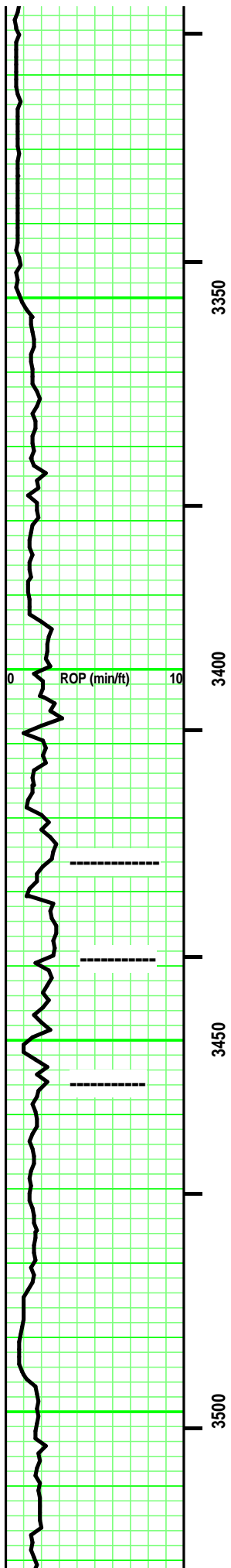
LS - Tan/ Lt Gray. Sing/ tr Mot. Micro-xln. xln por. argil/shaly in part. partly firm. No/ tr vis por

SH - Med/ Dark Grays. Sing. silty & sandy in part. Massive. Soft. Limy at depth

ELGIN SD 3,280' (-1,924')

SS- Clear/ Off White/ Pale Lt Gray. some Pale Green. Mot. Silt/ VF qtz and tr chlorite and/or glauc grains. SA/ some SR. Mod sort & sphericity. some point/ mostly sutured grain contact. Calc/ Si cement. intermixed Dark Gray, VF, SR argil/ shale frags. Friable. tr/ Fair vis por.





SH - Med/ Dark Gray. Sing. silty & soft. Massive. some limy streaks (in part) at depth.

Interbedded SH & LS:

LS - some Tans, tr Grays - Mot. Micro-/some XF-xln. xln por. argil/shaly in part. rare Re-xln. Firm. No/ tr vis por.

SH - Med / Dark Gray. Black, carb with depth. Sing. tr calc. some Black & carb with depth. tr pyritic.

SH - Black. Carb. Fissile. tr pyritic. Grays, limy streaks & in part with depth.

SH - Med/ Dark Gray. Sing. Firm.

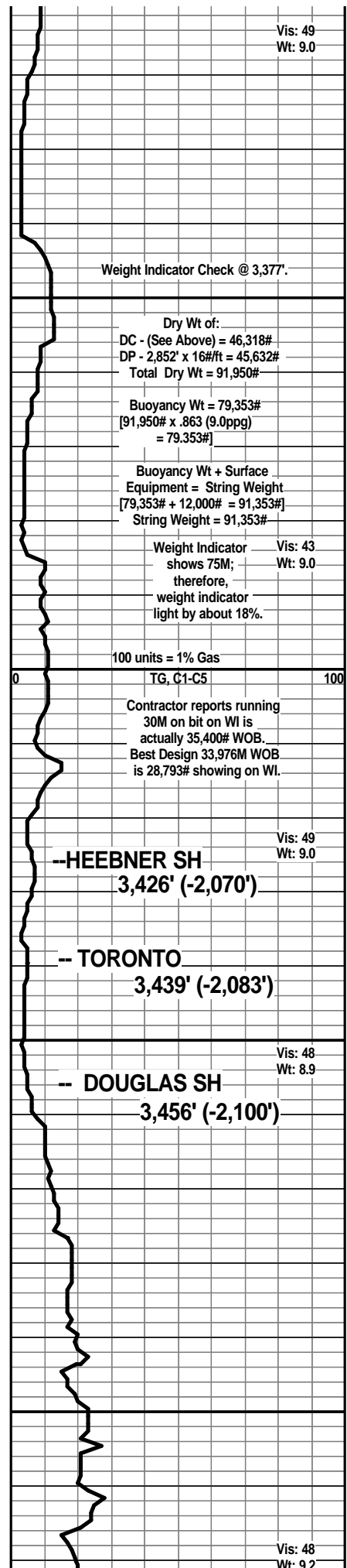
LS - Tans/ rare Lt Brown, rare Off White. Sing. Micro-/ XF-xln. xln por. tr Re-xln tr subchalky in part. Firm. No/ tr vis por.

SH - some Med/ Dark Gray, Sing/ some Mot. Massive.

SS - Clear/ Lt Gray/ rare Tan, Off White. Mot. Sil/ some VF qtz grains. SA/SR. mod sort/ mod sph. Vitreous/ some frosted luster. Si/ some Calc cement. misc dark inclusions (carb flecks, argil, heavy minerals). friable. fair vis por.

SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. tr minute dark specks. tr silty in part. Massive.

SS - Clear/ Off Whitish Gray/ Pale Lt Gray. Mot/



Vis: 49  
Wt: 9.0

Weight Indicator Check @ 3,377'.

Dry Wt of:  
DC - (See Above) = 46,318#  
DP - 2,852' x 16#/ft = 45,632#  
Total Dry Wt = 91,950#

Buoyancy Wt = 79,353#  
[91,950# x .863 (9.0ppg)  
= 79,353#]

Buoyancy Wt + Surface  
Equipment = String Weight  
[79,353# + 12,000# = 91,353#]  
String Weight = 91,353#

Weight Indicator Vis: 43  
shows 75M; Wt: 9.0  
therefore,  
weight indicator  
light by about 18%.

100 units = 1% Gas

TG, C1-C5

Contractor reports running  
30M on bit on WI is  
actually 35,400# WOB.  
Best Design 33,976M WOB  
is 28,793# showing on WI.

