

Max R. Lovely

## GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY Raymond Oil Co.  
LEASE L&J Hartman #1  
FIELD Wildcat  
LOCATION SE NE SE NW  
SEC 14 TWP 11 RGE 29W  
COUNTY Gove STATE KS

ELEVATIONS  
KB 2835  
DF \_\_\_\_\_  
GL 2825  
Measurements Are All  
From KB

CONTRACTOR H2 #2  
SPUD 11-5-14 COMP 11-14-14  
RTD 4640 LTD 4640  
MUD UP 3373 TYPE MUD Chem

CASING  
SURFACE 8 7/8" e 265'  
PRODUCTION \_\_\_\_\_

ELECTRICAL SURVEYS  
DUAL IND MICRO  
COMP N/D

### FORMATION TOPS AND STRUCTURAL POSITION

FORMATION	SAMPLE TOP	ELECTRIC LOG TOP	SUB-SEA DATUM	STRUCTURAL POSITION		
				A	B	C
Anhydrite	2383	2379	456	451	458	
Base Anhydrite	2416	2410	425	410	426	
Stotler	3560	3554	-719	-734	-722	
Heebner	3934	3906	-1071	-1087	-1074	
Lansing	3966	3928	-1093	-1120	-1113	
Muncie	4104	4074	-1239	-1257	-1244	
Stark	4194	4153	-1318	-1340	-1322	
Marmaton	4272	4236	-1401	-1426	-1406	
Pawnee	4393	4360	-1525	-1552	-1532	
Ft. Scott	4435	4400	-1565	-1596	-1575	
Cherokee SH	4461	4426	-1591	-1623	-1600	
Morrow SH		4457	-1622	-1657	-1635	
Wea Mississippi	4504	4504	-1669		-1664	
Mississippi	4528	4530	-1695	-1690		

### REFERENCE WELLS FOR STRUCTURE

A Cinco Expl Gillespie #1-A NE SW 14-11-29W  
B Imperial Oil Houser #1 NW NW NE 14-11-29W  
C \_\_\_\_\_

SOFT, C. O. NC

REMARKS

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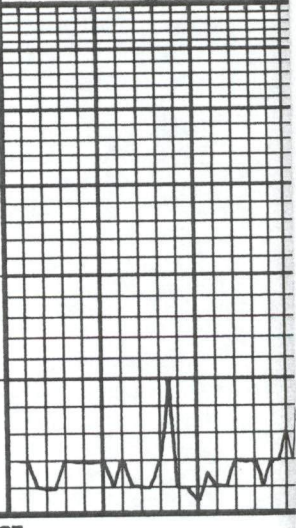

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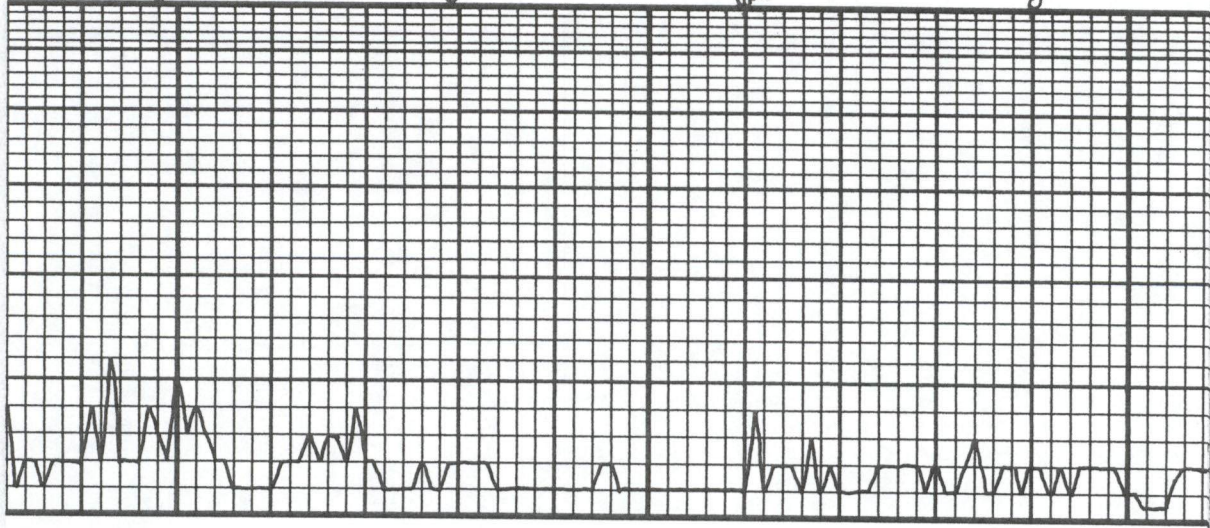


