

Arden Ratzlaff

PETROLEUM GEOLOGIST

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COMPANY **CHIEFTAIN OIL CO., INC.**

LEASE **YATES 'A' No. 8**

FIELD **STRANATHAN**

LOCATION **SW NE NE NE**

SECTION **36** TOWNSHIP **34S** RANGE **12W**

COUNTY **BARBER** STATE **KANSAS**

CONTRACTOR **MAVERICK DRILLING** RIG NO. **106**

COMMENCED DRILLING **1-3-11**

COMPLETED DRILLING **1-16-11**

RTD **5430** FEET LTD **5428** FEET

MUD UP AT **3200** FEET MUD TYPE **CHEMICAL**

DRILLING TIME
AND
SAMPLE LOG

ELEVATIONS

KB 1399

DF 1397

EL 1389

Measurements Are All
From **K.B.**

CASING

13³/₈" @ 331' w 325 SX

8⁵/₈" @ 866' w 500 SX

5¹/₂" @ 5428 w 225 SX

ELECTRICAL SURVEYS

**SUPERIOR-GAMMARAY DUAL
INDUCTION, COMPENSATED DENSITY
& NEUTRON, S.P. & CALIPER**

REMARKS: AFTER ANALYZING ALL OF THE INFORMATION (SAMPLES, ELECTRIC LOG, PRODUCTION OF NEARBY WELLS, ETC.) IT WAS DECIDED THAT CASING BE CEMENTED IN EXPECTANCE OF A COMMERCIAL WELL.

Arden Ratzlaff, Petroleum Geologist

NOTE: NATIVE AMERICAN FURNISHED THE MUD. TRILLOBITE THE DRILL STEM TEST -- SAMPLES DEPOSITED AT THE U.G.S. SURVEY

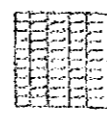
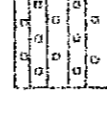
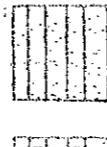
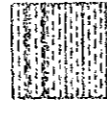
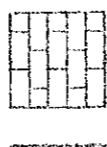

FORMATION TOPS

SAMPLE

ELECTRIC LOG

HEEBNER	3798 (-2399)	3794 (-2395)
LANSING	4302 (-2903)	4303 (-2904)
CHEROKEE	4684 (-3285)	4679 (-3280)
MISSISSIPPIAN	4730 (-3331)	4739 (-3340)
KINDERHOOK	4968 (-3569)	4959 (-3560)
VIOLA	5115 (-3716)	5112 (-3713)
SIMPSON	5206 (-3807)	5208 (-3809)
SIMPSON SAND	5233 (-3834)	5232 (-3835)
ARBUCKLE	5405 (-4006)	N.L.
TOTAL DEPTH	5430 (-4031)	5428 (-4029)

LEGEND

-  Anhydrite
-  Salt
-  Sandstone
-  Shale
-  Carb sh
-  Limestone
-  Dolomite
-  Chert

DRILLING TIME IN MINUTES
PER FOOT

Rate of Penetration Increases

5' 10' 15' 20' 25'

DEPTH

3400

20

40

LITHOLOGY

SAMPLE DESCRIPTIONS

REMARKS

60

80

3500

20

40

60

80

3600

20

40

60

80

SH-MED TO DK GRY; GRY-GRN & SM GRN. W.
GRY & BRN. FN XLN. DENSE. HARD. SLI. REGILL.
LM PLUS SM. WH & LT. GRY. SOFT MUSHY SH

SAME AS ABOVE

SH-PRD MED GRY. V. SLI. SILTY TEXT. W. DK.
GRY. BLK & V. SCAT GRN. PLUS BRN. & DK. GRY. FN
XLN. DENSE. HARD LM.

SAME AS ABOVE

SH AS ABOVE. W. SCAT. CRM. BUFF. GRY.
TRM & BRN. FN XLN. SLIB. CHLICY TO DENSE.
MED LM. PLUS BLK (TR. CRM. MED GRY
& GRY)-GRN SH.

