ENERGY AND MINERALS DEPARTMENT

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

II. Operator: QUANICO OIL & GAS, INC.

Address: P.O. BOX 1714 EL DORADO, AR 71730

Contact party: MR. DAVID ALEXANDER Phone: (505) 624-1702

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.

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 source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any. NO ADDITIONAL STIMULATION WILL BE USED

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.) ALL LOGS ON FILE AT COMMISSION.

* 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. NO WATER WELLS WITHIN 1 MILE.

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: Douglas K. Alexander Title Vice-President

Signature: Douglas K. Alexander Date: 4/15/87

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office

INJECTION WELL DATA SHEET

Quanico Oil & Gas, Inc. "Mac" Federal
OPERATOR LEASE

#2 990' FSL & 330' FEL 6 9 South 30 East
WELL NO. FOOTAGE LOCATION SECTION TOWNSHIP RANGE

Schematic

see attached schematic

Tabular Data

Surface Casing 318'
Size 24# - 8 5/8" Cemented with 175 sx.
TOC Surface feet determined by cement circulated
Hole size 12"

Intermediate Casing None.
Size _____" Cemented with _____ sx.
TOC _____ feet determined by _____
Hole size _____

Long string 3335'
Size 10.5# - 4½" Cemented with 150 sx.
TOC 2800' feet determined by Volumetric Limits
Hole size 7 7/8"
Total depth 3335' P.B.T.D. = 3284'

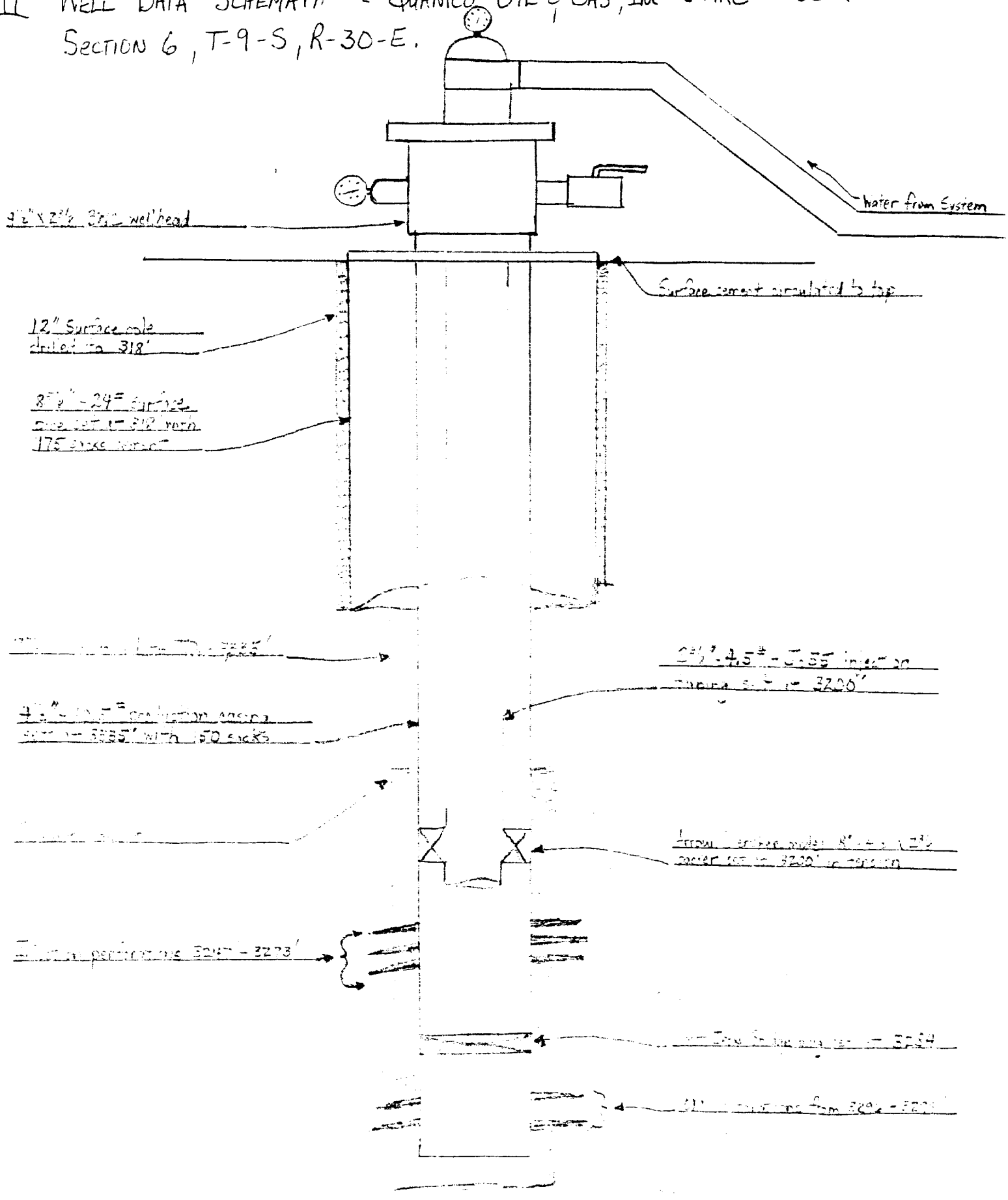
Injection interval
3247 feet to 3273 feet
(perforated or open-hole, indicate which)
(Perforated)

Tubing size 2 3/8" - 4.5# - J-55 lined with unlined (material) set in a
Cherokee - 2 3/8" X 4½" - Model 'R' (brand and model) packer at 3200' feet
(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Cato - San Andres
2. Name of Field or Pool (if applicable) Cato
3. Is this a new well drilled for injection? ☐ Yes ☒ No
   If no, for what purpose was the well originally drilled? production
4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used)
   old perforations from 3296' to 3296', sealed with cast iron bridge plug @ 3284'
5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. There are no productive oil or gas zones, either overlying or underlying this zone, in this area

III Well Data Schematic = Quanico Oil & Gas, Inc = "Mac" Federal #2
Section 6, T-9-S, R-30-E.



