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GEOLOGIC PROGNOSIS

Bolton #2-7
Center of SENW
Section 7-T20S-R52W
Kiowa County, Colorado
ADOBE RESERVOIR PROSPECT
(Colt Field Development Well)

SCANNED

By: W.J. Pearson
5-20-76

OPERATOR: Michigan Wisconsin Pipe Line Company

WELL NAME: Bolton #2-7

LOCATION: Ctr. of SENW
Section 7-T20S-R52W
Kiowa County, Colorado

ELEVATION: Est. 4320 G.L. (from Topog. Sheet)
Est. 4330 K.B.

ESTIMATED TOTAL DEPTH: 5800' (Mississippian)

CONTRACTOR:

MW REPRESENTATIVE: W.J. Pearson
P.E. Robertson

SURFACE CASING: 8-5/8" @ 350'

HOLE SIZE: 7-7/8" out from under surface casing

SAMPLE PROGRAM: 10' samples (wet) from 2200'-3400'
5' samples (wet) from 3400'-T.D.
Samples to be stored at AMSTRAT, Denver

DRILLING TIME: Drilling time figured on Drilling Time Pads.
One foot drilling time from 3400' to T.D.

PIPE STRAP: Before cores, DST's, logs or at discretion
of Wellsite Geologist.

CORING: Cut 60' core in Upper Morrow 5300'-5360'.
Cut 60' core in Middle Morrow 5400'-5460'.
Drill pipe is to be strapped prior to any
coring.

Bolton #2-7 Prognosis (Cont.)

DRILL STEM TESTS:

DST #1 (Lower Atoka Ss.)
5070'-5150'

DST #2 (Upper Morrow Ss.)
5300'-5360'

DST #3 (Middle Morrow Ss.)
5400'-5460'

DST #4 (Mississippian)
5600'-5750'

Drill pipe is to be strapped prior to any DST's.

MUD LOGGING:

One man Baroid Hydrocarbon Dectector Unit
from 3400' to T.D.

ELECTRIC LOGGING:

Dual Induction-Laterolog from T.D. to
surface casing.

Simultaneous Compensated Neutron-Formation
Density from TD up to 2200'.

Possible Sonic for lithology cross-plots.

Optional: Dipmeter from TD up to 5000'.

ANTICIPATED TOPS:

Formation Name	K.B. Depths (feet)
Dakota	830
Day Creek	1910
Glorietta Ss.	2140
Stone Corral	2400
Red Cave	2415
Wabaunsee	3500
Shawnee (Topeka)	3770
Missourian	3950
DesMoinesian	4390
Cherokee	4550
Atoka	4910
Lower Atoka Ss.	5100
13 Finger Lime	5190
Morrowan	5260
Upper Morrow Ss.	5300
Middle Morrow Ss.	5400
Keyes	5480
Mississippian	5600

Bolton #2-7 Prognosis (Cont.)

ANTICIPATED TOPS (Cont.):

Formation Name	Depths (feet)
Ste. Genevieve	5610
St. Louis	5650
Spergen-Warsaw	5720
TOTAL DEPTH	5800

WELLSITE GEOLOGIST:

Mr. D.W. Marden
P.O. Box 2470
Evergreen, Colorado 80439

Office Phone: (303) 674-0176
Home Phone: (303) 674-0198

Geologist available or on location from
3400' to T.D.

INVOICES:

Michigan Wisconsin Pipe Line Company -
1660 Lincoln Street, Suite 1900
Denver, Colorado 80203
Attn: Mr. P.E. Robertson

TELECOPIER & PHONE
NUMBERS:

Michigan Wisconsin Pipe Line Company
Houston, Texas
ATTN: Mr. L. Aucoin
713-623-8160

Michigan Wisconsin Pipe Line Company
Denver, Colorado
ATTN: Mr. W.J. Pearson
303-861-8433

NOTE:

Because of the difference in gas analysis results in the Upper Morrow sand at Colt field and because of the question as to why the air and/or gas on the DST of the Middle Morrow Ss. would not burn - it is very important that three or four gas sample tanks be on location for the Bolton #2-7. Also, fittings and adaptors should be obtained.

GEOLOGICAL PROGNOSIS (Cont.)

Bolton #2-7

INFORMATION
for
MWPL CO. PRODUCTION DEPARTMENT

By: W.J. Pearson
(5-20-76)

1. Possible corrosive waters in Dakota Ss. from 830'-1900'.
2. Possible Lost Circulation Zones:
Glorietta Ss. from 2140'-2400'
Mississippian at 5600'
3. Possible Water Flow Zone:
Glorietta Ss. from 1950'-2400'
4. Blow Out Zones: None
5. Bottom Hole Deviation Problems: None
6. Key Well for Correlation Purposes:
Clayton Corp. & MWPL
Bolton #1

NE SE
Sec. 7-T20S-R52W

Elevation 4308 K.B.

Formation Names	Depths (feet)	Datums (feet)
Dakota	924	(+3484)
Day Creek	1903	(+2405)
Blaine	2102	(+2206)
Glorietta	2140	(+2168)
Stone Corral	2389	(+1919)
Red Cave	2406	(+1902)
Wabaunsee	3497	(+811)
Shawnee (Topeka)	3760	(+548)
Missourian	3942	(+366)
Des Moinesian	4382	(-74)
Cherokee	4543	(-235)
Atoka	4900	(-592)
Lower Atoka Ss.	5096	(-788)
13 Finger Lime	5182	(-874)
Morrow	5244	(-936)
Upper Morrow Ss.	5300	(-992)
Middle Morrow Ss.	5402	(-1094)
Keyes	5469	(-1161)
Miss. (Ste Genevieve)	5590	(-1282)

