GEOLOGICAL REPORT

MALLONEE-COPPINGER OPERATIONS, INC.

DUNLAP #1

C NE NW Section 8, T35S-R34W

SEWARD COUNTY, KANSAS

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OPERATOR:	Mallonee--Coppinger Operations, Inc.
FARM & WELL NO:	Dunlap #1
LOCATION:	C NE NW Section 8, T35S-R34W Seward County, Kansas
CONTRACTOR:	Mahoney Drilling Company--Rig #12
ELEVATIONS:	2933' G.L. 2940' D.F. 2942' K.B. (Datum)
TOTAL DEPTH:	6712 (KB) Driller 6707 (KB) Schlumberger
SPUD:	12-12-65
COMPLETED:	1-3-65
CASING:	8 5/8" @ 1375' w/700 sacks 4½" @ 6711' w/200 sacks
PRODUCTION:	St. Louis oil
WELLSITE PROCEEDURE:	Ten foot wet samples were caught from 4000' to RTD of 6712' (KB) Driller. Samples were examined for type of lithology and shows of oil or gas from 5885' to RTD of 6712 (KB) Driller. A sample log is included in the back of this report.
DRILLING TIME:	One foot drilling time was recorded by Geolograph from surface to RTD of 6712 (KB) Driller. A copy of drilling time is found at the back of this report from 4200' to 4500' and from 5800' to RTD of 6712'.
ELECTRICAL LOGS:	Schlumberger Dual Induction-Lateralog was conducted in detail from 4200' to RTD of 6712 (KB) Driller. The Compensated Sonic, caliper with Gamma Ray was conducted from 4200' to RTD of 6712. The Dual Induction log was also run on the 2" = 100' scale from 1375 to RTD of 6712. These logs were used to evaluate the porosity and salt water content of the various potential pay zones from 4200' to RTD of 6712.

GEOLOGICAL TOPS, POROSITY DESCRIPTIONS and PERTINENT DATA:

	Schlumberger Tops:
Pennsylvanian System:	
Shawnee Group:	
Heebner Shale:	4320 (-1378)
Upper Toronto Limestone:	4347 (-1405)
Lower Toronto Limestone:	4388 (-1446)
Lansing-Kansas City Groups:	4454 (-1512)
Marmaton Group:	5166 (-2224)
Cherokee Group:	5537 (-2595)
Morrowan Series:	5896 (-2954)
Mississippian System:	
Chesterian Series:	6234 (-3292)

6297-6304' Limestone, cream, buff, some brown, fine to coarsely crystalline, some sub-sucrosic, fossiliferous, inter-granular porosity. No shows. Sonic log indicates less than 5% porosity.

6510-6516' Limestone, light gray, brown, very fine to finely crystalline, no visible porosity, no shows. Porosity 12%, salt water 48%.

Lower Chester Sandstone Zone: 6516 (-3574)

This zone shows as mostly shale on the Dual-Induction and Sonic logs, but in the samples from 6516-6535 was sandstone, gray brown, very fine to fine-grained, very poor fluorescence, slight odor, koolinite interstitial material, brown oil stain, slightly calcareous. The sand must be in thin beds as indicated by the electric logs. DST #2 (straddle) 6502-6575' in drill stem test data sheets.

Meramec Series:

Ste. Genevieve Group:	6570 (-3628)

Note: There were no zones of porosity higher than 5% in the limestones of Ste. Genevieve age.

St. Louis Group: 6649 (-3707)

6654-6669' Limestone, buff-brown, finely crystalline, sucrosic, heavy brown oil stain, good oil odor and good fine vuggy porosity.

Interval	Porosity	Salt Water
6654-6662'	11%	25-31%
6662-6667'	15%	19%
6667-6669'	7%	55%

See DST #1, 6647-6682', in DST data sheets.

R.T.D. 6712' (KB) Driller
L.T.D. 6707' (KB) Schlumberger

79-55-24.

STRUCTURE:

	Mallonee-Coppinger Dunlap #1 NE NW 8-35S-34W	Curtis Dowdy 1-8 SW NE8-35S-34W	Coppinger Long #3 SW SE 5-35S-34W
Lansing	4454 (-1512)	4450 (-1518)	4458 (-1513)
Morrow	5896 (-2954)	5906 (-2974)	5899 (-2954)
Chester	6234 (-3292)	6236 (-3304)	6212 (-3267)
Ste. Genevieve	6570 (-3628)	6578 (-3646)	6550 (-3687)

From the above comparison, it may be seen that the Dunlap was structurally flat on the Lansing and Morrow with the Long #3 and higher on these horizons than the Dowdy 1-8. On top of the Chester, Ste. Genevieve and St. Louis the Dunlap #1 was higher than the Dowdy 1-8 and lower than the Long #3.

Structurally, the position of the Dunlap #1 was as expected from the sub-surface work most recently completed.

