

Arden Ratzlaff

PETROLEUM GEOLOGIST

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107 N. Market 808 Bittng Bldg. Wichita, KS 67202

COMPANY CHIEFTAIN OIL CO., INC.

LEASE MOLZ No. 20

FIELD STRANATHAN

LOCATION SW NE NE NE

SECTION 11 TOWNSHIP 35S RANGE 12W

COUNTY BARBER STATE KANSAS

CONTRACTOR FOSSIL DRILLING RIG NO. 3

COMMENCED DRILLING 9-06-13

COMPLETED DRILLING 9-16-13

RTD 5587 FEET LTD 5586 FEET

MUD UP AT 5300 FEET MUD TYPE CHEMICAL

DRILLING TIME

AND

SAMPLE LOG

ELEVATIONS

KD 1406

DF 1403

G. 1393

Measurements are All
from K.B.

CASING 15 5/8" O. 505 W. 350 ST.

5 1/2" O. 3503' W. 225 SX.

ELECTRICAL SURVEYS

NABORS--COMPENSATED
MELTTON & DENSITY, PE
LOG, DUAL INDUCTION &
MICRO LOG

FORMATION TOPS

SAMPLE

ELECTRIC LOG

HEZNER
KANSAS CITY
CHEROKEE
MISSISSIPPIAN
CHATTANOOGA
SIMPSON
SIMPSON SAND
ANDUCKLE
TOTAL DEPTH

5552 (-2426)
4976 (-2970)
4750 (-3244)
4807 (-3401)
5140 (-3754)
5241 (-3855)
5321 (-3915)
5337 (-3931)
5543 (-4137)
5587 (-4181)

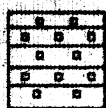
5815 (-2407)
4975 (-2967)
4748 (-3240)
4807 (-3401)
5140 (-3754)
5241 (-3855)
5319 (-3913)
5337 (-3931)
5543 (-4137)
5586 (-4180)

REMARKS

LEGEND



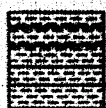
Anhydrite



Salt



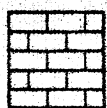
Sandstone



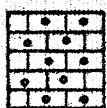
Shale



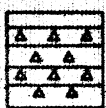
Carb sh



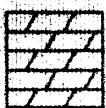
Limestone



Dol.Lime



Chert



Dolomite

DRILLING TIME IN MINUTES
PER FOOT

Rate of Penetration Increases

LITH

DEPTH

5' 10' 15' 20' 25'

