



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

GARREY CARRUTHERS  
GOVERNOR

1- 16 - 90

POST OFFICE BOX 1400  
HOBBS, NEW MEXICO 87401  
(505) 393-6000

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

742 2048  
7700-155

RE: Proposed:

|     |   |
|-----|---|
| MC  |   |
| DHC |   |
| NSL | X |
| NSP |   |
| SWD |   |
| WFX |   |
| PMX | X |

Gentlemen:

I have examined the application for the:

Phillips Pet. Co. East Vac. AB18A 2d. Tr. 2913 #11-0 29-17-35  
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton  
Supervisor, District 1

/ed



**PHILLIPS PETROLEUM COMPANY**

ODESSA, TEXAS 79762  
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

January 11, 1990

Request for Administrative Approval  
Unorthodox Location  
East Vacuum Grayburg-San Andres Unit  
Tract 2913, Well No. 011  
Vacuum Grayburg San Andres Pool  
Lea County, New Mexico

State of New Mexico  
Energy, Minerals and Natural Resources Dept.  
Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87501-2088

Attn: William J. Lemay  
Director

Gentlemen:

We respectfully request administrative approval to drill the subject well at the proposed unorthodox location of 130' from the south line and 1400' from the east line of Section 29, T-17-S, R-35-E, Lea County, New Mexico. The well is needed as a replacement water-alternating gas injection well for the East Vacuum Grayburg-San Andres Unit, Tract 2913, Well No. W008 in our East Vacuum Grayburg-San Andres Unit Pressure Maintenance-Qualified Tertiary Recovery Project.

Attached is a copy of Form C-102 and a project plat identifying all producing and injection wells therein. All offset operators have been notified by copy of this application sent by certified overnight express.

Your early consideration is appreciated.

Yours very truly,

  
J. L. Maples, Assistant  
Regulation and Proration

JLM:AP:sdb  
REGPRO:APINC:east011

Attachment

cc: NMOCD - Hobbs  
Shell Western E&P  
P. O. Box 576  
Houston, Tx 77007  
  
Exxon Co. USA  
P. O. Box 1700  
Midland, Tx 79702

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Subm. to Appropriate  
District Office  
State Leases - 4 copies  
Fee Leases - 3 copies

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised 1-1-89

OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

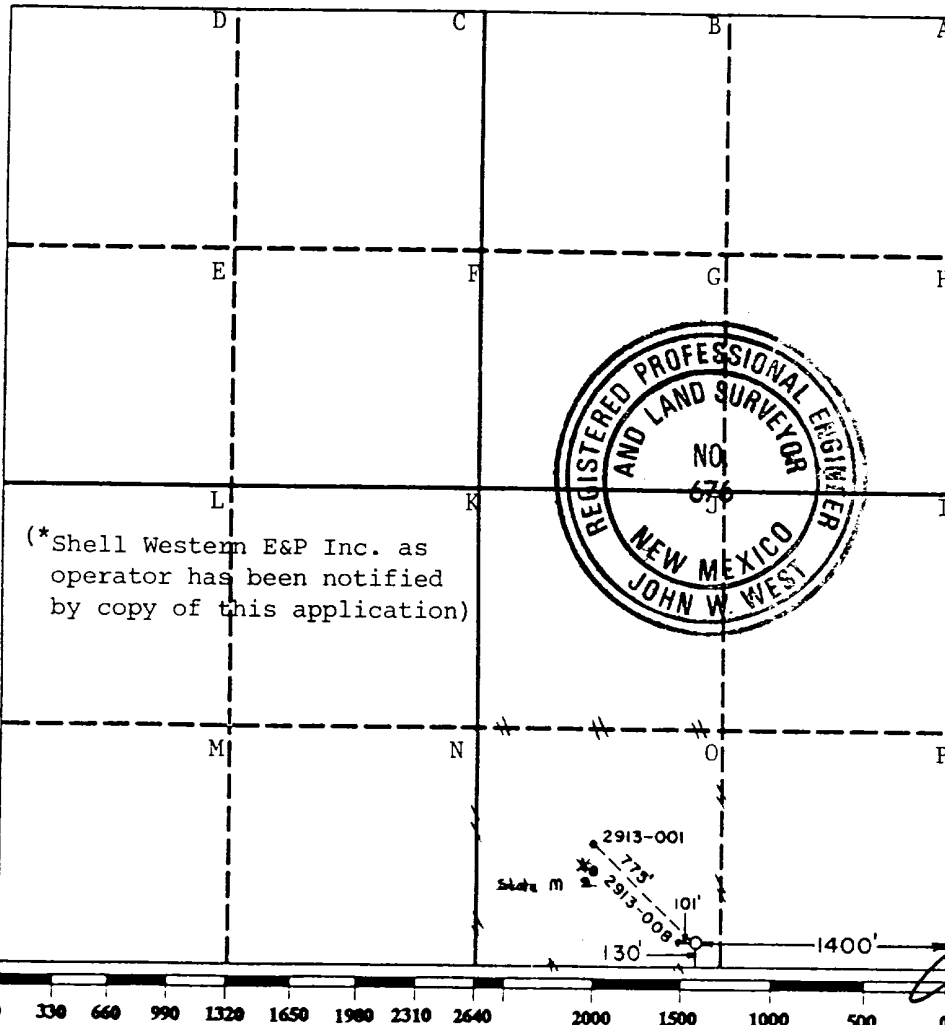
DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

|                                                                                                   |                                            |                      |                                          |                                |                                 |
|---------------------------------------------------------------------------------------------------|--------------------------------------------|----------------------|------------------------------------------|--------------------------------|---------------------------------|
| Operator<br>Phillips Petroleum Company                                                            |                                            |                      | Lease<br>East Vacuum Grayburg/San Andres |                                | Well No. Tract 2913<br>Un. -011 |
| Unit Letter<br>0                                                                                  | Section<br>29                              | Township<br>17 South | Range<br>35 East                         | County<br>NMPM Lea             |                                 |
| Actual Footage Location of Well:<br>130 feet from the South line and 1400 feet from the East line |                                            |                      |                                          |                                |                                 |
| Ground level Elev.<br>3965.4                                                                      | Producing Formation<br>Grayburg-San Andres |                      | Pool<br>Vacuum Grayburg-San Andres       | Dedicated Acreage:<br>40 Acres |                                 |

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc.?  
☐ Yes ☐ No If answer is "yes" type of consolidation \_\_\_\_\_  
If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)  
No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interest, has been approved by the Division.



