

API #: 15-195-22901-0000

GEOLOGICAL REPORT
DRILLING TIME AND SAMPLE LOG

COMPANY Reilly Oil Company, Inc.
 LEASE Mary # 1-7
 FIELD Tidball East
 LOCATION 1208' ENL + 929' FEL
 SEC 7 TWSP 11s RGE 24w
 COUNTY Trego STATE Kansas

ELEVATION
 KB 2376'
 DF 2374'
 GL 2371'
 Depths Measured From
 Log KB Drilling KB

CONTRACTOR WW Drilling Rig # 6
 SPUD 12-10-13 COMP 12-18-13
 SAMPLES SAVED FROM 3450' TO R.T.D.

CASING
 Surface 8 7/8" @ 218'
 Production 5 1/2"

ELECTRIC LOGS
Nabors

FORMATION TOPS AND STRUCTURAL POSITION

FORMATION	SAMPLE	E. LOG	DATUM	A	B	C	D
			<u>E. log</u>				
<u>Anhydrite</u>	<u>1985</u>	<u>1985</u>	<u>+ 391</u>	<u>+ 387</u>	<u>+ 393</u>	<u>+ 388</u>	
<u>Base Anhydrite</u>	<u>2026</u>	<u>2026</u>	<u>+ 350</u>	<u>+ 348</u>	<u>+ 348</u>	<u>+ 347</u>	
<u>Topeka</u>	<u>3447</u>	<u>3447</u>	<u>- 1071</u>	<u>- 1079</u>	<u>- 1075</u>	<u>- 1074</u>	
<u>Heebner</u>	<u>3665</u>	<u>3665</u>	<u>- 1289</u>	<u>- 1295</u>	<u>- 1295</u>	<u>- 1291</u>	
<u>Toronto</u>	<u>3689</u>	<u>3689</u>	<u>- 1313</u>	<u>- 1329</u>	<u>- 1317</u>	<u>- 1316</u>	
<u>Lansing</u>	<u>3704</u>	<u>3704</u>	<u>- 1328</u>	<u>- 1341</u>	<u>- 1332</u>	<u>- 1331</u>	
<u>Base Kansas City</u>	<u>3938</u>	<u>3938</u>	<u>- 1562</u>			<u>- 1567</u>	
<u>Marmaton</u>	<u>3983</u>	<u>3983</u>	<u>- 1607</u>			<u>- 1612</u>	
<u>Total Depth</u>	<u>4050</u>	<u>4051</u>	<u>- 1675</u>	<u>- 1553</u>	<u>- 1562</u>	<u>- 1762</u>	

REFERENCE WELLS

- A Rupe Oil Co., Davis #1, NE-SW-NE Sec. 7-11s-24W
- B Rupe Oil Co., Davis #3, NW-SE-NE Sec. 7-11s-24W
- C Rupe Oil Co., Davis #4, SE-NE-NE Sec. 7-11s-24W
- D

REMARKS

This well ran 3 to 13 feet higher on the Lansing top than the reference wells. After reviewing D.S.T. and open hole data it was decided production casing should be cemented to further test the well. The following zones should be tested: 3905'-3907', 3885'-3890', 3863'-3867', 3839'-3841', 3748'-3750', 3735'-3737 and 3705'-3709'.

Richard R. Ybelle
12-18-13

7502

LEGEND

- Anhydrite

- Salt

- Sandstone


- Shale

- Carb sh

- Limestone

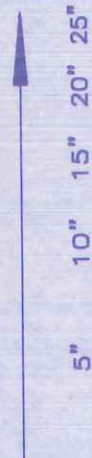
- Ool. Lime

- Chert

- Dolomite


DRILLING TIME IN MINUTES
PER FOOT

Rate of Penetration Decreases



DEPTH

1980

2000

2020

LITHOLOGY

SAMPLE DESCRIPTIONS

OIL SHOWS

REMARKS

LOG 7710

REMARKS

This well ran 3 to 13 feet higher on the casing top than the reference wells. After reviewing D.S.T. and open hole data it was decided production casing should be cemented to further test the well. The following zones should be tested: 3905'-3907', 3885'-3890', 3863'-3867', 3839'-3841', 3748'-3750', 3735'-3737 and 3705'-3709'.