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LEGEND

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

DEPTH	LITHOLOGY	SAMPLE DESCRIPTIONS	REMARKS
<p>DRILLING TIME IN MINUTES PER FOOT</p> <p>Rate of Penetration Decreases</p> 		<p>LS, TAN, BRN, MXTLN, SOFT, MS</p>	<p>OIL SHOWS</p>



3500

STOTLER  
3560 - 725

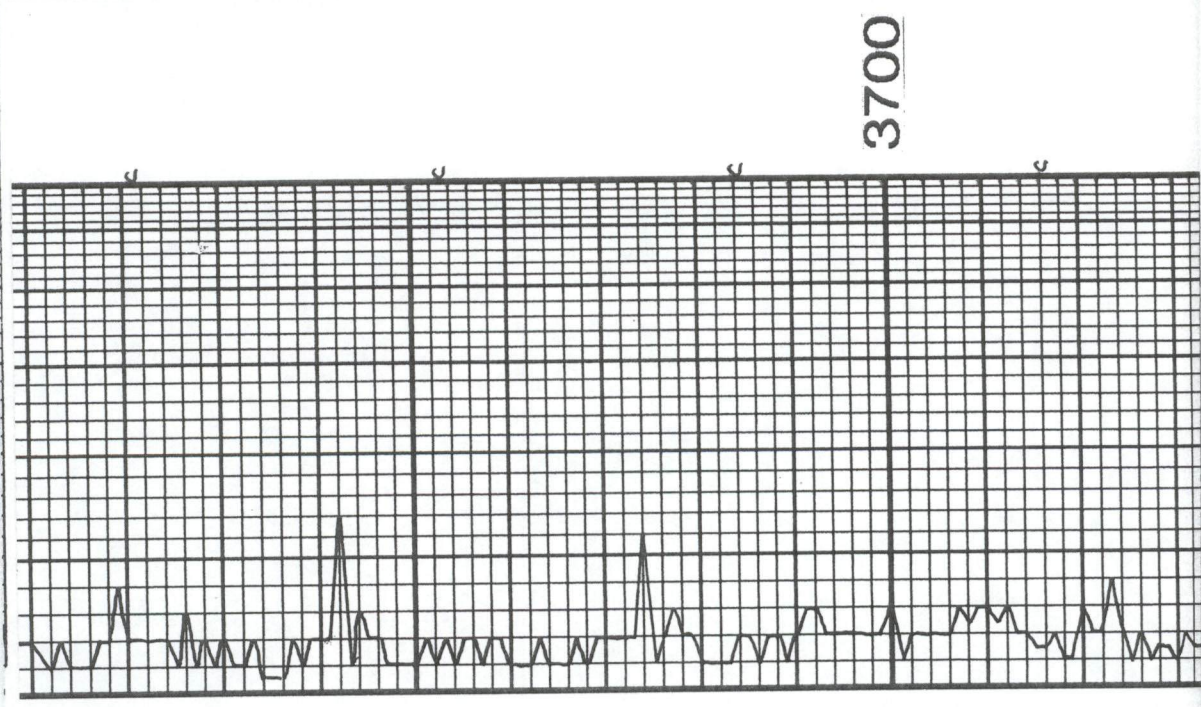
3600

LS, BUFF, F XTLN, HRD, ABUN FOSS, FEW OOL, W CMT'D OOLS, P, NS		LS, TAN, F XTLN, FEW Pcs M XTLN, FOSS, M HRD, NS		LS, LT GR, F XTLN, S → M HRD, NO APP, NS SH, GR		SH, GR		LS, TAN, F XTLN, HRD, ALGAL, NS		AA, INCR FOSS		LS, TAN, GR, VF XTLN, DNS, BRTL, NS
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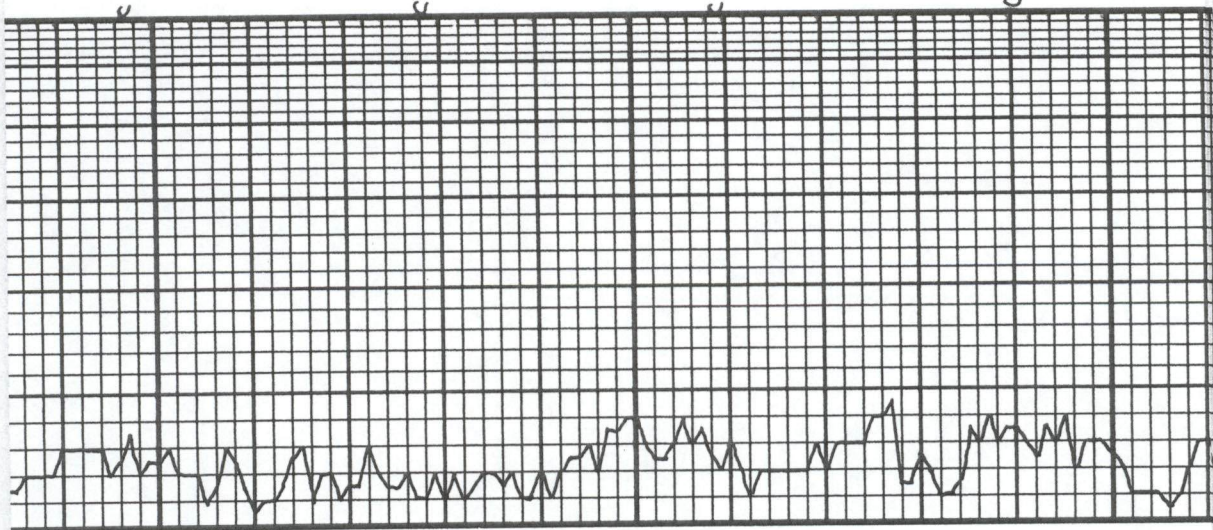




