

EL PASO NATURAL GAS COMPANY

Cooper Federal No. 1 Well

Mud Program

DEPTH (feet)	MUD WEIGHT (PPG)	VISCOSITY (Sec)	FLUID LOSS (ML)	MUD TYPE
0- 600'	8.6 - 8.8	32 - 34	NC	Gel Slurry
Spud with a Gel/lime slurry having a 32 to 34 second funnel viscosity. Reference information reveals no serious problems encountered in drilling the surface hole interval. This surface string will lend support to hole stabilization for drilling subsequent intervals.				
600- 5,300'	10.0 - 10.2	28 - 30	NC	Brine Water
Drill out from under the surface casing with saturated brine water. This is recommended to minimize the leaching of the Salt Section, which if encountered, could cause serious problems. A washed out Salt Section and stringers not only makes key-seating a potential problem, but makes it impossible to maintain adequate annular velocity for hole cleaning. The pH of this fluid should be controlled at 10.5 to 11.0 with lime for corrosion inhibition and the use of a flocculant, if needed, to minimize suspended solids build-up. The fluid density should be controlled below 10.2 ppg because of a potential loss problem. Additions of lost circulation material generally rectifies this problem. If suspension and carrying characteristics of the fluid need improving, asbestos fiber will easily correct the problem.				
5,300- 10,500'	8.6 - 9.2	28 - 34	NC	Non-Dispersant
Drill out from under the intermediate casing with fresh water. This fluid will be conducive to good penetration. The improvement of penetration can be aided further by solids control through the additions of Galex and the circulation of the fluid through the reserve pit. This fluid can be easily adjusted to meet hole requirements by making simple additions of gel and/or barite.				

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DEPTH (feet)	MUD WEIGHT (PPG)	VISCOSITY (Sec)	FLUID LOSS (ML)	Mud Program	
				MUD TYPE	
10,500'- 13,800'	10.0 - 10.5	34 - 36	10 - 20	X	

Through this interval of hole abnormally pressured formations will be drilled. Pressures equivalent to 10.7 ppg mud from a test at 11,567' was experienced on the Humble's #1 Davison Federal.

Utilize a fresh water Non-Dispersed Ben-Ex System having the above properties. This low solids fluid will provide optimum penetration rates.

13,800'- 17,500'	8.4 - 8.6	28 - 34	NC
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Drill out from under protection with fresh water. Use gel and Ben-Ex to mud up if seepage becomes excessive.

21. ELECTRIC LOGGING:

BHC Gamma Ray - Sonic Caliper	Surface to TD
Comp. Neutron - Formation Density	13,800' - TD
Dual Laterolog	600' - 5,300'
Dual Induction	5,300' - TD
Dipmeter	13,800' - TD

Additional Logs contingent on analysis of Basic Porosity and Resistivity Logs.

22. MUD LOGGING:

Two man unit from 5,000' - TD.

