CLEARY PETROLEUM CORPORATION

MIDLAND DISTRICT
May 15, 1978

DRILLING PROGRAM

WELL: Cleary Petroleum Corporation
New Mexico Federal "F" No. 1
4650' FSL and 1980' FWL
Section 5, T-21-S, R-32-E
Lea County, New Mexico

ELEVATION: 3668' GR

SURFACE FORMATION: Quaternary alluvium and bolson deposits.

ESTIMATED FORMATION TOPS:

Formation	Estimated Depths	Remarks
B/Red Bed/Top Anhydrite	1350'	No Show
Yates	3300'	No Show
Capitan Reef	3400'	Prob. Water
Del. Mtn. Sands	5200'	Prob. Water
Bone Spring	8400'	Prob. Water
Wolfcamp	11000'	Poss. show oil or gas
Strawn	12600'	Poss. show/oil
Atoka Sand	12800'	Poss. show/gas
Atoka Carbonates	13150'	No Show
Morrow Upper Sands	13750-14000'	Prod. gas
Morrow Lower Sands	14100-14250'	Prod. gas
Total Depth	14300'	

ESTIMATED DRILLING TIME: 58 days

Samples: 10' samples 3000' to total depth.

Drilling Time Record: Geolograph-Surface to T. D. Hand kept 10' drilling time from 10,000' to T.D.

Coring: None

Testing: None anticipated dependent upon shows above main producing horizon (Morrow Sands).

Logging: Run #1 - Surface to thru Salado Formation 0'-3500'
GR-Acoustic-Caliper.
Run #2 - Base Intermediate to T.D.
GR-Acoustic Neutron, Guard, Forxo
Welex Logging Co.

Similar Well: Cleary Petroleum No. 1 New Mexico Federal "E"

Known Drilling Hazard in Area: Possible lost circulation in Capitan Reef 3600-4400'.
Possible high pressure in Atoka Sand.

Oil or Gas Shows: If any indications are noted and geologist not at well site, please call:

W.J. "Bill" Henry — Ofc. 915-682-4484, Home 915-694-4520

or

Cleary Petroleum Corp. Buddy J. Knight — Ofc. 915-683-4793, Home 915-684-6263

Consulting Geologist: William J. Henry
William J. Henry

District Manager: Max E. Douglas
Max E. Douglas, Cleary Petroleum Corporation
Ofc. 915-683-4793
Home 915-682-9675

ATTACHMENT I

CLEARY PETROLEUM CORPORATION

NEW MEXICO FEDERAL "F" COMM. #1

LEA COUNTY, NEW MEXICO

CASING & CEMENTING PROGRAM

Surface Casing:

17½" hole size; set approximately 470' of 13 3/8, 54.5 # K-55 new casing using 350 sx of Class "C" cmt containing 4% gel, 2% Calcium Chloride with ¼# flocele per sk, tail in with 300 sx Class "C" cmt containing 2% Calcium Chloride with ¼# flocele per sk.

Intermediate Casing:

12¼" hole size; set approximately 5200' 9 5/8" 40#, K-55, 8R LT & C & 43.5, N-80 LT & C new casing, cmt to surface using DV Multiple Stage tool at approximately 3100'. The first stage cmt will consist of 400 sx of Halliburton Light cmt containing 5# of Gilsonite & ¼# flocele per sk., tail in with 300 sx of Class "C" containing 2% Calcium Chloride & ¼# flocele per sk. The second stage cmt will consist of 1525 sx Halliburton Light cmt containing 13½# salt and ¼# flocele per sk tail in with 100 sx Class "C" cmt containing 2% Calcium Chloride & ¼# flocele per sk.

Production String:

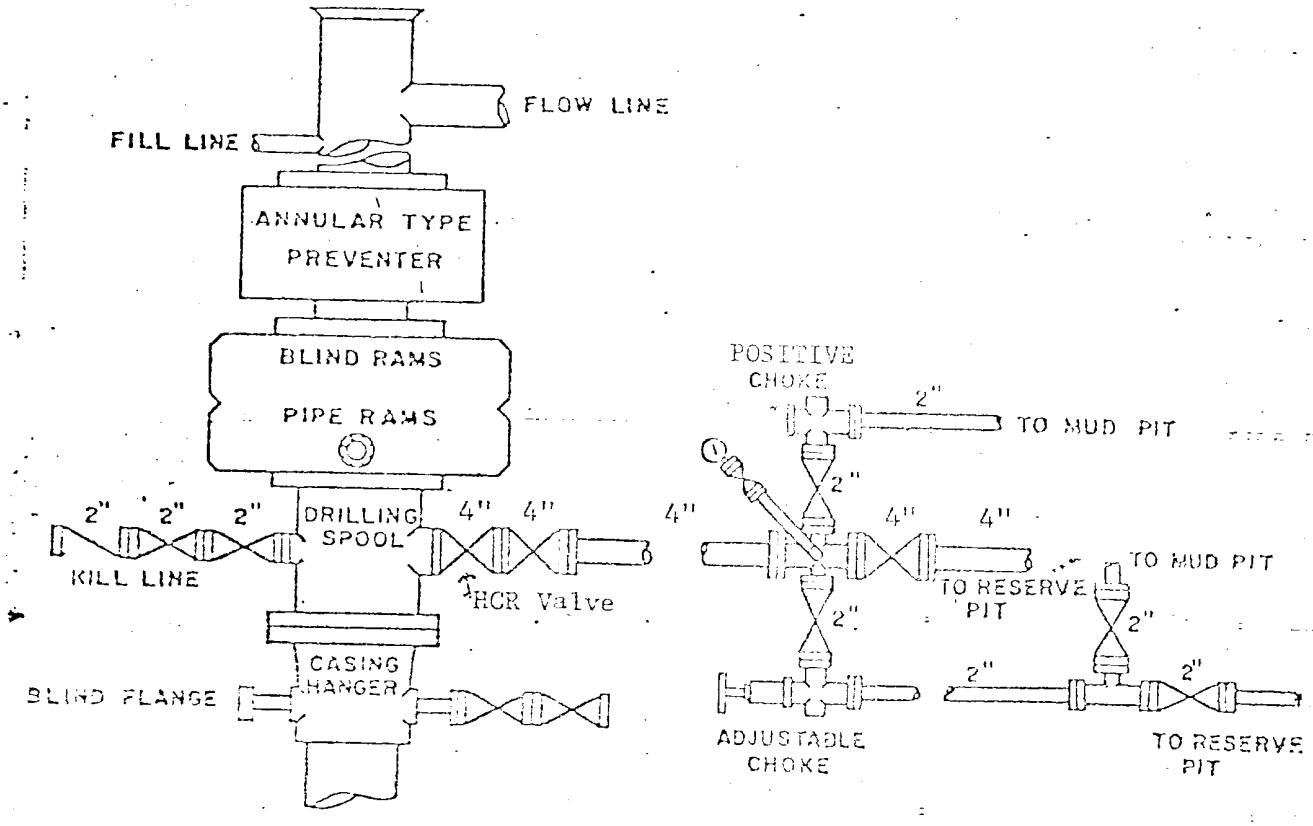
7 7/8" hole size: set 5½" 20# & 17# N-80 LT & C & 17# N-80 buttress from 14,300' to surface. Cmt with 350 sx Halliburton Light cmt containing 0.6% Halad 22, 5# Gilsonite & ¼# flocele, tail in with 525 sx of Class "H" containing 0.8% Halad-22, 0.4% CFR-2, 3# KCL & ¼# flocele/sk. All 5½" casing will be new.