SAMPLE DESCRIPTIONS

REMARKS

2700

20

40

60

80

3000

20

40

60

80

3900

SH. MED. TO DK. GR. SIL. V. SCOT. GRN. & GR.
CARB. IN SCOT. TAN. BROWN TO GR. IN YIN.
TRAC. NORTH 1 IN

SILT. SIL. SILY. LT. GR. (SIL. SIL. SIL. SIL.)
A SIL. SILTY SH

SILT. AS ABOVE. IN CORN. LT. MED. & DK. GR.
V. SIL. PARTLY CORN. LT. GR. CORN. SH

SIL. AS ABOVE & SCOT. SILT. AS ABOVE

SIL. MED. TO DK. GR. LT. SIL. IN SCOT.
TAN. GR. & BROWN IN TAN. TRAC. NORTH 1 IN

SH. LT. AS ABOVE

IN. MED. CORN. LT. GR. & TAN. IN YIN.
SIL. CORN. TO DENSE & MED. IN SCOT. SIL.
V. SIL. SCOT. LT. GR. SILTY SIL. CORN. SH

IN. AS ABOVE. IN SCOT. SILT. AS ABOVE
V. SIL. CORN. SH

IN. BURN. GR. & TAN. IN YIN. & CORN.
TAN. & BROWN IN YIN. BROWN DENSE
& MED. IN SCOT. GR. & GR. CORN. SH

SIL. MED. GR. SIL. GR. & SIL. (CORN.
IN PART. V. SCOT. IN. AS ABOVE

NEEDLER

3852

2426

3832
1406
2426

20

40

60

80

1000

20

40

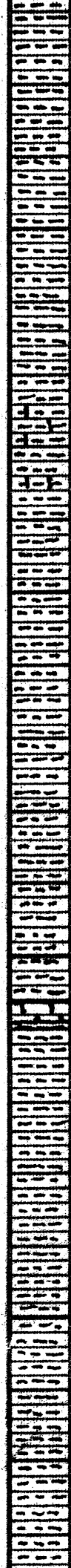
60

80

1100

SAME AS ABOVE

SH. MED. GRAY CRN. CRN. V. L. SILTY
IN V. SCAT. L. M. AS ABOVESH. MED. GRAY V. L. SILTY BLK. FINE
PIECES SILTY BLK. V. SCAT. TAN. L. GRN.
IN TAN. L. M. AS ABOVESH. AS ABOVE IN SCAT. CRN. BLK. GRAY
L. TAN. FINE TAN. PROD. DENSE. HARD
L. M. & TR. SILTYSH. MED. TO TH. GRAY & V. SCAT. L. M. AS
ABOVECRN. IN SCAT. CHLY. SILTY & OR SILTY
IN AS ABOVECRN. (PROD. CH) IN V. SCAT. GRN. L. M.
W. DENSE. HARD L. M.SILTY. LT. GRAY (SH. BLK. SPCH). SILTY
CRN. & SILTY. L. M. AS ABOVE
DENSE. SCAT. BLK. TAN. L. GRN. IN TAN.
HARD DENSE. HARD L. M.SH. & SILTY AS ABOVE W. SILTY CR.
W. L. M. CONTENTSH. MED. GRAY TO CRN. CRN. SILTY IN
PART W. LT. GRAY (BLK. SPCH) SILTY
& SILTY SILTYSH. MED. GRAY & SCAT. TH. GRAY IN SILTY
SH. & SILTY AS ABOVE



20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
600
620
640
660
680
700
720
740
760
780
800
820
840
860
880
900
920
940
960
980
1000

SH-MED GRY SLT SILTY THRU-OUT W
V. SCAT LT GRY SILT

SAME AS ABOVE W. SCAT BLK LT GRY
THRU & TR. BRN. BN. YLN. PRD DENSE
HARD LM

SH-MED GRY V. SLT SILTY V. SCAT
DK GRY & TR. BLK

SH-MED GRY V. SCAT SILTY SILT & SCAT
BLK LT GRY. BN. YLN. SUB-
CHLKY TO DENSE. HARD LM

SAME AS ABOVE

SH-MED GRY SILTY THRU-OUT W. V.
SCAT DK GRY & BLK. W. V. SCAT LM AS
ABOVE

SH-MED GRY TR. SILTY W. DK GRY
& BLK

SH AS ABOVE W. BRN. BN. YLN. DENSE
HARD LM TR. BLK & TR. BN. YLN.
SUB-CHLKY TO TR. DENSE. HARD LM

SH-MED W. TR. GRY & BLK (COAR) W.
BRN. & REDDISH. BN. YLN. DENSE
HARD LM & SCAT BLK & TR. BN. YLN.
PRD DENSE. HARD LM

SH AS ABOVE W. V. SCAT BRN. REDDISH.
BRN. LM AS ABOVE & SH-MED GRY
GRY-GRN. V. SLT SILTY TR.

