

# RICHARD S. (Steve) DAVIS JR.

## Petroleum Geologist

212 N. Market

Wichita, Kansas 67202

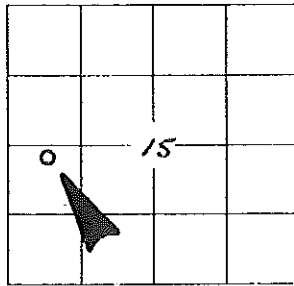
Phone (316) 267-9115

### GEOLOGIST'S REPORT

#### DRILLING TIME AND SAMPLE LOG

COMPANY <u>SHAKESPEARE OIL COMPANY, INC.</u> LEASE <u>OTTLEY #2-15</u> FIELD <u>UNNAMED</u> LOCATION <u>2590' ESL &amp; 980' FWL</u> SEC <u>15</u> TWSP <u>14S</u> RGE <u>32W</u> COUNTY <u>LOGAN</u> STATE <u>KANSAS</u>	ELEVATIONS KB <u>2747</u> DF _____ GL <u>2738</u> Measurements Are All From <u>KB 2747</u>
CONTRACTOR <u>HD DRILLING, LLC #2</u> SPUD <u>6-10-2009</u> COMP <u>6-22-2009</u> RTD <u>4480</u> LTD <u>4476</u> MUD UP <u>3469</u> TYPE MUD <u>CHEMICAL</u>	CASING SURFACE <u>8 5/8" @ 228'</u> PRODUCTION <u>5 1/2" @ 4470'</u> ELECTRICAL SURVEYS WEATHERFORD: FULL SUITE
SAMPLES SAVED FROM <u>3500</u> TO <u>RTD</u> DRILLING TIME KEPT FROM <u>3500</u> TO <u>RTD</u> SAMPLES EXAMINED FROM <u>3500</u> TO <u>RTD</u> GEOLOGICAL SUPERVISION FROM <u>3600</u> TO <u>RTD</u> GEOLOGIST ON WELL <u>STEVE DAVIS</u>	

FORMATION TOPS	LOG	SAMPLES
BLANHYDRITE	2218 - 4529	2220
HEGBNER	3699 - 952	3704
LANSING	3736 - 989	3739
MINCIE CREEK	3898 - 1151	3903
STARK	3994 - 1247	3998
BKC	4088 - 1341	4092
PAWNEE	4199 - 1452	4202
CHEROKEE SH	4280 - 1533	4284
JOHNSON ZONE	4322 - 1575	4326
MISSISSIPPI	4381 - 1634	4386



API# 15-109-20838

BIT RECORD				HOURS	
NO	SIZE	MAKE	TYPE	DEPTH OUT	FEET
1	12 1/4	Reed	RR	228	228
2	7 7/8	JZ	RX 20	4480	4252
					121 3/4


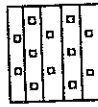


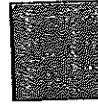

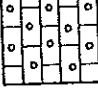


  

DAILY PENETRATION		DEPTH
DATE		
6-10-2009	Sand	228
6-11		1600
6-12		

BIT RECORD						
NO	SIZE	MAKE	TYPE	DEPTH OUT	FEET	HOURS
1	12 1/4	Reed	RR	228	228	2
2	7 7/8	JZ	QX 20	4480	4252	121 3/4

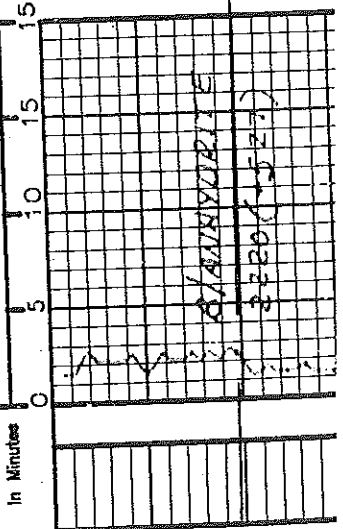
DAILY PENETRATION	
DATE	DEPTH
6-10-2009	SAND
6-11	228
6-12	1600
6-13	2722
6-14	3334
6-15	3771
6-16	3838
6-17	3942
6-18	4028
6-19	4160
6-20	4280
6-21	4344
6-22	4440 - 4480

LEGEND

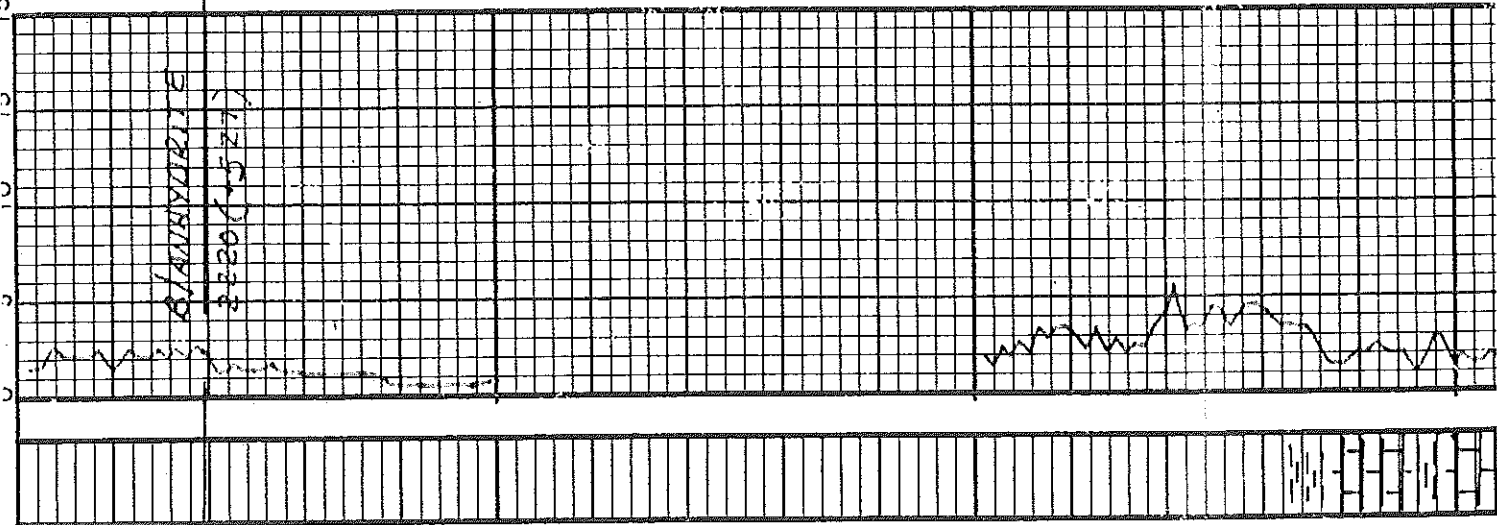
	Anhydrite		Salt		Sandstone		Shale		Carb sh		Limestone		Ool. Lime		Chert		Dolomite
--	-----------	--	------	--	-----------	--	-------	---	---------	---	-----------	---	-----------	---	-------	---	----------

