

Arden Ratzlaff

PETROLEUM GEOLOGIST

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DRILLING TIME

AND

SAMPLE LOG

COMPANY **CHIEFTAIN OIL CO. INC.**

LEASE **MOLZ No. 23**

FIELD **STRANATHAN**

LOCATION **NE SW NE NW**

SECTION **10** TOWNSHIP **35S** RANGE **12W**

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

CONTRACTOR **FOSSIL DRILLING** RIG NO. **3**

COMMENCED DRILLING **11-6-18**

COMPLETED DRILLING **11-18-18**

RTD. **5695** FEET LTD. **5628** FEET

MUD UP AT **2000** FEET MUD TYPE **CHEMICAL**

ELEVATIONS

KB **1445**

IF **1443**

EL **1432**

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

CASING

1 3/8" @ 304' W. 350 SX

5 1/2" @ 5603' W. 300 SX

ELECTRICAL SURVEYS

**WARRANTY CONDENSATER
MATERIAL RESISTIVITY PER LOG
DUAL INDUCTION & MICROLONG**

FORMATION TOPS

SAMPLE

ELECTRIC LOG

HEEDNER
LANSING
LENDNER
MISSISSIPPIAN
KINDERHOOK
NIOLA
SIMPSON
SIMPSON DOST
ARBUCKLE
TOTAL DEPTH

5895 (1440)
4428 (1440)
4805 (1440)
4882 (1440)
5129 (1440)
5295 (1440)
5387 (1440)
5398 (1440)
5412 (1440)
5605 (1440)

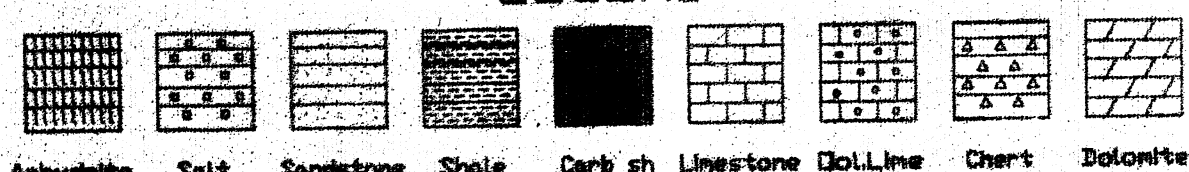
5892 (-2447)
4435 (-2990)
4805 (-3360)
4882 (-3407)
5139 (-3694)
5295 (-3850)
5387 (-3942)
5398 (-3955)
5416 (-4171)
5628 (-4185)

REMARKS AFTER ANALYZING ALL OF THE PERTINENT INFORMATION FROM THE DRILLING OF THE WELL PLUS THE KNOWLEDGE OF PRODUCTION IN THE IMMEDIATE AREA PRODUCTION CASING WAS SET.

Arden Ratzlaff, Petroleum Geologist

NOTE: BARCAS FURNISHED THE MUD -- SAMPLES DEPOSITED AT THE K.G.S. SURVEY.

