STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

5

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: Devon Energy Operating Corporation

Address: 20 N. Broadway, Suite 1500, Oklahoma City, OK 73102-8260

Contact party: Randy Jackson Phone: (405) 235-3611

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. refer to Attachment III

IV. Is this an expansion of an existing project? [X] yes [ ] no
If yes, give the Division order number authorizing the project R-2268.

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. Refer to Attachment V

* 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. Refer to Attachment VI

VII. Attach data on the proposed operation, including: Refer to Attachment VII

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. Refer to Attachment VIII

IX. Describe the proposed stimulation program, if any. We anticipate perforating 3196'-4070' and acidizing these perfs w/15% NEFE acid.

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.) Copies of current logs are on file.

* 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. There are no known producing fresh water wells within a one mile area of the proposed injection well.

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. Refer to Attachment XII

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form. Refer to Attachment XIV

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: Randy Jackson Title District Engineer

Signature: Randy Jackson Date: 11/10/94

* 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 the appropriate Division

CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: DEVON ENERGY CORP. Well: [illegible] - WEST [illegible] - 10 WELLS

Contact: PAULEY TARKINGTON Title: ASST. F[illegible] Phone: 405-235-3611

DATE IN 11-28-94 RELEASE DATE 12-12-94 DATE OUT 1-19-95

Proposed Injection Application is for: X WATERFLOOD ___ Expansion ___ Initial

Original Order: R- 2265 ___ Secondary Recovery ___ Pressure Maintenance

SENSITIVE AREAS ___ SALT WATER DISPOSAL

___WIPP ___ Capitan Reef ___ Commercial Operation

Data is complete for proposed well(s)? YES Additional Data _____

AREA of REVIEW WELLS

4 Total # of AOR 5 # of Plugged Wells

Y Tabulation Complete YES Schematics of P & A's

15 Cement Tops Adequate X AOR Repair Required

INJECTION INFORMATION

Injection Formation(s) [illegible]

Source of Water [illegible] Compatible YES

PROOF OF NOTICE

X Copy of Legal Notice Y Information Printed Correctly

Y Correct Operators Y Copies of Certified Mail Receipts

12 Objection Received 12 Set to Hearing _____ Date

NOTES: [illegible] FOR BLM AND STATE OFFICE - NOT ON PROOF OF NOTICE.

APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL ___

COMMUNICATION WITH CONTACT PERSON:

1st Contact: Y Telephoned ___ Letter 12-14-94 Date Nature of Discussion [illegible]

2nd Contact: ___ Telephoned ___ Letter _____ Date Nature of Discussion _____

3rd Contact: ___ Telephoned ___ Letter _____ Date Nature of Discussion _____

ATTACHMENT III (tabular)

WELL DATA

A. (1) H. E. West "A" #5
1980' FSL & 1980' FEL
Section 4-T17S-R31E
Eddy County, NM

(2) Surface: 8 5/8", 24.0#, J-55 set @ 695' w/100 sx regular cement in cable tool hole, size NA. Est. TOC @ 200'
Production: 7", 17 & 20#, J-55 set @ 3196' w/ 200 sx cmt in cable tool hole, size NA. Est. TOC @ 1130'.
The 7" casing was perf'd @ 695' w/ 4 JSPF. A retainer was set and cement was circulated up the 7" & 8 5/8" annulus to the surface. The 8 5/8" braden head valve was closed and 15 sx cement were szueezed into formation @ 695'.
Proposed: The open hole section (3196'-3650') will be deepened to 4070'. A string of 4 1/2", 10.5#, J-55 casing will be run from 4070' to the surface. The 4 1/2" string will be cemented to the surface. Hole size 6 1/4".

(3) Injection Tubing: 2 3/8", 4.7#, J-55 plastic lined set at 3190'.

(4) Packer: Baker, tension (or equivalent) set @ 3190' in tension.

Schematic: See Attachment III (schematic).

B. (1) Injection Formation: Grayburg San Andres within the Grayburg-Jackson pool.

(2) Injection Interval: 3196'-4070'.

(3) Original Purpose of Well: The well was originally completed as a producer from the Grayburg San Andres through the open hole interval 3196'-3650'.

(4) Added Perforated Intervals: After deepening the existing open hole from 3650' to 4070', logs will be run. Based on the new log data, the interval 3196' to 4070' will be perforated.

(5) Higher/Lower Oil Zones: The top of the Seven Rivers is at +/- 2300' and there are no known lower zones.

