

Arden Ratzlaff

PETROLEUM GEOLOGIST

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DRILLING TIME AND SAMPLE LOG

COMPANY CHIEFTAIN OIL CO., INC.

LEASE BLEVINS No 1

FIELD N/A

LOCATION SE NW SW NE

SECTION 2 TOWNSHIP 35S RANGE 11W

COUNTY BARBER STATE KANSAS

ELEVATIONS

KB 1320

DF 1318

GL 1312

Measurements Are All
From K. B.

CASING

8 5/8" @ 331' w 300 SY

5 1/2" @ 5446' w 225 SY

CONTRACTOR FOSSIL DRILLING RIG NO. 2

COMMENCED DRILLING 10-22-11

COMPLETED DRILLING 11-05-11

RTD 5447 FEET LTD 5449 FEET

MUD UP AT 3000 FEET MUD TYPE CHEMICAL

ELECTRICAL SURVEYS

LOG-TECH - GAMMA RAY, DUAL
INDUCTION, COMPENSATED DENSITY
& NEUTRON, S.P. & CALIPER

FORMATION TOPS

SAMPLE

ELECTRIC LOG

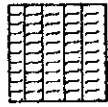
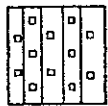

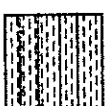
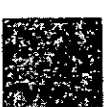
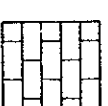
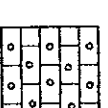
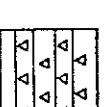
NEEDNER	3645 (-2325)	3647 (-2327)
LANSING	4245 (-2925)	4247 (-2927)
CHEROKEE	4608 (-3288)	4609 (-3289)
MISSISSIPPIAN	4710 (-3390)	4710 (-3390)
KINDERHOOK	4937 (-3617)	4935 (-3615)
VIOLA	5100 (-3780)	5098 (-3778)
SIMPSON	5199 (-3879)	5199 (-3879)
SIMPSON SDST.	5224 (-3879)	5223 (-3903)
ARBUCKLE	5398 (-4078)	5397 (-4078)
TOTAL DEPTH	5449 (-4129)	5447 (-4127)

REMARKS AFTER ANALYZING ALL OF THE PERTINENT INFORMATION, IT WAS THE DECISION THAT PRODUCTION CASING BE SET IN AVOIDANCE OF A VERY COMMERCIAL WELL.

Arden Ratzlaff, Petroleum Geologist

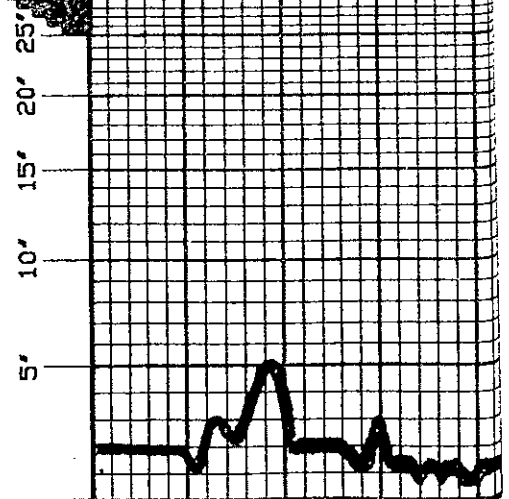
NOTE: NATIVE MUD FURNISHED THE MUD - TO LOCATE THE DRILLSTEM TESTS - SAMPLES DEPOSITED AT THE K.A.S. SURVEY

