

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY32-045-34768
5. LEASE DESIGNATION AND SERIAL NO.

SF-078896

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Federal 29

9. WELL NO.

23

10. FIELD AND POOL, OR WILDCAT

West Kutz, P.C. *Est*11. SEC., T., R., M., OR BLK.
AND SURVEY OR AREA

Sec. 29-T27N-R11W

12. COUNTY OR PARISH 13. STATE

San Juan

NM

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK

DRILL ☒DEEPEN ☐PLUG BACK ☐

b. TYPE OF WELL

OIL
WELL ☐GAS
WELL ☒

OTHER

SINGLE
ZONE ☒MULTIPLE
ZONE ☐

2. NAME OF OPERATOR

DEPCO, Inc.

3. ADDRESS OF OPERATOR

1000 Petroleum Building--Denver, CO 80202

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)

At surface 1630' FSL, 1800' FWL, NE $\frac{1}{4}$ -SW $\frac{1}{4}$, Sec. 29

K At proposed prod. zone Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*

12 Miles south of Bloomfield, NM

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST
PROPERTY OR LEASE LINE, FT.
(Also to nearest drlg. unit line, if any) 1630'

16. NO. OF ACRES IN LEASE

1920

17. NO. OF ACRES ASSIGNED
TO THIS WELL

160 ✓

18. DISTANCE FROM PROPOSED LOCATION*
TO NEAREST WELL, DRILLING, COMPLETED,
OR APPLIED FOR, ON THIS LEASE, FT.

600'

19. PROPOSED DEPTH

1900'

20. ROTARY OR CABLE TOOLS

Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.)

6183' GR; 6195' KB (Est)

22. APPROX. DATE WORK WILL START*

1-15-81 ±

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	8-5/8"	24#, K55	120'	100 sx (Circulate)
7-7/8"	4-1/2" <i>API</i>	10.5#, J55	1900'	375 sx

Sent to administrative
50 CFR 290.1 ✓

1. Drill 12 $\frac{1}{4}$ " surface hole & set surface casing as above.
2. Drill 7-7/8" hole to 1900'.
3. Run DIL, CNL-FDC w/GR Caliper Logs.
4. Run 4 $\frac{1}{2}$ " casing string if warranted, or P&A in compliance with regulations.
5. The location will be reshaped to original topography. Stockpiled topsoil will be respread and the area reseeded.

Exhibits attached to this APD

"A" - Well Location Plat; "B" - Ten Point Compliance Program; "C" - Blowout Preventer Diagram; "D" - Multipoint Surface Use Requirements; "E" - Road Access Map to area; "F" - Topographic Map of area, Road Access, and wells within one mile radius; "G" - Drilling Location Plan, Contours, Cuts and Fills; "H" - Drilling Rig and Production Facilities Plan; "I" - Treatment Program Plan; "J" - Archeology Report.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

Wm S. Schuman

TITLE

Prod. Supt. So. Rwy Mtn. Dist. DATE 12/12/80

(This space for Federal or State office use)

PERMIT NO.

APPROVED
AS AMENDED

APPROVAL DATE

APPROVED BY

CONDITIONS OF APPROVAL

JAN 12 1981
for JAMES F. SIMS
DISTRICT ENGINEER

TITLE

DATE

OIL CONSERVATION DIVISION

P. O. BOX 2088

Form C-107
Revised 10-1-78STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

SANTA FE, NEW MEXICO 87501

All distances must be from the outer boundaries of the Section.