Richard B. Bell
12-18-13

7502

LEGEND

- Anhydrite

- Salt

- Sandstone

- Shale

- Carb sh

- Limestone

- Ool. Lime

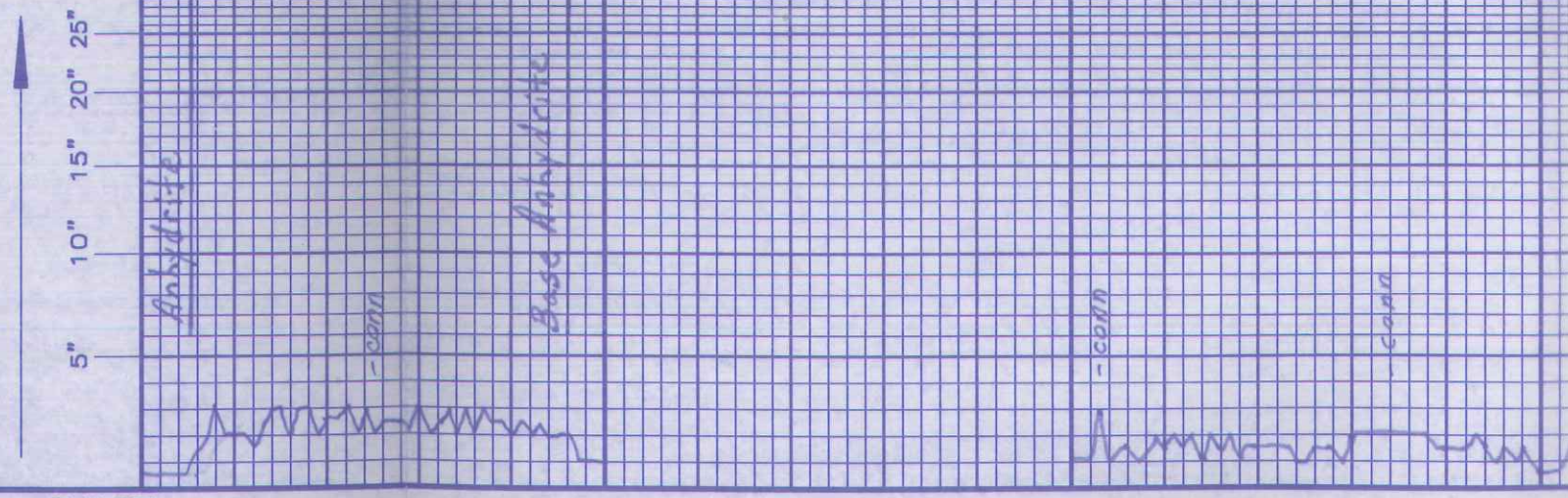
- Chert

- Dolomite

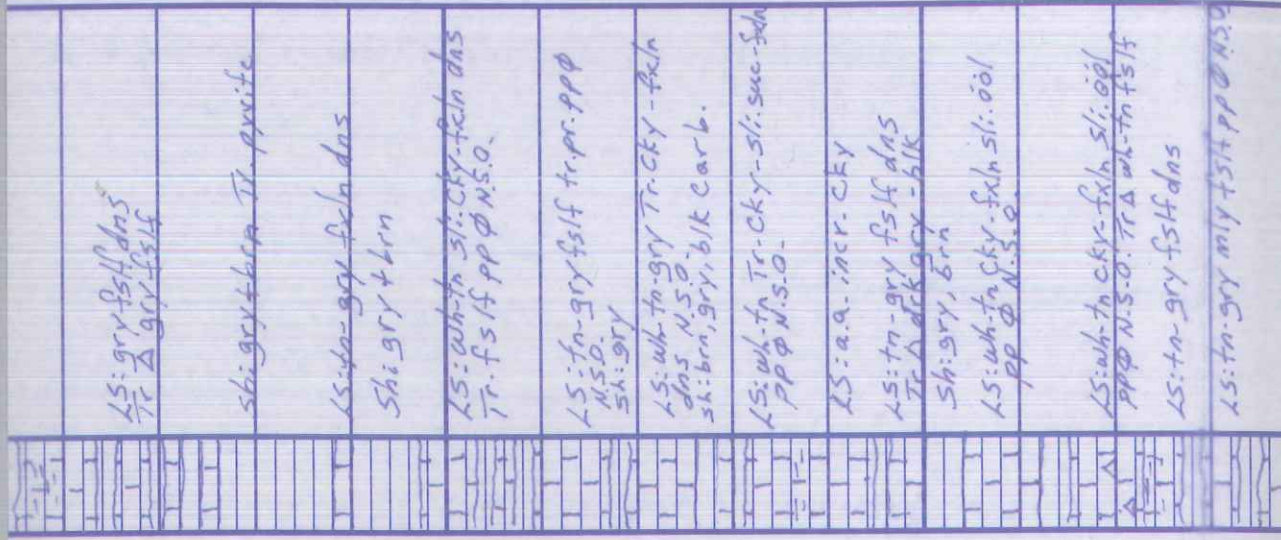
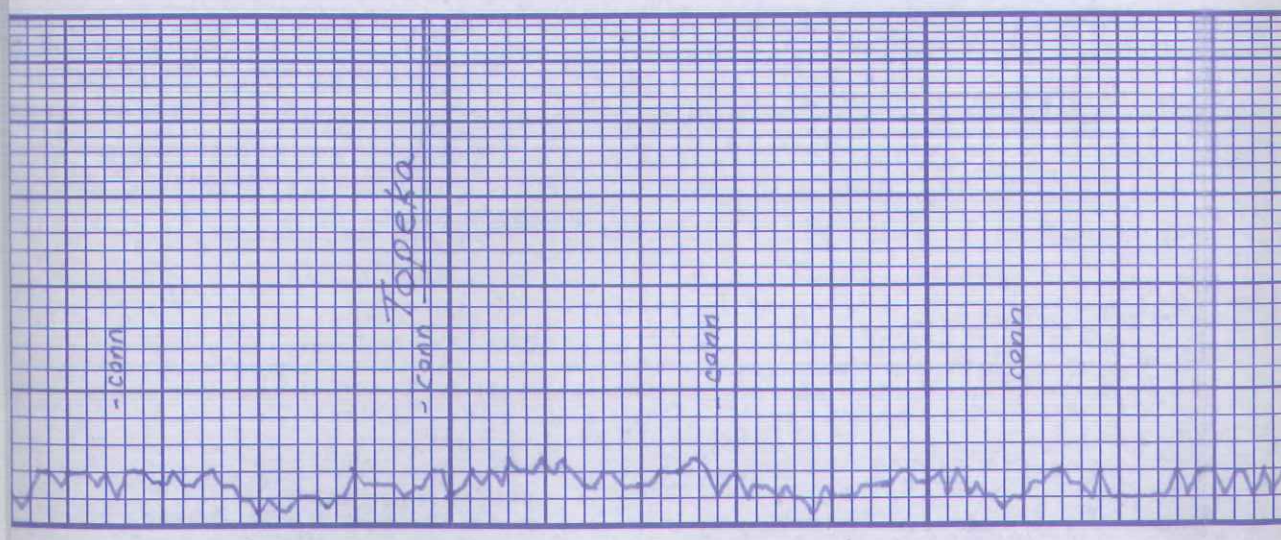