SCALE 1" = 100'

DRILLING TIME		DEPTH		SAMPLE DESCRIPTION		REMARKS	
In Minutes	DEPTH						
0	0						
5	5						
10	10						
15	15						
20	20						
25	25						
30	30						
35	35						
40	40						
45	45						
50	50						
55	55						
60	60						
65	65						
70	70						
75	75						
80	80						
85	85						
90	90						
95	95						
100	100						
105	105						
110	110						
115	115						
120	120						
125	125						
130	130						
135	135						
140	140						
145	145						
150	150						
155	155						
160	160						
165	165						
170	170						
175	175						
180	180						
185	185						
190	190						
195	195						
200	200						
205	205						
210	210						
215	215						
220	220						
225	225						
230	230						
235	235						
240	240						
245	245						
250	250						
255	255						
260	260						
265	265						
270	270						
275	275						
280	280						
285	285						
290	290						
295	295						
300	300						
305	305						
310	310						
315	315						
320	320						
325	325						
330	330						
335	335						
340	340						
345	345						
350	350						
355	355						
360	360						
365	365						
370	370						
375	375						
380	380						
385	385						
390	390						
395	395						
400	400						
405	405						
410	410						
415	415						
420	420						
425	425						
430	430						
435	435						
440	440						
445	445						
450	450						
455	455						
460	460						
465	465						
470	470						
475	475						
480	480						
485	485						
490	490						
495	495						
500	500						



2200



50

3500

50

Vis. RR Wt 85 E. 1 & 4  
Ckt 3,200 PH11.5 CCA 2#  
(5.14.09)

Start same end 5.2000

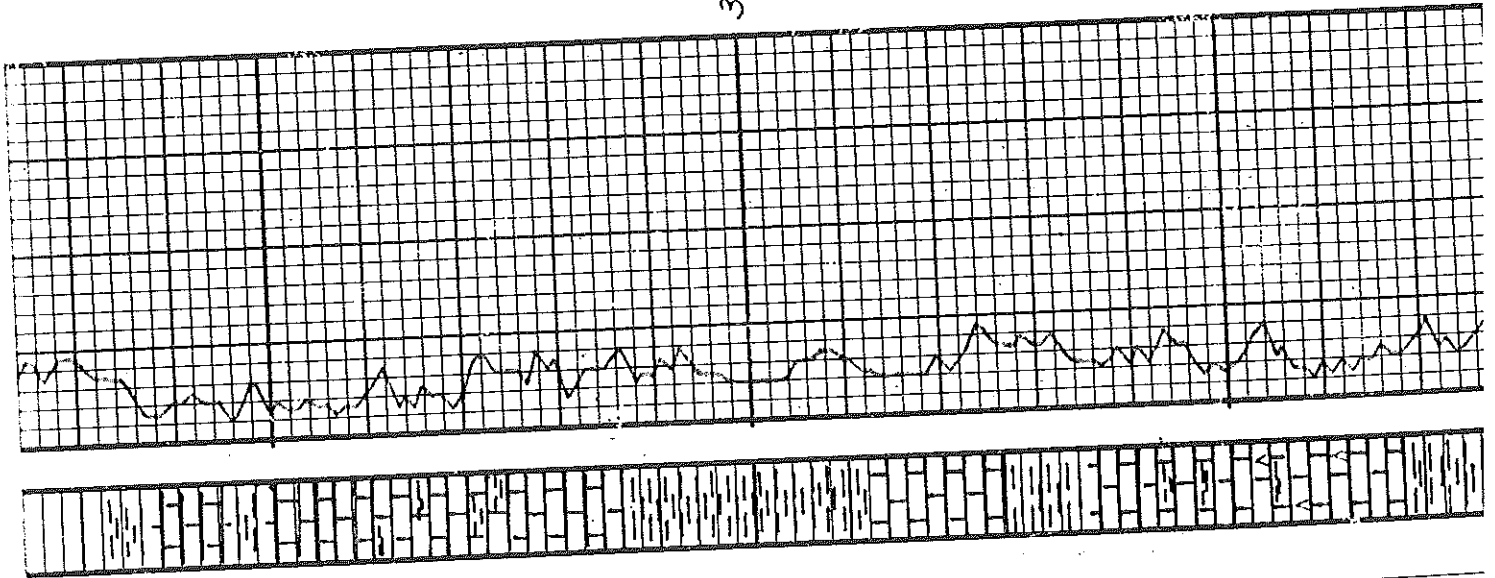
CS. 100-0100 Pkt in 21st. Base  
9/9. Pkg 4

		LS tan-gray fine silty ss
		arg. arg.
		LS tan-gray fine ss. P.S. &
		shale gray-green
		LS tan-gray fine ss. arg.
		med.
		LS. 10. 1. Shale gray-green
		Shale gray-green & black LS tan blue
		silty. fine. P. sand.
		AA
		LS. tan-gray fine silty. P. ss. med.
		Abnt. shale gray, black & green
		& LS gray-brown fine silty. P. ss.
		LS gray-fine P. ss. P. ss. med. clay.
		10. P. sand. ss.
		AA & LS. gray fine silty. P. ss.
		arg. med.
		LS gray-fine blue P. ss. P. sand.
		LS & abt. gray-white arg.
		Shale gray-green & black & LS
		tan gray-fine arg. silty. P. ss. med.