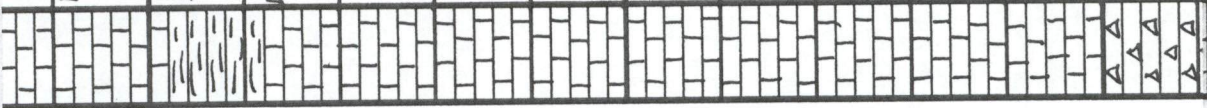
LS. CRM, RUFF, F X TLN, M HRD, BR TL, NS	SH, GRY	LS. TAN, M X TLN, BR TL, NO VIS #, NS		LS. LT GRY, CRM, VF X TLN, SOFT, NO VIS #, NS	LS. TAN, WHI, VF X TLN, CMT ID OOLS, * FOSS, TITE	SH, GRY	LS. CRM, F X TLN, M HRD, SML FOSS, VP FOSS #, NS	A.A.
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3700



3800

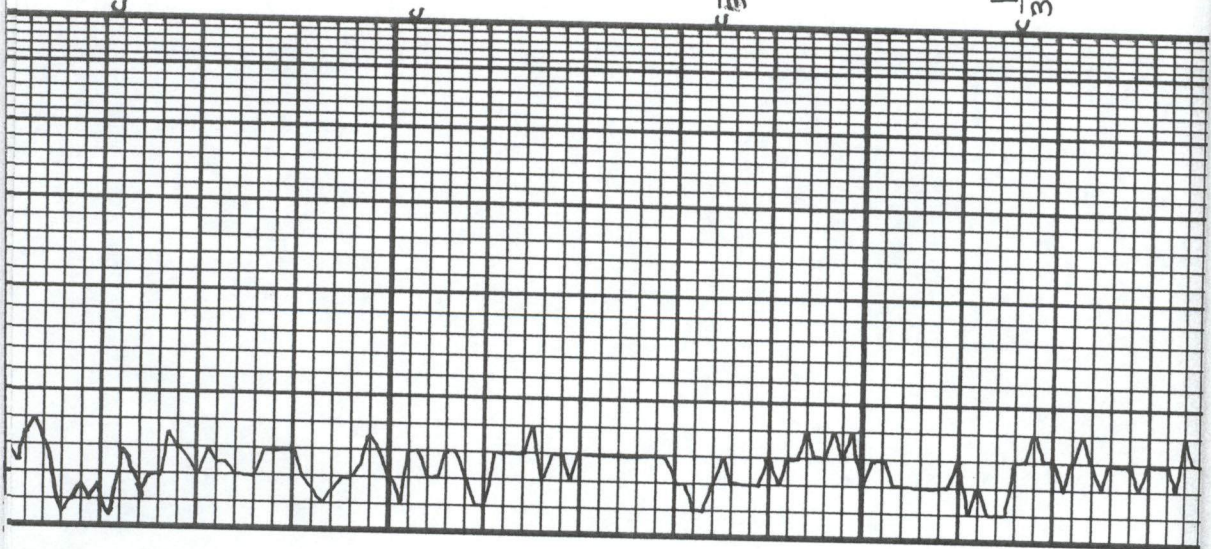


LS, CRM, F → M XTLN, HRD, A BOW FOSS → ALGAL, G FOSS φ INS
S <sup>H</sup> , GRV
LS, CRM / TAN, F → M XTLN, BRILL, S → M HRD, V FOSS, F FOSS φ, NS
LS, CRM, A.A.
LS, WHT, F XTLN, HRD, V SL DMS, FEW FOSS, NO VIS φ INS
LS, GRV, F → M XTLN, PEs DMS, HRD, TTE, NS
LS, A.A.
CHT, WHT, PEACH, FRESH

