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

11-16-88

GARREY CARRUTHERS
GOVERNOR

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

swd-359

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

RE: Proposed:
MC
DHC
NSL
NSP
SWD X
WFX
PMX

Gentlemen:

I have examined the application for the:

Grover McKinney Oil Co. Caudill #1-C 34-13-31
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

We don't have data on P & A
WELLS TO EVACUATE

Yours very truly,

Jerry Sexton
Supervisor, District 1

/ed

2870
2
5740

915-683-4215
Carol

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

FORM C-108
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: Grover-McKinney Oil Company

Address: P O Box 3666, Midland, Texas 79702

Contact party: Mr. James Berryman Phone: 915/683-4215

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.

* 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: James R. Berryman Title Operations Supervisor

Signature:  Date: November 14, 1988

* 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 appropriate

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: (See attached copy)

(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, P. O. Box 2088, Santa Fe, New Mexico 87501 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.

RECEIVED

NOV 15 1988

OCD
HOBBS OFFICE

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 6

November, 19 88

and ending with the issue dated 6

November, 19 88

Jean M. Pettit
Manager

Sworn and subscribed to before me

this 6th day of

November, 19 88

Maryloo S. Skipper
Notary Public

My commission expires

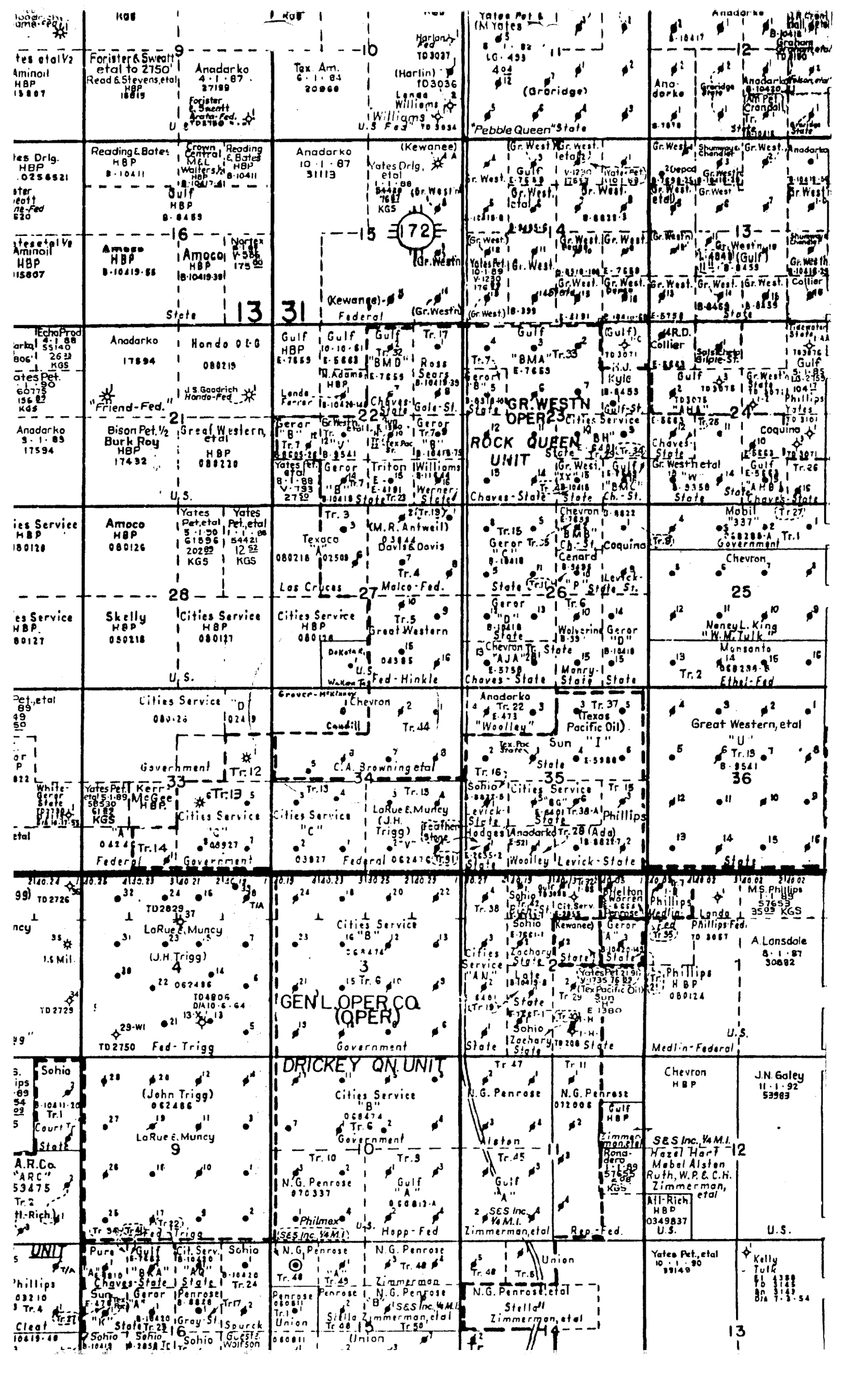
July 21, 19 90

(Seal)

Publish November 6, 1988

LEGAL NOTICE

Grover-McKinney Oil Company, P.O. box 3666, Midland, Texas 79702 (915-683-4215) has applied to the State Oil and Gas Commission for a permit to inject fluid into the Queen formation, Caprock Queen Field, Chaves County, New Mexico, Section (24) T-13-S, R-31-E. The proposed well known as the Caudill #1 will be used to dispose of a maximum of 400 BWPD at a maximum pressure of 800 psi through perforations at 2870' - 2885'. Interested parties should direct questions to James Berryman at the above address or file objections or request for a hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.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ROCK QUEEN UNIT