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

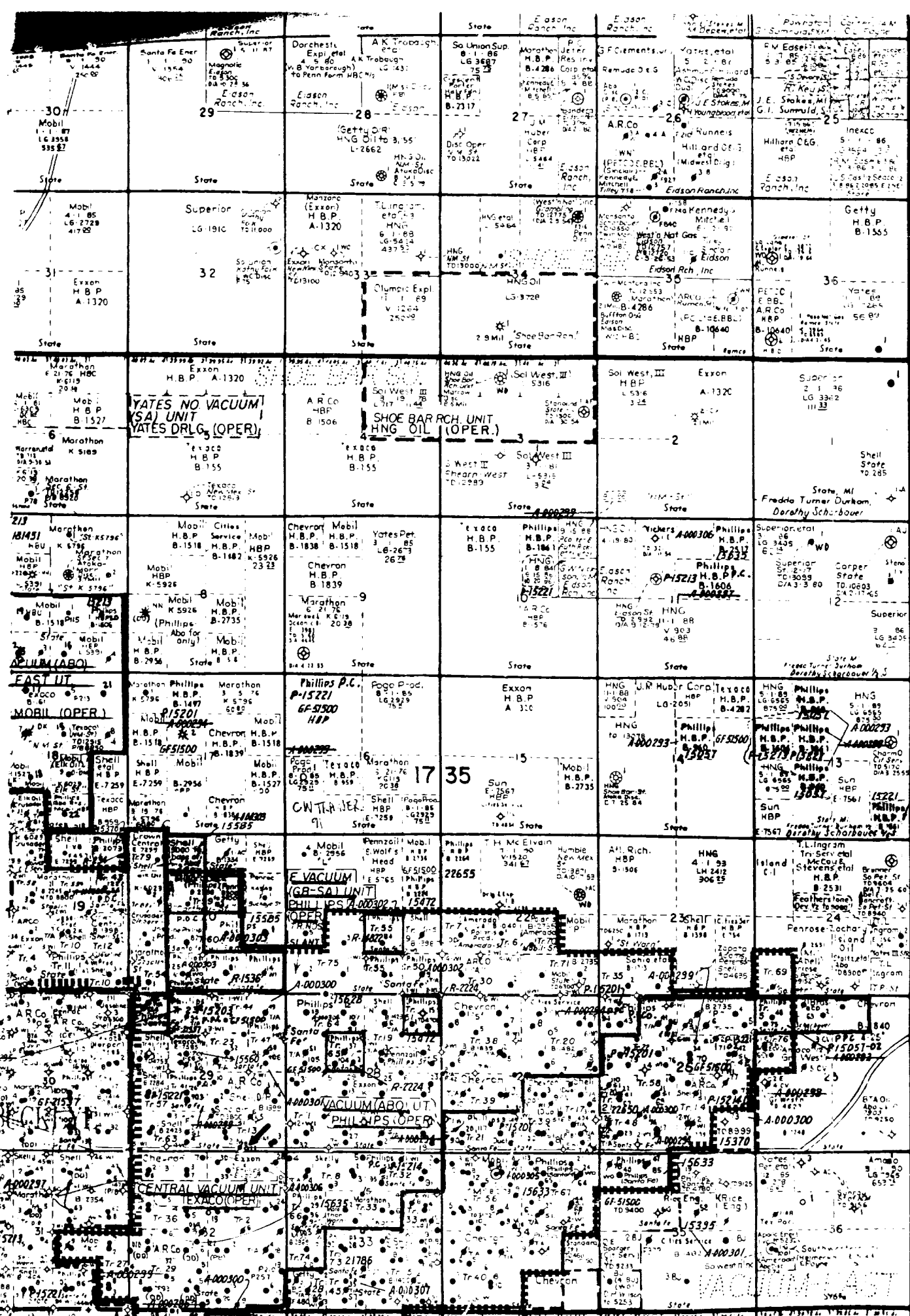
Signature  
*J. L. Maples*  
Printed Name  
J. L. Maples  
Position  
Reg. & Pro. Assistant  
Company  
Phillips Petroleum Company  
Date  
January 10, 1990

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed  
November 23, 1989  
Signature & Seal of Professional Surveyor  
*John W. West*  
Certificate No. JOHN W. WEST, 676  
RONALD J. EIDSON, 3239

