

WFA 10/29/97  
728  
OCT 14 1997  
VERBA  
11-25-97

**F & M OIL AND GAS COMPANY**

P. O. BOX 891  
MIDLAND, TEXAS 79702-0891  
(915) 682-7714  
FAX 682-7700

October 10, 1997

State of New Mexico  
Oil Conservation Division  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505

Attn: David Catanach

Re: Form, C-108  
Tonto #12, API 30-025-31591  
Sec 30, T19S, R33E, 460 FSL & 1980 FWL  
Lea County, New Mexico

Dear Mr. Catanach:

F&M Oil and Gas Company, as Operator of the Tonto Lease, hereby submits the above referenced form with all attachments, please see exhibits A thru I, for the noted Waterflood Project. This would be an addition to our previously approved the Waterflood Project under Provisions of Division Order No. R-9082 and Administrative Order No. WFX-689 ( Tonto #7).

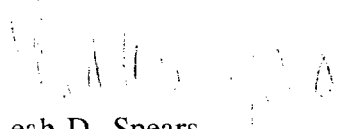
We further ask that this application receive administrative approval.

Notices have been mailed to the surface owners and off-set operators. The copies of the receipts for the certified mailing of these notices are enclosed. BLM filing is concurrent.

We hope that the enclosed provides/meets all of the requirements necessary for F&M to proceed with this project. If you need further information, please do not hesitate to contact me at the above.

Thank you for your help and consideration with this matter.

Sincerely,

  
Leah D. Spears  
Office Manager

Certified Mail, Receipt # 1191 511 1192

cc: BLM-Roswell      OCD-Hobbs

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: X Secondary Recovery        Pressure Maintenance        Disposal        Storage  
Application qualifies for administrative approval? X Yes        No
- II. OPERATOR: F&M Oil and Gas Company  
ADDRESS: P. O. Box 891, Midland, Texas 79702  
CONTACT PARTY: Randall Foster PHONE: (915) 682-7714
- III. WELL DATA: Complete the data required on the reverse side of this form for each well processed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project: X Yes        No  
If yes, give the Division order number authorizing the project R-9082
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- \*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- \* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted.)
- \* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: Randall Foster TITLE: Vice-President  
SIGNATURE: *Randall Foster* DATE: Sept. 17, 1997
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstance of the earlier submittal. \_\_\_\_\_

### III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

### XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, PO Box 2088, Santa Fe, NM 87504-2088 within 15 days.

**NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.**

---

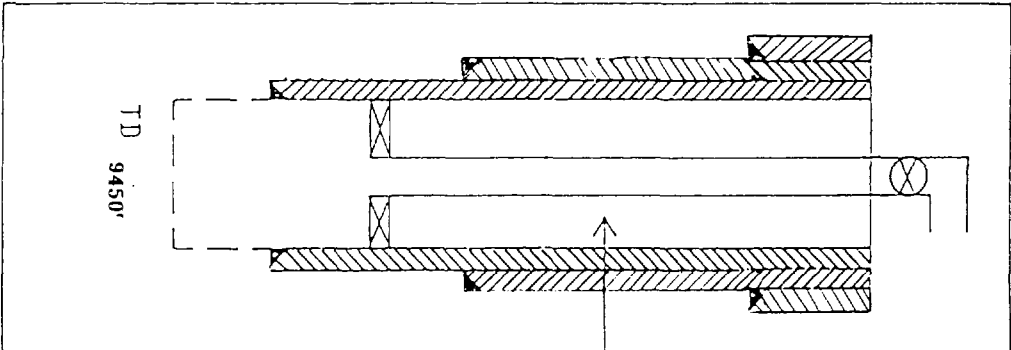
**NOTICE:** Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

# INJECTION WELL DATA SHEET

OPERATOR F&M Oil and Gas Company LEASE Tonto

WELL NO. #12 460 FSL and 1980 FWL FOOTAGE LOCATION 30 SECTION 19S TOWNSHIP 33E RANGE

## Schematic



13-3/8" Casing  
@ 450 W/430  
cmt circ.

Packer Fluid  
8-5/8" Casing  
@ 3400' W/2155 sx  
cmt circ.

Injection Packer  
@ 2800'

5-1/2" Casing  
@ 9450' W/725 sx  
Ran DV tool at 6,945'  
cmt'd w/ 860 sx  
TOC @ 1300' by Bond Log  
Injection Interval  
2900-3100

## Well Construction Data

### Surface Casing

Size 13-3/8 Cemented with 430 sx.  
TOC circ. feet determined by circ.  
Hole Size 17-1/2"

### Intermediate Casing

Size 8-5/8" Cemented with 2155 sx.  
TOC circ. feet determined by circ.  
Hole Size 11"

### Long String

Size 5-1/2" Cemented with 725 sx.  
TOC 1300' feet determined by Bond Log  
Hole Size 7-7/8"  
Total Depth 9450' PBTD 3200' (see C-101 9/97)

### Injection Interval

2900 feet to 3100 feet  
(perforated or open-hole; indicate which)

## INJECTION WELL DATA SHEET

Tubing Size 2-3/8" lined with Seal-Tite PVC set in a  
Baker Loc-Set Nickel Plated (type of internal coating)  
packer at 2800 feet

Other type of tubing / casing seal if applicable \_\_\_\_\_

### Other Data

1. Is this a new well drilled for injection? Yes ☐ No ☒

If no, for what purpose was the well originally drilled? As producer, plug back completed  
9/15/97.

2. Name of the injection formation Yates-Seven Rivers

3. Name of Field or Pool (if applicable) Tonto Yates-Seven Rivers, South

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e., sacks of cement or plug(s) used. \_\_\_\_\_

See Attached

5. Give the names and depths of any over or underlying oil of gas zones (pools) in this area.

Geronimo Fld. Delaware @ 7700", Gem Fld. Delaware @ 7700', & Bone Springs @ 8800'

Gem Fld. Morrow @ 13,200' (no overlying)

\_\_\_\_\_

F&M Oil and Gas Company  
C-108, Injection Well Data Sheet  
Side 2, #4 Attachment

4. Has the well ever been perforated in any other zones? Yes  
List all such perforated Intervals and give plugging detail, i.e., sacks of cement or plug(s) used.
- Perf 8978-9124  
Acidz 1500 Frac 70,000 gals + 178,399# Sand PRTD @ 8915'
- Perf 7758-7762  
No treatment reported CIBP @ 7,500' pumped 40' cnt on top
- Perf 4 squeeze holes @ 5,460  
Could not pump into squeeze holes CIBP @ 5,355' dumped 10' cnt on top
- Perf Cherry Canyon @ 5,136-5,315  
(6 holes) Acidz 2,100 gals. Frac W/ 18,400 gals + 66,200# sand set RBP @ 5,115' pump 25 sx from 5,115-4,869, pump 25 sx from 3,500'-3,254', WOC, tag top plug @ 3,210', PRTD 3,200'.

**F&M OIL AND GAS COMPANY**

**Tonto Waterflood  
Tonto #7 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico**

**List of Exhibits  
Form C-108**

<b>Exhibit A</b>	Map required by Paragraph V
<b>Exhibit B</b>	Tabular Summary and Schematics required by Paragraph VI
<b>Exhibit C</b>	Data Sheet required by Paragraph VII
<b>Exhibit D</b>	Geological Data - Paragraph VIII
<b>Exhibit E</b>	Data Sheet on Proposed Injection Well
<b>Exhibit F</b>	Log of Injection Well
<b>Exhibit G</b>	Water Analysis Produced Water to be re-injected
<b>Exhibit H</b>	Affirmative Statement per Paragraph XII
<b>Exhibit I</b>	Notice Requirements

W/2 HBC  
12118  
R. Westall  
9500' to  
Morrow base

26144  
11002  
Ray Westall  
Gun Smoke Fed

Samson Res.  
(Meridian)  
HBC  
P/B) 12413

(Union Tex.)  
077006  
Mack Energy Corp.  
to 3500'

Wallen Prod.  
Wallen Fed.

