

14-265-23W

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GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR RITCHIE EXPLORATION, INC.

LEASE GALEN DURLER #1

FIELD WILDCAT

LOCATION E SE SW SE = 335' ECL & 1680' FEL

SEC. 14 TWP. 26 RGE. 23 W

COUNTY FORD STATE KS.

CONTRACTOR VAL ENERGY RIG #1

COMPL. 08-02-13 COMP. 08-12-13

RTD 5120' LOG TD 5116'

SAMPLES SAVED FROM 3800' TO RTD

DRILLING TIME KEPT FROM 3350' TO RTD

SAMPLES EXAMINED FROM 3800' TO RTD

GEOLOGICAL SUPERVISION FROM 4177' TO RTD

MUD UP 3350' TYPE MUD CHEMICAL

API # 15-057-20,906-00 00

FORMATION	LOG	TOP	RETURN	TOP	SAMPLE	STATUS
						COMPL.
ANHYDRITE BASE	1496 +940	1500 +936	1529 +967	1533 +903		-3 +6
STOLLER	3497-1061	3497-1061				-14
HEEGNER	4126-1690	4128-1692				-27
LANISING	4239-1803	4240-1804				-28
MUNCIE	4420-1984	4424-1988				-29
STARK SH	4550-2114	4553-2117				-32
BKG	4630-2194	4634-2198				-32
ALDRMONT	4682-2246	4682-2246				-39
PAWNEE	4760-2324	4762-2326				-35
CHEROKEE SH	4802-2366	4805-2369				-31
HUCK	4885-2449	4886-2450				-32
ATOKA	4890-2454	4894-2458				-29
MISSISSIPPIAN	4914-2478	4916-2480				-25

ELEVATION

KB 2436

DF 2426

Measurements Are All From KB 2436

CASING RECORD

SURFACE 8 5/8" @ 364'

W/250' SXS.

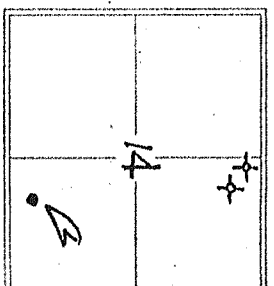
PRODUCTION 4 1/2" @

WELL LOG SURVEYS

NABORS

COMP DENS/NEUTRON
DUAL INDUCTION

ENG: MITCH BURP



ACTIVITY @ 7:50 AM	DEPTH	HS	SEE	WVC	TYPE	DEPTH COR
8-1-13	MIRT					
8-2-13	DRIG @ 352'					
8-3	DRIG @ 780'					
8-4	DRIG @ 2145'					
8-5	DRIG @ 2890'					
8-6	DRIG @ 3370'					
8-7	DRIG @ 4070'					
8-8	DRIG @ 4495'					
8-9	DRIG @ 4780'					
8-10	DST #1 @ 4904'					
8-11	DST #2 @ 4990'					
8-12	@ RTD 5120 L.D. PEE					

FORMATION

INTERVAL

DESCRIPTION OF STRATA

REFERENCE WELL FOR STRUCTURAL COMPARISON

RITCHIE EXPL. #1 DURLER-SCHMIDT
N/2 N/2 N/2 14-26-23W

FEET
FOOTS

LOG NUMBER
0

DRILL STEM TESTS



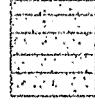
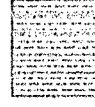


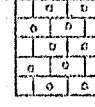
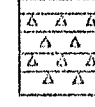
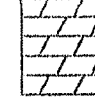
No.	Interval	FP/Time	ESP/Time	FRP/Time	RSP/Time	HS-PSI	REMARKS

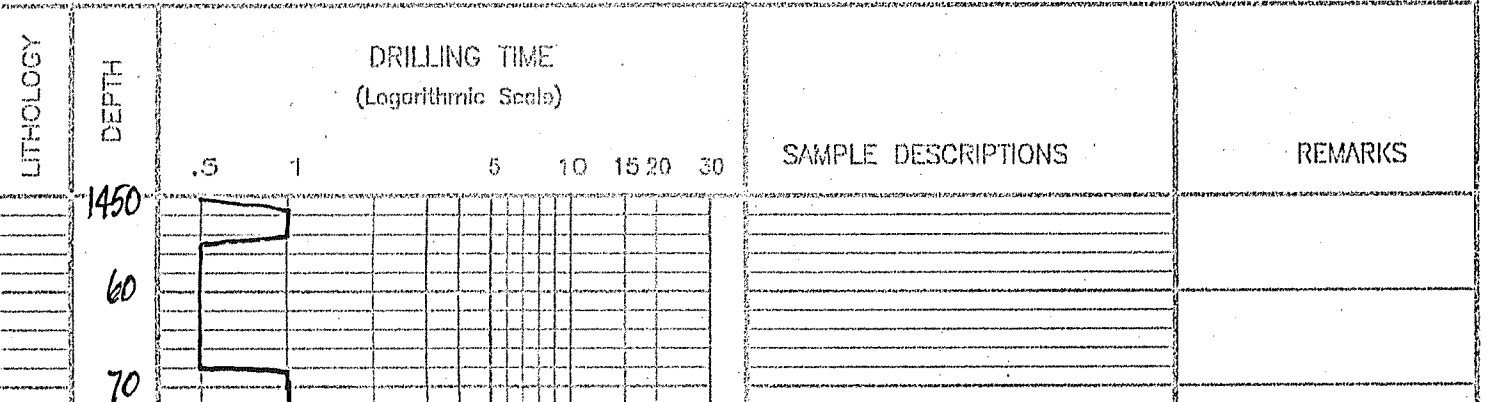
IT WAS RECOMMENDED TO RUN 4 1/2 PRODUCTION CASINGS TO PRODUCE THE KUCK ZONE AS A RESULT OF DST#1 RECOVERY AND E-LOG EVALUATION.