LEGEND

	Anhydrite
	Salt
	Sandstone
	Shale
	Carb sh
	Limestone
	Dolomite
	Chert

DRILLING TIME IN MINUTES
PER FOOT

Rate of Penetration Increases



DEPTH

3400

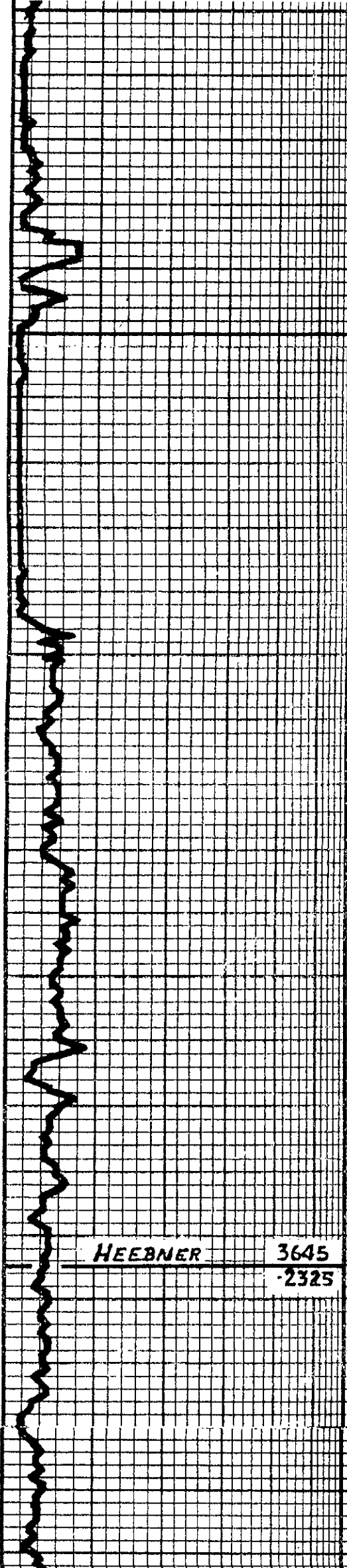
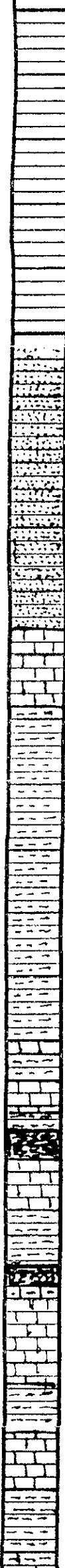
20

40

LITHOLOGY

SAMPLE DESCRIPTIONS

REMARKS



SDST & SILT AS ABOVE PLUS SCAT SH AS ABOVE

SAME AS ABOVE

SAME W. V. SCAT TAN. BRN. & TR BLUE. EN. XLM. DENSE. HARD LM

SH. MED. TO DK. GR. SOFT MUSHY & VERY SLT. SILTY W. SCAT. GR. GRN. SCAT. BLK. PLUS SCAT. CRM. & BLK. (MUD) IN PART. SUB-CHLKY & TR. (HR. I. DENSE. HARD LM)

SH. MED. GR. GR. GR. SCAT. BLK. W. FEW PIECES SDST. OR SILT. AS ABOVE

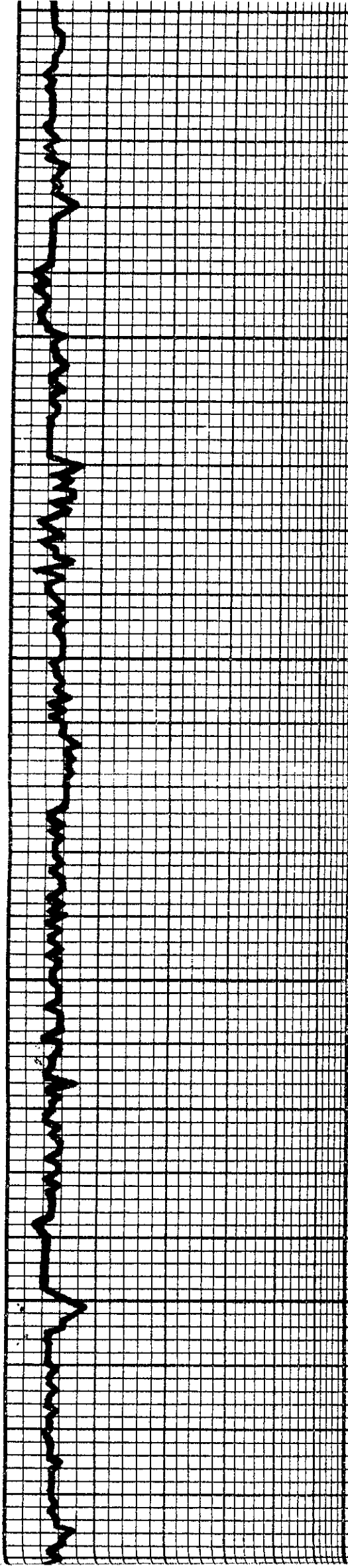
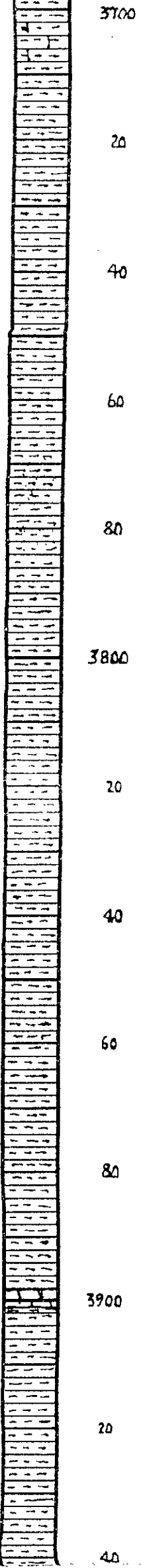
SH. AS ABOVE W. TR. LT. GR. MUSHY SOFT SH. SCAT. SH. & V. SCAT. TAN. GR. & BRN. SH.