"W. Tonto Fed."

U.S. "Big Circle"

Paladin Hudson  
Fed. 05976  
05  
Ameco  
Chi Ener.  
Orba base  
Del. base

"Paladin Fed."

Westall  
Maverick  
FI-RO Corp.  
027004  
Ray Westall  
Mack En.  
5500-11,020, 5/2 Collier Fed.

Westall  
Maverick  
Fed. 19  
Hto 3176  
Collier Ener.  
Falcon Fed.  
TD 3181

U.S.

38918  
NO. MADURO FED. UNIT  
UNION (OPER.)  
"N. Maduro Fed. Ut."  
20  
Hudson E.  
Lindy's Liv. Tr.  
HBP  
40276  
U.S.

Meridian  
Grace Pet.  
HBP  
12413

Grace Pet.  
W. Tonto-A-Fed.

Manzano  
J.A.  
P/B)  
J.3 Mil  
P150 14780

Meridian  
Fed.  
to 5600

"McKamey Fed."

Collier Ener.  
HBP  
077006  
(Union Tex.)  
(FI-RO Corp.)  
to 3500'

Wallen  
Wallen-Cleary  
to 3140

Samson Res.  
(Meridian)  
(Cleary Pet.)  
HBP 12413  
Cleary Pet.  
M.Y. Silver  
to 3304

U.S. "Arrowway Fed."

(Mack Energy) Yates  
Disc  
to 3138  
Mack Energy (C.E. Lee)  
Corp.  
5500-13,900' E/2

FI-RO Corp  
073240  
(Superior D/R)  
Signal-Ross Fed.  
to 3173

Hudson E.  
Hudson  
Signal-Ross Fed.

Kaiser Francis  
Fed.

F.E.M.  
Fed.  
Oil & Gas  
073420

Mack En.  
to 4000'

Hudson et al.  
Signal-Ross  
to 3175

U.S.

Sinclair  
Fed. Carder  
to 3600  
DIA 1-21-56 Union  
(Redstone O&G  
etal)

W.W. Black  
Amer. Rep  
to 3339  
DIA 1-10-54

29  
6.6 Mil  
Morrow  
Disc

Maduro Fed.  
Union Oil  
3-1-82 29702  
KGS  
100.88 U.S.

Sinclair  
Fed.  
to 3200  
DIA 12-7-54  
red.

Yates Pet.  
Lusk Fed.

Union  
HBC  
E/2  
L-6691  
"HM"

Union  
HBP  
B-1482

36

Texaco  
H.B.P.  
B-1565

Union  
10-1-81  
L-6691  
1002

Union  
B-1482  
HBP  
State

Trigg  
Federal  
to 3175

Mitchell Ener.  
(M.T.)  
Holbourny 1/2

Manzano  
67110

Union  
Fed.  
Bn. Spr. (1 Mil.)  
Disc.  
Fis

U.S. "Fed"

Kinney, et al.  
State  
to 3523  
DIA 12-30-54  
Union 192 bbs

(SEC Constr.)  
LG-3230  
"Maduro Unit"

Kinney, et al.  
Union  
State  
4-21-80  
4397  
1018  
Sev. Riv. Disc

Kinney, et al.  
Mag. State  
to 3259

32  
JFG Ent.  
(InterNorth, Inc.)  
Tonto St.  
P/B)  
JFG Ent.  
LG-3230

(HBC)-S/2  
State

Yates Pet.  
etal  
9-1-97  
JA-0566  
116 89

33.47Ac 4 | 33.63Ac 3 | 33.77Ac 2 | 33.93Ac 1  
Yates Pet. et al  
9-1-93 77054

40.40Ac 4 | 40.38Ac 3 | 40.62Ac 2 | 40.88Ac 1  
Mitchell Ener.  
67995 17500  
KGS

40.35Ac 4 | 40.85Ac 3 | 40.73Ac 2 | 40.61Ac 1  
Mitchell Ener. et al. 1/2  
Barber Oil to 3500'  
HBP  
89889

33.75Ac 4  
Mitchell Ener.  
67996  
78 88  
KGS

U.S.

Mitchell Ener.

Mitchell Ener. et al. 1/2  
Barber Oil to 3500'

F&M OIL AND GAS COMPANY

Tonto Waterflood  
Tonto #12 WIW  
(formerly Crazy Horse Federal #1)  
Sec 30, T19S, R33E  
Lea County, New Mexico

Exhibit A

Map  
Area of Review

GERONIMO

SALT LAKE

GERONIMO

(HBC)-S/2

"HF-Fed."

Little Eddy Unit  
to 1489  
U.S. DIA 7-1-66

(TXC  
etal)

