A.P.I. # 15-065-24037-00-00

GEOLOGICAL REPORT
DRILLING TIME AND SAMPLE LOG

COMPANY Baird Oil Company, LLC.
LEASE Esther Worcester #4-13
FIELD Worcester East
LOCATION 1610' FNL & 1600' FEL
SEC 13 TWSP 7s RGE 22w
COUNTY Graham STATE Kansas

ELEVATION
KB 2176'
DF 2174'
GL 2168'
Depths Measured From
Log KB Drilling KB

CONTRACTOR WW Drilling Rig #12
SPUD 5-5-14 COMP 5-11-14
SAMPLES SAVED FROM 3100' TO R.T.D.

CASING
Surface 8 5/8" @ 219'
Production 5 1/2" @ 3798'

ELECTRIC LOGS
Nabors

FORMATION TOPS AND STRUCTURAL POSITION

FORMATION	SAMPLE	E. LOG	DATUM	A	B	C	D
				●	●		
Anhydrite	1807	1807	+ 369	+ 373	+ 381		
Base Anhydrite	1840	1840	+ 336	+ 342	+ 350		
Topeka	3168	3167	- 991	- 986	- 983		
Heebner	3377	3376	- 1200	- 1193	- 1193		
Toronto	3400	3398	- 1222	- 1215	- 1214		
Lansing	3415	3415	- 1239	- 1232	- 1230		
Base Kansas City	3601	3601	- 1425	- 1420	- 1420		
Arbuckle	3701	3700	- 1524	- 1502	- 1506		
Total Depth	3800	3799	- 1623	- 1528	- 1574		

REFERENCE WELLS

A Baird Oil Co. #1-13 Worcester Unit, 2290' FNL + 2500' FWL Sec 13-7s-22w
B Baird Oil Co. Esther Worcester #2-13, 1270' FSL + 695' FEL Sec 13-7s-22w
C
D Port Collar @ 1817'

REMARKS

This well ran 7 to 9 feet lower on the Lansing top and 18 to 22 feet lower on the Arbuckle top than the reference wells. Encouraging D.S.T. results warranted the cementing of production casing to further test the well. The following zones should be tested; 3718'-3724' and 3700'-3714'.