SH. AS ABOVE W. SCAT. LM. AS ABOVE & SLT. INCR. IN BLK. SH.

LM. BLUE. GR. TAN. & BRN. EN. IN. SUB-CHLKY TO DENSE & HARD W. SM. SH. AS ABOVE

LM. W. CRM. LT. GR. TR. BLUE. EN. YLM. SUB-CHLKY TO DENSE & HARD

HEEBNER **3645**
-2325



SH-MED TO DK GRY, GRN, GRY-GRN & BLK
CONT. LIM. AS ABOVE

SH-MED GRY, GRY-GRN, TR DK GRY &
RED W. CRN. BLUE, GRY, TAN & BRN. PRED
DENSE, HARD LIM.

SH. GRY-GRN, MED GRY, TR DK GRY & BLK
W. V. SCAT. LIM. AS ABOVE

SH. AS ABOVE - TR MED GRY & GRY-GRN
V. SIL. SILTY

SH-MED GRY & SCAT. LT. GRY, TR DK GRY
SILTY IN PART & SM. LT. GRY, TR SIL
SILTY & SILTY SILT

SAME AS ABOVE

SAME W. TR TAN & BRN. EN. XLN. V. DENSE
HARD LIM.

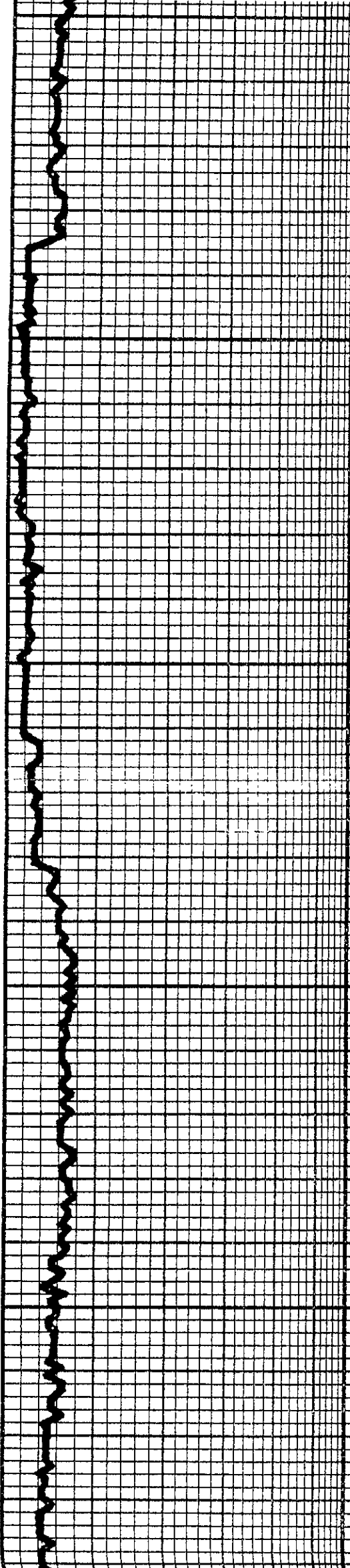
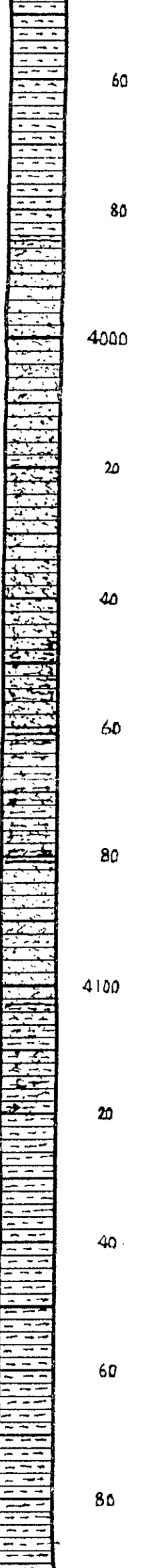
SH-MED GRY, IM GRY-GRN, TR DK GRY
& BLK (TR CARB) PLUS FEW PIECES CRN
& LT. GRY. EN. XLN. DENSE, HARD LIM.