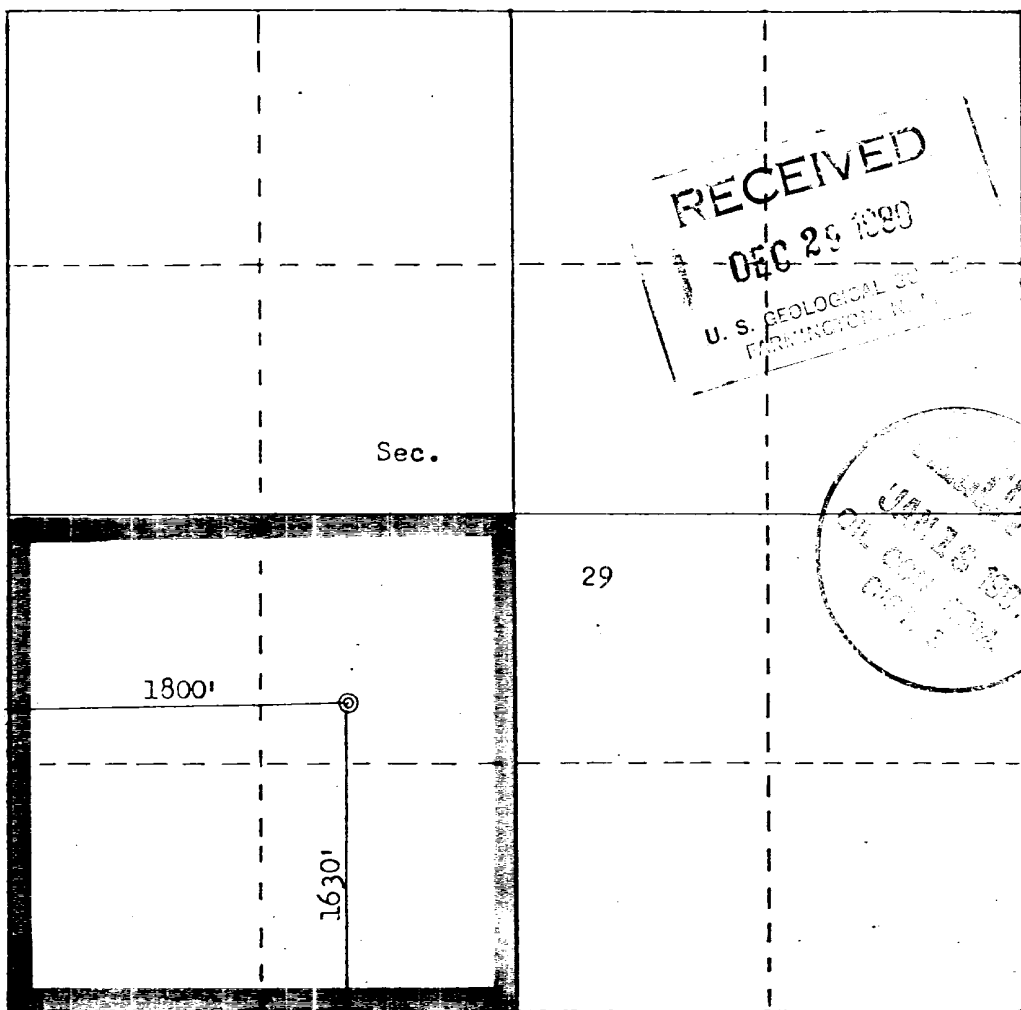
Operator DEPCO, INCORPORATED		Lease FEDERAL 29		Well No. 23	
Unit Letter K	Section 29	Township 27N	Range 11W	County San Juan	
Actual Footage Location of Well: 1630 feet from the South line and 1800 feet from the West line					
Ground Level Elev. 6183	Producing Formation Pictured Cliffs	Pool West Kutz	Dedicated Acreage: 160 Acres		

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☐ Yes ☐ No If answer is "yes," type of consolidation _____

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.) _____

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.