U.S.E.I  
Bass  
to 334  
DIA 7-1-66  
9 C

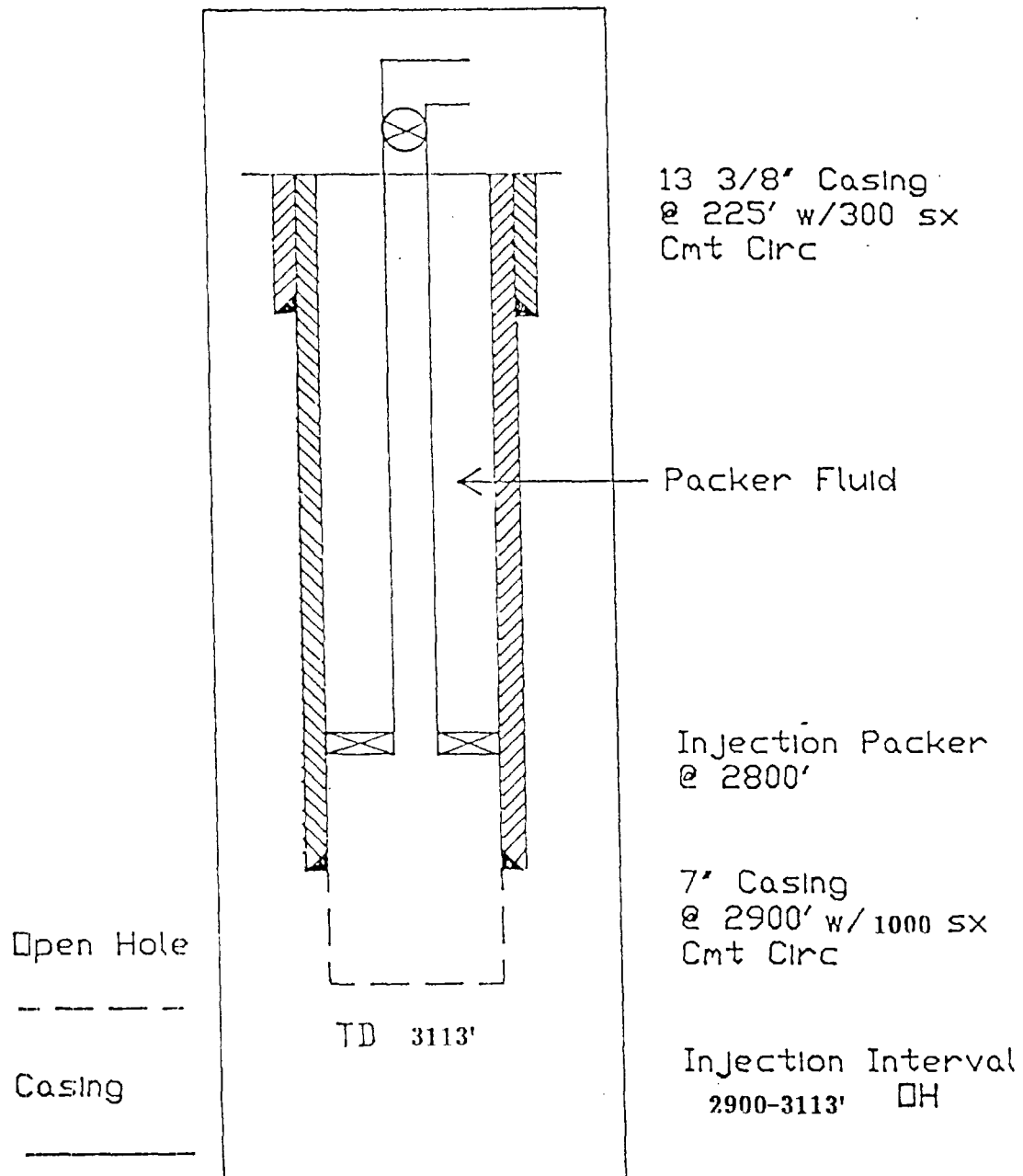


Operator Well Name, Number	Location Unit, Sec , Twp , Range	Type	Date Spudded	Completed	Depth TD	PBD	Record of Completion Zone(s) Perfs and Well Construction	TOC
Kaiser Francis Federal 30 Well No. 2 API 30-025-27671	K, Sec 30, T19S, R31E 2310' FSL & 1980 FWL	Gas	12/18/81	3/4/83	13800	13753	Morrow Perfs:13372-440 Casing:13 3/8 @ 1315'/1050sx 9 5/8 @ 5315'/3181sx 5 1/2 @ 13800'/2360sx	surf-calc surf-calc 1263-calc
Edward Hudson Signal Ross-Fed Well No. 6 API 30-025-20560	O, Sec 30, T19S, R33E 660' FSL & 1980' FEL	D&A	2/10/64 P&A 3/12/64	-	3127		Yates Svn Rvrs Perf:Not reported Casing:13 3/8 @ 65'/100 sx 5 1/2 @ 3115'/30 sx	surf-calc 2810-stub
Sinclair O&G Co. Carder-Federal Well No. 2 API 30-025-01699	I, Sec 30, T19S, R33E 1980' FSL & 660' FEL	P&A	2/14/56 P&A 3/29/56	-	5600	-	Delaware Perfs:Open Hole Casing:10 3/4 @ 305'/250sx	surf-calc
John H. Trigg Federal RB 31 Well No. 1 PA Schematic on File	B, Sec 31, T19S, R33E 330' FNL & 2310' FEL	J&A	9/18/64 P&A 10/02/64	-	700	-	Perfs: NA Casing:13 3/8 @ 85'/50sx	surf-calc
Manzano Oil Corp. Federal 31-G Well No. 4 API 30-025-21116	B, Sec 31, T19S, R33E 335' FNL & 2223' FEL	Oil	10/3/64 P&A 10/27/64 re-entered 9/23/93	-	3225	3139	Yates Svn Rvrs Perfs:2884-3104 Casing:8 5/8 @ 500'/300sx 4 1/2 @ 3225'/1000sx	circ circ
F&M Oil and Gas Co. Wallen-Tonto Well No. 7 API 30-025-25897	I, Sec 30, T19S, R33E 1650' FSL & 990' FEL	D&A	5/17/78 P&A 7/15/78	-	3113	-	Svn Rvrs Perfs: NA Casing:13 3/8 @ 225'/330sx 7 @ 2900'/1000sx	circ circ
F&M Oil and Gas Co. Wallen-Tonto Well No. 8 API 30-025-27435	J, Sec 30, T19S, R33E 1790' FSL & 1710' FEL	Oil	10/16/81	2/20/82	3120	3115	Yates Svn Rvrs Perfs:2980-3110 Casing:13 3/8 @ 115'/500sx 7 @ 2940'/1000sx 4 1/2 @ 2612-3120'/60sx	circ circ 2625-temp
F&M Oil and Gas Co. Wallen-Tonto Well No. 5 API 30-025-25584	J, Sec 30, T19S, R33E 1650' FSL & 2310' FEL	Oil	6/30/77	8/25/77	3094	3094	Svn Rvrs Perfs:Open Hole Casing:13 3/8 @ 277'/300sx 7 @ 2884'/1000sx	circ circ

Operator Well Name, Number	Location Unit, Sec., Twp., Range	Type	Date Spudded	Completed	Depth TD	PBD	Record of Completion Zone(s)	Perfs and Well Construction	TOC
F&M Oil and Gas Co. Wallen-Tonto Well No. 3 API 30-025-25589	K, Sec 30, T19S, R33E 1650' FSL & 1650' FWL	Oil	8/31/77	10/21/77	3073	3073	Svn-Rvrs	Perfs: Open Hole 2850'-3073' Casing: 13 3/8 @ 220' / 300sx 7 @ 2850' / 1000sx	circ circ
F&M Oil and Gas Co. Wallen-Tonto Well No. 6 API 30-025-25591	P, Sec 30, T19S, R33E 990' FSL & 990' FEL	Oil	2/8/78	4/28/78	3096	3085	Yates Svn-Rvrs	Perfs: 2986'-3080' Casing: 13 3/8 @ 210' / 300sx 7 @ 2901' / 1420sx 4 1/2 @ 2600'-3096' / 60sx	circ circ 2600-circ
F&M Oil and Gas Co. Wallen-Tonto Well No. 1 API 30-025-25371	N, Sec 30, T19S, R33E 990' FSL & 2310' FWL	Oil	10/15/76	12/5/76	3082	3082	Yates Svn-Rvrs	Perfs: Open Hole 2996'-3082' Casing: 13 3/8 @ 225' / 100sx 7 @ 2896' / 1000sx	circ circ
F&M Oil and Gas Co. Wallen-Tonto Well No. 9 API 30-025-26343	N, Sec 30, T19S, R33E 600' FSL & 2300' FWL	1&A	9/20/80 P&A 10/8/80	-	570	-	---	Perfs: NA Casing: 13 3/8 300 sx	
F&M Oil and Gas Co. Wallen-Tonto Well No. 9Y API 30-025-27190	N, Sec 30, T19S, R33E 660' FSL & 2300' FWL	Oil	10/12/80	3/18/81	3086	3086	Yates Svn-Rvrs	Perfs: 2970'-3080' OH 3084'-86 Casing: 10 3/8 @ 225' / 450sx 7 @ 2800' / 1100sx 4 1/2 @ 2617'-3083' / 60sx	circ circ 2617-circ
Manzano Oil Corp. Federal 31-G Well No. 2 API 30-025-31354	B, Sec 31, T19S, R33E 400' FNL & 2310' FEL	Oil	11/30/91	2/15/92	9400	5530	BS-Del	Perfs: 5130'-5237' Casing: 13 3/8 @ 365' / 370sx 8 5/8 @ 4200' / 1620sx 5 1/2 @ 5915' / 400sx	circ circ circ
F&M Oil and Gas Co. Tonto Well No. 12 API 30-025-31591	N, Sec 30, T19S, R33E 660' FSL & 1980' FWL	Oil	6/7/92	12/4/92 T/A	9450	8915	BS-Del	Perfs: 7536'-7682' 8978'-9124' Casing: 13 3/8 @ 450' / 430sx 8 5/8 @ 3400' / 2155sx 5 1/2 @ 9450' / 725sx D.V. @ 6945' / 860sx	circ circ circ circ
Clearly Petroleum Hi-Yo Silver Fed. Well No. 1 API 30-025-26028	P, Sec 25, T19S, R32E 660 FSL & 330 FEL	P&A 10/18/78	7/31/78		3304		Yates Svn-Rvrs	Perfs: 3032'-3152' Casing: 8 5/8 @ 1180' / 850sx	circ
Grace Petroleum Andaway "25" Fed Well No. 1 API 30-025-31327	P, Sec 25, T19S, R32E 660 FSL & 660 FEL	Oil	8/3/91	2/2/92	7920	5510	Bone Spr	Perfs: 5112'-7616' Casing: 13 3/8 @ 500' / 450sx 8 5/8 @ 4510' / 2650sx 5 1/2 @ 7918' / 1100sx	