Vis: 49  
Wt: 9.0

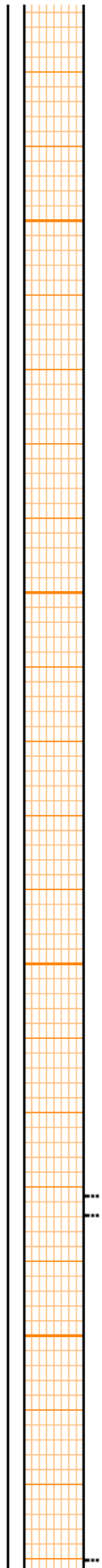
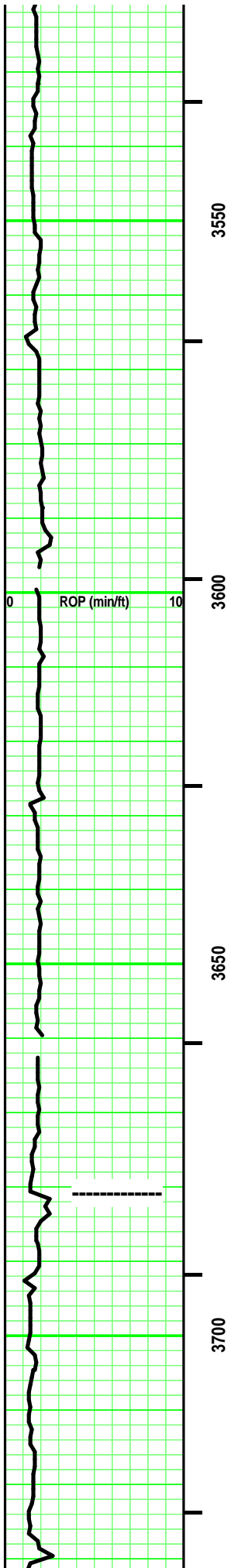
--HEEBNER SH  
3,426' (-2,070')

-- TORONTO  
3,439' (-2,083')

Vis: 48  
Wt: 8.9

-- DOUGLAS SH  
3,456' (-2,100')

Vis: 48  
Wt: 9.2



some mixed. Silt qtz grains. SA/SR. hi sort. mod sph. Sutured/ 'floating' grain contact. calc/ some Si cement (Re-xln). some intermixed argil/ shale VF, SA frags. some Black, carb flecks & lams. Friable. tr/ some Fair vis por.

SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. tr minute dark specks. tr silty in part. Massive.

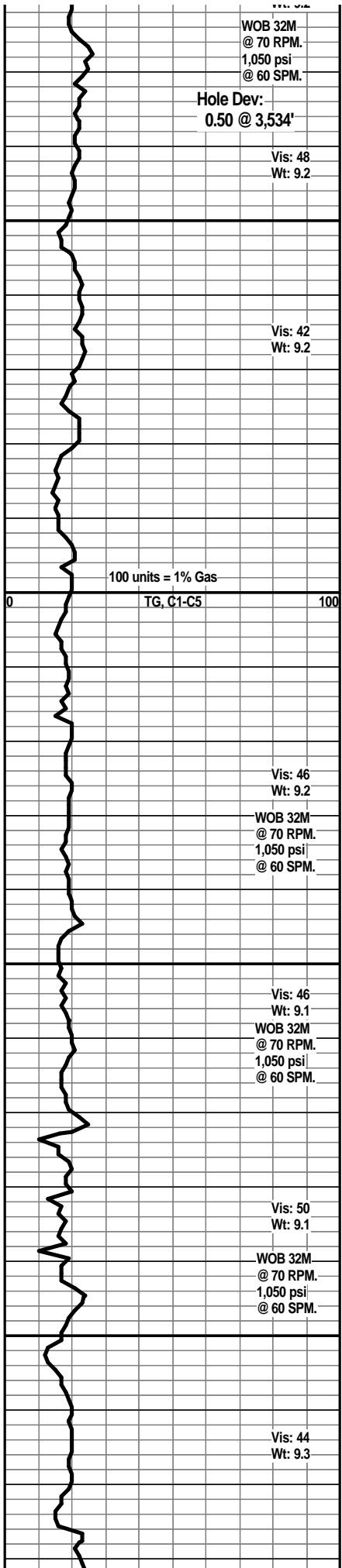
SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. tr minute dark specks. tr silty in part. Massive. some soft/ ductile.

SH - Lt/ Med/ tr Darkish Gray, silver gray. Sing. tr minute dark specks. tr silty in part. Massive. some soft/ ductile.

HASKELL LM 3,681' (2,325')  
LS - Lt Gray. Sing. Micro-xln. xln por. Firm. No/ tr vis por.

SH - Lt/ Med/ tr Darkish Gray. Sing. Massive. soft. highly silty in part.

STALNAKER SD 3,730' (-2,374')



WOB 32M @ 70 RPM. 1,050 psi @ 60 SPM.

Hole Dev: 0.50 @ 3,534'

Vis: 48  
Wt: 9.2

Vis: 42  
Wt: 9.2

100 units = 1% Gas  
TG, C1-C5

Vis: 46  
Wt: 9.2

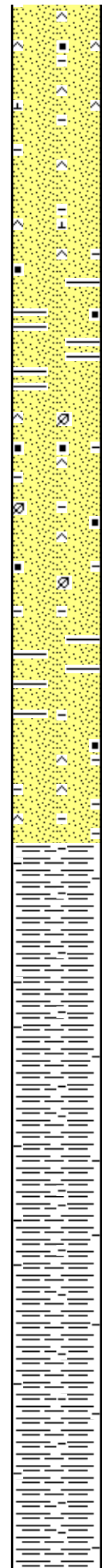
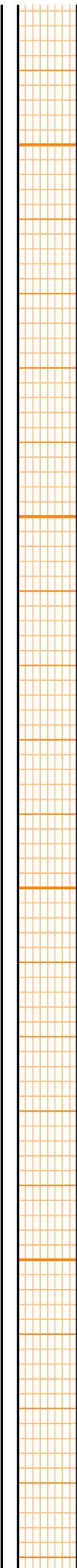
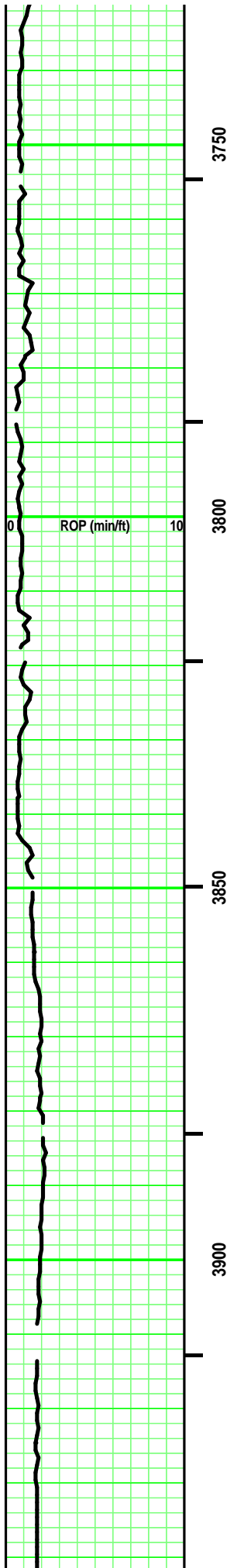
WOB 32M @ 70 RPM. 1,050 psi @ 60 SPM.

Vis: 46  
Wt: 9.1  
WOB 32M @ 70 RPM. 1,050 psi @ 60 SPM.