125830

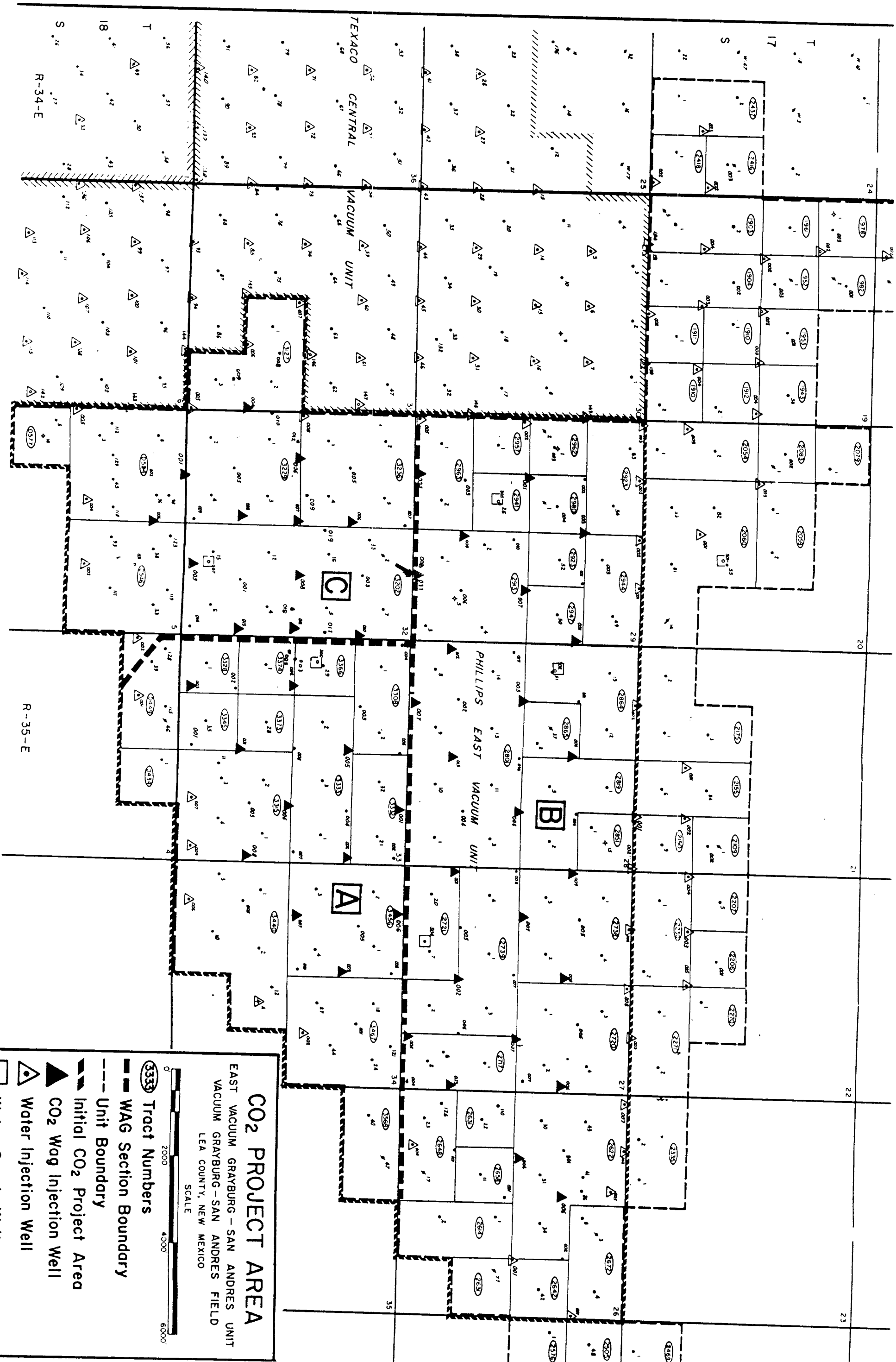


LEA. SUBMISSION

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**PHILLIPS PETROLEUM COMPANY**

ODESSA, TEXAS 79762  
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

January 15, 1990

"Application for Authorization to Inject"  
East Vacuum Grayburg-San Andres Unit  
Tract 2913, Well No. 011  
Vacuum Grayburg-San Andres Pool  
Lea County, New Mexico

State of New Mexico  
Department of Energy, Minerals and Natural Resources  
Oil Conservation Division  
P. O. Box 2088  
Santa Fe, New Mexico 87504

Attn: William J. LeMay

Gentlemen:

Enclosed for processing and administrative approval is "Application for Authorization to Inject" for the subject well to be drilled as a water-alternating-gas well to replace the East Vacuum Grayburg-San Andres Unit, Tract 2913, Well No. W008. The following data is submitted in support of the request:

1. Form C-108
2. Well data information
3. Map identifying wells and leases within two (2) miles and with one-half (1/2) mile radius circle drawn around the proposed injection well.
4. List of data on the proposed operation
5. Certified copy of Public Notice by newspaper

Your consideration and early advice will be appreciated.

Very truly yours,

J. L. Maples, Assistant  
Regulation and Proration

JLM:AP:sdb  
REGPRO:APINC:evg011

Attachments

cc: New Mexico Oil Conservation Division  
P. O. Box 1980  
Hobbs, New Mexico 88240

Parties of Interest - See List

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APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☒ Pressure Maintenance ☐ Disposal ☐ Storage  
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: Phillips Petroleum Company  
Address: 4001 Penbrook Street, Odessa, Texas 79762  
Contact party: J. L. Maples Phone: 915/367-1411
- 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-6856.
- 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: J. L. Maples Title Reg. & Pro. Assistant  
Signature: JL Maples Date: January 11, 1990
- \* 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. October 25, 1978, Case 6367 (Order No. R-5897-approved 1-16-1979)  
amended 11-19-81, Case No. 7426 (Order No. R-6856 - approved 12-16-81)
- DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate district office.

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### III. Well Data

- A. (1) East Vacuum Grayburg-San Andres, Tract 2913, Well No. 011, 1400' FEL and 130' FSL of Sec. 29, T-17-S, R-35-E, Lea County, New Mexico

- (2) Proposed Casing:  
17-1/2" Hole

13-3/8" 54.5 lb/ft J-55 Surface Casing Set at approximately 1600':

Circulate to surface with 1000 sacks of Class "C" + 2%  $\text{CaCl}_2$ .

|                    |                          |
|--------------------|--------------------------|
| Slurry Weight:     | 14.8 ppg                 |
| Slurry Yield:      | 1.32 ft <sup>3</sup> /sx |
| Water Requirement: | 6.3 gals/sx              |

12-1/4" Hole - Switch to 8-1/2" hole at 3000' and continue drilling to TD if no water flow encountered.

If water flow encountered - 9-5/8" 36 lb/ft J-55 Intermediate Casing at 3000':

Lead: 700 sx Class "C" 65/35 Poz + 6% bentonite + 5% salt.

|                    |                          |
|--------------------|--------------------------|
| Slurry Weight:     | 13.2 ppg                 |
| Slurry Yield:      | 1.70 ft <sup>3</sup> /sx |
| Water Requirement: | 8.8 gals/sx              |

Tail: 150 sx Class "C" Neat

|                    |                          |
|--------------------|--------------------------|
| Slurry Weight:     | 14.8 ppg                 |
| Slurry Yield:      | 1.32 ft <sup>3</sup> /sx |
| Water Requirement: | 6.3 gals/sx              |

8-1/2" Hole

5-1/2" Fiber Glass & 15.5, J-55 Production Casing Set at 4800':

Circulate to surface based on caliper volume + 30% excess.