III. WELL DATA

A. (1.) "Mac" Federal # 2. Section 6, T-9-S, R-30-E 330' FEL & 990 FSL. (Schematic attached).

(2.) Casing Data:

Surface: 8 5/8" - 24# set at 318' in 12" hole, with 175 sacks of cement. Cement top at top of ground. Determined because cement was circulated (Schematic attached).

Production: 4 1/2" - 10.5# set at 3335' in 7 7/8" hole, with 150 sacks of cement. Cement top at 2800'. This was determined using volumetric formula for annulus between open hole and casing. (Schematic attached).

(3.) Tubing Data: 2 3/8" - 4.5# J-55 unlined tubing will be set at 3200'. (Schematic attached).

(4.) An Arrow Cherokee Model "R" - 4 1/2" X 2 3/8" packer will be set at 3200', in tension, with approx. 14,000# over string weight. (Schematic attached.)

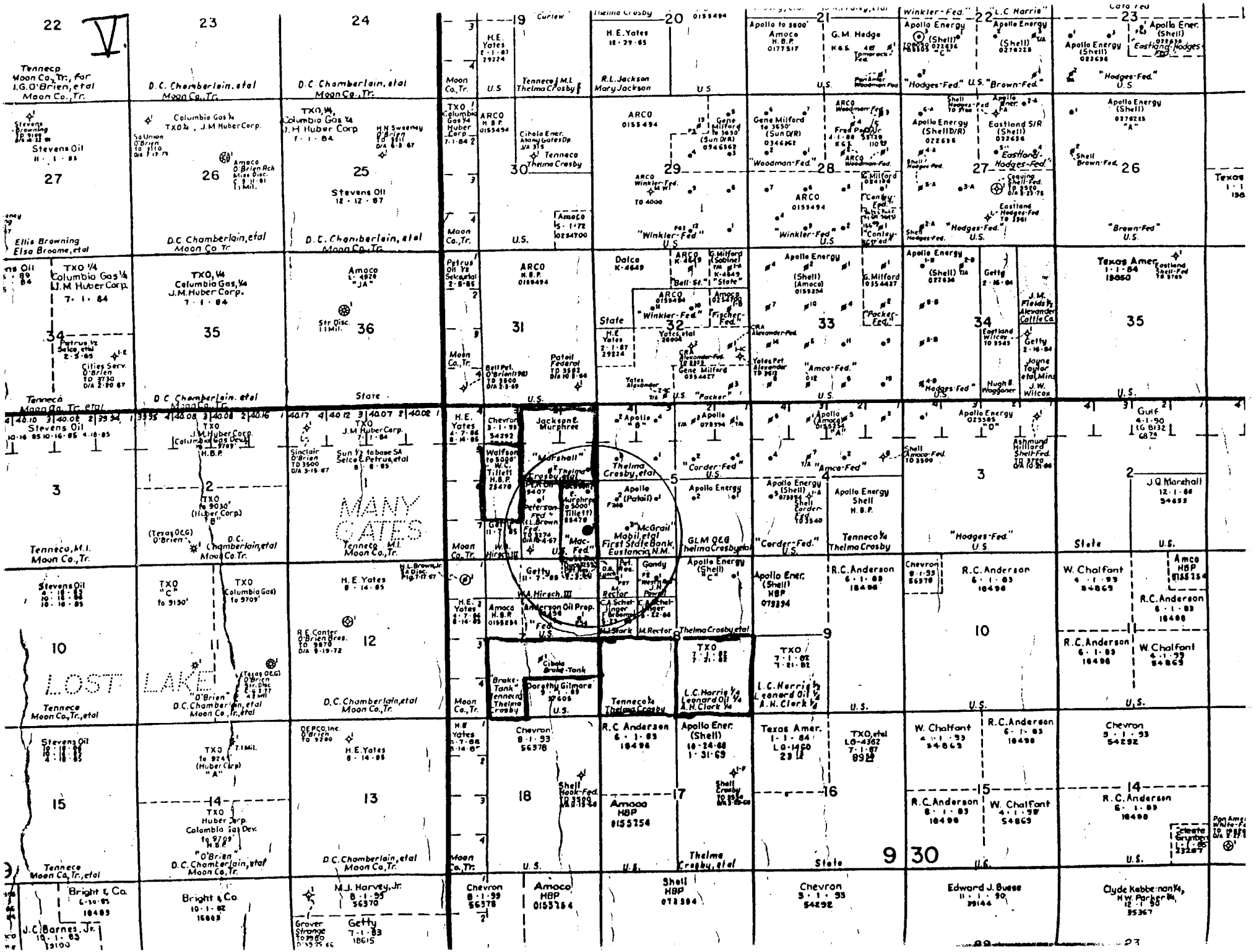
B. (1.) The name of the injection formation is the Cato-San Andres.