SH-MED TO TR. GRY GRY-GRN & SH
BLK (PART COAR) W. V. SCAT LM AS
ABOVE

10

SM-MED TO DK GRX 4 IN BLV 4000 CM

50

SAME AS ABOVE

80

KANSAS CITY 4876
-2570SM-BLV CORR W/IT 1 MED GRX 4
TRAIL BLV XIN SUB-CULVY TO DENSE
DENSE HARD LM

4400

LM AS ABOVE W/ SOFT BRN 4 IN
GRX 4 IN 1 TO MED YIN DENSE,
HARD LM

20

LM-CORALIT GRX 4 U COAT W/IN
CHILVY 4 IN 2 CM MED XIN SUB-
CULVY TO DENSE 1 HARD

40

LM-CRIM BURF 4 GRX 4 AS ABOVE W/
GRX 4 TO N. FRESH CURD SUB-TRAIL
CURT

60

LM-BURF GRX 4 TO N. BLV 4 IN MED
YIN SUB-CULVY TO DENSE HARD
W/ SOFT CURT AS ABOVE PLUS SM
MED TO BLV GRX 4 BLV 4 IN

80

LM-CURT 4 SM SH AS ABOVE PLUS
TR. W/IN. CHILVY LM

4500

LM AS ABOVE W/ SM BRN 4 IN XIN
DENSE HARD LM 4 IN 1 INCR IN
FRESH CURT AS ABOVE

20

2000 4324
-3118LM-WIN. CHILVY TO DENSE BURF GRX 4
TRAIL BLV XIN SUB-CULVY TO DENSE
HARD LM 4 IN 1 MED TO BLV GRX 4
GRX-CORAL BLV TO CORAL SH

40

LM AS ABOVE W/ BRN. BLV XIN 4 IN
HARD LM 4 IN 1 INCR IN CHILVY GRX 4
CORAL BLV TO CORAL SH

60

80

4600

20

40

60

80

4700

20

40

60

MASSACHUSETTS 957
-3151

GRY-CRY. BURT CRY TAN & BRN. EN YIN.
SUB-CHILKY TO PRED TEASE & HARD
IN TR WHIL CHILKY LTD. BLIS GRY
CSTORAN IN CRY IN PRED SH

LM. BURE. CRY TAN EN YIN. SUB-
CHILKY TO DENSE & HARD IN CONC
MED TO BK CRY. CRY-CRN & SCOT
BLK SH

MASSACHUSETTS 958
-3152

LM. BURE. CRY TAN & BRN. EN YIN.
SUB-CHILKY TO PRED TEASE & HARD
MED TO BK CRY. IN CRY. CRY &
BLK SH

SH. MED TO BK CRY & BLK IN CONC. LM.
AS ABOVE

SH. GRAL CRY. CRY. MED CRY IN
SCOT. IT CRY & BLK. BLIS BURE
CRY TAN & BRN. EN YIN. PRED
DENSE. HARD LM

LM. BURE. CRY TAN & BRN. EN YIN.
PRED TEASE & HARD IN SH AS ABOVE

MASSACHUSETTS 959
-3153

LM. BURE. CRY TAN & BRN. EN YIN.
SUB-CHILKY TO PRED
DENSE & HARD IN TR GRY & TAN. EN
CURE. SUB-TRAIL. CRY TAN & BRN.
MED TO BK CRY & BLK (SLI CRY) SH