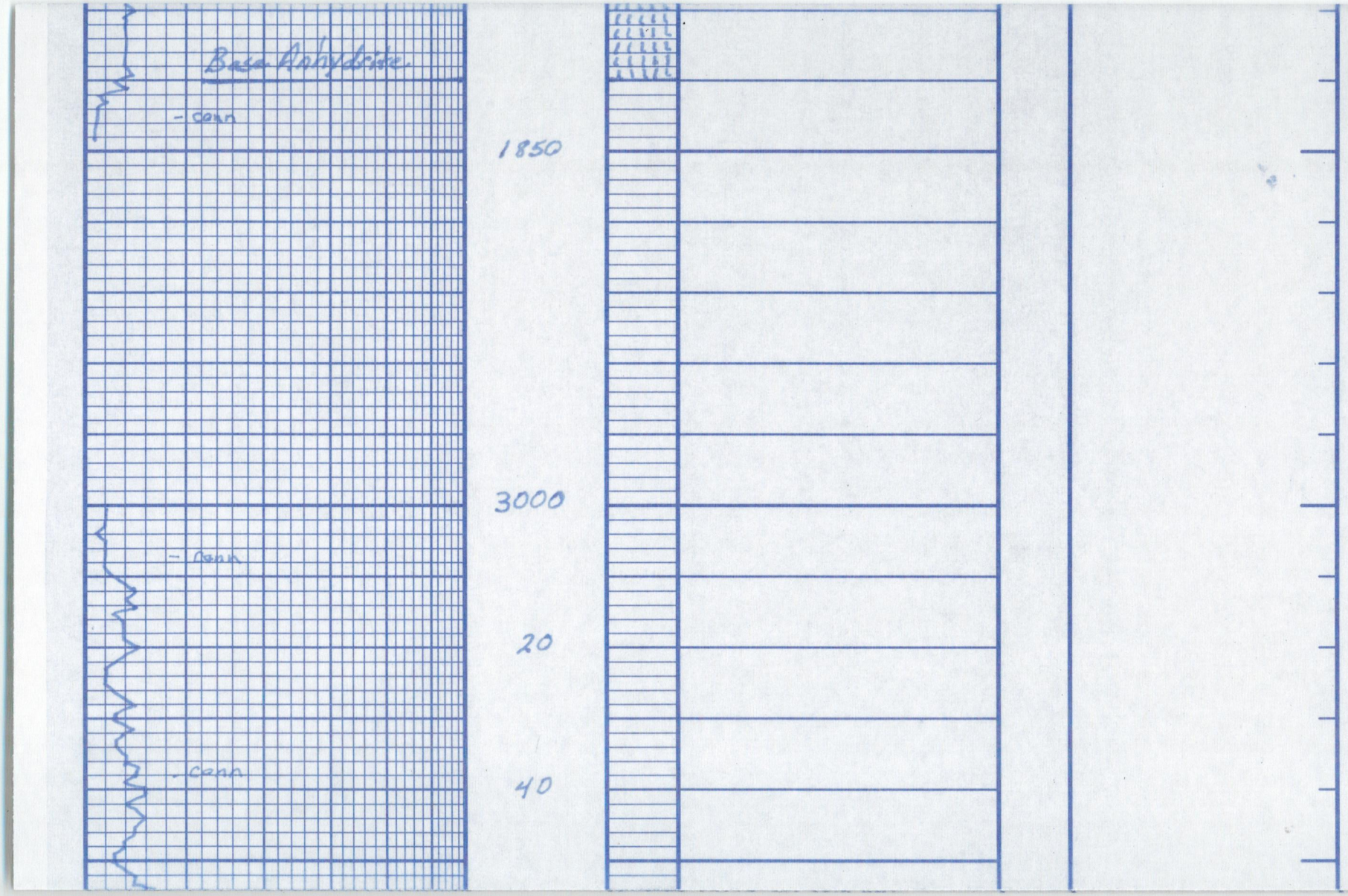
Richard B. Bell
5/11/14