SAME AS ABOVE

SH-MED TO DK GRY, TR MURKY SOFT &
SIL. SILTY

SH. AS ABOVE W. BLUE, TAN & BRN. EN
XLN. PRED. DENSE, HARD LIM.

SAME AS ABOVE



SM AS ABOVE W. V. SEPT. GRM. BUFE. GRY
TAN. & BRN. & EN. YIN. SILT. CHLKY. TO
DENSE. HARD. LM.

SH. MED. TO DK. GRY. V. SIL. SILTY. & MICH. W.
SCAT. LM. AS ABOVE.

SH. LT. & MED. GRY. SILTY. IN PART. PART
V. SHY. SILST. W. SCAT. LM. AS ABOVE.

SH. AS ABOVE W. V. DENSE. HARD. PARTLY
SHY. SILST.

SILT. AS ABOVE W. SH. AS ABOVE W.
SCAT. SIL. SCAT. SIL. CORE. SH.

SILT. INW. & LT. GRY. SM. BLY. SPX. P. P. P.
SM. SH. AS ABOVE.

SAME AS ABOVE.

SILT. LT. GRY. SM. DK. SPX. P. P. P. DENSE
& HARD. W. V. SCAT. MED. TO DK. GRY. SH.

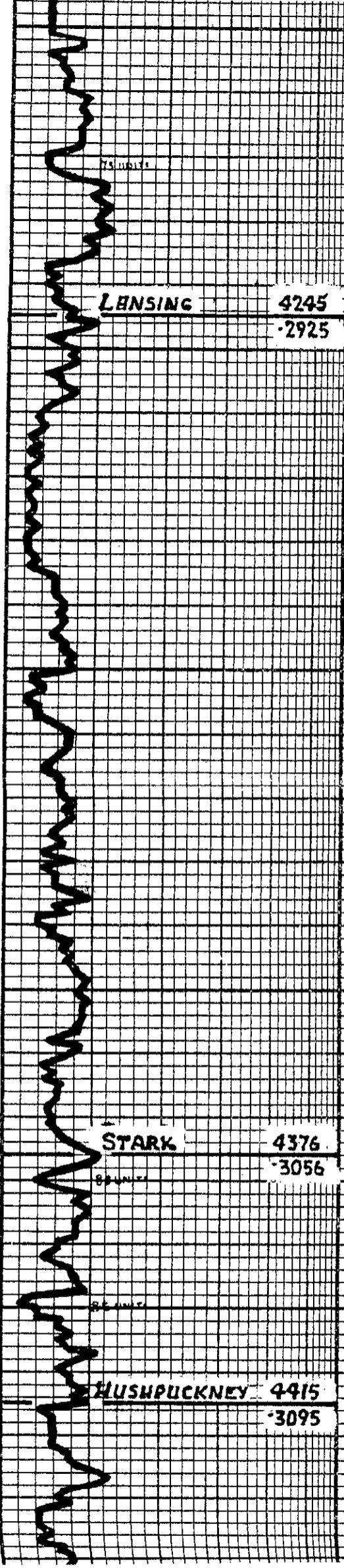
SILT. AS ABOVE W. CONC. MED. TO DK.
GRY. SH.

SH. MED. TO DK. GRY. SM. GRY. GRAL. W. V.
SCAT. SILST. AS ABOVE & SCAT. GRM. BUFE.
TAN. & BRN. FALXIN. DENSE. HARD. LM.

SH. SILTY. & LM. AS ABOVE.

SAME AS ABOVE.

4200
20
40
60
80
4300
20
40
60
80
4400
20
40



SH. AS ABOVE W. TP. SILENT & IM. AS ABOVE

SH. AS ABOVE W. V. SCAT. BLK. CORR. SU.