(2.) The injection interval is perforated from 3247' - 3273'.

(3.) This well was originally drilled for production.

(4.) This well had additional perforations from 3296' - 3298'. These perforations were shut-off with a cast-iron bridge plug set at 3284'.

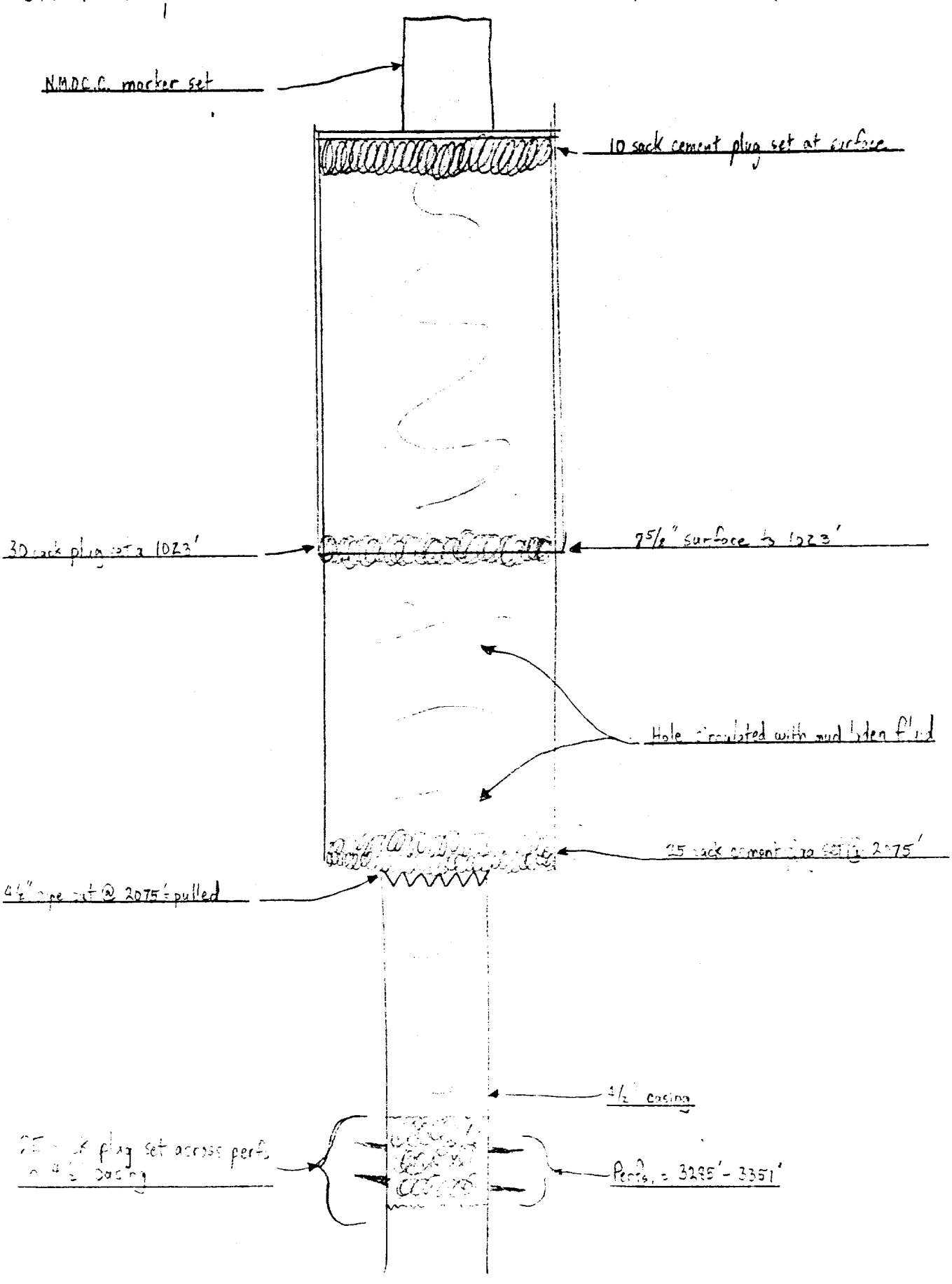
(5.) There are no other oil or gas zones producing, either higher or lower, in the area of this well.