Vis: 50  
Wt: 9.1

WOB 32M @ 70 RPM. 1,050 psi @ 60 SPM.

Vis: 44  
Wt: 9.3



SS- Clear/ Off White/ Pale Lt Gray. Mot/ some mixed. mostly Sil/ tr VF qtz grains. SA/SR. hi sort. mod sph. Sutured/ 'floating' grain contact. calc/ some Si cement (Re-xln). some intermixed/ interbedded argil/ shale. some Black, carb flecks. some minute dark green specks. Friable. tr/ some Fair vis por.

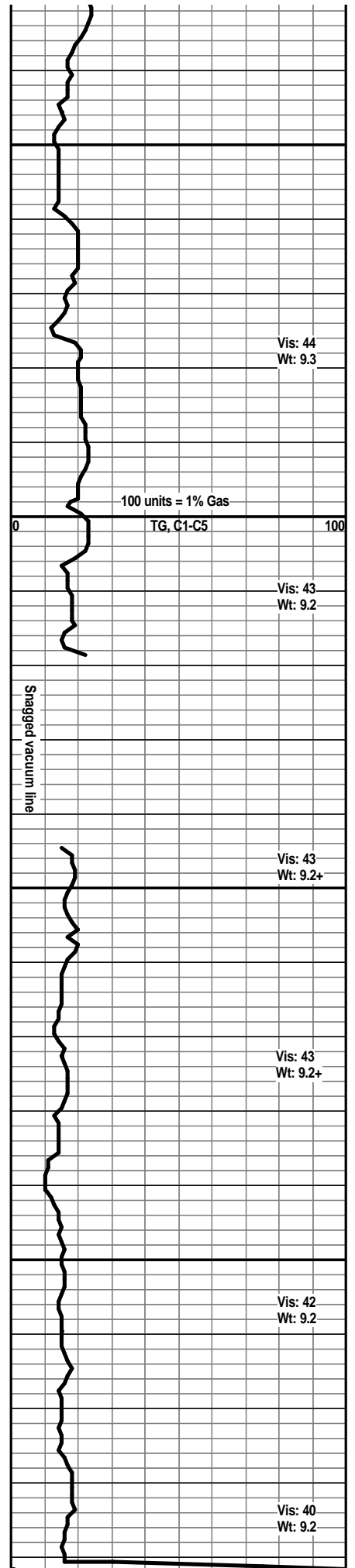
Add: SH - Med/ Dark Gray. Sing. Firm.

Add: plant frags.

Add: SH - Med/ Dark Gray. Sing. Firm.

SH - Med/ Dark Gray. Sing. Massive. soft. silty in part.

SH - Med/ Dark Gray. Sing. Massive. soft. silty in part.



Vis: 44  
Wt: 9.3

100 units = 1% Gas

TG, C1-C5

Vis: 43  
Wt: 9.2

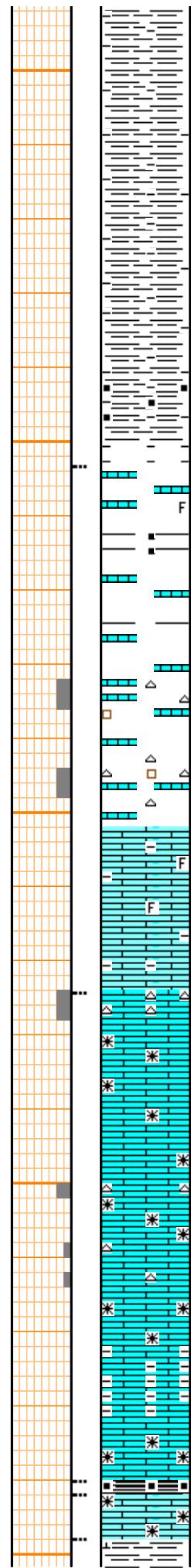
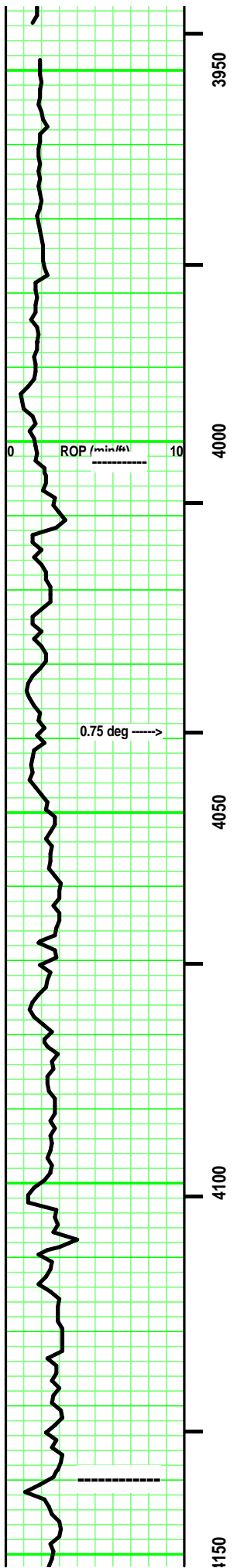
Snagged vacuum line

Vis: 43  
Wt: 9.2+

Vis: 43  
Wt: 9.2+

Vis: 42  
Wt: 9.2

Vis: 40  
Wt: 9.2



SH - Med/ Dark Gray. Sing. Massive. soft. silty in part.

Add: SH - Black. Sing. carb. soft.

**KC 4,003' (-2,647')**  
 LS - Tans/ Lt Gray. Sing/ some Mot. Micro-/ Crypto-xln, some XF-xln. xln & tr part por. Re-xln. tr Lt Tan fossil frags. Firm. No/ tr vis por.

SH - Black. Sing. some carb. Soft.