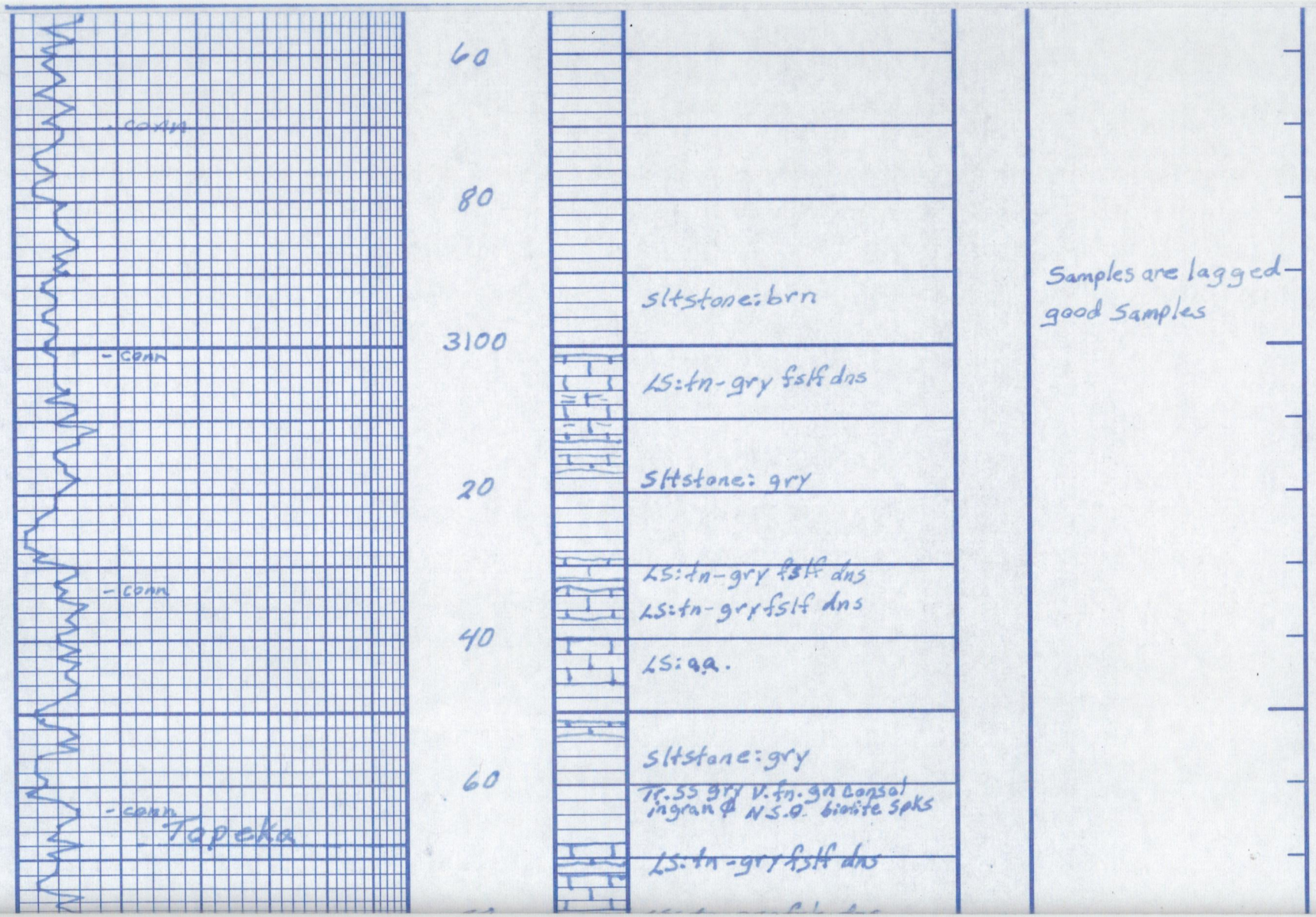
7502

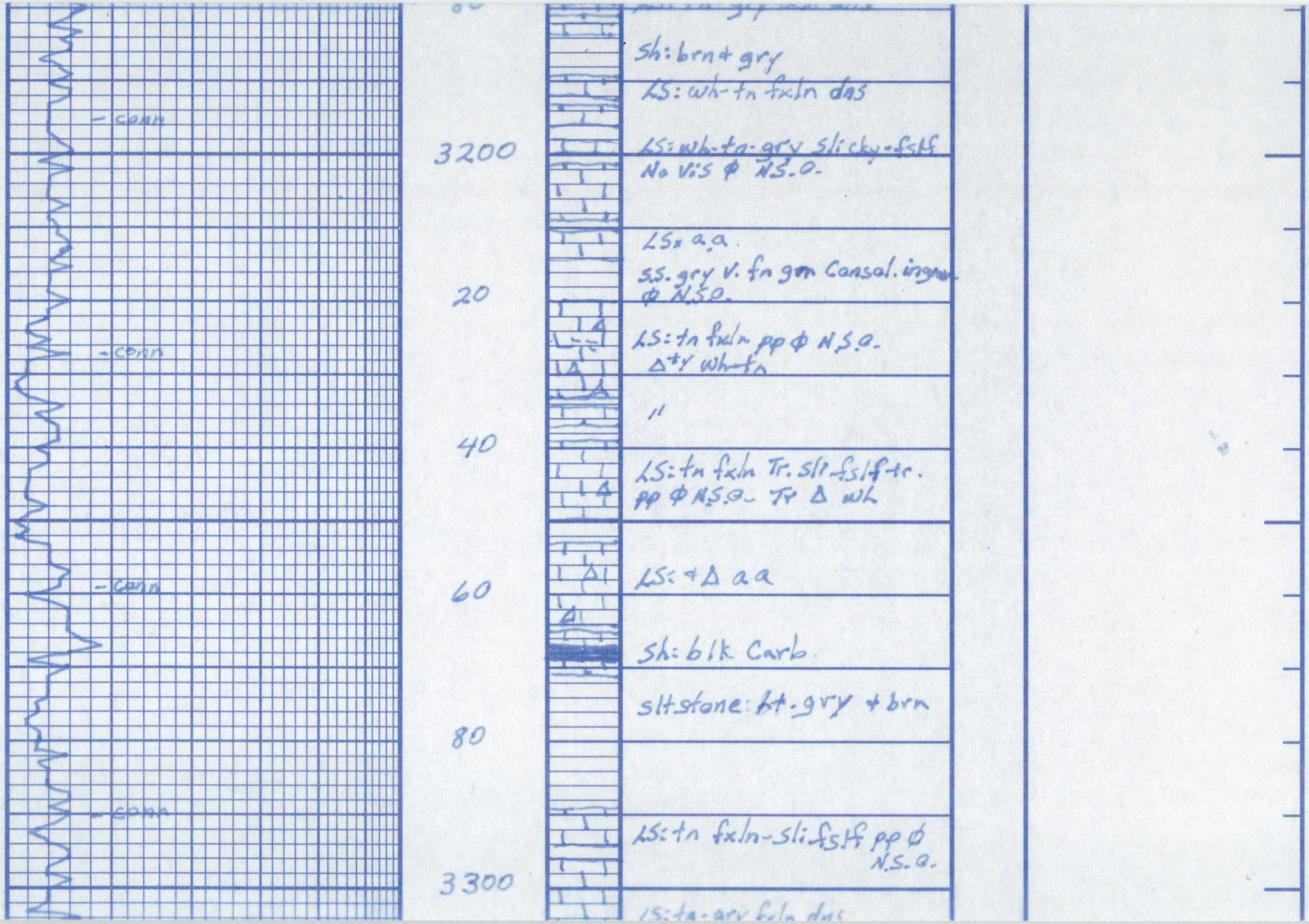
LEGEND