Scale: 1"=1000'

CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

Name
W. S. Schwenke
Position
Prod. Supt - So. Rky Mtn Dist.
Company
DEPCO, Inc.
Date
December 16, 1980

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
December 9, 1980
Registered Professional Engineer
and Land Surveyor
Fred B. Kerr, Jr.
Certificate No.
3958

DEPCO, Inc.
Federal 29 No. 23
NE/4 - SW/4, Sec. 29-T27N-R11W
San Juan County, New Mexico

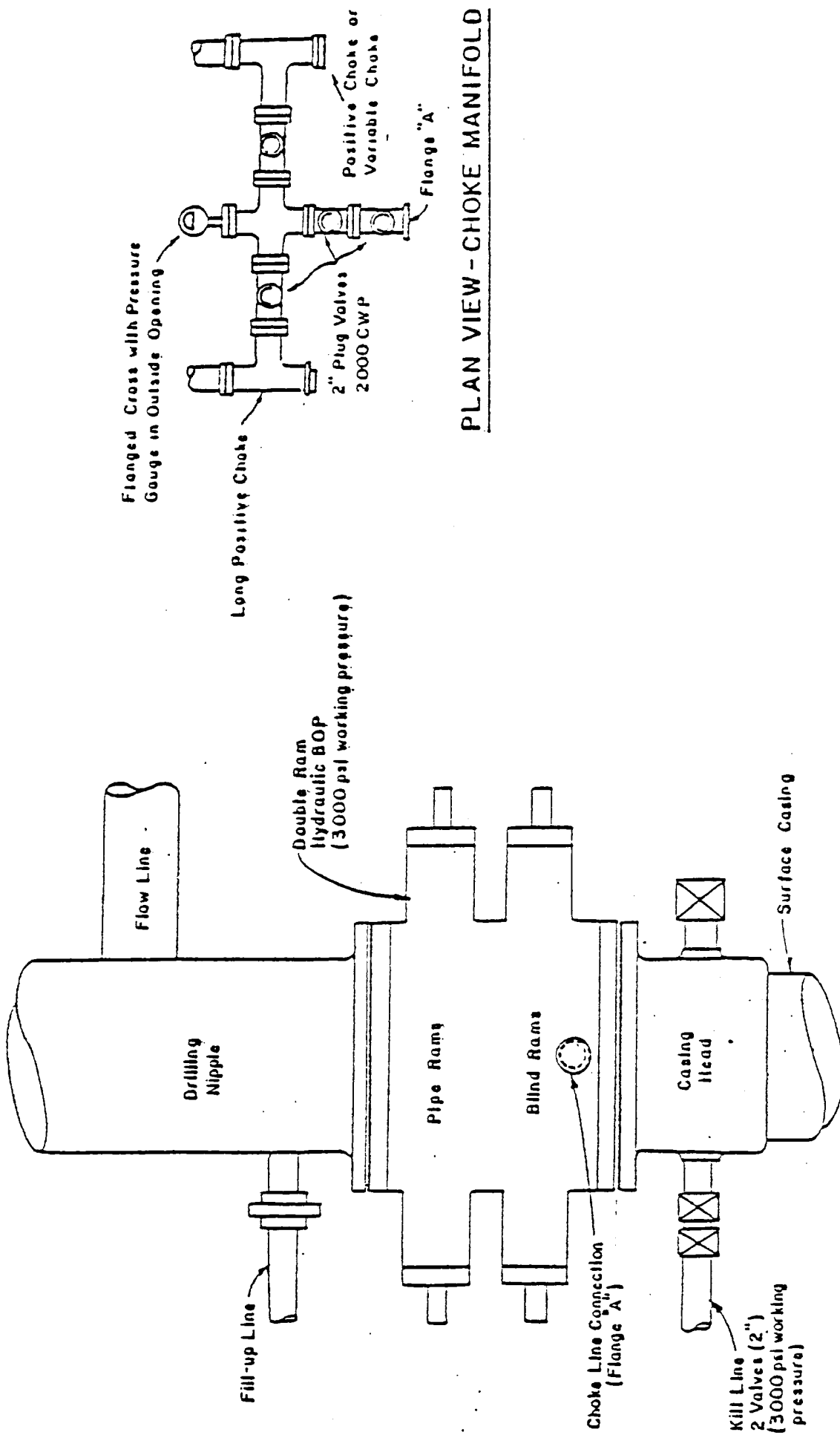
Lease No. SF-078896

1. Surface formation - Wasatch of Tertiary Age
2. Estimated geologic tops: Ojo Alamo - 635' KB
Pictured Cliffs - 1735' KB
3. Anticipated epth of oil, gas, water or other mineral-bearing formations:
Coal - 1683' KB
Coal - 1725' KB
Gas - 1753' KB
4. Proposed casing program:
Surface - 8-5/8" 24# K55 STC 0' - 120'
Production - 4-1/2" 10.5# J55 STC 0' - 1900'
5. Operators minimum specification for pressure control equipment requires a 10" - 3000 psi single hydraulic blowout preventer. The BOP will be hydraulically tested to full working pressure after nipping up surface pipe and after any use under pressure. Pipe rams will be operationally checked each 24 hour period. The blind rams and annulus preventer will be checked each time pipe is pulled out of the hole. All testing will be recorded on the daily drilling sheets. Accessories to the BOP will include upper and lower kelly cocks, floor safety valve, drill string BOP and choke manifold with pressure rating equivalent to the BOP stack.
6. Proposed mud program:

<u>DEPTH</u>	<u>TYPE MUD</u>	<u>WT.</u>	<u>VISC.</u>	<u>W.L.</u>
0' - 1600'	Inhibited water to control heaving shales			
1600' - TD	Gel	9.8	40-50	-
7. Auxiliary equipment will consist of:
 - a. Kelly cock
 - b. Float above bit
 - c. Visual monitoring of mud tanks
 - d. Sub with valve to fit drill pipe and collars
8. No coring or drill-stem tests are planned.
The anticipated logging program is as follows:
DIL - Surface pipe - TD
CNL-FDC w/GR - Surface pipe - TD

Casing will be set and perforated in the Pictured Cliffs formation. The perforated section will be treated with a 60,000 lb ± foam frac. Tubing will be run and the well cleaned up and tested.
9. No abnormal pressures or temperatures, hydrogen sulfide or other hazards are expected or known to exist at these depths in this area.
10. The anticipated starting date is during the first quarter of 1981, depending upon rig availability. Drilling operations should be completed within four days and completion operations are anticipated to require an additional five days.

