

Arden Ratzlaff

PETROLEUM GEOLOGIST

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DRILLING TIME AND SAMPLE LOG

COMPANY CHIEFTAIN OIL CO., INC.

LEASE JAKE A No. 1

FIELD TRAFFAS

LOCATION SE SE SE

SECTION 13 TOWNSHIP 33S RANGE 11W

COUNTY BARBER STATE KANSAS

ELEVATIONS

KB 1553

DF 1551

GL 1546

Measurements Are All
From K.B.

CASING

8 5/8" @ 313' w. 275 sx

5 1/2" @ 5114' w. 200 sx.

CONTRACTOR TERRA DRILLING RIG NO. 1

COMMENCED DRILLING 7-24-07

COMPLETED DRILLING 8-03-07

RTD 5110 FEET LTD 5115 FEET

MUD UP AT 3600 FEET MUD TYPE CHEMICAL

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

FORMATION TOPS

SAMPLE

ELECTRIC LOG

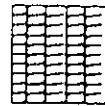
HEEBNER	3699 (-2146)	3703 (-2150)
LANSING	3896 (-2343)	3900 (-2347)
STARK	4349 (-2796)	4353 (-2800)
BASE KANSAS CITY	4410 (-2857)	4414 (-2861)
PAWNEE	4523 (-2970)	4524 (-2971)
CHEROKEE	4568 (-3015)	4573 (-3020)
MISSISSIPPIAN	4583 (-3030)	4586 (-3033)
VIOLA	4935 (-3382)	4942 (-3389)
SIMPSON SDST	5049 (-3496)	5054 (-3501)
TOTAL DEPTH	5110 (-3557)	5115 (-3562)

REMARKS AFTER ALL THE DRILLING INFORMATION WAS ANALYZED, IT WAS DECIDED THAT PRODUCTION CASING BE CEMENTED IN EXPECTANCE OF A GOOD PRODUCING WELL.

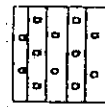
Arden Ratzlaff, Petroleum Geologist

NOTE: MUD CO. FURNISHED THE MUD & SAMPLES DEPOSITED AT THE K.G.S. SURVEY.

LEGEND



Anhydrite



Salt



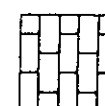
Sandstone



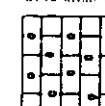
Shale



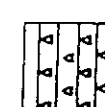
Corb sh Limestone



Oil Lime



Chert



Dolomite

DRILLING TIME IN MINUTES
PER FOOT

Rate of Penetration Increases

5" 10" 15" 20" 25"

DEPTH

3500

20

40

SAMPLE DESCRIPTIONS

REMARKS

LITHOLOGY

60

80

3600

20

40

60

80

3700

20

40

60

80

HEEBNER

3699

-2146

SH. BLK. COBB. MED. GRAY-GCN. V. SLT. SILTY
W. CRD. BLUE GRAY TAN EN. YIN. SUB-
CHUKY TO DENSE HARD LM

LM. WH. F. CRD. BLUE GRAY TAN EN. YIN. SUB-
CHUKY TO DENSE & HARD. W. MED. TO DK. GRAY
GRY-GCN & BLK. COBB. SU

SH. MED. TO DK. GRAY GRY-GCN. W. V. SCAT.
BLK. COBB. F. LM. AS ABOVE. TR. EXPOSE
& TR. LT. GRAY SILST.

SH. AS ABOVE. W. CRD. BLUE GRAY TAN EN. YIN.
SUB-CHUKY TO CHUKY TO DENSE HARD LM
& GRAY GRY-GCN. SLT. SILTY. SU. GRADING
TO LT. GRAY SILST.

LM. CRD. BLUE GRAY TAN EN. YIN. SUB-
CHUKY TO DENSE & HARD. W. MED. GRAY
GRY-GCN & BLK. SU.

