



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

APPLICATION OF SHELL WESTERN E & P
INC. TO EXPAND ITS PRESSURE MAINTENANCE
PROJECT IN THE HOBBS (GRAYBURG/SAN ANDRES)
POOL IN LEA COUNTY, NEW MEXICO.

ORDER No. PMX-131

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Order No. R-6199, Shell Western E & P Inc. has made application to the Division on September 13, 1984, for permission to expand its North Hobbs (Grayburg/San Andres) Pressure Maintenance Project in the Hobbs (Grayburg/San Andres) Pool in Lea County, New Mexico.

NOW, on this 25th day of October, 1984, the Division Director finds:

1. That application has been filed in due form.
2. That satisfactory information has been provided that all offset operators have been duly notified of the application.
3. That no objection has been received within the waiting period as prescribed by Rule 701B.
4. That the proposed injection well is eligible for conversion to water injection under the terms of Rule 701.
5. That the proposed expansion of the above referenced Pressure Maintenance project will not cause waste nor impair correlative rights.
6. That the application should be approved.

IT IS THEREFORE ORDERED:

That the applicant, Shell Western E & P Inc., be and the same is hereby authorized to inject water into the Grayburg-San Andres formations through plastic-lined tubing set in a packer at a maximum of 100 feet above the injection interval in the following described well for purposes of Pressure Maintenance to wit:

MAXIMUM SURFACE
INJECTION PRESSURE

North Hobbs (GR/SA) Unit Well No. 232 Sec. 28, T-18-S, R-38-E, Lea County	830 psig.
North Hobbs (GR/SA) Unit Well No. 342 Sec. 29, T-18-S, R-38-E, Lea County	820 psig.
North Hobbs (GR/SA) Unit Well No. 333 Sec. 30, T-18-S, R-38-E, Lea County	825 psig.
North Hobbs (GR/SA) Unit Well No. 443 Sec. 30, T-18-S, R-38-E, Lea County	815 psig.
North Hobbs (GR/SA) Unit Well No. 212 Sec. 33, T-18-S, R-38-E, Lea County	810 psig.

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.

That the casing-tubing annulus (in each well) 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.

That the injection wells or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on each injection well. Note the list of wells for maximum surface injection pressures.

That 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 Grayburg-San Andres formations. That such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

That the operator shall notify the supervisor of the Division's Hobbs District Office before injection is commenced through said wells.

That the operator shall immediately notify the Supervisor of the Division's Hobbs District Office of the failure of the

tubing, casing, or packer in said wells or the leakage of water from or around said wells and shall take such steps as may be timely or necessary to correct such failure or leakage.

That the subject wells shall be governed by all provisions of Division Order No. R-6199 and Rules 702, 703, 704, 705, and 706 not inconsistent herewith.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



R. L. STAMETS,
Acting Director

S E A L

Shell Western E&P Inc.

A Subsidiary of Shell Oil Company



September 10, 1984

P.O. Box 991
Houston, TX 77001

OIL CONSERVATION DIVISION

SEP 23 1984

RECEIVED

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
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. Administrative Order Nos. NSL-1882, 1883, 1884, 1885, and 1886 granted approval of the below-described unorthodox locations on which we propose to drill.

<u>Section No.</u>	<u>Well No.</u>	<u>Location</u>
28	232	2300' FSL & 1350' FWL
29	342	1230' FSL & 2500' FEL
30	333	1400' FSL & 2430' FEL
30	443	1300' FSL & 160' FEL
33	212	205' FNL & 1420' FWL

The following information is submitted in support of this request:

1. Plat of Unit with proposed injectors and their project area.
2. "Typical" diagrammatic sketch for the proposed wells, 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. Injection will be into the San Andres formation at an approximate well interval of 4030' to 4270'. 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 per well, increasing to a maximum of 3500 barrels of water per day per well. Average and maximum injection pressures will be in accordance with Rule 11 of Order No. R-6199.
5. The wells will be cased through the completion interval and selectively perforated over a 200'± interval in the San Andres zones II, IIIU, and IIIL and acidized with approximately 150 gals of 15% HCL-NEA per perforation.
6. An Affidavit of Publication certifying the newspaper legal notice.
7. List of offset operator and surface owners.
8. A tabulation of log tops and proposed injection interval for each well.
9. 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
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 *markus Winder*

Contact party: A. J. FORE Phone: (713) 870-3787 3797

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:

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

Signature: *A. J. Fore* Date: SEPTEMBER 10, 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

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

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.

