

KIM B. SHOEMAKER

CONSULTING GEOLOGIST

316-684-9709 * WICHITA, KS

GEOLOGIST'S REPORT

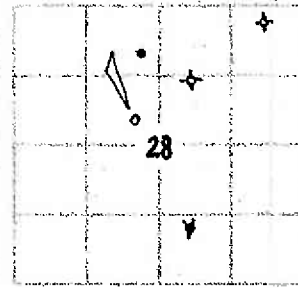
DRILLING TIME AND SAMPLE LOG

COMPANY L. D. DRILLING, INC.
 LEASE * 4-28 NORTON
 FIELD BAMBERGER
 LOCATION 2137' ENL 2219' EWL
 SEC 28 TWP 21s RGE 23w
 COUNTY HODGEMAN STATE KANSAS
 CONTRACTOR L. D. DRILLING, INC.
 SPUD 2-26-16 COMP 3-6-16
 RTD 4700 LTD 4701
 MUD UP 3406 TYPE MUD CHEMICAL

ELEVATIONS
 KB 2371
 DF _____
 GI 2366
 Measurements Are All
 From 2371 KB
 CASING
 SURFACE 8 5/8" @ 305'
 PRODUCTION _____
 ELECTRICAL SURVEYS
 DUAL IND., DENS-W, MIRD

SAMPLES SAVED FROM 3700 TO 4700
 DRILLING TIME KEPT FROM 3500 TO 4700
 SAMPLES EXAMINED FROM 3700 TO 4700
 GEOLOGICAL SUPERVISION FROM 3990 TO 4700
 GEOLOGIST ON WELL KIM B. SHOEMAKER

FORMATION TOPS	LOG	SAMPLES
ANHYDRITE	1596-775	1598-773
HEEBNER	3902-1531	3902-1531
LANSING	3955-1584	3956-1585
MARMATON	4340-1969	4338-1967
FORT SCOTT	4496-2125	4495-2124
CHEROKEE	4520-2149	4520-2149
CHEROKEE SAND	4600-2229	4598-2227
MISSISSIPPI	4623-2252	4624-2253



REMARKS

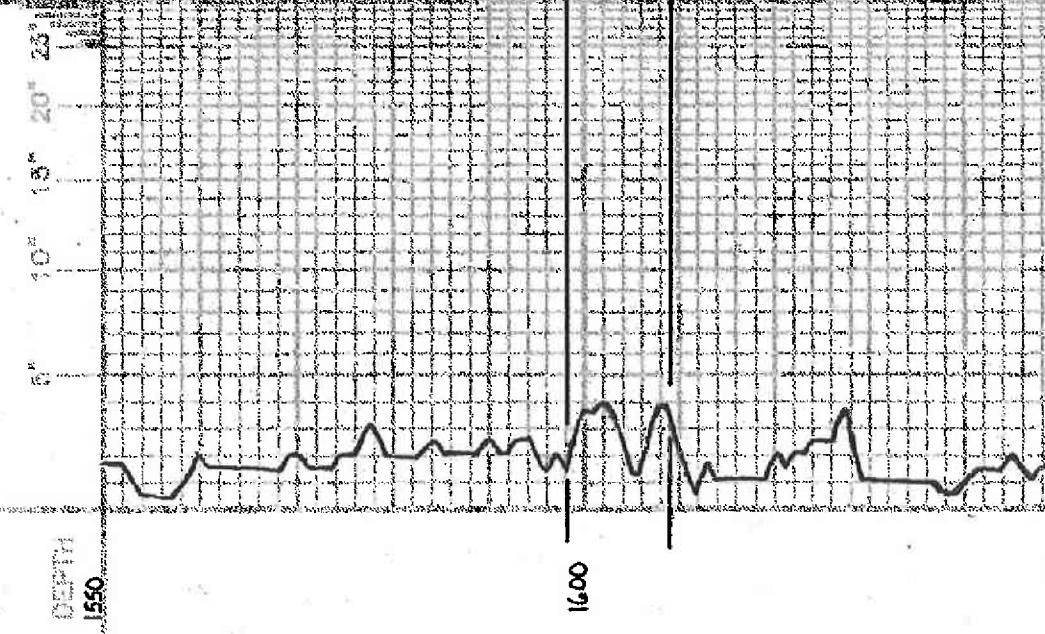
2-26-16 SPUD
 2-27 @ 308'
 2-28 @ 1515'
 2-29 @ 2390'
 3-1 @ 2920'
 3-2 @ 3450'
 3-3 @ 4000'
 3-4 @ 4493'
 3-5 @ 4604'
 3-6 @ 4700'