DEPTH	LITHOLOGY	SAMPLE DESCRIPTIONS	REMARKS
1980	Anhydrite		
2000	Anhydrite		
2020	Anhydrite		
3350	Anhydrite		
3400	Anhydrite		Samples are lagged good samples

DRILLING TIME IN MINUTES
PER FOOT

Rate of Penetration Decreases



LOG 7710



20

40

60

80

3500

20

LS: gry fsif das
Tr Δ gry fsif

sh: gry + brn Tr. psite

LS: tn- gry fcln das
Sh: gry + brn

LS: wh-tn sl: cky-fcln das
Tr. fsif pp N.S.O.

LS: tn- gry fsif tr. pr. pp
N.S.O.
sh: gry

LS: wh-tn- gry Tr. cky-fcln
das N.S.O.
sh: brn, gry, blk carb.

LS: wh-tn Tr. cky-sl: sec-fcln
pp N.S.O.

LS: a.a. incr. cky

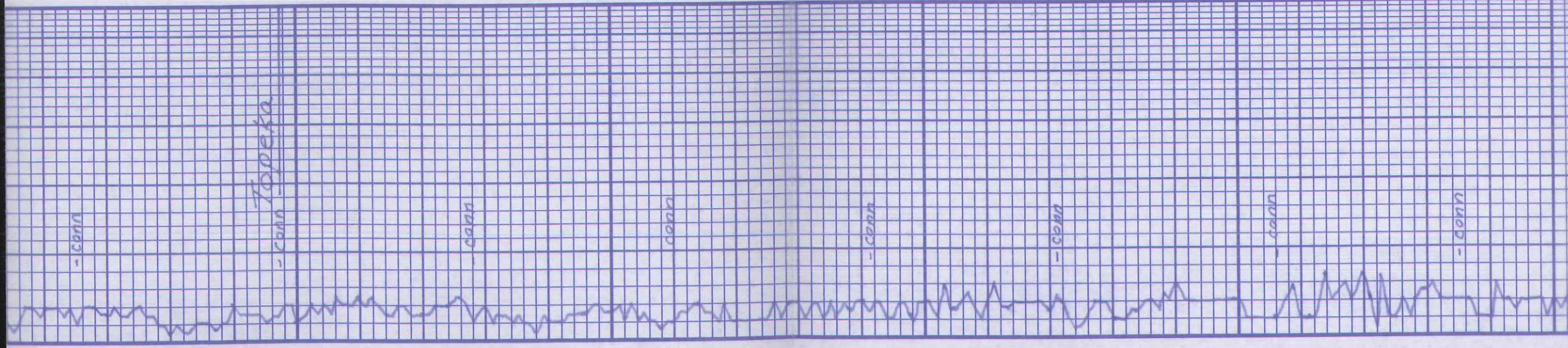
LS: tn- gry fsif das
Tr Δ drk gry - blk
sh: gry, brn

LS: wh-tn cky-fcln sl: oil
pp N.S.O. Tr Δ wh-tn fsif

LS: wh-tn cky-fcln sl: oil
pp N.S.O. Tr Δ wh-tn fsif

LS: tn- gry fsif das

LS: tn- gry mly fsif pp N.S.O.