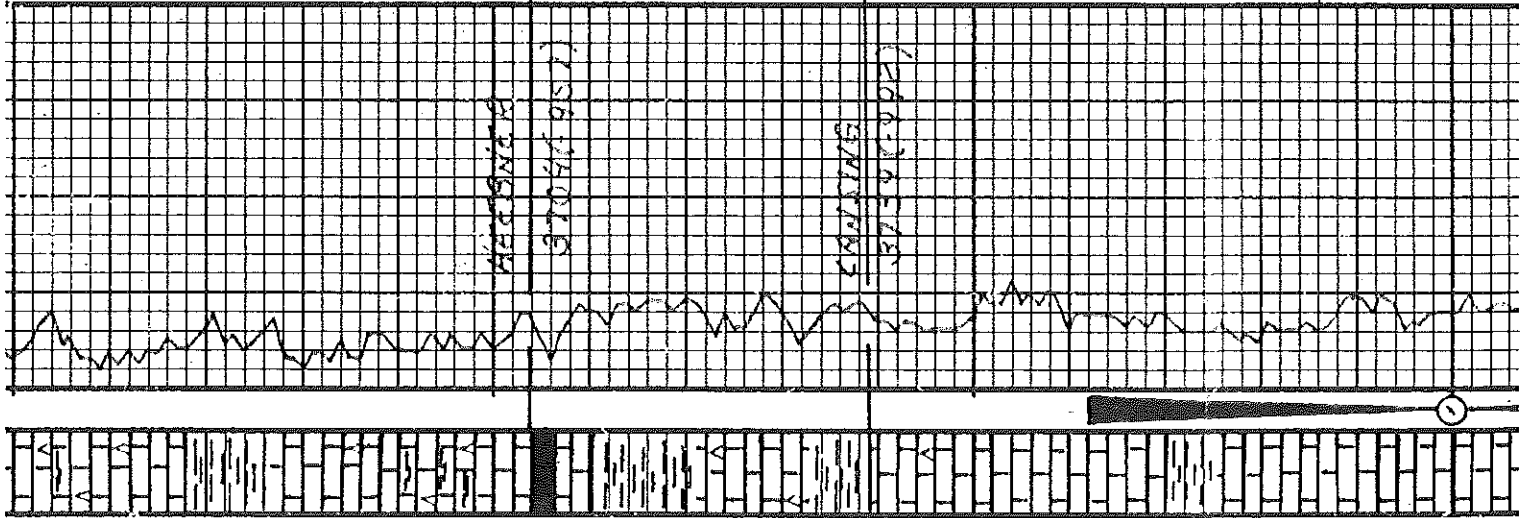
50

3000

50



50



3700

HEC 51219

3704 (951)

50

40fs

3800

LS gray tan fine foss. packed LS + chert gray, white gray
Shale gray green - blocky + LS tan gray fine org. chert, foss. nod.
LS gray, tan fine foss. nod. rare P. nodules
LS fine gray fine foss. nod. org nod. + chert white gray
Shale black carb
Shale black, gray, green, rust + LS tan gray with few fine flag. dense nod.
LS. calc. white fine silt, foss. nod. chert, org. + some chert white
Shale black, gray, green
LS tan white fine blk. nod. IP org. + calc. nod. silt, silt, sh sand dull fine. nod. + chert white
LS. all white brown fine nod. IP nod. dense + shale gray-green
LS tan - all white. fine fine. calc. P. nod. + silt. nod. + silt. nod. silt. sh. silt. dull fine. nod.
LS. all white, tan fine calc. silt. nod. nod. dense +
LS. all tan shale rust gray s green

V.S. S.3. Mt. 89. E.L. SA  
 Chl. 5,900 PH 11.5 CCM 2#  
 (6-15-09)  
 Pipe strap @ 3838. 4/20/09  
 Survey 1

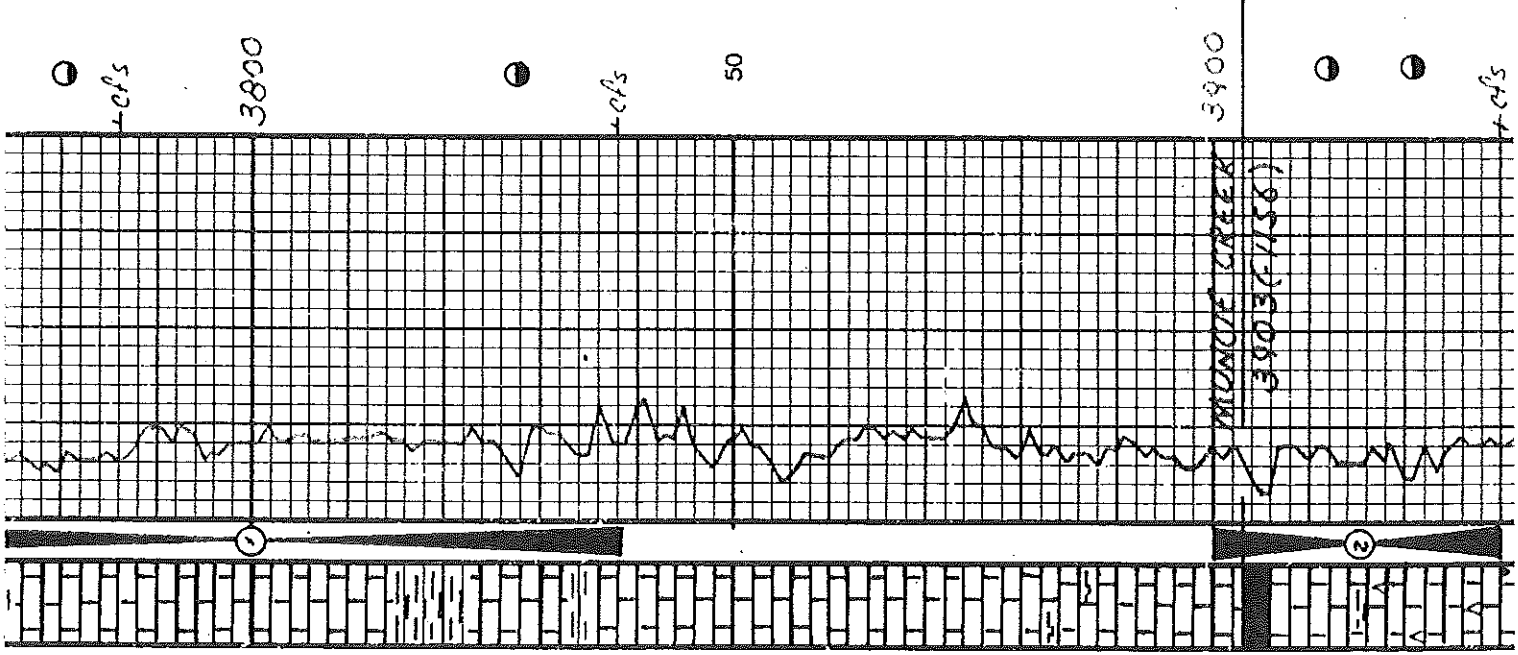
V.S. S.B. WT 89 Fil. 5B  
 CHI. 5,900 PH 11.5 CCM 2#  
 (8-15-09)  
 Pipe Strap @ 3838, 42009  
 Survey 1°

