



KANSAS CORPORATION COMMISSION 1063513  
OIL & GAS CONSERVATION DIVISION

Form ACO-1  
June 2009

Form Must Be Typed  
Form must be Signed  
All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 5663  
Name: Hess Oil Company  
Address 1: PO BOX 1009  
Address 2: \_\_\_\_\_  
City: MCPHERSON State: KS Zip: 67460 + 1009  
Contact Person: Bryan Hess  
Phone: ( 620 ) 241-4640  
CONTRACTOR: License # 4958  
Name: Mallard, J. V., Inc.  
Wellsite Geologist: Derek W. Patterson  
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  
 Conv. to GSW

- Plug Back: \_\_\_\_\_ Plug Back Total Depth \_\_\_\_\_  
 Commingled    Permit #: \_\_\_\_\_  
 Dual Completion    Permit #: \_\_\_\_\_  
 SWD    Permit #: \_\_\_\_\_  
 ENHR    Permit #: \_\_\_\_\_  
 GSW    Permit #: \_\_\_\_\_

<u>8/1/2011</u>	<u>8/7/2011</u>	<u>9/16/2011</u>
Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date

API No. 15 - 15-185-23694-00-00

Spot Description: \_\_\_\_\_  
W2 NE NE NE Sec. 7 Twp. 21 S. R. 14  East  West  
330 Feet from  North /  South Line of Section  
470 Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE     NW     SE     SW

County: Stafford

Lease Name: Wood Well #: 2-7

Field Name: \_\_\_\_\_

Producing Formation: na

Elevation: Ground: 1923 Kelly Bushing: 1928

Total Depth: 3990 Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: 889 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: 0 ppm Fluid volume: 0 bbls

Dewatering method used: Evaporated

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

- Letter of Confidentiality Received  
Date: \_\_\_\_\_  
 Confidential Release Date: \_\_\_\_\_  
 Wireline Log Received  
 Geologist Report Received  
 UIC Distribution  
ALT  I  II  III Approved by: Deanna Garrison Date: 09/19/2011



1063513

Operator Name: Hess Oil Company Lease Name: Wood Well #: 2-7  
 Sec. 7 Twp. 21 S. R. 14  East  West County: Stafford

**INSTRUCTIONS:** Show important tops and base 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. Attach complete copy of all Electric Wire-line Logs surveyed. Attach final geological well site report.

Drill Stem Tests Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>(Attach Additional Sheets)</i>  Samples Sent to Geological Survey <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  Cores Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Electric Log Submitted Electronically <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(If no, Submit Copy)</i>  List All E. Logs Run:	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input checked="" type="checkbox"/> Sample  <table style="width:100%; border: none;"> <tr> <td style="width:33%; border: none;">Name Attached</td> <td style="width:33%; border: none;">Top Attached</td> <td style="width:33%; border: none;">Datum Attached</td> </tr> </table>	Name Attached	Top Attached	Datum Attached
Name Attached	Top Attached	Datum Attached		

CASING RECORD <input checked="" 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
Surface	12.25	8.625	23	889	common	375	2% gel, 3% cc
Disposal	7.875	5.5	15.5	3832	AA2	100	

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
— Perforate				
— Protect Casing	-			
— Plug Back TD				
— Plug Off Zone	-			

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
		2500 gal. 20% MCA acid	3832

TUBING RECORD:	Size: <u>2.875</u>	Set At: <u>3798</u>	Packer At: <u>3798</u>	Liner Run: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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 (Explain) _____		
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio
				Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input checked="" type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i> <input type="checkbox"/> Other (Specify) _____	PRODUCTION INTERVAL: <u>3832-3990</u>
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Form	ACO1 - Well Completion
Operator	Hess Oil Company
Well Name	Wood 2-7
Doc ID	1063513

Tops

Name	Top	Bottom
Topeka	2907	-979
Heebner	3259	-1331
Toronto	3269	-1341
Douglas Shale	3290	-1362
Brown Lime	3365	-1437
Lansing	3376	-1448
Muncie Creek	3496	-1568
Stark Shale	3556	-1628
Hushpuckney	3584	-1656
Base Kansas City	3602	-1674
Viola	3636	-1708
Simpson Shale	3723	-1795
Simpson Sand	3745	-1817
Arbuckle	3778	-1850
RTD	3990	-2062