MANY GATES
LOST LAKE
Tenneco Moon Co.,Tr. for J.G.O'Brien, et al Moon Co.,Tr.
D.C. Chamberlain, etal Moon Co.,Tr.
D.C. Chamberlain, etal Moon Co.,Tr.
Stevens Oil 11-1-85
Ellis Browning Elsa Broome, etal
Columbia Gas ¼ TXO ¼ , J.M. Huber Corp.
So Union O'Brien to 9110 D/A 7-17-75
Amoco O'Brien Rch Mesa Dev. 5-11-81 1 Mill.
Stevens Oil 12-12-87
TXO, ¼ Columbia Gas ¼ J.M. Huber Corp 7-1-84
H.N. Sweeney O'Brien D/A 4-3-67
D.C. Chamberlain, etal Moon Co Tr.
D.C. Chamberlain, etal Moon Co.,Tr.
TXO ¼ Columbia Gas ¼ J.M. Huber Corp. 7-1-84
TXO, ¼ Columbia Gas, ¼ J.M. Huber Corp. 7-1-84
Amoco L-4928 "JA"
Str Disc. 1.1 Mil.
Petrus ½ Selco, etal 2-5-89
Cities Serv. O'Brien TD 3730 D/A 2-20-67
D.C. Chamberlain, etal Moon Co.,Tr.
State
Tenneco Moon Co.,Tr. etal
Moon Co.,Tr.
U.S.
H.E. Yates 2-1-87 29224
Tenneco M.L. Thelma Crosby
Curlew
Cibola Ener. Money Gates Dp. 1/4 315
Tenneco Thelma Crosby
Amoco S-1-78 10254700
ARCO H.B.P. 0155494
Petrus Oil Yr Selco, etal 2-5-85
Bell Pet. O'Brien(1980) TD 3500 D/A 2-5-69
Patail Federal TD 3503 D/A 10-1-84
ARCO H.B.P. 0155494
Thelma Crosby
H.E. Yates 8-14-85
H.E. Yates 4-7-86 8-14-85
Chevron 3-1-93 54292
Jackson E. Murphree
Walfson to 5000' W.C. Tillett H.B.P. 29478
"Marshall" Thelma Crosby, etal
Per Oil 9407
Peterson-Fed
J.L. Brown
TD 3274 D/A 10-4-67
E. Murphree to 5000' (Tillett) 29478
"Mac-Fed"
Getty 11-7-85
W.A. Hirsch III
H.E. Yates 4-7-86 8-14-85
Amoco H.B.P. 0155494
Anderson Oil Prop. 8-1-84
"Fed."
Cibola Brake-Tank
"Brake-Tank" Tenneco Thelma Crosby
Dorothy Gilmore 9-1-83 37609
Chevron 8-1-93 56978
Shell Hook-Fed. TD 3500 D/A 11-15-66
Amoco H.B.P. 0155494
Dalco K-4649
ARCO K-4649
G. Milford (Sabine) K-4649 "State"
Bell-Fed."
ARCO 0155494 "Winkler-Fed."
Amoco 02-2750 FB
Fischer-Fed.
H.E. Yates 2-1-87 29224
Yates, etal 28004
CRA Alexander-Fed. LG 8372
Gene Milford 0954427
Yates Alexander
"Packer-Fed."
U.S.
Thelma Crosby, etal
Apollo (Patail) F246
Apollo Energy
"Corder-Fed"
U.S.
McGrail Mobil, etal First State Bank, Eustancia, N.M.
GLM OE&G Thelma Crosby, etal
Getty 11-7-85
W.A. Hirsch III
Pet. Mgt. Co. 8-1-84
Gandy
Weatherly-Powell
C.A. Schlanger 1/8 Bengal 8-22-84
M. Rector
M. Clark
Apollo Energy (Shell) "C"
Thelma Crosby, etal
TXO 7-1-85 7-21-85
L.C. Harris ½ Leonard Oil ½ A.H. Clark ½
Tenneco ½ Thelma Crosby
Moon Co.,Tr.
U.S.
H.E. Yates 4-7-86 8-14-85
Chevron 8-1-93 56978
Shell Hook-Fed. TD 3500 D/A 11-15-66
R.C. Anderson 6-1-83 18498
Apollo Ener. (Shell) 10-24-68 1-31-69
Amoco HBP 0155354
Shell HBP 013394
Thelma Crosby, etal
Apollo to 8800' Amoco H.B.P. 0177517
G.M. Hedge K&S 4M Tennessee Fed.
Parker-Woodman Fed
U.S.
Gene Milford to 3650' (Sun D/R) 0346962
Fred Pool 4-1-88 $3128 K&S 110 69
"Woodman-Fed."
ARCO Woodman-Fed.
ARCO 0155494
"Winkler-Fed."
G. Milford 0834184
"Conley-Fed"
Apollo Energy (Shell) 13-1-84 to 3600 "C"
Apollo Energy 8-1-84 (Shell) 027822S
"Hodges-Fed."
U.S.
"Brown-Fed."
Apollo Energy (Shell) 027822S
Eastland S/R (Shell) 032636
Eastland Hodges-Fed TD 3961
Ceguing Shell-Fed. TD 3560 D/A 5-21-75
Shell Hodges-Fed.
"Hodges-Fed."
Apollo Energy (Shell) 027822S "A"