MIKE ENGELBRECHT
GEOLOGIST LIC#334

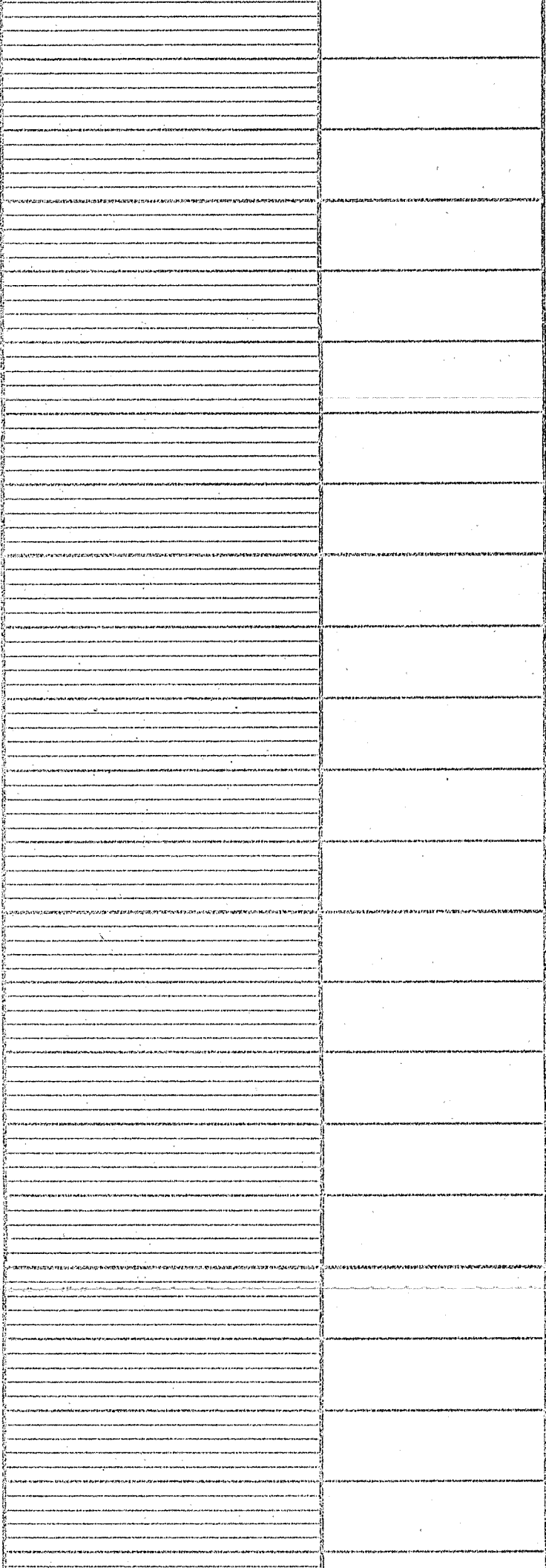
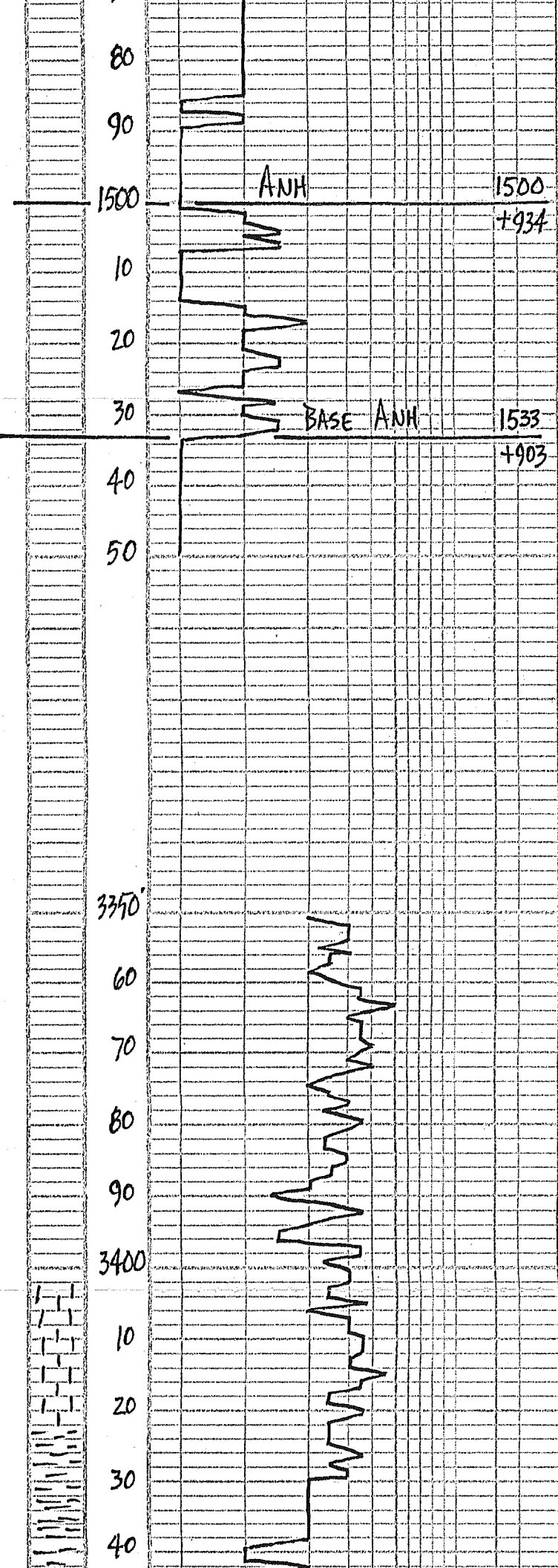
MUD BY MUD Co.
DST'S BY TRILOBITE TESTING
E-LOGS BY MARS
GAS MTR - N3C