# QUALITY OILWELL CEMENTING, INC.

Phone 785-483-2025  
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 5120

Date	8-2-11	Sec.	7	Twp.	21	Range	14	County	Stafford	State	Ks	On Location		Finish	9:15 AM
Lease	Wood	Well No.	2-7		Location Radium, Ks - 510, 8W, 5/5										
Contractor	Mallard J.V. Inc.				Owner		To Quality Oilwell Cementing, Inc.								
Type Job	Surface				You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.										
Hole Size	12 1/4"		T.D.		889'		Charge To Hess oil								
Csg.	8 7/8" 23d		Depth		888.5'		Street								
Tbg. Size			Depth		City										
Tool			Depth		State										
Cement Left in Csg.	31.20'		Shoe Joint		31.20'		The above was done to satisfaction and supervision of owner agent or contractor.								
Meas Line			Displace		54 1/2 BLS		Cement Amount Ordered 375 sx Common 3% CC								
<b>EQUIPMENT</b>												2% Gel 1/4 # Flo-seal			
Pumptrk	1	No.	Cementer	Cisco		Common 375									
			Helper												
Bulktrk	13	No.	Driver	Matt		Poz. Mix									
			Driver												
Bulktrk	p.m.	No.	Driver	Rick		Gel. 7									
			Driver												
<b>JOB SERVICES &amp; REMARKS</b>												Calcium 14			
Remarks:	Cement did Circulate										Hulis				
Rat Hole	IN Cellar										Salt				
Mouse Hole											Flowseal 93#				
Centralizers											Kol-Seal				
Baskets											Mud CLR 48				
D/V, or Port Collar											CFL-117 or CD110 CAF 38				
											Sand				
											Handling 396				
											Mileage				
<b>FLOAT EQUIPMENT</b>															
											Guide Shoe				
											Centralizer				
											Baskets				
											AFU Inserts				
											Float Shoe				
											Latch Down				
											1- Raffle plate				
											1- Rubber plug				
											Pumptrk Charge 1.019 Surface				
											Mileage 16				
												Tax			
												Discount			
												Total Charge			
X Signature	Mal D. [Signature]														

# BASIC

energy services, L.P.

## TREATMENT REPORT

Customer	HESS OIL CO.	Lease No.		Date	
Lease	WOOD	Well #	2-7		08-07-11
Field Order #	4778	Station	PRATT KS	Casing	5 1/2
Type Job	CW 5 1/2 long string		Depth	County	STAFFORD KS
		Formation		Legal Description	7-21-14

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

Customer Representative		Station Manager	DAVE Scott	Treater	Robert Fullen
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Service Units	37900	33708	20920	19831	19862				
Driver Names	Sullivan	Melson	Lawrence						

Time	Casing Pressure	Tubing Pressure	Bbls. Pumped	Rate	Service Log
2:00					on loc Sat, ready
					Run 5 1/2 - 15.5 csp w/ Packer Shoe
					cont. 1, 2, 4, 6, 8, 10, 12 Bbls
					csp set @ 3832
0530					CASING ON BOTTOM
0535					Hook' Rig circ.
5:40					DROP BALL
5:55					Set Packer Shoe AND circ.
6:10	700		5	3	RT SPACER H <sup>20</sup>
			17		mix Superfluid
			5		SPACER
				5	mix 100 sk AA 2 cont
			29		cont. mixed shut down. work pump, lower
					Release plug
				6	RT Disp
	750		68		lift. Ps.
	500			4.5	Slow Rate
6:45	1800		90		Plug down
			7-5-		plug R.H. w/ 30% wt. H. w/ 20% 60/40 -
					503 Complete Thank you



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

Well Name: Wood #2-7  
Location: Sec. 7 - T21S - R14W , Stafford County, KS  
Licence Number: API No.: 15-185-23694-0000  
Spud Date: August 1, 2011  
Surface Coordinates: 330' FNL & 470' FEL  
Region: Frey  
Drilling Completed: August 7, 2011

**Bottom Hole Coordinates:**

Ground Elevation (ft): 1923'      K.B. Elevation (ft): 1928'  
Logged Interval (ft): 2850'      To: 3990'      Total Depth (ft): 3990' (RTD)  
Formation: Arbuckle  
Type of Drilling Fluid: Chemical Gel/Polymer

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

**OPERATOR**

Company: Hess Oil Company  
Address: 2080 E. Kansas  
McPherson, KS 67460

**GEOLOGIST**

Name: Derek W. Patterson  
Company: Valhalla Exploration, LLC  
Address: 133 N. Glendale  
Wichita, KS 67208

**REMARKS**

After review of the sample evaluations and given the negative structural position for the Wood #2-7, it was decided by operator to run 5 1/2" production casing for open hole completion in the Arbuckle as a Salt Water Disposal Well.

The well samples were saved, and will be submitted and available for review at the Kansas Geological Survey Well Sample Library located in Wichita, KS.

Respectfully Submitted,  
Derek W. Patterson

**COMMENTS**

No Gas Detector Used

No DSTs

No Open Hole Logging Performed

# Hess Oil Company

## DAILY DRILLING REPORT

Company: Hess Oil Company  
 2080 E. Kansas  
 McPherson, KS 67460  
 Contact: Bryan Hess (Hess Oil Co)  
 Office: 620.241.4640  
 David Withrow (Edison Operating Co)  
 Cell: 316.613.1544  
 Geologist: Derek W. Patterson  
 Cell: 316.655.3550  
 Office: 316.558.5202

Drilling Contractor: J V Mallard, Inc., Rig - 785.731.5161  
 Toolpusher: Levon Urban