Shell Brown-Fed.
"Brown-Fed"
Apollo Energy (Shell) 032636
Eastland Hodges
Apollo Energy (Shell) 027822S
Eastland Shell-Fed TD 3765
Getty 2-16-84
J.M. Fields & Alexander Cattle Co.
Getty 2-16-84
Jayne Taylor et al, Mins
J.W. Wilcox
Hugh B. Waggoner
Texas Amer. 1-1-84 LG-8850
Eastland Shell-Fed TD 3765
Apollo Energy (Shell) 032636
Apollo Energy (Shell) 027822S
Apollo Energy (Shell) 032636
Eastland S/R (Shell) 032636
Eastland Hodges-Fed TD 3961
Ceguing Shell-Fed. TD 3560 D/A 5-21-75
Shell Hodges-Fed.
Hodges-Fed.
Shell Brown-Fed.
Texas
Stevens Oil 10-16-85 10-16-85 4-18-85
Tenneco, M.I. Moon Co.,Tr.
TXO ¼ Columbia Gas ¼ J.M. Huber Corp. 7-1-84
TXO to 9030' (Huber Corp.) "B"
(Texas OE&G) O'Brien
D.C. Chamberlain, etal Moon Co.Tr.
Sinclair O'Brien TD 3500 D/A 3-15-67
Sun ½ Tobasco SA Selco & Petrus, etal 8-1-85
TXO J.M. Huber Corp. 7-1-84
Columbia Gas Devel. 9709'
H.B.P.
Tenneco Moon Co.,Tr.
Apollo 078394
Apollo Energy
"Corder-Fed"
U.S.
Apollo (Amoco) 0155354 "A"
"Amco-Fed"
Apollo Energy (Shell) 078394
Shell Corder-Fed TD 3540
Apollo Energy Shell H.B.P.
Tenneco ½ Thelma Crosby
"Corder-Fed."
U.S.
Apollo Energy 025585 "D"
Shell Amoco-Fed. TD 3500
Ashmund Hillard Shell-Fed. LG 8732 D/A 10-21-86
"Hodges-Fed."
U.S.
Gulf 4-1-90 LG 8132 6875
J.Q. Marshall 12-1-84 54653
State
U.S.
Stevens Oil 4-18-85 10-18-85 10-18-85
Tenneco Moon Co.,Tr.,etal
TXO "C" to 9150'
TXO (Columbia Gas) to 9709'
H.L. Brown, Jr. A Disc. Prig 7-11-67
O'Brien
D.C. Chamberlain, etal Moon Co.,Tr.,etal
H.E. Yates 8-14-85
R.E. Contr. O'Brien Bros. TD 9870 D/A 8-19-72
D.C. Chamberlain, etal Moon Co.,Tr.
Getty 11-7-85
W.A. Hirsch III
Amoco H.B.P. 0155354
Anderson Oil Prop. 8-1-84
"Fed."
Cibola Brake-Tank
"Brake-Tank" Tenneco Thelma Crosby
Dorothy Gilmore 9-1-83 37609
U.S.
Tenneco ½ Thelma Crosby
TXO 7-1-82 7-21-82
L.C. Harris ½ Leonard Oil ½ A.H. Clark ½
Apollo Ener. (Shell) HBP 078394
R.C. Anderson 6-1-83 18498
U.S.
Chevron 8-1-93 56978
R.C. Anderson 6-1-83 18498
W. Chalfant 4-1-93 54863
Amco HBP 0155354
R.C. Anderson 6-1-83 18498
W. Chalfant 4-1-93 54863
U.S.
Stevens Oil 10-18-85 4-18-85
Tenneco Moon Co.,Tr.,etal
TXO to 9245' (Huber Corp) "A"
TXO Huber Corp. Columbia Gas Dev. to 9709' H.B.P.
"O'Brien"
D.C. Chamberlain, etal Moon Co.,Tr.
DEPCO, Inc. O'Brien TD 9290
H.E. Yates 8-14-85
D.C. Chamberlain, etal Moon Co.,Tr.
H.E. Yates 4-7-86 8-14-85
Chevron 8-1-93 56978
Shell Hook-Fed. TD 3500 D/A 11-15-66
R.C. Anderson 6-1-83 18498
Amoco HBP 0155354
Apollo Ener. (Shell) 10-24-68 1-31-69
Thelma Crosby, etal
Texas Amer. 1-1-84 LG-4150 2918
TXO, etal LG-4362 7-1-87 8918
W. Chalfant 4-1-93 54863
R.C. Anderson 6-1-83 18498
R.C. Anderson 6-1-83 18498
W. Chalfant 4-1-93 54863
Chevron 5-1-93 54292
R.C. Anderson 6-1-83 18498
Celeste Grumbles 1-1-85 33287
U.S.
Bright & Co. 6-10-85 18489
J.C. Barnes, Jr. 10-1-85 19100
Bright & Co. 10-1-82 16883
M.J. Harvey, Jr. 8-1-85 56370
Grover Strange to 9960 D/A 5-25-66
Getty 7-1-83 18615
Chevron 8-1-93 56978
Amoco HBP 0155354
Shell HBP 013394
Chevron 5-1-93 54292
Edward J. Buese 11-1-90 39144
Clyde Kabbenman ¼, H.W. Parker ¾, 12-1-90 35367