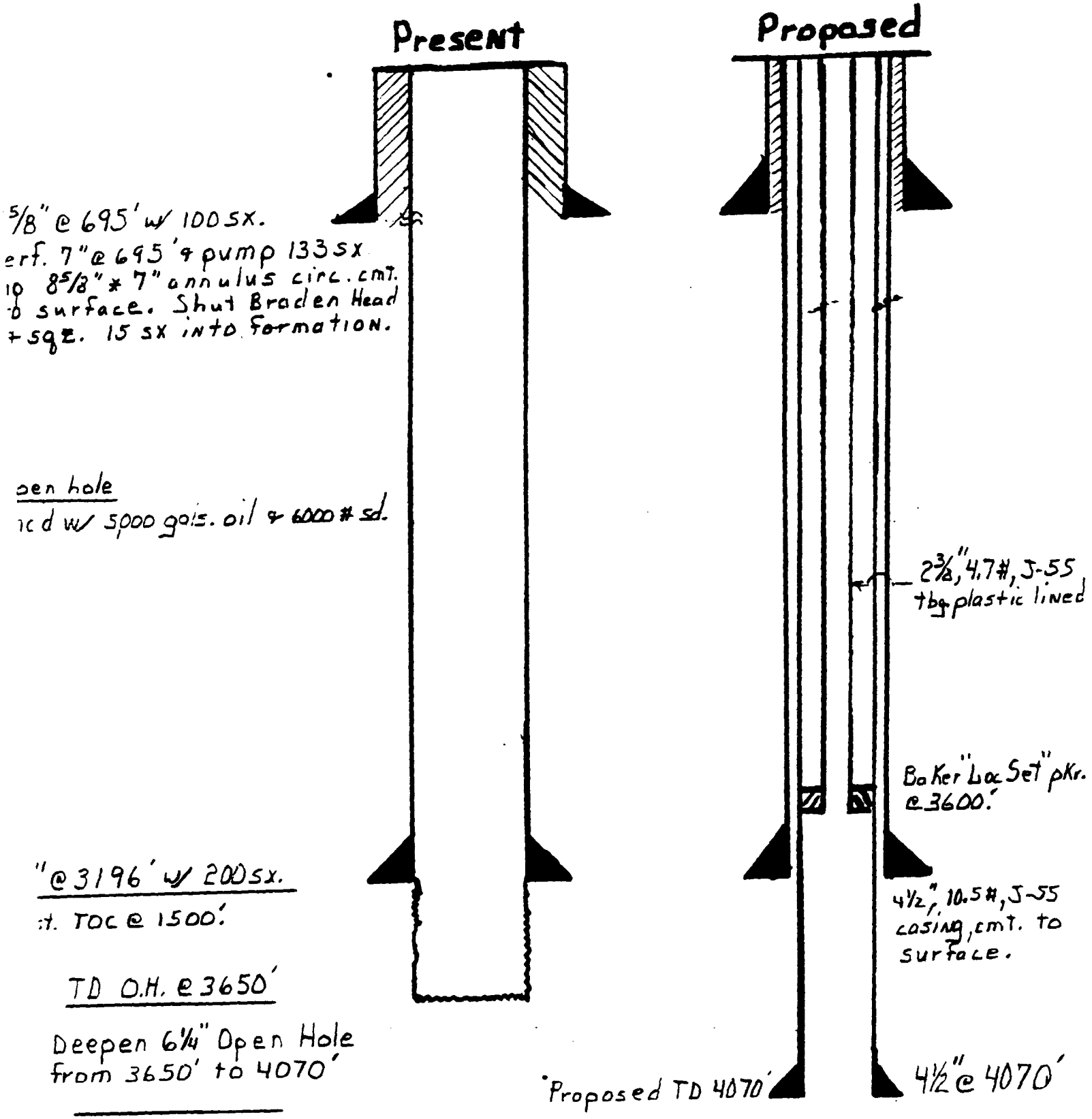
ATTACHMENT III (Schematic)

devon
OPERATING CORPORATION
20 North Broadway, Suite 1600
Oklahoma City, Oklahoma 73102-8260
Telephone 405/228-8611
FAX 405/552-4550

WELLBORE SCHEMATIC

WELL: H. E. West "A" No. 5

LOCATION: 1980' FSL & 1980' FEL
4-17S-31E
Eddy Co., N.M.