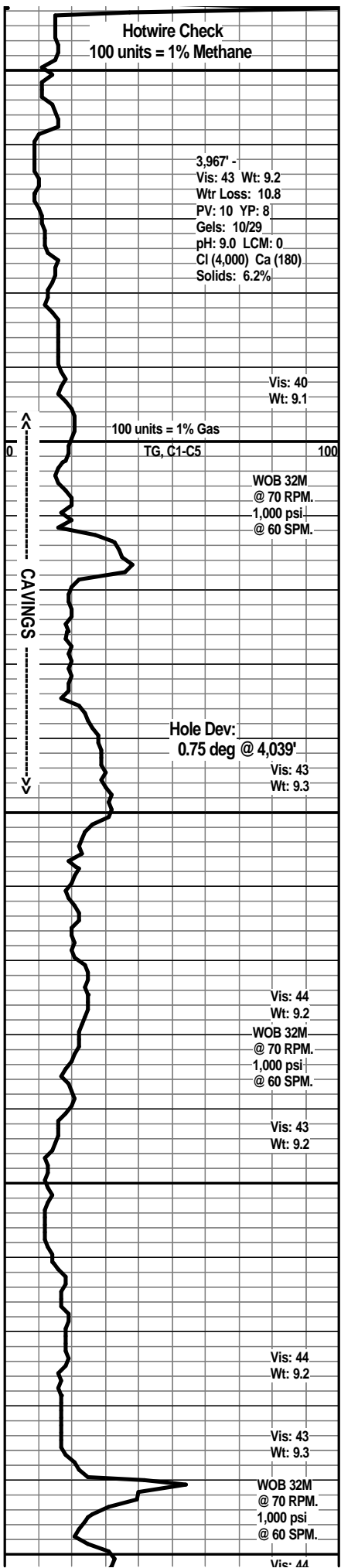
LS - Tans. Sing/ some Mot. VF-/ XF-xln. xln & tr part, rare sucrosic por. some Re-xln. subchalky in part. [some Chert - Pale Lt Gray/ White/Clear. Mot. semitransparent. misc fossil frags. No tripolitic.] mostly Friable. Fair/ Good vis por.

LS - Tan/ tr Off White. Sing. XF-/ Micro-xln. xln por. tr Re-xln. rare fossil frag. Firm. No/ tr vis por.

LS - Tans/ some Off White. tr Lt Gray. Sing/ some Mot. XF-/ Micro-xln. xln por. [some Chert - Clear/ Lt Gray/ tr Tan. tr Sing/ mostly Mot. semitransparent. some Inclusions. no tripolitic.) Re-xln in part. tr argil in part. Firm. No/ tr vis por.

**STARK SH 4,140' (-2,784')**  
 SH - Black. Sing. carb. soft.  
 LS - Lt Gray. Sing. Micro-xln. xln por. Firm. No/ tr vis por

SH - Med/ some Dark Gray. Sing. Firm. rare calc.



Hotwire Check  
 100 units = 1% Methane

3,967' -  
 Vis: 43 Wt: 9.2  
 Wtr Loss: 10.8  
 PV: 10 YP: 8  
 Gels: 10/29  
 pH: 9.0 LCM: 0  
 Cl (4,000) Ca (180)  
 Solids: 6.2%

Vis: 40  
 Wt: 9.1

100 units = 1% Gas

TG, C1-C5

WOB 32M  
 @ 70 RPM.  
 1,000 psi.  
 @ 60 SPM.

Hole Dev:  
 0.75 deg @ 4,039'

Vis: 43  
 Wt: 9.3

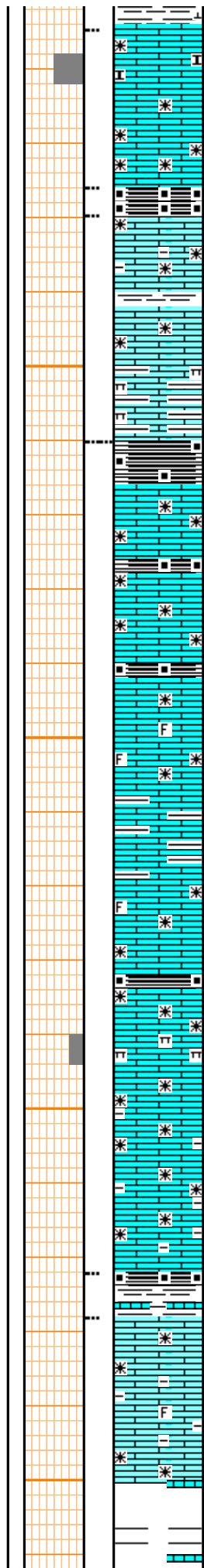
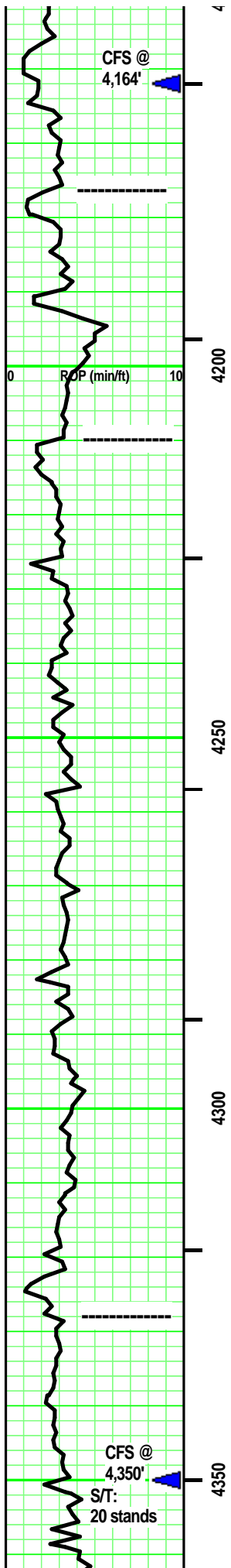
Vis: 44  
 Wt: 9.2  
 WOB 32M  
 @ 70 RPM.  
 1,000 psi.  
 @ 60 SPM.

Vis: 43  
 Wt: 9.2

Vis: 44  
 Wt: 9.2

Vis: 43  
 Wt: 9.3

WOB 32M  
 @ 70 RPM.  
 1,000 psi.  
 @ 60 SPM.



LS - Tans/ some Grayish Tan. Sing/ some Mot. XF-/ Micro-xln. xln por. some subchalky in part. tr argil in part. some Re-xln. partly Friable. mostly No/ tr vis por.

**HUSHPUCKNEY SH 4,176' (-2,820')**

SH - Black. Sing. carb. soft.  
 LS - Tans/ Lt & Med Gray with depth. Sing/ some Mot. XF-/ Micro-xln. xln por. some Re-xln. some argil/ shale interbedded. rare subchalky/marly with depth. mostly Firm. No/ tr vis por.