LENSING 4245
-2925

SH. MED. TO DK. GRAY. SM. GRAY-GRN. & TR. BLK. PLUS SCAT. GRN. BUFF. GRAY. TAN. & TR. BRN. PRED. DENSE. HARD. IM.

1M. CRIM. LT. GRAY. BUFF. & TAN. EN. YIN. PRED. DENSE & HARD. IN. MED. TO DK. GRAY. GRN. GRAY-GRN. & BLK. (CORR. IN PART) SH.

1M. BUFF. GRAY. TAN. EN. YIN. PRED. DENSE & HARD. SCAT. PIECES. AL. SM. VILL. BOB. AL. S. & TR. INTER. XIN. BOB. - U.S. PLUS SCAT. SH. AT ABOVE

1M. CRIM. BUFF. GRAY. TAN. & BRN. EN. XIN. SUB. CHILKY TO DENSE & HARD. IN. TP. LT. GRAY. FRESH. SUB. TRANSL. CURT. (SHARP) PLUGGED TO DK. GRAY. GRN. & BLK. (CORR. IN PART) SH.

1M. BUFF. GRAY. TAN. & BRN. EN. YIN. PRED. DENSE & HARD. W. 1 SCAT. SU. AS ABOVE

SOME BUFF. EN. PIECES. LT. GRAY. & TR. FRESH. SUB. TRANSL. TO OP. CURT.

STARK 4376
-3056

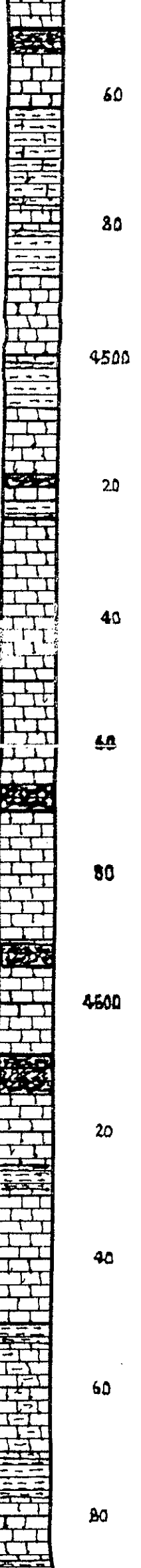
1M. BUFF. GRAY. TAN. (HARD. BRN. EN. YIN. SUB. CHILKY TO PRED. DENSE & HARD. W. CRIM. LT. GRAY. TAN. BRN. FRESH. PRED. SUB. TRANSL. CURT.

SH. BLK. & TP. BRN. ISH. - RIF. V. CORA. (HARD. GAS BUBBLES WHEN PRESSED) W. IM. AS ABOVE & TR. W/CH. CHILKY. IM.

SH. BLK. & TP. BRN. ISH. - BLK. (CORR.) PLUS BUFF. TAN. & BRN. EN. YIN. PRED. DENSE & HARD.

HUSHPUCKNEY 4415
-3095

SOME AS ABOVE W. BLK. (CORR. GAS BUBBLES) SU.



BASE K.C. 4448

-3128

Thin sub-chilly to chily to dense & hard w. blk. carb. sh. & carb.

60

1M. BLUE GR. TAN & BRN. EN. YLN. PRED. DENSE & HARD - STILL BLK. CARB. SH. AS ABOVE

80

1M. BLUE GR. TAN. BRN. EN. YLN. PRED. DENSE. HARD W. SCAT. BLK. CARB. SH.

RIT TRIP @ 4468'

4500

1M. TAN. CRM. BLUE. TAN & BRN. & GRN. EN. YLN. CHILY TO DENSE & HARD W. CONS. MED. TO DK. GR. GRY. GRN. & BLK. (PARTLY CARB.) SH.

20

ALTAMONT 4525

-3205

1M. SH. AS ABOVE

40

1M. CRM. BLUE. GR. TAN & BRN. EN. YLN. SUB-CHILY TO PRED. DENSE & HARD W. SCAT. MED. TO DK. GR. GRY. GRN. & BLK. SH.

60

1M. BLUE. CRM. EN. YLN. SUB-CHILY TO CHILY W. SCAT. GR. TAN & BRN. EN. YLN. PRED. DENSE. HARD W. BLK. CARB. SH.

