

32-8-15W<sup>1</sup>

Mai Operations  
P.O. Box 33  
Russell, Kansas 67665

State Geological Survey  
WICHITA BRANCH

GEOLOGICAL REPORT:

Hrabe No. 1  
C-N/2-NE-SW-SE, 32-8S-15W  
Osborne County, Kansas

CONTRACTOR:

Revlin Drilling Co., Rig 2  
Russell, Kansas

DRILLING COMMENCED:

October 10, 1983

DRILLING COMPLETED:

October 17, 1983

CASING RECORD:

8 5/8 set at 301' with  
190 sxs. common Quickset.  
4 1/2 set at 3597' with  
35 sxs. 50/50 poz. 2<sup>1</sup>/<sub>2</sub> gel.,  
18<sup>1</sup>/<sub>2</sub> salt, 5<sup>1</sup>/<sub>2</sub> cal-seal. All  
with 1/4 lb. Floceal per sack.

SAMPLES:

10' intervals from 2900' to  
3600' R.T.D.

DRILLING TIME:

By Geologist.  
Plotted and Recorded from  
2850' to 3600' R.T.D.

DRILL STEM TESTS:

4 by Swift Formation Testers  
Great Bend, Kansas

LOGS:

Dresser Atlas (Laterlog)  
Great Bend, Kansas

ELEVATION:

Laughlin-Simmons Co., of Kansas  
Kelly Bushing 2029'  
Ground Level 2024'  
Measurements from K.B.

RECEIVED  
STATE CORPORATION COMMISSION  
NOV 15 1983  
CONSERVATION DIVISION  
Wichita, Kansas

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1 Hrabe

FORMATION TOPS  
(Dresser Laterlog)

<u>FORMATION</u>	<u>DEPTH</u>	<u>MINUS DATUMS</u>
Anhydrite	1278	+751
Base-Anhydrite	1312	+717
Topeka	2932	-903
Heebner	3158	-1129
Toronto	3183	-1154
Lansing-Kansas City	3206	-1177
Base-Kansas City	3472	-1443
Conglomerate	3579	-1550
Rotary Total Depth	3600	-1571
Log Total Depth	3600	-1571

\* NOTE: All sample tops are with 1-2 feet.

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Lithology: Zones of Interest

NOTE: All sample descriptions are corrected to log footages.

Topeka 2932-Top (-903)  
2960-64

LS; Light gray to buff, fair crystalline porosity with light stain. Free oil and faint odor.

Tested by D.S.T. No. 1 (See Test Results)

Heebner 3158 (-1129)

Toronto 3183-Top (-1154)  
3184-86

LS; White, fine crystalline and fossiliferous, dense. Trace of spotty stain. No free oil or odor.

Tested by D.S.T. No. 2 (See Test Results)

Lansing-Kansas City 3206-Top (-1177)  
3207-08  
A Zone

LS; White, fine crystalline and dense. No free oil or odor.

Tested by D.S.T. No. 2 (See Test Results)

3218-24  
B Zone LS; Buff, tite crystalline porosity with light stain. Free oil and faint odor.

Tested by D.S.T. No. 2 (See Test Results)

3245-49  
C Zone LS; Buff, crystalline porosity with light stain, fossiliferous. Trace of free oil, no odor.

Tested by D.S.T. No. 2 (See Test Results)

3262-66  
D Zone LS; Buff, fine crystalline and dense. Scattered light stain. No free oil or odor.

Tested by D.S.T. No. 3 (See Test Results)

3302-06  
F Zone LS; White, fossiliferous and chalky. Scattered light spotty stain. No free oil or odor.

Tested by D.S.T. No. 3 (See Test Results)

3312-18  
G Zone LS; White, poor interoolitic porosity with spotty stain. No free oil, but faint odor.

Tested by D.S.T. No. 3 (See Test Results)

3350-54  
H Zone LS; White, crystalline, fossiliferous to slightly oolitic, chalky. Trace of spotty stain. No free oil or odor.

Tested by D.S.T. No. 4 (See Test Results)

3374-76  
I Zone LS; White, fossiliferous and dense. Trace of poor crystalline porosity with rare light stain. Trace of free oil and faint odor.

Tested by D.S.T. No. 4 (See Test Results)

3394-96  
J Zone LS; Buff, fine crystalline and fossiliferous. Dense to slightly chalky. Trace of free oil, no odor.

