

Max R. Lovely

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY	Raymond Oil Co.	ELEVATIONS	
LEASE	Keeton Holstein #1	KB	3171
FIELD	Wildcat	DF	
LOCATION	NW NW NE NW	GL	3160
SEC	13	Measurements Are All From	KB
TWSP	20		
RGE	36W		
COUNTY	Wichita	STATE	KS
CONTRACTOR	H2 #4	CASING	
SPUD	10-10-2013	SURFACE	8 5/8" @ 270'
COMP	1-19-2013	PRODUCTION	—
RTD	5070	ELECTRICAL SURVEYS	
LTD	5073	DUAL IND	
MUD UP	3450	COMP N/D, MICRO	
TYPE MUD	Chem		

FORMATION TOPS AND STRUCTURAL POSITION

FORMATION	SAMPLE TOP	ELECTRIC LOG TOP	SUB-SURFACE	STRUCTURAL POSITION		
				A	B	C
Base Anhydrite	2283	2281	890	884		
Stotler	3501	3501	-330	-341		
Heebner	3916	3917	-748	-756		
Lansing	3976	3986	-799	-812		
Stark	4286	4280	-1109	-1127		
Marmaton	4458	4460	-1289	-1294		
Pawnee	4544	4548	-1377	-1384		
Myric	4577	4570	-1399	-1416		
Cherokee	4627	4624	-1453	-1466		
Johnson	4672	4669	-1498	-1510		
Morrow Sh	4800	4799	-1628	-1638		
Mississippi	4918	4920	-1749	-1756		