LM & SH AS ABOVE PLUS SM LT. GRY.
SOFT MUSHY; CHLICY SIL & TR. LT. GRN.
FN SILST.

SILST-LT. GRY. FN GRN. SM. BLK. CAP'S W.
SCAT SH & LM AS ABOVE

SILST AS ABOVE. TR. MICA

SH-MED TO DK. GRY; GRY-GRN. SCAT. RED.
TR. GRN. & BLK. W. COND. SILST AS ABOVE

SILST AS ABOVE W. SLI. INCR. IN. BLK.
& GRN SH.

3700

SILT - LT. GRAY W. BLK. SAND GRADING TO
V. FN. GRAINED SILTY-SILT W. WELL-ANGLED
QTZ. GRAINS IN PART. POR. N.L. ~ N. S.

20

SAME AS ABOVE W. INCR. IN MED. TO DK.
GRY. & GRY-GRN. SH.

40

SH AND SILT AS ABOVE PLUS TR. LT. GRY.
TAN & BRN. FN. XLM. DENSE, HARD LM.

60

SAME - PREC. SILT. IN. SH. & LM. AS
PLUS TR. BUFF. LT. GRY. TAN & BRN. FN. XLM.
PREC. DENSE, HARD LM.

80

LM. & SH. AS ABOVE PLUS BLK. CARB. SH.

HEEBNER 379B

3800

-2400

SH - BLK. & BRNISH-BLK. CARB. IN TAN &
BRN. FN. XLM. DENSE, HARD LM. & SCAT. GRY.
& GRY-GRN. SH.

20

LM - INCL. CRIN. BUFF. & LT. GRY. FN. XLM. SUB-
CALCY. TO TR. CALCY. TO DENSE & HARD. W. SH.
AS ABOVE.

40

LM. & SH. AS ABOVE W. SCAT. GRN. SH. & BUFF.
GRY. TAN & BRN. FN. XLM. DENSE, HARD LM.
PLUS BLK. CARB. SH. (SLUFF?)

60

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

80

SH AS ABOVE PLUS SCAT. CRIN. BUFF.
GRY. & TAN. FN. XLM. SUB-CALCY. TO DENSE.
HARD LM.

3900

LM - BUFF. GRY. & TAN. (BRN. FN. XLM. SUB-
CALCY. TO DENSE & HARD. W. MED. TO DK. GRY.
BLK. & GRY-GRN. SH.

20

SH & LM AS ABOVE

40

LM - BUFF. GRY. TAN & BRN. FN. XLM. PREC.
DENSE, HARD. W. MED. TO DK. GRY. BLK. & GRY-GRN. SH.

60
80
4000
20
40
60
80
4100
20
40
60
80

SH-MED. GRY. BLK. GRY-GRN. & GRN. W.
LM. AS ABOVE.

SH-GRM. MED TO DK. GRY. GRY-GRN. & V.
SCAT. BLK.

SH-MED TO DK. GRY. (SLT SILTY TEXT). BLK
& GRY-GRN. W. BUFF. SUB-CALY. & BRN. &
GRN. FINXN. DENSE. HARD. LM.

SH-AS ABOVE PLUS LT. GRY. SOFT 'MUSHY'
SH & LM AS ABOVE.

SH-MED TO DK. GRY. SCAT. GRY-GRN. & BLK
W. LT. & MED. GRY. PLUS LT. GRY. PROD. SOFT
'MUSHY' V. DIRTY SAMPLE.

NOTE: SAMPLES ALL
LOOK THE SAME,
(FROM THE SAME
BUCKET??)
RIG HAD NO WATER.
0° TEMPERATURE

20

40

60

80

4300

LANSING

4302

-2903

20

40

60

80

4400

20

40

SH-MED TO DK GRY. SCAT. COI-GRA & BLK
W. LT & MED GRY. SOFT. MUSHY SU.
S&LE V. DIRTY

SH-MED GRY. GRY-GRN. SCAT DK GRY
& BLK (CARB IN PART) PLUS LT GRY
BUFF. TAN & BRN. FN XLN. PRD DENSE.
HARD LM.