Ten Point Compliance Program



Multipoint Surface Use and Operations Plan
Federal 29 No. 23

1. Existing Roads:

- A. The proposed well site is shown on Exhibit "A".
- B. Exhibit "E" shows the existing access roads to the proposed location. The site is located 11 miles south of Bloomfield on Highway 44, then 3 miles southwest, and then 1 mile northwest to the location.
- C. Final access roads into the site are coded green.
- E. This well is classified as development and roads are shown on Exhibits "E" and "F".
- F. The existing gravel roads will be maintained during the drilling phase of this well. No improvements are planned.

2. Planned Access Roads:

Planned Access Roads are shown on Exhibit "F".

- (1) Width will not exceed 20 feet.
- (2) Maximum grades will not exceed 5%.
- (3) No turnouts are to be constructed.
- (4) No additional drainage construction is deemed necessary other than minor ditching.
- (5) No culverts, cuts, or fills are required.
- (6) The use of surfacing material is not planned at this time.
- (7) No gates, cattleguards, or fence cuts are necessary.
- (8) The new access road into the location is flagged.

3. Location of Existing Wells:

All existing wells are shown on Exhibit "F".

- (1) Water wells - No shallow, domestic nor deep, high volume wells are known to be in the immediate area.
- (2) Abandoned wells - As shown on Exhibit "F"
- (3) Temporarily abandoned wells - none
- (4) Disposal wells - none
- (5) Drilling wells - none
- (6) Producing wells - as shown on Exhibit "F"
- (7) Shut in wells - none
- (8) Injection wells - none
- (9) Monitoring or observation wells for other resources - none

4. Location of Existing and/or Proposed Facilities:

A. Existing facilities owned or controlled by operator within a one-mile radius of this location:

- (1) No tank batteries
- (2) Two West Kutz Pictured Cliffs wells ;
The Mudge "B" 1 (NE $\frac{1}{4}$ - Sec. 29)
Federal 32 No. 41 (NE $\frac{1}{4}$ - Sec 32)
- (3) No oil gathering lines
- (4) No gas gathering lines
- (5) No injection lines
- (6) No disposal lines

B. Proposed facilities in the event of a producing well are shown on Exhibit "H".

- (1), (2) - As shown on Exhibit "H".
- (3) Area to be used will be levelled. Native material will be used in the construction of the location.
- (4) The pit will be fenced and flagged to discourage the entry of livestock, wildlife, and waterfowl.