REFERENCE WELLS FOR STRUCTURE

A Raymond Alfred Holstein #1 SE SW NE SE 12-20-36W

B

C

DRLG @ 5020

A A

REMARKS

REMARKS

LEGEND



Artifacts Sandstone Shells Carb sh Limestone Dolomite Chert Deformite

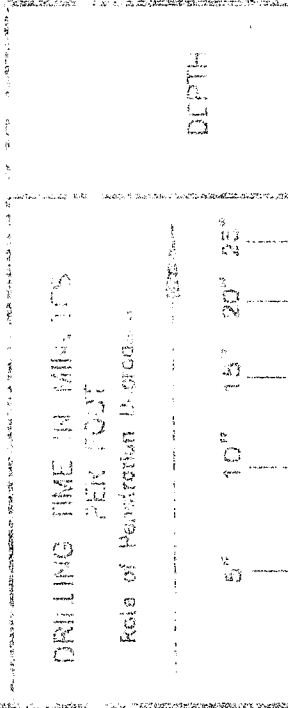


Table with columns: GEOLOGY, SAMPLE DESCRIPTIONS, REMARKS

BASE

105 7710

2283 + 888

2300

3450
DEV 1/4

STOTLER

3500

3501 - 329

BIT TRIP

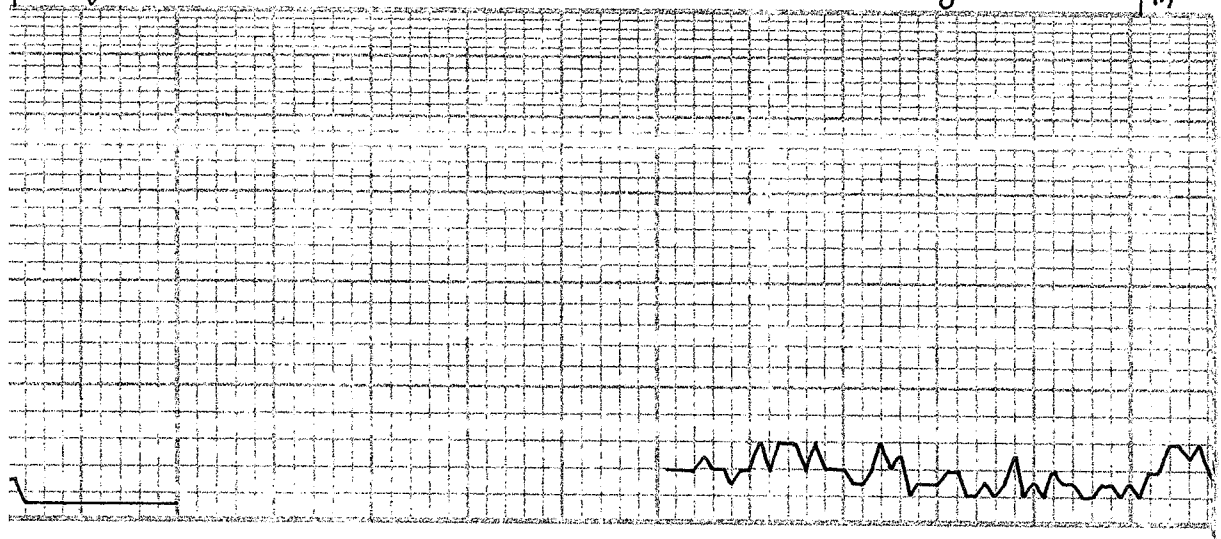
SH, GRY, RED

AA, SL LMY, DK GRY, FXTLN,
HRD, NO VIS

LS, WHT, LT GRY, V DK FOSS, W/M,
SOFT, FXTLN, BRILL, NS

SH, DK GRY

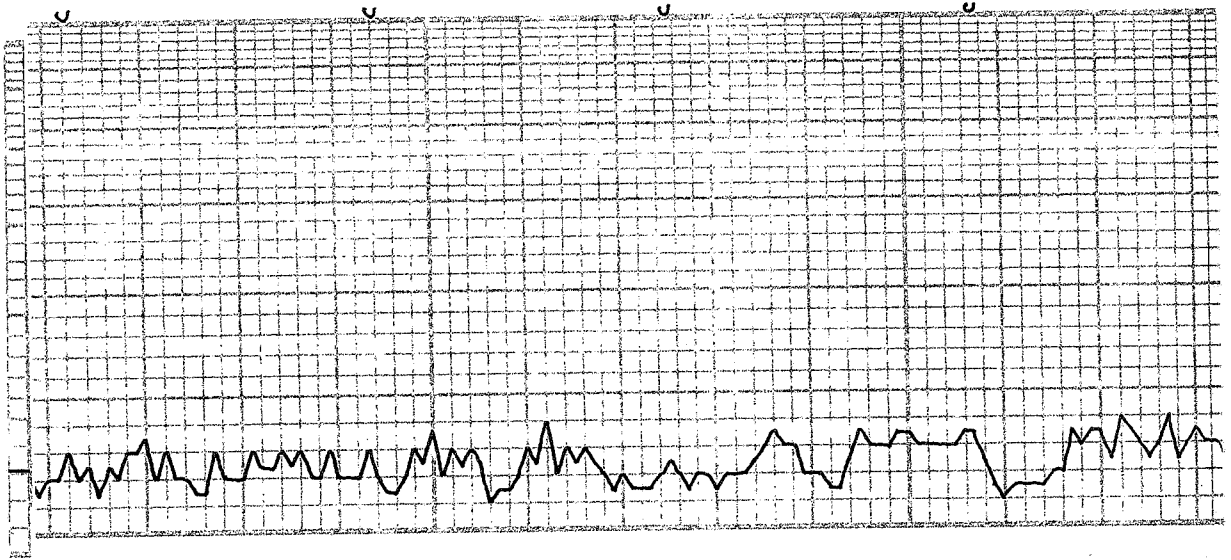
LS, BRN, MXTLN, LT MATRIK,
SL GRNY TXT, HARD, NO VIS, NS

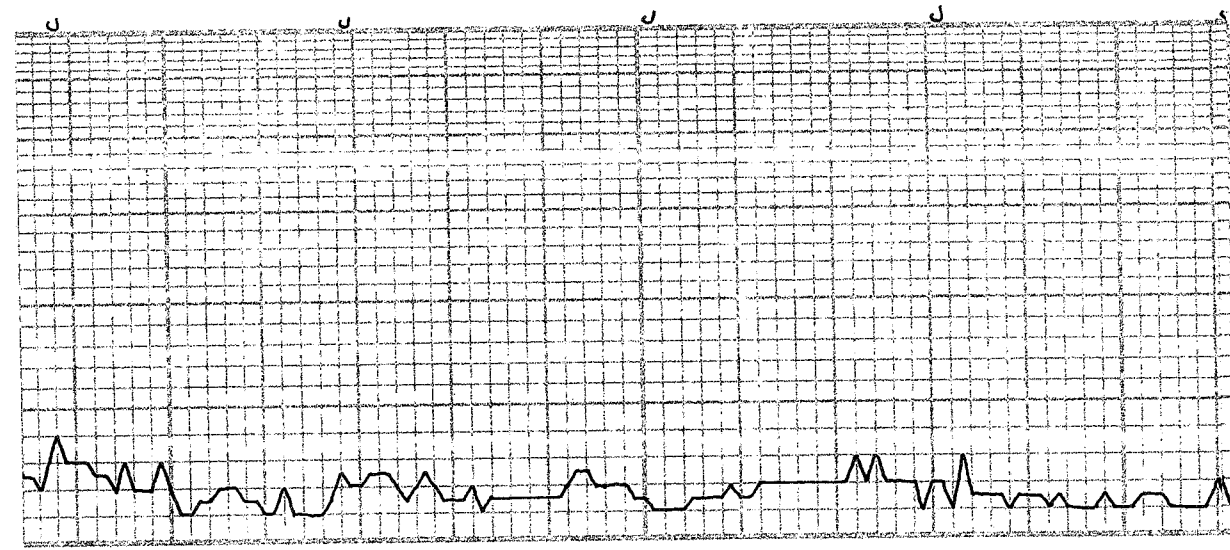


DKLG @ 5020

A	SH, GRY	LS, TAU, F XTLN, M HRD, FOSS, NS
A	SH, GRY	LS, TAU, F XTLN, M HRD, FOSS, NS
A	SH, GRY	LS, BUEE, WHI, F, XTLN, M HRD, FOSS, NS
A	SH, GRY	
A	SH, GRY	LS, WHY, VF XTLN, DNS, HRD, TITE NS
A	SH, GRY	
A	SH, GRY	LS, BUFF, F XTLN, V HRD, ABUN FOSS, SCT REXTLID FRACS, TITE NS
A	SH, GRY	LS, DK GRY, F XTLN, DNS, HRD, V FEW FOSS, NS
A	SH, GRY, SLTY	
A	SH, GRY	LS, GRY, V XTLN, F M HRD, PLS V HRD, FEW FOSS, TITE NS

