

NOV 2 1984

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**Shell Western E&P Inc.**

A Subsidiary of Shell Oil Company



November 26, 1984

P.O. Box 991  
Houston, TX 77001

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
P. O. Box 2088  
Santa Fe, NM 87501

Gentlemen:

SUBJECT: EXPANSION OF PRESSURE MAINTENANCE PROJECT  
SHELL - NORTH HOBBS (GRAYBURG/SAN ANDRES) UNIT  
HOBBS (GRAYBURG/SAN ANDRES) POOL  
UNIT LETTER F, 2310' FNL & 1320' FWL  
WELL NO. 221  
SEC. 33, T-18-S, R-38-E, NMPM  
LEA COUNTY, NEW MEXICO

Shell Western E&P Inc. respectfully requests administrative approval of expansion of the subject pressure maintenance project. Administrative Order No. R-6199 granted November 30, 1979, authorized Shell to conduct the North Hobbs (Grayburg/San Andres) Unit pressure maintenance project within the subject pool.

The subject well, formerly the Amoco-State G #2, was drilled and completed open hole in the San Andres zone in 1930. Additional perforations were made in the San Andres when the well was deepened 60' (and 5" casing was set) in 1954. It produced only from these perforations until November 1982 when a series of perforations were made in the San Andres. One of these perforation intervals was squeezed off in April 1983. After a decline in production, we now propose to convert the subject well to injection service.

The following information is submitted in support of this request:

1. Plat of Unit with proposed injector and its project area.
2. A diagrammatic sketch of the proposed well, injection tubing, packer, pressure control elements, and identifying the proposed San Andres injection interval.
3. The source of water will be re-injected produced water.
4. The well is cased through the completion interval and will be selectively perforated over a 131' interval in the San Andres zone and acidized with approximately 3000 gals of 15% HCl-NEA. Previous perforated intervals 4203' - 4214' and 4226' - 4230' will be sealed off with a CIBP at 4195'.

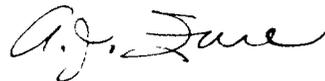
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5. Injection will be into the San Andres formation at an interval of 4047' to 4178'. Surface injection pressure will be limited to .2 psi per foot gradient to the top perforation, with an anticipated initial daily volume of 2000 barrels of water per day, increasing to a maximum of 3500 barrels of water per day. Average and maximum injection pressures will be in accordance with Rule 11 of Order No. R-6199 (expected maximum injection pressure is 809 psi).
6. An Affidavit of Publication certifying the newspaper legal notice.
7. List of offset operator and surface owner.
8. All entities in Item Seven have been notified by certified mail.

If additional information is required, please advise.

Yours very truly,



A. J. Fore  
Supervisor Regulatory and Permitting  
Production Administration  
Mid-Continent Division

JMW

Attachments

cc: State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
P. O. Box 1980  
Hobbs, NM 88240

State of New Mexico  
Office of Land Commissioner  
P. O. Box 1148  
Santa Fe, NM 87501

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: SHELL WESTERN E&P INC.

Address: P. O. BOX 991, HOUSTON, TX 77001

Contact party: A. J. FORE Phone: (713) 870-3787

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 R-6199 (11-30-79)

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 2000 3500 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: A. J. FORE Title SUPV. REG. & PERMITTING

Signature: *A. J. Fore* Date: NOVEMBER 26, 1984

\* 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.