Well: Wood #2-7  
 Location: 330' FNL & 470' FEL  
 Sec. 7 - T21S - R14W  
 Stafford Co., KS  
 Elevation: 1923' GL - 1928' KB  
 Field: Frey  
 API: 15-185-23694-0000  
 Surface Casing: 882' of 8 5/8" set @ 889' KB  
 Spud Date: August 1, 2011  
 Drilling Complete: August 6, 2011

DATE	7:00 AM DEPTH	PREVIOUS 24 HOURS OF OPERATIONS
8.6.2011	3730'	Drilling and connections Topeka, Heebner, and into Toronto. Geologist Derek W. Patterson on location, 1155 hrs 8.5.11. Drilling and connections Toronto, Douglas Shale, Brown Lime, Lansing, Base Kansas City, and into Viola. CFS @ 3716' (Viola). Resume drilling and connections Viola and into Simpson. CFS @ 3730' (Simpson). Made 570' over past 24 hrs of operations. DMC: \$1,001.90 CMC: \$7,987.20
8.7.2011	RTD - 3990'	Resume drilling and connections Simpson. CFS @ 3761' (Simpson). Resume drilling and connections Simpson and into Arbuckle. CFS @ 3788' (Arb). Resume drilling and connections Arbuckle ahead to RTD of 3990'. RTD reached, 1930 hrs 8.6.11. CTCH. Short Trip (15 stands), 2100 hrs 8.6.11. CTCH, drop survey, TOH and lay down pipe for casing. Operator opted out from running any open hole logs. Orders received to run 5 1/2" production casing for SWDW completion. Made 260' over past 24 hrs of operations. Geologist Derek W. Patterson off location, 2040 hrs 8.6.11.

# Hess Oil Company

## WELL COMPARISON SHEET

DRILLING WELL					COMPARISON WELL				COMPARISON WELL				COMPARISON WELL			
Hess Oil Company - Wood #2-7					Hess Oil Company - Pfister #1-6				Hess Oil Company - Pfister #2-6				Vickers - Frey #4			
Sec. 7 - 21S - 14W					Sec. 6 - 21S - 14W				Sec. 6 - 21S - 14W				Sec. 7 - 21S - 14W			
330' FNL & 470' FEL					890' FSL & 470' FEL				330' FSL & 1650' FEL				NE NW NE			
1828 KB					Oil - Arb		Structural Relationship		Oil - Arb		Structural Relationship		Oil - Arb		Structural Relationship	
Formation	Sample	Sub-Sea	Log	Sub-Sea	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log	Log	Sub-Sea	Sample	Log
Topoka	2907	-879			2895	-869	-10		2904	-875	-4		2907	-878	-1	
Hoebner	3258	-1331			3245	-1318	-13		3253	-1324	-7		3256	-1327	-4	
Toronto	3268	-1341			3256	-1328	-12		3284	-1335	-6		3270	-1341	0	
Douglas Shale	3290	-1362			3275	-1348	-14		3282	-1353	-8		3287	-1358	-4	
Brown Lime	3385	-1437			3348	-1421	-16		3355	-1426	-11		3358	-1428	-8	
Lansing	3376	-1448			3357	-1430	-18		3366	-1437	-11		3368	-1439	-8	
Muncie Creek	3486	-1568			3474	-1547	-21		3481	-1552	-16		3486	-1557	-11	
Stark Shale	3536	-1628			3536	-1608	-18		3541	-1612	-16		3545	-1616	-12	
Hustpuckney	3584	-1656			3561	-1634	-22		3568	-1639	-17		3572	-1643	-13	
Base Kansas City	3602	-1674			3578	-1651	-23		3584	-1655	-19		3589	-1660	-14	
Viola	3636	-1708			3611	-1684	-24		3620	-1691	-17		3620	-1691	-17	
Simpson Shale	3723	-1785			3636	-1708	-16		3642	-1713	-82		3647	-1718	-77	
Simpson Sand	3745	-1817			3651	-1724	-13		3659	-1730	-87		3668	-1739	-78	
Arbuckle	3778	-1850			3680	-1753	-17		3690	-1761	-89		3696	-1767	-83	
Total Depth	3980	-2082			3800	-1873	-189		3830	-1901	-181		3710	-1781	-281	

Note: No Open Hole Logs Performed.

### BIT RECORD

Bit #	Size	Make	Type	Serial Number	Depth In	Depth Out	Feet	Hours
1	12 1/4"	Smith	PDC	RR	0'	889'	889'	8.25
2	7 7/8"	Smith	F-27	RR	889'	3990'	3101'	79.3

### SURFACE CASING RECORD

8.2.2011 Ran 21 joints of new 23#/ft 8 5/8" casing, tallying 882', set @ 889' KB. Cemented with 375 sacks of common, 3% CC, 2% gel, 1/4# floseal per sack, cement did circulate. Plug down, 0915 hrs 8.2.11

### PRODUCTION CASING RECORD

8.7.2011 Ran 91 joints of new 15.5#/ft 5 1/2", set @ 3832' KB. Cemented with 100 sacks AA-2. Plug down, 0645 hrs 8.7.11.

### DEVIATION SURVEY RECORD

Depth  
889'