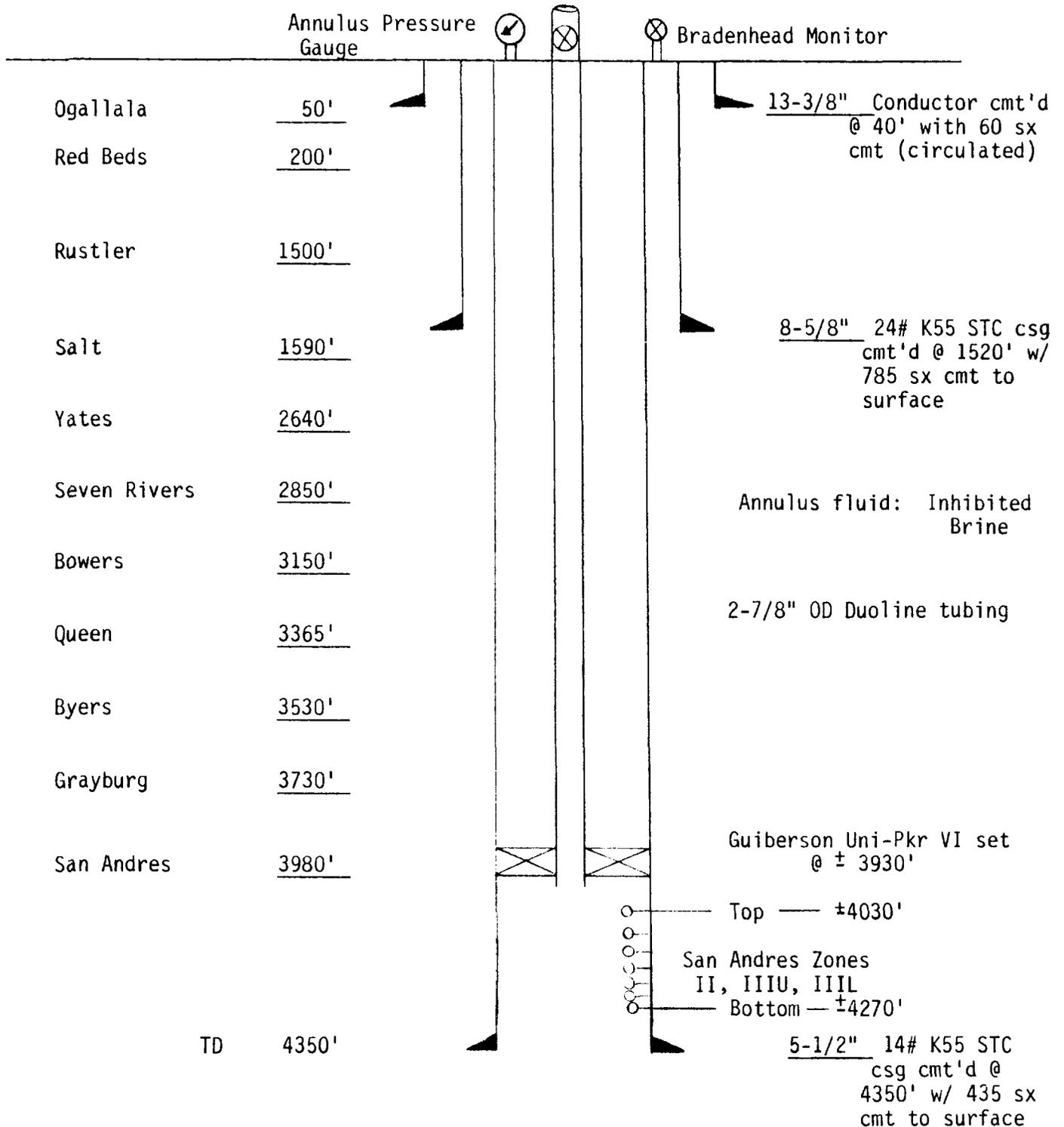
NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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
 SECTIONS 28, 29, 30 & 33, T-18-S, R-38-E
 HOBBS (GRAYBURG/SAN ANDRES) POOL, LEA COUNTY, NEW MEXICO

PROPOSED COMPLETION

EST. ELEVATION: 3640' KB



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

August 15, 19 84

and ending with the issue dated

August 15, 19 84

Robert L. Summers
Publisher.