LM-CRM. BUFF. GRY. TAN & BRN. FN XLN.
SUB-CHLKY TO DENSE & HARD W. CONS SH
AS ABOVE.

SH-MED TO DK GRY & BLK W. SCAT
W. SCAT LM AS ABOVE.

LM-WH & CRM. BUFF. GRY & TAN. FN & TR. MED
XLN. SUB-CHLKY. TR. CHLKY TO DENSE &
HARD. SM PORR INTER-XLN POR-N.S. PLUS
SCAT DK GRY & BLK SU.

LM-WH & CRM. FN XLN. CHLKY & SUB-CHLKY W.
BUFF. GRY & TAN. FN XLN. PRD DENSE.
HARD LM & TR. LT GRY ERE SU. SHRP. SUB-
TRANSL. CLRT.

SAME AS ABOVE W. SM BRN. FN XLN. DICE.
HARD LM & SCAT. MED TO DK COI. BLK &
GRY-CRN SU.

LM-BUFF. GRY. TAN & BRN. FN XLN. SUB-
CHLKY & TR. CHLKY TO PRD V. DENSE &
HARD. PLUS SEV. PIECES TAN. FN XLN.
W. MED COM? W. FAIR. PAR-N.S.

SAME W. INCR. IN COM. LM-N.S.

LM-AS ABOVE W. CONS. COM. LM &
TR. DOLT LM

60
80
4500
20
40
60
80
4600
20
40
60
80

STARK 4465
-3066

SH-BLK. CARB. IN PART, W. CRM. BUFF. GRY. TAN. & BRN. FN. YLN. SUB-CHALKY & TR. CHALKY TO DENSE & HARD.

HUSHPICKNEY 4494
-3095

LM-WH. CRM. FN. YLN. CHALKY & SUB-CHALKY. BUBBLES W. W. BUFF. GRY. TAN & BRN. PROD. DENSE, HARD LM.

BASE K. C. 4527
-3128

LM-LT. GRY. TAN & BRN. FN. YLN. SUB-CHALKY TO V. DENSE & HARD. W. TR. BRN & GRY. FN. YLN. SUB-TRANSL. SURP. CRT.

LM AS ABOVE

SH-BLK. CARB. DK. GRY. GRN & GRY-GRN. W. WH. CRM. BUFF. GRY. TAN & BRN. FN. YLN. SUB-CHALKY & TR. CHALKY TO DENSE & HARD. TR. LT. GRY. FRESH. SUB-TRANSL. CRT.

LM-BUFF. GRY. TAN. & BRN. FN. YLN. PROD. & HARD. W. LT. GRY. BLK (TR. CARB) GRY & GRY-GRY SH.

ALTAMONT 4606
-3207

LM-WH. CRM. BUFF. TAN & BRN. FN. YLN. SUB-CHALKY & TR. CHALKY TO DENSE & HARD PLUS SPOT SH AS ABOVE.

LM-AS ABOVE PLUS SH AS ABOVE

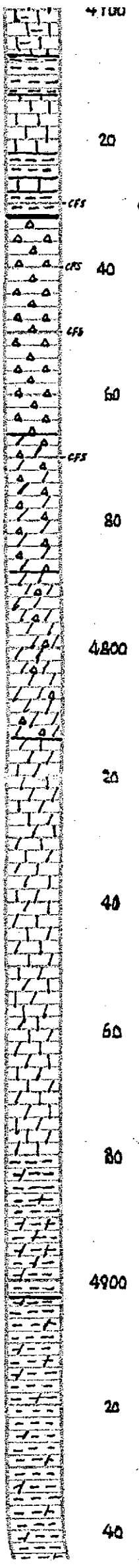
PAWNEE 4645
-3646

SH-BLK. CARB. W. STM. MED. GRY. GRY-GRN. PLUS LM AS ABOVE.