LEGEND

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



ENGEL-11





50
60
70
80
90

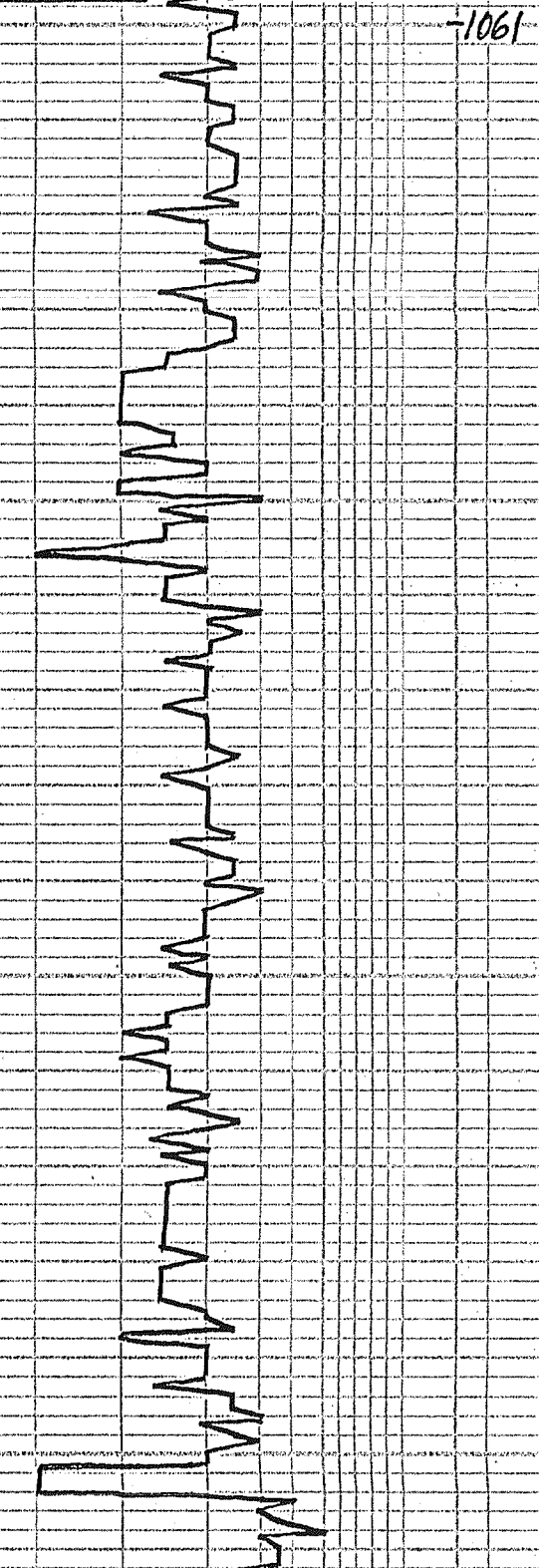


STOTLER

3497



3500
10
20
30
40
50
60
70
80
90
3600
10
20
30
40
50
60



-1061

70
80
90
3700
10
20
30
40
50
60
70
80
90
3800
10
20
30
40
50
60
70
80



PREN. W/ CRAL. SMALL FOSS LS
FAIR φ - NS NO ODOR

20 LS. TAN & LOTS GRAY SHS & MICALY
GRAY LS - NS

40 LT BUFF FOSS LS W/ FAIR FOSS φ
FEW SCAT STN, NO ODOR

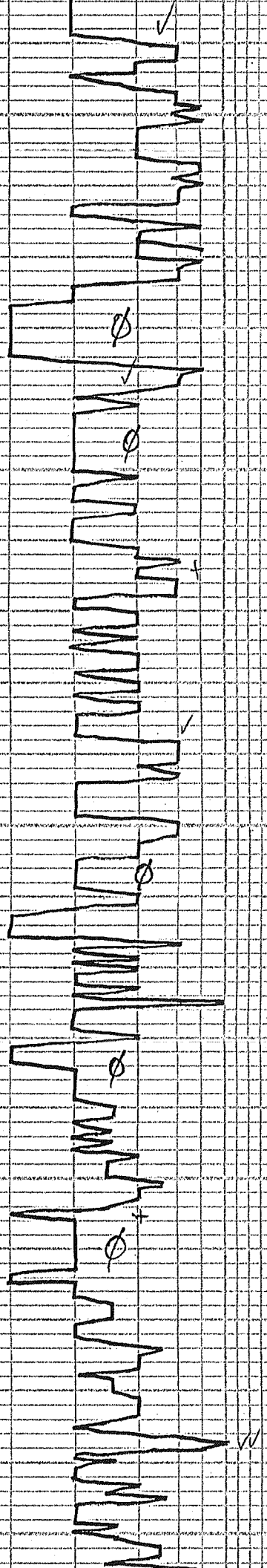
{
SPLS LOTS SHS
}

60 BUFF - TAN FOSS LS P-F φ - NS
NO ODOR

80 CRAL - BUFF LS P-F φ - NS
INC GRAY - RUSS SHS

∞ BUFF - TAN BLOCKY DNSE LS
POOR φ - NS NO ODOR PLY AT

90
3900
10
20
30
40
50
60
70
80
90
4000
10
20
30
40
50
60
70
80
90
4100



20 LT BUFF = LT TAN - OOL 1/2 OOL LLS