Attachment II

3000 lb. WP BOP

RIG #1

12" Shaffer Type B Hydraulic BOP 3000 PSI
12" GK Hydril 3000 WP
160 Gallon - 7 Station Koomey Accumulator with Remote Control
5000 lb. WP Choke Manifold
10" Type U Cameron 5000 WP, Double BOP



ATTACHMENT III

CLEARY PETROLEUM CORPORATION
NEW MEXICO FEDERAL "E" #1
LEA COUNTY, NEW MEXICO

RECOMMENDED DRILLING FLUID PROGRAM

Depth ft	Mud Weight ppg	Viscosity sec/qt	API Filtrate cc			
0' -- 470'	8.5-9.0	35-42	NC			
Spud with Drilling Gel and Lime maintaining as needed to set 13-3/8 pipe.						
470' -- 5600'	8.5-10.0	32-34	NC			
Drill out with fresh water letting native viscosity increase to 32 to 34 sec/qt. Around 1600', add 10 ppg brine water for salt stringers. Add and maintain 3% to 5% oil. Use Paper for seepage.						
5600' -- 11000'	8.5-8.8	28-30	NC			
Drill with fresh water, adding Lime for pH and Paper for seepage. Use Visbestos sweeps for hole cleaning.						
11000' -- 14300'	10.0-10.2	30-34	Below 10			
Displace with 10.0 ppg brine maintaining pH with Caustic Soda. At 13500', mud up with KCL, Drispac, Starch, and Soda Ash to produce the above properties. Adjust the mud weights and viscosities as hole conditions warrant.						

ATTACHMENT IV

RATED DEPTH 10,000' - 13,500

RIG #1

DRAWWORKS:
Brewster N-75 grooved drum for 1 1/4" line, 40" DRC hydromatic brake, 2 Foster Catheads, Bear automatic driller

ENGINE AND DRIVE GROUP"
3-Waukesha F-3520 gas butane engines, rated at 550 HP each, 3 engine Brewster inline compound

PUMPS AND MUD SYSTEM:
2-1,000HP PZ-9 Gardener Denver triplex pumps w/forged steel fluid ends, compound driven pump suctions charged with 5x6 Mission centrifugal pump

3-Mud pits, 900 bbl. total w/low pressure mud system, w/60 HP electric motor 5x6 Mission centrifugal pump

1-Swaco 4 Clone 8" desander, powered by Waukesha 195 GLBD gas engine and Mission 5x6 centrifugal pump

1-Link Belt Vibrating Shale Shaker

DERRICK:
Lee C. Moore 133', 760,000# nominal capacity-racking capacity 14,000' of 4 1/2" drillpipe

SUBSTRUCTURE:
Lee C. Moore 16', 650,000# casing capacity, set back of 350,000#

ROTARY:
Brewster RSH 22" rotary table w/split and solid bushings

BLOCKS:
Brewster 5 sheave traveling block (400 ton capacity)

HOOK:
1 - Bryon Jackson 4300 super triplex (350ton)

SWIVEL:
Brewster 8 SX swivel (400 ton capacity)

OTHER EQUIPMENT:
12,000' of 4 1/2" Grade E 16.60 drillpipe
Drill Collars - 6", 7", 8", 9 1/2" as required for standard size hole
1-OMSCO Kelly Cock, 10,000 P.S.I.
1-Hydril 12"--900 GK Hydraulic Stripper type BOP
1-Cameron type U, double, 1500 series ram type blow-out preventor
1-4", 1500 series, 5,000# WP choke manifold w/5,000# HCR Cameron valve
160 gallon Koomey Accumulator 7-station w/remote control stand
2-500 bbl. horizontal water tanks
1-175 KW-AC 3 phase light plant, powered by GK Waukesha
1-35 KW-AC 3 phase light plant, powered by Hercules gas engine
2-way radio communications
1-Modern air conditioned trailer house
Fully equipped with vapor-proof lighting