UNION OIL COMPANY OF CALIFORNIA
LODEWICK WELL NO. 13
SEC.19,T.27N.,R.9W.

8 POINT DRILLING PLAN

1. ESTIMATED FORMATION TOPS

FORMATION NAME	DEPTH FROM GL
Ojo Alamo	1481'
Kirtland Shale	1576'
Fruitland	2126'
Pictured Cliffs	2385'
Total Depth	2450'

2. OIL, GAS, WATER, OR OTHER MINERAL BEARING ZONES

EXPECTED GAS ZONES	DEPTH FROM GL
Fruitland coal	2126'-2385'
Pictured Cliffs	2385'-TD

EXPECTED WATER ZONES	DEPTH FROM GL
Ojo Alamo	1481'

Possible water zones will be protected by 8-5/8" surface casing and/or 4-1/2"production strings, both of which will be cemented to surface.

3. PRESSURE CONTROL BOP'S AND RELATED EQUIPMENT

Casing Head: 8-5/8" X 11" - 2000 psi W.P.

BOP Stack and Related Equipment:(See attachment #1)

One double-gate BOP with 4-1/2" pipe and blind rams.

One choke manifold with adjustable and positive chokes.

The BOP and choke manifold will be rated at 2000 psi,

Testing Procedure:
The BOP and related equipment will be tested to 2000 psi in accordance with the provisions of Onshore Oil and Gas Order No. 2.

BOP's will be operationally tested daily, and each test will be logged in the IADC Daily Drilling Report.

Blooie line:
The blooie line and related equipment will meet all requirements of Onshore Oil and Gas Order No. 2.

4. CASING AND CEMENTING PROGRAM

SURFACE CASING

AGE	Depth	Hole Size	Size	Weight	Grade	Thread
New	0-225'	12-1/4"	8-5/8"	24.0#	K-55	ST&C

INTERMEDIATE CASING

Age	Depth	Hole Size	Size	Weight	Grade	Thread
New	0-TD	7-7/8"	4-1/2"	10.5#	K-55	ST&C

MINIMUM SAFETY FACTORS
Collapse: 1.0
Tension: 1.8
Burst: 1.0

Cementing Program:

1. The 8-5/8" surface casing will be cemented to the surface with 175 sacks of class "B" cement with 2% CaCl2 and 1/4# per sack flocele.

2. The 4-1/2" production casing will be cemented in 2 stages with the DV tool set at 2000'. 1st stage will be cemented with 85 sacks class "H" cement with .95% Flo-Lock-1, 18% Thrifty Lite, 3% KCL, 3# Hi-seal.
2nd stage will be cemented with 325 sacks pacesetter lite with 6% gel,1/3# cello-seal. .8% CF-1, 3# Hi-seal followed with 50 sacks class "C"cement. Actual cement volumes will be calculated from open hole logs and will be designed to circulate to surface.

Auxiliary Equipment:

A Kelly cock will be used. with handle available

A full-opening safety valve will be used. and sub to fit all drill strings in use.

5. DRILLING FLUID PROGRAM

Depth	Type	Weight	Vis	W.L.
0-225'	Spud Mud	--	-	N.C.
225-1900'	Fresh water	8.5	AR	12 cc
1900-TD	Fresh water	8.5-9.5	AR	4-6 cc

Sufficient materials to maintain mud requirements and to meet lost circulation and threatened blowout conditions shall be stored at the location.

6. CORING, TESTING, & LOGGING PROGRAM

DST'S: None Planned

Logging: DISFL-GR-SP, FDC-CNL-GR
Coal Log (to 50' above Coal)

Cores: None planned.

Completion:

During completion, the drilling rig will be removed and a completion rig will be moved in and BOP's of a similar pressure rating will be used.

The Fruitland Coal will be selectively perforated, stimulated and tested.

If productive, the Fruitland Coal formation will be hydraulically fractured.

Whether the well is completed as a dry hole or producer a "Well Completion or Re-completion Report and Log"(Form 3160-4) will be submitted within 30 days after completion of the well, per 43 CFR 3164. Two copies alloflogs geologic summaries, sample descriptions, and all other data obtained during the drilling, workover, and completion operations will be filed with form 3160-4.

