



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

AMENDED ORDER NO. SWD-359

GARREY CARRUTHERS  
GOVERNOR

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

APPLICATION OF GROVER-MCKINNEY OIL COMPANY

ADMINISTRATIVE ORDER  
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Grover-McKinney Oil Company made application to the New Mexico Oil Conservation Division on November 16, 1988, for permission to complete for salt water disposal its Caudill Well No. 1, located in Unit C, of Section 34, Township 13 South, Range 31 East, NMPM, Chaves County, New Mexico.

THE DIVISION DIRECTOR FINDS THAT:

- (1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations.
- (2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified; and
- (3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met.
- (4) No objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED THAT:

- (1) The applicant herein, Grover-McKinney Oil Company is hereby authorized to complete its Caudill Well No. 1 located in Unit C of Section 34, Township 13 South, Range 31 East, NMPM, Chaves County, New Mexico, in such a manner as to permit the injection of salt water for disposal purposes into the Queen formation at approximately 2870 feet to approximately 2885 feet through 2 3/8-inch plastic-lined tubing set in a packer located at approximately 2800 feet.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

Prior to commencing injection operations into the well, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing or packer.

The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to no more than 574 psi.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Queen formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of disposal equipment and of the mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Hobbs district office of the Division of the failure of the tubing, casing or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction of this cause is hereby retained by the Division for such further order or orders as any seem necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of the operator to conduct operations in a manner which will ensure the protection of fresh water or in a manner inconsistent with the requirements set forth in this order, the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall submit monthly reports of the disposal operations in accordance with Rule 706 and 1120 of the Division Rules and Regulations.

Administrative Order SWD-359  
January 24, 1989  
Page 3

Approved at Santa Fe, New Mexico, on this 24th day of January,  
1989.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY  
for Director

S E A L

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 *Carroll* 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: *James R. Berryman* 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.

## 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.

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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.

**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, 1988

and ending with the issue dated 6

November, 1988

Jean M. Pettit  
Manager

Sworn and subscribed to before me

this 6th day of

November, 1988

Marjorie S. Skipes  
Notary Public

My commission expires

July 21, 1990

(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.



[illegible]



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

*Surface to 200' Ogallala aquifer, ~~water~~ quality available  
See 34 124242 - 50 PPM chl. Ogallala  
2100 - 110 PPM chl.*

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							
#1-A	Prod.	300 SX Casing. 8 5/8" @ 314'	1450 SX Casing. 5 1/2" @ 3030'	2-21-55	T-13-S, R-31-E 660' FNL & 660' FEL	3050'	3030-50'
#8-14	Inj.	300 SX Casing. 8 5/8" @ 327'	1300 SX Casing. 5 1/2" @ 3037'	3-2-55	Sec 34 1980' FNL & 660' FEL	3052'	Open hole 3037-52'
5	Prod.	175 SX Casing. 8 5/8" @ 263'	75 SX 7 1/4" 5 1/2" @ 2900'	11-15-55	Sec 34 2310' FNL & 990' FWL	2914'	Open hole 2900-14'
7D-3000	Inj.	150 SX Casing. 8 5/8" @ 271'	6 3/4" 75 SX 5 1/2" @ 3020'	1-13-56	Sec 34 660' FNL & 1650' FEL	3040'	Open hole 3020-40'
7	Prod.	300 SX Casing. 7 5/8" @ 300'	75 SX 6 3/4" 4 1/2" @ 3075'	8-17-55	Sec 34 1980' FNL & 1980' FEL	3075'	Open hole 3036-51'
6-15	Inj.	175 SX 8 5/8" @ 268'	75 SX 6 3/4" 7 1/4" 5 1/2" @ 2903'	9-28-55	Sec 34 1980' FNL & 1980' FWL	2946'	Perfs. 2903-46'
TR-5	Prod.	300 SX 8 5/8" @ 302'	160 SX 5 1/2" @ 3027'	11-20-55	Sec 27 1650' FEL & 990' FSL	3034'	3027-34'
15	Inj.	200 SX 8 5/8" @ 326'	200 SX 5 1/2" @ 3018'	4-9-55	Sec 27 660' FSL & 660' FEL	3037'	Open hole 3018-37'
16					Sec 27		Open hole
General Oper. Co. Drickey Queen Ut. TR-13							
4	Prod.	150 SX 8 5/8" @ 292'	300 SX 5 1/2" @ 3034'	1-28-55	Sec 34 1880' FSL & 2080' FWL	3096'	3034-96'
							Open hole
Dakota Resources Wakan Tanka Fed.							
1	Prod.	145 SX Casing. 9 5/8" @ 313'	450 SX Casing. 5 1/2" @ 2970'	5-3-88	Sec 27 2287' FWL & 538' FSL	2970'	2893-98'
							Perfs

## INJECTION WELL DATA SHEET

Grover-McKinney Oil Company

Caudill

OPERATOR

LEASE

WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
1	660' FNL & 1980' FWL	34	13S	31E

## Schematic

## Tabular Data

## Surface Casing

Size 8 5/8 " Cemented with 250 sx.TOC surface feet determined by CalcHole size 12 1/4"

## Intermediate Casing

Size \_\_\_\_\_ " Cemented with \_\_\_\_\_ sx.