GEO ON LOC<sup>N</sup>  
CATCH UP DRILL TIME  
+ SAMPLES

GEO OFF LOC<sup>N</sup>

STAINLESS STEEL BEARING



LS. BUFF, R. XTLM, HRD, V FOS, SCT ODM, G ODM + FOSSILS	A A
H.A.	
DOLD, WHT-TAN, F XTLM, SL SUCR, G XTLM, INS	///
LS. TAN, GRAY, V F XTLM, DNS M HRD, NO VIS, INS	
LS. WHT, CRM, VF → F XTLM, HRD, DNS, NO VIS, INS	
SH, BLK, V FEW PCS	■
LS. WHT, F XTLM, HRD, DNS, MS	
H.A.	
LS. WHT, SOFT, F XTLM, CMT, V DOL-C, ODL, G, TARRY-RUBBL SHDS N, NSFO, NO ODOB	
LS. WHT, F XTLM, IS → M HRD, FAIR CH. ODM, E. ODM, M. ODM, S. ODM	

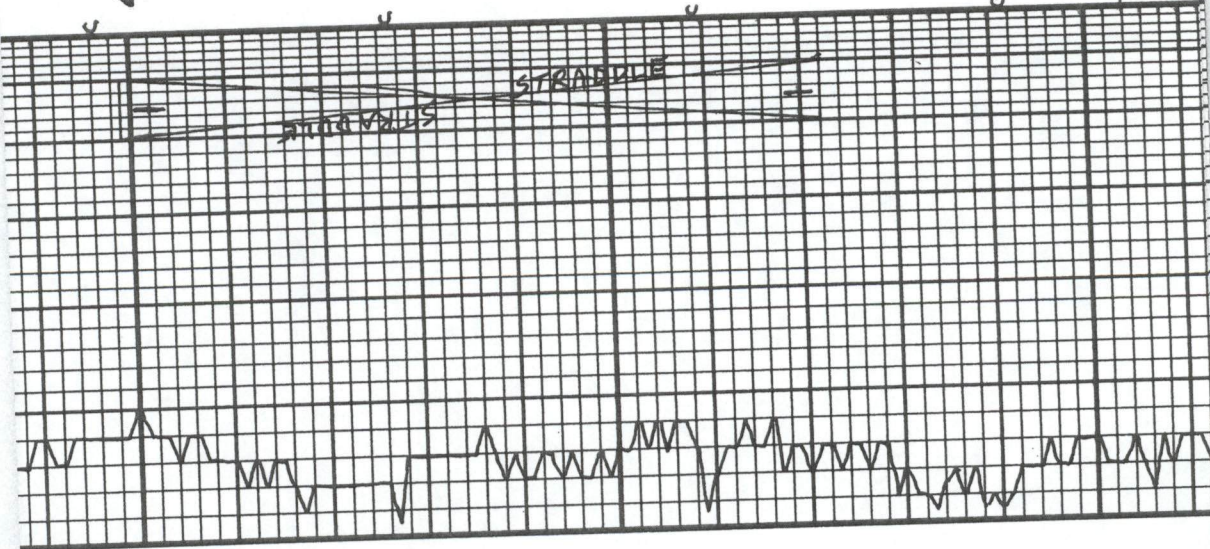
3900

HEEBNER  
3934 -1099

LANSING  
3966 -1131

BLK  
TARRY  
DD OIL

4010' SMPL

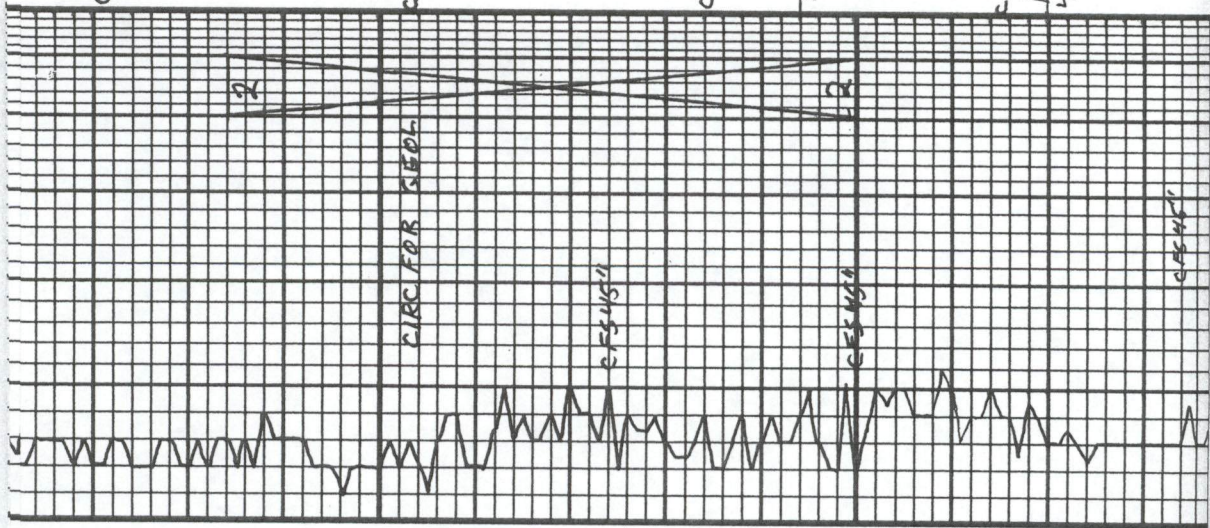


4000

4100

MUNCIE  
4104 - 1269

<p>STRADDLE DST #1 3999-4072 30.60.45.90 IF: 3/4" 151:NR FF: 2/4" FSI:NR REC: 64' M 126' WCM-45%W 34000 CHLOR TOOL: 8%W, 92%M FP: 9-52, 54-105 SIP: 1224-1208 HP: 1940-1930 BELOW STRADDLE: 1804</p>	<p>GODOR GSFO 4030 sample</p>	<p>LS, WHT, F → M XTLN, HRD, VG XTLN + 5 ML VUG Ø, VG Ø FILL OIL, BRN FLUOR OIL, GSFO N TRAY</p>	<p>LS, WHT, F, XTLN, DNS, P XTLN Ø NS</p>	<p>LS, WHT, F, XTLN, V, CHTY CHT-LT WHT OPAG, FRESH, NO SHO'S