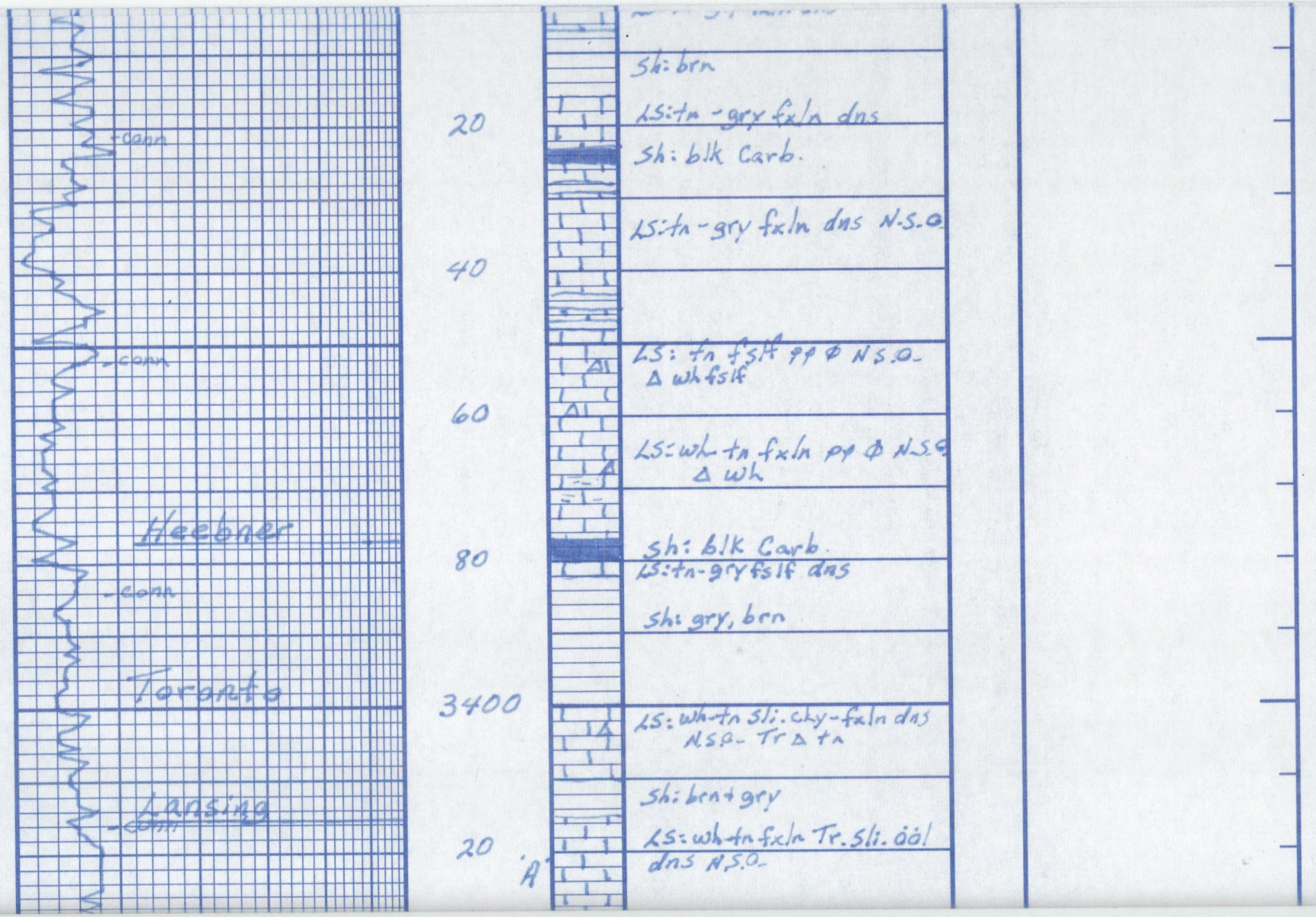
LOG 7710

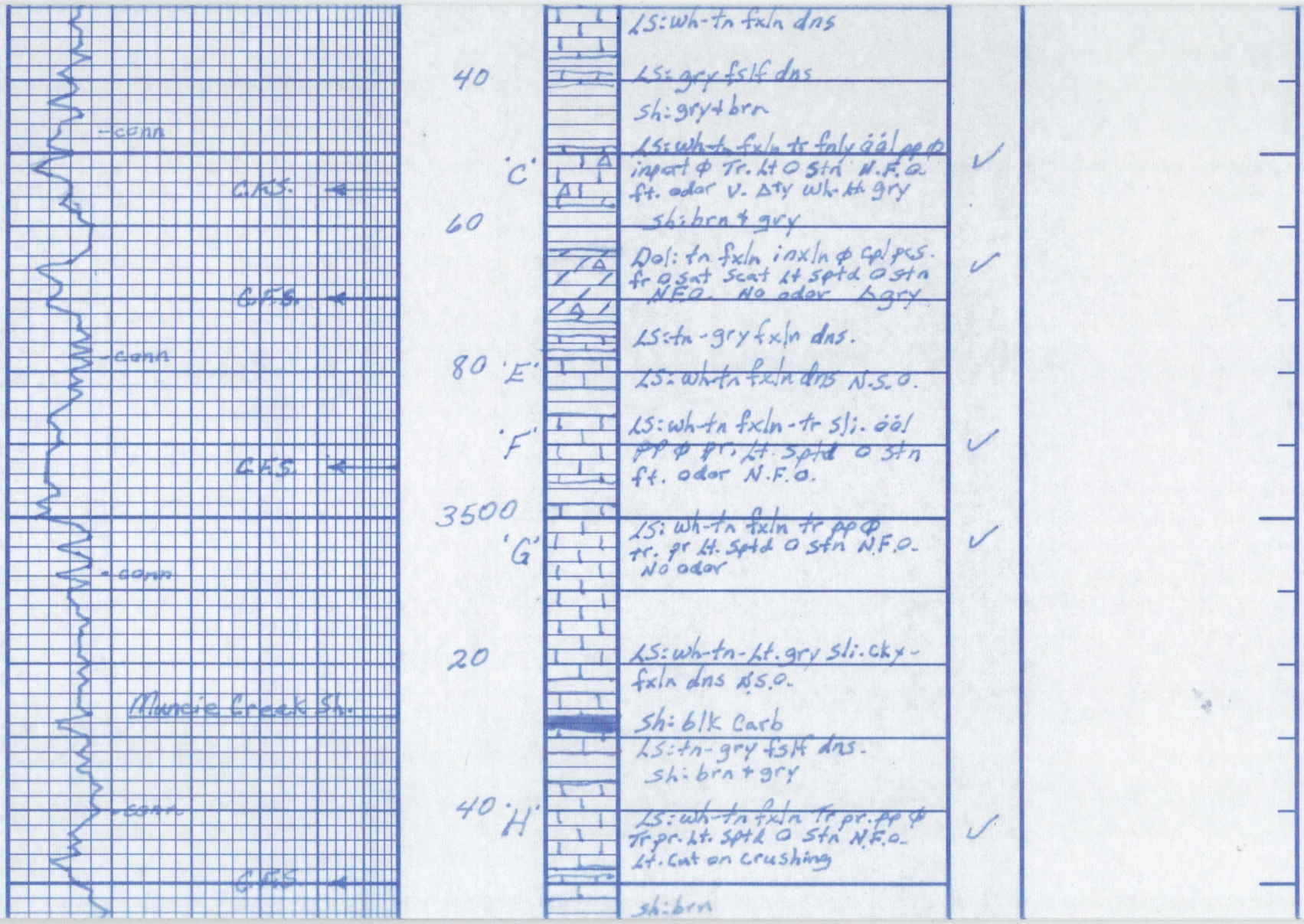
DRILLING TIME IN MINUTES PER FOOT Rate of Penetration Decreases 5" 10" 15" 20" 25"	DEPTH	LITHOLOGY	SAMPLE DESCRIPTIONS	OIL SHOWS	REMARKS
Anhydrite Conn	1800				