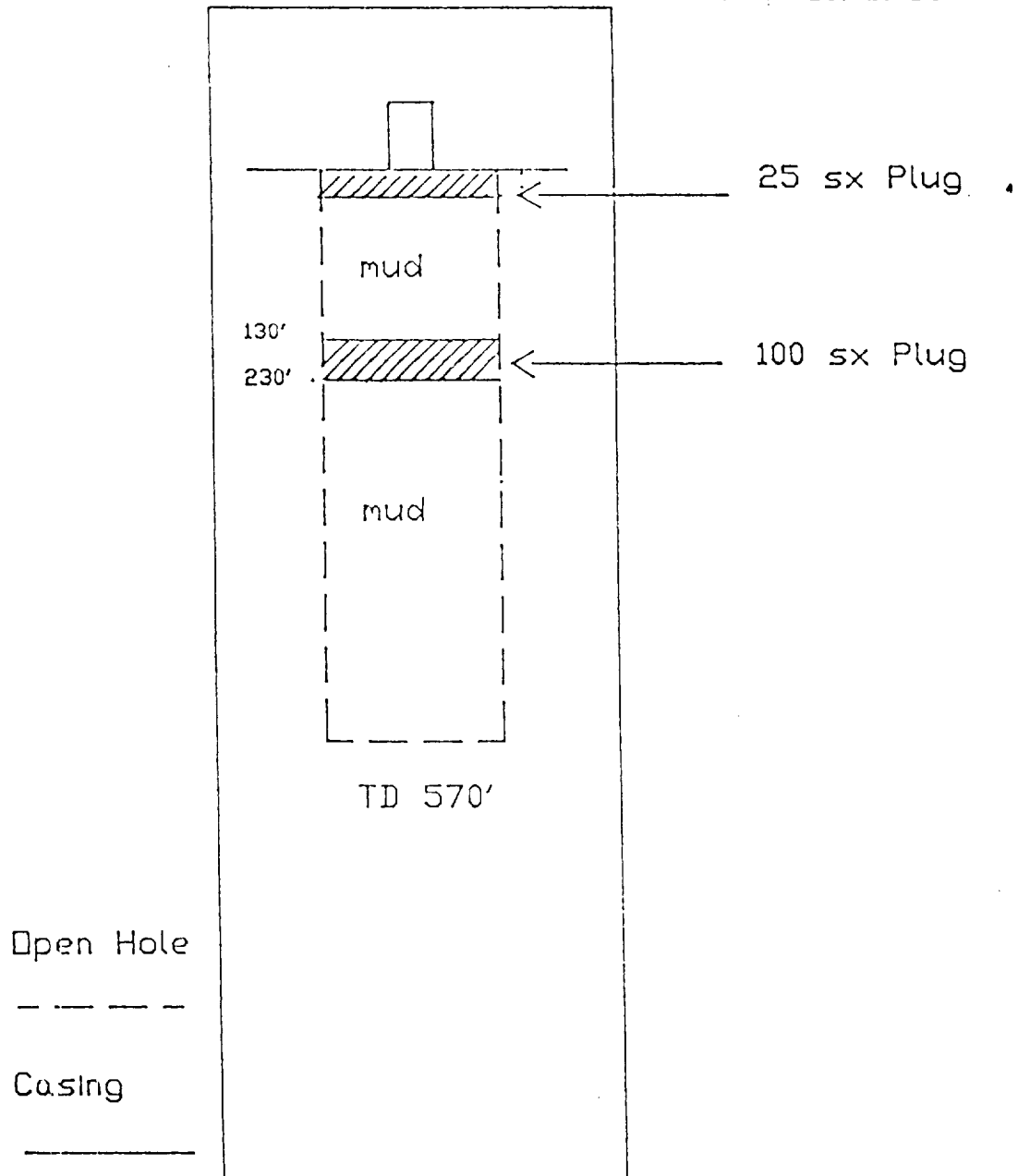
Operator	Location	Type	Date	Spudded	Completed	Depth	TD	Record of Completion	TOC
Well Name, Number	Unit, Sec., Twp., Range							PBD Zone(s) Perfs and Well Construction	
F&M Oil and Gas Co. Tonto Well No. 2 API 30-025-25420	L, Sec 30, T19S, R33E 1925 FSL & 330 FWL	Oil	12/26/76	2/24/77	3095			Yates Seven Rvrs Perfs: none Casing: 13 3/8 @ 230/175 sx 7 @ 290/1021 sx	circ circ
F&M Oil and Gas Co. Tonto Well No. 11 API 30-025-27371	L, Sec 30, T19S, R33E 1700 FSL & 990 FWL	Oil	7/8/81	10/22/81	3088			Yates Perfs: 2980-3064 Casing: 13 3/8 @ 110 sx 7 @ 2850/1000 sx	circ circ
Mitchell Energy Corp. Geronimo Federal Well No. 1 API 30-025-30645	D, Sec 31, T19S, R33E 660 FNL & 660 FSL	Oil	10/25/89	12/19/89	10564	10491		Bone Spr. Perfs: 9852-10002 Casing: 13 3/8 @ 1298/730 sx 8 5/8 @ 3355/750 sx 5 1/2 @ 10562/725 sx	circ
Mitchell Energy Corp. Geronimo Federal Well No. 3 API 30-025-31174	D, Sec 31, T19S, R33E 660 FNL & 585 FWL	Oil	3/7/91	3/30/91	3250	3174		Yates Perfs: 2973-3101 Casing: 8 5/8 @ 525/310 sx 4 1/2 @ 2350/1105 sx	circ
Mitchell Energy Corp. Geronimo Federal Well No. 4 API 30-025-31315	F, Sec 31, T19S, R33E 1980 FNL & 1980 FWL	Oil	7/10/91	8/07/91	10500	10295		Bone Spr. Perfs: 9004-10367 Casing: 13 5/8 @ 538/525 sx 8 5/8 @ 2917/1100 sx 5 1/2 @ 10497/1450 sx	circ circ circ thru DV @ 3493
Mitchell Energy Corp. Geronimo Federal Well No. 5 API 30-025-31312	C, Sec 31, T19S, R33E 660 FNL & 660 FWL	Oil	8/9/91	11/4/91	10500	10408		Bone Spr. Perfs: 8938-9083 Casing: 13 5/8 @ 527/525 sx 8 5/8 @ 4198/700 sx 5 1/2 @ 10491/1450 sx	circ circ circ thru DV @ 7906
Mitchell Energy Corp. Geronimo Federal Well No. 6 API 30-025-31376	E, Sec 31, T19S, R33E 1725 FNL & 660 FWL	Oil	9/24/91	11/24/91	7900	7816		Bone Spr. Perfs: 7570-7658 Casing: 13 5/8 @ 518/475 sx 8 5/8 @ 2908/1175 sx 5 1/2 @ 7900/950 sx	circ circ
Mitchell Energy Corp. Geronimo Federal Well No. 8 API 30-025-31532	F, Sec 31, T19S, R33E 1980 FNL & 1905 FWL	Oil	3/12/92	4/1/92	3150	3080		Yates Perfs: 2950-3003 Casing: 8 5/8 @ 525/150 sx 4 1/2 @ 3149/780 sx	circ circ
Mitchell Energy Corp. Geronimo Federal Well No. 10 API 30-025-31533	C, Sec 31, T19S, R33E 660 FNL & 1575 FWL	Oil	3/17/92	4/8/92	3250	3150		Yates Perfs: 2962-3190 Casing: 8 5/8 @ 507/275 sx 4 1/2 @ 3249/1050 sx	circ circ