3800

20

40

60

80

LANSING

3896

2343

3900

20

40

60

80

4000

20

40

1M - CRM. BLUE GRAY TAN & SM. BRN. FAN XLN
SUB - CHLKY TO MED DENSE & HARD W. GRAY
GRY - CRM. SILTY SH

SILTY MED TO DK GRAY GRY - CRM & SM. GRN. SILTY
IN PART IN SCOT. IM AS ABOVE & TR. BLK. SH

SILTY MED TO DK GRAY TO BRN W. LT GRAY TR
BRN. SILTY SH GRADING TO SILTY SILTY FEW
PIECES IM AS ABOVE

SILTY MED TO DK GRAY GRY - CRM & SM. BRN. SILTY
IN PART W. V. SCOT. CRM. BLUE GRAY TAN EN
V. N. SUB. CHLKY TO DENSE HARD IM

SAME AS ABOVE W. V. SCOT. LT GRAY SOFT
"MUSKY" SH

1M - WHT & CRM. FAN XLN SUB. CHLKY & CHLKY
W. BLUE GRAY TAN FAN XLN DENSE HARD
DIRTY IM & CONS. SH AS ABOVE

SPL. V. DIRTY & NEARLY ALL SH (LARGE
PIECES)

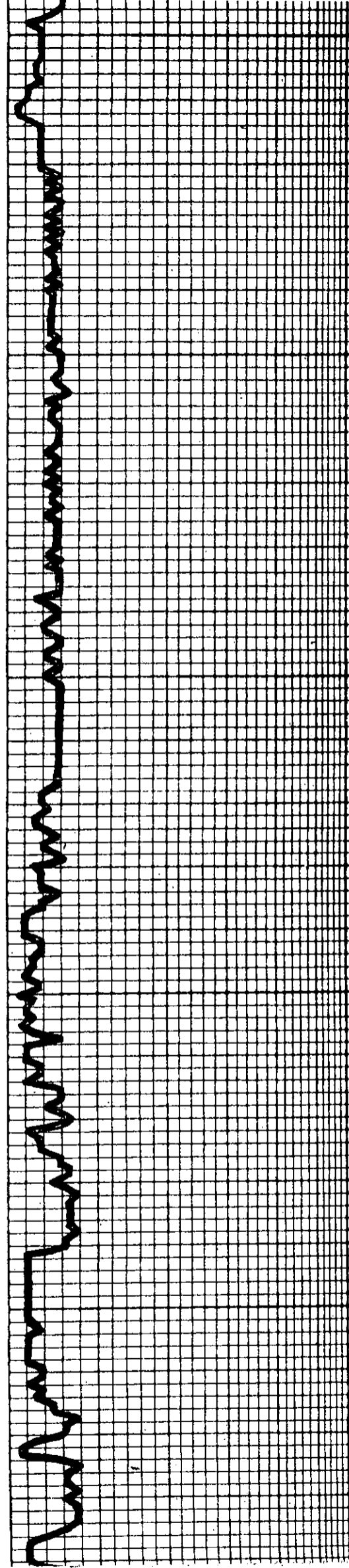
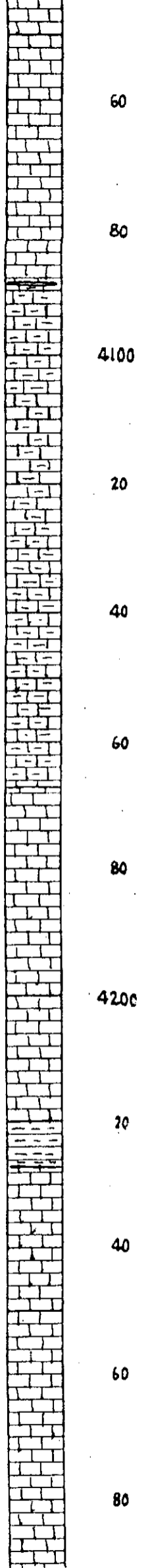
SAME AS ABOVE