3600





3700

SLT STN. GRN, GRY	MS. TAN, BRN/GRY, VF XTLN, HRD, TITE MS	LS. CRM, F XTLN, HRD, SCT FOSS CASTS, NO VIS. MS	CHT, WHT/OPAQ, WEA, MS	SH, GRY, ULMY	LS. CRM, BUFF, F XTLN, HRD, FOSS, MS	LS. GRY, TAN, A.A.
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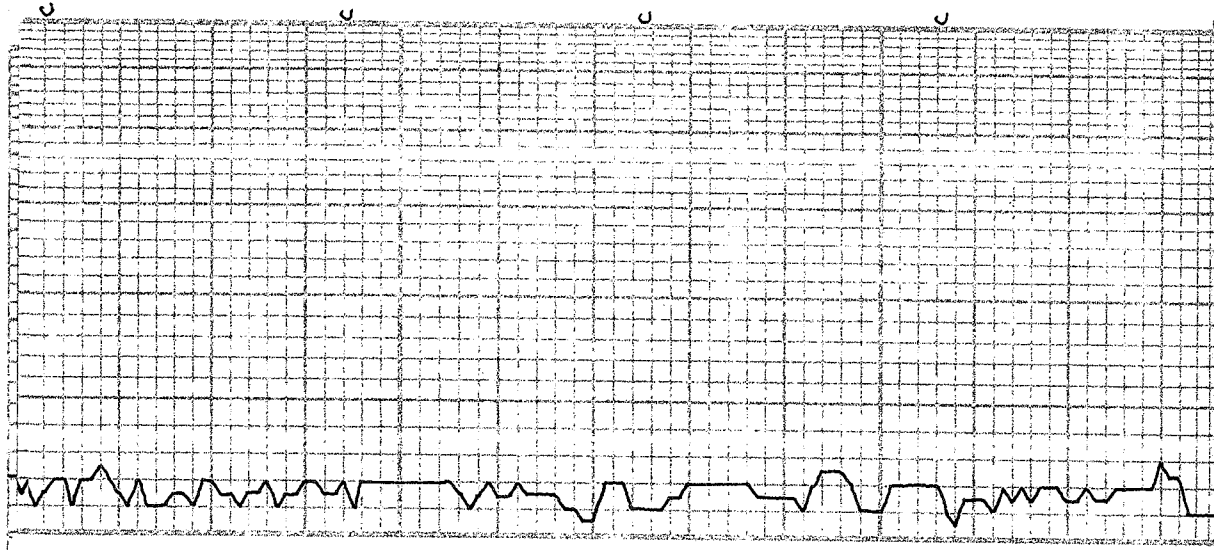
7:AM 10-13-13
DRLG@3699

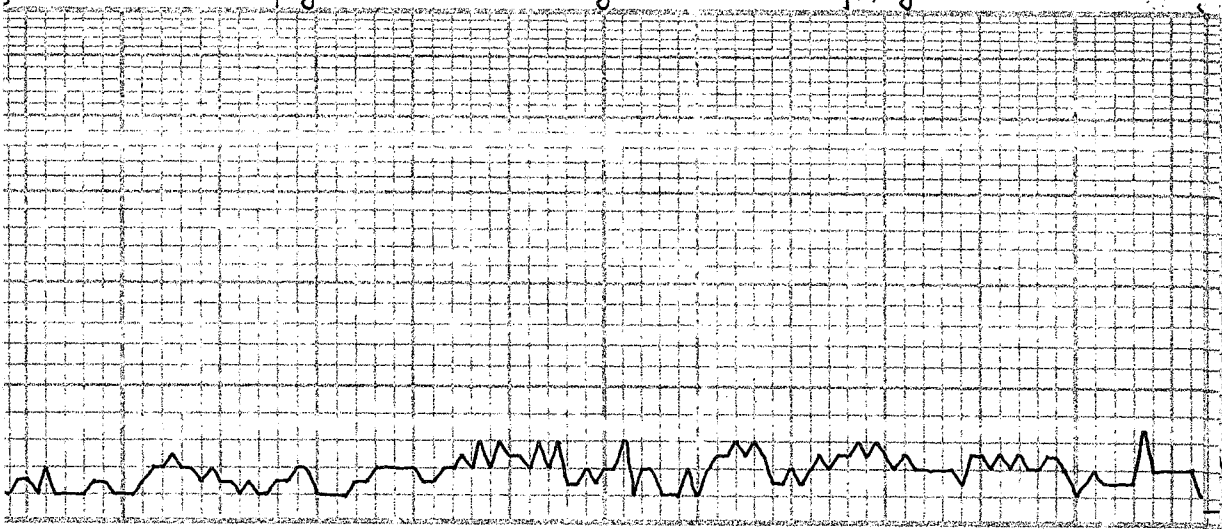
DRIC 100000

MUD CHECK
 VIS 49 WT 8.7
 CHLDR 6,000 LCM2
 FILT 8,000

SM. GRV	
	LS. AA, CHLKY
	LS, WHT, CRM, V F XTLN, V CLEAN, FEW FOSS, NS
	LS. AA, INCR CHT
	SH, GRV
	CHT, WHT, FOSS, NS, FRESH, SHART
	SH. BLK, CARB
	LS. TAN/WHT, F XTLN, SCT CHLK, NS
	A.A. INCR CHLK
	CHT, WHT, FOSS, FRESH, FEW SCT PLS WEA
	LS. BUFF, F XTLN, RPT.