VI. Wells located within area of review

Operator	Lease	Location	Casing Data	Perforations	T.D. & P.B.T.D.	Dates	Type
	NM-25478	Chaves Co. NM	8 5/8" @ 315' w/ 175 sx.	3 shots	TD = 3340'	Drilled = 7/18/25	San Andres
unico Oil & Gas, Inc.	Mac Federal #1	2310' FSL & 330' FEL Sec. 6, T-9-S, R-30-E	4 1/2" @ 3332' w/ 175 sx.	3306' - 3314'	PBTD = 3314'	Comp. = 8/22/25	Producer
		Chaves Co. NM	8 5/8" @ 318' w/ 175 sx.		T.D. = 3360	Drilled = 2/13/26	San Andres
unico Oil & Gas, Inc.	Marshall #1	2310' FNL & 330' FEL Sec. 6, T-9-S, R-30-E	4 1/2" @ 3360' w/ 150 sx.	3274' - 3314'	P.B.T.D. = 3344	Comp. = 3/27/26	Producer
n. Wolfson Oil		Chaves Co. NM	8 5/8" @ 1023' w/ 300 sx.	13 shots	T.D. = 3390'	Drilled = 6/17/26	San Andres
unico Oil & Gas, Inc.	Marshall #2	2310' FNL & 1650' FEL Sec. 6, T-9-S, R-30-E	4 1/2" @ 3390' w/ 175 sx.	3285' - 3351'	P.B.T.D. = 3377	Comp. = 7/12/26	Producer (P/I
		Chaves Co. NM	8 5/8" @ 223' w/ 180 sx.	Casing notch @	T.D. = 3274'	Drilled = 12/21/64	San Andres
. Brown, JR.	Federal 6-#1	330' FSL & 2310 FEL Sec. 6, T-9-S, R-30-E	4 1/2" @ 3274' w/ 200 sx	3258'	P.B.T.D. = 3227'	Comp. = 12/27/64	Producer (P&
					T.D. = 3475'	Drilled = 7/27/64	San Andres
		Chaves Co. NM	8 5/8" @ 275' w/ 200 sx				
ello Energy	Thelma Crosby B #3	1930 FNL & 710' FWL Sec. 5, T-9-S, R-30-E	5 1/2" @ 3475' w/ 1450 sx	3302' - 3306'	P.B.T.D. = 3455	Comp. = 8/12/26	Producer
					T.D. = 3329	Drilled = 11/26/59	San Andres
		Chaves Co. NM	8 5/8" @ 275' w/ 200 sx				
ello Energy	Mc Grail #1	1980' FSL & 1980' FWL Sec. 5, T-9-S, R-30-E	4 1/2" @ 3329' w/ 400 sx	3282' - 3316'	P.B.T.D. = 3328'	Comp. = 12/1/60	Producer
					T.D. = 3370	Drilled = 8/12/26	San Andres
		Chaves Co. NM.	8 5/8" @ 264' w/ 200 sx				
ello Energy	Mc Grail #2	1980' FSL & 660' FWL Sec. 5, T-9-S, R-30-E	4 1/2" @ 3370' w/ 1700 sx	3279' - 3308'	P.B.T.D. = 3345	Comp. = 8/21/26	Producer
					T.D. = 3450	Drilled = 5/22/77	San Andres
		Chaves Co. NM	8 5/8" @ 254' w/ 150 sx				
ello Energy	Mc Grail #3	990' FSL & 990' FWL Sec. 5, T-9-S, R-30-E	5 1/2" @ 3450 w/ 2380 sx	3267' - 3292'	P.B.T.D. = 3416	Comp. = 9/9/77	Producer
	NM-9407-A	Chaves Co. NM	8 5/8" @ 416' w/ 300 sx.		T.D. = 3340'	Drilled = 10/1/69	San Andres
bit Enterprises	Peterson Federal #1	1980' FSL & 1980' FEL Sec. 6, T-9-S, R-30-E	4 1/2" @ 3340' w/ 150 sx.	3282' - 3289'	P.B.T.D. = 3325'	Comp. = 12/2/69	Producer
	NM-18498				T.D. = 3355'	Drilled = 11/25/69	San Andres
		Chaves Co. NM	8 5/8" @ 304' w/ 150 sx.				
erson Oil Properties	Federal #1	1980' FNL & 660' FEL Sec. 7, T-9-S, R-30-E	4 1/2" @ 3355' w/ 150 sx.	3280' - 3317'	P.B.T.D. = 3317	Comp. = 12/21/76	Producer
					T.D. = 3360'	Drilled = 12/9/75	San Andres
		Chaves Co. NM	8 5/8" @ 325' w/ 225 sx.				
way Corporation	Rector #1	660' FNL & 660' FWL Sec. 8, T-9-S, R-30-E	4 1/2" @ 3364' w/ 250 sy	3239' - 3283'	P.B.T.D. = 3216	Comp. = 12/30/75	Producer
					T.D. = 3350	Drilled = 9/11/76	San Andres
		Chaves Co. NM	8 5/8" @ 340' w/ 200 sx.				
. Gandy + Dale Gandy	Western Reserves #1	660' FNL & 1980' FWL Sec. 8, T-9-S, R-30-E	4 1/2" @ 3350' w/ 250 sx	3265' - 3334'	P.B.T.D. = 3313'	Comp. = 5/1/76	Producer

VI. Plugging Schematic = Wolfson Oil Co. "Marshall" #2
2310' FNL & 1650' FEL of Sec. 6 T-9-S, R-30-E, Chaves Co. NM



Form 9-331
(May 1963)

NMOCC - ARTESIA
NMOCC - HOBBS
BLM - SANTA FE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

(Other instructions on reverse side)

Budget Bureau No. 42-R1424.

5. LEASE DESIGNATION AND SERIAL NO.
New Mexico ~~035-[illegible]~~ 03544-B

6. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME
Federal-6

9. WELL NO.
1

10. FIELD AND POOL, OR WILDCAT
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec. 6, T-9-S, R-30-E

12. COUNTY OR PARISH
Chaves

13. STATE
New Mexico

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL ☐ GAS WELL ☐ OTHER Dry

2. NAME OF OPERATOR
H. L. Brown, Jr.

3. ADDRESS OF OPERATOR
704 Vaughn Building, Midland, Texas

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.* See also space 17 below.)
At surface
330' FSL & 2310' FEL of Sec. 6, T-9-S, R-30-E