FAIR ϕ - NS, NO ODOR PLY STG

40 TAN = BUFF LS = POOR ϕ - NS

60 BUFF = LT TAN SLI = FOSS LS
P-F VUG ϕ - NS NO ODOR

80 LS = AA = NS LGS RED BEDS

400 WH = LT CRM FOSS = OOL LS = NS
P-F ϕ NO ODOR FEW STG

20 WH = CRM = BUFF SEMI = FOSS LS
SLI STG P-F ϕ - NS NO ODOR

40 WH = LT CRM SEMI = OOL LS FAIR
VUG ϕ - NS FEW BLK SHS

60 WH = CRM = BUFF LS P-F ϕ - NS

80 CRM = BUFF SEMI = FOSS LS
P-F ϕ - NS NO ODOR

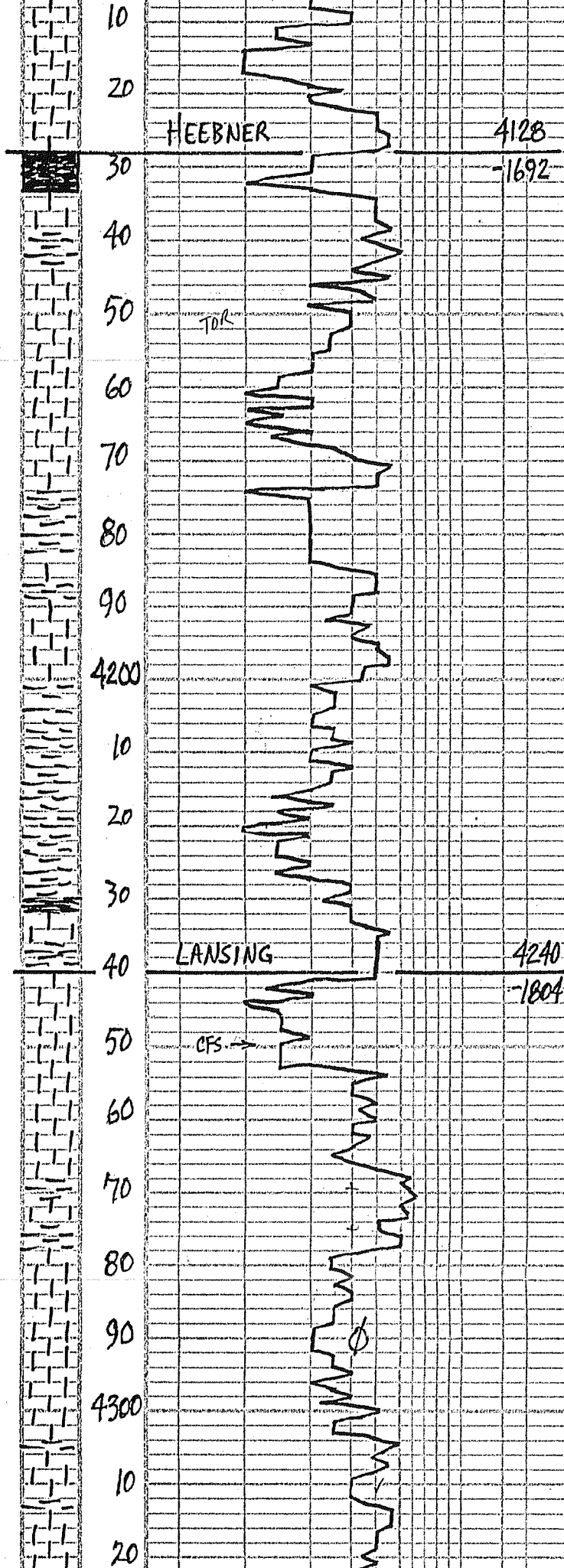
PREL WH = LT CRM SLI = FOSS LS
POOR = F ϕ - NS NO ODOR

60 LT CRM - LT BUFF SEMI = FOSS LS
NS

LOTS DR GRAY - BLK SHS

20 WH = CRM FM - XLS LS - NS

MUD - CO. CK
VISE: 48 FILT: 15.6
WT: 9.35 CHL: 5,600



WH=CRM CLY LS FAIR ϕ NS
 ? LT GRN=GRN SHS

40 LT CRM=BUFF SLI FOSS LS
 P-F ϕ - NS NO ODR

FLOOD BLK SHS!