3800





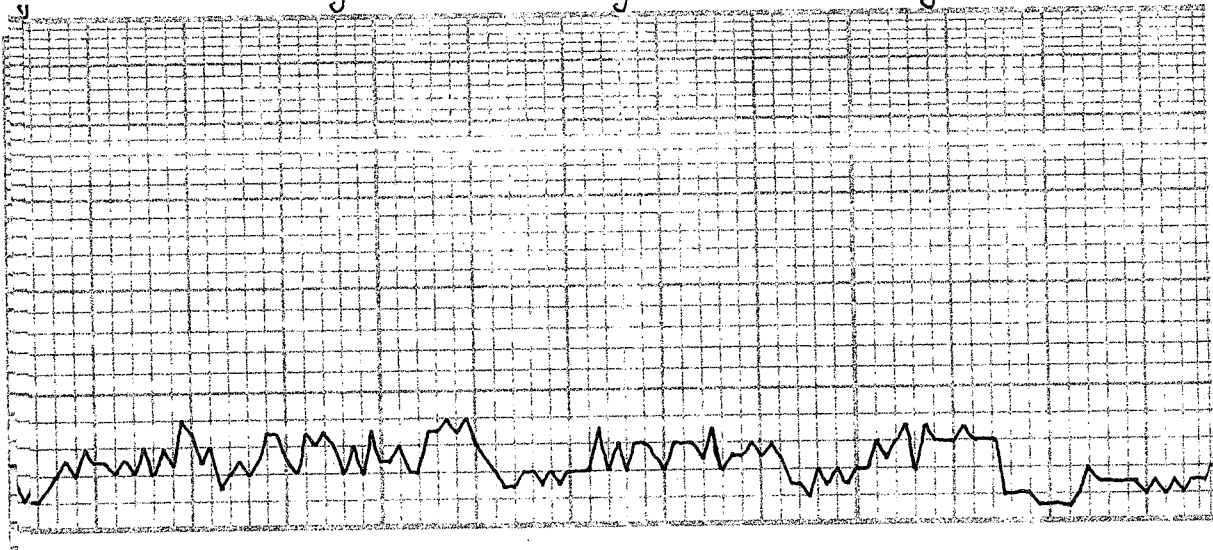
FOSS + FRAGS, P. XTEN, MS	
hs. AA.	
SH, BLK, HRD	
LS, WHT, FXTLN, DNS, HRD, TITE MS	
SH, SLTY, GRY, SCT CLK	
CHT, CHINA WHT, FRESH	
SLTSTN, GRY	
LS, CRM, V FXTLN CMT'D, HRD, ABUN DOL + FOSS, W CMT'D, M HRD, NO APP'S	
LS, WHT, CRM, FXTLN, HRD, ABUN FOSS + FRAGS, VSL INT FOSS MS	
SH, BLK	
LS, WHT, FXTLN, M HRD, ALGAL F FOSS FRAGS, PCMT'D, NS L2, DUFF, XTEN, V DDM, V G BDM	