GEN'L OPER CO (OPER)
DRICKEY QN UNIT
Chaves-State
Federal
Government
U.S.
Medlin-Federal
Hodges State
Ethel-Fed
Malco-Fed.
Los Cruces
Fed-Hinkle
Fed-Trigg
Happ-Fed
Rep-Fed.
Stella Zimmerman, etal
N.G. Penrose, etal
Zimmerman, etal
Mabel Alston
Ruth, W.P. & C.H. Zimmerman, etal
Hazel Hart
Nancy L. King
"W.M. Tulk"
Great Western, etal
"U"
Cities Service "B"
Cities Service "C"
Cities Service "D"
Cities Service "A"
Texaco "A"
Texas Pacific Oil)
"Woolley"
"Pebble Queen" State
(Graridge)
(Harlin)
(Kewanee)
(Kewanee)-Federal
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Anadarko
Hondo O & G
Chevron
Mobil
Monsanto
Sun
Phillips
Skelly
Kerr McGee
Yates Pet., etal
Yates Drlg. etal
Reading & Bates
Crown Central
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Read & Stevens, etal
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Lonna Williams
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Pebble Queen State
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Attachment to Application
for Authorization to Inject

VII

1. Estimated Average Injection Rate - 200 BWPD
   Estimated Maximum Injection Rate - 400 BWPD

2. The tanks and flowline system will be operated as a closed system.

3. Estimated average injection pressure - 100 psi.
   Estimated average injection pressure - 800 psi.

4. The injected fluid will be from the Queen formation.

VIII

The proposed injection zone is known as the Queen formation. This is a Permian age sandstone occurring at a depth of 2870'. The sand is 15' thick and is currently producing oil and gas in offset secondary recovery projects. There are no known fresh water wells within 1/2 mile of the proposed injection well.

IX

The proposed injection well was acidized 10-28-86 prior to swab testing for oil production. No further stimulation is planned.

XII

There is no evidence that the proposed injection interval is hydrologically connected to any sources of fresh water. Produced water is presently being injected into this zone in many offset wells involving secondary recovery.

VI

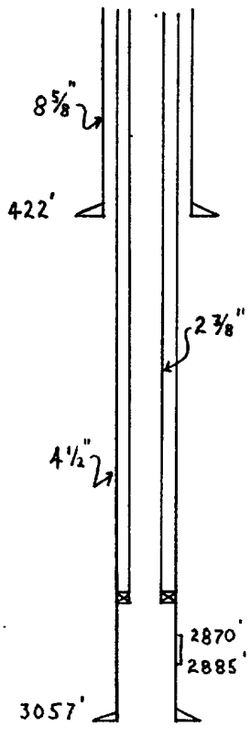
(Attachment to Application for Authorization to Inject)