Survey  
3/4°

### PIPE STRAP RECORD

Depth  
No Pipe Straps Performed

Pipe Strap



**ROCK TYPES**

**LITHOLOGY**

- Anhy
- Bent
- Brec
- Cht
- Clyst
- Coal
- Congl
- Dol
- Gyp
- Igne
- Lmst
- Meta
- Mrlst
- Salt
- Shale
- Shcol
- Shgy
- Slstst
- Ss
- Till
- Slstsn
- Shale
- Sandylms
- Lms
- Gry sh
- Dtd
- Dol
- Carb sh
- pipesymbol

- unknown lith
- Red shale

**FOSSIL**

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

**MINERAL**

- City

- Sand
- Dol
- Chlorite
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chltt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil

S

V

**STRINGER**

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**TEXTURE**

- BS
- C
- CX
- E
- FX

- Sulphur
- Tuff

- Red shale
- Sh
- Sandylms
- Lms
- Grystl
- Grysh
- Dol
- Clystn
- Carbsh
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Slststrg
- Ssstrg

- GS
- L
- MX
- MS
- PS
- WS

- Grainst
- Lithogr
- Microxin
- Mudst
- Packst
- Wackest

**OIL SHOW**

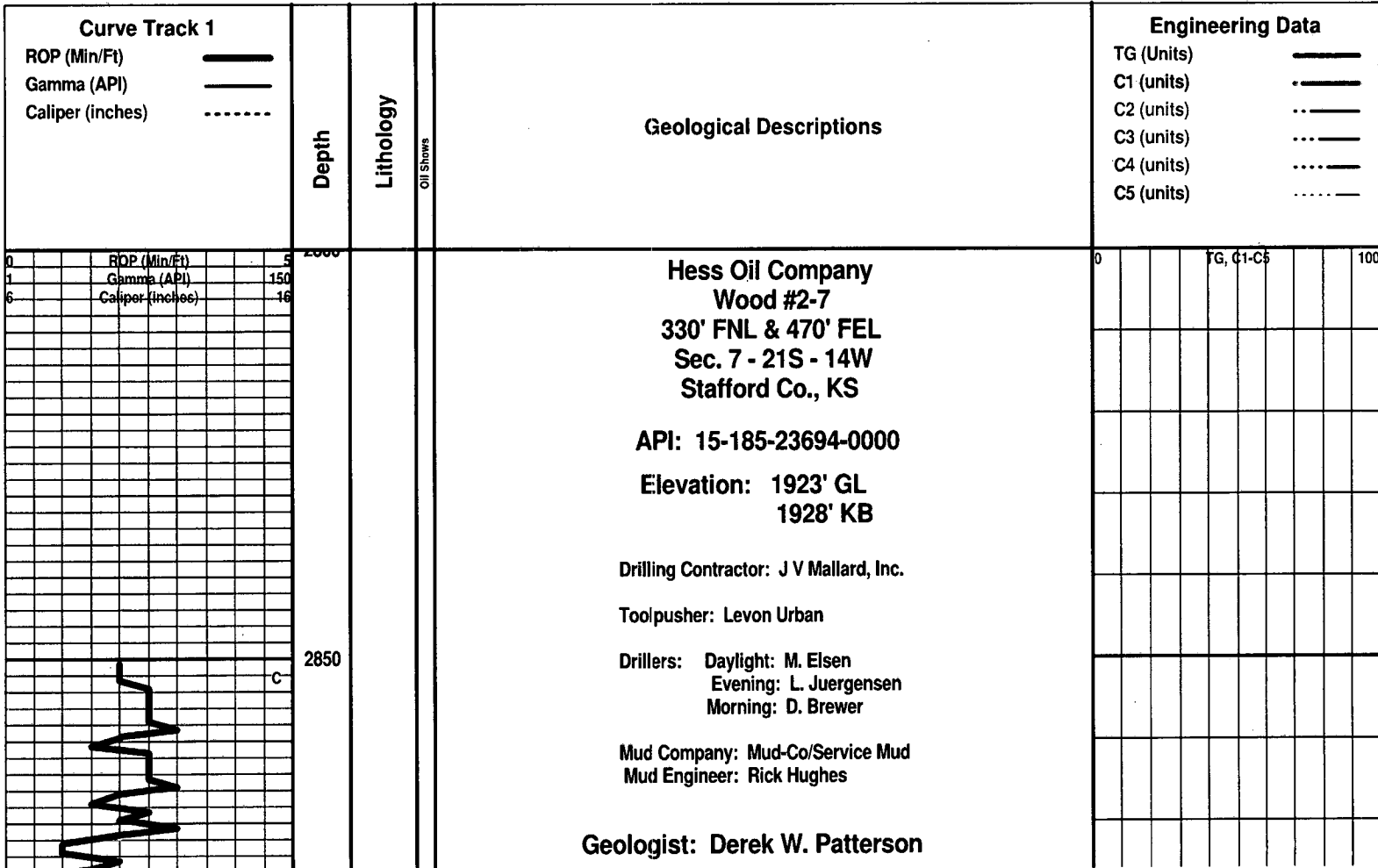
- Gas show
- Good
- Fair
- Poor
- Dead

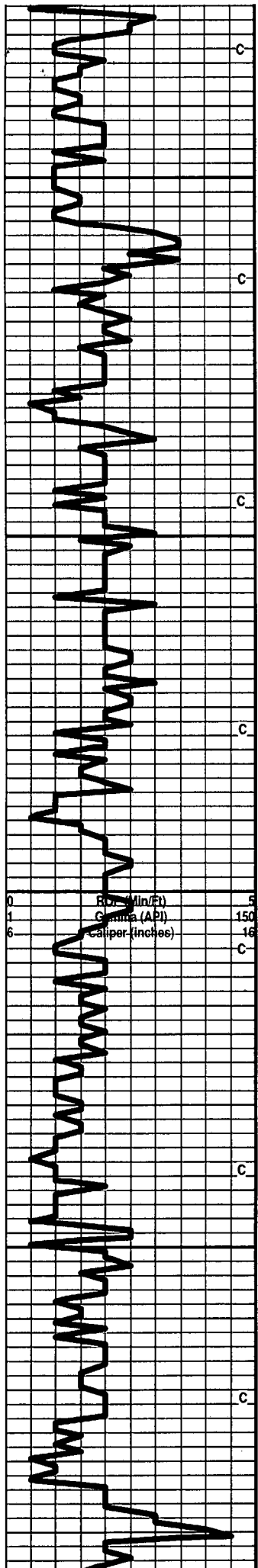
**INTERVAL**

- Dst
- Core
- Dst
- Straddle test

**EVENT**

- Rft
- Sidewall
- Dst
- Open hole
- Perforations





Severy 2880 (-952)

Shale: gray dk gray brick red, blocky with some rounded, mostly soft with some denser and hard, some fissile.

Topeka 2907 (-979)

Limestone: cream to cream to gray, dense matrix, micro-xln, sub-fossiliferous in part, poor visible porosity, no shows noted, little-no mineral fluorescence.