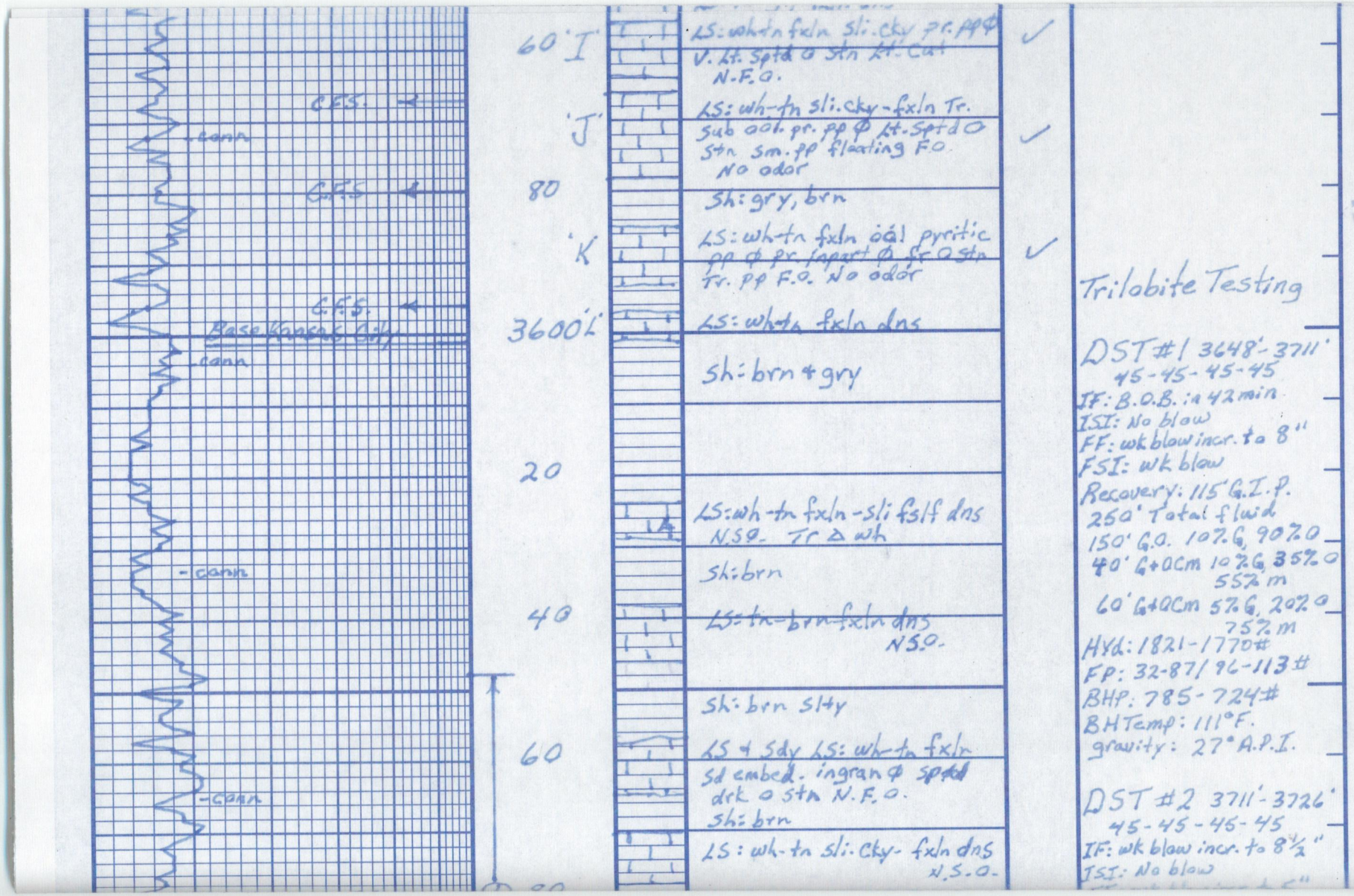

Baca Anhydrite.
- conn
1850
3000
- conn
20
- conn
40


60
80
3100
20
40
60
- COMM
- COMM
- COMM
Topeka
sltstone: brn
LS: tn-gry fslf dns
sltstone: gry
LS: tn-gry fslf dns
LS: tn-gry fslf dns
LS: aa.
sltstone: gry
Tr. SS gry v. fn. gn consol ingran ø N.S.Q. biotite spks
LS: tn-gry fslf dns
Samples are lagged
good samples


- conn
- conn
- conn
- conn
3200
20
40
60
80
3300
Sh: brn + gry
LS: wh-tn fxln das
LS: wh-tn-gry slicky-fslf
No Vis ϕ N.S.O.
LS: a.a.
ss. gry v. fn grn Consol. ingr
ϕ N.S.O.
LS: tn fxln pp ϕ N.S.O.
Δ+Y wh-tn
"
LS: tn fxln Tr. slt-fslf+c.
pp ϕ N.S.O. Tr Δ wh
LS: +Δ a.a
Sh: blk Carb.
slt.stone: lt.gry + brn
LS: tn fxln-sli.fslf pp ϕ
N.S.O.


Sh: brn
LS: tn - gry fx/n dns
Sh: blk Carb.
LS: tn - gry fx/n dns N.S.O.
LS: tn fs/f pp Φ N.S.O.
Δ wh fs/f
LS: wh-tn fx/n pp Φ N.S.O.
Δ wh
Sh: blk Carb.
LS: tn-gry fs/f dns
Sh: gry, brn
LS: wh-tn sli. cky-fx/n dns
N.S.O. Tr Δ tn
Sh: brn+gry
LS: wh-tn fx/n Tr. sli. oöl
dns N.S.O.
Heebner
Toronto
Lansing
20
40
60
80
3400
20
A'