	Type	Surf. Casing	Prod. Casing	Spud Date	Location	Total Depth	Completion
Circle Ridge Oper. Co. Rock Queen Unit TR-44					T-13-S, R-31-E		
#1	Prod.	8 5/8" @ 314'	5 1/2" @ 3030'	2-21-55	660'FNL & 660'FEL Sec 34	3050'	3030-50' Open hole
2	Inj.	8 5/8" @ 327'	5 1/2" @ 3037'	3-2-55	1980'FNL & 660'FEL Sec 34	3052'	3037-52' Open hole
5	Prod.	8 5/8" @ 263'	5 1/2" @ 2900'	11-15-55	2310'FNL & 990'FWL Sec 34	2914'	2900-14' Open hole
6	Inj.	8 5/8" @ 271'	5 1/2" @ 3020'	1-13-56	660'FNL & 1650'FEL Sec 34	3040'	3020-40' Open hole
7	Prod.	7 5/8" @ 300'	4 1/2" @ 3075'	8-17-55	1980'FNL & 1980'FEL Sec 34	3075'	3036-51' Perfs.
8	Inj.	8 5/8" @ 268'	5 1/2" @ 2903'	9-28-55	1980'FNL & 1980'FWL Sec 34	2946'	2903-46' Open hole
TR-5							
15	Prod.	8 5/8" @ 302'	5 1/2" @ 3027'	11-20-55	1650'FEL & 990'FSL Sec 27	3034'	3027-34' Open hole
16	Inj.	8 5/8" @ 326'	5 1/2" @ 3018'	4-9-55	660'FSL & 660'FEL Sec 27	3037'	3018-37' Open hole
General Oper. Co. Drickey Queen Ut. TR-13							
4	Prod.	8 5/8" @ 292'	5 1/2" @ 3034'	1-28-55	1880'FSL & 2080'FWL Sec 34	3096'	3034-96' Open hole
Dakota Resources Wakan Tanka Fed.							
1	Prod.	9 5/8" @ 313'	5 1/2" @ 2970'	5-3-88	2287'FWL & 538'FSL Sec 27	2970'	2893-98' Perfs

INJECTION WELL DATA SHEET

OPERATOR	LEASE			
Grover-McKinney Oil Company	Caudill			
1	660' FNL & 1980' FWL	34	13S	31E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing

Size 8 5/8 " Cemented with 250 sx.

TOC surface feet determined by Circ

Hole size 12 1/4"

Intermediate Casing

Size _____ " Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4 1/2 " Cemented with 375 sx.

TOC 1200 feet determined by calc.

Hole size 7 7/8"

Total depth 3057'

Injection interval

2870 feet to 2885 feet

(perforated or open-hole, indicate which)

Tubing size 2 3/8" lined with PVC (Rice Engr.) (material) set in a

Baker AD tension (or equiv.) (brand and model) packer at 2800± feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Queen

2. Name of Field or Pool (if applicable) Caprock

3. Is this a new well drilled for injection? [ ] Yes [x] No

If no, for what purpose was the well originally drilled? Drill as a producing well.

Produced uneconomically and shut-in.

4. a. 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) None

b. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.

SCHLUMBERGER WELL SURVEYING CORPORATION

HOUSTON, TEXAS

SIMULTANEOUS

Gamma Ray-Neutron

Chaves
34-13-31
A8686E

COUNTY Chaves
FIELD or LOCATION Caprock Queen
WELL Browning # 4
COMPANY Gulf Oil Corp.

COMPANY GULF OIL CORP.

WELL BROWNING # 4

FIELD CAPROCK QUEEN

LOCATION SEC.34-13S-31E

COUNTY CHAVES

STATE NEW MEXICO

Location of Well
1980' f N&W/L
Sec.34-13S-31E

GRN

4305 ?

Elevation: D.F. 4295
K.B. 4206
G.L. or G.L. 4299

FILING No.