C. All disturbed areas not needed for operations will be rehabilitated in the manner described in Item 10.

5. Location and Type of Water Supply:

- A. Water will be obtained from the San Juan River or purchased from private sources.
- B. Water will be hauled by truck.
- C. No water well will be drilled on the lease.

7. Methods for Handling Waste Disposal:

- (1) Drill cuttings will be buried in the reserve pit.
- (2) Drilling fluids will be placed in the reserve pit and allowed to evaporate.
- (3) Produced fluids such as oil and formation water will be collected in a test tank.
- (4) Sewage will be contained and a suitable chemical will be used to decompose waste.
- (5) Garbage and other waste material will be placed in a trash pit and burned and later buried.
- (6) Upon completion of drilling, all trash and litter will be buried in the trash pit. The reserve pit will be fenced until dry at which time it will be backfilled.

8. Ancillary Facilities:

No camps or airstrips are planned.

9. Well Site Layout:

- (1) See Exhibit "G"
- (2) See Exhibit "H"
- (3) See Exhibit "H"
- (4) The reserve pit will be unfenced.

10. Plans for Restoration of Surface:

- (1) All topsoil that is stripped and stockpiled will be replaced and the site will be backfilled, leveled, and contoured. Waste will be buried or hauled away upon completion of drilling.
- (2) Rehabilitation will consist of respraying and contouring stockpiled topsoil. Revegetation will consist of seeding with mixture as specified by BLM or landowner. If the well is dry, a dry hole marker will be erected, and the access road will be plowed, ripped, and reseeded as requested.
- (3) Prior to rig release, the reserve pit will be fenced and so maintained until the pit is dry enough to backfill.
- (4) If oil is in the reserve pit, it will be removed or the pit will be flagged to discourage livestock, wildlife, and waterfowl from entering the area.
- (5) Rehabilitation will begin immediately after drilling operations are finished. It is expected that all rehabilitation will be completed during the fall of 1981.

11. Other Information:

- (1) The topography of the area generally slopes toward Gallegos Canyon approximately four miles in a southwesterly direction. The surface soils contain sand and shale of the Wasatch formation. Vegetation is comprised of grass, sagebrush, and rabbit brush.
- (2) The area is occasionally used for cattle grazing. The surface owner of record is: Navajo Tribe in Trust - U.S.A.
Drawer "E"
Window Rock, Arizona 86515
- (3) The Bureau of Indian Affairs has included this area within the Navajo Indian Irrigation Project. In order to avoid interference with sprinkler operation, the wellhead and adjacent facilities will conform to N.I.P. requirements.
- (3) The nearest known water source is the San Juan River north of this location. No known occupied dwellings, archaeological, historical, or cultural sites exist in the immediate area.

12. Lessee's or Operators Representative:

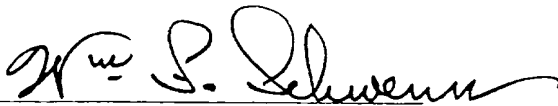
- (1) Mr. Fred Crum
Box 400
Aztec, New Mexico 87410
(505) 334-6003
- (2) Mr. W. F. Schwenn
DEPCO, Inc.
1000 Petroleum Building
Denver, Colorado 80202
(303) 292-0980

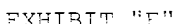
13. Certification:

I hereby certify that I, or persons under my direct supervision have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this 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 DEPCO, Inc. and its' contractors in conformity with this plan and the terms and conditions under wich it is approved.