DST #1 3762 - 3838  
 10 - 45 - 45 - 90  
 BLOW:  
 I.F. B.O.B. 2 min.  
 I.S.I. B.O.B. 30 min.  
 F.F. B.O.B. on open  
 F.S.I. B.O.B. died 75 min.  
 RECOVERY: 1054 G.I.P.  
 124' G.O. (20% G. 80% O)  
 620' C.G.O. reversed  
 (20% G. 80% O)  
 620' G.W.C.O. reversed  
 (20% G. 60% O 20% W)  
 372' G.O.C.W. reversed  
 (15% G. 40% O 45% W)  
 124' G.O. 9' A.C.W. below circ. sub  
 (10% G. 10% O 65% W 15% M)  
 1,860' TOTAL FLUID  
 (Chi. rec. 31,000 . 0.1 36.5° API)  
 I.H.P. 1847#  
 I.F.P. 172-292#  
 I.S.I.P. 1206#  
 F.F.P. 318-708#  
 F.S.I.P. 1210#  
 F.N.P. 1746# B.N.T. 115°F

@3838 Vis. 47 WT 9 Fil. 72  
 CHI. 10,900 PH 10.5 CCM 2#  
 (8-16-09)

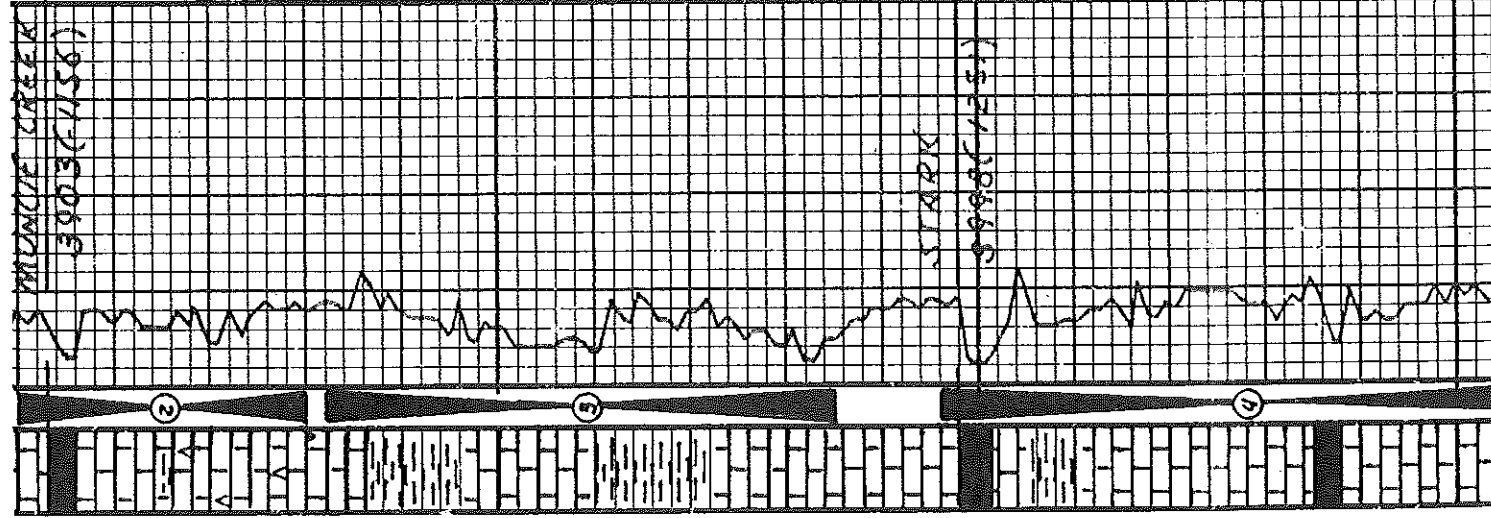
DST #2 3900 - 3930  
 15 - 45 - 45 - 90  
 BLOW:  
 I.F. B.O.B. 4 min.  
 I.S.I. 10" return  
 F.F. B.O.B. on open  
 F.S.I. B.O.B. 20 min.  
 DENNISON. 1513-110

F.P. part of ss. summary...  
 spots sh. solid dull blue - color  
 ss. gill white. tan. blue. cal. silt. cal.  
 w. dense  
 ss. aa. tan. shale. rust. gray.  
 green  
 ss. tan. white. white. dense. sh.  
 ss. aa. silice. shale. gray-green  
 ss. dolo. tan. brown. f. 10% sh. cal. l.p.  
 f. - anal. solid. fine. f. s.s. f. cal. w. sh.  
 sh. dull. gray. blue. color  
 sh. shale. brown. rust. gray. e.  
 green  
 ss. calc. white. f. v. sh. f. ss. - cal. l.p.  
 dense. w. sh.  
 ss. calc. white. f. v. sh. f. ss. - cal. sh.  
 p. mold. f. ss.  
 ss. aa. + ss. green. white. f. v. sh. l.p.  
 sh. l.p. w. sh.  
 ss. white. gray. f. v. sh. p. cal. cal. l.p.  
 w. sh. + ss. gray. micro. sh. dense  
 ss. green. white. f. v. sh. silt. f. ss.  
 w. sh.  
 shale. black. carb.  
 ss. brown. gray. v. sh. silt. f. ss.  
 v. sh. + ss. f. v. sh. solid. sh. sh.  
 sh. sh. dense  
 ss. calc. white. tan. f. m. calc. sh.  
 f. ss. f. v. sh. f. v. sh. f. v. sh.  
 solid. w. sh. w. sh. dull. blue. f. s. f. cal.  
 f. v. sh. + chi. white. tan. f. v. sh.