60 GRN=GRN SHS FEN CRM LS
 POOR ϕ - NS NO ODR

WH CRM=BUFF LS POOR ϕ - NS

80 GRN=BUFF LS SLI FOSS POOR ϕ
 NS NO ODR

FLOOD WH=LT CRM CLY LS
 P-F ϕ - NS - NO ODR

90 CRM=TAN BUFF LS POOR ϕ - NS

10 TAN=GRN BUFF LS & LT GRN
 GRN SHS

20 LS RA=NS NO ODR

30 LT BUFF=LT GRN MEXY LS
 POOR ϕ - NS NO ODR

40 FLOOD LT GRN=LT GRN SHS
 SOME SILTY - NO ODR

50 TAN=BUFF SLI FOSS LS POOR ϕ
 NS NO ODR

30 MINS: LT CRM=BUFF SLI FOSS
 LS P-F ϕ - NS NO ODR

60 MINS: FLOOD WH CRM FU XLN
 LS POOR ϕ - NS GRN GRN BO

60 PRED WH=LT CRM CLY LS - NS
 NO ODR

70 PRED WH=LT CRM SLI FOSS LS
 POOR ϕ - NS LOTS CLY

80 LT TAN CRM FU XLN DNSE LS
 POOR ϕ - NS NO ODR

90 LT CRM=BUFF FU XLN LS
 DNSE=CLY POOR ϕ - NS

100 LT TAN FU XLN LS & NH CLY LS
 POOR ϕ - NS NO ODR

11 WH=LT CRM=LT TAN SLI FOSS LS
 POOR ϕ - NS LOTS CLY NO ODR

20 FLOOD WH=LT CRM FU XLN LS
 PLY CLY POOR ϕ - NS

30 PRED WH=LT CRM CLY LS - NS

900# PP
 30 UGK HW & CHROM.

← GEOL ON LOC. 11-15 AM
 WEANS. 8-7-13

← VISC: 45
 WT: 9.3
 LCM: 2#

NO KICKS

NO KICK ✓
 DROPPED CARBIDE →
 100 H+KICK

← VISC: 53
 WT: 9.2
 LCM: 2#

30
40
50
60
70
80
90
4400
10
20
30
40
50
60
70
80
90
4500
10
20
30
40

MUNCIE SH

4424

-1988

CFS

40 WH-LT CRM CLK LS POOR ϕ
NS, NO ODOR

50 CRM-LT TAN FN-XLN LS
POOR ϕ -NS NO ODOR

60 BUFF MEALY LT TAN LS
SEMI-OOB CLK LS - NS, NO ODOR

70 LT TAN LT BUFF SEMI-FOSS LS
POOR ϕ -NS NO ODOR

80 LT CRM-LT BUFF SLI-FOSS LS
POOR-FAIR ϕ -NS CLK

90 WH-LT CRM SLI-FOSS LS POOR ϕ
NS NO OOB CLK

00 LT CRM-WH SLI-FOSS LS CLK
POOR ϕ -NS NO ODOR

← VISC: 54
WT: 9.1

10 WH-LT CRM FN-XLN CLK LS
NS NO ODOR

20 WH-LT CRM-LT TAN SLI-FOSS LS
POOR ϕ -NS NO ODOR

30 PURE WH CLK LS - NS

40 LT GRN FN-XLN LS - NS & FEW
BLK SHS

50 WH-CRM LT TAN SLI-FOSS LS
POOR ϕ -NS NO ODOR

LOTS RAIN!