F&M OIL AND GAS COMPANY  
 Wallen Tonto #7 WIW  
 990' FEL & 1650' FSL  
 Sec 30, T19S, R33E  
 Lea County, New Mexico



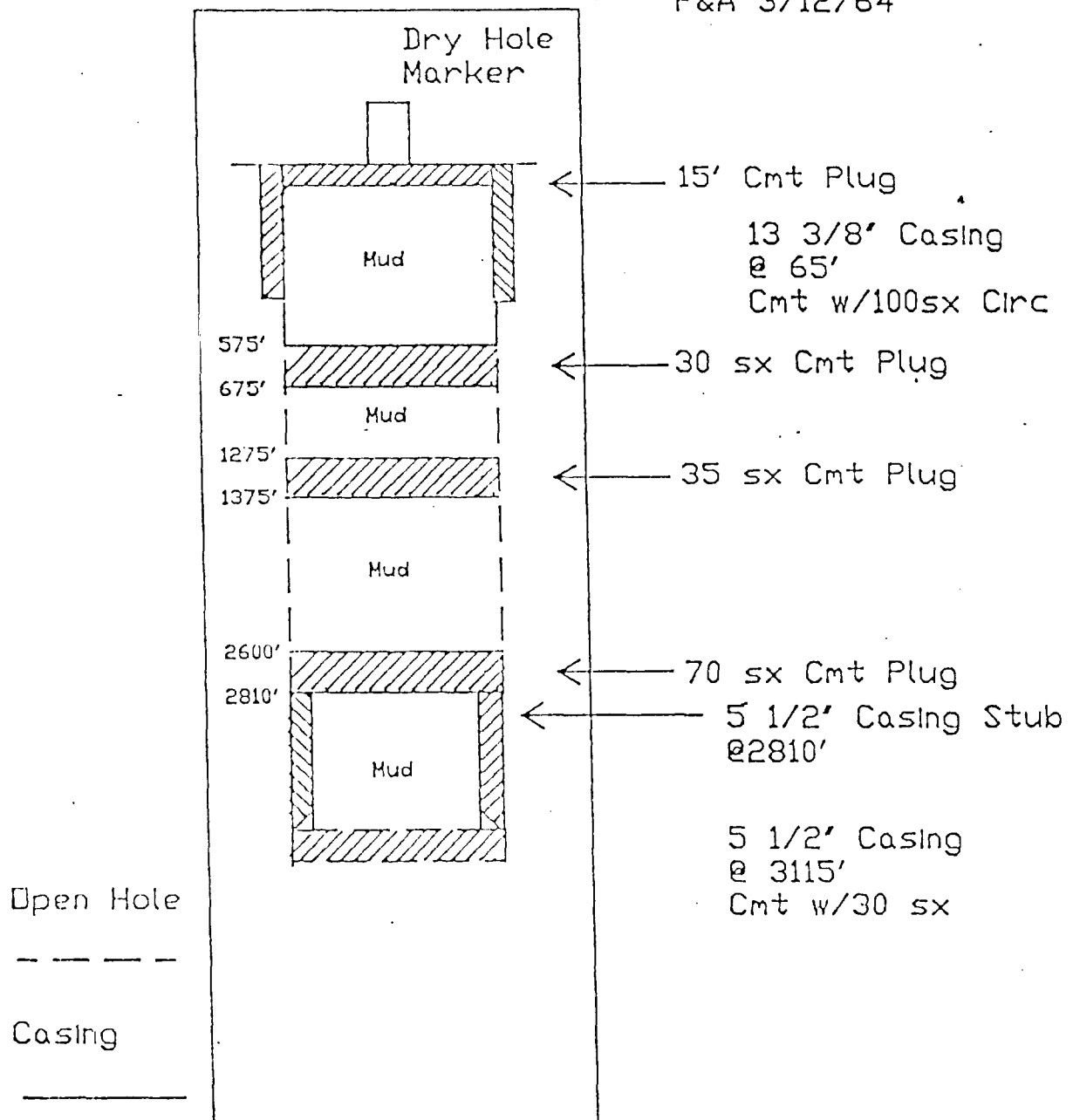
F&M OIL AND GAS COMPANY  
Wallen Tonto #9  
2300' FWL & 600' FSL  
Sec 30, T19S, R33E  
Lea County, New Mexico

P&A 10/8/80



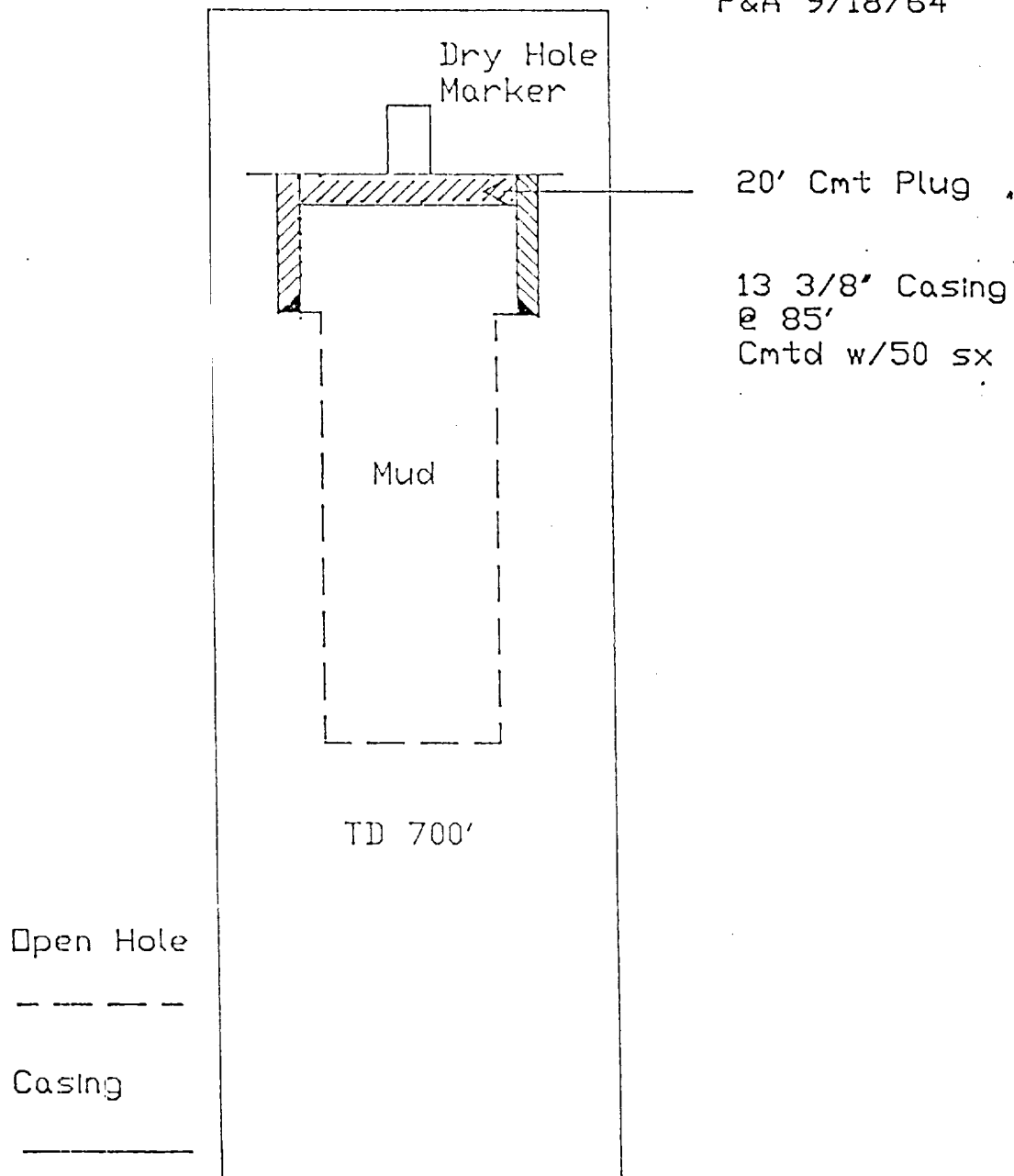
Edward Hudson  
Signal Ross\_Fed. Well No. 6  
660' FSL & 1980' FEL  
Sec. 30, T19S, R33E