Start 20' Wet & Dry Samples @ 2920'  
Displace Mud System @ 2922'

Limestone: It cream to gray, dense matrix, micro-vfxln, sub-fossiliferous, poor visible porosity, no shows noted, little-no mineral fluorescence, with interbedded Shale: gray dk gray brick red, mostly blocky and hard.

Limestone: gray to gray some cream, dense matrix, vfxln, fossiliferous, overall poor interxn porosity, no shows noted, little-no mineral fluorescence, with scattered Shale as above.

Limestone: cream to cream to gray, dense sub-chalky matrix, micro-vfxln, fossiliferous in part, poor interxn porosity, no shows noted, no fluorescence.

Limestone: gray to gray to cream mottled, dense sub-chalky matrix, vf-microxln, fossiliferous, poor interxn porosity, no shows noted, no fluorescence, with scattered Shale in sample.

Limestone: It cream to gray mottled, softer sub-chalky matrix, vf-microxln, fossiliferous with trace bioclastic, poor interxn porosity, no shows noted, no fluorescence, with Shale stringers: gray dk gray, mostly blocky and hard.

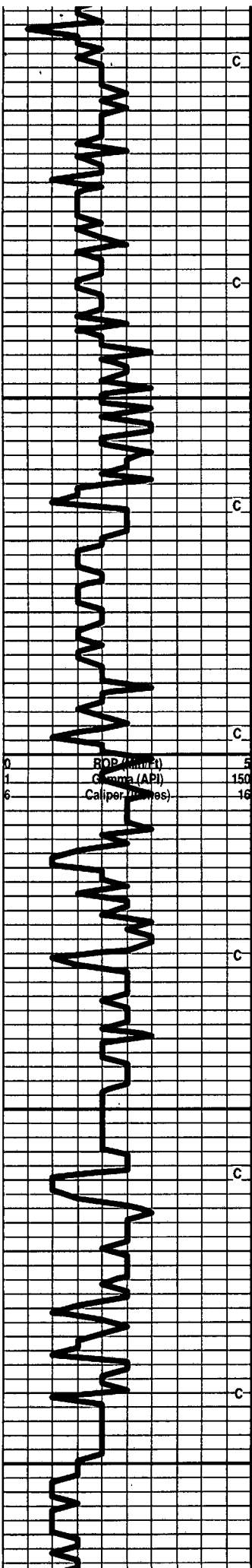
Limestone: It cream to gray to tan, softer sub-chalky matrix, vf-microxln, fossiliferous, poor interxn porosity, no shows noted, no fluorescence, with continued Shale stringers.

Limestone: It gray cream tan, dense matrix, micro-vfxln with some cryptoxln, fossiliferous in part, poor interxn porosity, no shows noted, no fluorescence, with scattered Shale.

Shale: black, carbonaceous, blocky and hard, no show gas bubbles.