Tested by D.S.T. No. 4 (See Test Results)

Lithology: Page 3

3428-32  
K Zone

LS; White, fine crystalline and dense. Traces of poor crystalline porosity with light spotty stain. No free oil or odor.

Tested by D.S.T. No. 4 (See Test Results)

3454-56  
E Zone

LS; Buff, fine crystalline and dense. No free oil or odor.

Base-Kansas City 3472 (-1443)

Conglomerate 3579 (-1550)  
3580-3600

Congl; White fine crystalline lime with vari-colored weathered chert. Associated soft red and gray shales. No sand development.

DRILL STEM TESTS

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Drill Stem Test No. 1 2955-2976 Topeka

Time: Open 30 min., Shut in 60 min., Open 30 min., Shut in 60 min.

Blow: Initial - Weak  
Final - No blow

Recovery:

30 Feet of oil specked mud  
1 Foot of free oil  
31 Total Fluid

Pressures:

IHMP: 1524#	IFP: 33# - 33#
ISIP: 892#	FFP: 42# - 42#
FSIP: 709#	BHT: N.A.
FHMP: 1507#	

Mud Properties:

Viscosity: 42      Weight: 10.0      Waterloss: 12.2.

Drill Stem Test No. 2 3156-3256 Lansing-Kansas City

Time: Open 60 min., Shut in 60 min., Open 60 min., Shut in 60 min.

Blow: Initial - weak  
Final - weak

Recovery:

60 Feet very slightly oil and gas cut mud  
60 Feet of gas  
60 Feet Total Fluid

Pressures:

IHMP: 1795#	IFP: 82# - 82#
ISIP: 515#	FFP: 82# - 82#
FSIP: 480#	BHT: N.A.
FHMP: 1750#	

Mud Properties:

Viscosity: 44      Weight: 9.9      Waterloss: 12.4

DRILL STEM TEST CON'T

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Drill Stem Test No. 3 3246-3340 Lansing-Kansas City

Time: Open 60 min., Shut in 60 min., Open 60 min., Shut in 60 min.

Blow: Initial - Good  
Final - Good

Recovery:  
1140 Feet of muddy water

Pressures:  
IHMP: 1749# IFP: 225# - 434#  
ISIP: 1464# FFP: 460# - 559#  
FSIP: 1391# BHT: N.A.  
FHMP: 1732#

Mud Properties:  
Viscosity: 44 Weight: 9.8 Waterloss: 10.4

Drill Stem Test No. 4 3336-3443 Lansing-Kansas City

Time: Open 30 min., Shut in 60 min., Open 30 min., Shut in 60 min.,

Blow: Initial - weak - died in 12 min.  
Final - No blow - Flushed tool

Recovery:  
20 Feet of Drilling Mud

Pressures:  
IHMP: 1807# IFP: 67# - 67#  
ISIP: 593# FFP: 67# - 67#  
FSIP: 485# BHT: N.A.  
FHMP: 1791#

Mud Properties:  
Viscosity: 45 Weight: 9.8 Waterloss: 13.4

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1 Hrabe

REMARKS AND RECOMMENDATIONS

The table below compares the Mai Operation Hrabe No. 4 with the Mai Operations Hrabe No. 1.

	<u>Mai Operations</u>	<u>Mai Operations</u>
	Hrabe No. 4	Hrabe No. 1
	C-N/2-NE-SW-SE	C-N/2-S/2-S/2
	32-8S-15W	32-8S-15W
	Osborne County, Kansas	Osborne County, Kansas
Topeka	2932 (-903)	2954 (-907)
Lansing-Kansas City	3206 (-1177)	3224 (-1177)

After reviewing the table above, you will note that the Hrabe No. 4 was 4 feet higher than the Hrabe No. 1 when comparing the Topeka tops. When comparing the Lansing-Kansas City tops the Hrabe No. 4 was flat with the Hrabe No. 1.

The Topeka was tested with positive results and should be perforated within the tested interval.

The Lansing-Kansas City contained some fair to poor shows. All zones were tested. At this point, I would recommend that all zones in the Lansing-Kansas City be perforated with the exception of the A, G, J, and L Zones. I believe the zones just mentioned are of no commercial value and may contain water.

Prior to completion, I recommend a cased hole correlation log be run to accurately locate all zones of porosity prior to completion.

Respectfully Submitted,

*David M. Shumaker*

David M. Shumaker  
Petroleum Geologist

DMS/das