FO, SGT FLUOR STUO + SPY CHALK</p>	<p>SH, BLK LS, V LT GRY, VF XTLN, DNS, TITE, NS</p>	<p>LS, WHT, F, XTLN, HRD → SOFT, BRITL, G, OOL Ø, GSFO ON BRK HVY STNG</p>	<p>LS, WHT, F, XTLN, SL DNS, F → G BLK DD TARRY OIL FILL EDGE STNG</p>	<p>SH, BLK LS, WHT, BRN, FINE GRMLR TXT, F PP XTLN Ø, G STRKS Ø STNG</p>	<p>NO ODOR</p>	<p>GODOR</p>	<p>NO ODOR</p>	<p>NO ODOR</p>	<p>NO ODOR</p>	<p>NO ODOR</p>
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NSFO	LS, WHT, VF → FXTLN, MHRD, P → FXTLN Ø, 5 HR ROCKS - 8PKS	3 SHOWS UP HOLE NO ODOR
	LS, WHT, FXTLN, DNS, HRP, TITE NS	
	SH, GRN, GRY	
	SH, BLK, GRN, GRY	
	LS, WHT, VF XTLN, LG XTLN W/M, SOFT, MICRO BRN OIL SPTS ON BRK, 3 ODOR, GXTLN Ø, NO FLUOR	4PKS 2 ODOR
	LS, WHT, CRM/BRN, FXTLN, HRP VP SCT XTLN Ø, NS	
	LS, WHT, BRN, FXTLN, MHRD VBR TTL, SCT PULL FLUOR STAG	
	LS, AA, SL SHO OIL NCUP, G ODOR ON BRK, LT FLUOR FO ON BRK + STAG, G STAG, LT FO, P Ø SH, BLK	G ODOR
	LS, WHT, LT → MED GRY, FXTLN, HRP, DNS, NO VIS Ø, NS	
	SS, WHT GRNS, V FINE, FRIABLE, G SHO DD OIL SAT, VG Ø, V FEW FLUOR MICRO OIL SPTS, NO VIS FO, V WET	NO ODOR
	SH, GRN, GRY	
	SH, GRN, GRN, BURG	
	LS, GRN, BRN, TAN, V FXTLN, DNS, HRP, TITE, NS	