API: 15-083-2023

LEGEND

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

DRILLING TIME IN MINUTES
 PER FOOT
 Rate of Penetration Increases



LITHOLOGY

REMARKS

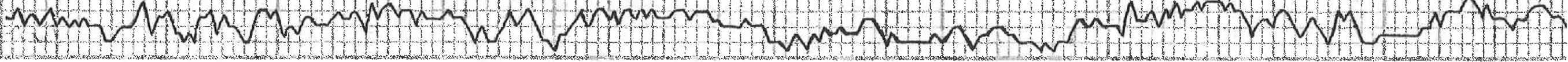
1650

3500

3600

3700

Mod. 013412
V15 58
NATL P. 7
V16 6.8
CAL 3700



Samples are Lagged

Sh. Def. 0.01

Sh. L1000-0.5114

ES. 01. Sh. Foss. S1A

ES. 01. Sh. Foss. S1C. Ch14

ES. 01. Sh. Foss. S1A

ES. 01. Sh. Foss. S1C. Ch14

Sh. Def. 0.01

44

ES. 01. Sh. Foss. S1A

3800

3900

4000

4100

ES. wt. Pass - dol.

ES. To G. St. Pass.

ES. wt. For. Olivite

ES. wt. For. Micro. Sil. Olivite

ES. To H. St. For. St. Pass.

ES. To wt. For. Micro. Pass.

HEEBNER 3902-1531
Sh. R.L. G. G.

Sh. G. G. - Silly

ES. To wt. V.Si. For. St. A

ES. wt. St. For. For. St. A

Sh. G. G.

Sh. G. G. R. G.

LANSING 3956-1585

ES. To wt. V.Si. For.

Sh. G. G.

ES. wt. St. For. For. St. A

Sh. G. G.

ES. wt. V.Si. For. For. St. A

A. wt.

Sh. G. G.

ES. wt. V.Si. For.

ES. wt. For. Micro. Sil. Olivite

Sh. G. G.