12 - 12 - 80

Date


W. F. Schwenn



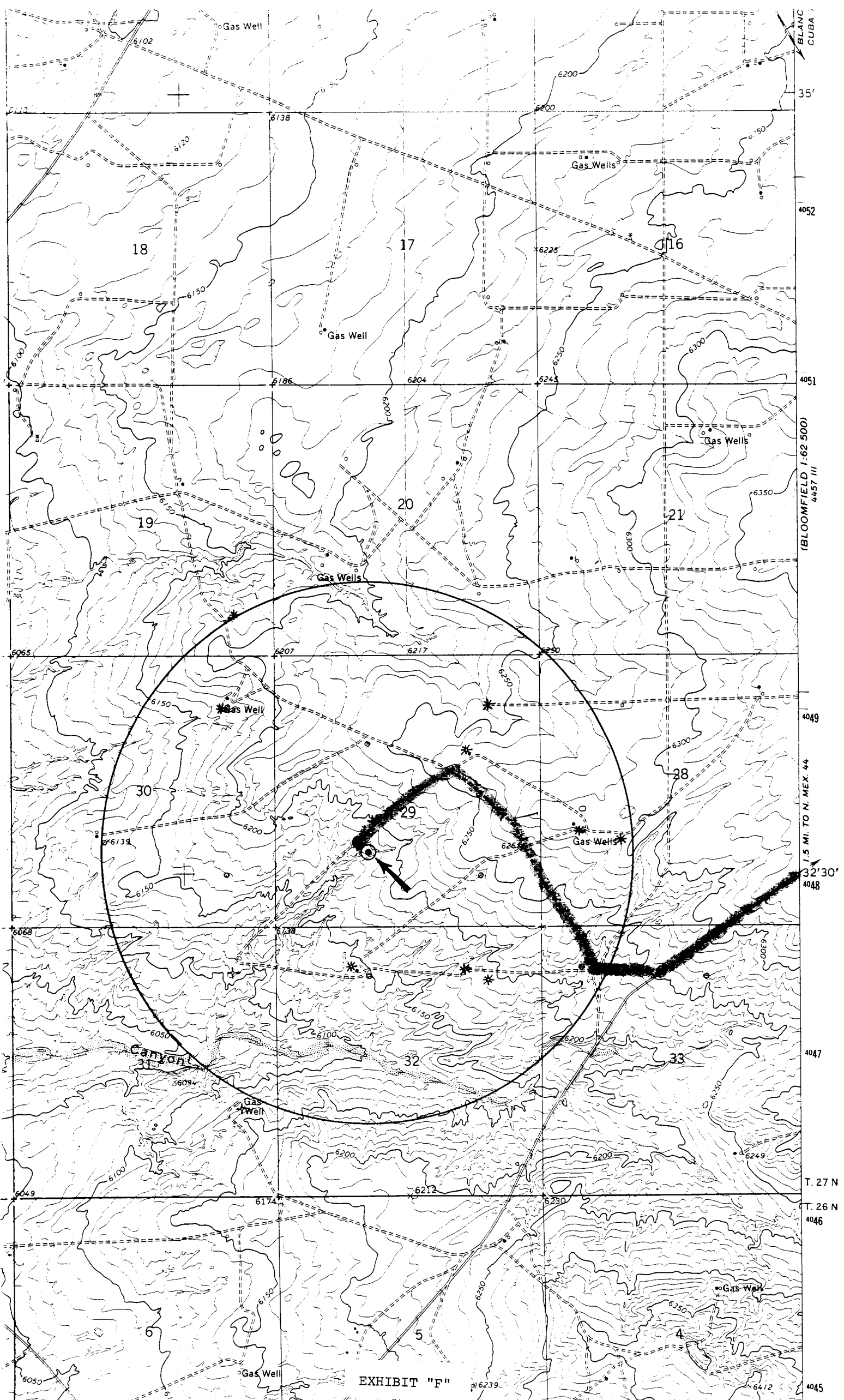


EXHIBIT "F"

Hand-drawn map of a rectangular area. The top edge is labeled "100.1" and "F29". The right edge is labeled "200.1" and "F29". The bottom edge is labeled "F29". The left edge is labeled "F49". A vertical dashed line runs through the center, labeled "F29" and "Grid 61.92". A horizontal dashed line runs across the middle, labeled "LAWSON" and "Grid 61.92". A small rectangular area on the left is labeled "RESERVE PIT" and "F49".