Sworn and subscribed to before

me this 17 day of

August, 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

August 15, 1984

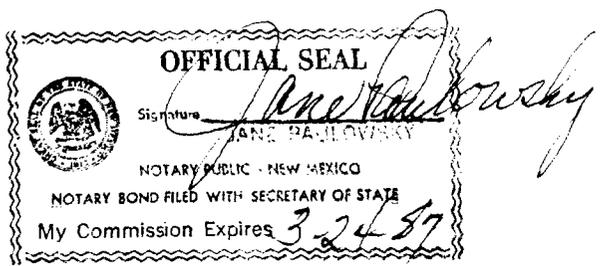
NOTICE is hereby given of the application of Shell Western E&P Inc., Attention: A.J. Fore, Supervisor Regulatory and Permitting, P.O. Box 991, Houston, Texas 77001, (713) 870-3787, to the Oil Conservation Division, New Mexico Energy & Minerals Department, for approval of the following injection wells for the purpose of pressure maintenance and enhanced recovery.

Well Nos.: No. 28-232, No. 30-333, No. 29-342, No. 30-443, No. 33-212

Lease/Unit Name: North Hobbs (Grayburg/San Andres) Unit.

Location: Section 28, T-18-S, R-38-E: No. 28-232; Section 29, T-18-S, R-38-E: No. 29-342; Section 30, T-18-S, R-38-E: No. 30-333, 30-443; Section 33, T-18-S, R-38-E: No. 33-212; 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 1500 barrels per day, and expected maximum injection pressure is 800 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

<u>WELL NO.</u>	<u>SURFACE OWNER</u>
28-232	W. C. GRIMES ESTATE
29-342	C/O FIRST INTERSTATE BANK OF
30-333	LEA COUNTY
30-443	ATTN: MR. JAMES D. HILL
	P. O. BOX 400
	HOBBS, NM 88240
33-212	JIM BACA
	COMMISSIONER OF PUBLIC LANDS
	P. O. BOX 1148
	SANTA FE, NM 87501

OFFSET OPERATOR

AMOCO PRODUCTION COMPANY
ATTN: MR. MIKE DAVIS
P. O. BOX 3092
HOUSTON, TX 77253

LOG TOPS AND PROPOSED PERFORATION INTERVAL

ESTIMATED ELEVATION: 3656' GL

<u>FORMATION</u>	<u>28-232</u>	<u>29-342</u>	<u>30-333</u>	<u>30-443</u>	<u>33-212</u>
Red Beds	241'	216'	211'	206'	251'
Rustler	1581'	1491'	1461'	1526'	1616'
Salt	1671'	1581'	1556'	1576'	1651'
Yates	2696'	2646'	2636'	2631'	2656'
Seven Rivers	2916'	2876'	2871'	2856'	2866'
Bowers	3221'	3186'	3171'	3161'	3166'
Queen	3431'	3396'	3386'	3371'	3371'
Byers	3606'	3566'	3561'	3541'	3531'
Grayburg	3761'	3756'	3751'	3721'	3716'
San Andres	4081'	4021'	4026'	3986'	3971'
Top Perf	4151'	4093'	4108'	4063'	4030'
Bottom Perf	4270'	4270'	4270'	4270'	4270'

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

WELL DATA SHEET

A.

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

Location:

<u>SECTION NO.</u>	<u>WELL NO.</u>	<u>LOCATION</u>
28	232	2300' FSL & 1350' FWL
29	342	1230' FSL & 2500' FEL
30	333	1400' FSL & 2430' FEL
30	443	1300' FSL & 160' FEL
33	212	205' FNL & 1420' FWL

All in T-18-S, R-38-E

(2) Proposed Casing And Cement Program

<u>Hole Size</u>	<u>Casing</u>	<u>Weight/Foot</u>	<u>Setting Depth</u>	<u>SX Of CMT</u>	<u>Est.Top</u>
17- $\frac{1}{2}$ "	13- $\frac{3}{8}$ "	Conductor	40'	60 SX	Surface
12- $\frac{1}{4}$ "	8- $\frac{5}{8}$ "	24#	1520'*	785 SX	Surface
7- $\frac{7}{8}$ "	5- $\frac{1}{2}$ "	14#	4350'	435 SX	Surface

*8-5/8" Casing will be set 20' below the Rustler top

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

(4) Guiberson Uni-PKR VI set within 100' of the top perforation will be used to isolate the annulus.
Proposed injection interval: 4030' to 4270'

B.

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

(2) The injection interval will be perforated.

(3) All five wells will be drilled for injection.

(4) N/A

(5) Next higher oil zone - Queen @ 3365'±
Next lower oil zone - Drinkard @ 6600'±