SAME AS ABOVE - LAST 3 SPLS. BOUNDED?
EXCELLENT MIND - V. GOOD SAMPLES -
SPL. FOUR

1M - GOOD SPL. - BLUE GRAY TAN FAN XLN
MED DENSE & HARD W. TR. BLUE & TAN EN
V. N. EN & MED DENSE & TR. CR. IM IN GOOD
COND. N? (GOOD IM PROBABLY FROM 3905-3920)

1M - CRM. BLUE GRAY TAN EN & TR. MED. XLN
TR. MOTTLED, SUB - CHLKY & TR. CHLKY TO DENSE
& HARD

1M - CRM. BLUE GRAY TAN & BRN. MOTTLED FAN XLN
SUB - CHLKY TO DENSE & HARD W. TR. WHT. CHLKY IM



SUB-CHUKY TR CHUKY TO DENSE & HARD

1M. WH. CRM. LT. GR. & TAN. FIN. X. SUB-CHUKY TO DENSE & HARD

1M. CRM. BUFF. GR. & TAN. FIN. X. SUB-CHUKY TO DENSE & HARD

1M. WH. CRM. LT. GR. BUFF. & TAN. FIN. X. SUB-CHUKY & TR. CHUKY TO DENSE & HARD W. MED. & DK. GR. GR. GR. & BLK. SH.

1M. & CONS. SH. AS ABOVE

1M. CRM. GR. & BUFF. FIN. X. IN. E. SUB-CHUKY TO DENSE & HARD W. DK. GR. & TAN. FIN. X. TO ABCT. V. DENSE & HARD W. CONS. LT. MED. & DK. GR. & BLK. PYOLITIC SH.

1M. CRM. LT. GR. & BUFF. FIN. X. IN. SUB-CHUKY TO DENSE & HARD W. GR. & DK. GR. DENSE HARD 1M. & CONS. SH. AS ABOVE

1M. & SH. AS ABOVE

1M. WH. CRM. LT. GR. BUFF. & TAN. FIN. X. IN. CHUKY & SUB-CHUKY TO V. DENSE & HARD TR. LT. GR. E. SUB-TRANSI. CHUKY & SCOT. SH. AS ABOVE

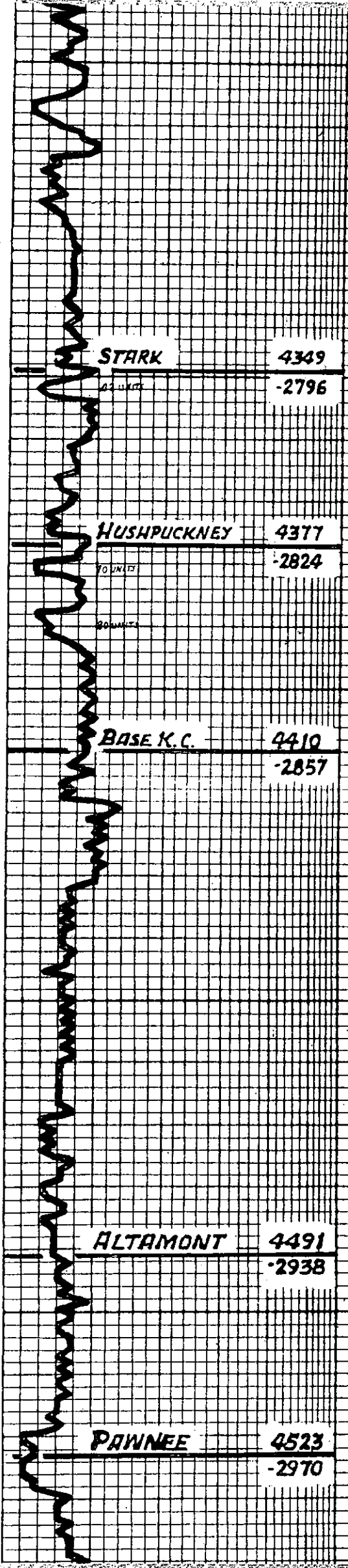
1M. WH. CRM. BUFF. LT. GR. & TAN. FIN. X. IN. CHUKY & SUB-CHUKY TO DENSE & HARD - V. SCOT. SH.