LM-CRM. BUFF. GRY. TAN & BRN. FN. YLN. SUB-CHALKY TO DENSE & HARD.

CHEROKEE 4684
-3285

LM AS ABOVE W. BLK. V. CARB. (GAS BUBBLES) W. MED. TO DL. GRY & GRY SH.



MISSISSIPPIAN - 4730
• 3331

SH-MED TO DK. GRY. BLK (SLI CAPS) IN GEN. & GRY-CRN PLUS ABB. BUFF. GRY & TRN. FN XLN. SUB-CHLKY TO DENSE & HARD LM.

(4730) SH-MED TO DK. GRY & GRY GRN. PLUS LM AS ABOVE W. BRN SHY-SILT. OR SILTY-SH. V. POOR POR. TR GAS BUBBLES & 'PLASTICS' NO FLUOR. OR ODOR.

(4740) CRT. FRESH. SHRP. SUB-TRANSL. GRINDING TO DEVI. IN. POOR POR. W. TAN & BRN STN. W. FEW GAS BUBBLES WHEN PRESSED PLUS WEATHERED CRT. W. GAS BUBBLES WHEN BROKEN. V. POOR POR. WEAK ODOR.

(4750) CRT. LT GRY TO TR. BUFF. FRESH IN STN. ON FEW EDGES W. WEATH. CRT. W. FEW FLECKS W. SPOTTY TO FAT STN. IN. POOR POR. GAS BUBBLES & SCAT. BRN OIL DROPLETS. FAIR ODOR.

CRT. W. & LT GRY. IN TAN & BRN W. SLI. SUICR. ON SIDES & EDGES. POOR POR. W. TAN & BRN. FAT STN. TR GAS BUBBLES & TINY OIL DROPLETS. NO FLUOR. WEAK ODOR.

FN BT & DOLD. CRT. AS ABOVE W. SCAT. BUFF. GRY & TRN. FN XLN. SUB-CHLKY TO DENSE. HARD LM.

CRT & DOLD. CRT. AS ABOVE PLUS FRESH CRT. PLUS W. LT GRY. BUFF & TRN. FN XLN. SLI DOLD. CRT. & V. SCAT. BUFF & TRN. FN XLN. PRED. DENSE. HARD LM.

CHRY. DOLD. DOLD. CRT. GRN. LT. GRY. BUFF. FN XLN. TR. SUICR. TEXT. PRED. V. DENSE & HARD W. CLEAR & SCAT. BUFF & TRN. FN XLN. PRED. DENSE. HARD LM.

LMY-DOLD OR DOLD-LM. LT & MED GRY. TR. TR. BUFF. FN XLN. PRED. V. DENSE & HARD W. SCAT. CRT. AS ABOVE.

SAME AS ABOVE W. MED GRY. SM. DV. GRY & TR. GRN. SH.