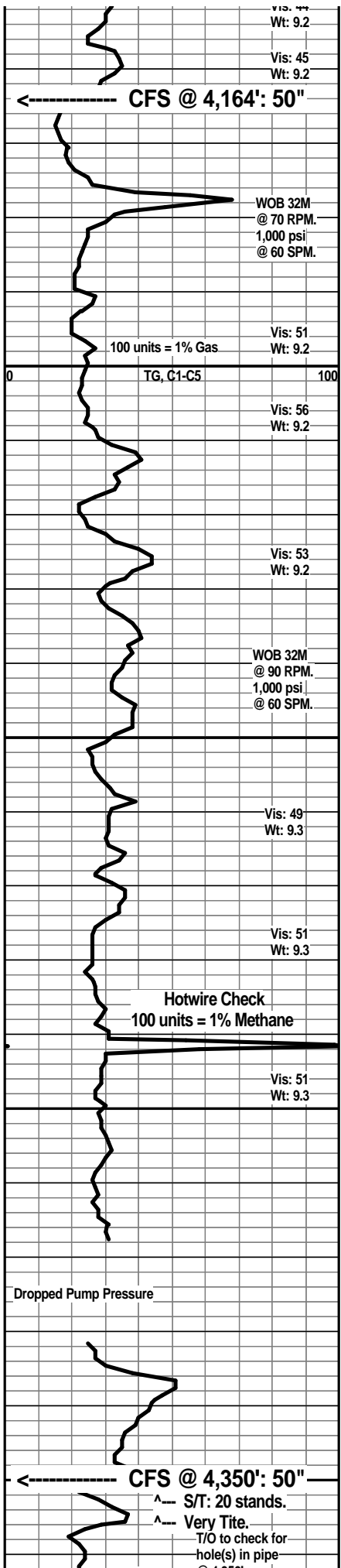
**B / KC 4,210' 2,854')**

Interbedded / Intermixed SH & LS  
 SH - Med/ Dark Gray. Sing. some Black, carb. sing. tr fissile. some Firm.  
 LS - Grays/ some Tan(s). Sing/ Mot. XF-/ Micro-xln. xln por. some Re-xln. argil in part. rare fossil frag. mostly Firm. No/ tr vis por.

Add: Pale Greenish Gray marl.

**PAWNEE 4,328' (-2,972')**

SH - Black. Sing. carb. soft.  
 SH - Lt/ Med Gray. Sing. highly limy in part.  
 LS - Lt/ Med Tan, tr/ some Lt Gray with depth. Sing. mostly XF-/ some Micro-xln. xln por. some Re-xln. tr argil in depth. rare fossil frag. Firm. No/ tr vis por.



Vis: 45  
Wt: 9.2

Vis: 45  
Wt: 9.2

WOB 32M @ 70 RPM. 1,000 psi @ 60 SPM.

Vis: 51  
Wt: 9.2

Vis: 56  
Wt: 9.2

Vis: 53  
Wt: 9.2

WOB 32M @ 90 RPM. 1,000 psi @ 60 SPM.

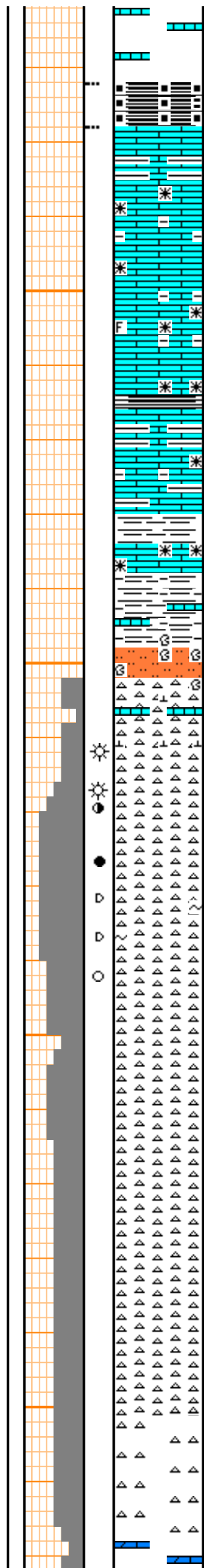
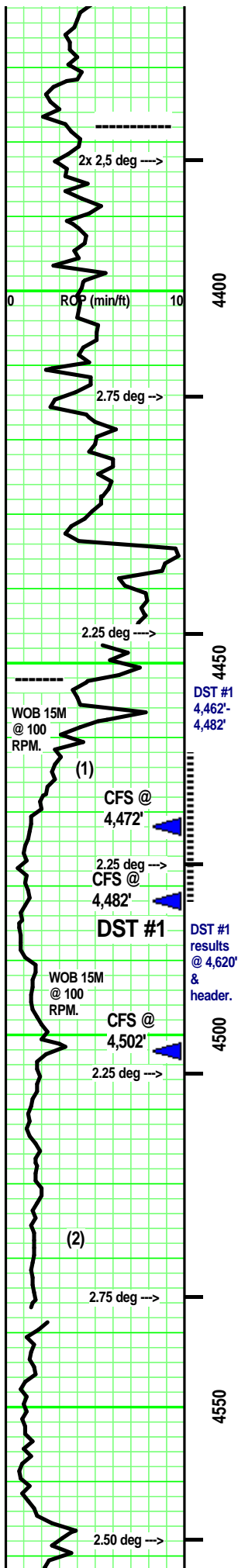
Vis: 49  
Wt: 9.3

Vis: 51  
Wt: 9.3

Vis: 51  
Wt: 9.3

S/T: 20 stands.  
Very Tite. T/O to check for hole(s) in pipe





SH - Black, Carb. Sing. Soft

**- CHEROKEE GP 4,378' (-3,022')**

Interbedded & Intermixed SH & LS

LS - Lt & Med Tan/ some Lt Gray, Med Gray with depth. Sing/ tr Mot. XF-/ Micro-xln. xln por. some Re-xln. argil in part. tr fossil frags. some, minute limy frags. mostly Firm. mostly No/ tr vis por.

SH - Med/ Dark Gray, some Greenish Gray. some Black, carb, soft. tr pyritic. some limy streaks in part.

Add Siltstone - Pale Blue/ tr Greenish Blue/ Greens/ Grays/ Purple. Sing/ some highly limy. misc inclusions dark minute.

**MISS 4,452' (-3,096')**

CHERT (1) -mostly Off White/ rare pcs Clear. mostly Opaque/ rare Transparent. mostly No/ few fossil incl. tr to some Tripolitic. Faint odor. spotted/ rare uniform yellow fluorescence. On own, rare minute gas clinging to tripolitic por. No free oil. some barren/ some spotted/ rare uniform Med Brown stain. Weak Pos/Pos cut & residual. Weak Pos/ Pos acid & residual.