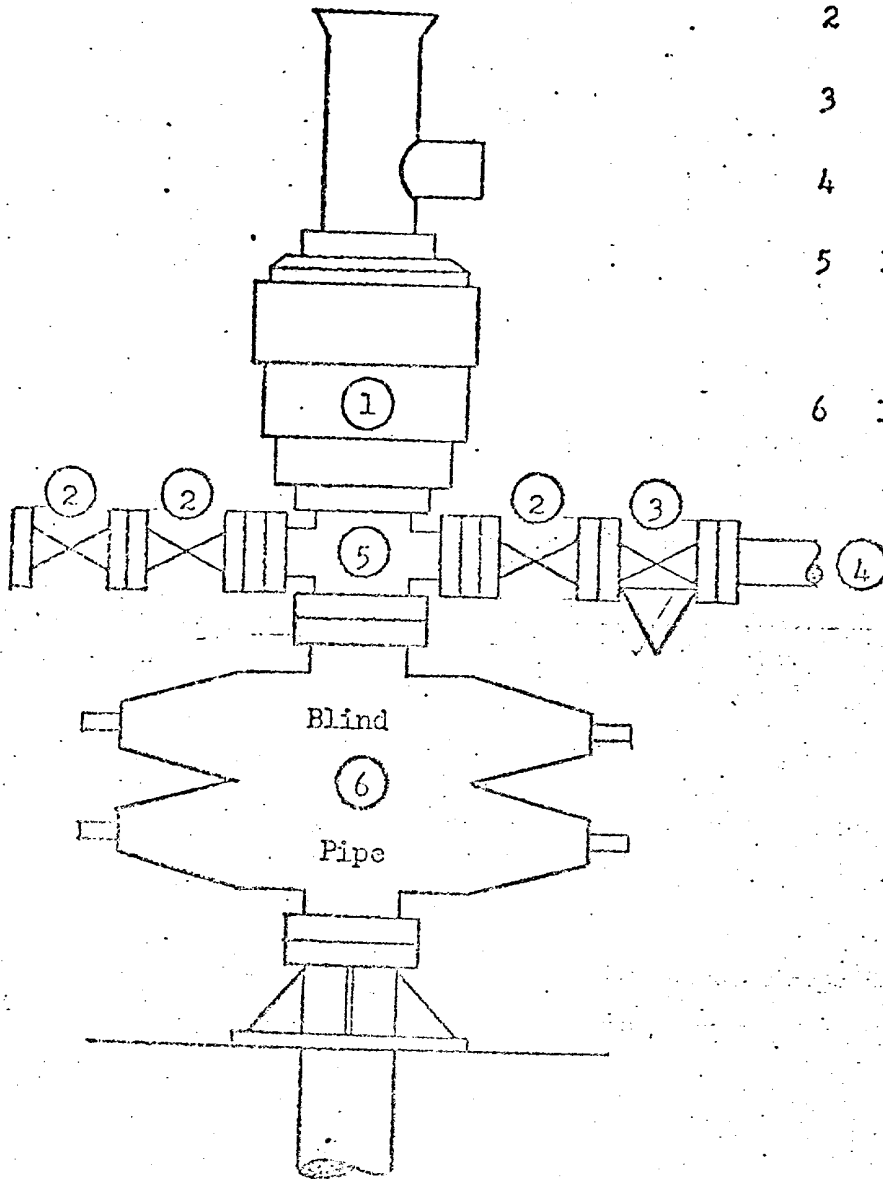
NOTE: Contractor will keep 10' drilling time and 10' samples from surface to TD.

23. TESTING:

Drill Stem:

Four (Two Pennsylvanian and two Fusselman)