+c/s  
 +c/s  
 +c/s  
 +c/s

5900



Shale black carb	
CS brown-gray silty clay v. fine s.s. silt. sh. sand sh. sh. sh. carb dense	
CS off white tan fine carb base clay f. p. in d. pyrit silt. sh. sh. v. fine s.s. sh. f. s. sh. f. sand + chl. white tan trans.	
Most shale gray, black, green f. rust	
CS fine gray v. fine carb. l.p. dense and shale sh.	
CS gray-brown fine carb. fine f. s. fine s.s. sh. sand sh. sh. sh. sh. band v. v. fine f. sand	
Shale gray, black f. green	
CS brown gray v. fine same as f. p. and sand f. s. sh. sh. sh. sh. v. fine sh. sh. sh. sh. sh. sh.	
CS gray-brown fine silty f. s. dense and	
Shale black carb	
CS gray tan fine carb. and f. s. pyrit f. sand f. s. sh. sh. sh. silt. sh. sh. sh. sh. sh. sh.	
CS brown gray sh. sh. sh. sh. sh. sh. sh. sh. sh. sh. sh. sh.	
CS sh. sh. sh. sh. sh. sh.	
Shale black carb	
CS tan gray f. sh. sh. sh. sh. fine p. carb. sh. sh. sh. sh.	
CS sh. sh. sh. sh. sh. sh.	

MUNDIE CREEK  
3903 (F1156)

3904 (F1157)

STARX  
3905 (F1158)

3906 (F1159)

DST #2 3900 - 3930

IS. 4S. 4S. - 90

BLow:

I.F. B.O.B. 4 min.

I.S.I. 10" return

F.F. B.O.B. on open

F.S.I. B.O.B. 20 min.

RECOVERY: 1612' G.I.P.

498' G.O. (30% G. 70% O)

124' G.M.C.O. (30% G. 35% M)

124' G.O.C.M. (25% G. 20% O 55% M)

744' TOTAL FLUID (34° API)

I.H.P. 1910#

I.F.P. 49-125#

I.S.I.P. 1233#

F.F.P. 149-284#

F.S.I.P. 1220#

F.H.P. 1878# B.H.T. 118°F

VIS SZ WT 9.0 F.I. 7.2

Chl. 9,500 PHII CCM I.S.#  
(6.17-09)

DST #3 3932 - 3985

IS. 30 - 45 - 90

BLow:

I.F. B.O.B. 4 min.

I.S.I. B.O.B. 15 min.

F.F. B.O.B. on open

F.S.I. B.O.B. 15 min

RECOVERY: 1518' G.I.P.

774' G.O. (40% G. 60% O)

124' G.M.C.O. (45% G. 35% M)

186' G.O.C.M. (45% G. 15% O 40% M)

1,084' TOTAL FLUID (34° API)