A. wt.

ES. wt. Micro. For. St. A

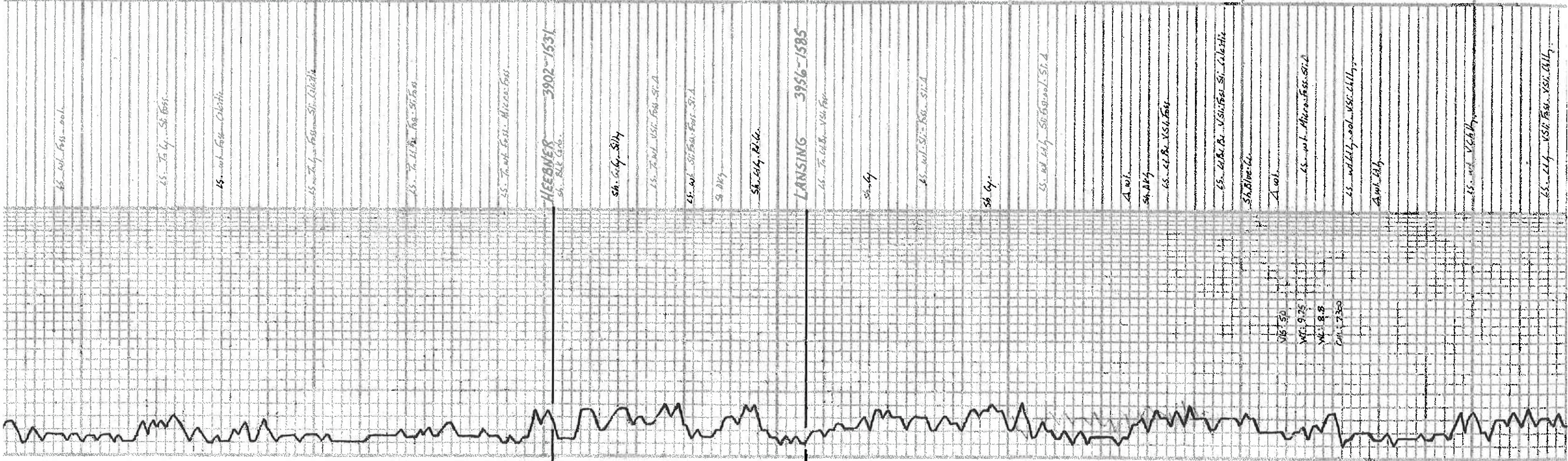
ES. wt. V.Si. For. For. St. A

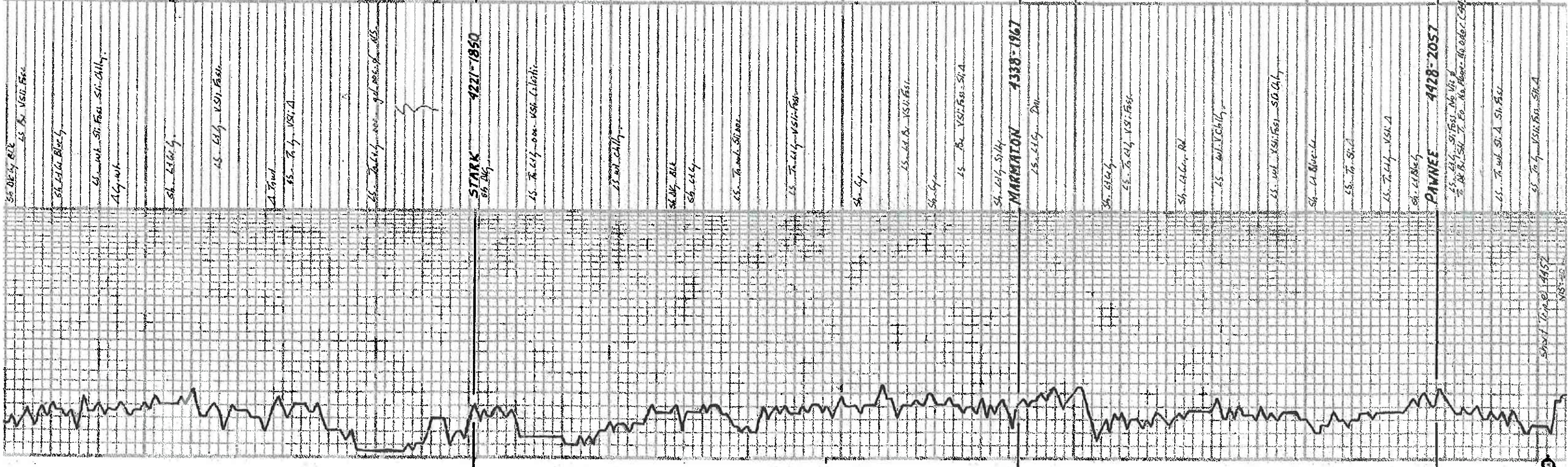
Sh. G. G.

ES. wt. V.Si. For.

ES. wt. V.Si. For. For. St. A

wt. 50
wt. 9.75
wt. 8.8
wt. 7.300





4200

4300

4400

Sh. clay, silty

ls. to blue sh.

ls. to blue sh.

Sh. clay

ls. to blue sh.

ls. to blue sh.

Sh. clay

ls. to blue sh.

ls. to blue sh.

STARK 1850

ls. to blue sh.

Sh. clay

ls. to blue sh.

Sh. clay

ls. to blue sh.

Sh. clay

ls. to blue sh.

Sh. clay

ls. to blue sh.

MARMATON 1867

Sh. clay, silty

ls. to blue sh.

Sh. clay

ls. to blue sh.

Sh. clay

ls. to blue sh.

Sh. clay

ls. to blue sh.

Sh. clay

PAVNEE 2057

ls. to blue sh.

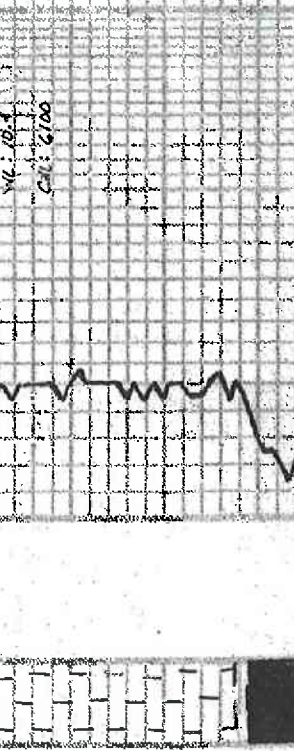
ls. to blue sh.

ls. to blue sh.