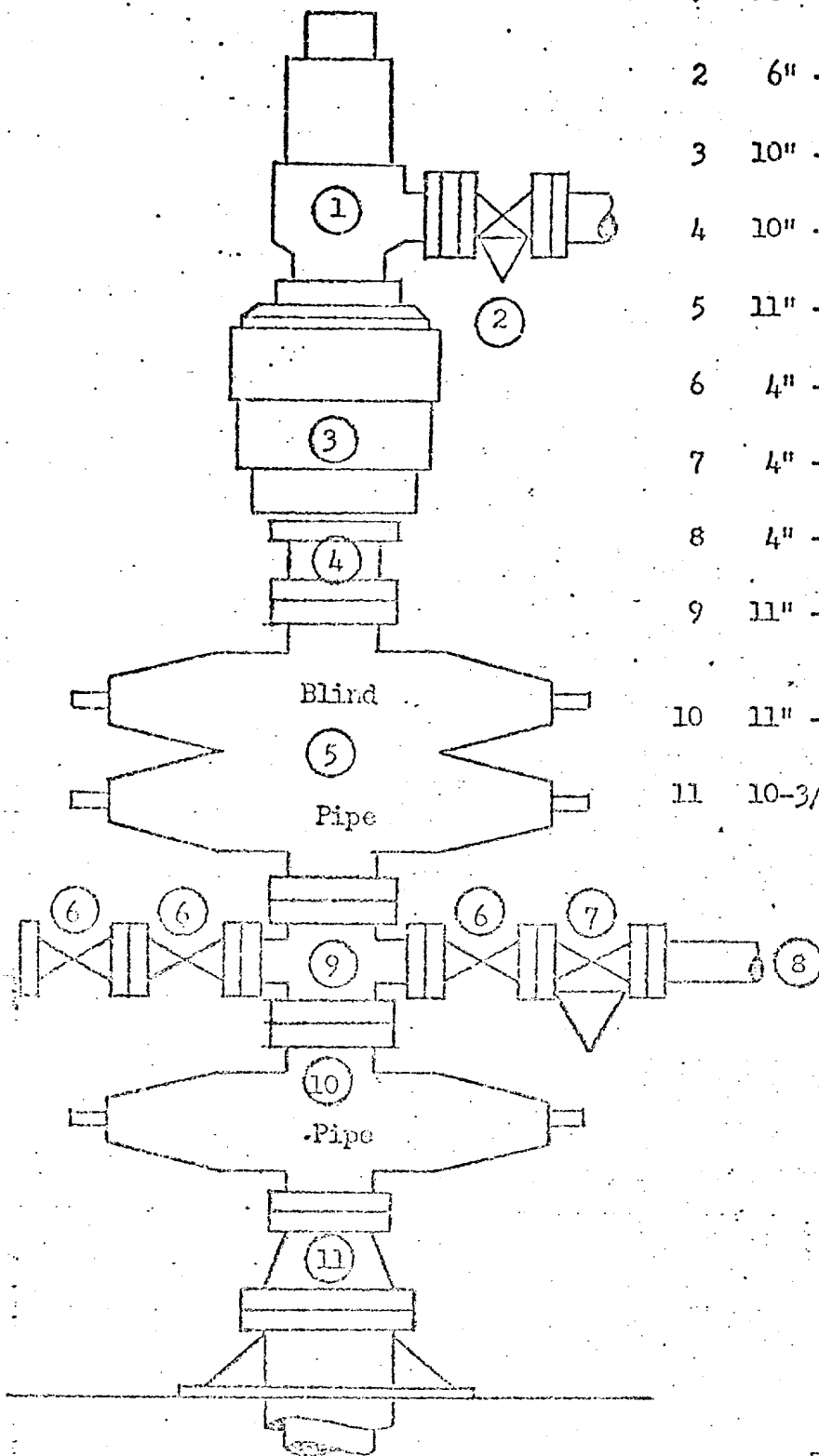
Additional tests dependent upon significant shows.



- 1 12" - 1500 Series Hydril GK by Contractor.
- 2 4" - 10,000 Bx Manual Gates by Contractor.
- 3 4" - 10,000 Bx Hydraulic Gate by Contractor.
- 4 4" - 10,000 psi Wp Manifold run by Contractor.
- 5 12" - 1500 Series Spool with two 4" - 1500 Series Side Outlets and Adapter Flanges or Spools to 4" - 10,000 Bx.
- 6 12" - 1500 Series Double Hydraulic BOP by Contractor.

EL PASO NATURAL GAS COMPANY
Cooper Federal No. 1 Well
BOP Requirements
Surface to 9 5/8 csg pt. (10,500')