1M. WH. CRM. BUFF. GR. & TAN. FIN. X. IN. E. SUB-CHUKY & SUB-CHUKY TO DENSE & HARD W. FEW PIECES GR. & BUFF. 1M. W. ADD. TO TR. FAIR V. GR. B. N. S. SCOT. LT. GR. E. SUB-TRANSI. CHUKY

1M. WH. CRM. FIN. X. IN. CHUKY & SUB-CHUKY W. BUFF. & GR. FIN. X. IN. ADD. DENSE. MED. 1M. PLUS CHUKY AS ABOVE - MED. & DK. GR. & BLK. B. N. S. SH.

1M. BUFF. GR. TAN. & TAN. FIN. X. IN. SUB-CHUKY TO DENSE & HARD. CHUKY & TR. LITHO. BUFF. V. SCOT. CHUKY & SUB-CHUKY 1M. & TR. CHUKY AS ABOVE

4300
20
40
60
80
4400
20
40
60
80
4500
20
40



LM. CRM. BUFE. GRY & TAN. FN. XLN. SUB-CHLKY & SCAT. CHLKY TO DENSE & HARD. CHRTY & LITHO IN PART. W. SCAT. LT. GR. FRESH. SWA. TRANS. CHRT.

LM. CRM. BUFE. GRY. TAN & BRN. FN. XLN. SUB-CHLKY TO V. DENSE. HARD. CHRTY & LITHO. W. SCAT. MED TO DK. GRY & BLK. SH.

SAME AS ABOVE W. SCAT. BLK. CARB. SH.

LN.

LM. CRM. BUFE. FN. XLN. CHLKY & SUB-CHLKY TO MED. HARD. W. BUFE. GRY. TAN & TR. BRN. FN. XLN. PRED. DENSE. HARD. LM. PLUS SCAT. BLK. CARB. SH.

SH. BLK. V. CARB. ABD. GAS. BUBBLES. PLUS CRM. TO BUFE. FN. XLN. SUB-CHLKY TO MED. HARD. LTH. W. V. SPOTTY. POOR. INTER. XLN. & NUG. POR. COUPLE. PIECES. W. DULL. SPOTTY. FLUOR. TP. TINY. BLK. OIL. DR. DR. BLS. V. FAINT. ? GRS. ODR.

LM. WH. CRM. BUFE. GRY. TAN & TR. BRN. FN. XLN. CHLKY & SUB-CHLKY TO DENSE. HARD & TR. LITHO. W. TAN & BRN. FRESH. SWA. TRANS. CHRT.

SH. BLK. CARB. W. ABD. MED. & DK. GRY. GRY-GRN. PLUS ABD. CRM. BUFE. GRY & TAN. FN. XLN. SUB-CHLKY TO DENSE. HARD. LM.

