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JUL 8 1976

COLO. OIL & GAS CONS. COMM.

GEOLOGIC PROGNOSIS

WECO Development Project
(Playa Field Development Well)
Walsk WECO-Cogburn #1-6
NENE of Section 6-T35S-R43W
Baca County, Colorado

By: W.J. Pearson
June 30, 1976

OPERATOR: Michigan Wisconsin Pipe Line Company

WELL NAME: WECO-Cogburn #1-6

LOCATION: ✓ NENE
Section 6-T33S-R43W
Baca County, Colorado

ELEVATION: Estimate 3972 G.L. from Topog sheet
Estimate 3982 K.B.

ESTIMATED T.D.: 3700' (Pennsylvanian - Shawnee)

CONTRACTOR: Jim Snyder Drilling Company

MICHIGAN WISCONSIN
REPRESENTATIVE: W.J. Pearson
P.E. Robertson

SURFACE CASING: If no lost circulation in Glorietta Ss. -
8-5/8" at 400'; if have lost circulation in
Glorietta Ss. - 8-5/8" at 1600'.

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

SAMPLE PROGRAM: 10' Samples (wet) - from 1600' to 2600';
5' Samples (wet) - from 2600' to T.D.;
Samples to be stored at AMSTRAT (Denver).

DRILLING TIME: One foot drilling time from 1600' to T.D.;
drilling time to be figured and placed on
Drilling Time pads by driller.

PIPE STRAP: At discretion of wellsite geologist and be-
fore drillstem tests and logging.

CORING: None

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GEOLOGIC PROGNOSIS - WECO-Cogburn #1-6 (Cont.)

DRILLSTEM TESTS:

- DST #1, 2776-2796 (Neva) depending on drilling break, sample analysis, and gas kicks.
- DST #2, 3060-3100 (Wabaunsee "X") depending on drilling break, sample analysis, and gas kicks.
- DST #3, 3120-50 (Topeka "A") depending on drilling break, sample analysis, and gas kicks.
- DST #4, 3195-3215 (Topeka "B") depending on drilling break, sample analysis, and gas kicks.
- DST #5, 3220-35 (Topeka "C") depending on drilling break, sample analysis, and gas kicks.
- DST #6, 3240-55 (Topeka "C-1") depending on drilling break, sample analysis, and gas kicks.
- DST #7, 3266-3306 (Topeka "D") depending on drilling break, sample analysis, and gas kicks.
- DST #8, 3366-3400 (Lecompton "B") depending on drilling break, sample analysis, oil shows and gas kicks.

NOTE: Upon getting a good gas flow and a "no water" recovery on a DST, testing should be curtailed somewhat 'till the Lecompton oil pay is cut.

MUD LOGGING:

Core Labs. (one man unit) on location by 2600'.

ELECTRIC LOGGING:

Schlumberger (Liberal)
Dual Induction-Laterolog from T.D. up to surface casing.
Simultaneous Compensated Neutron-Formation Density from T.D. up to surface casing.
Borehole Compensated Sonic Log-Gamma Ray from T.D. up to surface casing.
Drill pipe is to be strapped prior to logging.



GEOLOGIC PROGNOSIS - WECO-Cogburn #1-6 (Cont.)

ANTICIPATED TOPS:

Est. Elev. 3982 KB	
Blaine	1170
Glorietta	1200
Stone Corral	1590
Red Cave	1620
Neva	2776
Wabaunsee "X"	3060
Topeka "A"	3120
Topeka "B"	3195
Topeka "C"	3220
Topeka "C-1"	3240
Topeka "D"	3266
Topeka "E"	3320
Lecompton	3350
Lecompton "B" Oil Sand	3366

WELLSITE GEOLOGIST:

Mr. D.W. Marden
P.O. Box 2470
Evergreen, Colorado
Office Phone (303) 674-0176
Home Phone (303) 674-0198

Mr. R.H. Brown
Oklahoma City, Oklahoma
Phone (303) 336-7753

Geologist available or on location by 2600'.