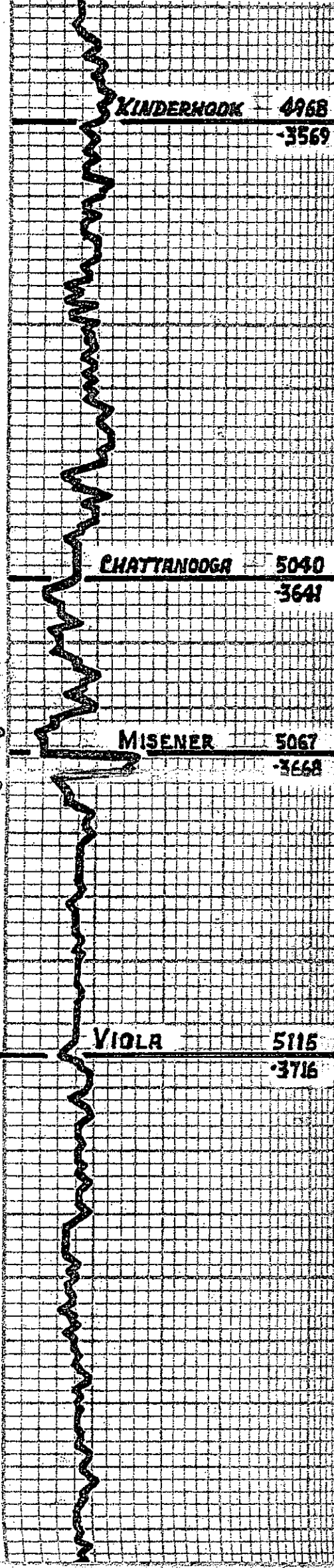
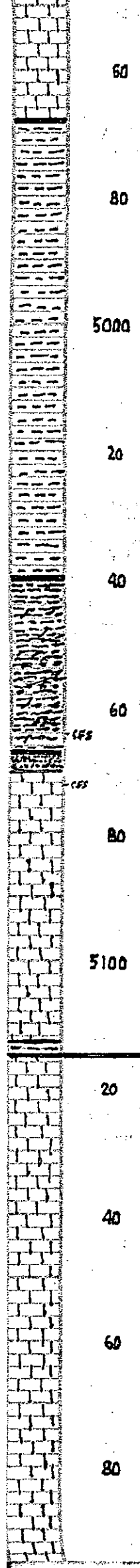
DOLD-LM OR LMY-DOLD. MED GRY. FN XLN. PRED. DENSE & HARD W. SCAT. GRN. BUFF. & GRY. FN XLN. SUB-CHLKY TO INSE. HARD LM.

SH-MED TO DK. GRY. BLK. GRY-CRN & TR. GRN. W. V. SCAT. MED. GRN. & TRN. FN XLN. V. SLI. SUICR. TEXT. V. DENSE. HARD. SW. ARGILL. DOLD.

DOLD-MED TO DK. GRY & BRN. ARGILL. IN. PART. FN XLN. TR. SUICR. TEXT. PRED. DENSE & HARD & SCAT. SH. AS ABOVE.

SAME AS ABOVE W. V. SCAT. BUFF & TRN. FN XLN. SUB-CHLKY TO DENSE & HARD.

SH-MED GRY. BLK. GRY-CRN W. SCAT. BRN & GRY. CRT. IN. SHY. DOLD. W. LM.



KINDERHOOK 4968
-3569

LM-WH CRTM, BUFE, LT GRY, FN XLN, SUB-CH LKY TO DENSE & HARD LM SH AS ABOVE

SH-MED TO DK GRY, BLK, GRN & GRY-GRN, SLI SPLINTERY W. SFT LM AS ABOVE

SH-MED TO DR GRY, BLK & SM GRY-GRN

SH-MED GRY, BRN, GRY-GRN & SM LT GRY, SFT MUSHY, CH LKY LM

CHATTANOOGA 5040
-3641

SH-MED TO DL GRY, GRY-BRN, & TR BLK, CAB IN PART, SLI DOLO & SPDR BEADING

(506A) SH-DK GRY, BRN, TH-BLK, V. CARB, DOLO IN PART W. ABD. SPORES

MISENER 5067
-3668

(5072) SDST-LT GRY IN BLE SPRT, FN GRAINED, SUB-RAIDED TO WELL-RAIDED GRAINS, FZI W. FRIE INTER-GRAN POR TO FRED HARD W. POOR POR, GAS BUBBLES WHEN PRESSED OR BAKED, TR V. TINY OIL DROPLETS-NO FLUOR OR ODOE

LM-WH CRTM, LT GRY, FN XLN, CH LKY & SUB-CH LKY (WASHES WH) W. SFT TAN & GRY, FN XLN, DENSE, HARD LM

SAME AS ABOVE

VIOLA 5115
-3716

SAME W. GRY & BRN & GRY-BRN, FN XLN, SUB-CH LKY & TR ARGILL TO V. SFT DNSE & HARD DOLO

LM-CH LKY & SM DOLO AS ABOVE PLUS LT GRY & CRTM W. DK SPRT, FN XLN, SUB-CH LKY TO DENSE HARD LM, PLUS BRN, DULL SUB-TRONSL TO TR. @ PAG. CRTM