DUPLICATE LOG

NOT TO BE CHECKED OUT

RUN NO.	1		
Date	11-9-55		
Depth Reference	KB 7' Abv. GL		
First Reading	2946		
Last Reading	30		
Footage Measured	2916		
Max. Depth Reached	2947		
Bottom Driller	2930		
Maximum Temp. °F.	95		
Mud: Nature	Natural		
" Density			
" Viscosity			
" Resistivity	@ °F.	@ °F.	@ °F.
Casing Size & 1	to 268	to	to
Weight 2	to	to	to
Open Hole 1	7 7/8 to TD	to	to
2	to	to	to
Fluid Level	Full		
Recording Speed (ft/hr)	2000' & 4000'		
Sensitivity Top	(GR) 40 N)280-400 GR)	N)	
Time Constant	1.2 1.4 2		
Panel	GNF-B		
Opr. Rig Time	1 Hr.		
Sonde Size & Type	3 5/8"		
Truck No.	1758-Hobbs		
Observer	Maxwell		

FOLD HERE

REMARKS: CALIBRATION: BACKGROUND CPS | TEST SOURCE CPS | GALV. RHEOSTAT POSITION | PANEL SENS. POSITION | ELECTRICAL
GAMMA RAY: 40 | 200 | 100 | 20 | CAL
NEUTRON: 90 | 240 | | 40 |

GAMMA RAY
MICROGRAMS RA-EQ/TON

NEUTRON
STANDARD COUNTS/SECOND

Sensitivity Change at 280 feet

Cased Hole — Sensitivity 280 0 to 280 feet

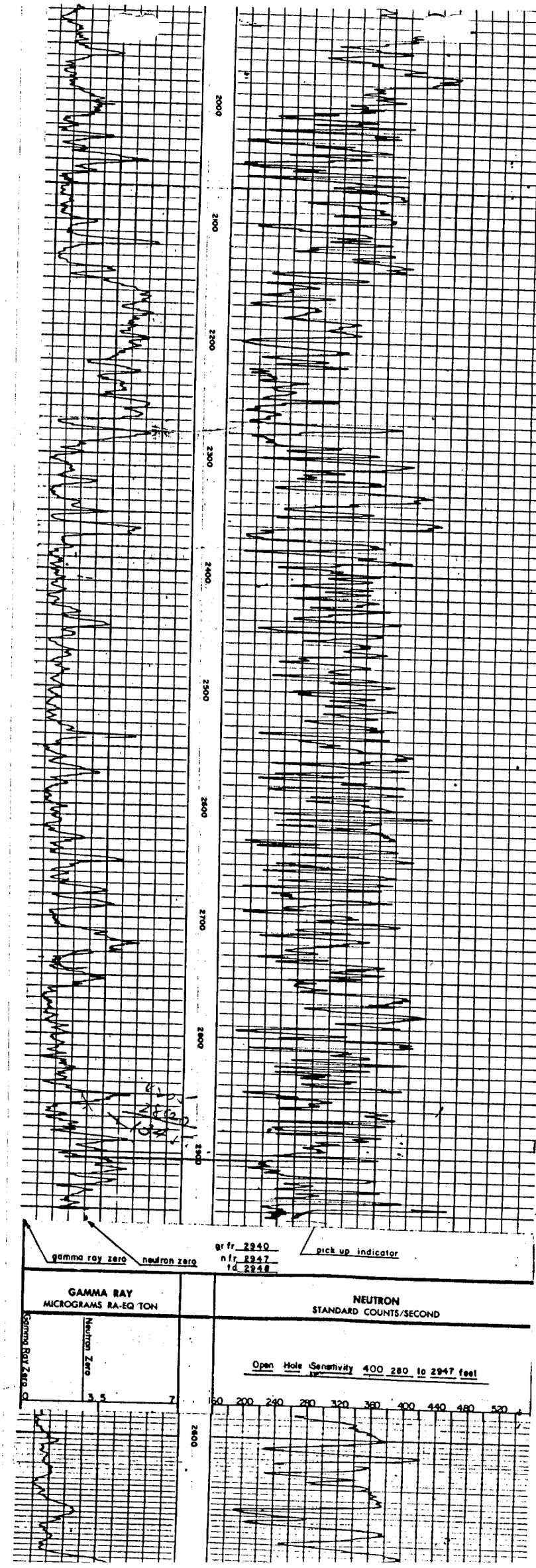
Open Hole — Sensitivity 400 280 to 2947 feet

GAMMA RAY ZERO

NEUTRON ZERO

CASING 268

SENSITIVITY CHANGE


2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
gamma ray zero
neutron zero
gr fr 2940
n fr 2947
fd 2948
pick up indicator
GAMMA RAY
MICROGRAMS RA-EQ TON
Gamma Ray Zero
Neutron Zero
3.5
7
NEUTRON
STANDARD COUNTS/SECOND
Open Hole Sensitivity 400 280 to 2947 feet
160
200
240
280
320
360
400
440
480
520
2800