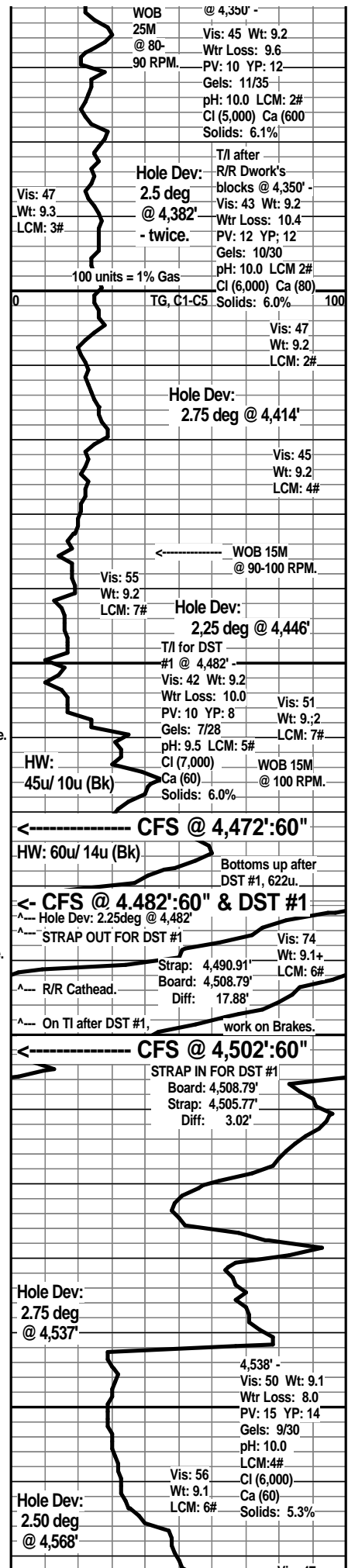
Add: On own, rare, minute V Dark Brown sphere floating in wash water. rare pcs: Black, asphaltic flecks increasing with depth.

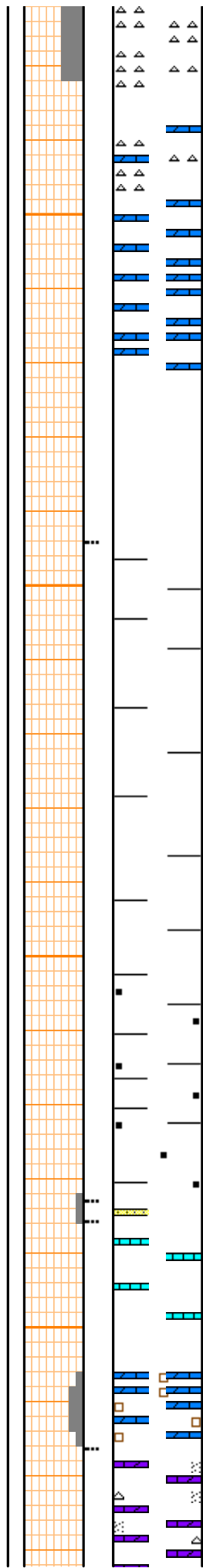
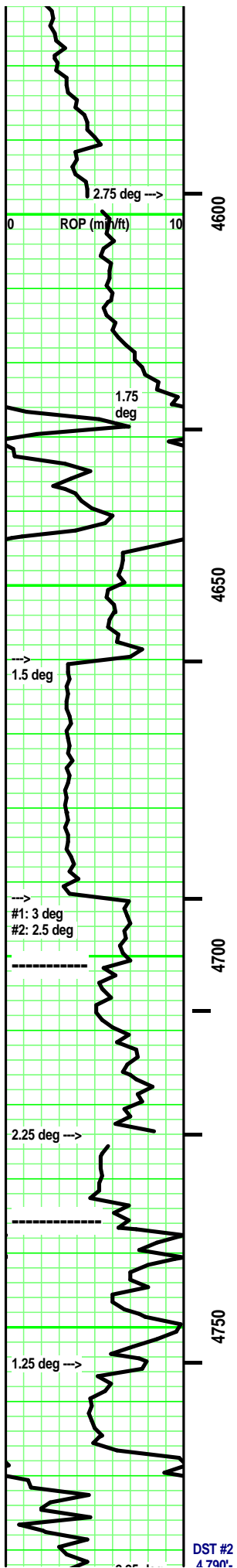
Add: rare, minute glauc grains.

No/? odor. rare, sptd yel fluorescence. One minute gas bubble. No free oil. tr black, asphaltic flecks. mostly barren/ tr spotted Lt Brown (Tan) stain. No/? cut/acid & residual.

rare, 'ghost' fossil frags.

CHERT (2) -mostly Off White/ rare Tan. Opaque/ rare semi-transparent. rare fossil incl. tr/ some Tripolitic. rare minute, irregular vuggy por. rare, minute spotted Dark Tan stain/ nothing else.





LS (Dol) - Pale Grayish Tan/ Pale Gray. Sing. rare XF-/ mostly Micro-xln. xln por. some Re-xln. some, minute dark specks. some intermixed CHERT - similar to above.

Contractor wrote Vis: 45 on chart/drilling time sheet. Geo witnessed Vis:43 on pits with Evening Tour derrick man. Pusher did not know Geo witnessed mud check @ 4,627.

KINDERHOOK SH 4,644' (-3,288') ?

SH - Med/ some Dark Gray. some Greenish Gray. Sing.

SH - Dark/ V Dark Gray, Greenish Gray. Black & carb at bottom. Sing/ tr Mot. Firm.

WOODFORD SH 4,701' (-3,345') ?

SH - Black. Sing. carb. (Brown hue scratch.) Massive. some blocky. tr, minute pyrite.

SH - Dark Brown, Brownish Black. Sing. silty in part. Firm.

SS - Clear/ Off White/ Lt Gray. Mot. Silt/ tr VF qtz grains. SR/SA. Mod sort. Mod sph. Vitreous luster. sutured/ 'floating' grain contact. hi calc. some argil. tr vis por.

VIOLA 4,736' (-3,380') ?

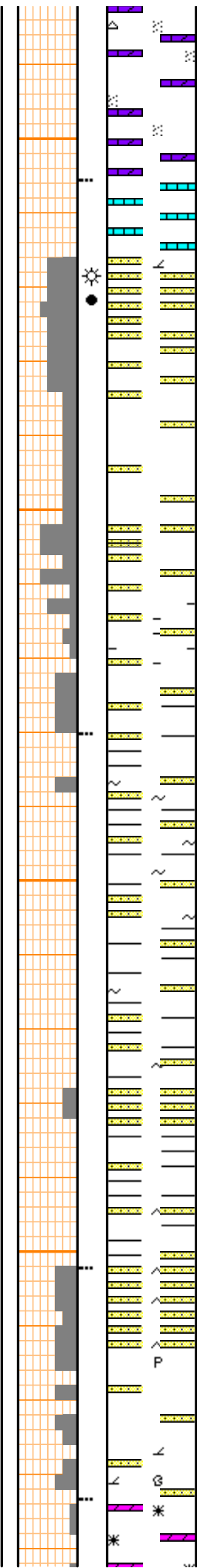
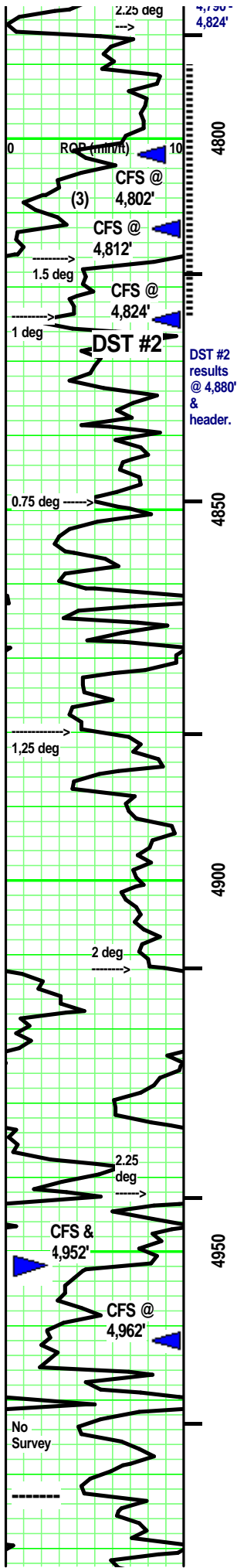
LS - Tan/ Pale Lt Gray. Sing/ tr Mot. XF-/ some Micro-xln. xln por. tr Re-xln. tr argil. No/ tr vis por.