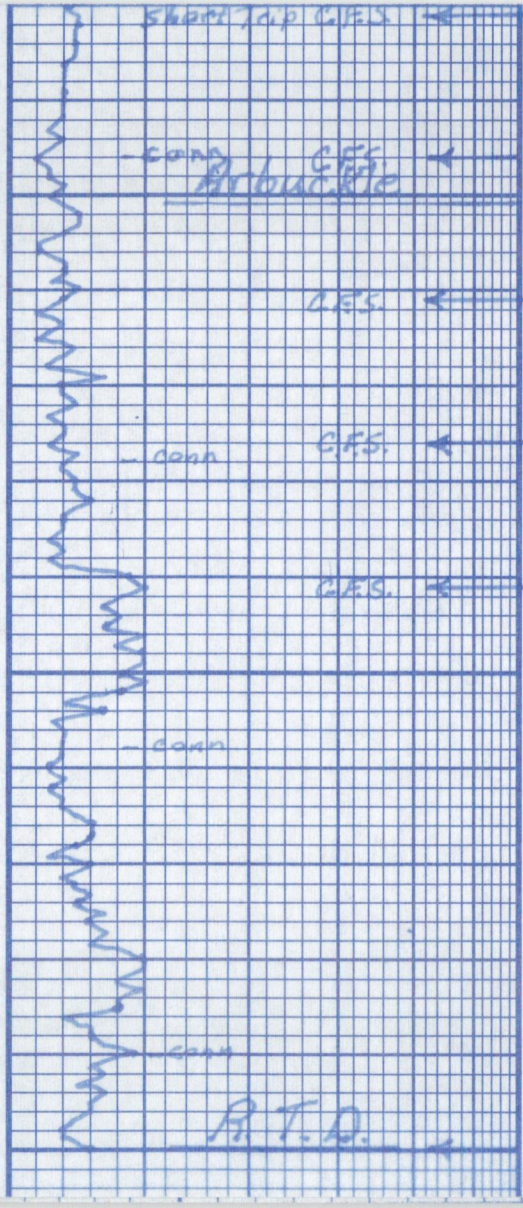

conn
C.K.S.
C.F.S.
conn
C.K.S.
conn
Muncie Creek Sh.
conn
C.P.S.
40
'C'
60
80
'E'
'F'
3500
'G'
20
40
'H'
LS: wh-tn fx/n dns
LS: gry fs/f dns
sh: gry + brn
LS: wh-tn fx/n tr fnly oöl pp Φ
inpart Φ Tr. Lt O Stn N.F.O.
ft. odor V. Δty wh-lt gry
sh: brn & gry
Dol: tn fx/n inx/n Φ cpl pcs.
fr O sat scat Lt spkd O stn
N.F.O. No odor Δgry
LS: tn-gry fx/n dns.
LS: wh-tn fx/n dns N.S.O.
LS: wh-tn fx/n-tr sli. öol
pp Φ pr; Lt. spkd O stn
ft. odor N.F.O.
LS: wh-tn fx/n tr pp Φ
tr. pr Lt. spkd O stn N.F.O.
No odor
LS: wh-tn-Lt. gry sli. cky-
fx/n dns N.S.O.
sh: blk carb
LS: tn-gry fs/f dns.
sh: brn + gry
LS: wh-tn fx/n Tr pr. pp Φ
Tr pr. Lt. spkd O stn N.F.O.
Lt. cut on crushing
sh: brn



Trilobite Testing

DST #1 3648'-3711'
45-45-45-45
IF: B.O.B. in 42 min
ISI: No blow
FF: wk blow incr. to 8"
FSI: wk blow
Recovery: 115' G.I.P.
250' Total fluid
150' G.O. 10% G, 90% O
40' G+OCm 10% G, 35% O, 55% m
60' G+OCm 5% G, 20% O, 75% m
Hyd: 1821-1770#
FP: 32-87/96-113#
BHP: 785-724#
BH Temp: 111°F.
gravity: 27° A.P.I.

DST #2 3711'-3726'
45-45-45-45
IF: wk blow incr. to 8½"
ISI: No blow



Sh: brn

Sh: brn slty Δ yel + blk

Dol: wh-tn fxln-mxln inxln-vgy ϕ rainbow S.O. gd o Sat, bleeding FO gd odor ✓

Dol: a.a. incr. vgy ϕ stn a.a. gd odor rainbow S.O. ✓

Dol: wh-tn fxln-mxln inxln ϕ vgy ϕ rainbow S.O. gd o Sat but decreasing lot of barren Sh: brn ✓

Dol: tn-brn fxln dns

Dol: wh-tn fxln-mxln glauc spks Tr. pyrite inxln ϕ-vgy ϕ Tr blk Thick tary o stn

Dol: a.a. barren

Dol: wh-tn fxln-mxln sli. sdy inxln ϕ glauc spks N.S.O.

FSI: wk blow
Recovery: 55' G.I.P.
250' Total fluid
190' Gs. 10% G, 90% O
60' G+mco 5% G, 65% O, 30% m
Hyd: 1830-1764#
FP: 17-65/70-89#
BHP: 868-812#
BH Temp: 110° F.
gravity: 26° A.P.I.

DST #3 3726'-3741'
30-30-30-30
IF: wk blow
FF: No blow
Recovery: 30' G+Ocm
5% G, 40% O, 55% m
Hyd: 1837-1812#
FP: 12-19/23-25#
BHP: 828-407#
BH Temp: 109° F.

Board 3728.61
Strap 3728.06
Diff. .55
Incline @ 3711' ½°