7. ABNORMAL PRESSURES, TEMPERATURES, AND POTENTIAL HAZARDS:

No above normal pressures zone are anticipted

Below normal pressures may occur in the Pictured Cliffs formation due to depletion.

Formation	Est. Reservoir Pressure
Fruitland Coal	800 PSI

Normal temperature gradients are anticipated.

No hydrogen sulfide gas is anticipated.

8. ADDITIONAL INFORMATION;

STARTING DATE:

Road and location work will begin as soon as approval has been received from the BLM, weather permitting. Drilling should commence immediately upon approval of the APD, weather permitting.

The BLM will be notified 48 hours before dirt work begins and 24 hours before drilling operations begin.

Duration of Operations:

Drilling will be approx. 6 days
Completion will be approx. 10 days.

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13 POINT SURFACE USE PLAN

1. DIRECTIONS AND EXISTING ROADS:

A. The proposed well lies approximately 20 miles south and east of Bloomfield New Mexico. The well site as staked is shown on the surveyors plat.

B. Proposed route to location: See maps attachments 4 & 5

C. Less than 300' of new access road will be required.

D. Existing roads are shown on Maps 4 and 5.

E. Existing roads that are used will be maintained at a standard equal to or better than the conditions of the roads prior to the start of operations, weather conditions permitting. At the conclusion of drilling and completion operations, the roads will be repaired and restored to a standard equal to or better than the conditions at the start of operations.

2. PLANNED ACCESS ROADS:

A. Width: 18' top running width and 40' bottom width.

B. Maximum Grade: 1%

C. Turnouts: No turnouts will be required.

D. Drainage Design: The access road will not cross a drainage. Drainage design will be incorporated into the road to facilitate the run-off of water due to rain or snow.

F. Location and size of culverts: No culverts will be required.

3. LOCATION OF EXISTING WELLS:

Map #4 shows producing wells, water wells, abandoned wells etc., within a one-mile radius of the proposed well.

a. Water wells - 0
b. Abandoned Wells - 0
c. TA wells - 0
d. Disposal Wells - 0
e. Drilling Wells - 1
f. Producing wells - 14
g. Shut-In Wells - 1
h. Injection Wells - 0
i. Monitoring Wells - 0

4. LOCATION OF EXISTING AND/OR PROPOSED PRODUCTION FACILITIES

A. Each active well within a one-mile radius of the proposed well has a separator and a condensate tank owned by the operator, and a dehydrator and a gas meter owned by El Paso Natural gas Company. several miles of gas gathering lines owned by El Paso Natural Gas Company are located within the one-mile radius of each location. no oil gathering lines are present.

B. (1) All permanent production facilities will be painted as per BLM requirments.
(2) The production pad will be 200' X 200' (see Attachment No. 3).
(3) No outside construction materials should be necessary.
(4) All equipment will either be fenced or have metal guards in place. One emergency pit will be required. It will be fenced.
(5) The tank battery will be surrounded by a dike sufficient to hold 1-1/2 times the capacity of the storage tanks.
(6) All site security regulations will be adhered to at all times.
(7) A gas gathering line right-of-way, if required will be applied for separete from this plan.

C. Plan for rehabilitation of disturbed areas no longer needed for operations after construction is complete:

(1) The reserve pit will be completely fenced. When the reserve pit is dry, the pit will be backfilled and the fence will be removed.

(2) The area of the drill site not needed for production operations, including the reserve pit, will be re-contoured to the natural level. the topsoil will be redistributed and will be reseeded with the recommended BLM seed mixture. prior to reseeding, all disturbed areas will be scarified and left with a rough surface.

Note:
The BLM will be notified before starting reclamation work that involves equipment and upon completion of restoration measures.