PRWNEE 4570

-3250

26 UNITS

80

1M. BLUE. TAN & BRN. EN. YLN. DENSE & HARD. W. SCAT. CARB. EN. YLN. SUB-CHILY. LM. W. GRN. GR. GRN. & BLK. (CARB.) SH.

59 UNITS

4500

CHEROKEE 4608

-3288

08 UNITS

SH. BLK. V. CARB. HARD GAS BURSTLES. IN CRM. BLUE & TAN. EN. YLN. PRED. DENSE. HARD LM.

20

1M. CRM. BLUE. GR. TAN & BRN. EN. YLN. PRED. DENSE. HARD. LM. W. SCAT. V. CARB. GASSY. BLK. SH. AS ABOVE

40

SOME W. V. SCAT. MED. GR. & GRN. SH.

60

1M. CRM. BLUE. GR. TAN & BRN. EN. YLN. EN. YLN. SUB-CHILY TO PRED. DENSE & HARD & TP. CHILY. PLUS MED. TO DK. GR. SH. & SCAT. DK. GR. GRN. LM. OR LM. SH.

80

1M. TAN. CRM. BLUE. GR. TAN. EN. YLN. SUB-CHILY TO DENSE & HARD. LM. W. MED. GR. GR. GRN. & SCAT. BLK. SH.

4700

MISSISSIPPIAN 4709
-3389

SH GRAY GRN MED GRAY MAR SCOT DK GRAY
& BLK IN LMS ABOVE FULLY FEW PIECES
WH SOFT CHILKY LM

20

100+ UNITS

(1726) CHRT. WH. EN XIN. PREP DRAG W WEATH'LS
EDGES & SM FRACS. DK GRAY & BRN STN. SCOT
PIECES IN SAT LUTRILLS OIL STN. FULLS
WH. RUFF & GRAY WEATH'LS GOOD WING POR
GRASSY BRN OIL DROPLETS & GAS BUBBLES
IF BREAKABLE - GOOD ODOR.

40

100+ UNITS

(1726) CHRT. WH. RUFF & GRAY SUR TRANS. TO DRAG
DEVIT & ALL WEATH'LS TO WEATH'LS VUGS IN
GOOD POR. GRASSY LIME OIL BUBBLING OUT
WHEN PRESSED. AND LIME OIL DROPLETS &
GOOD ODOR.

60

100+ UNITS

(1726) CHRT. WH. LT GRAY FRESH IN SPOTTY DEVIT
& ALL WEATH'LS FOR W. DK GRAY & BRN STN. IN
POR. SCOT OIL DROPLETS (SM LISTLESS)
SCOT RUFF DOLA W. FAIR WEATH'LS & PREP
VUGGY POR. LT TAN STN. & TINY BRN OIL
DROPLETS - FAIR ODOR - ALSO SCOT WH.
CHILKY & TAN EN XIN. PREP DEVIT HARD IM.

80

86 UNITS

CHRT. LT GRAY SM RUFF. EDGES SUR. TO STN
ON EDGES & SIDES TO SCOT DEVIT &
WEATH'LS POR. W. BLK & DK BRN STN. TR GRASSY
OIL DROPLETS. FULL BUFF. LIME CURT. DE.
CHRT. LM & FAIR ODOR.

4800

70 UNITS

CHRT. LT GRAY FRESH SUR. TRANS. TO DRAG
& SCOT DK BRN & BLK STN. OAL FRAC.
EDGES & SIDES & ALL SPOTTY DEVIT POR
CONS. LT GRAY & BUFF. EN XIN. CHRT. BR
OR LIME CHRT. - WEAK ODOR.

20

CHRT. LT GRAY TR BRN FRESH SUR. & SMOKE
ABOVE W. CONS. RUFF & GRAY EN XIN. LM. W.
IN CURT. MODULES. IMBEDDED OR CHRTY
EN XIN. DENSE. HARD IM. - FAINT ODOR.

40

DOLA. ALL LIME & CHRTY. CRN. & BUFF. EN
XIN. W. ALL DOLA. LM. FULLS GRAY. TAN. EN XIN.
DENSE. HARD. LIME. DOLA. & ALL RUFF. STN.

SAME AS ABOVE

60

SAME W. MED. TO DK GRAY BLK MAR. LT GRAY
& GRAY CRN. IM.

80

SAME AS ABOVE - CHRT. CONS. DOLA.

