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COLO. OIL & GAS CONS. COMM.

DRILLING PROGRAM

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WELL NAME: Mulholland 1-18

LOCATION: 1900' FSL & 1930' FWL of SW/4 Sec. 18-T24S-R45W

DIRECTIONS TO LOCATION: _____

OBJECTIVE (Formation & Depth): Mississippian Formation 5700'

ELEVATION: KB _____ GL 3926'

CONTRACTOR: Snyder Drilling DAYWORK _____ FOOTAGE X

CASING PROGRAM

	<u>DEPTH</u>	<u>WEIGHT</u>	<u>GRADE</u>	<u>JOINT</u>	<u>DESIGN SAFETY FACTOR</u>		
					<u>COLLAPSE</u>	<u>TENSION</u>	<u>BURST</u>
CONDUCTOR:							
SURFACE:							
8-5/8	350	20#	K	5			

PROTECTION:

LINER:

PRODUCTION:

4-1/2 0-5700' 9.5 K 5

TUBING:

2-3/8 5700 4.7 J EUE

CEMENT PROGRAM

	<u>TOP</u>	<u>AMOUNT</u>	<u>TYPE CEMENT</u>	<u>SLURRY WT.</u>	<u>WOC TIME</u>
SURFACE:	Surface	100 sx	G + 3% CaCl ₂	15.8#	
		125 sx	Low Weight	13.6#	
PROTECTION:	5700'	375 sx	50/50 Poz mix 2% gel & 10% salt.	14.4#	

LINER:

PRODUCTION:

76 781



BIT PROGRAM

<u>BIT NO.</u>	<u>SIZE</u>	<u>TYPE</u>	<u>DEPTH</u>	<u>FEET</u>	<u>HRS.</u>	<u>ACCUM.</u> <u>HRS.</u>	<u>BIT</u> <u>WT.</u>	<u>RPM</u>	<u>GPM</u>	<u>A/V</u>	<u>N/V</u>
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To be determined by Drilling Contractor on footage rate.

MUD TREATMENTS-MECHANICAL EQUIPMENT-REMARKS

<u>DEPTH INTERVALS:</u>	<u>DISCUSSION</u>
0-350	Gel & line for viscosity
350 - 2400	Water - use 150-170 ft/min annular velocity maximum.
2400-4500	Gel-Chem 90 PPG 38 sec. viscosity 10-15cc water loss.
4500-TD	Gel-Chem 9.0 PPG 38 sec. viscosity 6-8cc water loss.

DEVIATION CONTROL

<u>DEPTH INTERVAL</u>	<u>DISTANCE SURVEYS</u>	<u>MAXIMUM DEVIATION</u>	<u>MAXIMUM CHANGE</u>
0-350'	150'	1°	1°/100
350'-5700	500'	6°	1°/100

DRILLING PROGRESS/COST

<u>DEPTH INTERVAL</u>	<u>DAYS</u>	<u>COST</u>	<u>EXPECTED PROBLEMS</u>
0-2400'	4		None
2400-5700'	9		<ol style="list-style-type: none"> 1. Corrosive waters in Glorietta ss. 1660-1830 2. Possible lost circulation zones: Glorietta-1660'-1830' Des Moines-4123' Keyes-5213' Mississippian-5274' 3. Possible water flow zone: Glorietta ss. 1600' - 1830'

FORMATION EVALUATION PROGRAM

FORMATION TOPS:

Day Creek	1220'	B/KC	4095'
Blaine	1570'	DesMoines	4123'
Glorietta	1660'	Cherokee	4386'
Stone Corral	1830'	13 Finger Line	4870'
Red Cave Ss	1867'	Marrow	4937'
Wolfcamp	2410'	Middle Marrow "A"	5048'
Wakaunsee	3052'	Middle Marrow "B"	5092'
Shawnee	3300'	Keyes	5213'
Topeka "C"	3370'	Mississippian	5274'
Missourian	3616'	St. Genevieve	5274'
		St. Louis	5450'

ELECTRIC LOGS:

1. Dual Induction laterolog TD-3000'
2. Simulated Compensated Neutron Formation Density TD to 1600'
3. Sonic Gamma Ray TD to 3000'
4. Optional - Dipmeter TD to 4800'

(Formation Evaluation Program Cont'd)

SAMPLES:

10' samples (wet) from 1600' - 4800'
5' samples (wet) from 4800' - TD

MUD LOGGING:

One man Core-Labs gas detector unit from 3000' to TD.

DRILLSTEM TESTS AND CORING:

DST #1 - Topeka Ls. - 3300' - 3400' Depending on gas kicks

DST #2 - Lancing - KC Ls. - 3920-3950' depending on sample analysis drilling time & gas kicks.

DST #3 - Upper Morrow "A" - 5048-60'

DST #4 - Upper Morrow "B" - 5090-5120'

DST #5 - Mississippian - 5800-5600' depending on sample examination and/or gas kicks.

Coring: Cut 90' core in Middle Morrow 5030-5120' drill pipe to be strapped prior to any coring.

SUPERVISORS

DRILLING: Paul E. Robertson, Drilling Superintendent

GEOLOGICAL: W. J. Pearson, Senior Geologist

ADDITIONAL COMMENTS