11-9: MUD CHECK  
 VIS: 46 WT: 9.3  
 CHLOR: 1,500 LCM: 1  
 FILT: 8.8

STRAP BOARD  
 4151.43  
 4153.04  
 SHORT 1.61

7:AM 11-10-14  
 COME OUT w/ DST #1

MUD CHECK  
 VIS: 60 WT: 9.2  
 CHLOR: 1,800 LCM: 1.5  
 FILT: 7.2

7:AM 11-11-14  
 DST #2 @ 4200  
 MUD CHECK

VIS: 55 WT: 9.3  
 CHLOR: 2,200 LCM: 1  
 FILT: 8.8

DST #2 4134-4200  
 80:60-45:90  
 IF: WK SUAF BLO  
 FF: NO BLO  
 REC: 5'M



TOOL: 1007.M  
 FP: 11-12, 12-13  
 SIP: 26-21  
 HP: 2014-1997

← COULD BE FRAC'D BY BIT

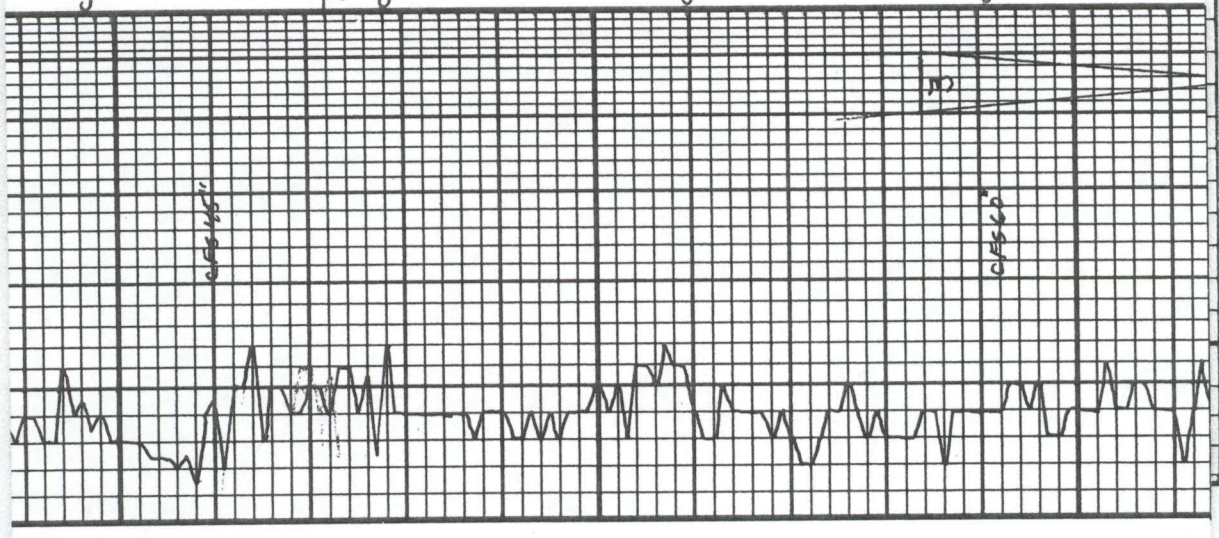
DST #3 4334-4403  
 30.60.45.90  
 IF: WSB, dead 20 min  
 FF: DEAD  
 REC: 15' OSM - 2% OIL  
 TOOL: 1% OIL, 99% MUD  
 FP: 10-15, 12-15  
 SIP: 69-44  
 HP: 2133-2120