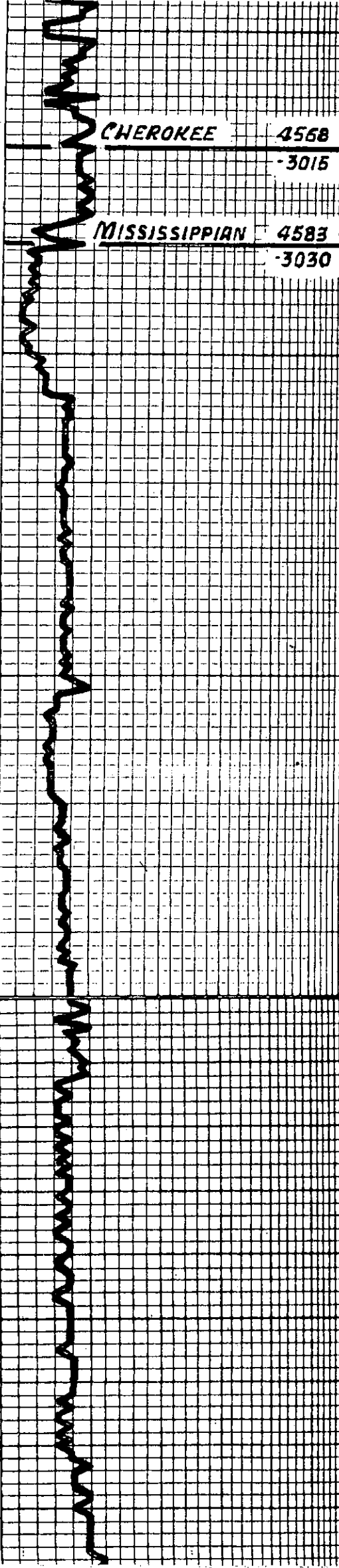
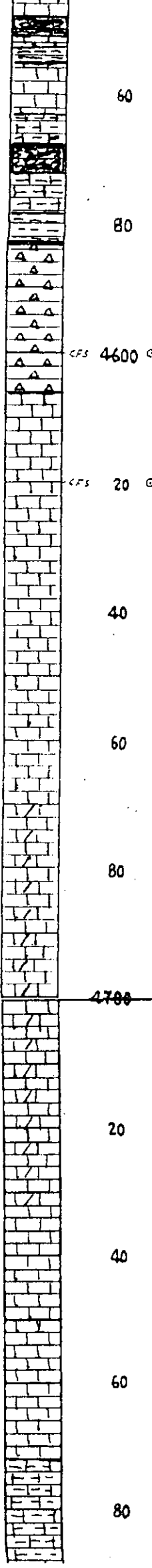
LM. AS ABOVE W. SCAT. DK. GRY & DK. BRK. HARD. LIME. CONS. MED. & DK. GRY. BLK. LM. GRN. & GRY-GRN. SH.

LM. CRM. BUFE. GRY & TAN. FN. XLN. SUB-CHLKY TO DENSE & HARD. W. GRN. GRY & BLK. SH.

LM. CRM. BUFE. GRY & TAN. FN. XLN. SUB-CHLKY TO PRED. DENSE & HARD. W. MED. GRY. GRY-GRN. GRN. BLK. & TR. BRN. SH.

LM. CRM. BUFE. GRY & TAN. FN. XLN. SUB-CHLKY & TR. CHLKY TO DENSE & HARD. ABD. GRN. GRY & TR. BLK. SH.

LM. CRM. BUFE. GRY & TAN. FN. XLN. SUB-CHLKY & MED. HARD. TO DENSE & HARD. V. SCAT. WH. CHLKY. LM. & TR. TAN. FN. XLN. V. DENSE. HARD. CHRTY. LM. & V. SCAT. BLK. CARB. SH.



CHEROKEE 4568
-3015

MISSISSIPPIAN 4583
-3030

SUBS. ... V. TIGHT BLK. COBB. SH.

1M. CRM. BUFF. GR. & TAN. EN. XIN. SUB-
CHUKY TO V. DENSE & HARD W. BLK. COBB. &
SCAT. GR. GR. GRN. & TR. GRN. SH.

1M. AS ABOVE. STILL CONC. BLK. V. COBB. (GAS
BUBBLES) SH.

(4600) CRT. LT. GR. FRESH W. SCAT. PIECES DEWIT
IN PART W. TAN. & BRN. STN. IN BAR. GAS
BUBBLES WHEN PRESSED. PLUS W. CRM.
CRT. W. BARR. TO TD. FOLD WEATH. FOR SPY
TO TD. SAT. FLUOR. & CON. GAS BUBBLES & FEW
OIL DROPLETS - ALSO SM. TINY FRACS. IN
FRESH CRT. W. FLUOR. & SAL. - V. GOOD. ODR.