HEARING OCTOBER 3, 1979

CASE NO. 6653, ORDER NO. R-6199

## 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, 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.

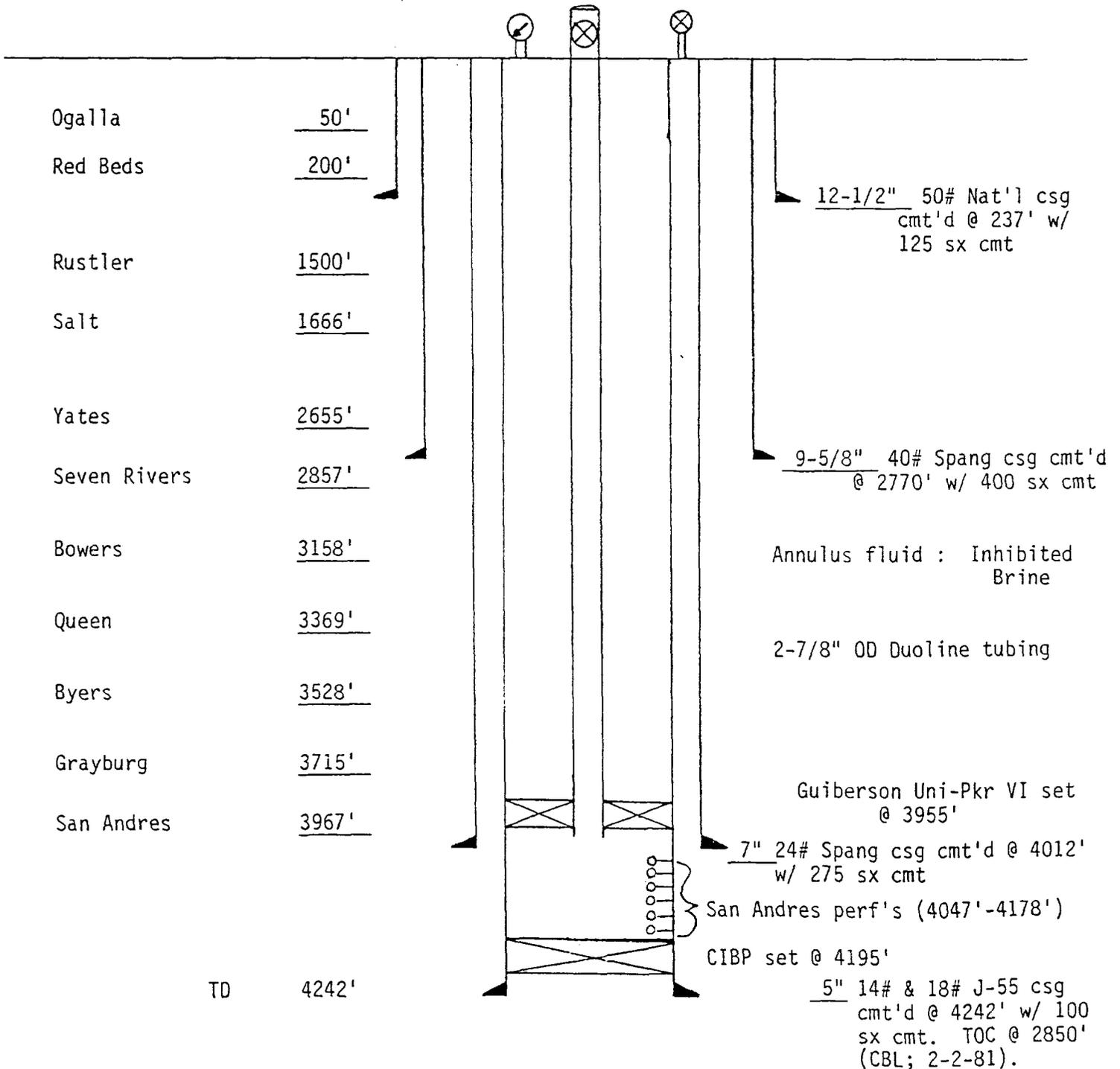
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NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

SHELL WESTERN E&P INC.  
 NORTH HOBBS (GRAYBURG/SAN ANDRES) UNIT  
 N.M.O.C.D. ORDER NO. R-6199  
 SECTION 33, T-18-S, R-38-E  
 WELL NO. 221  
 HOBBS (GRAYBURG/SAN ANDRES) POOL, LEA COUNTY, NEW MEXICO

PROPOSED COMPLETION

ELEVATION: 3643' GR



**AFFIDAVIT OF PUBLICATION**

State of New Mexico,

County of Lea.

I, \_\_\_\_\_

Robert L. Summers

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 in a supplement thereof for a period

of \_\_\_\_\_

One \_\_\_\_\_ weeks.

Beginning with the issue dated

November 13, 19 84

and ending with the issue dated

November 13, 19 84

*Robert L. Summers*  
Publisher.