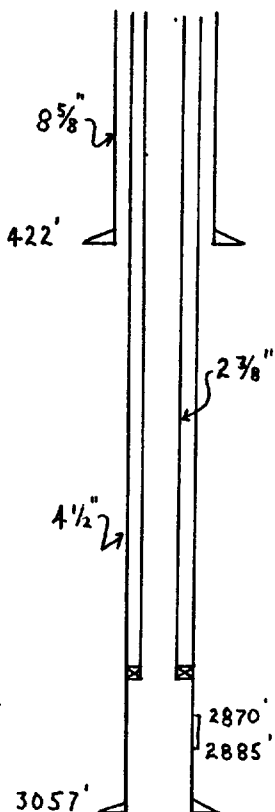
TOC \_\_\_\_\_ feet determined by \_\_\_\_\_

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)


OK

caprock (Queen)

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

(material)

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

(brand and model)

(or describe any other casing-tubing seal).

## Other Data

1. Name of the injection formation Queen2. Name of Field or Pool (if applicable) Caprock3. Is this a new well drilled for injection? ☐ Yes ☒ NoIf no, for what purpose was the well originally drilled? Drill as a producing well.Produced uneconomically and shut-in.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) None

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

# SCHLUMBERGER WELL SURVEYING CORPORATION



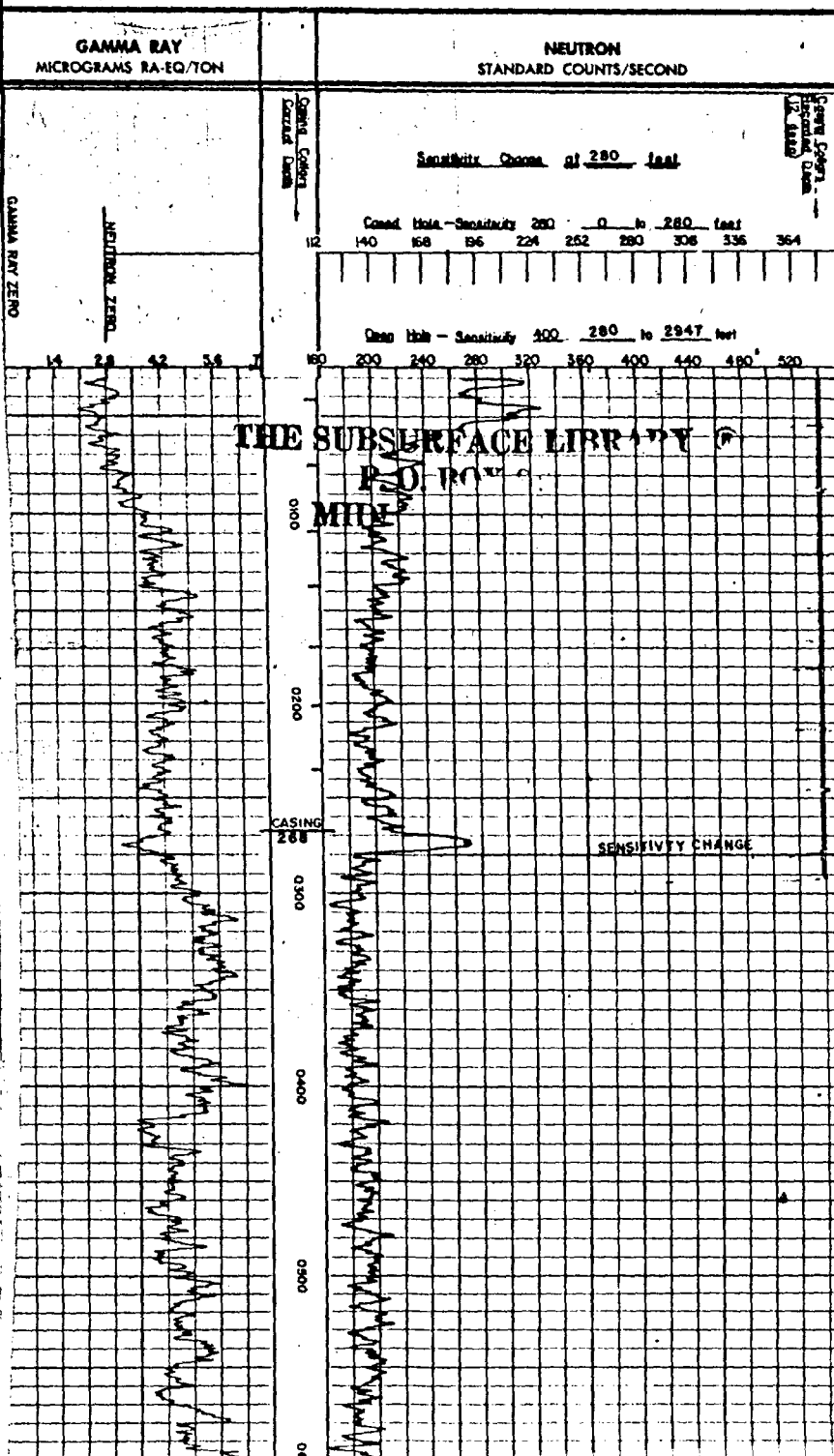
*Gamma Ray-Neutron*

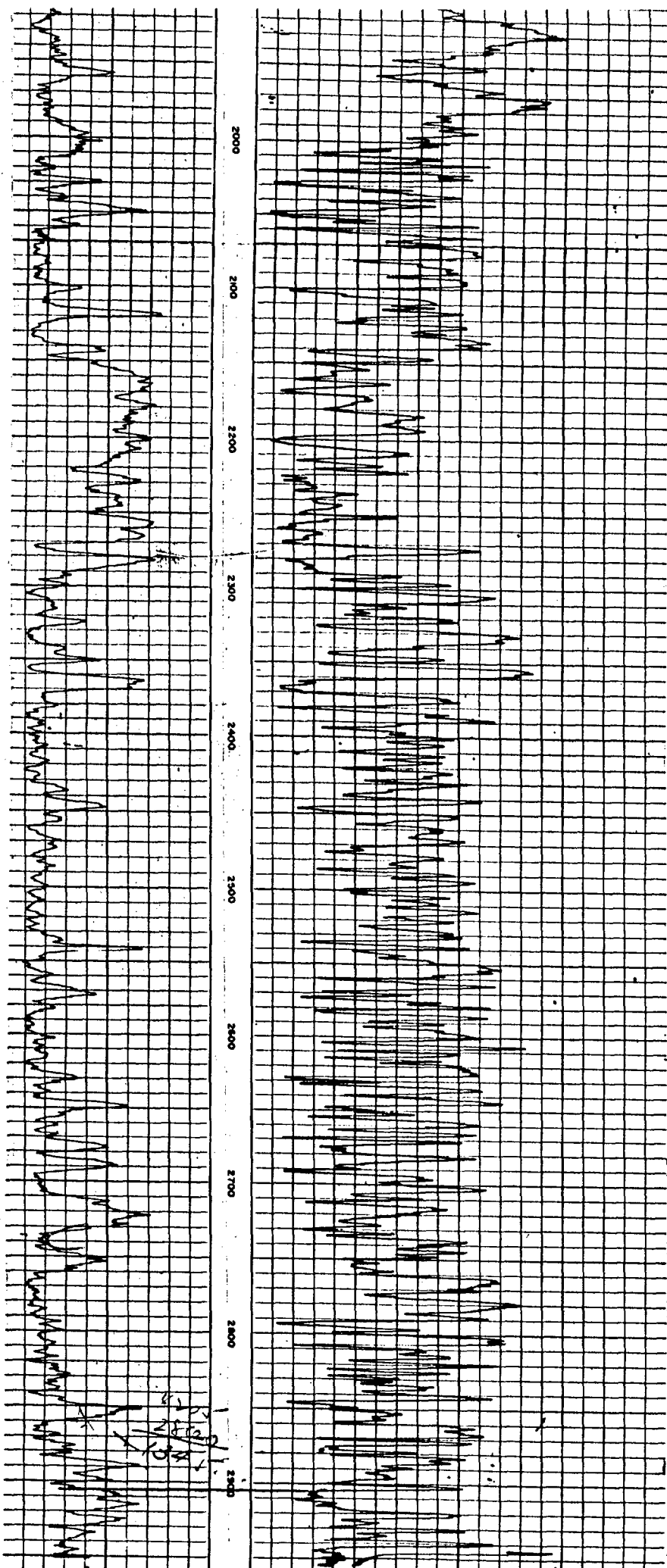
Chavez  
34-13-31

COUNTY CHAVES FIELD or LOCATION Caprock Queen WELL BROWNING # 4 COMPANY GULF OIL CORP.	COMPANY GULF OIL CORP.	Location of Well 1980' f MSH/L Sec. 34-135-31E
	WELL BROWNING # 4	GRN
	FIELD CAPROCK QUEEN	Elevation: D.F. 4295 K.B. 4206 G.S. or G.L. 4299
	LOCATION SEC. 34-135-31E	FILING No.
	COUNTY CHAVES	
STATE NEW MEXICO		