DOL (calc) - Lt Tan/ Pale Off Grayish White/ Pale Lt Gray. Mot/Mixed. VF-Re-xln. xln & sucrosic por. tr argil. Fair/ tr Good vis por.

LS (dolo in part) - Off White/Tans. Sing/ Mot. mixture of some Crypto-/ Micro-xln/ some XF-xln. xln por. some/ lots highly dol in part. some Re-xln. (some CHERT - Clear/ White/ Off White/ tr Tan. Mottled-or- Mixed. Opaque to mixed semitransparent. rare, mionute pyrite. No tripolitic) tr/ some minute dark specks. Firm. No/ tr vis por.

DST #2 4700'

WOB: 10-12M @ 115+ RPM. 1,000 psi @ 60 SPM.	Vis: 47 Wt: 9.0 LCM: 6#	
	Vis: 54 Wt: 9.2 LCM: 6#	
	Hole Dev: 2.75 deg @ 4,597'	WOB: 8M @ 120 RPM. 1,000 psi @ 60 SPM.
	100 units = 1% Gas	
Vis: 51 Wt: 9.1 LCM: 6#	TG, C1-C5	100
Vis: 45 Wt: 9.1 LCM: 6#	WOB 8M @ 120+ RPM. 1,000 psi @ 60 SPM.	DST #1 - MISS 4,462' - 4,482'
Vis: 45 Wt: 9.1 LCM: 4#		Rec: 60' Gas in Pipe (7%,93%M)
Vis: 43 Wt: 9.1 LCM: 5#		60' SI Wtry cut OILY Mud (10%W,40% O,50%W)
	Hole Dev: 1.75 deg @ 4,628'	60' SI Mud & OIL cut Water (15%M,25% O,60%W)
Vis: 53 Wt: 9.0 LCM: 7#		60' SI OIL & Mud cut Water (10%O,20% M,70%W)
WOB 14M @ 100 RPM. 1,000 psi @ 60 RPM.	Vis: 56 Wt: 9.1 LCM: 7#	IFP: 61# - 100# / 30" ISIP: 1,188# / 60" FFP: 72# - 155# / 60" FSIP: 1,316# / 120" 128 deg F MH: 2,295# - 2,067#
Vis: 50 Wt: 9.0 LCM: 7#		
WOB: 18-20M. 1,000 psi @ 60 SPM.	Hole Dev: 1.5 deg @ 4,660'	Vis: 54 Wt: 9.0 LCM: 7#
	Evening	
	Morning	Vis: 48 Wt: 9.3 LCM: 5#
		Vis: 57 Wt: 9.2 LCM: 5.5#
	Hole Dev: 3 deg & 2.5 deg @ 4,692'	(Corrected WOB 9.6-12M)
WOB 8-10M @ 100 RPM. 1,000 psi @ 60 RPM.		Vis: 51 Wt: 9.1 LCM: 6#
	Hole Dev: 2.25 deg @ 4,724'	Vis: 51 Wt: 9+ LCM: 6#
4,724' - Vis: 49 Wt: 9.1 Wtr Loss: 8.0 PV: 16 YP: 12 Gels: 9/28 pH: 10.0 LCM: 7# CI (6,000) Ca (40) Solids: 5.3%	Morning	Vis: 51 Wt: 9.0 LCM: 6#
	Daylight	Vis: 51 Wt: 9.0 LCM: 6#
		WOB 8-10M @ 100+ RPM. 950 psi @ 60 SPM.
	Hole Dev: 1.25 deg @ 4,755'	Vis: 50 Wt: 9.0 LCM: 8#
Vis: 49 Wt: 9.0 LCM: 8#		WOB 10M @ 100+ RPM. 950 psi @ 60 SPM.
Vis: 54 Wt: 9.0+ LCM: 8#		
	Hole Dev: 2.25 deg @ 4,786'	Vis: 50 Wt: 9.1 LCM: 8#
WOB 10M		Vis: 53



LS (3) - White/ some Tan. Mot. F-VF- xln. xln & frag por. [ tr/ some Med Gray (XF, rodlike, SA) shale frags. blotchy texture.] some Re-xln. No/ tr vis por. spotted, irregular Med Brown stain. No odor/fluorescence. No oil or gas. No cut/residual. No/ ? acid & residual.

**WILCOX SS 4,816' (-3,460')**  
 SS - Clear/ Off White. some Pale Lt Gray at top (dolomitic). Mot/Mixed. some VF-/ some silt sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous/ frosted luster. dol (at top)/ sil cement with depth. some sutured/ some point grain contact. rare argil in part. partly Friable. Fair/ good vis por.

Faint/ Fair odor. mix of spotted/ uniform floures- ence. some free V Lt Brown (transparent) oil. Gas bubbles clinging to rx chip. rare spotted, irregular V Lt Brown stain. Pos cut/ residual. Pos acid/ residual. transparent Oil bleeds on wash water.