Sworn and subscribed to before

me this 14 day of

November, 19 84

*Jane Paulowsky*  
Notary Public.

My Commission expires \_\_\_\_\_

3-24, 19 87

(Seal)

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

**LEGAL NOTICE**  
November 13, 1984  
NOTICE is hereby given of the application of Shell Western E & P Inc., Attention: A.J. Fore, Supervisor Regulatory and Permitting, P.O. Box 991, Houston, Texas 77001, (713) 870-3787, to the Oil Conservation Division, New Mexico Energy & Minerals Department, for approval of the following injection well for the purpose of pressure maintenance and enhanced recovery.  
Pool Name: Hobbs (Grayburg/San Andres)  
Lease/Unit Name: North Hobbs (Grayburg/San Andres) Unit  
Well No.: 33:221  
Location: 2310 FNL & 1320 FWL of Sec. 33, T-18-S; R-38-E; NMPM, Lea County, New Mexico.  
The injection formation is San Andres at a depth of approximately 4040 feet below the surface of the ground. Expected maximum injection rate is 3500 barrels per day, and expected maximum injection pressure is 809 psi. Interested parties must file objections or requests for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501, within fifteen (15) days.



SHELL - NORTH HOBBS (G/SA) UNIT

WELL NO.

SURFACE OWNER

221

STATE OF NEW MEXICO  
COMMISSIONER OF PUBLIC LANDS  
P. O. BOX 1148  
SANTA FE, NM 87504-1148

OFFSET OPERATOR

AMOCO PRODUCTION COMPANY  
ATTN: MR. JIM ALLEN  
P. O. BOX 3092  
HOUSTON, TX 77253

WELL DATA SHEET

A.

- (1) Lease Name: North Hobbs (G/SA) Unit

Location: 2310' FNL & 1320' FWL  
Sec. 33, T-18-S, R-38-E  
Well No. 221

- (2) Proposed Casing and Cement Program

Hole Size	Casing	Weight/Foot	Setting Depth	Sx of Cmt	Top of Cmt
16"	12-1/2"	50#	237'	125 SX	SURF. (Calc.)
11-3/4"	9-5/8"	40#	2770'	400 SX	348' (Calc.)
8-3/4"	7"	24#	4012'	275 SX	1268' (Calc.)
6-1/4"	5"	14#, 18#	4242'	100 SX	2850' (CBL)

- (3) 2-7/8" OD Duoline tubing set at approximately 3950'.

- (4) Guiberson Uni-Pkr VI set @ 3955' will be used to isolate the annulus.  
A CIBP will be set @ 4195'.  
Proposed injection interval: 4047' to 4178'

B.

- (1) The name of the injection formation is San Andres; Hobbs (Grayburg/San Andres) Pool.

- (2) The injection interval will be perforated from 4047' to 4178'.

- (3) The well was originally drilled as a San Andres producer.

- (4)
- | Depth       | Work Done            |
|-------------|----------------------|
| 4043'-4052' | Squeezed w/50 sx cmt |
| 4203'-4230' | CIBP @ 4195'.        |

- (5) Next higher oil zone - Queen @ 3369'  
Next lower oil zone - Drinkard @ 6600'±





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

TONEY ANAYA  
 GOVERNOR

POST OFFICE BOX 1980  
 HOBBS, NEW MEXICO 88240  
 (505) 393-6161

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

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

OIL CONSERVATION DIVISION  
 HOBBS DISTRICT OFFICE  
 SANTA FE

Gentlemen:

I have examined the application for the:

Shell Western E&P Inc.	N. Hobbs (G/SA) Unit Sec. 33	#221-F	33-18-38
Operator	Lease & Well No. Unit	S-T-R	

and my recommendations are as follows:

They need to address cement this well up to standard now instead of later---J.S.

Yours very truly,

*Jerry Sexton*  
 Jerry Sexton  
 Supervisor, District 1

/mc

*Jerry,*

*Note order for  
 special instructions.*

*Thanks  
 Gilbert*

LARGE FORMAT  
EXHIBIT HAS  
BEEN REMOVED  
AND IS LOCATED  
IN THE NEXT FILE