I.H.P. 1930#

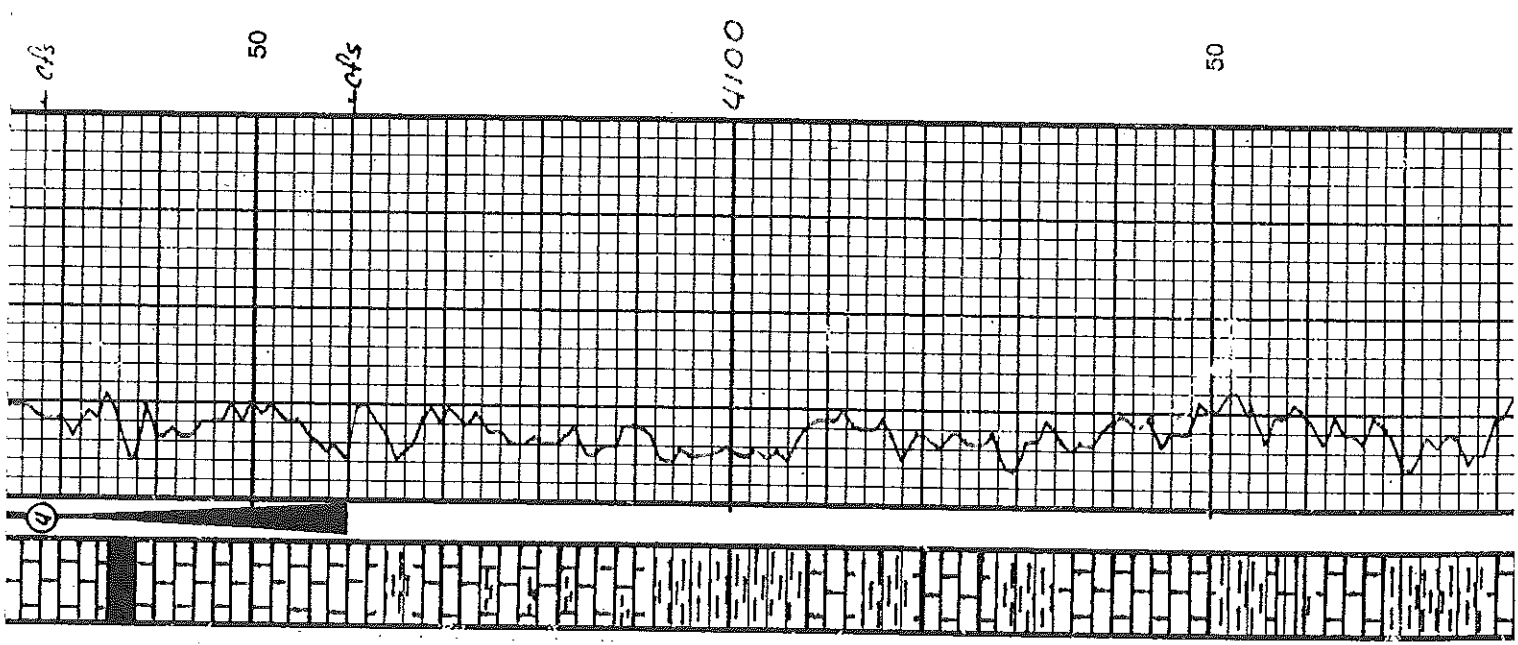
I.F.P. 77-180#

I.S.I.P. 1249#

F.F.P. 196-407#

F.H.P. 1755#

774' C.G.O. (40% G, 50% O)	
124' G.M.C.O. (45% G, 55% O, 20% M)	
186' G.O.C.A. (45% G, 15% O, 40% M)	
1084' TOTAL FLUID (30% API)	
I.H.P. 1930 #	
I.F.P. 77-180 #	
I.S.I.P. 1249 #	
F.F.P. 196-407 #	
F.S.I.P. 1255 #	
F.H.P. 1816 # B.H.T. 117° F	
Vis. S.I. Wt. 8.8	Fl. 7.2
Chl. 9800 PH 110 CCM I.S.#	(6-18-09)
DST # 4 3996 - 4080	
15-30-30 - 30	
Blow:	
I.F. B.O.B. 1/2 min.	
I.S.I. No return	
F.F. B.O.B. 1 min., died to 8"	
F.S.I. No return	
RECOVERY:	
206' M.C.W. (65% W, 35% M)	
186' M.C.W. (80% W, 20% M)	
186' S.M.C.W. (95% W, 5% M)	
2,294 W	
2,872' TOTAL FLUID	(Chl. 37,000)
I.H.P. 2003 #	
I.F.P. 843-1151 #	
I.S.I.P. 1312 #	
F.F.P. 1190-1311 #	
F.S.I.P. 1314 #	
F.H.P. 1953 # B.H.T. 119° F	



LS. AA + chl. tan  
 Shale black carb  
 LS. tan-gray f. + shaly ool  
 face. Pale. mod. LS. chky  
 LS. AA + LS. gray shaly org. wt. +  
 shale green  
 LS. cream white f. sh. silty fass.  
 chky. mod. + shaly gray. green +  
 fass.  
 Shale gray black + green + LS.  
 gray fine fass. f. sh.  
 Shale gray green + black + LS.  
 gray micro. wt. dense mod.  
 Mod. shale green gray + chky +  
 LS. AA  
 Shale AA + LS. gray tan shaly  
 chky dense mod.  
 LS. cream tan f. sh. ool. I.P. mod.  
 dense  
 LS. AA + Abal. shale green, gray +  
 black  
 Shale AA + LS. gray tan f. sh.  
 ool. I.P. mod.  
 LS. cream white I.P. green fass. ool.  
 I.P. chky. mod. + shaly. gray  
 sh. f. sh. mod. + shale  
 gray green  
 Shale black, gray + green fass.



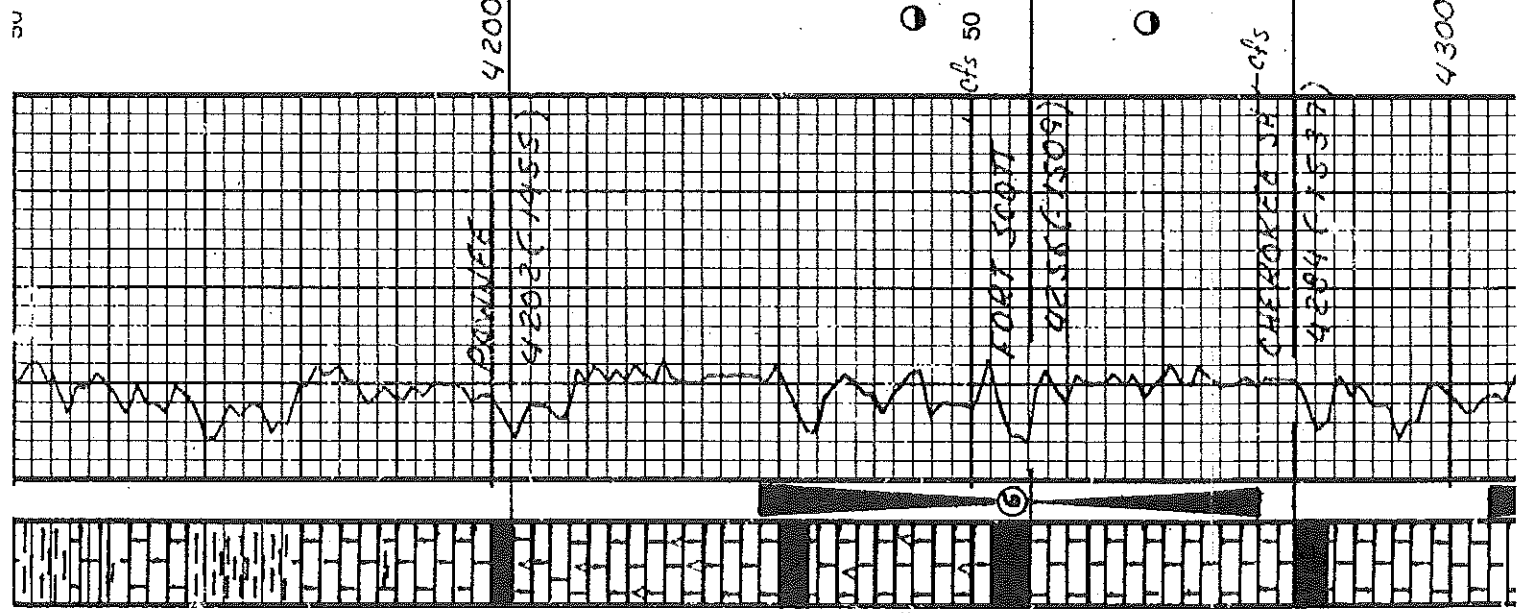
ool 12 dip	15 clay-white fsp gray base ool 16 ool 1/2 fine 1/2 s.s. ool 17 s.s. fine 1/2 ool 1/2 shale 18 gray green			
	shale black - gray c green base			
	ss tan x fine base ool mid shale gray green c black			
	shale black sub carb			
	19 gray white ool 1/2 tan gray 20 tan base ool 1/2 s.s. ool 21 base ool 1/2 3 spid s.s. 1/2 ool 22 ool			
	ss AB + LS bearing tan x lb low base flag dense mid			
	shale black carb			
	23 s.s. ool white fsp ool - silty ool 24 ool 1/2 base 1/2 s.s. ool 25 s.s. ool fine 1/2 ool 26 base ool 1/2 base ool 27 base ool 1/2 base ool			
	ss brown tan mica base dense c ool base white ool			
	shale black carb + pyf.			
	28 brown gray x lb ool fine 29 base ool 1/2 s.s. ool 30 base ool 1/2 base ool 31 base ool 1/2 base ool			
	ss brown tan mica base dense c ool base white ool			
	shale black carb			
	32 brown tan mica base dense c ool 33 base white ool			
	shale black carb			
	34 brown tan mica base dense c ool 35 base white ool			
	shale black carb			
	36 brown tan mica base dense c ool 37 base white ool			
	shale black carb			
	38 brown tan mica base dense c ool 39 base white ool			
	shale black carb			
	40 brown tan mica base dense c ool 41 base white ool			
	shale black carb			