P&A 3/12/64



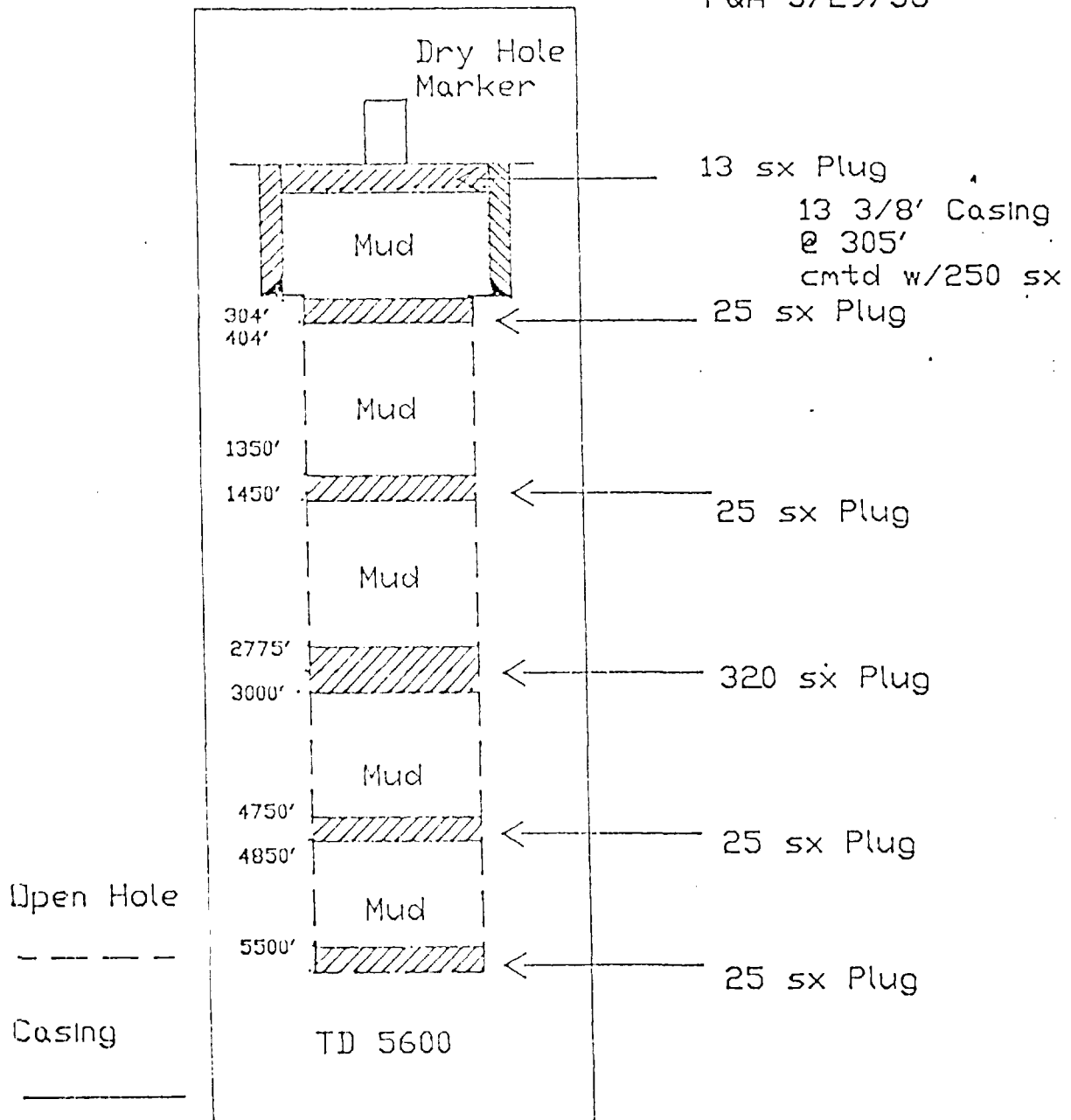
John H. Trigg  
Federal 'RB' 31 Well No. 1  
330' FNL & 2310' FEL  
Sec. 31, T19S, R33E

P&A 9/18/64



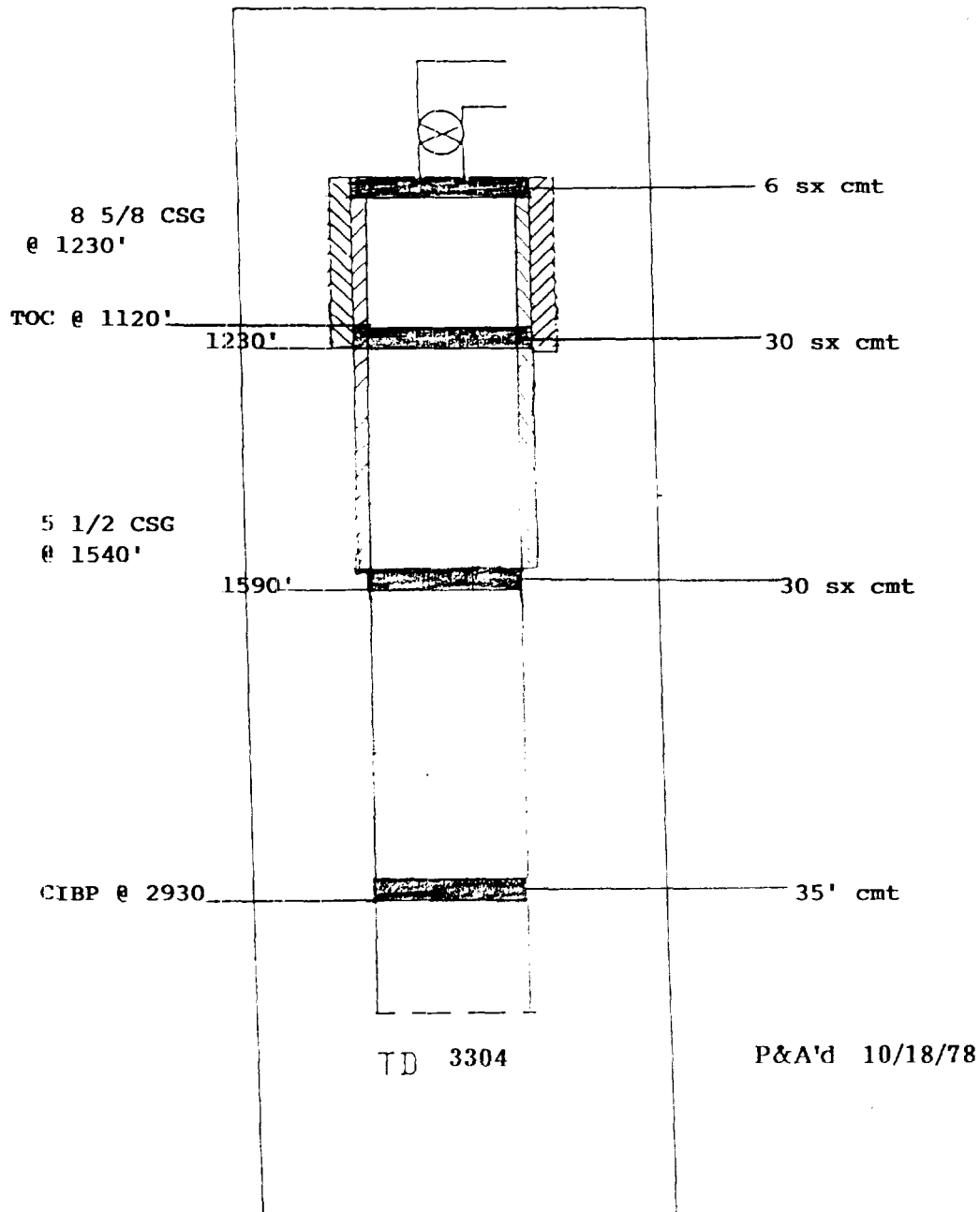
Sinclair Oil & Gas Company  
 Carder-Federal Well No. 2  
 330' FNL & 2310' FEL  
 Sec. 31, T19S, R33E