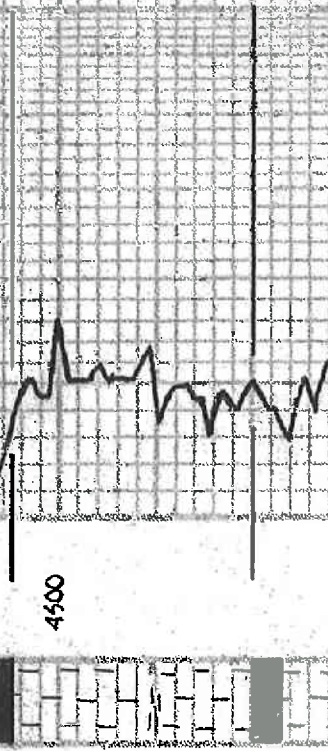
Small Top of 4152

MC 10.3
CAL: 2700

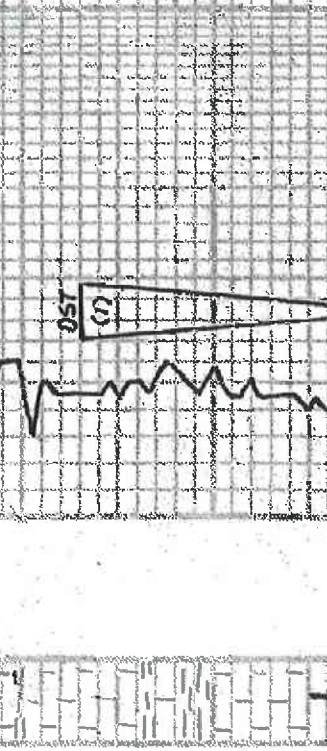
LS. g. blk. silty
Sh. dk. blk.
Sh. blk. carb.
FORT SCOTT 4495-2124
Bound and ground calcite



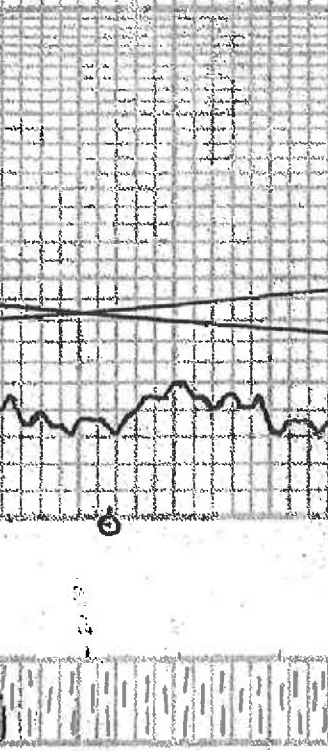
LS. blk. carb.
LS. to 5000'. Sh. 2
CHEROKEE 4520-2199
LS. Tan. Silty Sh. Calcite
Sh. dk.



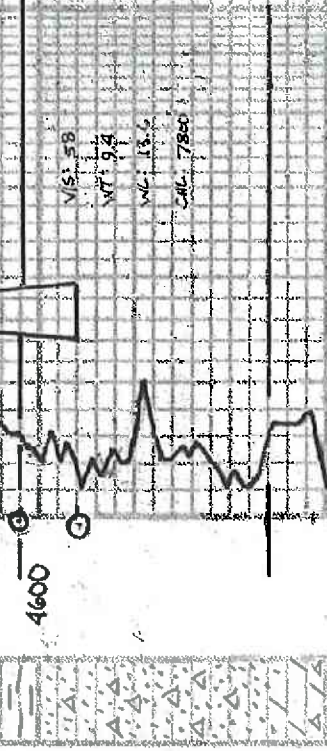
LS. Tan. Silty Sh. Calcite
Sh. dk.
Sh. dk. carb.
DST (1) 4530-4604
15' open: 80 lb. bucket 16 min 49 sec. SS: floor
24 open: " " 17 SS: "