20	LS: gry-fsif das Tr Δ gry-fsif
40	sh: gry + brn Tr. pr. white LS: fo-gry-feln das Sh: gry + brn
60	LS: wh-ta sl: cky-feln das Tr. fsif pp φ N.S.O.
80	LS: ta-gry-fsif tr. pr. ppφ N.S.O. sh: gry LS: wh-ta-gry Tr. cky-feln das N.S.O. sh: brn, gry, blk carb.
3500	LS: wh-ta Tr. cky-sli. suc-feln ppφ N.S.O. LS: a.a. incr. cky LS: ta-gry-fsif das Tr. h. dck gry - blk Sh: gry, brn LS: wh-ta cky-feln sli. öl ppφ N.S.O.
20	LS: wh-ta cky-feln sli. öl ppφ N.S.O. Tr Δ wh-ta fsif LS: ta-gry-fsif das LS: ta-gry mly fsif ppφ N.S.O.
40	LS: wh-ta fsif tr. feln Tr. ppφ N.S.O. Δ ta-ta-gry Sh: blk carb. LS: ta-lt. brn fsif das.
60	SS: wh-gry fn. gn. consol. ingran φ cky N.S.O. Sh: gry + brn LS: wh-ta cky-feln fsif ppφ N.S.O.
80	LS: wh-ta sli: cky-feln öl ppφ N.S.O. Δ ta-or LS: wh-ta feln-fsif das sh: gry + brn
3600	LS: wh-ta cky-feln No vis φ N.S.O. Tr Δ ta LS: wh-ta cky-feln öl ppφ in part φ friable N.S.O. Δ ta-lt. gry LS: wh-ta sli: cky-feln - sli. suc ppφ N.S.O. Δ ty wh-ta
20	LS: wh-ta-lt. gry-cky-fsif das N.S.O. Δ ta
40	sh: gry + brn LS: wh-ta cky-feln - sli.