(4620) CRT. LT. GR. FRESH. SCAT. PIECES W. DEWIT
& WEATH. EDGES & STK. PRED. POOR. PAR. (TR.
EN. D.) TAN. & BRN. STN. IN BAR. FEW GAS BUBBLES
& TR. TINY OIL DROPLETS. PLUS W. WEATH. CRT.
W. BARR. FOR. SPOTTY TO TD. SAT. STY. TR. GAS
BUBBLES. PLUS BUFF. & GR. EN. XIN. SUB-
CHUKY TO DENSE. HARD. ELL. D. 10. 1M. V. GOOD
ODR.

1M. BUFF. GR. TAN. & TR. CRM. EN. XIN. SUB-
CHUKY TO PRED. DENSE & HARD W. CRT.
AS ABOVE. WEAK. ODR.

1M. V. SLI. DOLA - CRM. BUFF. LT. GR. & TAN. EN.
XIN. SUB. CHUKY TO DENSE & HARD W. LT. GR.
FRESH. SUB. TRANSL. CRT.

SAME AS ABOVE

1M. DOLA. 1M. MED. GR. & TAN. FEW. PIECES LT.
GR. EN. XIN. SUB. TEXT. IN PART. PRED. DENSE
& HARD. V. TIGHT. CRT. AS ABOVE.

1M. DOLA. 1M. AS ABOVE. W. GR. & GR. GRN. SU.
(V. S. LOW) - POOR. SPT.

SAME AS ABOVE - BAD SAMPLE

1M. SLI. DOLA. BUFF. & MED. GR. EN. XIN. PRED.
DENSE & HARD W. SCAT. LT. GR. FRESH. SUB-
TRANSL. CRT. & ODR. GR. GRN. & BLK. SU.

1M. CRM. TO PRED. BUFF. & GR. EN. XIN. SUB-
CHUKY TO MED. HARD TO DENSE & HARD. TR.
ODR. III.

1M. W. CRM. BUFF. GR. & GRN. TAN. & SCAT.
TAN. EN. XIN. SUB. CHUKY TO DENSE & HARD
W. 3M. GRN. STN. BLK. SU.

4800

KINDERHOOK 4813

-3260

SH. MED TO DK GRY. GRN. GRY. GRN. & SM BLK
W. LM AS ABOVE

20

SH AS ABOVE. TP SPALINTRY IN SCAT WH.
CRD. LT GRY & BUFE. FN XIN. PRD SUB
CHUXY. MED HARD LM.

40

SH. MED TO DK GRY. GRY. GRN. GRN. & GRY.
GRN. TP BLK

60

SH AS ABOVE. SPALINTRY IN PART

80

SH. MED GRY. GRY. GRN. GRN. & GRY. GRN.

4900

CHATTANOOGA 4898

-3345

SH. MED TO DK GRY. BLK. BRNISH-BLK
TP DOLMITE & ABG SPRES

20

SH. DK GRY. BLK. BRNISH-BLK. TAPP DND
& ABG SPRES

VIOLA 4935

-3382

SDST LT GRY W BLK SPES. FN XIN. HARD BUT
FAND FOL. PRD INTER XIN. PRD. SEV PIECES
W. SPATY FLUR. PRD. BARREN OF FLUR.
SEV PIECES W. CASY. OIL DRAPETS. NOT 90%
OF SAMPLE BARREN. NO ODR OR G.V.