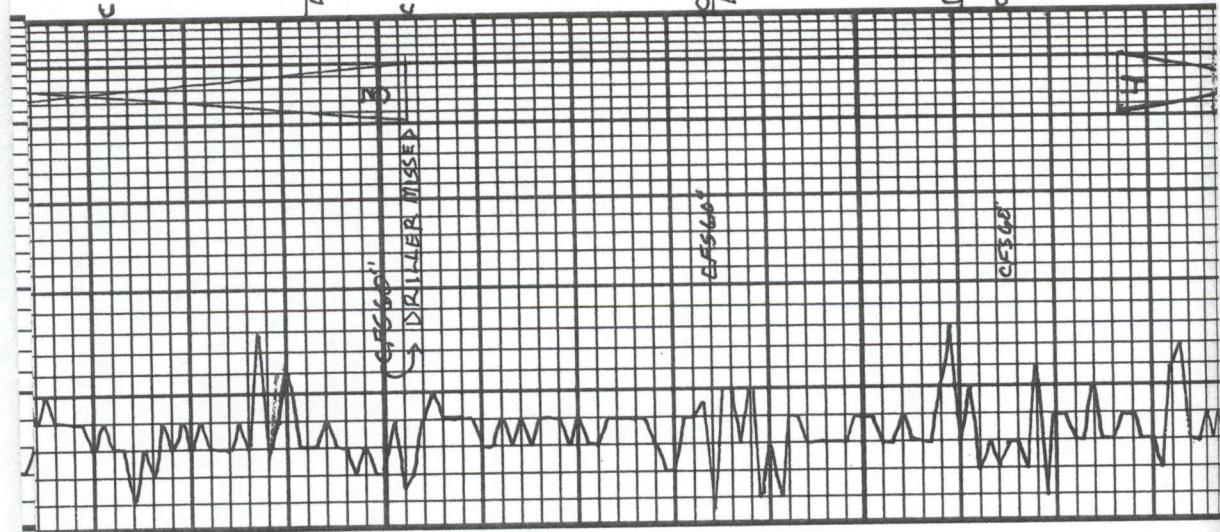
SH, GRN, GRN	SH, RED	LS, WHT W/ RED SH, F XTLN, S HLY, HRD, NS	LS, WHT + REDISH BRN M XTLN, HRD, SCT REXTLD FRACS, P FRAC <sup>NS</sup>	LS, WHT, F XTLN, HRD, V SL GRN R TXT, NO APP <sup>NS</sup>	LS, TAN, WHT, F XTLN, BRITL, Pcs HRD → M HRD, NO APP <sup>NS</sup>	CHT, PEACH, ORANGE, TAN, SHARP, FRESH	LS, CRM, F XTLN, DNS, HRD, SL FRAC'D, NO VIS XTLN <sup>NS</sup>	SH, GRN	SH, GRN, DK GRN	LS, GRN, TAN, VF XTLN, V HRD, DNS, FOSS, TITE, NS	LS, WHT, VF XTLN, HRD, V SL BRITL, TITE, NS	LS, TAN, VF XTLN, HRD, DNS, TITE, AK	LS, GRN, VF XTLN, HRD, DNS, CLEAN, TITE, NS	LS, LT GRN, WHT, DK GRN, F → M XTLN, HRD, P <sup>NS</sup>
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BKC  
 4247-1412

MARMATON  
 4272-1437

4300





LS, TAN, F → M XTLN, M HRD → HRD, FLUOR SAT STNG + FO N TRAY, TR GAS ON BRK, FO, LG, GNTY SHO RKS, C XTLN Ø	LS, CRM, F XTLN, HRD, NO APP Ø, Ø	SH, GRN	SH, BLK	LS, WHT, VF XTLN, V G VUGGY + FRAC Ø, G GASSING	LS, WHT, VF XTLN, V SL VUGGY Ø, FLUOR STN STRKS, FILM OIL ON BRK, NO VISEMERGY, LT ODOR	LS, CRM, VF XTLN, V DNS + V HRD, FOSS, V TITE, NS	LS, WHT, CRM, F XTLN, FEW SCT CHLK, HRD, V SL FOSS, NO APP Ø NS	SH, GRN, BRN	SH, BLK, GRN	LS, WHT, CRM, F XTLN, SCT LG XTLN W/N, HRD, VP XTLN Ø, NS	H.A.	SH, BRN, GRN, GRN	LS, WHT, CRM, F XTLN, HRD, SCT CHLKY Pcs, VP PP Ø, NS	CHY, OPAR, PEACH, FRESH
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G ODOR  
 FO-CUP  
 RAINBOW  
 HUY  
 ODOR  
 LTBRN  
 OIL  
 LTODOR