Lead: 1200 sx Class "C" 65/35 Poz + 6% bentonite + 5% salt.

|                    |                          |
|--------------------|--------------------------|
| Slurry Weight:     | 13.2 ppg                 |
| Slurry Yield:      | 1.70 ft <sup>3</sup> /sx |
| Water Requirement: | 8.8 gals/sx              |

Tail: 300 sx Class "C" Neat

|                    |                          |
|--------------------|--------------------------|
| Slurry Weight:     | 14.8 ppg                 |
| Slurry Yield:      | 1.32 ft <sup>3</sup> /sx |
| Water Requirement: | 6.3 gals/sx              |

- (3) Tubing: 2-7/8" O.D. 6.5#, J-55 set at 4466'.
- (4) Packer: Baker Lok-Set (Tension) set @ 4466'.

- B.
- (1) Formation: San Andres Pool - Vacuum
  - (2) Injection Interval: 4486'-4678', perforated
  - (3) Well is to be drilled as an injection well.
  - (4) N/A
  - (5) Queen - 3675'; Blinebry

- VII. (1) Proposed average and maximum daily rate and volumes of fluid to be injected:

|              |                            |                 |
|--------------|----------------------------|-----------------|
|              | Water                      | CO <sub>2</sub> |
| Average Rate | 400 Barrels Fluid Per Day  | 500 MCFD        |
| Maximum Rate | 1000 Barrels Fluid Per Day | 1000 MCFD       |

- (2) Closed system

|                      |          |                 |
|----------------------|----------|-----------------|
|                      | Water    | CO <sub>2</sub> |
| (3) Average Pressure | 1350 PSI | 1800 PSI        |
| Maximum Pressure     | 1350 PSI | 1800 PSI        |

- (4) Source of Fluid: Lea County Underground Water Basin and Reinjecting Produced Fluid. Compatibility proven by present injection into same formation.
- (5) N/A