TG, G1-C5

Vis: 45  
Wt: 8.8  
LCM: 0 #/bbl



Limestone: It cream cream It gray, chalky matrix in most pieces, vfxln, some slightly grainy, sub-fossiliferous to fossiliferous with trace sub-oolitic, overall poor visible porosity with few pieces having fair-poor interxln porosity, no shows noted, no fluorescence.

Limestone: It gray It cream, dense sub-arenaceous matrix, vfxln, sub-fossiliferous to barren, poor 2ndary xln along edges, fair-poor interxln porosity, no shows noted, little-no mineral fluorescence.

Limestone: It cream It gray, softer sub-chalky matrix, vfxln, mostly barren, trace arenaceous, overall poor interxln porosity, no shows noted, no fluorescence, with Shale: gray dk gray, blocky to rounded, soft.

Shale: black, carbonaceous, mostly round and soft, waxy in part, no show gas bubbles.

Limestone: cream It cream tan, dense matrix, vf-microxln, heavily fossiliferous, very xln, poor visible porosity, no shows noted, no fluorescence, with trace Chert: It gray smokey gray, fresh and sharp, no shows noted.

Limestone: cream It cream tan, dense matrix, vf-microxln, fossiliferous in part, poor visible porosity, no shows noted, no fluorescence, with scattered Chert: It gray smokey gray cream, fresh and sharp, no shows noted.

Limestone: It cream tan, dense to sub-chalky matrix, micro-cryptoxln, fossiliferous in part, poor visible porosity, few pieces with very poor dk brown-black dead staining along edges, no live shows noted, very poor-no fluorescence, with continued Chert.

**Start 10' Wet & Dry Samples @ 3250'**

Limestone: It cream tan It brown, dense sub-chalky matrix, vf-microxln, very xln, fossiliferous in part, overall poor visible porosity, decrease in stained pieces above, no live shows noted, no fluorescence, with scattered Chert as above.

**Heebner 3259 (-1331)**

Shale: black, carbonaceous, mostly blocky and hard with some softer and waxy, no show gas bubbles, with Shale: gray dk gray, blocky and hard.

**Toronto 3269 (-1341)**

Limestone: off white It cream, vf-microxln with some cryptoxln, dense slightly chalky matrix, fossiliferous to barren, pyritic in part, fair 2ndary xln in most pieces, overall poor visible porosity, no shows noted, little-no mineral fluorescence.

Geologist Derek W. Patterson on location, 1155 hrs 8.5.11

**Douglas Shale 3290 (-1362)**

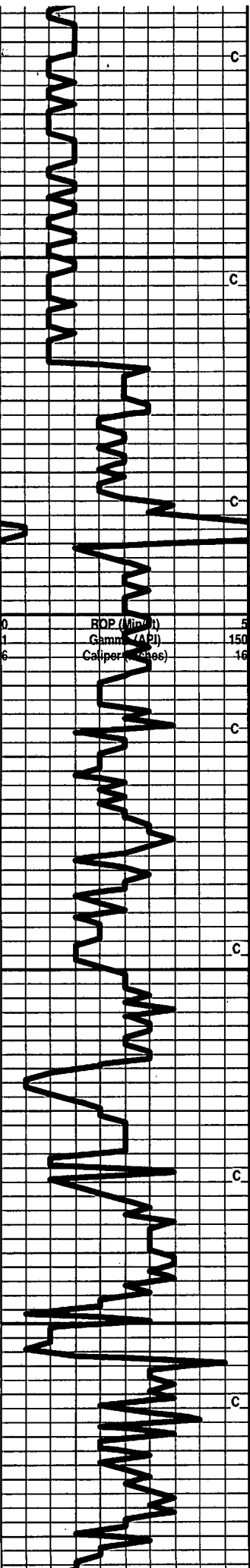
Shale: gray dk gray green brick red, mostly blocky, soft to hard, some silty and pyritic, with trace interbedded Siltstone: gray It gray, vf grained, poor visible porosity, pyritic, no shows noted, and loose Pyrite nodules in sample, sample washes brown-gray.

Vis: 45  
Wt: 8.9  
LCM: 0 #/bbl

0700 hrs, 8.5.11

Mud-Co Mud Ck  
@ 3197

TG, C 0750 hrs 8.5.11 100  
Vis 45 Wt 9.1  
PV 13 YP 10  
WL 9.2  
Cake 1/32  
pH 10.5  
CHL 4,900 ppm  
Cal 20  
Sol 5.4  
LCM: 0 #/bbl  
DMC: \$866.30  
CMC: \$6,085.30



Shale: gray dk gray green trace brick red, mostly blocky with some rounded, soft to hard, silty to micaceous, some scattered pyritic, with continued interbedded Siltstone as above, no shows noted, and loose Pyrite nodules in sample, sample washes gray-dk gray.

Shale: gray dk gray trace green and brick red, round to blocky, mostly soft and waxy, silty to micaceous, some scattered pyritic, with trace Interbedded Siltstone: gray lt gray, vf grained, poor visible porosity, pyritic, no shows noted, and trace loose Pyrite nodules in sample, sample washes gray-dk gray.