40

LM. WH. CRD. FN XIN. CHUXY & SUB-CHUXY
TP DENSE. HARD LM

60

DND. WH. LT GRY. FN. MED XIN. PRD
HARD. PRD TO TR. FOUR INTER XIN &
VUG. POR. N. S. W. WH. CRD. SACT
CHUXY LM

80

LM. CRD. BUFE. GRY & TAN. FN XIN. SUB-
CHUXY TP DENSE. HARD. CHUXY LITRO
W. DND & CASY LM AS ABOVE

5000

SIMPSON 5022

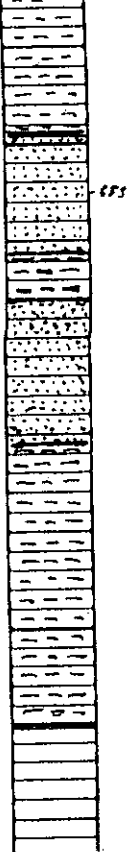
-3469

LM. WH. CRD. BUFE. GRY & TAN. FN XIN. CHUXY
& SUB-CHUXY TP DENSE & HARD. BLIS V SCAT
GRY. TAN. FRESH. PRD. ODDO. CURT

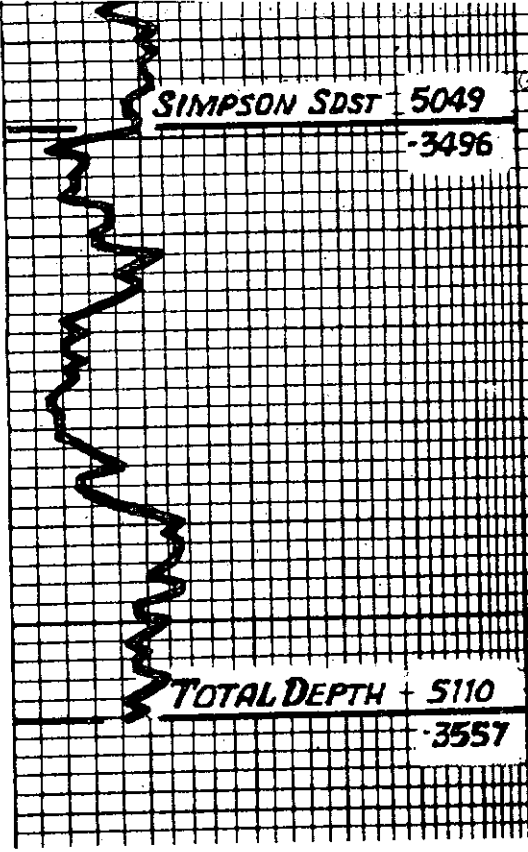
20

LM. CRD. BUFE. GRY & TAN. FN XIN. PRD
DENSE. HARD. CHUXY & LITRO IN PART LM

LM. CRD. BUFE. GRY & TAN. FN XIN. SUB-CHUXY
TP DENSE & HARD. W. SCAT. MED TO DK
GRY. GRN. (SM AQUA) & BLK. SH



40
60
80
5100



SIMPSON SDST 5049

-3496

TOTAL DEPTH + 5110

-3557

SH MED TO DK GRN, BROWN & GRN

(SD55) SOME AS ABOVE IN SEV CLUSTERS LT & MED GRN/MIXED IN BLOT DOLO SDST
PROP TO SCOT FAIR INTER-XLN POR-N.S.
(60 MIN) SDST LT GRN CLEAR BT SPANLS
PROP MED GRAINED CLUSTERS, FRI GOOD
INTER-XLN POR-N.S. PLUS SM BN & U EN
GRAINED GRN & TAN, HARD SDST W/ PROP POR
N.S.

DOLO: SD BUFE GRN / TAN, EN GRAINED PROP
POR-N.S. W/ BUFE & TAN, EN XLN W/ TINY
SAND GRAIN, UNBEDDED PROP POR-N.S. PLUS
CONS ASUA GRN & GRN GRN SH

SDST: CLEAR TO LT GRN & BUFE EN / MED
GRAINED, FRI SDST W/ FRI INTER GRN
POR-N.S. GRADING DOWN TO EN GRAINED
LT GRN & BUFE COMP SDST W/ PROP
POR-N.S. ~ 5M SH AS ABOVE

SH AQUA GRN & SCOT GRN W/ SCOT SDST
BT ABOVE

(5010) SH AS ABOVE IN SCOT LT GRN / SM GRN SPKS
& TAN, U EN EN GRAINED, TITE TO U SCOT
PROP INTER-XLN POR-N.S.

STRAIGHT MOLE SURVEY 5110'
DEVIATION = 2°

STRAP PIPE @ 5110'
STRAP 5083'76"
BOARD 5081.00"
STRAP LONG 2.67'