30 MIN: LT TAN SUB OOL-OOB LS
FAIR NUG ϕ -NS NO ODOR
60 MIN: FLOOD LT TAN OOB LS
FAIR OOB ϕ -NS NO ODOR

00 TAN SLI-FOSS OOB LS - NS
SLI INC CLK NO ODOR

← VISC: 52
WT: 9.0
LCM: 2#

70 WH-LT CRM FN-XLN LS POOR ϕ
NS, NO ODOR

80 WH-CRM FN-XLN LS - NS

90 WH-CRM-V LT GRN FN-XLN LS
POOR ϕ -NS NO ODOR

GAS UNIT NOT WORKING

00 WH-LT CRM-LT TAN FN-XLN
LS POOR ϕ -NS NO ODOR

10 LS AA- POOR ϕ -NS

20 WH-CRM-LT TAN FN-XLN LS
POOR ϕ -NS NO ODOR

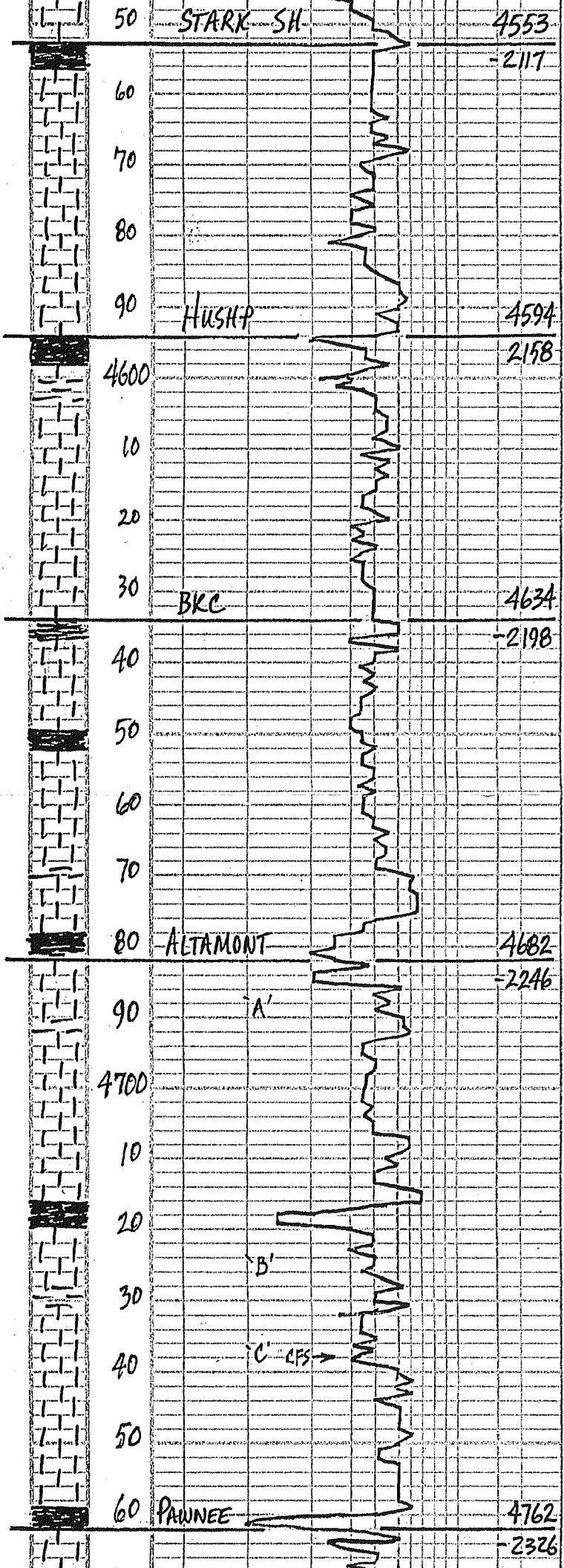
MUD: CO ✓
VISC: 50 FILT: 13.6
WT: 9.3 CHL: 4,800
CAL: 240*