INVOICES:

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

TELECOPIER NUMBERS:

Attn: Mr. Leonard Aucoin
Michigan Wisconsin Pipe Line Co.
Houston, Texas
(713) 623-2182

W.J. Pearson or John Miller
Michigan Wisconsin Pipe Line Company
Denver, Colorado
(303) 861-8433

INFORMATION FOR
MWPL CO. PRODUCTION
DEPARTMENT:

1. Probable lost circulation in Glorietta Ss.

GEOLOGIC PROGNOSIS - WECO-Cogburn #1-6 (Cont.)

INFORMATION FOR
MWPL CO. PRODUCTION
DEPARTMENT (Cont.):

- from 1200'-1600'.
2. Possible water flow zones in Glorietta Ss. and shallower sands.
 3. Blow out zones: None
 4. Bottom hole deviation problems: None
 5. Have good mud and hole conditions by 2100'.
 6. Anticipate 1st DST by 2780'.
 7. Key well for correlation purposes:
WECO Development Co.
Cook #1
Ctr. SW/4 of Sec. 32-T32S-R43W
Baca County, Colorado
See first part of geologic prognosis
for formation names and estimated
tops.
 8. The main problems, in considering Topeka gas wells, are of an engineering nature. Good mud, excellent hole conditions, avoid excessive hole wash-outs, a good primary cement job on the long string, and selective completion work through casing -- are all absolute necessities for obtaining good Topeka gas well completions.
 9. Suggested mud properties:
Weight: 9 or less
Water loss: 6 or less
Viscosity: 42-45

DIRECTIONS TO WELL:

From junction 1 mile south of Springfield, Colorado - go east on Highway 160 some 18 miles to Walsh, Colorado. Then go 6 miles south to end of black top and continue on south 7 miles on gravel road. Go west on gravel road 1 mile and then north 3/4 mile into location.

NOTIFICATION & INFORMATION REQUIREMENTS

WECO - Cogburn #1-6

MICHIGAN WISCONSIN PIPE LINE CO.
1660 Lincoln St., Suite 1900
Denver, Colorado 80203

Office Phone: (303) 893-5517

W.J. Pearson: (303) 986-4642

or

J.R. Miller: (303) 324-0537

MICHIGAN WISCONSIN PIPE LINE CO.

Suite 1610 Post Oak Tower

5051 Westheimer

Houston, Texas 77027

ATTN: Mr. R.B. Ross

OIL & GAS CONSERVATION COMMISSION

Department of Natural Resources of the

STATE OF COLORADO

ATTN: DIRECTOR

Room 237

1845 Sherman Street

Denver, Colorado 80203

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		1	4	4 (No Septa)	1	1	3	1	1
			1	1 (No Septa)			1		
				1					

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

WECO DEVELOPMENT CORP.
1100 Western Federal Savings Bldg.
718 17th Street
Denver, Colorado 80202
ATTN: Mr. B.S. Day
Office Phone: (303) 579-9113
Home Phone: (303) 771-2082

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(Formation Evaluation Program Cont'd)

SAMPLES: 10' samples (wet) from 1650' to 2600'.
5' samples (wet) from 2600' to TD.

Samples to be stored at AMSTRAT (Denver).

MUD LOGGING:

One-man unit from 2500' to TD.

DRILLSTEM TESTS AND CORING:

Four possible tests:

1. Neva 2830'-2860'
2. Topeka 'A' 3200'-3230'
3. Topeka 'C' 3300'-3320'
4. Topeka 'D' 3340'-3370'

NO CORES WILL BE CUT.

SUPERVISORS

DRILLING: Paul E. Robertson, District Superintendent

GEOLOGICAL: W.J. Pearson, Senior Geologist

ADDITIONAL COMMENTS

1. Strap pipe prior to logging or testing.
2. Record one-foot drilling time from 1600' to TD on Drilling Time Pads.



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WELL NAME: WECO-Cogburn #1-6
 LOCATION: Center, NE, Section 6-T33S-R43W, Baca County, Colorado
 DIRECTIONS TO LOCATION: _____
 OBJECTIVE (Formation & Depth): 3700' Topeka
 ELEVATION: KB _____ GL _____
 CONTRACTOR: Not yet determined. DAYWORK _____ FOOTAGE X

CASING PROGRAM

	DEPTH	WEIGHT	GRADE	JOINT	DESIGN SAFETY FACTOR		
					COLLAPSE	TENSION	BURST
CONDUCTOR:							
SURFACE: 8-5/8"	400'	24.0#	K-55	S-T/C	6.85	27.4	13.05

NOTE: Drill 12-1/4" hole to 8-5/8" casing point at 400'.
 Drill 7-7/8" rat hole through expected lost circulation zone
 in Glorietta Ss. expected from 1300' to 1700'.