-conn

-conn Topeka

-conn

-conn

-conn

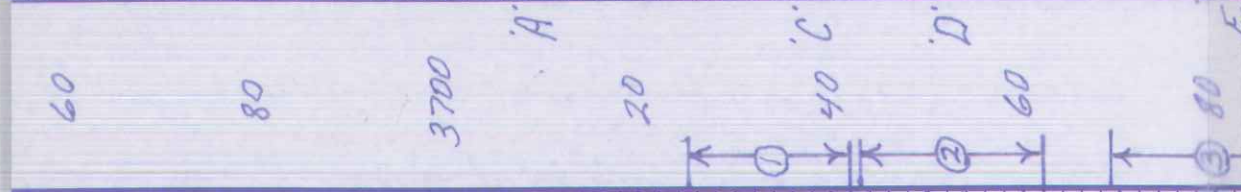
-conn

-conn

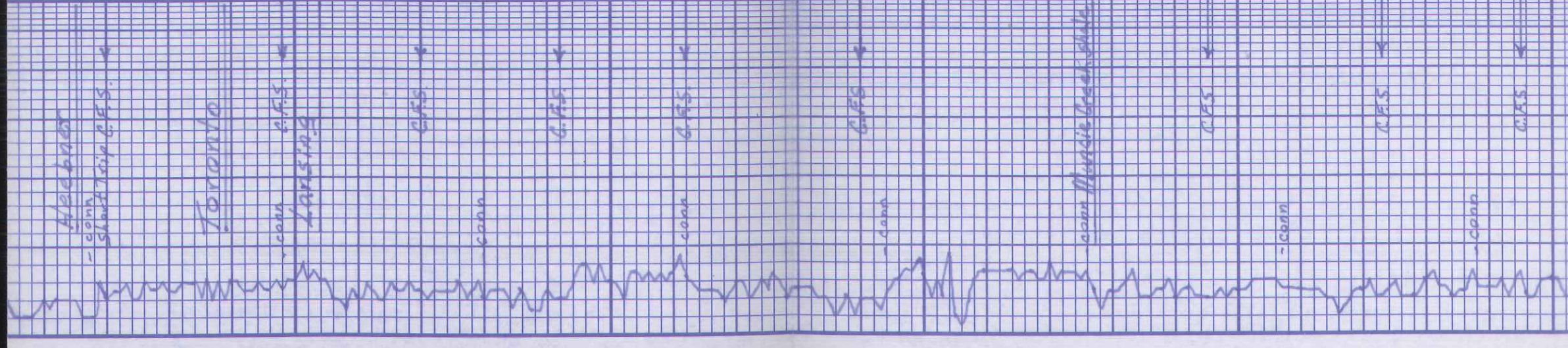
-conn

Board 3762.15
 Strap 3761.55
 Diff .60
 Incline @ 3742' 34°
 Diamond Testing
 DST #1 3725'-3742'
 15-LO-30-LO
 IF: B.O.B. in 3/4 min
 ISI: 1 1/2" blow
 FF: B.O.B. in 3 min.
 FSI: No blow
 Recovery: 1329' Total
 20' C.O. gravity 20' APZ
 444' SW w/o i/Scum
 865' SW
 HYD: 1781-1777#
 FP: 69-331/346-448#
 BHP: 1112-1098#
 BH Temp: 123°F.
 Chlorides: 64,000 ppm
 DST #2 3743'-3762'
 15-LO-30-LO
 IF: B.O.B. in 5 min
 ISI: 1" blow died
 FF: B.O.B. in 10 min.
 FSI: 14" blow died
 Recovery: 60' I.P.
 618' Total fluid
 20' C.O. gravity 27' APZ
 170-1072# 972#

15H Tr. pp @ N.S.O.
 A wh. tr.
 Sh: blk Carb.
 15: tn fs/f dns
 Sl: stone: gry
 aa + brn
 15: wh. tncky. fx in dns
 N.S.O. A+Y tn
 Sl: brn + gry
 15: wh. tn v.cky. fx in oil
 pp @ 8.1 ft. O.S.T.
 Tr pp F.O. on crushing.
 No odor
 15: wh. tn. fx in dns
 15: tn. fs/f dns
 sh: gry + brn
 15: wh. tn fs/f pp @ - in part @
 frostn pp F.O. ft. odor
 Δ wh. tn 15H
 15: wh. v.cky 15: wh. tn fx in
 oil pp @ - V.G.Y @ ft. rainbow s. R.
 drk spt. lostn pp floating F.O.
 strong odor
 A wh. tr.
 15: wh. tn. ht. gry sl: cky-fxn
 dns
 Sh: blk Carb
 15: wh. tn. fx in. sl. fs/f dns
 N.S.O.
 15: wh. tn. tn. dns



Heebner
 - conn
 Short Trip C.F.S.
 Toronto
 - conn
 C.F.S.
 Karsina
 - conn
 C.F.S.
 - conn
 C.F.S.
 - conn
 C.F.S.



Section	Time	Notes
60		Electro -conn short Trip C.F.S.
80		Toronto
3700		-conn LARSING
20		-conn C.F.S.
40		-conn C.F.S.
60		-conn C.F.S.
80		-conn C.F.S.
3800		-conn C.F.S.
20		-conn Mudite Break
40		-conn C.F.S.
60		-conn C.F.S.
80		-conn C.F.S.
3900		-conn C.F.S.

15H Tr. PP0 NSU.
 AwtL
 Sh: blk Carb.
 Ls: tn fslf dns
 S/ststone gry
 aa + brn
 Ls: wh-tacky-feln dns
 NS.O. A+V, tn
 Sh: brn + gry
 Ls: wh-tn V. cky-feln oöl
 ppφ rt. dt. O. sft
 Tr pp F.O. on crushing
 No odor
 Ls: wh-tn feln dns
 Ls: tn fslf dns
 sh: gry + brn
 Ls: wh-tn fslf ppφ - in part φ
 fr. o. satn pp. o. ft. odor
 Δ wk-tn fslf
 Ls: wh-tn V. cky Ls: wh-tn feln
 oöl ppφ - V. gry φ rt. rainbow s.o.
 dk sft. o. sftn pp floating F.O.
 Strong odor
 Δ wk-tn
 Ls: wh-tn-lt. gry sli. cky-feln
 dns
 Sh: blk Carb
 Ls: wh-tn feln sli. fslf dns s.o.
 Ls: wh-tn feln dns
 Dol: wh-tn sac-feln ppφ, Tr.
 V. gry φ fr. O. sat. pp F.O.
 Strong odor Δ wk-tn gry
 Ls: wh-tn V. cky-feln ppφ
 sftn from above
 Ls: wh-tn cky-feln dns
 NS.O.
 Ls: wh-tn-lt. gry deer. cky-
 feln dns NS.O.
 sh: blk Carb.
 Ls: tn-lt. gry feln sli-fslf
 dns NS.O.
 Ls: wh-tn V. cky. sftn-Tr fslf
 fr. O sat. lot of floating
 F.O. Strong odor
 Ls: wh-tn cky-feln dns
 Δ wk
 Tr: sh: blk Carb
 Sh: gry + brn
 Ls: wh-tn sli. cky-feln Tr sli. oöl
 w/ sft. o. sftn pp φ - Tr. V. gry φ
 rt. dt. O. sftn and floating F.O.
 fr. odor
 Sh: gry + brn
 Ls: wh-tn cky-feln pp φ - V. gry φ
 rainbow s.o. dk sft. O. sftn
 Tr: dk O. sat pp floating F.O.
 fr. odor
 Sh: dk gry, brn, may