LEGEND



DRILLING TIME IN MINUTES
PER FOOT
Rate of Penetration Increases

LITHOLOG

AS	DEPTH	SAMPLE DESCRIPTIONS	REMARKS
	1700	SH. BROWN GRAY TO D.K. GRAY. SCANT DARK GRAY E.V. SCANT BLK PLUS SCANT BROWN GRAY TAN. EN. VLN. PROD. DENSE. HARD LN.	
	20	LM. GRAY TAN. BRN. EN. VLN. PROD. DENSE. HARD LN. W. 1/200 GRAY GRAY. HARD LN. SH.	
	40	SH. GRAY TO D.K. GRAY. GRAY. GRAY. W. SCANT BLK. E. TO CON. IN. BULK. GRAY. TAN. GRAY EN. VLN. SUB. CULV. TO PROD. DENSE. HARD LN.	
	60	SH. GRAY. GRAY. GRAY. GRAY. W. SCANT BLK. E. LN. AS ABOVE. PROD. DENSE. HARD LN.	
	80	SH. GRAY. GRAY. GRAY. GRAY. GRAY. SI. SIETY. W. SCANT BLK. GRAY. TO BLK. W. GRAY. LN. AS ABOVE.	
	3000	SILT. LT. GRAY. W. SOL. BLK. SCANT GRAYING DOWN TO LT. GRAY. GRAY. SI. SIETY. GRAY. LN. GRAY. GRAY. BLK. W. SCANT CON. E. BRN. GRAY. LN. SUB. CULV. TO DENSE. HARD LN. GRAY. BLK. SH.	
	20	SILT. E. SH. GRAY. GRAY. TO D.K. GRAY. GRAY. CON. W. TO BLK. E. DENSE. GRAY. PROD. DENSE. E. TO TAN. GRAY. EN. VLN. PROD. DENSE. HARD LN.	
	40	SILT. GRAY. GRAY. W. W. PROD. GRAY. SIETY. E. SCANT BLK. GRAY. GRAY. GRAY. LN.	
	60	SH. GRAY. GRAY. SIETY. LN. BRN. V. SCANT GRAY. CON. W. TO BLK. GRAY. PLUS. W. SCANT PROD. TAN. GRAY. EN. VLN. PROD. DENSE. HARD LN.	
	30	SH. AS ABOVE. BLK. GRAY. GRAY. LN. GRAY. GRAY. GRAY. TAN. GRAY. PROD. SUB. CULV. TO PROD. DENSE. HARD LN.	
	3000		
	2440		
	3000		
	3000		

20

LN AS ABOVE W. MED GR. GR. GRN
SIL GR. SH

40

SH. MED GR. SILTY & GR. GRN W. SCAT
LN AS ABOVE

60

SAME AS ABOVE

80

SH. MED GR. & GR. GRN SILTY W. SCAT
LN AS ABOVE SILTY SCAT LN MED
GR. SIL. BLACK'N. SILTY SILT.

4000

RED. SH AS ABOVE W. Y. SCAT LN MED
SILT AS ABOVE

20

SH. MED GR. Y. SCAT GR. GRN TR. DR.
GR. W. TR. LN & SILT AS ABOVE

40

SH. MED GR. SILTY W. SCAT GR. GRN &
TR. BUFF & TR. PH. SIL. DR. LN.

60

SH. MED GR. & GR. GRN SILTY W. BUFF
PLUS LN AS ABOVE

80

SAME AS ABOVE

4100

SH. MED GR. & GR. GRN SILTY SH

20

SH. MED TO DR. GR. & GR. GRN W. SILTY
SILT AS ABOVE

TO BE USED ONLY FOR BOREHOLE LOGS
DENSE HARD LIM

40

SH AS ABOVE W. SCAT LIM AS ABOVE

60

SH MED TO DK GRX. W. GRX. GRAY SILT
SILT W. TR BLK W. V. SCAT MED TO DARK
MAY IN DENSE HARD LIM TO LT GRX. BLK
SPR'D. SILEX SILT