5. LOCATION AND TYPE OF WATER SUPPLY

A. The well will be drilled with fresh water from the Hill top water hole.

B. The water will be hauled by truck to the location along the existing road.

C. No water well is proposed.

6. SOURCE OF CONSTRUCTION MATERIALS

A. The proposed location will utilize soil material which is on the location. No construction material will be needed. If at a later date it is determined that gravel is needed on the road, the gravel will be purchased at that time from a local vender.

C. Topsoil from the location and the access road will be stockpiled by the well site for restoration purposes. the soil material will be obtained from the immediate area of drilling operations and will be used to fill in the low areas.

7. METHODS FOR HANDLING WASTE DISPOSAL

A. The reserve pit will not be lined. Prior drilling, the reserve pit will be fenced on three sides with woven wire material.

B. Drilling fluids will be disposed of in the reserve pit. The water will be allowed to evaporate and the remaining solids will be buried.

C. In the event of a producing well, produced fluids will be handled in a tank battery on the location. Produced water will be disposed of in accordance with NTL-2B.

D. Chemical toilets will be utilized.

E. Garbage and other waste material will be disposed of in a portable trash cage which will be completely enclosed with small mesh wire. The trash will be hauled to an approved landfill or incinerated off-site.

F. When the rig moves out, all extraneous material will be disposed of as garbage or hauled to town. When the pits have dried, they will be backfilled and re-contoured.

8. ANCILLARY FACILITIES

No camps or airstrips will be needed.

9. WELLSITE LAYOUT

See attachment #3 for the wellsite layout.

A. A maximum cut will be 5'.

B. No living facilities will be installed. however, two trailer houses will be on location for Company personnel.

10. PLANS FOR RESTORATION OF THE SURFACE

A. After the reserve pit is dry, the pit will be backfilled, leveled and contoured to an acceptable level with the BLM. Topsoil will then be redistributed over the pit area.

B. **Revegitation and rehabilitation:** The location will be reseeded with a recommended BLM seed mixture as per BLM specifications.

C. **Care of pits prior to rig release:** Prior to rig release, pits will be fenced and so maintained until cleanup. If oil is on the pit, it will be removed.

D. Immediately following the completion of operations, cleanup will commence. As soon as the pit is completely dry, the pit will be filled and cleanup finalized. Seed will be broadcast in the fall of the year.

11. SURFACE OWNERSHIP

A. The land is federally owned and administered by the Bureau of Land Management.

12. OTHER INFORMATION

A. The surface is used for livestock grazing and is administered by the BLM.

B. Proximity of water, occupied dwellings, archeological, historical or cultural sites:

There are no reservoirs or flowing streams in the immediate area of this lease.

An archeological survey has been made and a copy is attached to this APD.

13. OPERATOR'S FIELD REPRESENTATIVE AND CERTIFICATION

Anyone having questions concerning this APD should contact:

Chris Russell, Consultant
Exact Engineering
Farmington, NM 87401
(505)-325-8786

A. Field Representative:

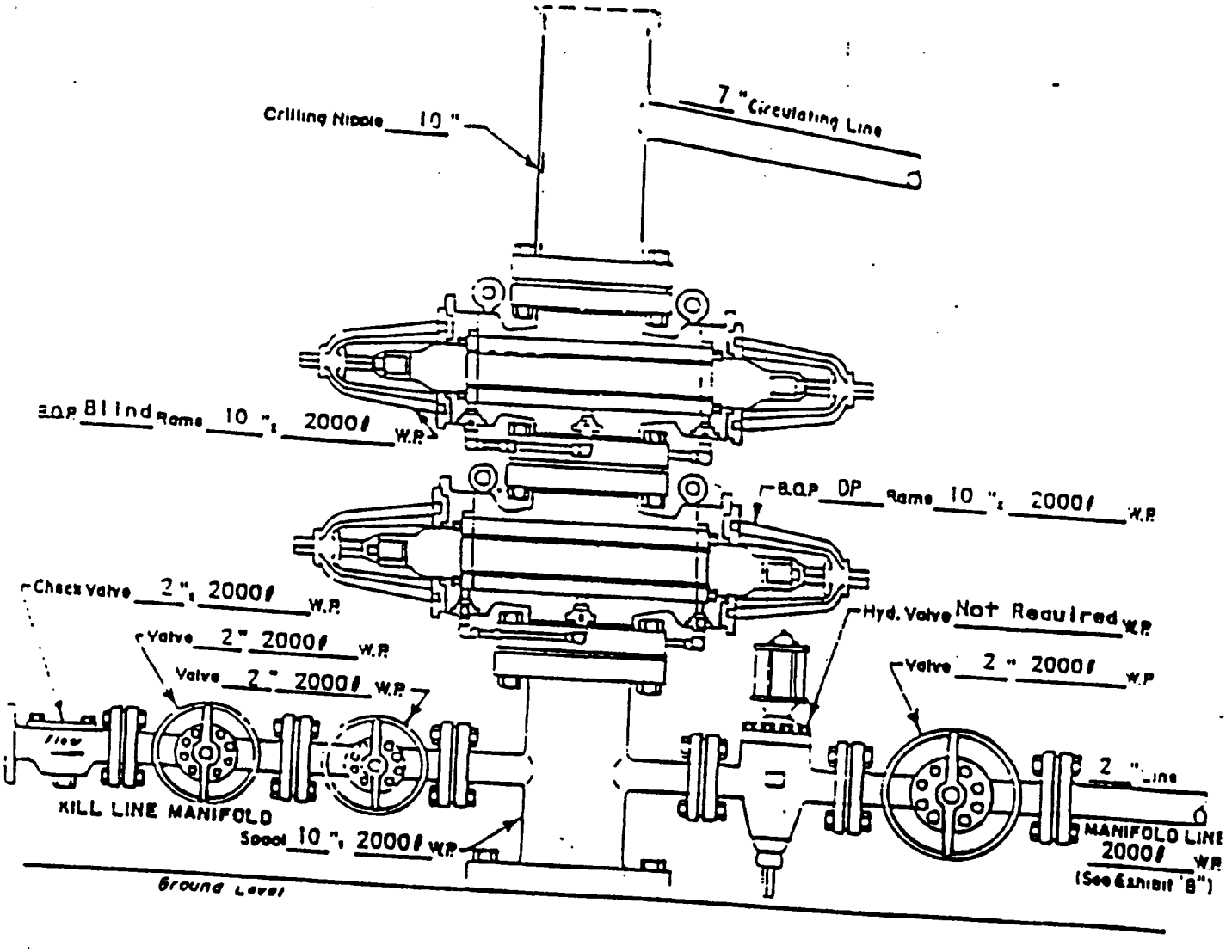
Chris Russell
Exact Engineering
Farmington, NM 87401
(505)-325-8786

B. Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in the plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Union Oil Company of California and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