RUN NO.	1
Date	11-9-55
Depth Reference	10' Adv. 51
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	
Casing Size & Weight	8" to 268
Open Hole	7 7/8" to 10"
Fluid Level	Full
Recording Speed (ft/hr)	2000' & 4000'
Sensitivity Top	GA 140 (H) 280-400 (CA)
Time Constant	1.4 s
Panel	GNP-R
Op. Rig Time	1 hr
Sonde Size & Type	1 5/8"
Truck No.	1758-Hobbs
Observer	Maxwell

REMARKS: CALIBRATION BACKGROUND CPS	TEST SOURCE CPS	GAU. INC. CPS	SOB	ANAL. SENS.	CAL
GAMMA RAY 40	200	100		20	
NEUTRON 240	240			4	

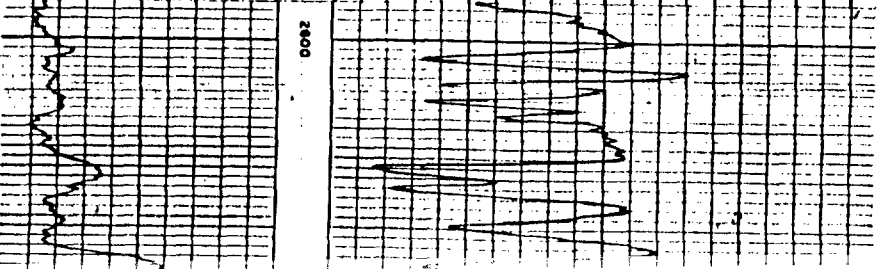




gamma ray zero neutron zero gr fr 2940 n fr 2947 td 2948 pick up indicator

GAMMA RAY MICROGRAMS RA-EQ TON NEUTRON STANDARD COUNTS/SECOND

Open Hole Sensitivity 400 280 to 2947 feet





P 699 101 285  
RECEIPT FOR CERTIFIED MAIL  
NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL  
(See Reverse)

Sent to General Operating Co.	
Street and No. 8495 Jacksboro Hwy.	
P.O. State and ZIP Code Wichita Falls, Texas 76307	
Postage	\$ 65
Certified Fee	85
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	90
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.40
Postmark or Date	

PS Form 3800, June 1985

P 699 101 286  
RECEIPT FOR CERTIFIED MAIL  
NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL  
(See Reverse)

Sent to Dakota Resources, Inc.	
Street and No. 310 W. Wall, Ste 415	
P.O. State and ZIP Code Midland TX 79701	
Postage	\$ 65
Certified Fee	85
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	90
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.40
Postmark or Date	

PS Form 3800, June 1985

P 699 101 287  
RECEIPT FOR CERTIFIED MAIL  
NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL  
(See Reverse)

Sent to Brooks Bowen Circle Ridge Production Inc.	
Street and No. 2102 Club Lake Court	
P.O. State and ZIP Code San Angelo TX 76904	
Postage	\$ .65
Certified Fee	.85
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	.90
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.40
Postmark or Date	

PS Form 3800, June 1985

P 699 101 288  
RECEIPT FOR CERTIFIED MAIL  
NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL  
(See Reverse)

Sent to Attn: Caudill Brothers Slash M L Ranch, Inc.	
Street and No. 530 W. Avenue C	
P.O. State and ZIP Code Lovington NM 88260	
Postage	\$ .65
Certified Fee	.85
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	.90
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.40
Postmark or Date	

PS Form 3800, June 1985

P 699 101 289  
RECEIPT FOR CERTIFIED MAIL  
NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL  
(See Reverse)

Sent to Attn: Ed Taylor Cities Service O&G Corp.	
Street and No. P.O. Box 50250 6 Desta Drive, Ste. 6000	
P.O. State and ZIP Code Midland, Texas 79705	
Postage	\$ .65
Certified Fee	.85
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	.90
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.40
Postmark or Date	

PS Form 3800, June 1985

P 699 101 290  
RECEIPT FOR CERTIFIED MAIL  
NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL  
(See Reverse)

Sent to Attn: Mickey F. Cohlman Chevron USA, Inc.	
Street and No. 15 Smith Road	
P.O. State and ZIP Code Midland, Texas 79705	
Postage	\$ .65
Certified Fee	.85
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	.90
Return Receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.40
Postmark or Date	

PS Form 3800, June 1985



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

11-16-88

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

GARREY CARRUTHERS  
GOVERNOR

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

RE: Proposed:

MC \_\_\_\_\_  
DHC \_\_\_\_\_  
NSL \_\_\_\_\_  
NSP \_\_\_\_\_  
SWD ☒ \_\_\_\_\_  
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