14. PERMIT NO.

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

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:				SUBSEQUENT REPORT OF:			
TEST WATER SHUT-OFF	☐	PULL OR ALTER CASING	☐	WATER SHUT-OFF	☐	REPAIRING WELL	☐
FRACTURE TREAT	☐	MULTIPLE COMPLETE	☐	FRACTURE TREATMENT	☐	ALTERING CASING	☐
SHOOT OR ACIDIZE	☐	ABANDON*	☐	SHOOTING OR ACIDIZING	☐	ABANDONMENT*	☒
REPAIR WELL	☐	CHANGE PLANS	☐	(Other)			☐
(Other)				(NOTE: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)			

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

On October 5, 1967, this well was plugged and abandoned as follows:

10 sacks cement at 3258';
Cut off 4-1/2" casing at 2500' (top of cement @ 2550')
25 sacks cement at 2500';
25 sacks cement at 1350';
25 sacks cement at 930';
25 sacks cement at 273';
10 sacks cement at the surface with 4' 4½" steel marker in place.

Hole was filled with 8.9# mud.

Completed at 8:00 P.M. on October 5, 1967.

Notification will be given when well site has been cleared and conditioned for final inspection.

18. I hereby certify that the foregoing is true and correct

SIGNED _____ TITLE _____ DATE October 11, 1967

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

APPROVED

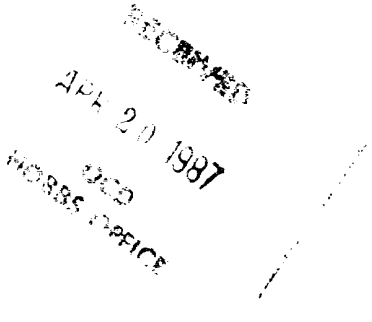
OCT 16 1967

U. S. GEOLOGICAL SURVEY
ROSWELL, NEW MEXICO

MAY 6 1968

J. W. SUTHERLAND
DISTRICT ENGINEER

*See Instructions on Reverse Side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VII. Disposal System Data

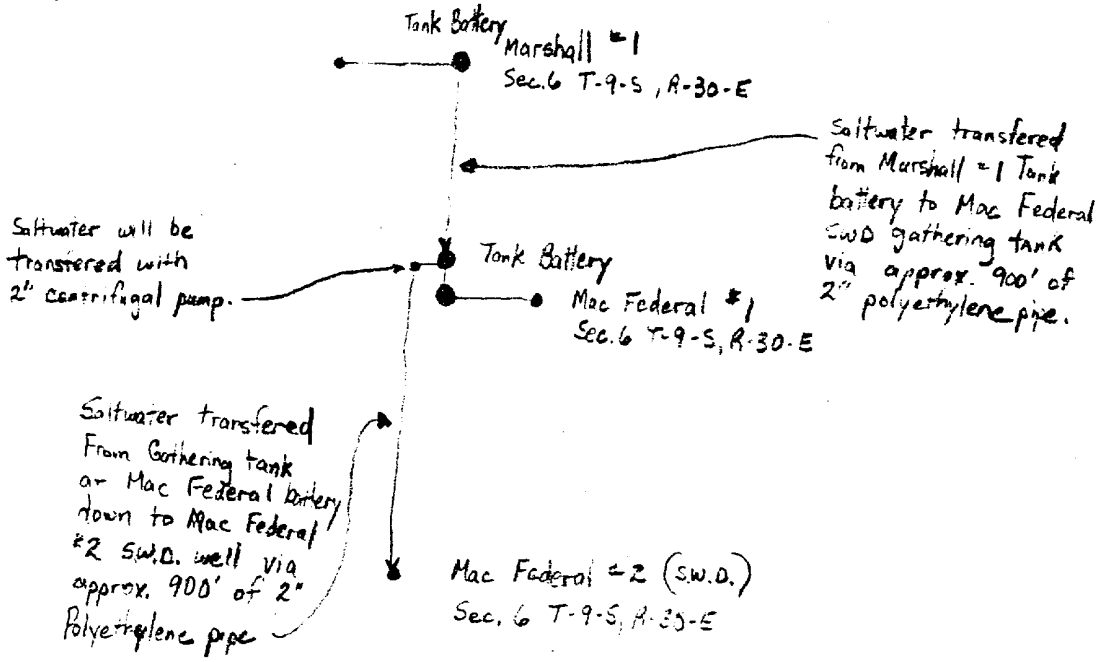
(1.) We propose to inject a maximum of 400 barrels of fluid per day at a rate of 1/2 BPM.

(2.) This will be a closed system.

(3.) The average injection pressure will be -0- with the well on a vacumn. The maximum pressure will be 10#.

(4.) The source of water is from San Andres formation producers, and should be compatible with water in injection formation.

(5.) See attachment, with enclosed water analysis.