P&A 3/29/56





CLEARLY PETROLEUM  
Hi-Yo Silver Fed. #1  
660 FSL & 330 FEL  
Sec 25, T19S, R32E  
Lea County, New Mexico



**F&M OIL AND GAS COMPANY**

**Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico**

**Exhibit C**

**Data on Proposed Operation**

1. Proposed average and maximum daily rate and volume of fluids to be injected:

Average daily rate of 250 BWIPD  
Maximum daily rate of 500 BWIPD

2. System is closed.

3. Proposed Average Injection Pressure: 580 psig.  
Proposed Maximum Injection Pressure: 580 psig.

The proposed average and maximum injection pressures are to be determined from step rate tests to be run after the well is re-entered.

4. (A) Source of injection fluid:  
Produced water from Tonto Yates Seven Rivers, South Pool.  
(B) Analysis of formation fluid:  
Not applicable - re-injected produced water.
5. Zone of disposal is productive of oil and gas within one mile of proposed disposal well.

**F&M OIL AND GAS COMPANY**

**Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico**

**Exhibit D**

**Geological Data on Injection Zone**

**Pool:** Tonto Yates Seven Rivers, South

**Formation:** Yates Seven Rivers

**Geological Name:** Yates

**Thickness:** @ 200 feet

**Depth:** @ 2900 feet

**Injection Interval:** 2900 to 3100 feet

**F&M OIL AND GAS COMPANY**

**Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico**

**Exhibit E**

**Well Data on Injection Well**

<b>Stimulation Program:</b>	2000 gallons 15% NEFE Acid
<b>Location:</b>	460 FSL & 1980' FWL Sec 30, T19S, R 33E Lea County, New Mexico
<b>Casing:</b>	13 3/8" @ 450' cmtd w/ 430 sx 8 5/8" @ 3400' cmtd w/ 2155 sx 5 1/2" @ 9450' cmtd w/ 725 sx
<b>Tubing:</b>	2 3/8" @ 2800' - Plastic Coated
<b>Packer:</b>	Baker Loc-Set Nickel Plated
<b>Injection Formation:</b>	Yates in the Tonto Yates Seven Rivers, South Pool.
<b>Injection Interval:</b>	2900' to 3113' Open Hole

**DV toll ran @ 6945', cmtd w 860 sx. Well was never produced.  
Well was plugged back 9/8/97, TOC @ 1300 By Bond Log.**



# F&M OIL AND GAS COMPANY

Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico

## Exhibit G

### Water Analysis

WATER ANALYSIS REPORT  
furnished by TRETOLITE CHEMICALS

COMPANY: WALLEN PRODUCTION  
LEASE: TONTO  
SAMPLE POINT: HEATER TREATER  
SAMPLE DATE: 5-27-87  
SAMPLE TEMP.:

pH: 6.5  
H<sub>2</sub>S: 500  
SPECIFIC GRAVITY: 1.025

#### TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO <sub>3</sub>	915.00	15.00
Cl	11210.00	315.77
SO <sub>4</sub>	1250.00	26.04
Ca	2800.00	140.00
Mg	0.00	0.00
Na	4986.78	216.82

IONIC STRENGTH = 0.44  
TOTAL HARDNESS = 6000.0 mg/ltr.  
TOTAL DISSOLVED SOLIDS = 21155.5 mg/ltr.  
TOTAL IRON (Fe) = 3.0 ppm

#### PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca(HCO <sub>3</sub> ) <sub>2</sub>	15.00	1215.60
CaSO <sub>4</sub>	26.04	1772.66
CaCl <sub>2</sub>	98.96	5492.19
Mg(HCO <sub>3</sub> ) <sub>2</sub>	0.00	0.00
MgSO <sub>4</sub>	0.00	0.00
MgCl <sub>2</sub>	0.00	0.00
NaHCO <sub>3</sub>	0.00	0.00
Na <sub>2</sub> SO <sub>4</sub>	0.00	0.00
NaCl	216.82	12675.08

#### CALCULATED SCALING TENDENCIES

##### SCALING INDEX

CaCO<sub>3</sub> @ 80 DEG F. = 0.5  
CaCO<sub>3</sub> @ 120 DEG F. = 1.0

##### SATURATION POINT

CaSO<sub>4</sub> @ 70 DEG F. = 1996.5 MG/LTR.  
CaSO<sub>4</sub> @ 110 DEG F. = 2020.2 MG/LTR.

(THIS SAMPLE CONTAINED 1772.7 MG/LTR. CaSO<sub>4</sub>).

TABLE 1

## QUATERNARY WELLS WITH POTABLE WATER

LOCATION	OWNER	ELEV.	WATER LEVEL	TOTAL DEPTH	USE OF WELL	CHEMICAL ANALYSIS (In Milligrams/Liter or Parts/Million)					DATE OF ANALYSIS	SAMPLED BY
						CHLORIDES	SULFATES	TOTAL DISSOLVED SOLIDS	ELECTRICAL CONDUCTI- VITY			
NW/NW Sec 17 T19S R33E	Snyder Ranch	3650'	116' 1981	131'	Abd. Stock	In 1969 (reported good quality water)						State
SE NE/4 Sec. 26 T19S R33E	Smith		90.9 1/78	100'	Active Domestic Stock	298 326	996	2134	2560 --		11/17/65 1/16/78	State Reed
SE SE/4 Sec. 23 T20S R32E	Old Halfway Bar	3551'	36.7' 1981	78'	Abd. Dom.	362	309	--	1861		1969	Reed
NW NW Sec 25 T20S R32E	Smith?	3555'	39 1982	65'	Stock	85 42	82 --	--	837 750		1969 9/72	Reed State
NE/4 Sec 36 T20S R32E	Bingham Ranch	3501'	44' 1972	50'	Domestic	290	-	--	1930		9/18/72	State
SW/4 Sec 23 T20S R32E	-	3541'	39.8 1981	-	Stock	No Data						
SE NW/4 Sec 27 T20S R32E	S. Frey	3540'	23.9 1972	25'	Industrial	No Data (Field check - fresh water)					5/12/82	Reed
SE NW/4 Sec 30 T20S R32E	-	3505'	9.94 1954	-	Stock	No Data						

F&amp;M OIL AND GAS COMPANY

Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico

Exhibit G-2

Water Analysis

TABLE 2

## QUATERNARY WELLS WITH NON POTABLE WATER

LOCATION	OWNER	ELEV.	WATER LEVEL	TOTAL DEPTH	USE OF WELL	CHEMICAL ANALYSES (In Milligrams/Liter or Parts/Million)					DATE OF ANALYSIS	SAMPLED BY
						CHLORIDES	SULFATES	TOTAL DISSOLVED SOLIDS	ELECTRICAL CONDUCTI- VITY			
SW of SE/4 Scarbauer Sec 4 T20S Cattle R33E Co.		3556'	$\frac{33'}{1968}$	58'	Abd. Stock	2,382 12,978	- 16,068	- -	10,175 -		11/17/65 10/24/68	State United Chem.
NW NW Sec 21 T20S R33E		3536'	$\frac{35'}{1981}$	52'	Abd. Stock	3,518	905	-	-		10/24/68	United Chem.
SE NW/4 Sec 12 T20S R32E		3540'	-	130'	Abd. Stock	9,744	1,878	-	-		1968	United Chem.
NE SW/4 Sec 1 T20S R32E	Salt Lake Rch.	3510'	$\frac{21.7}{1954}$	30'	Abd. Stock	Reported Salty - 1954 and Dry in 1972						State