OIL AND GAS POSSIBILITIES:

Lower Chester Sandstone Zone; 6516-6535' (Schlumberger)

Sample examination indicated that a well developed sand might exist in the above interval; a show of oil was also encountered in the sand. Drill Stem Test #2, 6502-6575', confirmed the electric logs that, while thin beds of sand are present in the above interval, shale is predominate and the zone has no commercial value. See DST #2.

St. Louis Limestone Zone: 6654-6669'

This well developed sucrosic limestone exhibited an excellent oil show both in the samples and in Drill Stem Test #1.

CONCLUSIONS and RECOMMENDATIONS:

From the above discussion, it may be postulated that the Dunlap #1 is on the southwest extremity of the Lower Chester sands found in wells to the southeast, east and northeast. The excellent development of the top St. Louis limestone with good porosity and a good, positive test of oil should make this zone a good commercial oil zone.

It is recommended that the St. Louis limestone be perforated from 6658' to 6664'.

D. W. Marden

DATA SHEET

DRILL STEM TEST #1

COMPANY Coppinger-Mallonee Operations, Inc DATE Jan. 2, 1966

WELL NAME Dunlap #1 MUD CONDITION Good

VISCOSITY ____ WEIGHT ____

WATER LOSS ____

INTERVAL TESTED 6647-6682 (drlr) TESTING COMPANY Halliburton

DRILL STEM TEST NUMBER 1 PRE-FLOW 10 min.--Gas in 5 min. Est 50 MCF

MINUTES TOOL OPEN 20 KIND OF BLOW Strong

GAS TO SURFACE --- MINUTES OIL TO SURFACE -- MINUTES

AMOUNT OF FLUID RECOVERED 360' fluid--Top 260' heavy O C M w/free oil, bottom 100' mud cut gassy oil

METHANE & CHLORIDES OF FLUID (IF SALT WATER OR MUD) TOP ____ PMM. UNITS ____

MIDDLE ____ PMM. UNITS ____

BOTTOM ____ PMM. UNITS ____

GRAVITY OF OIL (CORRECTED TO 60°F.) 40.6° Top 41.7° Bottom

BTU'S OF GAS --- BOTTOM HOLE TEMPERATURE None taken

INITIAL HYDROSTATIC 3157# FINAL HYDROSTATIC HEAD 3157#

INITIAL BOTTOM HOLE SHUT-IN PRESSURE 1971 (calc. 2326#) MINUTES 30

FINAL BOTTOM HOLE SHUT-IN PRESSURE 1928 (calc. 2395#) MINUTES 30

INITIAL FLOW PRESSURE 86# FINAL FLOW PRESSURE 100#

LITHOLOGIC DESCRIPTION OF FORMATION TESTED St. Louis 6654-6669' (Schlumberger) Limestone, buff, brown, finely crystalline, sucrosic, heavy brown oil stain and odor. Fluorescence and good fine vuggy porosity.

BRIEF EVALUATION OF THE DRILL STEM TEST Obviously a commercial oil zone.

GEOLOGIST SIGNATURE

DATA SHEET

DRILL STEM TEST #2 (STRADDLE)

COMPANY Mallonee-Coppinger Operations, Inc. DATE January 4, 1966

WELL NAME Dunlap #1 MUD CONDITION Good

VISCOSITY _____ WEIGHT _____

WATER LOSS _____

INTERVAL TESTED 6502-6575 (TD=6707 Schlum. meas.) TESTING COMPANY Halliburton

DRILL STEM TEST NUMBER 2 PRE-FLOW 30 min. v. wk. blo 28 min & died

MINUTES TOOL OPEN 30 KIND OF BLOW No

GAS TO SURFACE ----- MINUTES OIL TO SURFACE -- MINUTES

AMOUNT OF FLUID RECOVERED 40' v. sli. gas cut mud

METHANE & CHLORIDES OF FLUID (IF SALT WATER OR MUD) TOP _____ PMM. UNITS 6% oil

MIDDLE _____ PMM. UNITS _____

BOTTOM _____ PMM. UNITS 8% oil

GRAVITY OF OIL (CORRECTED TO 60° F.) ---

BTU'S OF GAS --- BOTTOM HOLE TEMPERATURE 135

INITIAL HYDROSTATIC 3162# FINAL HYDROSTATIC HEAD 3129#

INITIAL BOTTOM HOLE SHUT-IN PRESSURE 74# MINUTES 45

FINAL BOTTOM HOLE SHUT-IN PRESSURE None MINUTES --

INITIAL FLOW PRESSURE 41# FINAL FLOW PRESSURE 50#

LITHOLOGIC DESCRIPTION OF FORMATION TESTED L. Chester Sand Zone--6516-6535'

Sandstone, gray brown, very fine--fine-grained, very poor fluorescence, slight odor, kaolinite interstitial material, friable in part, some brown oil stain, slightly calcareous.

BRIEF EVALUATION OF THE DRILL STEM TEST Obviously non-commercial--sand apparently has many thin shale interbeds--probably over 50% of test under lithology interval shale.

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