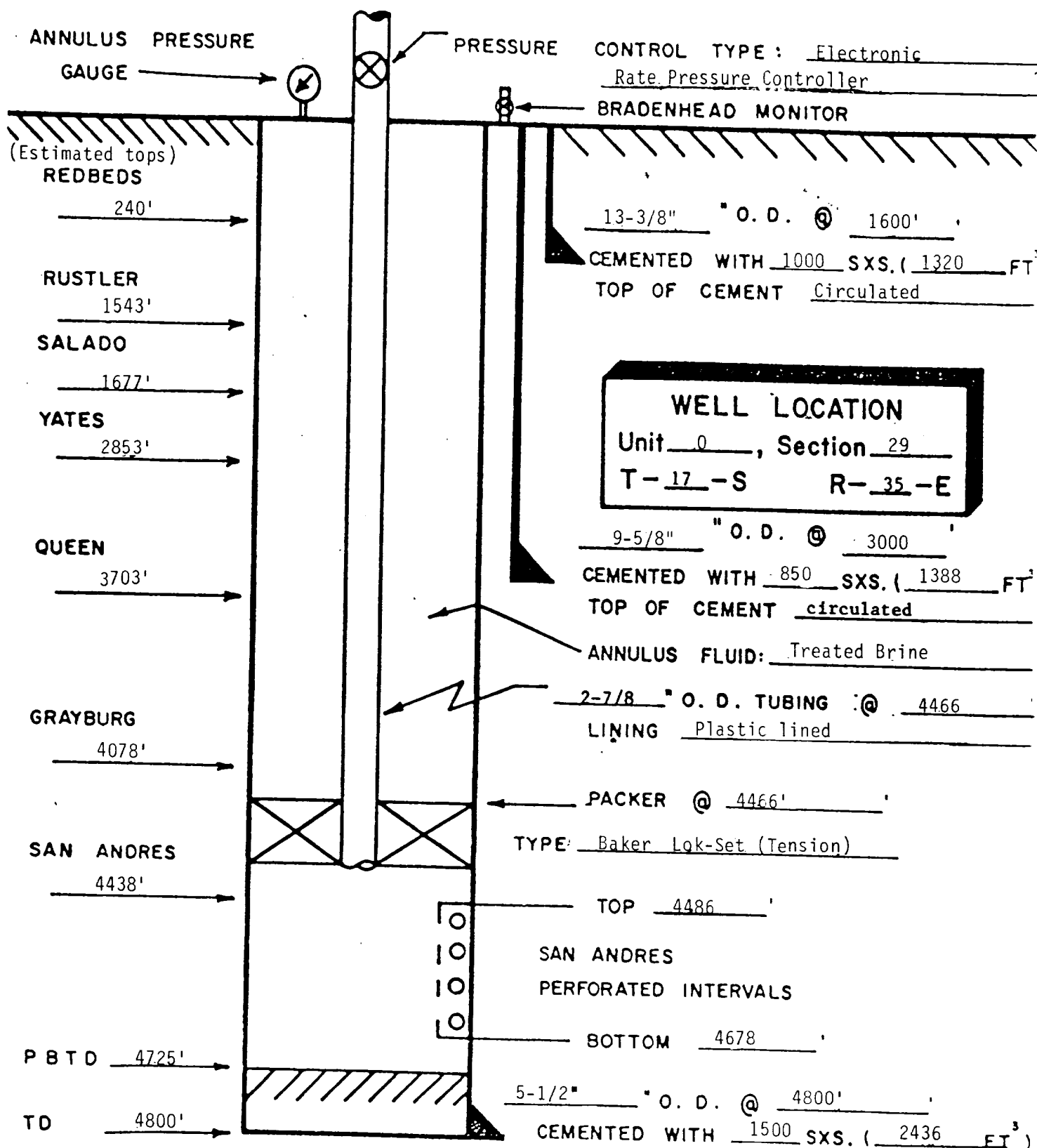
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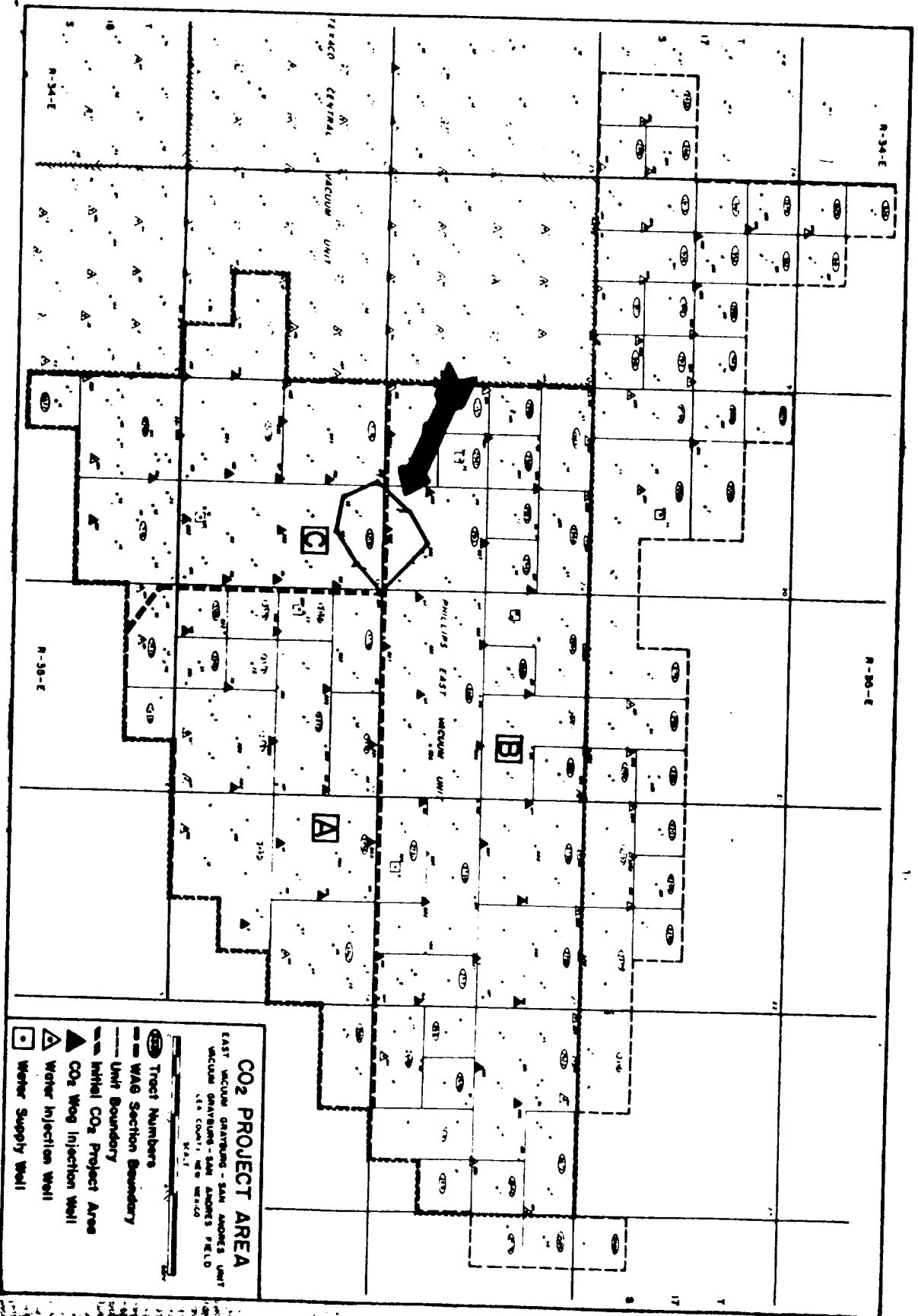
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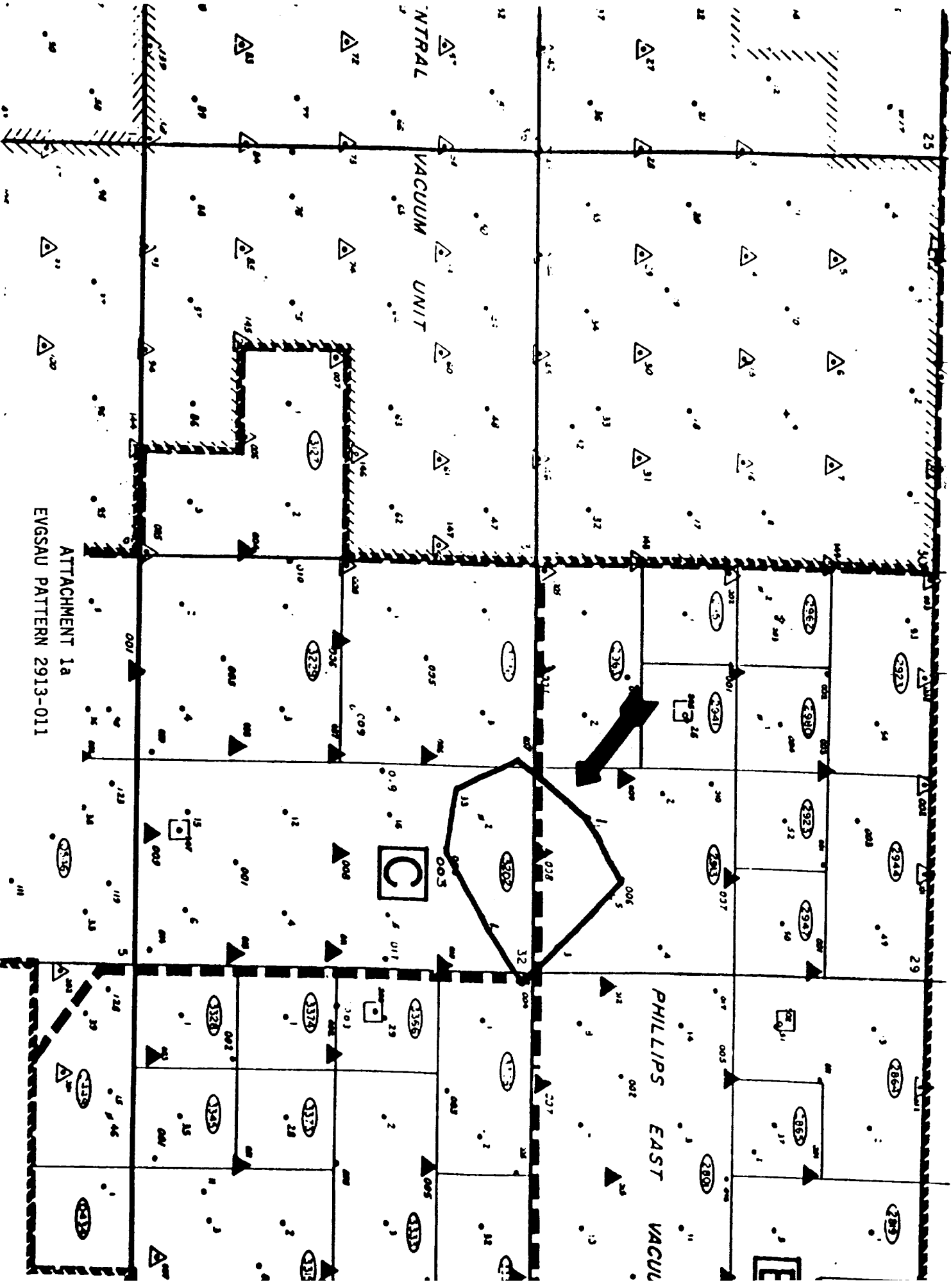
# PHILLIPS PETROLEUM COMPANY