SAME W. CONS. CRTM AS ABOVE

LM-WH CRTM, BUFE, & LT GRY, FN XLN, SUB-CH LKY, & TR CH LKY TO FRED TAN & BRN, FN XLN, DENSE, HARD SLI LKY, DOLO PLUS ABD. CRTM AS ABOVE

DST No. 1 (5059-5072)

50-45-90-90
STRONG BLOW B.O.B. 1 MIN
G.T.S. 14 MIN (1st OPEN)
STRONG BLOW B.O.B. IMMEDIATELY
(2nd OPEN)
GAUGE 67.300 RECD 15 MIN

152.300	"	30 "
164.000	"	60 "
266.400	"	90 "
230.700	"	120 "

REC: 15' DRLL MUD
15IP/786# FSIP/788#
1FP/20-95# FFP/37-155#
TEMP: 121°F

STRAP PIPE @ 5072'
BOARD 5082.31'
STRAP 5077.58'
STRAP SHORT ---- 4.93'

STRAIGHT HOLE SURVEY 5072'
DEVIATION = 1/2°

5200

SIMPSON 5206
-3807

LM. WH. CDM. BUFF. GRY. TAN & BRN. FN
SUB-CHLKY. & TR. CHLKY TO PRD DENSE &
HARD. PULT. BRN. FRSH. SUB-TRANSL. TO
DULL CLRT.

20

(5230) LM. & CHRT. W. LT. GRY (SLI GRN. INTED)
DOLA - SDST. W. THY. GYZ GRANS INRED'G
IN DOLA - SDST. V. POOR POR - N. S.

SIMPSON SAND 5233
-3834

(5235) SDST. WH TO LT. & MED. GRY (MIXED &
MOTTLED) FN & MED. GRAINED CLUSTERS
HARD & TITE TO SCOT CLUSTERS IN FAIR.
INTZ-GRAN POR-N. S.

CFS

CFS

40

SDST AS ABOVE.

60

SDST. LT. GRY. TAN & BRN. W. BLK SPK'S
FN GRAY. FAIR FRI. POOR TO FAIR POR. N. S.

80

SDST AS ABOVE. W. MED TO DK GRY. BLK
POR. & GRN. SH

5300

SH. MED TO DK GRY. AQUA & BLK - CONS
SDST AS ABOVE.

20

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

40

SH AS ABOVE - PRD AQUA.

60

(5310) SDST. LT. GRY & BUFF. FN GRAINED. HARD &
COMP. POOR FRI. W. POOR POR-N. S. PLUS LT
LT. GRY. FN GRAINED TO TR. MED GRAINED W.
BLK SPK'S - POOR POR-N. S. & 1 PIECE

CFT

CFS

80

(5380) SDST. CDM. BUFF. & TR. TAN. FN TO TR. MED.
GRAINS. HARD W. POOR POR TO SCOT PIECES
FRI. W. FAIR POR-N. S.

SDST AS ABOVE PLUS SCAT. GRY. & BLK.
SPECKLED. FN & TR. MED GRAINS. V. SCOT
FRI. STR. FAIR POR-N. S.

5400

ARBICKLE 5405
-4006

SH. AQUA. MED TO DK GRY & BLK W. SCAT. TAN
& BRN. V. FN. FN. XLN. PRD DENSE. HARD.
DOLA - LM OR LMY - DOLA

20

DOLA - SLI LMY. TAN & BRN. FN XLN. FN. LK
SUCR. TEXT. PRD. V. DENSE & HARD - V. SCOT.
WH. & BRN. FN. XLN. SUB-CHLKY TO DENSE
& HARD

TOTAL DEPTH 5430
-4031

(5430) DOLA AS ABOVE W. SCAT. WH. & LT. GRY.
FN. XLN. CHLKY & SUB-CHLKY. LM. & SCAT.
TAN & BRN. FN. XLN. SLI DOLA LM

40