80

SAME AS ABOVE UNLESS IN PART
BRN & TAN. MAY IN DENSE HARD LIM

4200

SILT. LT GRX. BLK BRN. SHLY HARD
W. SH MED GRX. GRAY GRAY SILT IN
PART. BLK. SCAT TAN & BRN. MAY IN
DENSE HARD LIM

20

SILT AS ABOVE W. MED TO DK GRX.
GRX. BRN & V. SCAT BLK SH

40

SILT & SH AS ABOVE BLK W. SCAT
GRX. TAN & BRN. SILEX. DENSE. HARD
LIM

60

SILT. LT GRX. BLK SRECKTR IN PART
W. SCAT MED GRX. SILT

80

SILT & SCAT SH AS ABOVE

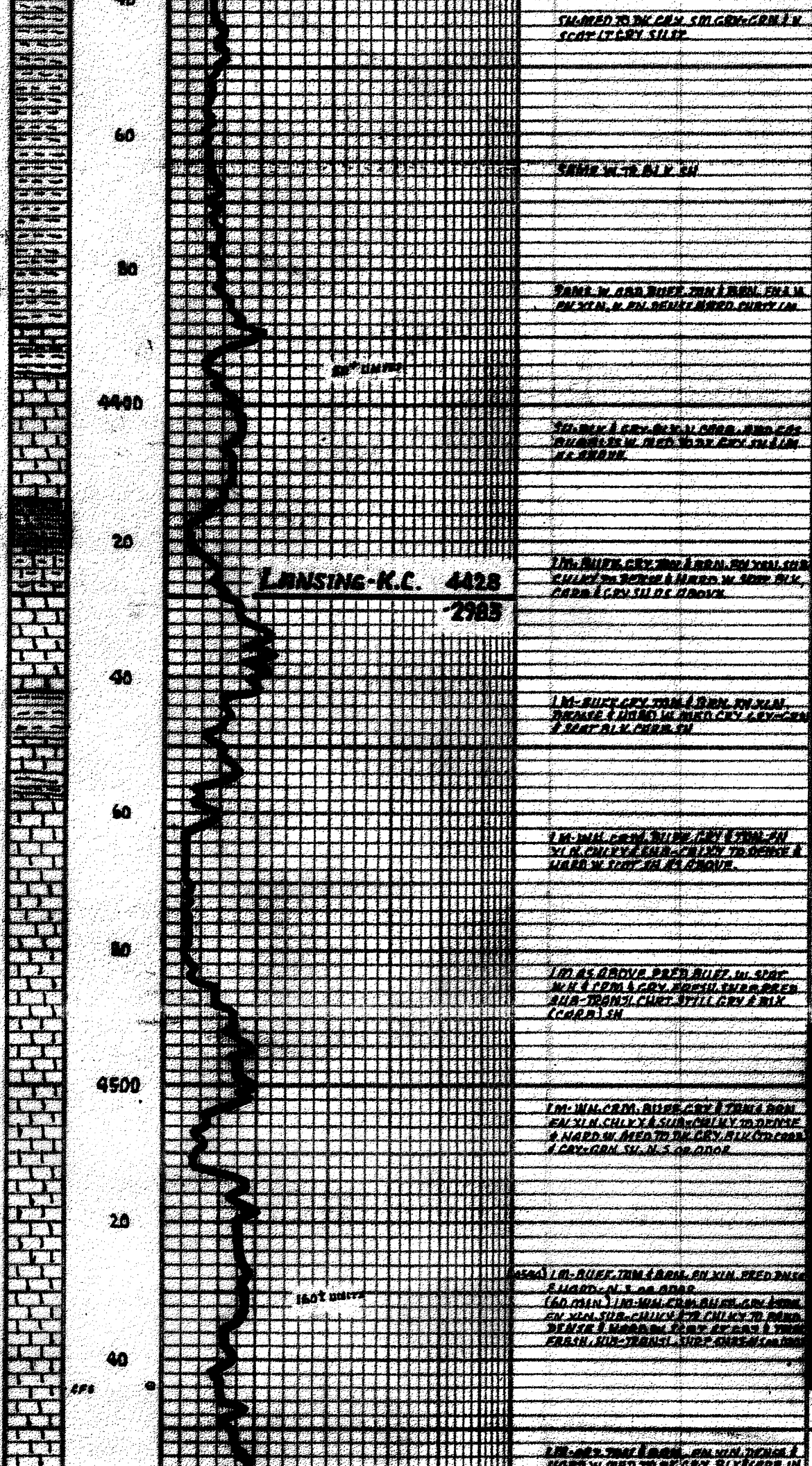
4300

SH & SILT. SH-MED GRX. TR BLK W.
LT GRX. PART BLK SPR'D. SHLY IN PART
SILT

20

SH-MED GRX. GRAY GRX. GRAY W. SCAT
SILT. SPAS. BRN & SCAT GRX. TAN & TR
BRN. MAY IN DENSE HARD LIM

40



**LANSING-K.C. 4428
-2983**

SILTY SAND TO BK. CR. SM. GR. CR. IN
SCOT. IT. CR. SILT

SAND W. TO BL. CR.