3900

HEEBNER
c 3916 - 745

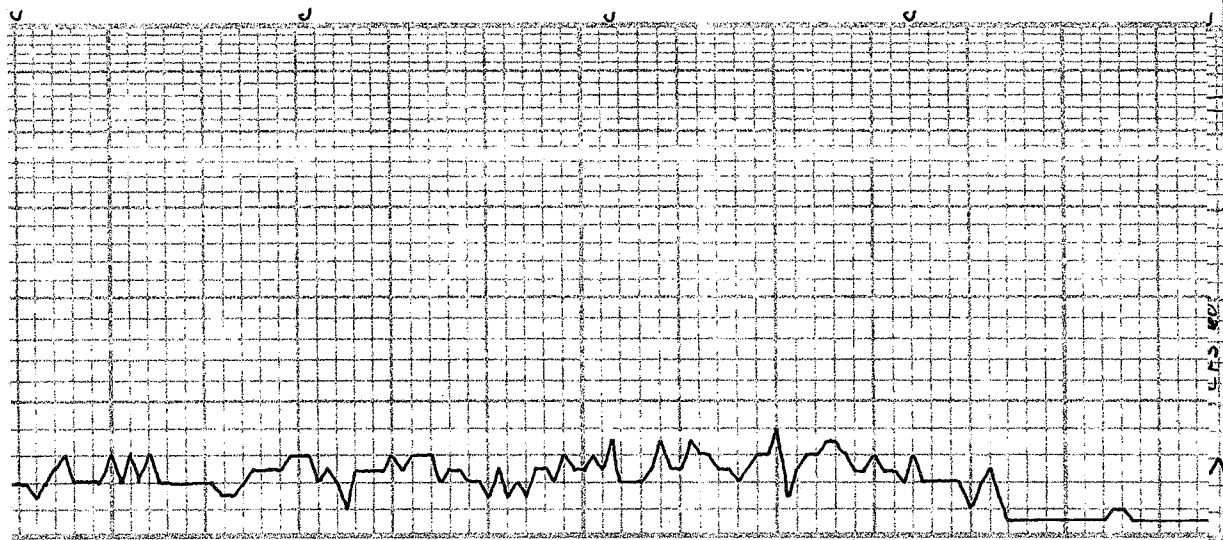
LANSING
3976 - 805

4000



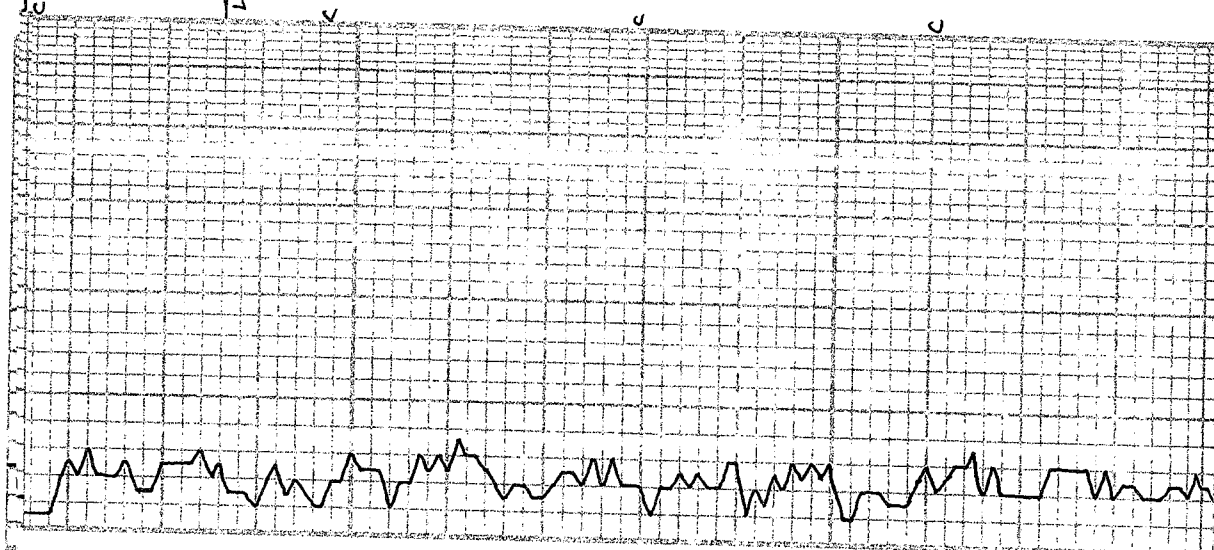
4100

LS, WHI, EXTW, SOFT, CHLKY NS	LS, WHI, VFXTW, DMS, HRD, FEW SCT VUG Ø, MOSTLY TITE, NS	LS, TAN, VE, XTW, DMS, HRD, TITE, NS	SH, BLK, DK GRY	LS, WHI, FXTW, SL WEA TXT, HRD, G Ø, NS	LS, WHI, CRM, VFXTW, DMS, M HRD NO VIS Ø, NS	LS, BU, FE, VE, XTW, HRD, ABUN, DOMP, NS	C. HALK
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4200

LS, BUFF, VF XTLN, CMTID, BOOLS, HRD, DNS, TITE, VW, CMTID, DOLS, NS	LS, LT GRY, VF XTLN, DNS, HRD, SCT LG XTL CLUSTERS, VN, NS	SH, GRY LS, WHT, VF XTLN, ABUN FOSS, VW, CMTID, FOSS, TITE, NS	LS, WHT, LT GRY, VF XTLN, U DNS, V HRD, CLEAN LS, TITE, NS	SH, GRY, GRN LS, LT + DK BRN, EXTLN, HRD, V FEW FOSS, NO APP, NS	LS, DIRTY WHT, EXTLN, BRILL, SL FOSSLED, ? Q, NS	CHALK	LS, TAN/CRM, F XTLN, EARTH, S, HRD, SL CHALK, P, XTLN	LS, BUFF, F XTLN, V ODM, NG, ODM
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STARK
4286-1115

4300

NS	SH, GRAY	LS, WHT, FXTLN, HRD, ABUN SML FOSS, DNS, TITE, NS	LS, A.A.	LS, WHT, FXTLN, SCT OOMP, HRD, NO VIS PERM, NS	SH, VARI COLOR	LS, TAN, VFXTLN, DNS, HRD, FEW FOSS, TITE, NS	LS, WHT, FXTLN, DNS, HRD, SCT LG FOSS CASTS, SL REXTLD P, TITE NS	SH, VARI COLOR	LS, BRN, VFXTLN, V DNS, V HRD, V CLEAN LS, TITE, NS
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7:AM 10-14-13
DRLG @ 4354'

MUD GREEN

▲ ▲
▲ ▲
▲ ▲
▲ ▲

CHT, TAN, WHT-YOOL, FRESH, NS

LS, CRM, LGRY, VEXTLN, DMS, HRD, TITE, NS

A.A.