2

EXHIBIT "G"

Z-OCB, Aztec; N.M.

1-D

1-F

NEW MEXICO OIL CONSERVATION COMMISSION
MULTIPOINT AND ONE POINT BACK PRESSURE TEST FOR GAS WELL

Form C-122
Revised 9-1-65

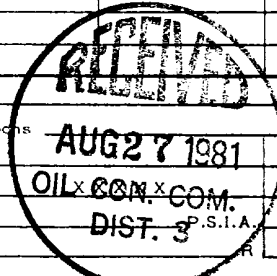
Type Test <input checked="" type="checkbox"/> Initial <input type="checkbox"/> Annual <input type="checkbox"/> Special		Test Date 8/25/81	
Company DEPCO, INC.		Connection not connected	
Pool West Kutz		Formation Pictured Cliffs	
Completion Date 8/18/81		Total Depth 1945' KB	Plug Back TD 1810' KB
Elevation 6183' GL		Farm or Lease Name Federal	
Csg. Size 4.5"	Wt. 10.5#	Set At 1940' KB	Perforations: From 1764' To 1778'
Tbg. Size 1.315"	Wt. 1.7#	Set At 1773' KB	Perforations: From To
Type Well - Single - Bradenhead - G.G. or G.O. Multiple Single		Packer Set At -	Well No. 29 #23
Producing Thru Csg.		Reservoir Temp. °F @	Mean Annual Temp. °F
Baro. Press. - P _a		State New Mexico	
L	H	G _g	% CO ₂ % N ₂ % H ₂ S Prover
Meter Run		Taps	

FLOW DATA						TUBING DATA		CASING DATA		Duration of Flow	
NO.	Prover Line Size	X	Orifice Size	Press. p.s.i.g.	Diff. h _w	Temp. °F	Press. p.s.i.g.	Temp. °F	Press. p.s.i.g.		Temp. °F
SI							398#		398#		7 day SI
1.	2	X	3/4"				-		323#		3 hrs.
2.											
3.											
4.											
5.											

RATE OF FLOW CALCULATIONS							
NO.	Coefficient (24 Hour)	$\sqrt{h_w P_m}$	Pressure P _m	Flow Temp. Factor Ft	Gravity Factor F _g	Super Compress. Factor, F _{pv}	Rate of Flow Q, Mcfd
1.							
2.							
3.							
4.							
5.							

NO.	P _t	Temp. °R	T _f	Z	Gas Liquid Hydrocarbon Ratio	Mcf/bbl.
1.						
2.						
3.						
4.						
5.						

A.P.I. Gravity of Liquid Hydrocarbons _____ Deg. Specific Gravity Separator Gas _____ Specific Gravity Flowing Fluid _____ Critical Pressure _____ P.S.I.A. Critical Temperature _____ R			
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P _c 410	P _c ² 168,100	(1) $\frac{P_c^2}{P_c^2 - P_w^2} = 3.0085$	(2) $\left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 2.5503$
NO	P _t ²	P _w	P _w ²
1	-	335	112,225
2			
3			
4			
5			