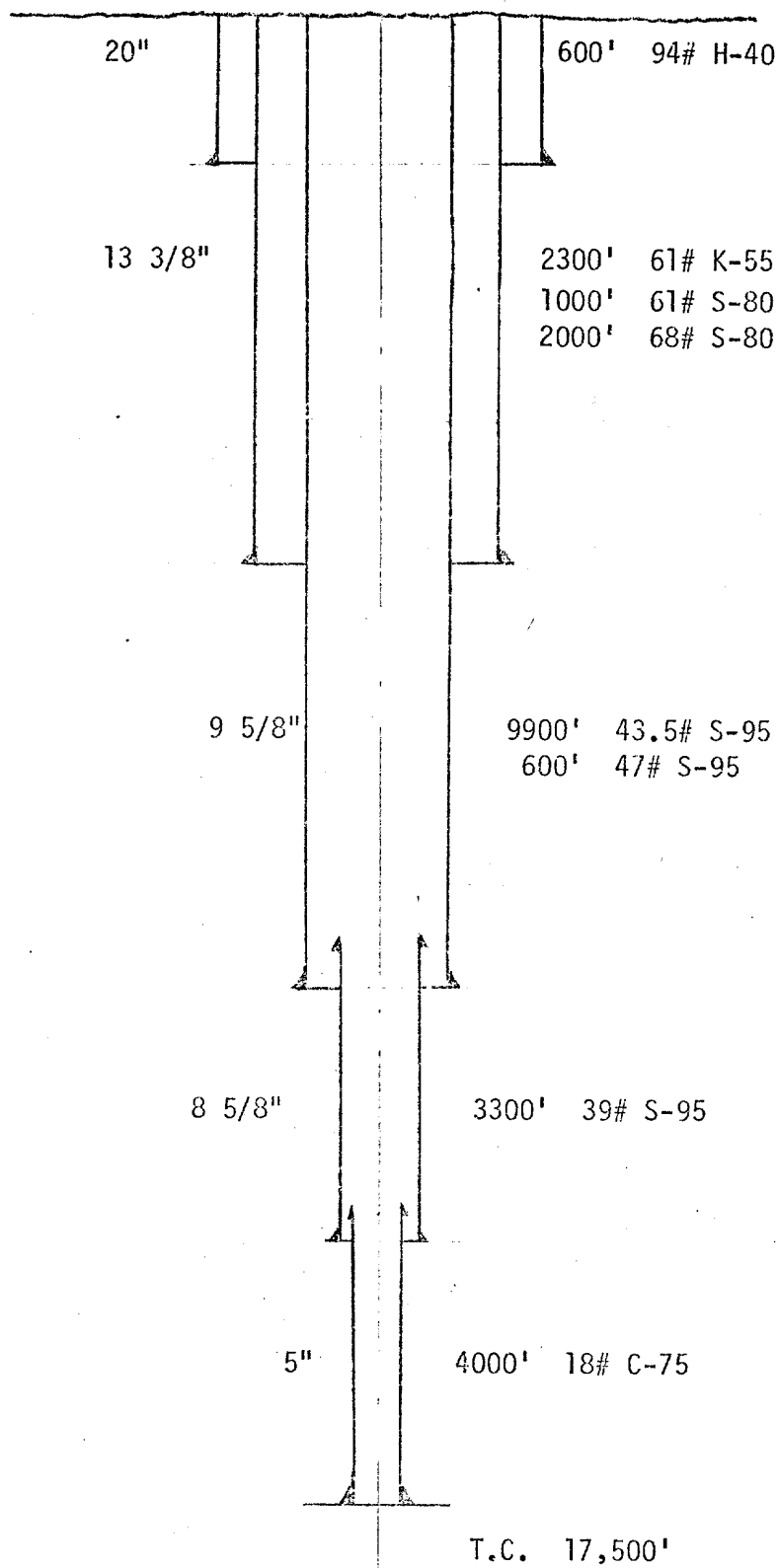
- 1 10" - 1500 Series Rotating BOP and 6" Studded Adapter by Owner.
- 2 6" - 900 Series Hydraulic Gate by Contractor.
- 3 10" - 1500 Series GK Hydril by Contractor.
- 4 10" - 1500 Series - 11 - 10,000 Bx Spool by Contractor.
- 5 11" - 10,000 Bx Double Hydraulic BOP by Contractor.
- 6 4" - 10,000 Bx Manual Gates by Contractor.
- 7 4" - 10,000 Bx Hydraulic Gate by Contractor.
- 8 4" - 10,000 psi Wp Manifold Run by Contractor.
- 9 11" - 10,000 Bx Spool with two 4" - 10,000 Bx side Outlets by Contractor.
- 10 11" - 10,000 Bx Single Hydraulic BOP by Contractor.
- 11 10-3/4" Casing Hanger by Owner