SAND W. AND SILT TO BK. CR. IN
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

TO BK. CR. IN. CR. IN. CR. IN. CR. IN.
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

TO BK. CR. IN. CR. IN. CR. IN. CR. IN.
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

1 M. SIFT. CR. IN. CR. IN. CR. IN. CR. IN.
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

1 M. SIFT. CR. IN. CR. IN. CR. IN. CR. IN.
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

1 M. SIFT. CR. IN. CR. IN. CR. IN. CR. IN.
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

1 M. SIFT. CR. IN. CR. IN. CR. IN. CR. IN.
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

1 M. SIFT. CR. IN. CR. IN. CR. IN. CR. IN.
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

1 M. SIFT. CR. IN. CR. IN. CR. IN. CR. IN.
SM. GR. CR. IN. S. IN. S. IN. S. IN. S. IN.

TEST No. 1 (4428-4544)

30-45-60-90
GOOD BLOW TO BOTTOM OF
BUCKET IN 10" (1" OPEN)
GOOD BLOW TO BOTTOM OF
BUCKET IN 12" (2" OPEN)
REC. 40 FEET GAS IN PIPE,
NO FRESH MUD CUT CUT GASSY
WATER.

SIP/1818# FSLR/1816#
FP/43-213# FPE/241-453#
TEMP 124° E

160 units

5000

20

40

60

80

5100

20

40

60

80

5200

SN-511 DOLD. MED TO BY CRT 1 SCHE GRV
GRN. DENSE. HARD TO SCOT SUIT. SCOT

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

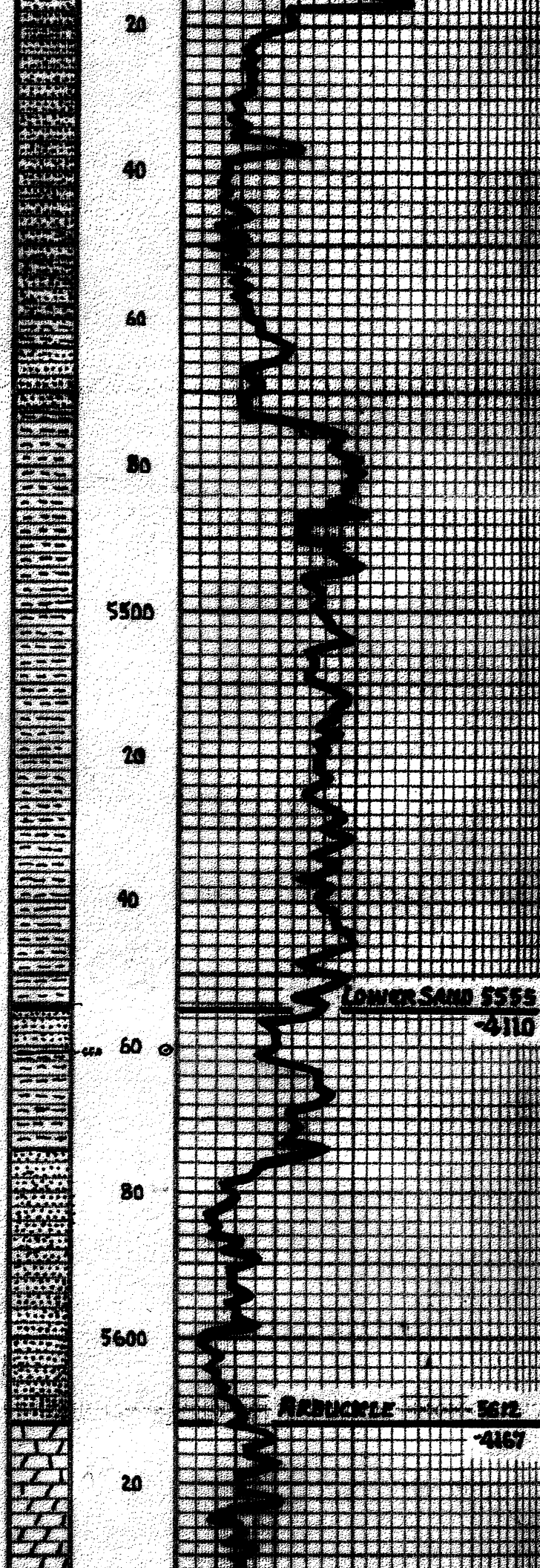
SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