Board 3762.15
Strap 3761.55
Diff .60
Incline @ 3742' 340
Diamond Testing
DST #1 3725'-3742'
 15-60-30-60
 IF: B.O.B. in 1 3/4 min
 FSI: 1 1/2" blow
 FF: B.O.B. in 3 min.
 FSI: No blow
 Recovery: 1329' Total
 20° C.O. gravity 20° API
 444' SW w/o 15 cum
 865' SW
 Hyd: 1781-1777 #
 FP: 68-331/346-48 #
 BHP: 112-1098 #
 BH Temp: 123° F.
 Chlorides: 64,000 ppm
DST #2 3743'-3762'
 15-60-30-60
 IF: B.O.B. in 5 min
 FSI: 1" blow died
 FF: B.O.B. in 10 min.
 FSI: 1/4" blow died
 Recovery: 606' F.
 618' Total Fluid
 218' C.O. gravity 24° API
 93' 05 mu 17.0, 102 m, 972 w
 307' SW Tr. O. sft. S.
 Hyd: 1795-1795 #
 FP: 15-122-127-246 #
 BHP: 1129-1122 #
 BH Temp: 118° F.
 Chlorides: 68,000 ppm
DST #3 3769'-3790'
 30-60-30-60
 IF: B.O.B. in 18 min.
 FSI: No blow
 FF: wk blow, incr. to 9 1/2"
 FSI: No blow
 Recovery: 400' Total
 10° C.O. gravity 25° API.
 145' 05 mu 27.0, 62 m, 922 w
 245' SW w/o 5 cum
 Hyd: 1809-1808 #
 FP: 14-119/128-196 #
 BHP: 1108-1107 #
 BH Temp: 122° F.
 Chlorides: 65,000 ppm
DST #4 3824'-3845'
 15-45-15-45
 IF: B.O.B. in 1 min.
 FSI: No blow
 FF: B.O.B. in 2 min.
 FSI: wk blow incr. to 1 1/2"
 Recovery: 1287' Total
 20° C.O. gravity 32° API.
 92' OGCW 107.9, 42° O
 372' OC MW 47.0, 42 m, 922 w
 803' MW 27.1, 987.0
 Hyd: 1826-1828 #
 FP: 126-483/493-445 #
 BHP: 746-746 #
 BH Temp: 124° F.
 Chlorides: 73,000 ppm
DST #5 3854'-3873'
 15-60-30-60
 IF: B.O.B. in 4 min
 FSI: 2" blow

FF: B.O.B. in 4 min.
 FSI: 9" blow
 Recovery: 750' G.I.P.
 493' Total
 341' C.O. gravity 43.5° A.P.I.
 31' G+OC MW 57.9, 30% W
 121' SW 27% M, 37% W
 Hyd: 1819-1814#
 FP: 26-91/91-161#
 BHP: 944-931#
 BH Temp: 121°F
 Chlorides: 63,000 ppm

DST#6 3873'-3895'
 15-45-15-45
 IF: B.O.B. in 5 min
 ISI: 1/8" blow died
 FF: B.O.B. in 6 min.
 FSI: 10" blow
 Recovery: 300' G.I.P.
 253' WCPO 50% O, 43% M,
 7% W
 126' MW 107% M, 90% W
 Hyd: 1827-1827#
 FP: 39-108/120-161#
 BHP: 946-914#
 BH Temp: 118°F
 Chlorides: 55,000 ppm

DST#7 3895'-3916'
 10-30-30-60
 IF: B.O.B. in 10 sec.
 ISI: No blow
 FF: B.O.B. in 30 sec.
 FSI: 13/4" blow
 Recovery: 186' G.I.P.
 193' Total Fluid
 20' C.O. gravity 30.2° A.P.I.
 22' OCW 40% O, 60% W
 372' MCOW 10% O, 57% M,
 85% W
 372' G+OCW 37.9, 8% O,
 90% W
 1113' SW
 MW: 1856-1855#
 130-532/595-898#

LS: wh-tn cky-feln Tr. 001 1003
 inclus. pp. Tr. Vay of Tr. ht.
 0.5tn pp. F.O. No odor

sh: gry + brn

LS: tn-brn fsif dns

LS: wh-tn cky-feln Tr ppφ
 No cut N.S.O.

sh: brn, gry

Sh: brn + gry Tr. SS: wh-gry
 V. fn. gn. Consol: ingramp
 No cut

LS: wh-tn feln-sli-fsif dns
 N.S.O.