SAMPLES TRASHY

LS, WHT, BUFF, FXTLN, SCT FOSS, BRITL, HRD, F-G "FRAC" NS, SPTY BRN STNG, NO ODOR

LS, BUFF, BRN, VFXTLN, DMS, HRD, TITE, NS

LS, BUFF, CRM, VFXTLN, CMT'D ODS, FFOSS, TITE, NS

LS, TAN, CRM, F → MXTLN, S → M HRD, POS GRMY W/LT BRN STNG, VG XTLN Ø, NO ODOR, NS

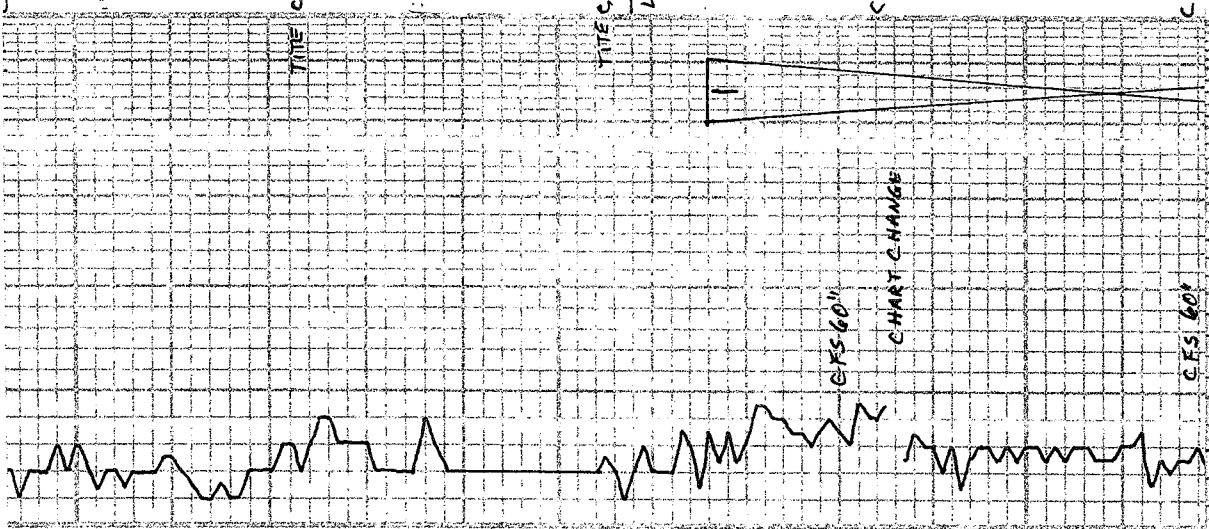
4400

TITE C

TITE C
MARRINATION
4458-1287

4500

C



VIS 56 WT 9.5
CHLOR 6,400 LCM 1.5
FILT 76

VIS 53
WT 9.4
LCM 1

4463' - SHORT TRIP
TRIPPED OUT - PLUGGED BIT

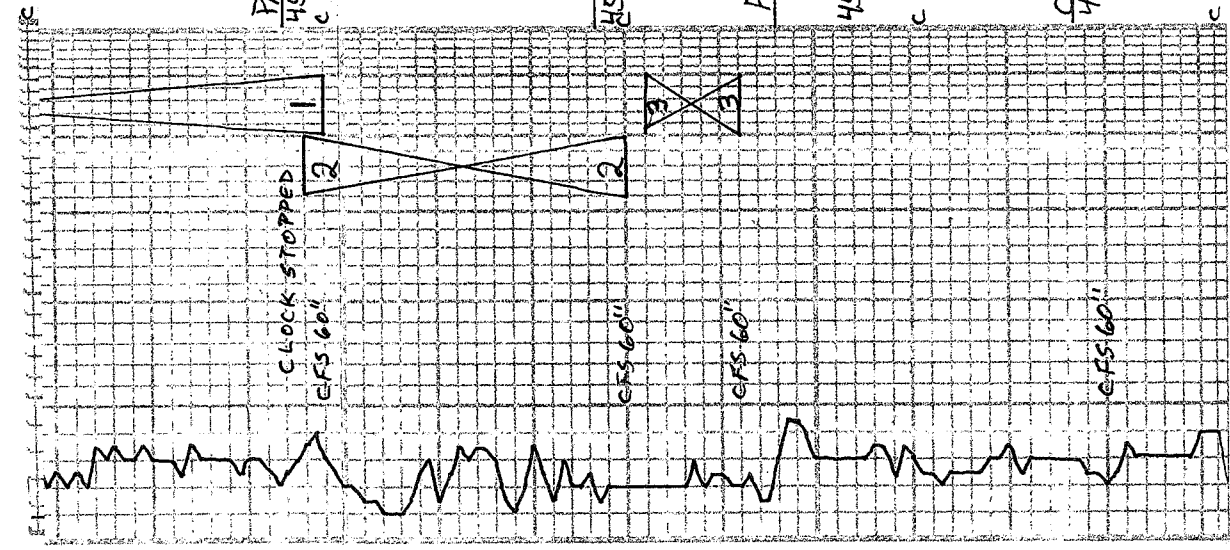
DST #1 4466-4548
30.60.45.90

IF: 7" ISI: NR
FF: 7" FSI: NR

REC: 310' MCW: 60XW
Ø SPKS IN TOOL

CHLOR 23,000
FP: 25-123, 124-168

SIP: 1131-1068
HP: 2202-2168



PAWNEE
4544 - 1373
DEV 3/4"

MYRIC
4577 - 1406

Ft Scott
4600
4596 - 1425

CHEROKEE
4627 - 1456

LS, BUFF, F XTLN, C MTP, DOLS + FOSS, PCS ALGAL, M HRD, G FOSS + ALGAL P, FLUOR, MD ODOR, NSTO	NS
LS, GRAY, BRN, F, M XTLN, V HRD TITE, NS	
LS, DK GRAY, VF XTLN, DMS, HRD, TITE, NS	
SH, BLK, GRV	
SH, GRV	
LS, BRN, WHT, TAN, VF XTLN, HRD, DMS TITE, NS	
LS, WHT, F XTLN, C MTP, DOLS + FRAGS, FEW BRN, FLOOR, FOAM TRAY, F + G, O + G, FILL FOSS, LT TOMED GASSY, G O + G ON BRK	F + G ODOR GASSY
LS, CRM, VF XTLN, HRD, F, C MTP DOLS, SCT OIL FILL OOLS, TRGAS	F + G ODOR
LS, BUFF, VF XTLN, M HRD, DMS, SCT BRN, PPD SHFD STNG, MD FO ON BRK, LT FLUOR STNG	LT ODOR
SH, BLK	
LS, BRN, VF XTLN, DMS, HRD, TITE, NS	
LS, TAN, VF XTLN, M HRD, ABOW OOLS, FOSS, FRAGS, BRECCIA, TITE NS	
SH, BLK	
LS, GRV, BRN, F, XTLN, DMS, HRD TITE, NS	