### Brown Lime 3365 (-1437)

Limestone: tan brown lt brown, dense tight matrix, microxn, fossiliferous to heavily fossiliferous, scattered 2ndary xln along edges in few pieces, poor visible porosity, no shows noted, no fluorescence grading to Shale: gray dk gray, mostly blocky and hard.

### Lansing 3376 (-1448)

Limestone: off white lt cream, dense sub-chalky to sub-cherty matrix, vf-microxn with some lithographic non-descript, sub-fossiliferous to barren, fair amount of 2ndary xln in most pieces, poor interxn porosity, no shows noted, even dull pale yellow mineral fluorescence.

Shale: gray dk gray dk green, mostly blocky and hard with some rounded and softer.

Limestone: lt cream lt tan, dense chalky matrix, micro-vfxn, fossiliferous to barren, overall poor interxn porosity with some fair pinpoint porosity, very poor show lt brown oil in few pieces with fair increase upon break/left under lamp, poor saturated stain in few pieces, even dull pale yellow fluorescence, fair forced cut fluorescence, faint odor.

Limestone: lt cream lt gray, dense slightly cherty matrix, microxn, fossiliferous in part, abundant 2ndary xln along edges and in porosity, poor interxn porosity, no shows noted, spotty poor dull pale yellow fluorescence.

Limestone: cream tan gray mottled, dense sub-chalky matrix, vfxn, fossiliferous with some oolitic, fair-poor interxn porosity, no shows noted, little-no mineral fluorescence.

Limestone: cream gray mottled, dense matrix, vfxn, fossiliferous with some heavily oolitic, fair-poor interoolitic porosity, no shows noted, little-no mineral fluorescence.

Limestone: lt cream tan off white lt gray, slightly chalky dense matrix, micro-vfxn with some lithographic, fossiliferous with trace oolitic, fair 2ndary xln in most pieces along edges and between faces, poor visible porosity in most pieces with a few having fair pinpoint porosity, no shows noted, little-no fluorescence, with scattered Chalk in sample.

Limestone: lt cream off white, xln matrix, micro-vfxn, sub-fossiliferous with some scattered oolitic, heavily oomoldic with varying small-large molds, fair-good oomoldic porosity with heavy 2ndary xln within, no shows noted, spotty bright yellow mineral fluorescence.

Limestone: cream lt cream, xln matrix, micro-vfxn, sub-fossiliferous with some scattered oolitic, trace sub-oomoldic, heavy 2ndary xln along edges in most, poor oomoldic porosity in few pieces with overall poor interxn porosity, no shows noted, spotty-even dull pale yellow fluorescence.

### Muncie Creek 3496 (-1568)

Shale: gray dk gray, blocky, mostly soft, some fissile, silty in part.

Limestone: lt cream off white lt gray, microxn, fossiliferous in part with some sub-oolitic, poor oomoldic development with few pieces having poor oomoldic porosity, overall poor visible porosity, no shows noted, spotty bright pale yellow mineral fluorescence in few pieces, no cut fluorescence

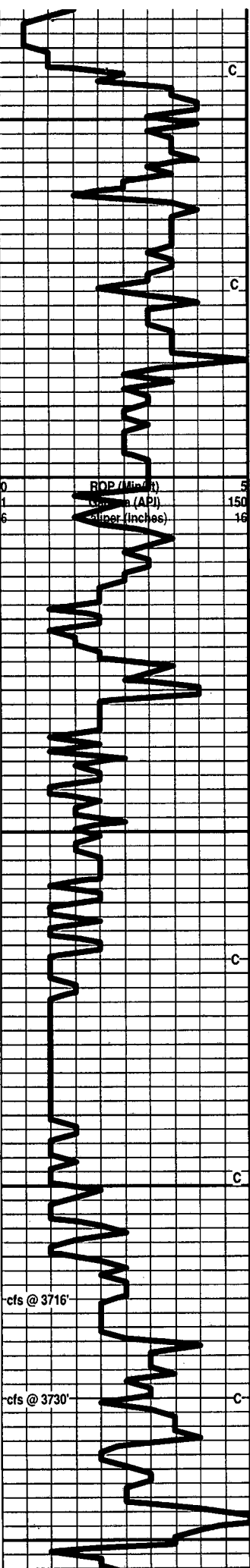
Shale: gray dk gray, blocky and hard, fissile in part.

Limestone: lt cream cream lt tan, slightly dense chalky matrix, vf-microxn, most heavily oolitic fossiliferous, fair-poor interoolitic porosity, few pieces with some heavy dk black dead staining along edges, no live shows noted, very poor fluorescence, no cut fluorescence, with scattered Chalk in sample.

Shale: gray dk gray dk green, mostly blocky, soft to hard, some fissile.

0														FG, C1-C5						100

Vis: 52  
 Wt: 9.3  
 LCM: 0 #/bb



3550

3600

3650

3700

3750

cfs @ 3716'

cfs @ 3730'



Limestone: cream lt tan, dense matrix, vf-microxn, fossiliferous with oolitic, good oomoldic development, good oomoldic porosity, abundant 2ndary xln in porosity, no shows noted, spotty-even bright yellow mineral fluorescence, no cut fluorescence.