Vis. S.S. WT 89 Fil 76  
 CHL 10,200 PH 110 CCM 1#  
 (6-19-09)

DST #5 4228 - 4280  
 15-30 - 30 - 30  
 BCOW:  
 IF weak died 10 min.  
 FF No blow  
 RECOVERY: 2'M  
 I.H.P. 2175#  
 I.F.P. 33-30#  
 I.S.I.P. 286#  
 F.F.P. 30-35#  
 F.S.I.P. 144#  
 F.H.P. 2073# B.H.T. 111°F

Vis. S.S. WT 90 Fil 76  
 CHL 10,000 PH 10.5 CCM 1#  
 (6-20-09)

DST #6 4304 - 4344  
 15-30 - 45 - 90  
 BCOW:

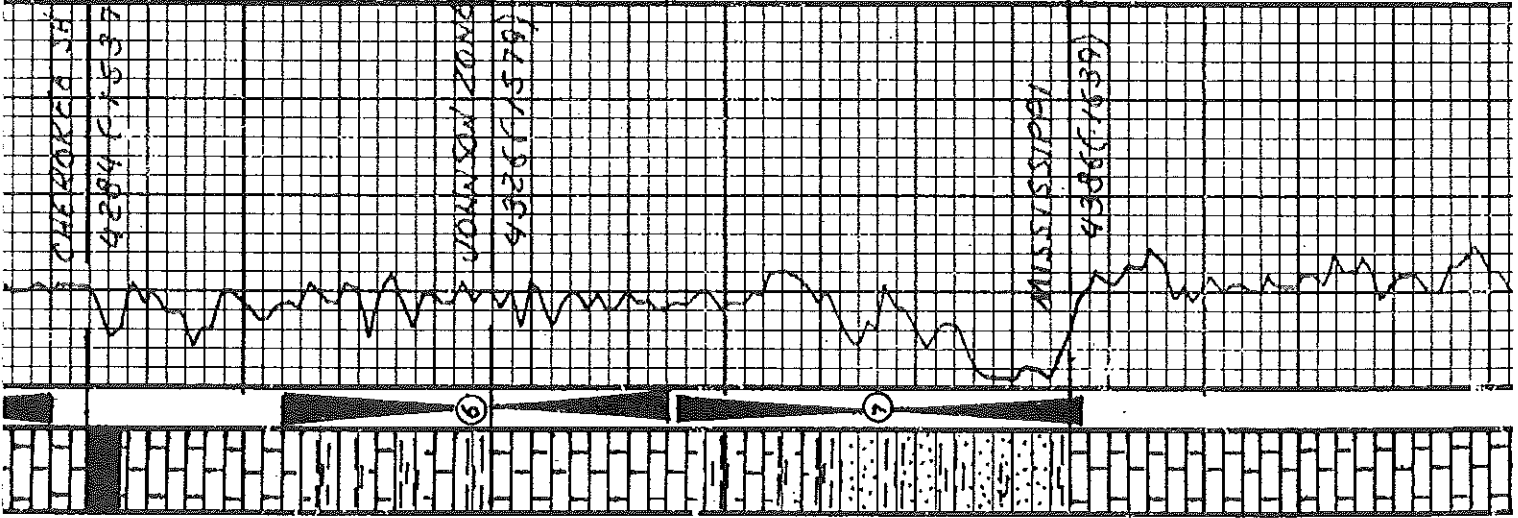


4200

ofs 50

ofs

4300



4300  
4339  
4379  
4386  
4399

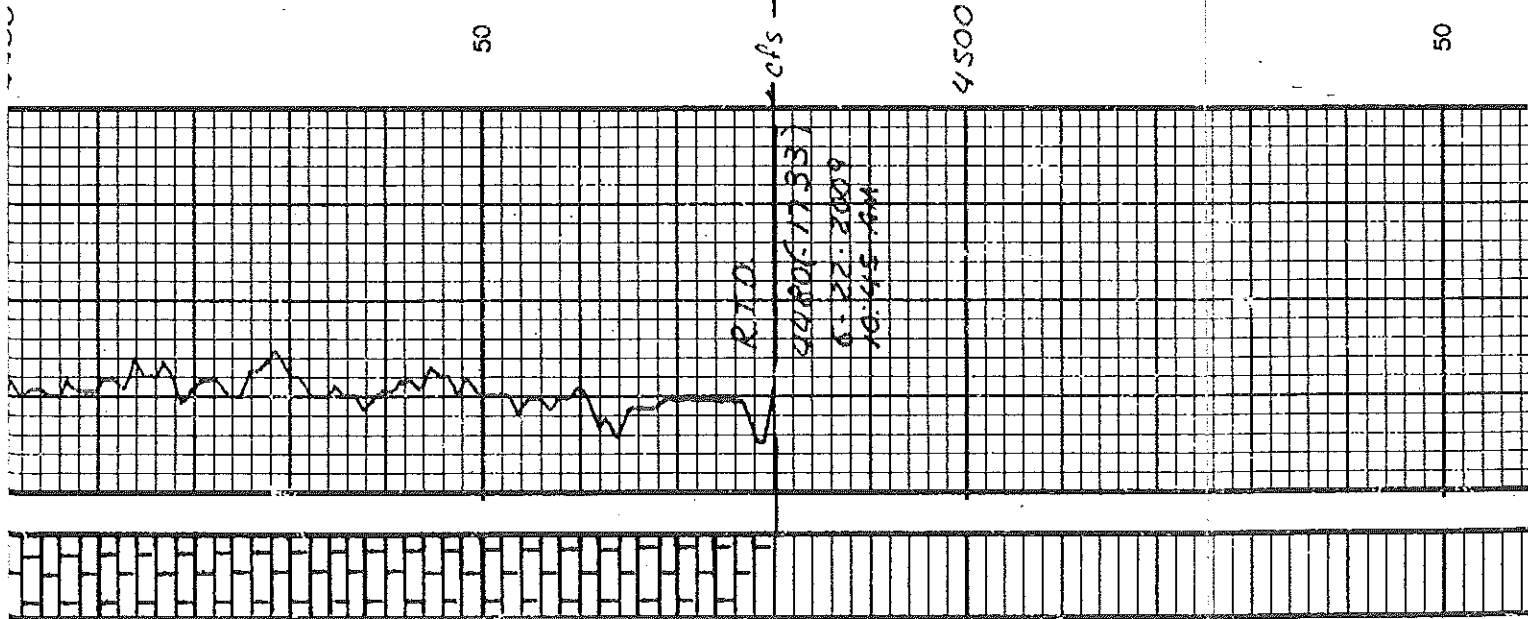
Stale black carb  
LS gray brown + greenish gray  
LS shale black greenish gray  
LS tan gray fine grain chky IP  
Silk sat. pig. d. sat. carb. sh.  
W.S.C. shale  
LS brown gray fine sat. carb. IP  
P. sat. pig. d. sat. carb. sh.  
LS shale black greenish gray  
LS shale black + LS brown + grayish  
greenish + gray  
LS sat. off white fine sat. carb. IP  
W.S.C. shale black greenish gray  
LS shale green brown black  
gray  
Vaci. carb. shale AA + SS white gray +  
green fine grain sat. carb. sh.  
Pig. sh.  
SS off white brown ch. gr. + green  
sub. sat. sub. sat. carb. IP  
W.S.C. shale black greenish gray  
P. sat. pig. d. sat. carb. sh.  
LS shale black greenish gray  
LS sat. off white sat. carb. IP  
W.S.C. shale  
LS AA + LS white tan fine sat. dense  
sh.  
LS white carb. fine sat. carb. IP  
Cabot vac. carb. shale slough  
LS white carb. green fine sat. carb. IP

Vis 50 wt 9.0 F.I. 7.6  
Chl. 10.000 PH 10.5 CCM #  
(6-20-09)

OST #6 4304-4344  