PETROLITE
TRETOLITE DIVISION
369 Marshall Avenue / Saint Louis, Missouri 63119
(314) WO 1-3500/TWX 910-760-1660/Telex 44-2417

WATER ANALYSIS REPORT

COMPANY Wolfson Oil Company ADDRESS Lovington, N.M. DATE: 2-7-79

SOURCE Mac Federal # 1 Kato Field DATE SAMPLED 1-25-79 ANALYSIS NO. 13755

Analysis		Mg/L		*Meq/L	
1. pH	6.17				
2. H_2S (Qualitative)	Pos.				
3. Specific Gravity	1.140				
4. Dissolved Solids		187,934			
5. Suspended Solids					
6. Phenolphthalein Alkalinity ($CaCO_3$)					
7. Methyl Orange Alkalinity ($CaCO_3$)		630			
8. Bicarbonate (HCO_3)	HCO_3	769	÷61	12.6	HCO_3
9. Chlorides (Cl)	Cl	114,000	÷35.5	3,211	Cl
10. Sulfates (SO_4)	SO_4	1,375	÷48	29	SO_4
11. Calcium (Ca)	Ca	7,200	÷20	360	Ca
12. Magnesium (Mg)	Mg	2,187	÷12.2	179	Mg
13. Total Hardness ($CaCO_3$)		27,000			
14. Total Iron (Fe)		2.0			
15. Barium (Qualitative)					
16. Strontium					

*Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

*		*
360	Ca ← HCO_3	12.6
179	Mg → SO_4	29
2,714	Na → Cl	3,211

Compound	Equiv. Wt.	X Meq/L	= Mg/L
$Ca(HCO_3)_2$	81.04	12.6	1,021
$CaSO_4$	68.07	29	1,975
$CaCl_2$	55.50	318	17,649
$Mg(HCO_3)_2$	73.17		
$MgSO_4$	60.19		
$MgCl_2$	47.62	179	8,520
$NaHCO_3$	84.00		
Na_2SO_4	71.03		
NaCl	58.46	2,714	158,769

Saturation Values Distilled Water 20°C

$CaCO_3$	13 Mg/L
$CaSO_4 \cdot 2H_2O$	2,090 Mg/L
$MgCO_3$	103 Mg/L

REMARKS Eng. Dept.-Dallas, Eng. Dept-Midland

(2) Adkins-W. Roberts-Gray-File

Respectfully submitted
TRETOLITE COMPANY

Ray Shaffner

1342-A

HALLIBURTON DIVISION LABORATORY

HALLIBURTON SERVICES
MIDLAND DIVISION
HOBBS, NEW MEXICO 88240

LABORATORY WATER ANALYSIS

No. W81-042

To Wolfson Oil Company

Date 1-15-81

3206 Republic National Bank Tower

Dallas, Texas 75201

Submitted by [redacted] Date Rec. 1-15-81

Well No. MAC Federal #1 Depth Formation

County Lea Field Cato Source

Resistivity	0.051 @ 74°F.			
Specific Gravity	1.141			
pH	6.0			
Calcium (Ca)	8,700			*MPL
Magnesium (Mg)	1,200			
Chlorides (Cl)	129,000			
Sulfates (SO_4)	2,400			
Bicarbonates (HCO_3)	694			
Soluble Iron (Fe)	Nil			

Remarks: The submitted scale sample is 100% Calcium Carbonate, and is completely acid soluble.

*Milligrams per liter

Respectfully submitted,

Analyst: Brewer

HALLIBURTON COMPANY

By W. L. Brewer
CHEMIST

cc:

VIII. GEOLOGICAL DATA

1. The geological name of the injection formation is the San Andres Dolomite.
2. The San Andres is a hard dense dark brown f-x/yn Dolomite w/ scattered vugs and vertical fractures throughout (See attached core descriptions for more detail.)
3. The approximate thickness of the San Andres interval in this area is 700'.
4. The San Andres top in this area is 2612'. (FROM WORTH WELL SURVEYS NUCLEAR LOG) The Sub-sea elevation is +1432'.
5. The San Andres interval in this area is known to be productive of oil & gas and is the primary producer of the Cato-San Andres field. It produces from 2 distinct porosity intervals known as the Cato and Milensand intervals.

CORE DESCRIPTION
Sun #6 Woodman-Federal
Chaves County, N. M.

Donald R. Young

January [illegible], 1968

Core #1 3350-3400 Cut 50' Rec 46' (The [illegible] 3351-55)

Top [illegible] brn shly dolo, [illegible]

[illegible] brn f-xlyn [illegible]

[illegible] (streaky por[illegible]) [illegible] vert frac throughout

Core #2 3400-3450 Rec 50' being:
[illegible] brn f-xlyn dn dolo [illegible]
[illegible] same, tite
[illegible] shly
1 shly dolo, tite
7 brn f-xlyn dense dolo bldg O-O-S
5 same; vert frac
13 same; tite

Core #3 3450-3491 Rec 41' being:
5 brn f-xlyn dn lmy dolo
15 brn f-xlyn dn v-limey dolo
21 brn f-xlyn dn ls
3450-54 sli bldg oil
3461-64 sli bldg W & O
3484-88 vert frac and stained

Donald R. Young

Quanico Oil & Gas, Inc.

203 WEST MAIN ST. P.O. BOX 1714 EL DORADO, ARKANSAS 71730 PHONE (501) 863-7170

XII.

I have examined all available geologic and engineering data available on the proposed disposal zone, and find no evidence of any open faults or other hydrologic connection between this zone and any underground source of drinking water. This statement is backed up by the fact that this zone is productive of oil & gas in all ~~of~~ the surrounding wells.

Douglas K. Alexander 4-15-87

Douglas K. Alexander

VICE-President

XIII.

AFFIDAVIT OF PUBLICATION

County of Chaves
State of New Mexico, }

I, Jean M. Pettit,

Manager

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

of once

..... weeks

beginning with the issue dated 9

April, 19 87

and ending with the issue dated 9

April, 19 87

Jean M. Pettit
Manager

Sworn and subscribed to before me

this 9th day of

April, 19 87

Marylou L. Skinner
Notary Public

My commission expires

July 21, 19 90

(Seal)