3/16/90
Date

Chris Russell
Agent



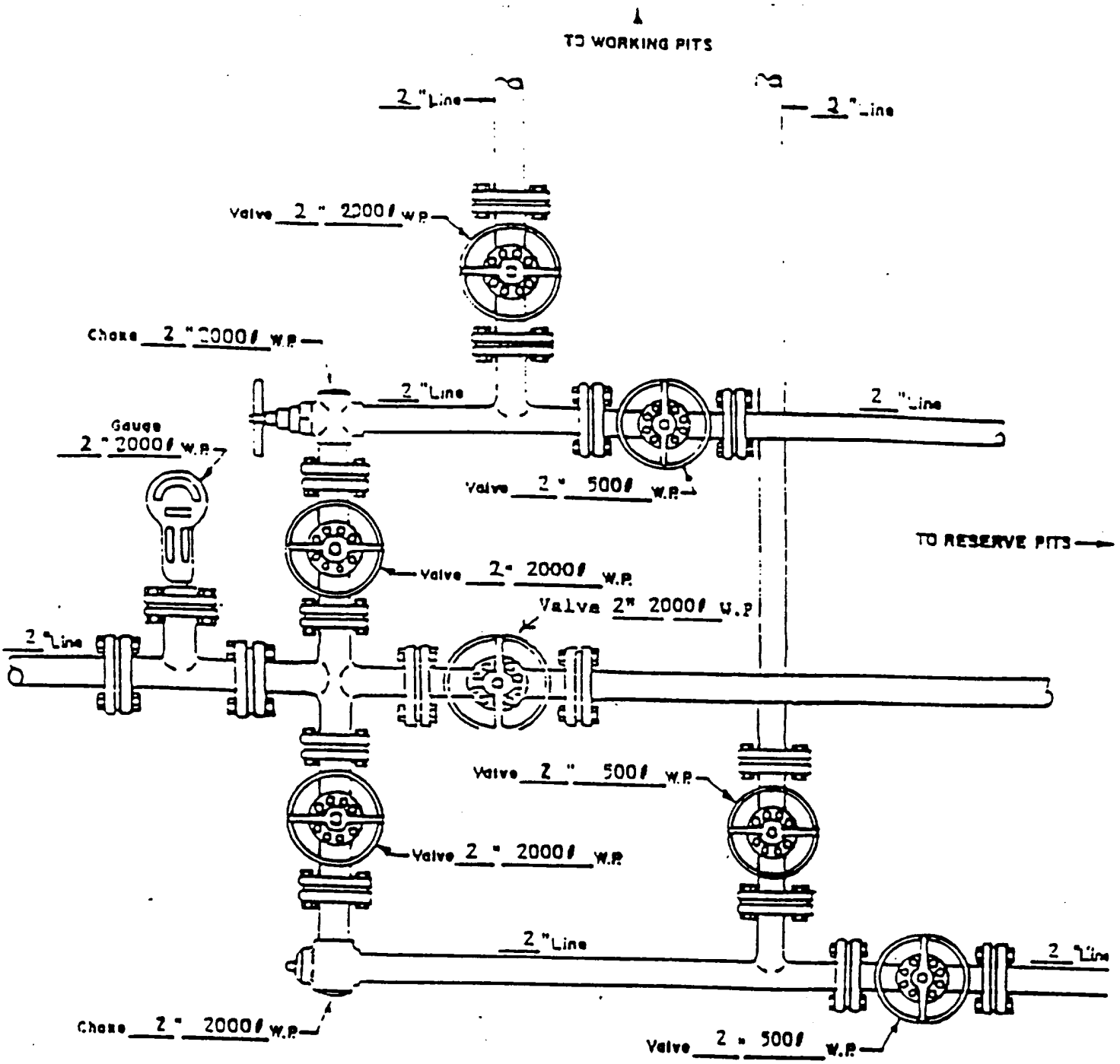
WELL HEAD B.O.P
2000 #W.P

☐ Manual
☒ Hydraulic

UNION OIL COMPANY OF CALIFORNIA

FRUITLAND COAL WELL BOP

ATTACHMENT #1



MANIFOLD
2000 #W.P

☒ Manual
☐ Hydraulic

UNION OIL COMPANY OF CALIFORNIA

FRUITLAND COAL WELL BOP

ATTACHMENT #2

1"=50'