EL PASO NATURAL GAS COMPANY
Cooper Federal No. 1 Well
BOP Requirements

9 5/8 csg pt. (10,500) to T.D. (17,500)

EL PASO NATURAL GAS COMPANY
Cooper Federal No. 1 Well
Casing Schematic

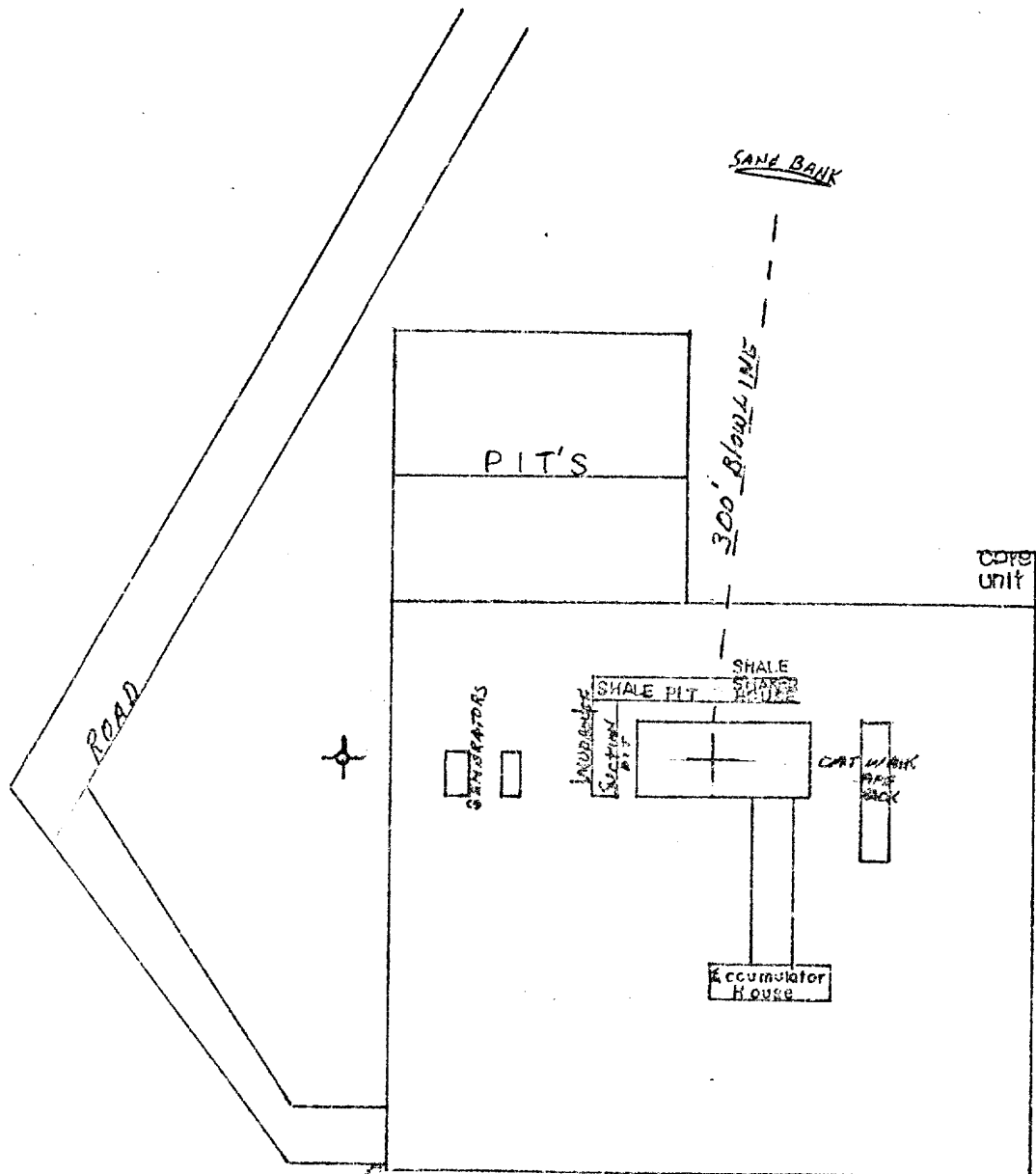


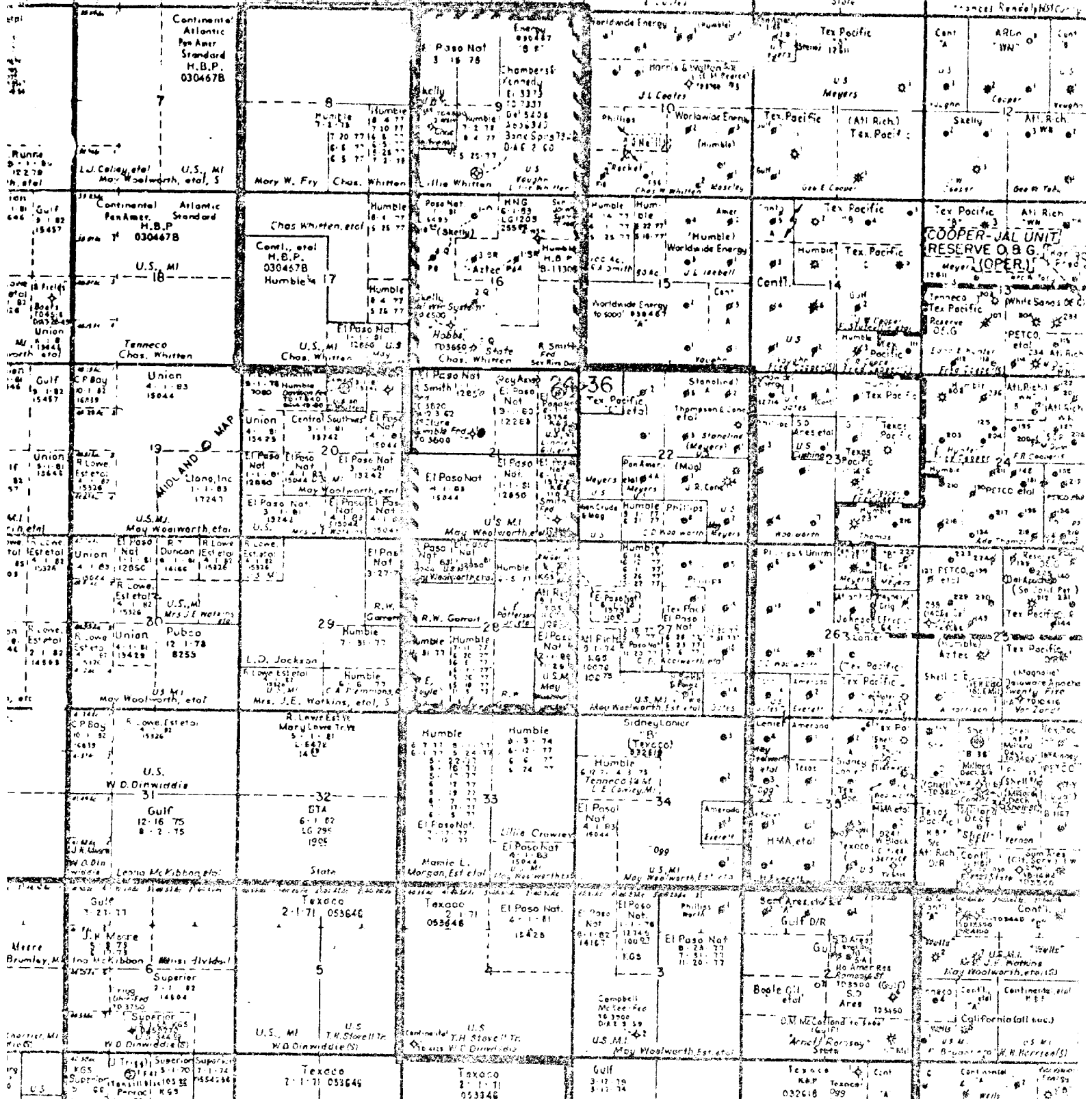
EL PASO NATURAL GAS COMPANY

Plan of Development - Cooper Federal No. 1 Well, Sec. 21, T-24-S, R-36-E

1. Existing Road - This well will be drilled 200' East of the Humble Federal #1 McClure. We will repair existing roads to this location. These roads are marked in blue on the attached contour plat.
2. Planned Access Roads - No new access roads will be built as we will use existing road.
3. Well Locations - Are as indicated on map attached hereto.
4. Lateral Roads - None are planned.
5. Tank Batteries & Flow Lines - Well will be connected to nearest gathering system. Tank batteries will be put on pad, if needed.
6. Location & Type of Water Supply - Plan to drill a water well on location approximately 900' deep.
7. Methods of Handling Waste Disposal - Regulation burn pits or other methods acceptable to U.S.G.S. and N.M.O.C.C. will be used.
8. Locations of Camps - None are planned.
9. Location of Airstrips - None are planned.
10. Location Layout - See enclosed plat.
11. Restoration of Surface - Surface will be restored to a condition acceptable to the correct government agencies.