Sh: brn + gry Tr. shly SS: brn

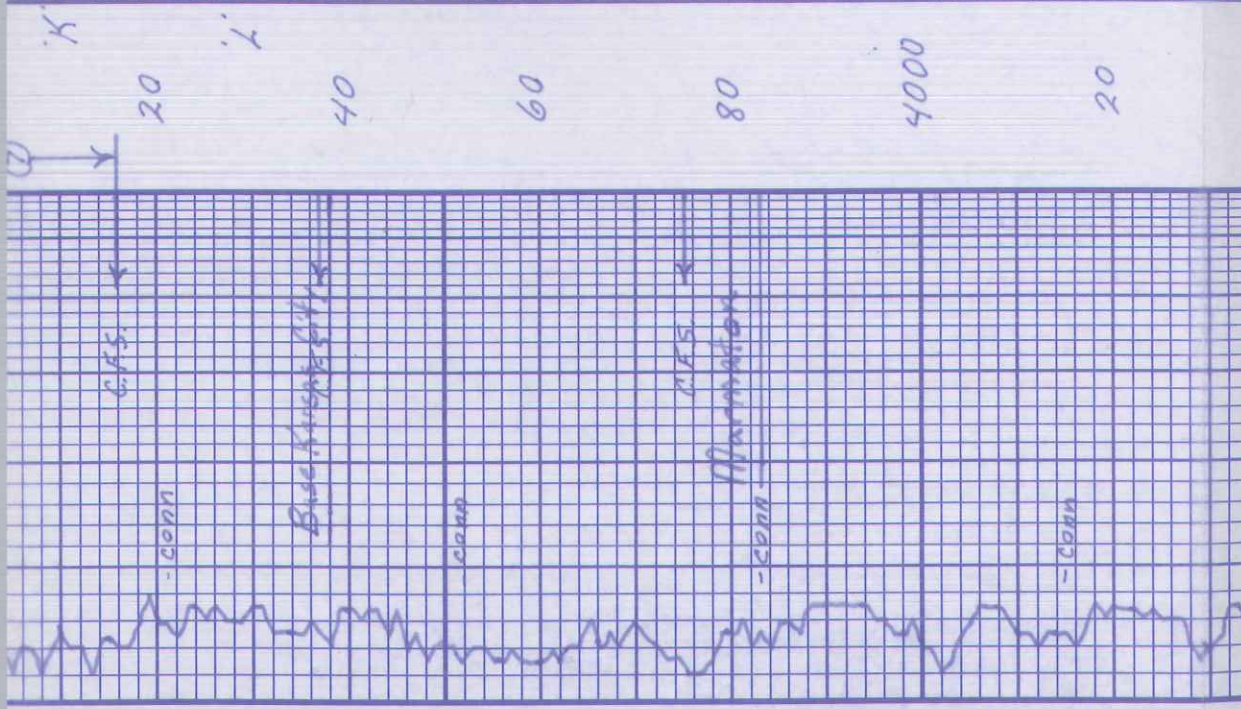
LS: wh-tn-ht-gry sli: cky-feln
 dns N.S.O.

Sh: gry + brn

LS: wh-tn-feln dns N.S.O.

sh: brn + gry

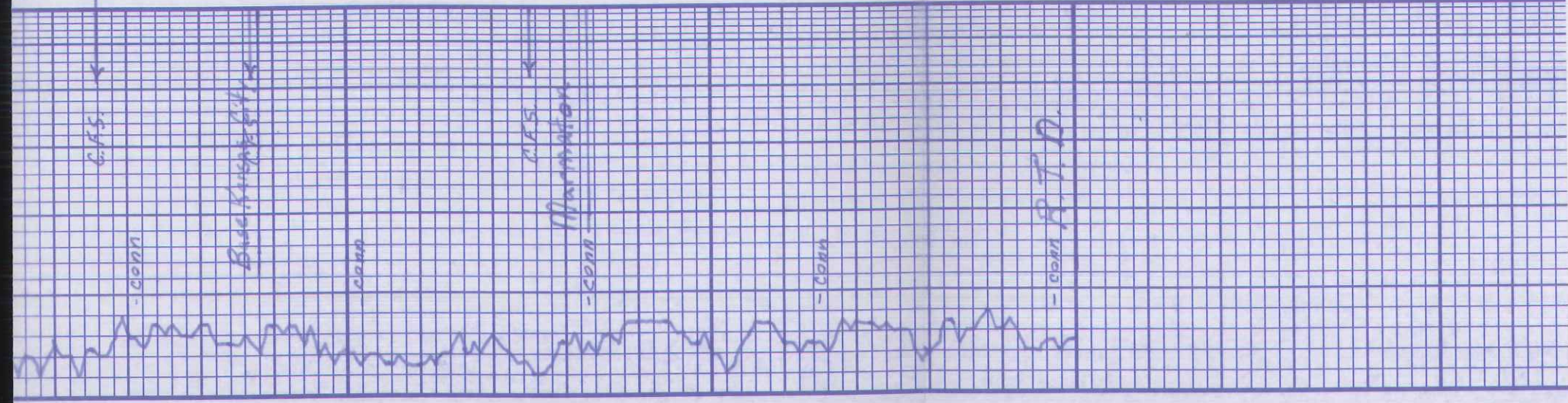
LS: wh-tn-brn feln dns N.S.O.