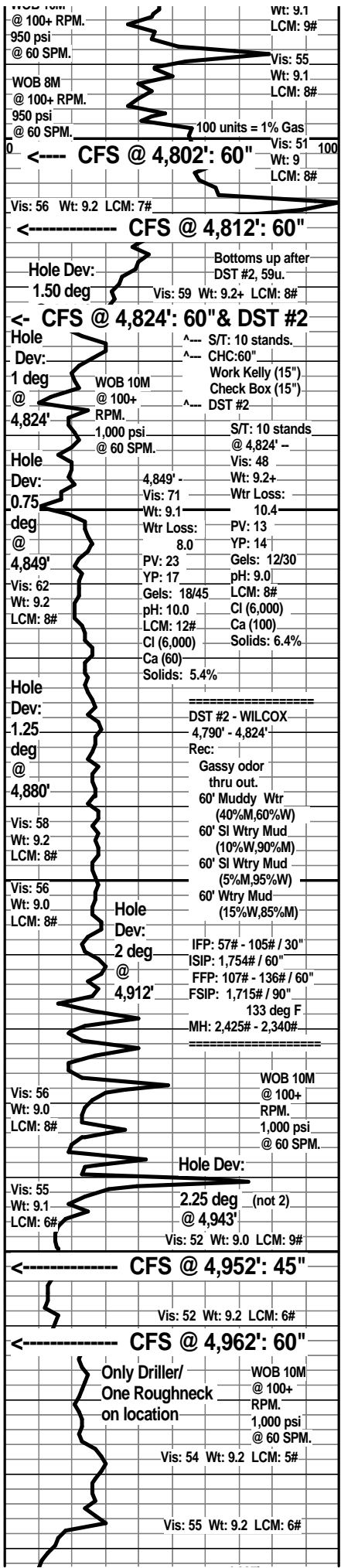
SS - Clear/ Lt Gray/ some Off White, Tan. Mot. VF-/ tr silt & F sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous/ some frosted grain contact. Calc/ tr sil cement. Point/ some sutured grain contact. some argil in part. some Black, carb flecks. partly Friable. Fair/ good vis por.

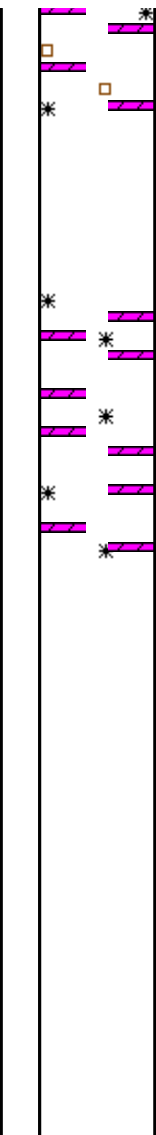
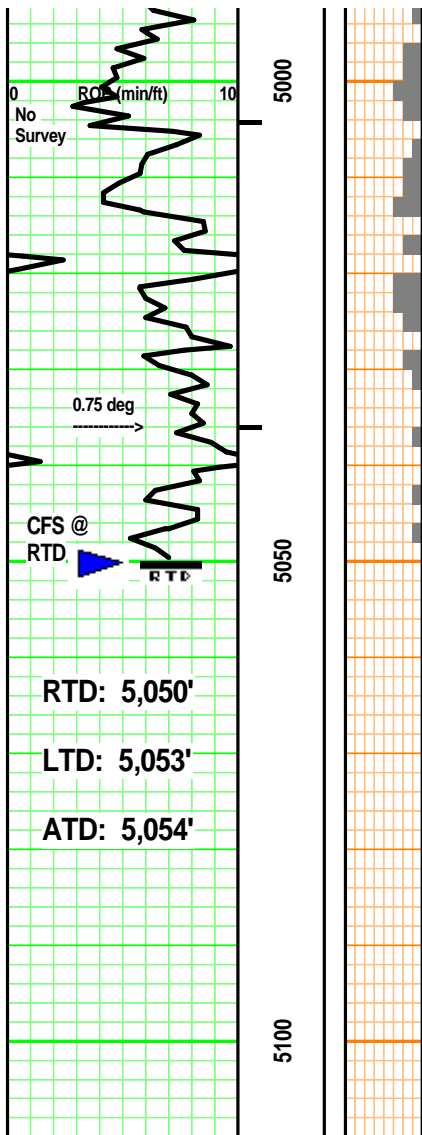
Interbedded / Intermixed SH & SS  
 SH - Grays/ Greens. some Pale Greenish Gray. Sing/ tr Mot. highly sandy in part (similar to immediately above). mixture of 'crumbly' / grainy / blocky / some waxy. Massive. tr ductile in part.

SS - Clear/ Off White/ Grays. Mot/Mixed. VF/ silt sized qtz grains. SR/SA. Mod sort. Mod sph. Vitreous luster. sutured grain contact. silt sized, SA glauc grans. Sil/ tr calc cement. some argil/shale frags in part. Friable. tr vis por

**McLish SS 4,952' (-3,596')**  
 SS - Clear/ mostly Off White & Lt Tan/ tr pale Lt Gray. Mot. VF-/ mostly silt sized qtz grains. SR/SA. Hi sort. Mod sph. Vitreous/ frosted grain contact. Calc/ sil cement (infill & Re-xln). mostly sutured/ tr point grain contact. tr argil in part. Friable. tr/ Fair vis por.

**ARBUCKLE 4,983' (-3,627') ?**  
 DOL - Lt & Med Tan/ tr Lt & Med Gray. Sing/ some Mot. XF-/ Micro-Re-xln. xln & sucrosic por. tr argil (VF, SA) frags. mixture of: mostly partial friable & dense. tr/ mostly fair/ rare





good vis por.

5,020' Sample Missed

DOL - Med & Dark/ Dark Brown. tr Lt & Med Gray. Sing/ some Mot. XF-/ Micro-Re-xln. xln & sucrosic por. Firm. tr/ most fair vis por.

**LANDWEHR A #1**  
 Harper County, Kansas  
 990' FNL & 990' FEL 20-T33S-R9W

**WOOLSEY OPERATING CO., LLC.**  
 Wichita, Kansas

		4,997' -
100 units =	Vis: 53	Wt: 9.3
1% Gas	Wtr Loss: 9.6	
0	TG, C1-C5	PV: 12 YP: 21
Vis: 53		Gels: 19.52
Wt: 9.3		pH: 9.5
LCM: 6#		LCM: 6#
		Ca (4,500)
		Solids: 6.8%
	Vis: 54	Wt: 9.3
	LCM: 7#	
<b>Hole Dev:</b>		
<b>0.75 deg @ 5,036'</b>		
	Part of Morning Tour	
	Double over	
	Vis: 52	Wt: 9.2
	LCM: 6#	
Vis: 45	Evening Tour showed up early.	
Wt: 9.1	WOB 8-10M @ 100+ RPM.	
LCM: 8#	1,000 psi @ 60 SPM.	
	Vis: 47	Wt: 9.1
	LCM: 8#	
<b>XXXXXXXX RTD XXXXXXXX</b>		
^-- CFS @ RTD: 60"		
^-- S/T: 10 stands.		
7 - 11 stand pulled tite. (Balled Bit).		
R/R Drive Chain on D/W.		
^-- CHC: 60" +		
Work Kelly slowly (15")- No shake.		
Sample Box (15") for Volume/Type of fill.		
^-- Hole Dev: 0.75 deg @ RTD.		
Wellsite Geologist: Curtis Covey		
COVEY - The Well Watchers.		
Well Number: 1,106		