SN-511 DOLD. MED TO BY CRT 1
V. SCOT GRV-CRM

KINDERHOOK 5129

3684

BIT TRIP Q. 5110'



SM. MED TO BK GR. AQUA GRN. BLK. IN
 W. MED TO CR. CL. 5/16" - 3/8" IN
 WELL BOUNDED SINGLE & DOUBLE
 CLUSTERS. PLUS TR. CR. & GR. IN
 REMAINING PLUSTERS. HARD. FRI. IN
 ACC. TO FAIR. POR. N.S.

GRN. - BLUSTERS. SINGLE. GR. IN. OF
 GR. GR. PLUS. W. 1/2" CR. & BLK. IN
 GR. & CR. TO WELL-BOUNDED. HARD. FRI.
 BUT. FRI. ACC. TO FAIR. POR. N.S. IN
 CONS. SH. AS ABOVE.

SDST. AS ABOVE. W. 1/2" MED. GRN. AQUA
 SM. MED. BK. GR. & BLK. SH.

SH. MED TO BK GR. IT. MED. GRN. AQUA
 & BLK. SH. - W. ACC. TO SDST. AS ABOVE.
 SCOT. W. 1/2" CR. & GR. IN. HARD. FRI. IN
 ACC. TO FAIR. POR. N.S.

SH. AS ABOVE. W. SCOT. W. 1/2" CR. & GR.
 IN. GR. IN. SDST. CLUSTERS. HARD.
 HARD. FRI. TO V. FRI. IN. ACC. TO FAIR. POR. N.S.

SH. MED TO BK GR. CR. GR. GR. GR. GR.
 & BLK. SH. - W. ACC. TO SDST. AS ABOVE.
 GR. IN. GR. IN. GR. IN. GR. IN. GR. IN.

SH. AQUA GRN. MED. GR. CR. GR. GR. GR.
 MED. GR. GR. GR. GR. GR. GR. GR. GR.
 GR. IN. GR. IN. GR. IN. GR. IN. GR. IN.
 IT. CR. SDST. AS ABOVE.

LOWER SAND 555

4110

SDST. SDST. V. SDST. GR. GR. GR. GR. GR.
 CLUSTERS. HARD. BUT. FRI. SDST. FAIR.
 POR. N.S. IN. ACC. TO SDST. AS ABOVE.
 IN. GR. IN. GR. IN. GR. IN. GR. IN. GR. IN.
 GR. IN. GR. IN. GR. IN. GR. IN. GR. IN.
 GR. IN. GR. IN. GR. IN. GR. IN. GR. IN.

SDST. SDST. AS ABOVE. W. 1/2" CR. & GR.
 GR. IN. V. SDST. GR. GR. GR. GR. GR.
 V. HARD. HARD. FRI. IN. GR. IN. SDST.
 SDST. IT. CR. IN. GR. IN. GR. IN. GR. IN.
 GR. IN. GR. IN. GR. IN. GR. IN. GR. IN.
 GR. IN. GR. IN. GR. IN. GR. IN. GR. IN.

SDST. IN. 1/2" MED. GR. V. SDST. GR. GR.
 SDST. IN. TO SDST. GR. GR. GR. GR. GR.
 FAIR. FRI. - N.S. W. SH. AS ABOVE.

SDST. MED. GR. AS ABOVE. W. SDST. IN.
 IN. GR. IN. HARD. FRI. FAIR. POR. N.S.
 W. SH. AS ABOVE.

REDUCIBLE 562

4167

LM. DOLA. IN. PART. BLUE. GR. & TR. IN.
 W. IN. FRI. DENSE. HARD. - SH. & SDST.
 AS ABOVE.

SDST. GR. GR. GR. GR. GR. GR. GR. GR.