STRAP BOARD 4550.62
4548.71
100g 1.91'

7:AM 10-15-13
DST #1 @ 4548'

MUD CHECK
VIS 65 WT 9.1
CHLOR 5.50 LCM 2
FILT 6.0

7:AM 10-16-13
DST #2 @ 4580'

MUD CHECK
VIS 55 WT 9.2
CHLOR 6.50 LCM 2
FILT 8.0

DST #2 4546 - 4580
30.60.45.90
IF: BOB 18 MIN 151:NR
FF: BOB 25 MIN

7:AM 10-17-13
DRLG @ 4638'



LS, CRM, F XTLN, HRD, DMS, FOSS, TITE, NS	LS, DK BRN, F XTLN, HRD, DMS, FOSS, TITE, NS	SH, GRY	LS, DK BRN, V F XTLN, CHTY, CLEANLS DMS, V HRD, IRE XTLN, FRACS NS	LS, DK BRN, TAN, CRM, F XTLN, V HRD, DMS, N Pcs, Pcs V FOSS, NO APP Q, NS	CHT, TAN, BRN, OPAQ, FRESH	LS, BAN, AA.	SH, BLK, GRY, LG SMD GRNS WYN	LS, BRN, V F XTLN, DMS, HRD, TITE, NS	LS, CRM, TAN, BRN, F XTLN, HRD, FEW FOSS, SL BR TL, N Pcs, NS	A.A.	SS, V, N CONSOL, QTZ, CLR, CRM, TAN, M LG GRNS, NO SHO, NO KICKS	SH, BLK SH, GRY	LS, WHT, F XTLN, SOFT, SL CHLKY, NO DOR, ABRN BLK V BRN OSTNG, M HRD, NO FO
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BIT PLUGGING

JOHNSON
4672 - 1501

4700

ATOKA
4716 - 1545

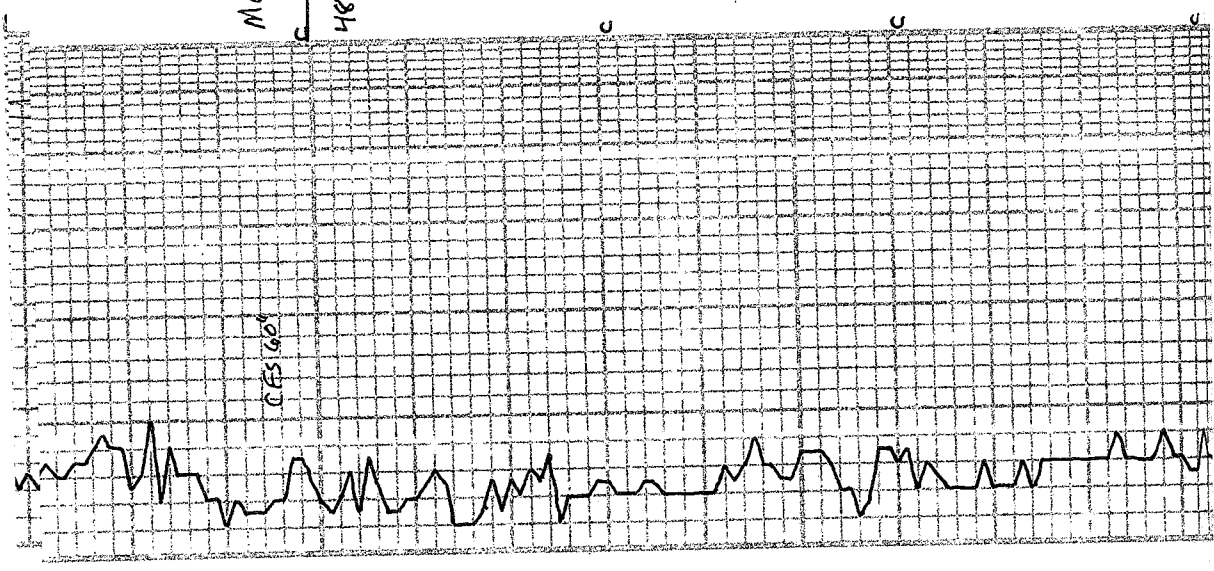
DST #3 4582.4592
30.30.30.30
IF: SURF blo. died 15 min
FF: dead, flush, dead
FP: 18-20, 21-20
SIP: 23-23
HP: 2314-2231

MUD CHECK
VIS 55 WT 9.2
CHDR 10,000 LCMZ
FILT 11.2

BIT PLUGGING
ALL DAY.