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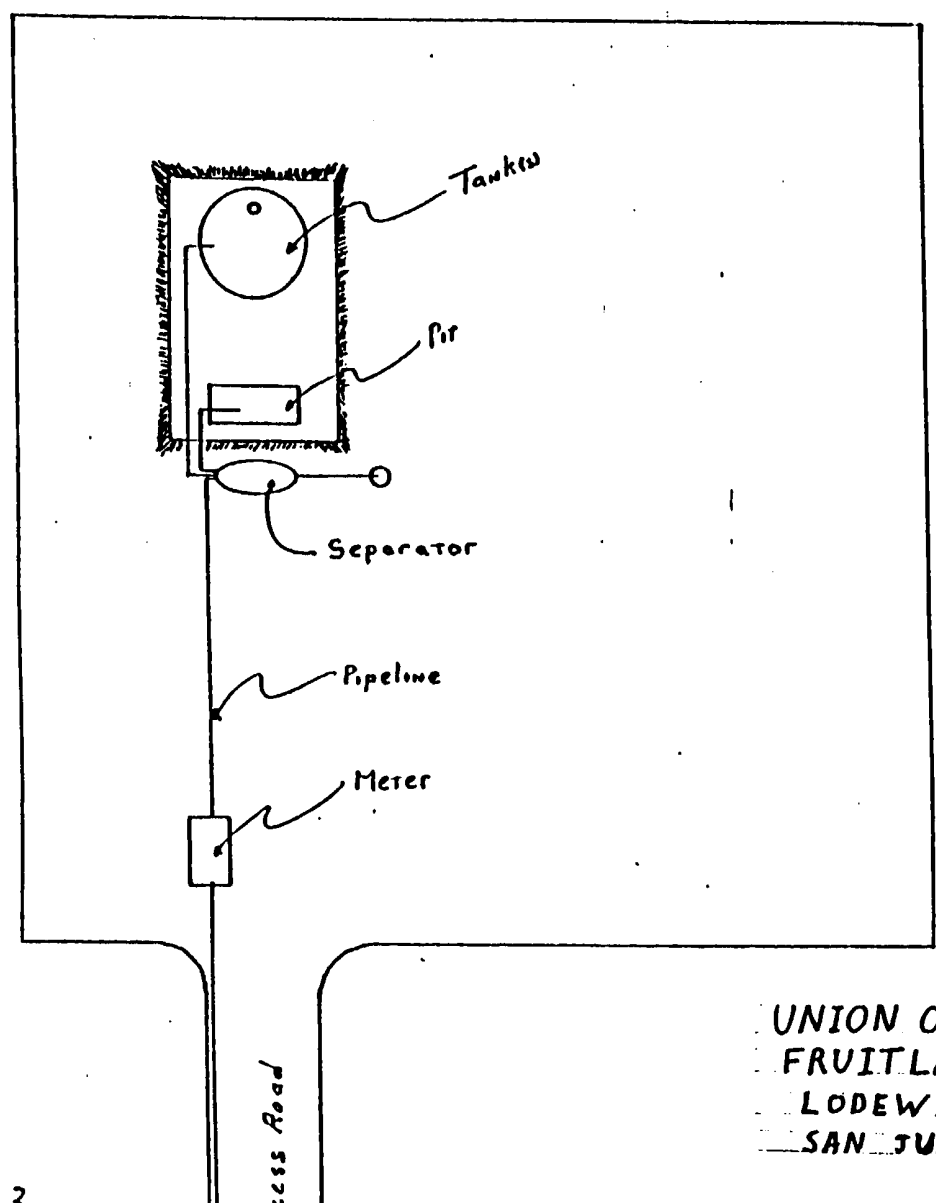