F&amp;M OIL AND GAS COMPANY

Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico

Exhibit G-3

Water Analysis



**F&M OIL AND GAS COMPANY**

**Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico**

**Exhibit H**

**Affirmative Statement**

F&M Oil and Gas Company has examined available geologic and engineering data and finds no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

**F&M OIL AND GAS COMPANY**

**Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico**

**Exhibit I**

**Notice**

Pursuant to Section XIV of Form C-108,

Applicant has mailed copies of the application to the following:

Surface Owners:

Bureau of Land Management  
Roswell District Resource Area Headquarters  
2909 W. 2nd Street  
Roswell, New Mexico 88201

Attn: Armando Lopez

Leasehold Operators within One-half mile:

Kaiser-Francis  
11722 W. HWY 80 EAST  
Odessa, Texas 79765

Mitchell Energy Corporation  
Box 4000  
The Woodlands, Texas 77387-4000

Nadel & Gussman  
601 N. Marienfeld, Ste 508  
Midland, Texas 79701

Mack Energy  
P. O. Box 960  
Artesia, New Mexico 88211

Manzano Oil Corporation  
P. O. Box 2107  
Roswell, New Mexico 88202

AFFIDAVIT OF PUBLICATION

State of New Mexico,  
County of Lea.

Tonto Waterflood  
Tonto #12 WIW  
Sec 30, T19S, R33E  
Lea County, New Mexico

I, KATHI BEARDEN

Exhibit I-2

Publisher

Affidavit of Publication

of the Hobbs Daily News-Sun, a  
daily newspaper published at  
Hobbs, New Mexico, do solemnly  
swear that the clipping attached  
hereto was published once a  
week in the regular and entire  
issue of said paper, and not a  
supplement thereof for a period.

of \_\_\_\_\_ 1 \_\_\_\_\_  
\_\_\_\_\_ weeks.  
Beginning with the issue dated

September 12 \_\_\_\_\_ 1997  
and ending with the issue dated  
September 12 \_\_\_\_\_ 1997

Kathi Bearden  
Publisher

Sworn and subscribed to before  
me this \_\_\_\_\_ 12th \_\_\_\_\_ day of

September \_\_\_\_\_ 1997

Godi Benson  
Notary Public.

My Commission expires  
October 18, 2000  
(Seal)

This newspaper is duly qualified  
to publish legal notices or adver-  
tisements within the meaning of  
Section 3, Chapter 167, Laws of  
1937, and payment of fees for  
said publication has been made.

**LEGAL NOTICE**

**September 12, 1997**

F&M Oil and Gas Company proposes to re-enter and put the  
following well into water injection service:

Tonto #12  
460' FSL & 1980' FWL, Sec. 30, T19S, R33E  
Tonto-Yates Seven Rivers, South Pool  
Lea County, New Mexico

1) Name address, phone number and contact party for the ap-  
plicant:

F&M Oil and Gas Company  
P.O. Box 891  
Midland, Texas 79702

2) The intended purpose of the injection wells is to begin a wa-  
terflood project.

3) Depth of injection interval is 2,900' to 3,113'. Maximum in-  
jection rates and pressures are 500 barrels per day at 580  
psig.

4) Interested parties must file objections or requests for hear-  
ing with the following within 15 days:

Oil Conservation Division  
2040 South Pacheco  
Santa Fe, NM 87505

#15417

01100339000      01510961  
F & M Oil And Gas Company  
P.o. Box 891  
a/c 434005  
Midland, TX 79702-0891

7 SENDER: PS Form 3800, April 1995 (Reverse) PS Form 3811, December 1994

MANZANO DEL CORP  
P.O. Box 2107  
Roswell, NM 88202

4a. Article Number: P 497 371 719

4b. Service Type: ☐ Registered ☒ Certified ☐ Express Mail ☐ Insured ☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery: 9-27-97

5. Received By: (Print Name)

6. Signature: (Addressee or Agent) X [Signature]

102595-97-B-0179 Domestic Return Receipt

7 SENDER: PS Form 3800, April 1995 (Reverse) PS Form 3811, December 1994

MAXX Energy  
P.O. Box 960  
Artesia, NM 88211

4a. Article Number: P 497 371 717

4b. Service Type: ☐ Registered ☐ Certified ☐ Express Mail ☐ Insured ☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery: 9-27-97

5. Received By: (Print Name)

6. Signature: (Addressee or Agent) X [Signature]

102595-97-B-0179 Domestic Return Receipt

7 SENDER: PS Form 3800, April 1995 (Reverse) PS Form 3811, December 1994

Kaiser-Francis  
1722 W. HWY 80 EAST  
ODESSA, TX 79765

4a. Article Number: P 497 371 716

4b. Service Type: ☐ Registered ☒ Certified ☐ Express Mail ☐ Insured ☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery: 9-26-97

5. Received By: (Print Name)

6. Signature: (Addressee or Agent) X [Signature]

102595-97-B-0179 Domestic Return Receipt

7 SENDER: PS Form 3800, April 1995 (Reverse) PS Form 3811, December 1994

NADEL & Gussman  
601 N. Marienfeld  
MEDLAND, TX 79701

4a. Article Number: P 497 371 720

4b. Service Type: ☐ Registered ☒ Certified ☐ Express Mail ☐ Insured ☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery: 9/26

5. Received By: (Print Name)

6. Signature: (Addressee or Agent) X [Signature]

102595-97-B-0179 Domestic Return Receipt

7 SENDER: PS Form 3800, April 1995 (Reverse) PS Form 3811, December 1994

BUREAU of LAND MANAGEMENT  
2909 W. 2nd Street  
Roswell, NM 88201

4a. Article Number: P 497 371 721

4b. Service Type: ☐ Registered ☒ Certified ☐ Express Mail ☐ Insured ☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery: 9-29-97

5. Received By: (Print Name)

6. Signature: (Addressee or Agent) X [Signature]

102595-97-B-0179 Domestic Return Receipt

7 SENDER: PS Form 3800, April 1995 (Reverse) PS Form 3811, December 1994

Mitchell Energy Corp  
Box 4000  
The Woodlands, TX 77387-4000

4a. Article Number: P 497 371 718

4b. Service Type: ☐ Registered ☒ Certified ☐ Express Mail ☐ Insured ☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery: 9/29/97

5. Received By: (Print Name)

6. Signature: (Addressee or Agent) X [Signature]

102595-97-B-0179 Domestic Return Receipt



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION  
HOBBS DISTRICT OFFICE

WFX-728

GOVERNOR

11/17/97

POST OFFICE BOX 1980  
HOBBS, NEW MEXICO 88241-1980  
(505) 393-6161

OIL CONSERVATION DIVISION  
P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

RE: Proposed:

MC \_\_\_\_\_  
DHC \_\_\_\_\_  
NSL \_\_\_\_\_  
NSP \_\_\_\_\_  
SWD \_\_\_\_\_  
WFX X \_\_\_\_\_  
PMX \_\_\_\_\_

Gentlemen:

I have examined the application for the:

F & M Oil & Gas Co Tonto #12-N 30-19s-33e  
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

None  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Yours very truly,

*Chris Williams*

Chris Williams  
Supervisor, District 1

/ed