EAST VACUUM UNIT PRESSURE MAINTENANCE PROJECT  
 N. M. O. C. D. R-5897  
 VACUUM GRAYBURG - SAN ANDRES POOL, LEA COUNTY, NEW MEXICO  
 TRACT 2913 WELL 011  
 PROPOSED WATER INJECTOR (REPLACEMENT FOR 2913-008)





ATTACHMENT 1  
 EVGSAU PATTERN 2913-011

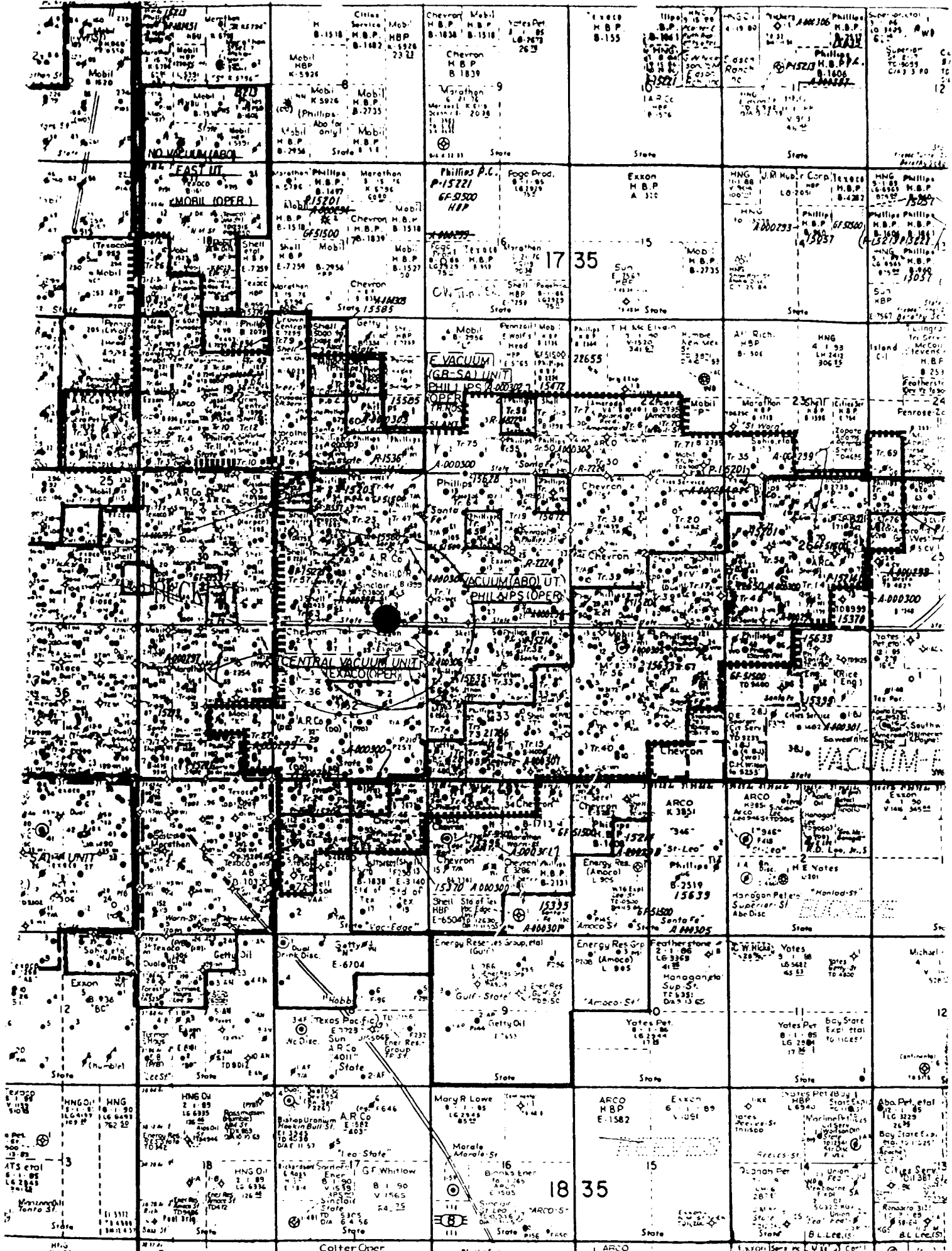


ATTACHMENT 1a  
EVGSAU PATTERN 2913-011

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Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : PHILLIPS PETROLEUM  
Date : 05-01-1989  
Location: NVA - IPD (on 4-27-89)

|                         |          |
|-------------------------|----------|
| Specific Gravity:       | Sample 1 |
| Total Dissolved Solids: | 1.051    |
| pH:                     | 71620    |
| IONIC STRENGTH:         | 7.02     |
|                         | 1.345    |