NOTIFICATION & INFORMATION REQUIREMENTS
Bolton #2-7

MICHIGAN WISCONSIN PIPE LINE CO.
Suite 1922 Lincoln Center Building
1660 Lincoln Street
Denver, Colorado 80203 303+893-5517
W.J. Pearson 303+986-4642
or
John Miller 303-234-0537

MICHIGAN WISCONSIN PIPE LINE CO.
Suite 1610 Post Oak Tower
5051 Westheimer
Houston, Texas 77027
ATTN: Mr. R.D. Ross

OIL & GAS CONSERVATION COMMISSION
Department of Natural Resources
of the State of Colorado
ATTN: DIRECTOR
Room 237
1845 Sherman Street
Denver, Colorado 80203

MICHIGAN WISCONSIN PIPE LINE CO.
Suite 1610 Post Oak Tower
5051 Westheimer
Houston, Texas 77027
ATTN: Mr. Leonard Aucoin

Daily Progress Reports - Phone	Daily Progress Reports - Mail	Govt. Reports, Survey, etc.	Electric Logs - Field	Electric Logs - Final/Sepias	Notice prior to DST Cores Logging, plugging, etc.	Phone Results of DST, Cores, Logging, etc.	Reports - DST, Geol., Mud, etc.	Driller's Log, Drlg. time	Daily Mud Log
1			2 (No Sepia)	2	1	1	1		1
			1 (No Sepia)	1			1		
		1		1					
			1						

DRILLING PROGRAM

WELL NAME: Bolton #2-7

LOCATION: Center of SE/NW, Section 7-T20S-R52W

DIRECTIONS TO LOCATION: _____

OBJECTIVE (Formation & Depth): Mississippian Formation - 5800'

ELEVATION: KB Estimate 4330' GL Estimate 4320'

CONTRACTOR: _____ DAYWORK _____ FOOTAGE _____

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'	24.0#	K	Short			
PROTECTION:							
LINER:							
PRODUCTION:							
5-1/2"	0'-5400'	14.0#	K	Short	1.24	2.27	1.84
	5400'-5800'	15.5#	K	Short	1.52	34.00	2.07
TUBING:							
2-7/8"	5600'	6.5#	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:					
LINER:					
PRODUCTION:	4800'	200 sx	50/50 Pozmix +	14.4#	
	*800'	175 sx	2% Gel + 10% salt		
			Same as above	14.4#	

* Stage collar at 2000'±.

BIT PROGRAM

<u>BIT NO.</u>	<u>SIZE</u>	<u>TYPE</u>	<u>DEPTHS</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-REMARKSDEPTH INTERVALS:DISCUSSION

0'- 350'	Gel and lime for viscosity.
350'-2400'	Water - Use 150-170 ft/min. annular velocity maximum.
2400'-4500'	Gel-Chem, 9.0 ppg, 38 sec. viscosity, 10-15 cc water loss.
4500'- TD	Gel-Chem, 9.0 ppg, 38 sec. viscosity, 6- 8 cc water loss.
	Raise viscosity to 45 seconds for DSI's or logging.

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'-5800'	500'	6°	1°/100'

DRILLING PROGRESS/COST

<u>DEPTH INTERVAL</u>	<u>DAYS</u>	<u>COST</u>	<u>EXPECTED PROBLEMS</u>
0'-2400'	4		Possible corrosive waters in Dakota sandstone, from 830'-1900'. Possible water flow from Glorietta sandstone from 1950'-2400'.
2400'-5800'	9		Possible lost circulation zones in Glorietta sandstone from 2140'-2400', and in the Mississippian at 5600'.

FORMATION EVALUATION PROGRAM

<u>FORMATION TOPS:</u>	<u>Formation Names</u>	<u>Depths (feet)</u>	<u>Datums (feet)</u>
	Dakota	824	(+3484)
	Day Creek	1903	(+2405)
	Blaine	2102	(+2206)
	Glorietta	2140	(+2168)
	Stone Corral	2389	(+1919)
	Red Cave	2406	(+1902)
	Wabaunsee	3497	(+ 811)
	Shawnee (Topeka)	3760	(+ 548)
	Missourian	3942	(+ 366)
	Des Moinesian	4382	(- 74)
	Cherokee	4543	(- 235)
	Atoka	4900	(- 592)
	Lower Atoka Ss.	5096	(- 788)
	13 Finger Lime	5182	(- 874)
	Morrow	5244	(- 936)
	Upper Morrow Ss.	5300	(- 992)
	Middle Morrow Ss.	5402	(-1094)
	Keyes	5469	(-1161)
	Miss. (Ste Genevieve)	5590	(-1282)

ELECTRIC LOGS: DILL, TD - 350'
 Simultaneous CNL/FDC, TD - 2200'
 Possible Sonic
 Optional: Dipmeter, TD - 5000'

(Formation Evaluation Program Cont'd)

SAMPLES: 10' samples (wet) from 2200'-3400'.
5' samples (wet) from 3400'-TD.
Samples to be stored at Amstrat-Denver, Colorado.

MUD LOGGING: One-man Baroid Hydrocarbon Detector Unit from 3400' to TD.

DRILLSTEM TESTS AND CORING:

DST #1 - Lower Atoka Ss.	5070'-5150'
DST #2 - Upper Morrow Ss.	5300'-5360'
DST #3 - Middle Morrow Ss.	5400'-5460'
DST #4 - Mississippian	5600'-5750'

CORING: Cut 60' core in Upper Morrow 5300'-5360'
Cut 60' core in Middle Morrow 5400'-5460'
Drill pipe to be strapped prior to any coring.

SUPERVISORS

DRILLING: Paul E. Robertson, Drilling Superintendent

GEOLOGICAL: W.J. Pearson, Senior Geologist

ADDITIONAL COMMENTS