30 WH-CRM LS AA- NS NO ODOR
TAN-LT BRN TINY OOL-POOR
 ϕ -NS NO ODOR

40 WH-LT TAN-BRN OOL LS
P-F OOL ϕ -NS NO ODOR

WH-LT CRM TINY OOL LS W/
FAIR OOL ϕ -NS NO ODOR

50 WH-CRM SEMI-OOB LS FAIR ϕ
NS, NO ODOR



60 WH=CRM-SLI-FOSS-LS POOR ϕ
NS, NO ODOR

70 FEN=FAIR AMT BLK SHS

80 CRM=LT TAN SLI-FOSS-LS
POOR ϕ - NS NO ODOR

90 CRM=BUFF SEMI-ODL-FOSS-LS
P-F ϕ - NS NO ODOR SLICKY

100 LT TAN GRAN SEMI-FOSS-LS
P-F ϕ - NS NO ODOR

10 LOTS GRAY-BLUE-BLK SHS

20 LOTS LT CRM=LT TAN FN-XLN
LS POOR ϕ - NS NO ODOR

30 WH=LT CRM=BUFF CRK ATY LS
POOR ϕ - NS NO ODOR

40 PRED WH=LT CRM FN-XLN LS
DNSE=CRK-POOR ϕ NS

50 LOTS GRAY LS & GRAY SHS

60 LT CRM=TAN SLI-FOSS LS
POOR ϕ - NS NO ODOR CRK

70 TAN=GRY SLI-FOSS LS DNSE=
ATY=CRK POOR ϕ - NS

80 GRAY=TAN DNSE ATY LS=NS

90 GRAY=TAN DNSE ATY LS=NS
INC GRAY SHS FEW BLK

100 WH=BUFF=TAN SLI-FOSS-CRY LS
POOR ϕ - NS NO ODOR

10 WH=LT CRM=TAN DNSE-CRY LS
NS NO ODOR

20 WH=LT CRM=TAN FN-XLN LS
POOR ϕ - NS

30 LT CRM FUSSLD LS POOR ϕ
NS NO ODOR, INC GRY GRN SH

30 CRM=TAN SLI-FOSS LS POOR ϕ
NS, NO ODOR P-TLY CRK, BLK SHS

30 MIN: CRM=LT TAN FN-XLN LS
POOR ϕ - NS NO ODOR

60 MIN: CRM=LT TAN FN-XLN LS
POOR ϕ - NS

50 LOTS SHS FROM S. TRIP

60 LT CRM=LT TAN FN-XLN LS
POOR ϕ - NS NO ODOR

70 LS AA=NS $\frac{1}{2}$ BLK SHS

GAS UNIT WORKING AGAIN

↓

VISC: 53
WT: 9.3
LCM: 2#

← 10 UGR

NO KICKS

↓

VISC: 52
WT: 9.3
LCM: 2#
850 #PP 53 SPM

← NO KICK

ADDDING PRE-MIX

↓

← NO KICK

← SHORT TRIP TO 1500'
(52 STD'S) COND 1 HR
MUD-CO CRK
VISC: 54 FILT: 11.6
WT: 9.0 CHL: 4.200
CAL: 40 LCM: 2#

← 20 UGR HW

70
80
90
4800
10
20
30
40
50
60
70
80
90
4900
10
20
30
40
50
60
70
80

CHEROKEE SH 4805

HUCK 4886

ATOKA 4894

MISS 4916

4905

CFS →

CFS →

CFS →

80. PRED CRM-LT TAN FN-XLN LS POOR INTER-XLN & -NS NO ODOR PRY CRK

88) CRM-LT TAN SLI-FOSS LS POOR & NS, NO ODOR INC CRK

30 MIN: LT CRM-LT TAN SLI-FOSS LS POOR & -NS NO ODOR LOTS BLK SHS
60 MIN: LS AA-NS, NO ODOR & BLK SHS
80 CRM-LT TAN SLI-FOSS LS POOR & NS NO ODOR

10 CRM-LT TAN SLI-FOSS LS DNE-SLI CRK POOR & NS NO ODOR

20 LOTS BLK SHS & LT CRM SLI-FOSS LS POOR & -NS

30 CRM FN-XLN LS POOR & NS NO ODOR

40 LT CRM SLI-FOSS LS POOR & NS NO ODOR INC CRK

50 LT TAN-BUFF FOSS-ODL LS P-F INTER ODL & -NS NO ODOR

60 LT CRM-LT TAN FN-XLN DNSE LS POOR & -NS NO ODOR

70 TAN-BUFF FN-XLN DNSE LS POOR & -NS NO ODOR

80 CRM-LT BUFF FN-XLN LS POOR & -NS NO ODOR

90 CRM-BUFF TAN SLI-FOSS LS POOR & -NS NO ODOR

05 CRM-BUFF LT TAN SLI-FOSS LS POOR & -NS NO ODOR

04) LT CRM FN-XLN SLI-FOSS LS W/ POOR INTER-XLN & P-PCS W/ V-SLT ORN FD LT ODOR TRAC GAS
30 MIN: LT CRM LS W/ POOR INTER XN & W/ SSO, LT ODOR, SLI CRK
60 MIN: AA & FEW GRN-GRY SHS & FEW GRN-GRY SHARP & LNS
10 PRED SHS GRN, GOLD, PURP, GRN NO A, NO SST, FEW GRN LS
20 SHS AA & LT BUFF, LT CRM LS-NS

20) FEW ORAO-LT VELL SHARP & POOR & -NS, NO ODOR NO SD OR SST
30 MIN: INC LT BUFF LS & FEW WH WEA-SHARP & -POOR & -NS NO ODOR
60 MIN: PRED LT CRM-BUFF FN-XLN LS POOR & -NS, NO ODOR NO SST

40 PRED LT CRM-VLT BUFF FN-XLN LS FEW OOL LS POOR & NS NO ODOR, DNSE-CRK

50 LT CRM-VLT BUFF LS-NS FEW MORE LT VELL ORAN A-NS

56) PRED WH-LT CRM LS POOR & NS, FEW LT TAN FN-XLN DOLD, P-F & NS NO ODOR
30 MIN: WH-CRM LS-NS INC CRK FEW LT TAN DOLD-NS NO ODOR
60 MIN: INC VLT TAN-BUFF DOLD P-F & -NS NO ODOR
70 WH-LT CRM CRK LS P-F & FEW SCAT STN NO ODOR, DK STN LT TAN FN-XLN DOLD-NS

80 WH-LT CRM FN-MD XLN LS 2 PCS W/ DE STN, TRACE DK HO, DROPS NO ODOR TRN DOLD-NS

90 PRED WH-LT CRM FN-MD XLN LS-NS POOR & NS NO ODOR
30 MIN: WH-CRM LS POOR & NS NO ODOR
60 MIN: PRED LT CRM FN-MD XLN

VISC: 54 52 SPM
WT: 9.3 850 #PP
LCM: 2#

ST. 10 STDS. STRAP=1.84 LING
S.A.T.= 1/2"