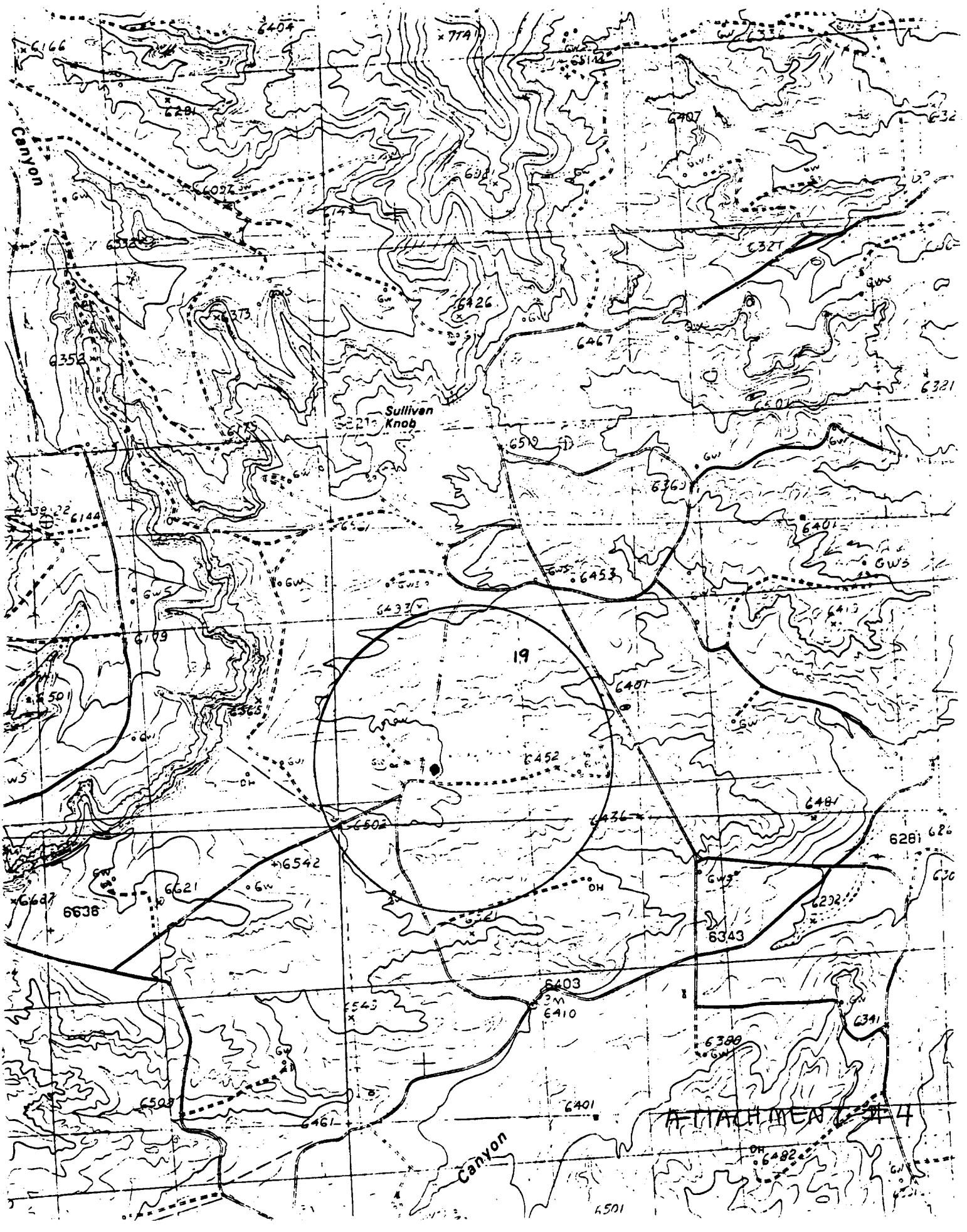
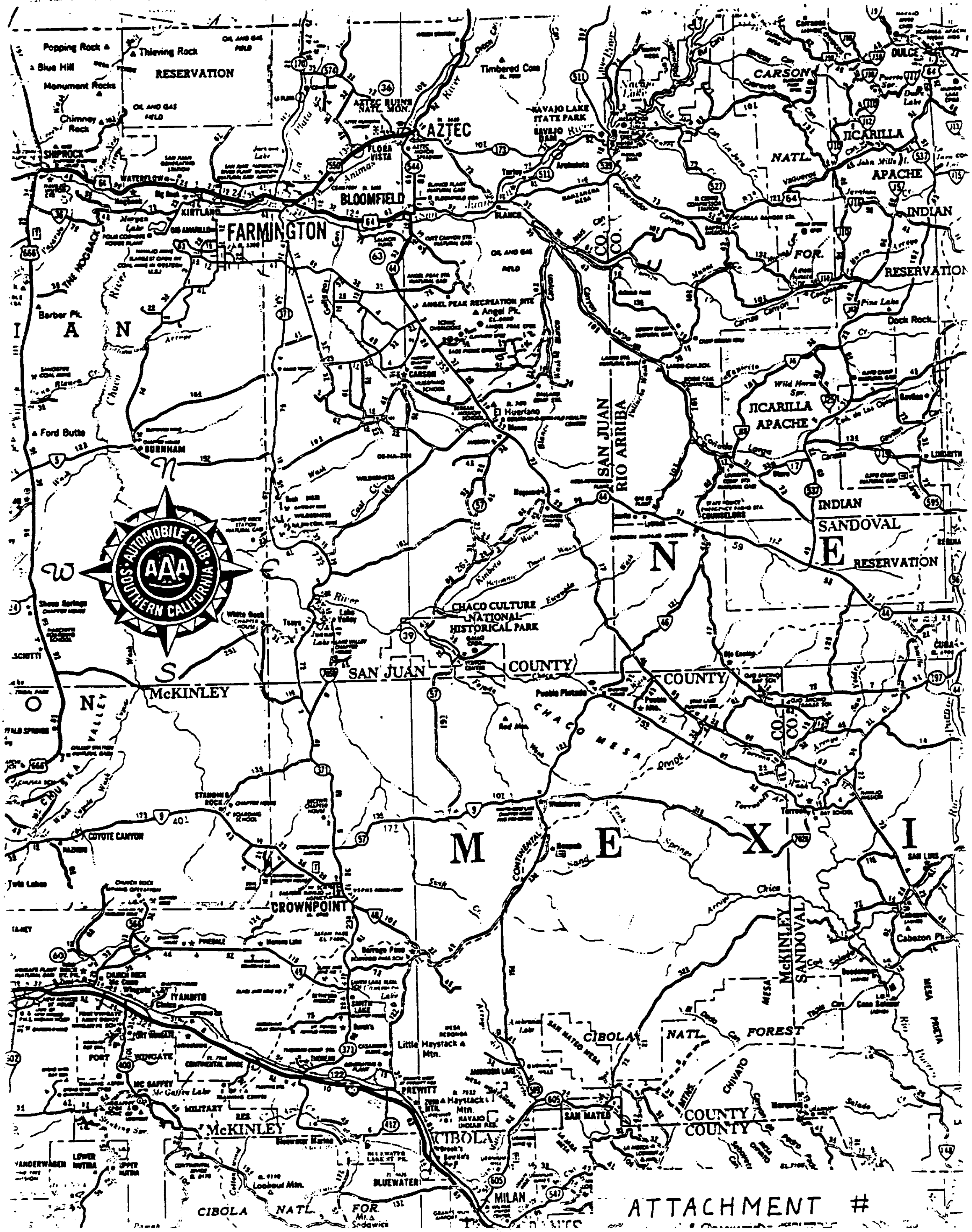