- PROTECTION:
NONE
1. If lost circulation is not encountered in the Glorietta, set 8-5/8" casing at 400'.
 2. If lost circulation is encountered in the Glorietta, drill to top of the Stone Corral, open 7-7/8" hole to 12-1/4" and set 8-5/8" at top of the Stone Corral.

LINER: NONE							
PRODUCTION: 5-1/2"	3,600'	14.0#	H-40	S-T/C	1.46	2.58	1.08
TUBING: 2-3/8"	3,600'	4.7#	J-55	EUE	6.13	5.75	3.53

CEMENT PROGRAM

	TOP	AMOUNT	TYPE CEMENT	SLURRY WT.	WOC TIME
SURFACE: * 8-5/8" csg. 12-1/4" hole	Surface	250 sx	Class G w/ 2% Gel, 3% CaCl ₂ , 1/4# per sx Flocele	14.8 ppg	12 hrs.
PROTECTION: NONE					

*NOTE: If 8-5/8" casing is set at top of the Stone Corral, it will be necessary to cement annulus at top through 1" pipe.

LINER: NONE					
PRODUCTION: 5-1/2" csg. 7-7/8" hole	2,600'	200 sx	Class G w/ 2% CaCl ₂	15.8 ppg	0 hrs.

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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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Footage Contract: Bits to be determined by drilling contractor.

Hole Size: 0'-400': 12-1/4"
400'-3600': 7-7/8"

MUD TREATMENTS-MECHANICAL EQUIPMENT-REMARKS

DEPTH INTERVALS:

DISCUSSION

0'-400'

Spud mud. Add gel and lime as necessary to clean hole. Add water to keep weight down.

400'-2,000'

Drill with water, if possible. Check for anhydrite contamination and treat with soda ash if necessary. Lost circulation is possible from 1300'-1700': control with fiber and hulls. Control pump rate to minimize erosion.

2,000'-3,600'

Build system with gel, CMC and lignite. Add soda ash if anhydrite contamination elevates chlorides above 20,000 ppm. Keep mud weight at 9.0 ppg+, viscosity at 30-34 seconds. Lower water loss to 6-8 cc/30 min. before reaching 2800'. Raise viscosity to 42-45 seconds for logging and testing.

DEVIATION CONTROL

DEPTH INTERVAL

DISTANCE SURVEYS

MAXIMUM DEVIATION

MAXIMUM CHANGE

0'-400'
400'-3,600'

150
500

1°
5°

1° per 100'
1-1/2° per 100'



DRILLING PROGRESS/COST

<u>DEPTH INTERVAL</u>	<u>DAYS</u>	<u>COST</u>	<u>EXPECTED PROBLEMS</u>
0'- 400'	2	\$12,000	None.
400'-3,600'	7	\$54,000	Possible lost circulation, water flows and caving in the Glorietta Ss. from 1300'-1700'±. Anhydrite contamination of the mud from the Blaine at 1300'.

FORMATION EVALUATION PROGRAM

FORMATION TOPS: (Based on estimated KB of 4080')

Blaine	1300	Topeka 'A'	3200
Glorietta	1340	Topeka 'B'	3280
Stone Corral	1700	Topeka 'C'	3296
Red Cave	1726	Topeka 'D'	3340
Neva	2830	Topeka 'E'	3380
		Lecompton	3424

ELECTRIC LOGS:

1. Dual Induction - Laterolog from TD to surface casing.
2. Simultaneous Compensated Neutron - Formation Density from TD to 1500'.