4900

SH. GRN GRAY GRN MED GRAY MAR. W. SCOT
DOLA. AS ABOVE.

20

SH. MED. TO DK GRAY SCOT GRAY - GRN. MAR.
CRN. BLV.

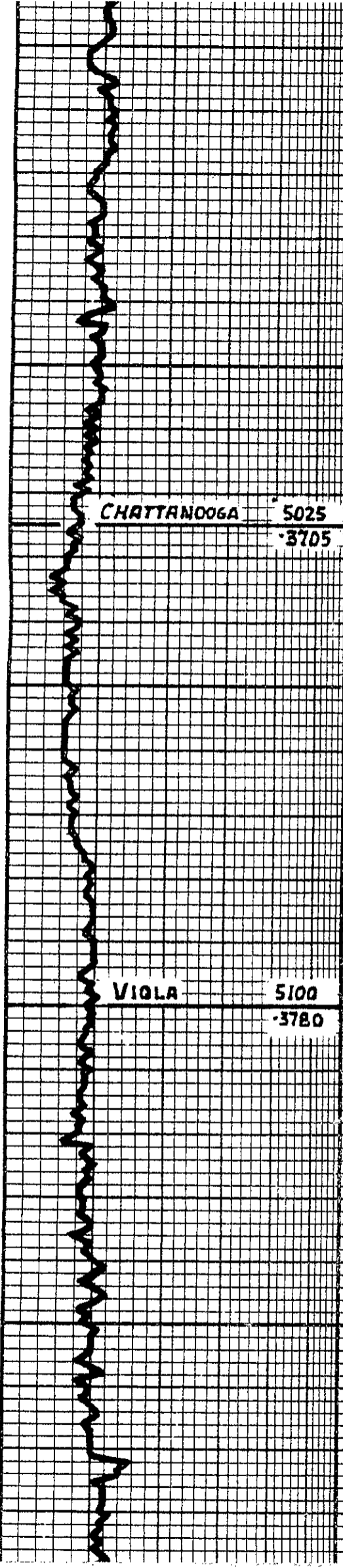
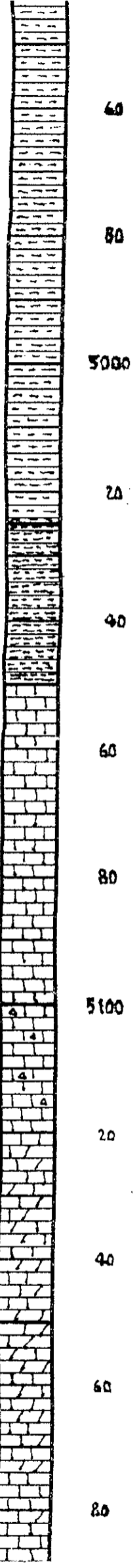
KINDERHOOK 4937



CFS

CFS

CFS



CHATTANOOGA **5025**
3705

VIOLA **5100**
3780

SH. MED. LDK. GRAY GRN. CON. MAR. & GRN.
 TO VARI-GATED. & BLK

SH. MED TO DK GRAY LT & MED GRN GRN
 CRAL MAR & BLV

SH AS ABOVE

SH. MED GRAY & GRN GRN W. TO MAR. DK GRAY
 & BLK

SH. LT GRAL MED & DK GRAY BLK TO BRN
 LSH BLV

SH. BLK BRN LSH BLK CORA SH. DOLA &
 DDD SPAGES

SH AS ABOVE STILL LT GRAY SH SPARK
 REARIAL DOLA SH BLK LT GRAY & BRN
 EN YLN BRILL DEASE HARD IN W'S

1M. WH. CRD. LT GRAY TAN & BRN EN YLN
 CHLKY & SUB-CHLKY TO DENSE & HARD IN
 CONTS MED TO DK GRAY BRN DOLA SH GEN
 & BLK SH

SAME AS ABOVE - CHLKY IM. PULL BRN
 DOLA SH PULL DK GRAY BLK GRAY GRAL SH
 & TR BRN FRESH DULL CRT

1M. WH. CHLKY W. TAN & BRN EN YLN
 DENSE HARD CHRTY 1M & BRN DOLA SH
 OR SHLY DOLA AS ABOVE & CHRT AS
 ABOVE DULL BRN IN TINY DK SAK'S

1M & OR DOLA - CRD. BLUE GRAY TAN &
 BRN DOLA EN YLN PRD DEASE W. W
 BRN DULL CHRT W. TINY DK SAK'S SUB-
 TRANS TO DRAG. POR. W. - W'S

1M. DOLA IN PART EN YLN EN YLN. COM TO
 LT GRAY BLUE TAN & BRN PRD DEASE &
 HARD W. DULL CHRT AS ABOVE

1M. WH & CRD. EN YLN CHLKY & SUB-CHLKY
 W. BLUE GRAY TAN & BRN EN YLN BRN
 DENSE HARD SH DOLA 1M.