UNION OIL COMPANY OF CALIFORNIA
FRUITLAND COAL FACILITIES
LODEWICK #13
SAN JUAN COUNTY, NEW MEXICO

ATTACHMENT #3


Canyon
Sullivan Knob
19
Canyon
ATTACHMENT 4



RESERVATION
Popping Rock
Thieving Rock
Blue Hill
Monument Rocks
Chimney Rock
Timbered Cone
NAVAJO LAKE STATE PARK
AZTEC RUINS NATL. MON.
AZTEC
FLORA VISTA
SHIPROCK
WATERFLOW
KIRTLAND
FARMINGTON
BLOOMFIELD
BLANCO
CARSON
NATL.
FOR.
DULCE
JICARILLA
APACHE
INDIAN
RESERVATION
THE HOGBACK
Barber Pk.
ANGEL PEAK RECREATION SITE
Angel Pk.
CARSON
El Huerfano
Ford Butte
BURNHAM
SAN JUAN
RIO ARRIBA
CO.
CO.
JICARILLA
APACHE
Dock Rock
INDIAN
SANDOVAL
COUNSELORS
AUTOMOBILE CLUB
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Twin Lakes
CROWNPOINT
CONTINENTAL
Cabezon Pk.
McKINLEY
SANDOVAL
MESA
CIBOLA
NATL.
FOREST
Little Haystack Mtn.
FORT
WINGATE
MC GAFFEY
MILITARY
RES.
McKINLEY
PREWITT
Haystack Mtn.
CIBOLA
SAN MATEO
COUNTY
COUNTY
LOWER NUTRIA
UPPER NUTRIA
VANDERWAGEN
BLUEWATER
MILAN
Lookout Mtn.
CIBOLA
NATL.
FOR.

ATTACHMENT #