SAME AS ABOVE IN TR BRN. EN YIN.
DENSE. HARD LM & SH. BLK. SLI CRY. SH

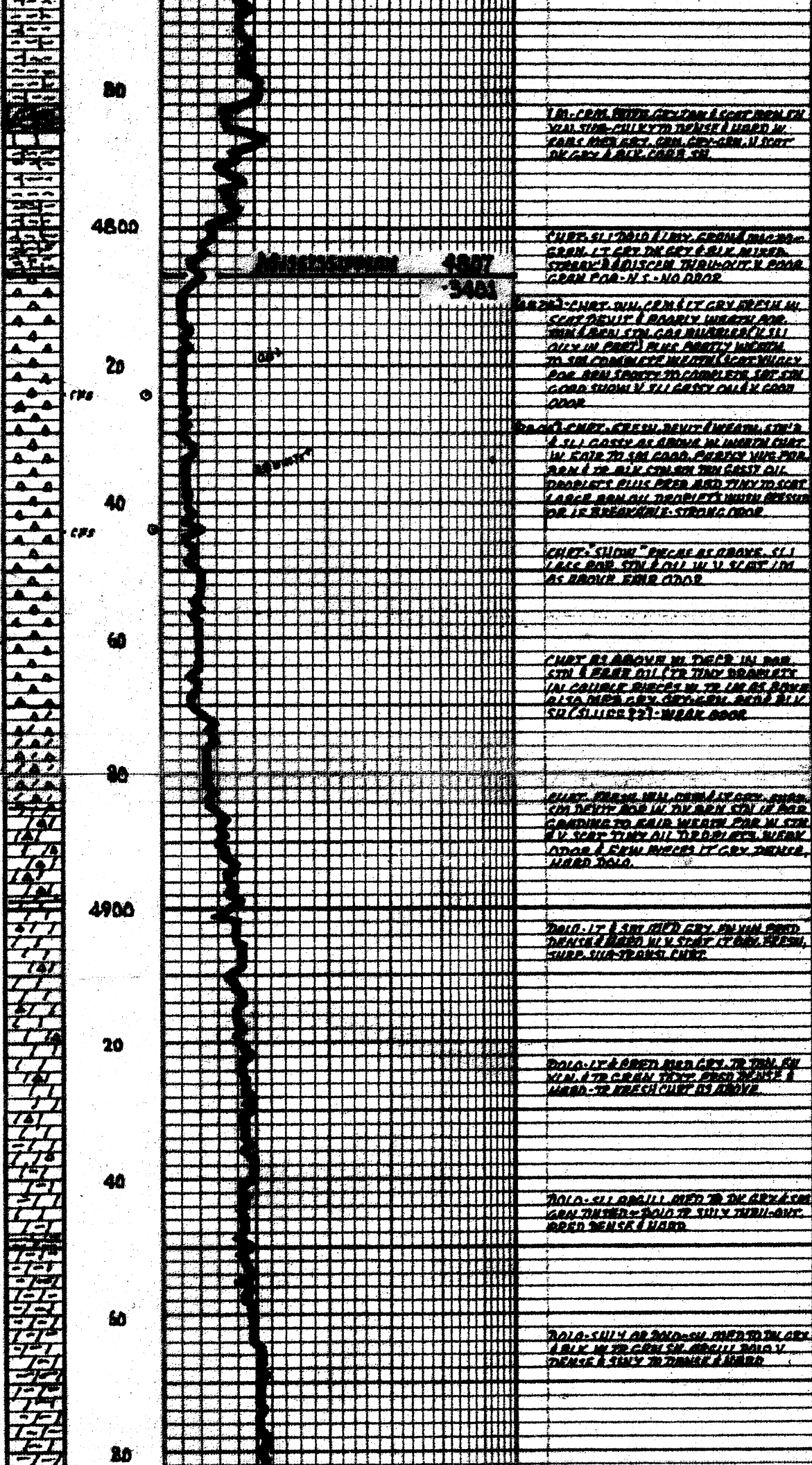
MASSACHUSETTS 9713
-3307

LM. BURE. CRY TAN EN YIN. DENSE & HARD
IN SH AS ABOVE

MASSACHUSETTS 9714
-3308

LM. BURE. CRY TAN & BRN. EN YIN.
PRED TEASE & HARD IN V. SCOT. MED
TO BK CRY. CRY & BLK. SH

SH. BLK. CRY. W. LM & SH AS ABOVE



SAME IN AREA COX IN COX. II SCOT COX-
 CAN SWLY-DOL OR DOL-SM & NEW
 PLACES LOT AS ABOVE & SOT CAN SW

SAME AS ABOVE IN SENT FROM BUREAU
 THROUGH THE MAIL SERVICE
 DENSE & HARD IN

IN NEED TO DE SEC. OF THE ARMY
GIVE ME 1/2 OF THE ARMY

same as above - PPD SL 10410 SM

SOME W V SCOTCRY / CAN - CAN SH

CAST AS ABOVE. NO FLUOR. NO 'SLOW'
NO ODOR. FLUOR MED. CRY. BRN. ACT
BRN. SLTD. IN.