5200

SIMPSON 5199

-3879

(5170) SDST - LT & MED GRAY (MIXED IN PART)
FIN V. BL GRAINED DOLA SDST TYPE W/ SCOT
PIECES W/ FAIR INTER-GRAN POR. SPOTTY SH
& FLUOR. AND GAS BUBBLES & CLEAR OIL
DROPLETS. ADD FLUORITE. MANY OIL
DROPLETS FLOATING ON WTR. GOOD ODO.

(5174) SDST AS ABOVE. SPOTTY TO SAT SH. MAINLY
GASSY OIL DROPLETS. FLUORITE & MANY OIL
DROPLETS ON WATER. V. GOOD ODO.

(5176) SAME W/ SEV. CLUSTERS W/ V. BRIGHT
SAT FINER V. ERL. ADD LIME OIL DROPLETS IF
ABSEN. V. GOOD ODO.

RETR DIT? - SUMER TO DRY RED GRAY -
GRAN BLK W/ ONE QTY CLUSTER AS ABOVE W/
ADD CALL OIL SHOW - SLUFF?

SAMPLE NOT REPRESENTATIVE (LOSING
CIR) - SH. MED TO DRY GRAY (GAS GEN
ADD RED. BLK & SCOT W/ H. LT GRAY. FIN
GRAINED SDST CLUSTERS W/ FAIR INTER-
GRAN. V. ERL. POR. N.S.

SH. AS ABOVE. TR. VARI-GATED BLUE SDST
AS ABOVE

SH. VARI. COLORED & TR. VARI-GATED
(RED. MED. DRY GRAY. GRN. DOLA ETC.)

SAME AS ABOVE

SAME AS ABOVE

SH. DOLA GRN. RED. GRAY & TR. BLK

SH. AS ABOVE W/ LT GRAY. NEAR CLEAR
RTZ GRAINS. ALL SH. MED. SUB-ANG TO
WELL ROUNDED GRAINS. ERL. FAIR INTER-
POR. N.S.

(5175) SDST - LT GRAY. BURET. FIN GRAINED.
HARD & GOOD ERL. COME W/ GOOD POR.
FIN V. SCOT BLUE (CLEAR GRAINS) MED
GRAINS. SUB-ANG TO WELL ROUNDED.
ERL. W/ GOOD INTER-GRAN POR. N.S.

SDST - W/ LT GRAY. FIN GRAINED. RED
HARD & SH. ERL. POR. TO TR. FAIR INTER-
GRAN POR. W/ N.S. PLUS CONS. BURET. MED
TR. BY GRAY. SCOT. BLK. SL. CORN. SH.

ARBuckle 5398

-4078

DOLA. SILTY. BLUE & TAN. FIN. V. PREP
DOLA & HARD W/ SDST & SH. AS ABOVE.

DOLA AS ABOVE

(5007) DOLA. GRN. BLUE. TAN. BRN. EN. LIN
SCOT. FIN. V. INTER-LINE & SUCR. TEXT
BUT. PREP. DENSE & HARD. N.S.

TOTAL DEPTH 5407

-4127

30-45-60-70
FAIR BLOW 7 1/2" (1st OPEN)
WEAK BLOW 2" (2nd OPEN)
REC: 76' MUD. 62' MUD CUT
WATER. 120' WATER
FSIP 2053# FSIP 2043#
FFP/49-87# FFP/91-161#
TEMP-132° F.

DST No. 2 (5224-5230)
30-45-30-45
WEAK BLOW 3 1/2" (1st OPEN)
WEAK BLOW 2" (2nd OPEN)
REC: 10' MUD CUT WATER &
240' WATER (80000 PPM)
FSIP/2039# FSIP/2012#
FFP/23-82# FFP/89-140#
TEMP-130° F.