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 108             | 2160            |
| Magnesium       | (Mg <sup>+2</sup> ) | 72.0            | 875             |
| Sodium          | (Na <sup>+1</sup> ) | 1040            | 23900           |
| Iron (total)    | (Fe <sup>+2</sup> ) | 0.161           | 4.50            |
| Barium          | (Ba <sup>+2</sup> ) | 0.001           | 0.100           |

| <u>ANIONS:</u> |                                   | <u>me/liter</u> | <u>mg/liter</u> |
|----------------|-----------------------------------|-----------------|-----------------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 24.0            | 1460            |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0               | 0               |
| Hydroxide      | (OH <sup>-1</sup> )               | 0               | 0               |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 67.1            | 3230            |
| Chloride       | (Cl <sup>-1</sup> )               | 1130            | 40000           |

| <u>DISSOLVED GASES</u> |                    |       |
|------------------------|--------------------|-------|
| Carbon Dioxide         | (CO <sub>2</sub> ) | 150   |
| Hydrogen Sulfide       | (H <sub>2</sub> S) | 714   |
| Oxygen                 | (O <sub>2</sub> )  | 0.100 |

SCALING INDEX (positive value indicates scale)

Temperature  
86°F      30°C

|                  |                |
|------------------|----------------|
| <u>Calcium</u>   | <u>Calcium</u> |
| <u>Carbonate</u> | <u>Sulfate</u> |
| 0.83             | -9.2           |

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : PHILLIPS PETROLEUM

Date : 09-26-1989

Location: EVGSAU - Source Wells - 2060-S01 (on 9-15-89)

|                         |                 |
|-------------------------|-----------------|
|                         | <u>Sample 1</u> |
| Specific Gravity:       | 1.000           |
| Total Dissolved Solids: | 419             |
| pH:                     | 7.67            |
| IONIC STRENGTH:         | 0.008           |

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| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 3.12            | 62.4            |
| Magnesium       | (Mg <sup>+2</sup> ) | 0.880           | 10.7            |
| Sodium          | (Na <sup>+1</sup> ) | 1.77            | 40.6            |

| <u>ANIONS:</u> |                                   |      |      |
|----------------|-----------------------------------|------|------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 3.40 | 207  |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide      | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 1.12 | 54.0 |
| Chloride       | (Cl <sup>-1</sup> )               | 1.24 | 44.0 |

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SCALING INDEX (positive value indicates scale)

| <u>Temperature</u> |      | <u>Calcium</u>   | <u>Calcium</u> |
|--------------------|------|------------------|----------------|
|                    |      | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F               | 30°C | 0.29             | -18            |

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707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : PHILLIPS PETROLEUM

Date : 09-26-1989

Location: EVGSAU - Source Wells - 2864-S02 (on 9-15-89)

|                         |                 |
|-------------------------|-----------------|
|                         | <u>Sample 1</u> |
| Specific Gravity:       | 1.000           |
| Total Dissolved Solids: | 653             |
| pH:                     | 7.51            |
| IONIC STRENGTH:         | 0.012           |

---

| <u>CATIONS:</u> |                     | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|---------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> ) | 3.32            | 66.4            |
| Magnesium       | (Mg <sup>+2</sup> ) | 1.24            | 15.1            |
| Sodium          | (Na <sup>+1</sup> ) | 4.17            | 95.9            |

| <u>ANIONS:</u> |                                   |      |      |
|----------------|-----------------------------------|------|------|
| Bicarbonate    | (HCO <sub>3</sub> <sup>-1</sup> ) | 6.00 | 366  |
| Carbonate      | (CO <sub>3</sub> <sup>-2</sup> )  | 0    | 0    |
| Hydroxide      | (OH <sup>-1</sup> )               | 0    | 0    |
| Sulfate        | (SO <sub>4</sub> <sup>-2</sup> )  | 1.04 | 50.0 |
| Chloride       | (Cl <sup>-1</sup> )               | 1.69 | 60.0 |

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SCALING INDEX (positive value indicates scale)

|      |                    |                  |                |
|------|--------------------|------------------|----------------|
|      | <u>Temperature</u> | <u>Calcium</u>   | <u>Calcium</u> |
|      |                    | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F | 30°C               | 0.39             | -18            |

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707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : PHILLIPS PETROLEUM

Date : 09-26-1989

Location: EVGSAU - Source Wells - 3202-S07 (on 9-15-89)

|                         |                 |
|-------------------------|-----------------|
|                         | <u>Sample 1</u> |
| Specific Gravity:       | 1.000           |
| Total Dissolved Solids: | 259             |
| pH:                     | 7.24            |
| IONIC STRENGTH:         | 0.006           |

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| <u>CATIONS:</u> |                                   | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|-----------------------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> )               | 1.88            | 37.6            |
| Magnesium       | (Mg <sup>+2</sup> )               | 1.32            | 16.0            |
| Sodium          | (Na <sup>+1</sup> )               | 0.796           | 18.3            |
| <br>            |                                   |                 |                 |
| <u>ANIONS:</u>  |                                   |                 |                 |
| Bicarbonate     | (HCO <sub>3</sub> <sup>-1</sup> ) | 1.40            | 85.4            |
| Carbonate       | (CO <sub>3</sub> <sup>-2</sup> )  | 0               | 0               |
| Hydroxide       | (OH <sup>-1</sup> )               | 0               | 0               |
| Sulfate         | (SO <sub>4</sub> <sup>-2</sup> )  | 0.791           | 38.0            |
| Chloride        | (Cl <sup>-1</sup> )               | 1.81            | 64.0            |

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SCALING INDEX (positive value indicates scale)

|      |                    |                  |                |
|------|--------------------|------------------|----------------|
|      | <u>Temperature</u> | <u>Calcium</u>   | <u>Calcium</u> |
|      |                    | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F | 30°C               | -0.73            | -19            |

Unichem International

707 North Leech

P.O.Box 1499

Hobbs, New Mexico 88240

Company : PHILLIPS PETROLEUM

Date : 09-26-1989

Location: EVGSAU - Source Wells - 3366-S06 (on 9-15-89)

|                         |                 |
|-------------------------|-----------------|
|                         | <u>Sample 1</u> |
| Specific Gravity:       | 1.000           |
| Total Dissolved Solids: | 315             |
| pH:                     | 7.16            |
| IONIC STRENGTH:         | 0.008           |