PAWNEE  
4393-1558

4400

C.F. SCOTT  
4435-1600

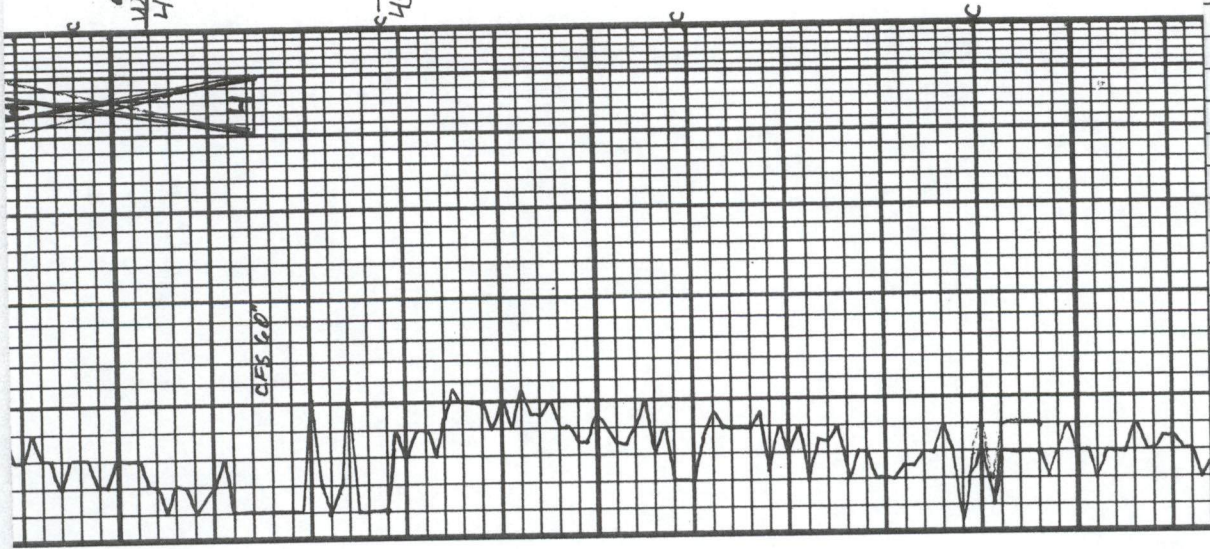
CHEROKEE  
4461-1626

7:AM 11-12-14  
DRLG @ 4384'

MVA C CHECK  
VIS: 55 WT: 9.3  
CHLOR: 2,500 LCM: 1  
FILT: 7.2

7:AM 11-13-14  
CFS @ 4434

AST #4 4400-4515  
30.60.45.90  
IF: 3/4"  
FF: dead  
REC: 5'M  
TOOL: 100% M w/ few oil spks  
FP: 10-13, 13-15  
SIP: 1032-990  
HP: 2181-2171



4500  
WTEA MISS  
4504-1669

MISS  
4528-1693

4600

CHY, WHT, AQUA, WHT, FRESH, SHARP, NS	SH, VARI COLOR	CHT, WHT, WEA, MOSTLY HRD, SET PCS CRUMBLY + SOFT, G SHO FLUOR EDGE STNG, PCS G SHO BRN FD + STNG	SH, VARI COLOR	LS, CRM, FXTLN, BRITL, FAIR	LS, WHT, FXTLN, HRD, NO VIS NS	LS, CRM, FXTLN, HRD, SET CHLK, V SHLY + CHTY	SH FLOOD - VARI COLOR	A.A.	LS, WHT, TAN, GRY, BLK, FXTLN, DUS, HRD - V HRD, TITE, NS	LS, CRM, FXTLN, SET MIXTLS w/M HRD, NO VIS NS	SS, CLR, ANG, P, SORT, S + M GRNS
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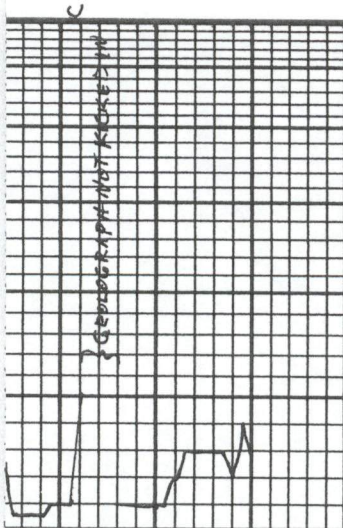
ODOR

MUD CHECK WT: 9.4  
VIS: 57  
CHLOR: 2.000  
FILT: 7.2

7:AM 11-14-14  
COND N HOLE AFTER DST

MUD CHECK WT: 9.5  
VIS: 50  
CHLOR: 2.400  
FILT: 8.0

SH FLOOD



LITHOLOGY



DEPTH

DRILLING TIME Minutes/Foot

Rate of Penetration Decreases

OIL SHOWS

SAMPLE DESCRIPTIONS

REMARKS

SOFT, G.P., NS

LS, CR, M, TAN, F, XLN, SCT WHF  
OPRQCHT, NS

← POOR SAMPLES

CONTRACTOR \_\_\_\_\_ LOCATION \_\_\_\_\_

LEASE \_\_\_\_\_ SEC \_\_\_\_\_ TWP \_\_\_\_\_ RNG \_\_\_\_\_

ELEVATION \_\_\_\_\_ COUNTY \_\_\_\_\_ STATE \_\_\_\_\_

IP \_\_\_\_\_ RTD \_\_\_\_\_