LS, BRN, VF XTLN, DNS, HRD, TITE, NS	DEMB STNG, NSFO, FIBROUS DPDHL	NO ODOR
LS, CRW, XTLN, SOFT, CHLKY, SCT BRNDP OIL STNG, FIBROUS, NO KICK		
SS, CLR GRNS, SUB ANG → SUB RAND, FAIR SORT, VG Ø, BLK DD OIL FILL Ø, NO ODOR NO KICK		
SH, BLK, CARB, SL SANDY		
SH, GRN		
SS, CLR GRNS, LT GRN CMT, SUB RAND, SUB ANG, F SORT, PCMT, D, VG Ø, NS		
SH, GRN, GRY, BLK		
SS, WHY, PALE GRN CMT, CLR GRNS, SUB ANG → ANG, F SORT, VG Ø, NS		
SS, GRY CMT, CLR GRNS, V SHLY, V SOFT, NS		
SH, GRY, Pcs SLTY		
SH, GRY, SLTY		
SH, GRY, SLTY		

MORROW SH
 4800
 4800-1629



4900

MISS
H918-1747

CFS 600

5000

ST. LOUIS
5006-1835

CFS 600

SS, WHT + GRN CMT'S, F → SLIMED GRNS, W SORT, S → HARD, AND, VC. Ø, NS	LS CRM, BUFF, F X TLN, HRD, SL DMS, NO APP Ø	LS, WHT, CRM, GRNLR, SOFT, PINT GRNLR Ø, NS SL DOLD	AA	LS, GRY, APRICOT, DMS, HRD, TITE, APRICOT - REW F → G Ø, NS	LS, DK, GRY, BAN, UFX TLN, DMS, HRD, TITE, NS	LS, WHT, CRSGRNS, P → F SORT, SL HRD, G Ø, NS SUBGRNS	CNT, PEACH, WHT, TAN, FRESH, DMS	CNT, GRY, WHT	CHT, A-A
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TRASHY SAMPLES ← SSS + SH FLOOD

7 AM 10-19-13

DRLG @ 5020

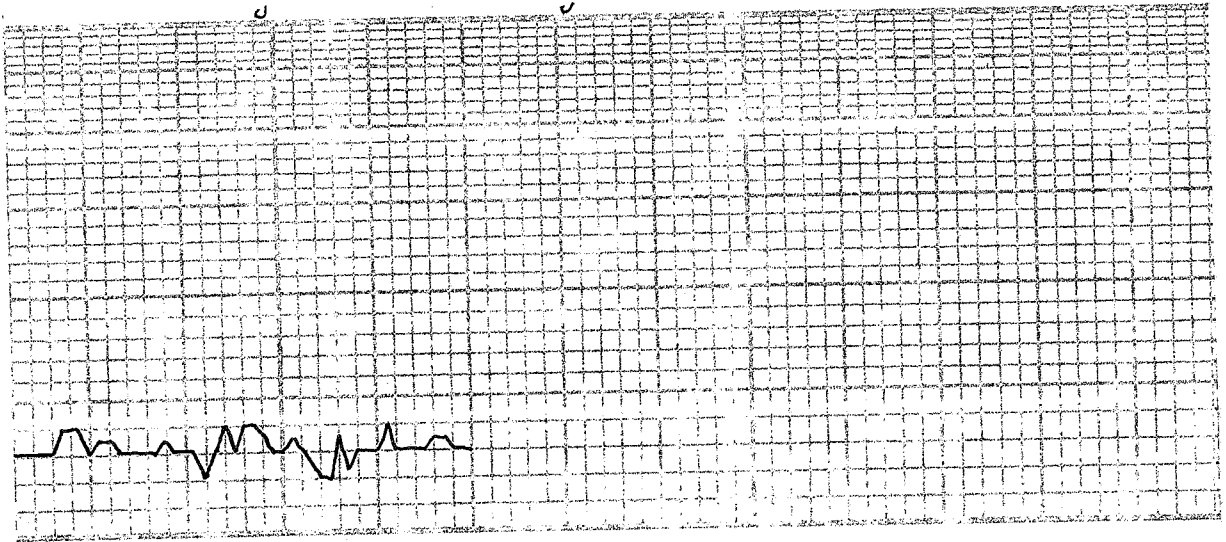
TD 5070'
SHORT TRIP TO 4550'
MUD CHECK
VIS 58 WT 9.4
CHLOR 12,000 LCMZ
F.LT 8.8

1/2 JETS PLUGGED

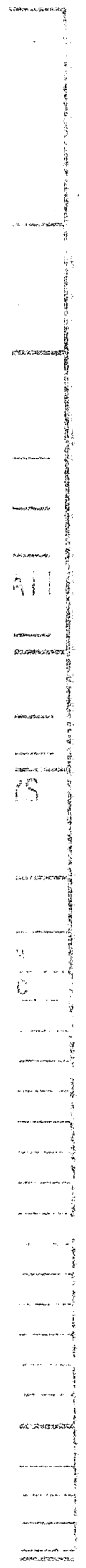
SAMPLES TRASHY

CHT. AA

Δ Δ
Δ Δ
Δ Δ
Δ Δ



<p>DRILLING TIME Minutes/Foot</p> <p>Ratio of Penetration Decreases</p>	<p>DEPTH</p>	<p>LITHOLOGY</p>	<p>SAMPLE DESCRIPTIONS</p>	<p>OIL SHOWS</p>	<p>REMARKS</p>
<p>CONTRACTOR</p> <p>LEASE</p> <p>ELEVATION</p>	<p>CONTRACTOR</p> <p>LEASE</p> <p>ELEVATION</p>	<p>LOCATION</p> <p>SEC. _____ TWP _____ RNC _____</p> <p>COUNTY _____ STATE _____</p>			



1