COOPER FEDERAL NO. 1





EL PASO NATURAL GAS COMPANY
ENERGY RESOURCE DEVELOPMENT
LAND DEPARTMENT
SOUTHWEST REGION

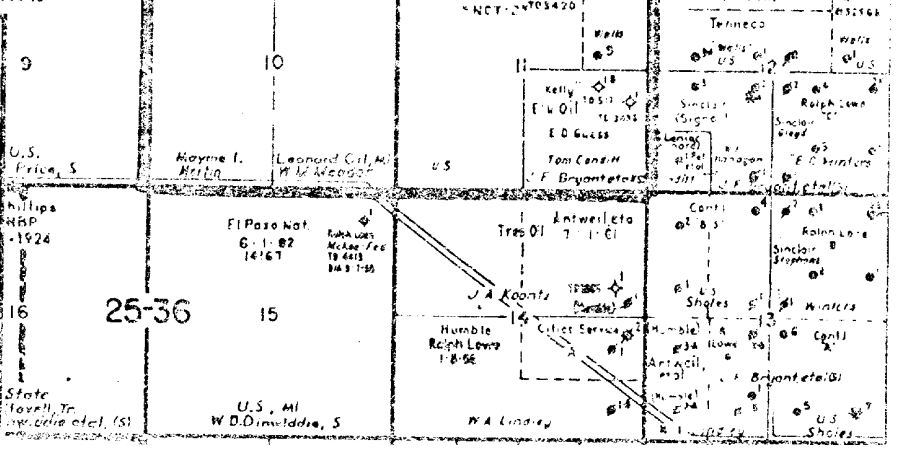
DAVISON PROSPECT
Lea County, New Mexico

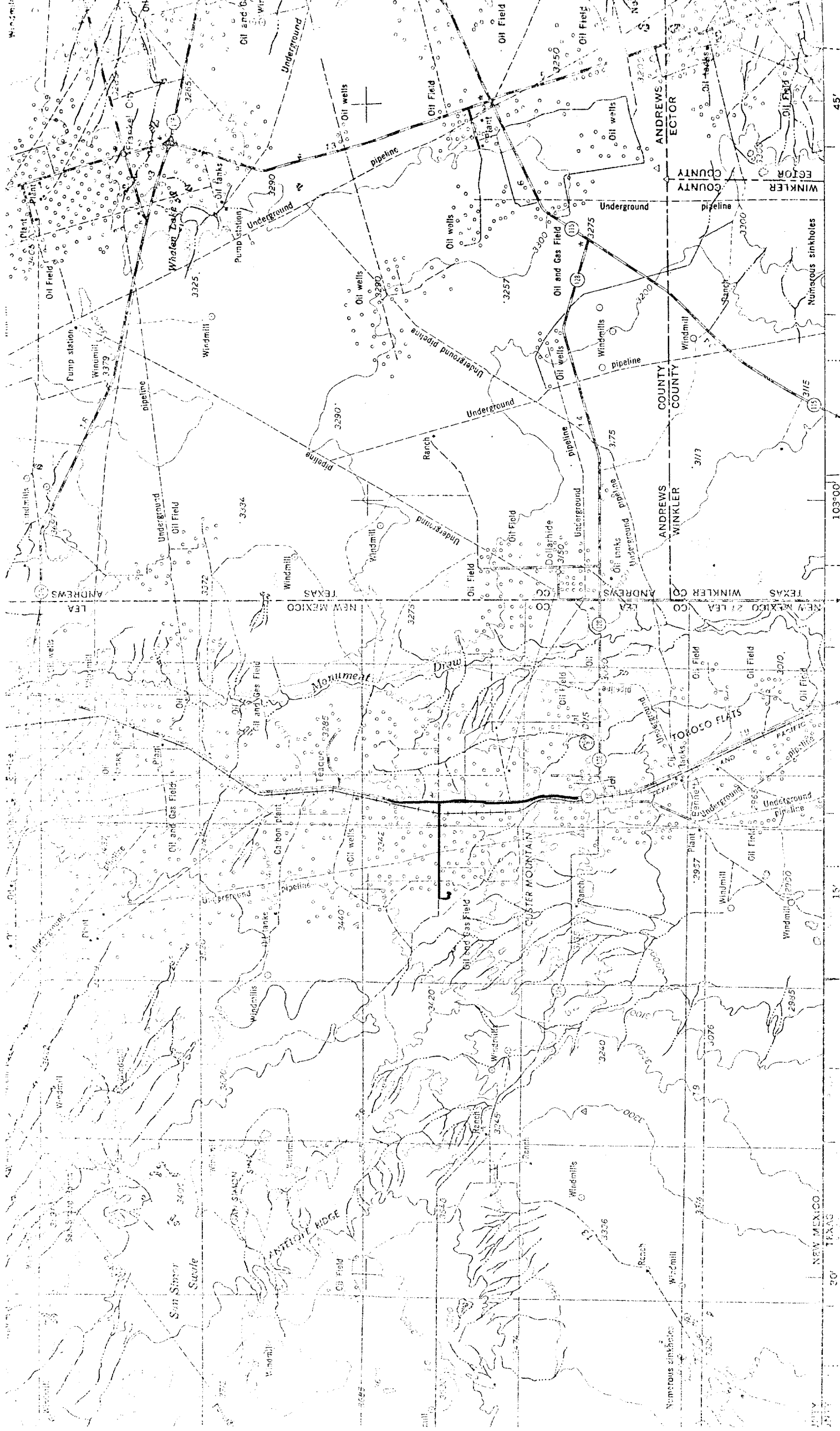
EPNG Acreage ☐
Open Acreage ☐
Recommended Acreage ☐

Expirations: 1st 6 Mo. 2nd 6 Mo. 3rd Year

Prospect Outline ☐
Unit Outline ☐

6-73





15 MI. TO TEXAS R.
103°00'
15'
20'
NEW MEXICO
TEXAS
32°15'
32°30'
103°15'
45'