---

| <u>CATIONS:</u> |                                   | <u>me/liter</u> | <u>mg/liter</u> |
|-----------------|-----------------------------------|-----------------|-----------------|
| Calcium         | (Ca <sup>+2</sup> )               | 2.44            | 48.8            |
| Magnesium       | (Mg <sup>+2</sup> )               | 2.20            | 26.7            |
| Sodium          | (Na <sup>+1</sup> )               | 0.156           | 3.60            |
| <br>            |                                   |                 |                 |
| <u>ANIONS:</u>  |                                   |                 |                 |
| Bicarbonate     | (HCO <sub>3</sub> <sup>-1</sup> ) | 2.20            | 134             |
| Carbonate       | (CO <sub>3</sub> <sup>-2</sup> )  | 0               | 0               |
| Hydroxide       | (OH <sup>-1</sup> )               | 0               | 0               |
| Sulfate         | (SO <sub>4</sub> <sup>-2</sup> )  | 0.791           | 38.0            |
| Chloride        | (Cl <sup>-1</sup> )               | 1.81            | 64.0            |

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SCALING INDEX (positive value indicates scale)

|      |                    |                  |                |
|------|--------------------|------------------|----------------|
|      | <u>Temperature</u> | <u>Calcium</u>   | <u>Calcium</u> |
|      |                    | <u>Carbonate</u> | <u>Sulfate</u> |
| 86°F | 30°C               | -0.51            | -18            |

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HOBBS OFFICE

Unichem International

707 North Leech

P.O. Box 1499

Hobbs, New Mexico 88240

Company : PHILLIPS PETROLEUM

Date : 9-25-89

Date: 9-29-89  
Location: EVGSAU - Source Wells - 2721-S04 (on 9-15-89)

Sample 1

Specific Gravity:

1,000

Total Dissolved Solids:

253

pH :

7.50

IONIC STRENGTH:

0.005

[illegible]

CATIONS:

CATIONS:  
Calcium ( $\text{Ca}^{+2}$ )

me/liter

mg/liter

**Magnesium** ( $Mg^{+2}$ )

1.20

14.6

Sodium ( $\text{Na}^{+1}$ )

1.44

33.1

**ANIONS:**

Bicarbonate ( $\text{HCO}_3^{-1}$ )

1.40

85.4

Carbonate ( $\text{CO}_3^{-2}$ )

0

0

Hydroxide ( $\text{OH}^{-1}$ )

0

0

Sulfate ( $\text{SO}_4^{-2}$ )

0.750

36.0

Chloride (Cl<sup>-1</sup>)

1.69

60.0

[illegible]

SCALING INDEX (positive value indicates scale)

Temperature

86°F                      30°C

| Calcium Carbonate | Calcium Sulfate |
|-------------------|-----------------|
| -0.66             | -19             |

I

AFFIDAVIT OF PUBLICATION

State of New Mexico,  
County of Lea.

I. George W. Moore

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 a supplement thereof for a period

of \_\_\_\_\_

One weeks.  
Beginning with the issue dated

January 1, 19 90  
and ending with the issue dated

January 1, 19 90

*I. George W. Moore*  
Publisher.

Sworn and subscribed to before

me this 10<sup>th</sup> day of

January, 19 90  
*Samuel A. Cole*  
Notary Public.

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

July 12, 19 93  
(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.

45 LEGAL NOTICE

January 1, 1990

NOTICE is hereby given of the application of Phillips Petroleum Company Attention: K. Am. Manager, Permian Basin Region, 4001 Penbrook Street, Odessa, Texas 79762 Telephone (915) 367-1324, to Oil Conservation Division, Energy and Minerals Department, State of New Mexico, for approval of the following injection well(s) for the purpose of water-alternating gas injection Well(s) No(s): 11 Lease/Unit Names: East Vacuum Gb/SA Unit Location: Unit 0, 130' FSL and 1400' FEL of Section 29, T-17-S, R-35-E, Lea County, New Mexico.

The injection formation is San Andres at a depth of 4486-4678 feet below the surface of the ground. Expected maximum injection rate is 400 barrels per day, and expected injection pressure is 1350 psi; with an expected maximum injection rate of 500 mcf per day, and expected injection pressure of 1800 psi. Interested parties must file objections or requests for hearing with the Oil Conservation Division, Energy and Minerals Department, State of New Mexico 87504-2088, within fifteen days of this publication.

JAN 12 1990  
PBR

## PARTIES OF INTEREST

### Operators within one-half mile:

ARCO Oil and Gas  
P. O. Box 2819  
Dallas, Texas 75221

Chevron U.S.A., Inc.  
P. O. Box 1660  
Midland, Texas 79702

Exxon Company, U.S.A.  
P. O. Box 1700  
Midland, Texas 79702

Shell Western E&P  
P. O. Box 576  
Houston, Texas 77001

Texaco, Inc.  
4601 DTC Blvd.  
Denver, Colorado 80237

### Surface Land Owner:

State of New Mexico  
Office of Public Lands  
P. O. Box 1148  
Santa Fe, New Mexico 87504-1148

REGPRO:APINC:parties.011

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OCD  
HOBBS OFFICE

P 140 239 234

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| Texaco Inc                                                    |    |
| Street and No.                                                |    |
| 4601 DTC Blvd.                                                |    |
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| State of New Mexico                                           |    |
| Street and No.                                                |    |
| P. O. Box 1148                                                |    |
| P.O., State and ZIP Code                                      |    |
| Santa Fe, NM 87504-1148                                       |    |
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| Exxon Co. USA                                                 |    |
| Street and No.                                                |    |
| P. O. Box 1700                                                |    |
| P.O., State and ZIP Code                                      |    |
| Midland, Tx 79702                                             |    |
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|---------------------------------------------------------------|----|
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| Chevron USA                                                   |    |
| Street and No.                                                |    |
| P. O. Box 1660                                                |    |
| P.O., State and ZIP Code                                      |    |
| Midland, Tx 79702                                             |    |
| Postage                                                       | \$ |
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| Sent to                                                       |    |
| ARCO Oil & Gas Co.                                            |    |
| Street and No.                                                |    |
| P.O., State and ZIP Code                                      |    |
| Dallas P. O. Box 2819, Tx 75221                               |    |
| Postage                                                       | \$ |
| Certified Fee                                                 |    |
| Special Delivery Fee                                          |    |
| Restricted Delivery Fee                                       |    |
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