Limestone: lt cream off white lt tan, dense tight matrix, micro-vfxn, fossiliferous with oolitic, scattered sub-oomoldic, overall poor interxln/oomoldic porosity, no shows noted, little-no fluorescence, with scattered Chalk in sample.

**Stark Shale 3556 (-1628)**

Shale: gray dk gray pale green, blocky, mostly hard with some softer, some fissile.

Limestone: cream tan lt cream, dense tight matrix, micro-vfxn, fossiliferous with oolitic, scattered sub-oomoldic, overall poor interxln/oomoldic porosity and some scattered fair pinpoint porosity, abundant 2ndary xln along edges in most pieces, no shows noted, little-no fluorescence.

**Hushpuckney 3584 (-1656)**

Shale: gray dk gray dk green brick red, blocky, hard to soft, some fissile.

Limestone: cream tan, dense tight matrix, vf-microxn, very xln with abundant 2ndary xln along edges, sub-fossiliferous, poor visible porosity, no shows noted, little-no fluorescence.

**Base Kansas City 3602 (-1674)**

Shale: gray dk gray brick red trace dk green, blocky and hard, fissile in part.

Limestone: cream dk cream tan, dense tight matrix, microxn with some cryptoxln, sub-fossiliferous in part with most barren, poor interxln porosity, few pieces with fair amount of dk black dead tarry staining along edges, no live shows noted, no fluorescence.

Shale: gray dk gray brick red brown dk green, blocky, mostly hard with some softer, fissile in part, trace silty, sample washes reddish-brown.

Limestone: off white lt cream lt gray, dense, micro-vfxn with some cryptoxln, fossiliferous in part, scattered 2ndary xln along edges, overall poor interxln/visible porosity, no shows noted, little-no fluorescence.

Shale: gray dk gray brown brick red dk green, blocky, hard to soft, some fissile, silty in part, sample washes reddish-brown.

**Viola 3636 (-1708)**

Abundant Shale as above, with scattered Chert: yellow cream, fresh and sharp, barren, no shows noted.

Shale: gray dk gray brown brick red, mostly blocky with some rounded, softer, with continued Chert: cream off white pink, fresh and sharp to slightly weathered, couple pieces with dk black dead staining along edges, no live shows noted, very poor pale yellow mineral fluorescence, sample washes reddish-brown.

INFLUX - Chert: cream lt cream off white lt pink, mostly fresh and sharp with trace slightly weathered, trace fossiliferous with most barren, no visible porosity, couple pieces with dk black dead staining along edges, no live shows noted, very poor-no mineral fluorescence, still carrying abundant Shale as above.

Chert: as above with Influx Chert: black dk gray, weathered to slightly tripolitic, fair visible porosity, fair amount dk black dead staining along edges, no show free oil or gas, little-no fluorescence, no cut fluorescence, no odor, with continued abundant Shale, sample washes reddish-brown.

Chert: mixed as above, still carrying fair amount of weathered pieces with dk black dead staining, no live shows noted, no fluorescence, no odor, with abundant Shale, sample washes reddish-brown.

3716' cfs 0"/15" - Chert: cream lt cream off white black dk gray, fresh and sharp to weathered and tripolitic in part, fair porosity in weathered pieces, only notable shows are continued dk black dead staining in weathered pieces, no live shows noted, spotty poor lt yellow fluorescence in few pieces, no odor, with continued abundant Shale, and scattered Limestone: cream lt cream, dense sub-chalky matrix, vf-microxn, mostly barren, poor interxln porosity, no shows noted, sample washes red-brown.

3716' cfs 30"/45" - Chert: as above, still carrying fair amount of weathered pieces with dk black heavy staining along edges, poor-fair show heavy dk black oil in few pieces upon break, spotty poor lt yellow fluorescence in few pieces, fair forced cut fluorescence, no odor, with continued Shale and Limestone as above, sample washes reddish-brown.

**Simpson Shale 3723 (-1795)**

3730' cfs 30"/45" - Shale: gray dk gray brick red purple teal green, mostly blocky, soft to hard, some fissile, only 30% sample Shale, still carrying abundant Chert.

Shale: gray dk gray teal brick red purple maroon, mostly blocky, soft to hard, some fissile, still carrying abundant Chert and Limestone as above (from uphole?).

**Simpson Sand 3745 (-1817)**

3761' cfs 20" - Sandstone (trace): clear quartz grains in clear-white pale green matrix, mostly coarse-med grains, sub-rounded to sub-angular, well cemented and sorted, fair Intergranular porosity in most, no shows noted, little-no mineral fluorescence, no odor, with abundant Shale as above, sample washes dk reddish-brown

0 FG, C1-C5 100

Vis: 55  
Wt: 9.3  
LCM: 0 #/bb

Vis: 45  
Wt: 9.4  
LCM: 0 #/bb

0700 hrs, 8.6.11