DST #1 4838-4904'
30-45-45-60

IF: WK BUILT TO BOB 20M
FF: FAIR BUILT TO BOB 16M
FSE: 1" BB.
REC: 640 GIP

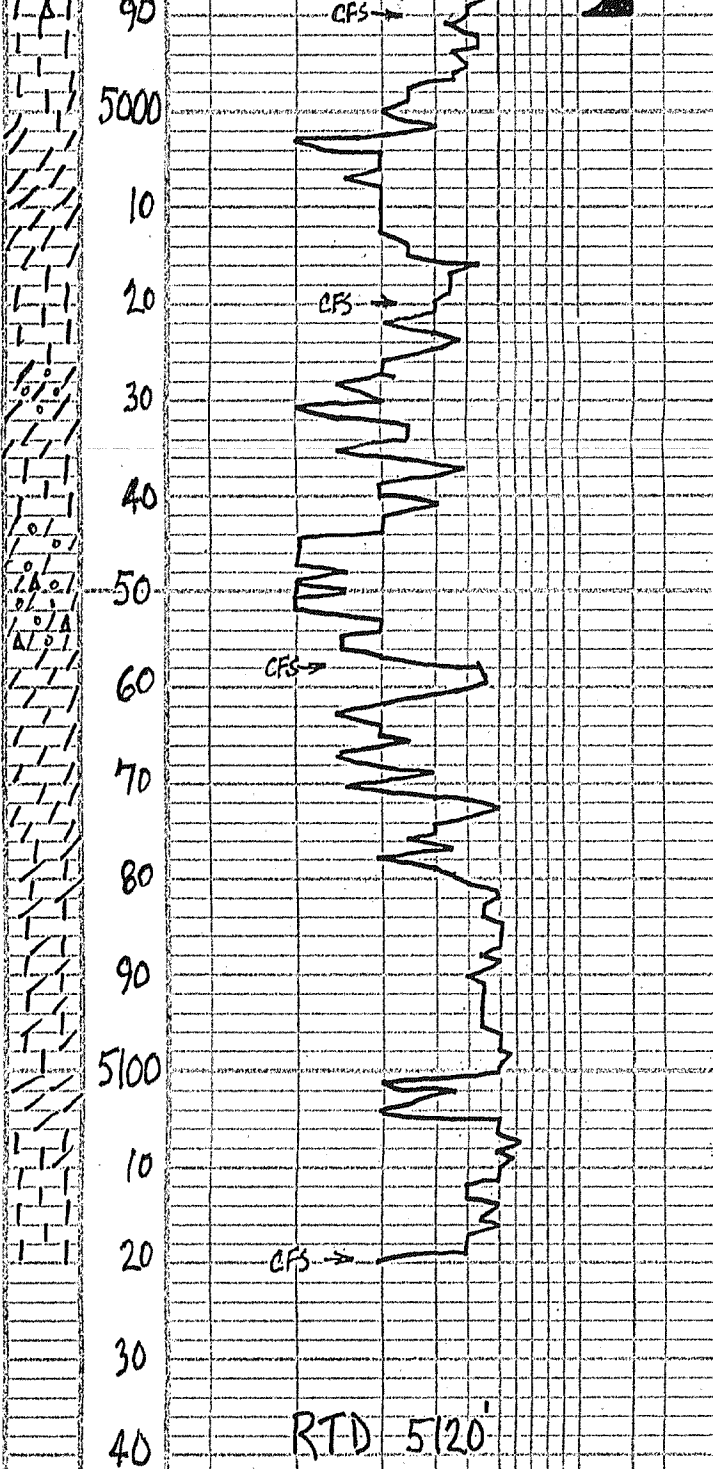
60' GCM=10%G, 40%M, 50%O
60' MOCG=20%M, 30%O, 50%G
60' O&M G=5%O, 45%M, 50%G
180' O&M G=5%O, 10%G, 85%M
360' TOTAL FLUID
SIP: 1444-1382
IFP: 28-283 FFP: 140-234
TEMP: 120

GAS DETECTOR
OFF CHART 100+ UNITS

DST #2 4894-4990
30-45-45-60

IF: WK BUILT TO 7"
FF: WK BUILT TO 7"
REC: 435 GIP

120' SO GCM=5%G, 5%O, 90%M
60' O&M G=10%G, 10%O, 80%M
60' SO GCM=15%G, 5%O, 80%M
120' SO GCM=30%G, 5%O, 60%M



RTD 5120'
LTD 5118'

LS P-F Ø. NS. NO. ODOR
 WH=LT CRM FN=MD XLN LS W/ SOME FOSS P-F Ø -NS NO ODOR CKY SCI 24

20 WH=LT CRM A & LS P-F Ø YLU CKY -NS NO ODOR FEW LT TAN FN XLN DOLO -NS NO ODOR

30 MIN: LOTS V. LT TAN=FRESH FN XLN DOLO P-F INTER=XLN Ø NS NO ODOR
 60 MIN: LT TAN DOLO FN=XLN P-F Ø -NS NO ODOR INC CKY

LT TAN=Buff=FRESH FN XLN DOLO NS NO ODOR LOTS CKY

50 LT CRM=FN XLN LS=NS & LT TAN VUG DOLO W/ FAIR Ø -NS

59 WH=CKY LS & LT TAN VUGY DOL FAIR Ø -NS NO ODOR

30 MIN: LT TAN DOLO W/ FAIR VUG Ø -NS NO ODOR INC CKY

60 MIN: WH=LT TAN DOLO W/ FAIR VUG Ø -NS NO ODOR CKY

70 PRED WH=LT CRM A & DOLO SCAT VUG Ø -NS NO ODOR LOTS CKY

80 PRED WH=CRM DOLO -NS

90 WH=LT GRN DOLO P-F Ø -NS NO ODOR LOTS PURE WH CK

80 LT GRN=BUK CKY DOLO & LS POOR Ø -NS NO ODOR

10 WH=LT CRM LS & DOLO -CKY NS NO ODOR

20 LT GRN DOLO SCAT VUG Ø NS NO ODOR

30 MIN: LS & DOLO AA=NS & FLOOD PURE WH CK

300. 101RE FLUID
 SIP: 1435-1387
 IFP: 21-155 FFP: 131-240
 TEMP: 123°
 S.H.T. @ 4990' = 1°

← VISC: 56
 WT: 9.2
 LCM: 2 1/2

RTD 8:45 PM SUN AUG 11, 2013
 CFS 30 MIN. SHORT TRIP 10 STD
 COND HOLE 1 1/2 HRS
 COME OUT FOR LOGS.