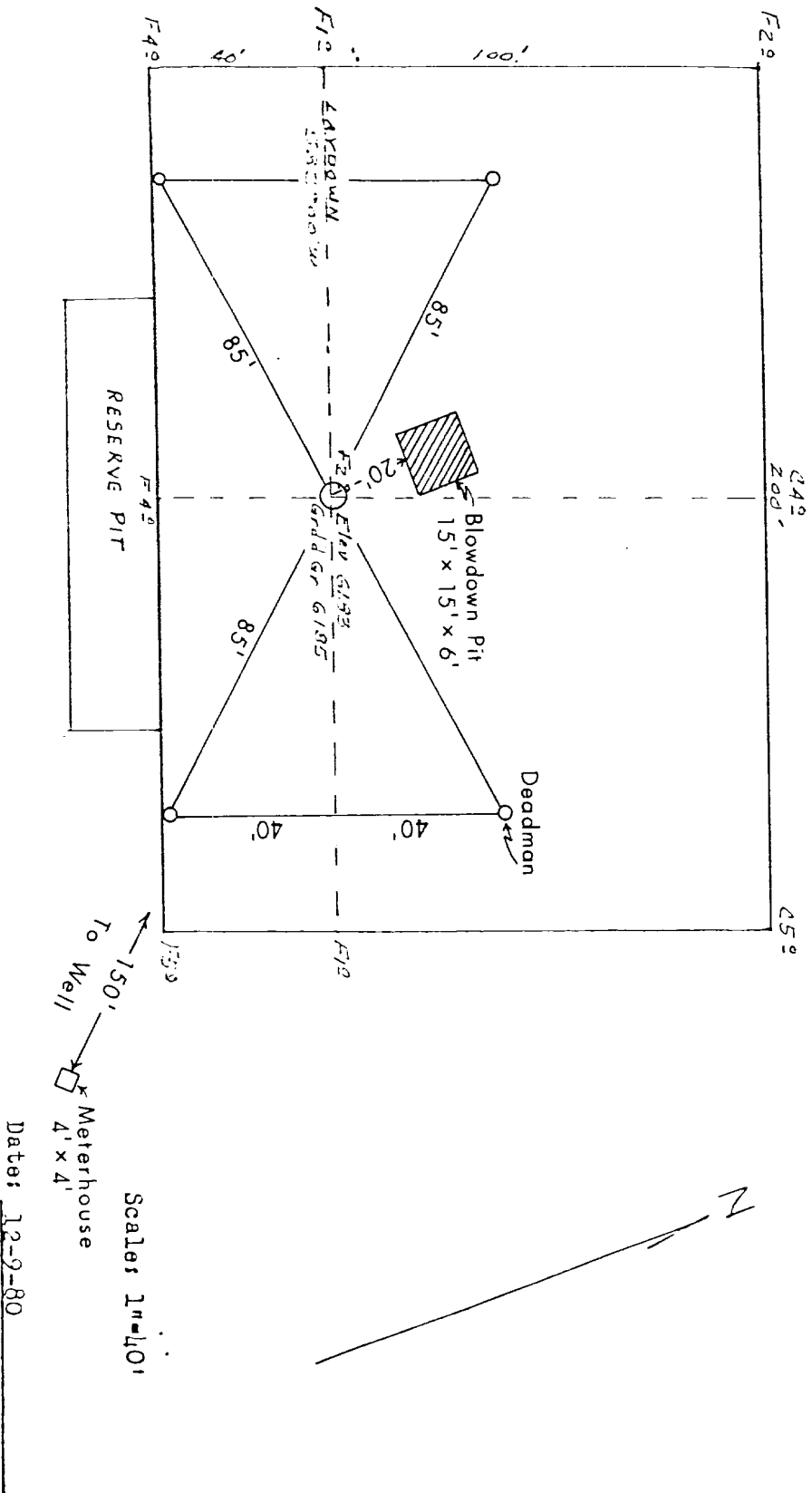
$AOF = Q \left[\frac{P_c^2}{P_c^2 - P_w^2} \right]^n = 602$

Absolute Open Flow	602	Mcf/d @ 15.025	Angle of Slope θ	Slope, n .85
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Remarks: _____

Approved By Commission:	Conducted By: Crum	Calculated By: Crum	Checked By:
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Profile for
 DEPCO, INCORPORATED # 23 FEDERAL 29
 16301 FSL 18001 FWL Sec. 29-127N-R11W
 SAN JUAN COUNTY, NEW MEXICO



SCHEMATIC FOAM FRAC OPERATION