FF: B.O.B. in 4 min.
 FSI: 9" blow
 Recovery: 750' G.I.P.
 493' Total
 341' C.O. gravity 43.5° A.P.I.
 31' G+OC MW 57.9, 30% W
 121' SW 27% M, 37% W
 Hyd: 1819-1814#
 FP: 26-91/91-161#
 BHP: 944-931#
 BH Temp: 121°F
 Chlorides: 63,000 ppm

DST#6 3873'-3895'
 15-45-15-45
 IF: B.O.B. in 5 min
 ISI: 1/8" blow died
 FF: B.O.B. in 6 min.
 FSI: 10" blow
 Recovery: 300' G.I.P.
 253' WCPO 50% O, 43% M,
 7% W
 126' MW 107% M, 90% W
 Hyd: 1827-1827#
 FP: 39-108/120-161#
 BHP: 946-914#
 BH Temp: 118°F
 Chlorides: 55,000 ppm

DST#7 3895'-3916'
 10-30-30-60
 IF: B.O.B. in 10 sec.
 ISI: No blow
 FF: B.O.B. in 30 sec.
 FSI: 13/4" blow
 Recovery: 186' G.I.P.
 193' Total Fluid
 20' C.O. gravity 30.2° A.P.I.
 22' OCW 40% O, 60% W
 372' MCOW 10% O, 57% M,
 85% W
 372' G+OCW 37.9, 8% O,
 90% W
 1113' SW
 MW: 1856-1855#
 130-532/595-898#



LS: wh-tn cky-feln Tr. 001 1003 incl. ss. pp. Tr. Vgt. Tr. Ht. 0 stn pp FO. No odor	LS: wh-tn cky-feln Tr. pp No cut N.S.O.	LS: wh-tn cky-feln Tr. pp No cut N.S.O.	LS: wh-tn cky-feln Tr. pp No cut N.S.O.	LS: wh-tn cky-feln Tr. pp No cut N.S.O.	LS: wh-tn cky-feln Tr. pp No cut N.S.O.	LS: wh-tn cky-feln Tr. pp No cut N.S.O.	LS: wh-tn cky-feln Tr. pp No cut N.S.O.	LS: wh-tn cky-feln Tr. pp No cut N.S.O.	LS: wh-tn cky-feln Tr. pp No cut N.S.O.
---	--	--	--	--	--	--	--	--	--

FF: B.O.B. in 4 min.
 FSI: 9" blow
 Recovery: 750 G.I.P.
 493' Total
 341' C.O. gravity 43.5° A.P.I.
 31' G+OC MW 57.9, 30% W
 27.7% M, 37% W
 Hyd: 1819-1814#
 FP: 26-91/91-161#
 BHP: 944-931#
 BH Temp: 121° F.
 Chlorides: 63,000 ppm

 DST#6 3873'-3895'
 15-45-15-45
 IF: B.O.B. in 5 min
 ISI: 48" blow died
 FF: B.O.B. in 6 min.
 FSI: 10" blow
 Recovery: 300 G.I.P.
 253' WCM 0 50% O, 43% W
 7% W
 126' MW 10% M, 90% W
 Hyd: 1827-1827#
 FP: 39-108/120-161#
 BHP: 946-914#
 BH Temp: 118° F.
 Chlorides: 55,000 ppm

 DST#7 3895'-3916'
 10-30-30-60
 IF: B.O.B. in 10 sec.
 ISI: No blow
 FF: B.O.B. in 30 sec.
 FSI: 13/4" blow
 Recovery: 186 G.I.P.
 1939' Total Fluid
 20' C.O. gravity 30.2° A.P.I.
 62' OC W 40% O, 60% W
 372' MCOW 10% O 5% M
 372' G+OC W 85% W, 8% O,
 90% W
 1113' SW
 Hyd: 1856-1855#
 FP: 330-537/575-898#
 BHP: 1003-1008#
 BH Temp: 125° F.
 Chlorides: 66,000 ppm