15-30-45-90  
BCOW:  
I.F. 2 1/2  
15.1. No return  
FF. 7 1/2  
F.S.I. 1/4 return died 60 min  
RECOVERY: 62' G.I.P.  
62' G.W. + M.C.O.  
(5% G. 55% W. 10% W. 30% M.)  
124' G.W. + M.C.O.  
(10% G. 60% W. 10% W. 20% M.)  
186' TOTAL FLUID  
(CHL 18.500 O.I. 31.0 P.I.)  
I.H.P. 2223 #  
I.F.P. 20.34 #  
I.S.I.P. 1236 #  
F.F.P. 36.68 #  
F.S.I. 1253 #  
F.H.P. 2130 # B.H.T. 117° F

Vis 48 wt 9.0 F.I. 8.0  
Chl 9.800 PH 10.5 CCM #  
(6-21-09)

OST #7 4345-4387  
15-30-45-90  
BCOW:  
I.F. weak built 3"  
F.F. weak built 5 1/2"  
F.S.I. surface return died 4 min.  
RECOVERY:  
144' O.C.M. (15% O. 85% M.)  
62' S.O. + W.C.M. (5% O. 10% W. 85% M.)  
15' M  
221' TOTAL FLUID  
I.H.P. 2205 #  
I.F.P. 32.60 #  
I.S.I.P. 118.3 #



CS 99 + CS white-tan f. in dense  
 and

CS white-coal f. in soft chky IP  
 and  
 (about vari. calc shale slough)

CS white-coal-gray thin soft chky IP  
 and

Most shale slough + CS white-tan  
 thin soft chky IP and f. in  
 dense

(about vari. calc shale slough)

Most shale slough + CS white  
 thin soft chky IP and f. in  
 dense

FF weak built 5/2"  
 F.S.I. surface return dried H/min.

RECOVERY:  
 144' O.C.M. (15% O 85% M)  
 62' S.O. f. W.C.M. (5% O 10% W 85% M)  
 15' A

221' TOTAL FLUID  
 I.H.P. 2205#  
 I.F.P. 92-60#  
 I.S.I.P. 1163#  
 F.F.P. 73-117#  
 F.S.I.P. 1172#  
 F.H.P. 2177#      B.N.T. 120°F

Vis 415    Wt 93    F.L.R.U.  
 CHL 10,000    PHIO    CCM 1#  
 (6-22-04)

REMARKS	SAMPLE DESCRIPTION	DEPTH	DRILLING TIME
		50	

In Minutes 0 5 10 15