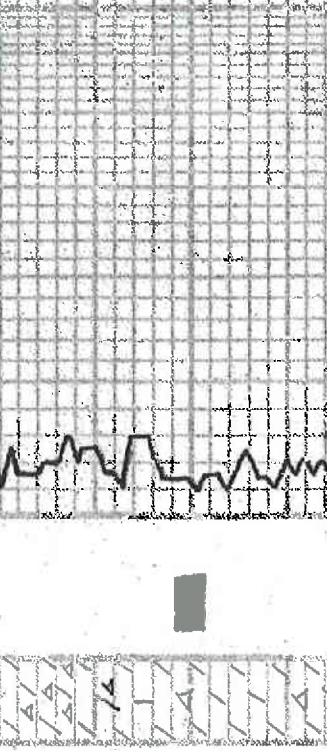
LS. blk. carb.
LS. to 5000'. Sh. 2
CHEROKEE SAND 4598
4' blk. Fresh Ch.
Sh. Clay. M. G. - 160. G. Silty Bl. F. Tan. B.
Bl. Silty Sh. ESP. No. Floor. Fossiliferous
W. T. Green. S. A. Frags



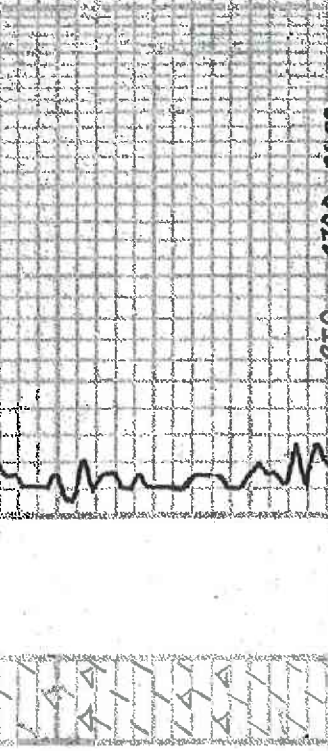
LS. blk. carb.
LS. to 5000'. Sh. 2
MISSISSIPPI 4624-2253
Dk. blk. Carb. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty



LS. blk. carb.
LS. to 5000'. Sh. 2
CHEROKEE SAND 4598
4' blk. Fresh Ch.
Sh. Clay. M. G. - 160. G. Silty Bl. F. Tan. B.
Bl. Silty Sh. ESP. No. Floor. Fossiliferous
W. T. Green. S. A. Frags



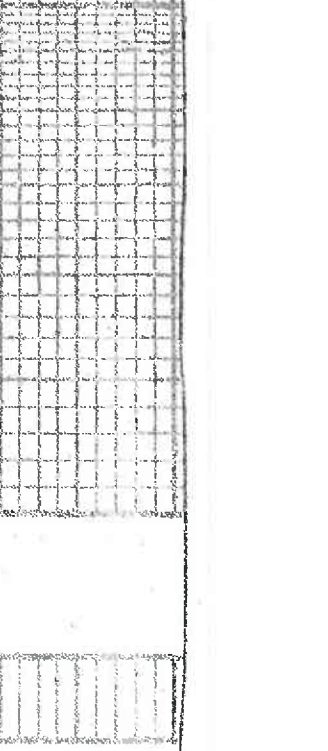
LS. blk. carb.
LS. to 5000'. Sh. 2
MISSISSIPPI 4624-2253
Dk. blk. Carb. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty



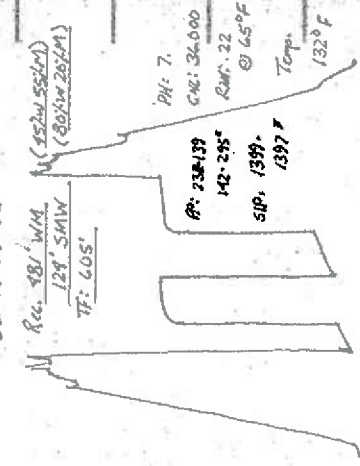
LS. blk. carb.
LS. to 5000'. Sh. 2
MISSISSIPPI 4624-2253
Dk. blk. Carb. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty



LS. blk. carb.
LS. to 5000'. Sh. 2
MISSISSIPPI 4624-2253
Dk. blk. Carb. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty



LS. blk. carb.
LS. to 5000'. Sh. 2
MISSISSIPPI 4624-2253
Dk. blk. Carb. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty
A. W. G. Bl.
Dk. blk. V. Fr. sh. Silty



Tool Sample: 95' W/S/M/W

4500
4600
4700
RTD 4700-2329