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

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ATTACHMENT VI

WELL NAME	LOCATION	SPUD DATE	COMPLETION DATE	TYPE OF WELL	DEPTH/PBTD	COMPLETION RECORD
H. E. West "A" #23	140' FSL & 35' FEL Sec. 4-17S-31E	3/1/93	9/3/93	Producting Oil	TD 4308' PBTD 4287'	13 3/8" @ 595' w/250 sx cmt circ to surface 5 1/2" @ 4308' w/1600 sx cmt circ to surface Completed as an oil producer in the Grayburg San Andres w/perfs from 3259'-3530' (48 holes).
H. E. West "A" #2	660' FNL & 1980' FEL Sec. 4-17S-31E	2/5/48	4/1/48	Producing Oil	TD 3494' PBTD 3494'	10 3/4" @ 644' w/125 sx common cmt. 7" @ 3335' w/150 sx reg. cmt. Completed as a producer from the Grayburg San Andres thru open hole interval 3335' to 3494'.
H. E. West "B" #54	75' FNL & 1370' FEL Sec. 9-17S-31E	3/10/93	5/11/93	Producing Oil	TD 4310' PBTD 4256'	8 5/8" @ 618' w/300 sx cmt circ to surface. 5 1/2" @ 4310' w/1850 sx cmt circ to surface. Completed as a Grayburg San Andres producer through perforations 4031'-4132' (63 holes). Additional perfs 3230'-3520', 3766-3871' & 4048'-4250'. Acidized w/3000 gals 15% NEFE acid. Frac'd w/15,000 gals gelled Super X emulsified acid.
H. E. West "A" #9	1980' FSL & 660' FEL Sec. 4-17S-31E	10/19/55	12/1/55	Injection (Oil well converted)	TD 3856' PBTD 3816'	8 5/8' @ 719' w/100 sx cmt 7" @ 3198' w/200 sx cmt. TOC @ 1684' (CBL) 4 1/2" liner from 2968'-3856', cmt'd w/175 sx. Completed as an oil producer from 3196'-3650' open hole. Frac'd 3276'-3281' w/1500 gals oil + 2000# sand Frac'd 3383'-3390' w/3000 gals oil + 4000# sand Deepened to 3856' and 4 1/2" line run to 3856' and cmt w/175 sx. Well was perf'd 3360'-3375' and converted to injection.

ATTACHMENT VI

WELL NAME	LOCATION	SPUD DATE	COMPLETION DATE	TYPE OF WELL	DEPTH/PBTD	COMPLETION RECORD
H. E. West "B" #11	1980' FSL & 1980' FWL Sec. 4-17S-31E	1/54	2/54	Injection	TD 3574' PBTD 3574'	8 5/8" @ 683' w/100 sx 7" @ 3146' w/200 sx. TOC @ 1000' (Calc.) 4 1/2" liner set from 3071'-3574' w/540 sx. Completed in the Grayburg San Andres as an oil producer from open hole interval 3146'-3574'. Converted to injector through open hole. Ran liner and converted to dual injector with the addition of perfs from 3206'-3566'. Returned to single injector through existing perforations.
H. E. West "A" #4	1980' FNL & 1980' FEL Sec. 4-17S-31E	8/54	9/54	Injection	TD 3842' PBTD 3841'	8 5/8" @ 706' w/100 sx. 7" @ 3169' w/200 sx. TOC @ 2000' (calc.) 4 1/2" liner from 3068'-3841' cmt'd w/ 95 sx. Completed in the Grayburg as a producer from open hole interval 3326'-3336'. Deepened to 3842'. Ran 4 1/2" liner 3068'-3841'. Converted to dual injector through perfs 3331'-3822'. Converted to triple injection through perfs 3242'-3398'. Returned to single injection through perfs 3242'-3822'.
H. E. West "A" #17	660' FSL & 660' FEL Sec. 4-17S-31E	12/12/89	1/6/90	Producing Oil	TD 3954' PBTD 3906'	8 5/8" @ 575' w/350 sx cmt, circ to surface. 5 1/2" @ 3948' w/1150 sx cmt, circ to surface. Completed as producer from Grayburg San Andres fromation through perfs 3273'-3839'.

ATTACHMENT VI

WELL NAME	LOCATION	SPUD DATE	COMPLETION DATE	TYPE OF WELL	DEPTH/PBTD	COMPLETION RECORD
H. E. West "B" #27	660' FSL & 1980' FWL Sec. 4-17S-31E	5/3/61	2/6/64	Producing Oil	TD 12,860' PBTD 3922'	13 3/8" @ 650' w/740 sx cmt, circ to surface. 9 5/8" @ 3800' w/1450 sx cmt, circ to surface. Well was drilled to a TD of 12,860'. The well was plugged back to 3922. Completed in Grayburg San Andres through perfs 3180'-3546' and open hole interval 3800'-3885'.
H. E. West "B" #7	1980' FSL & 660' FWL Sec. 4-17S-31E	2/7/52	12/7/63	Producing Oil	TD 3765'	8 5/8" @ 644' w/100 sx cmt. 7" @ 3103' w/200 sx cmt. Completed as producing oil well from Grayburg San Andres open hole 3103'-3765'.
H. E. West "A" #22	1345' FSL & 35' FEL Sec. 4-17S-31E	2/3/93	3/31/93	Producing Oil	TD 5022' PBTD 3560'	13 3/8" @ 604' w/350 sx cmt. 8 5/8" @ 1815' w/750 sx cmt. 5 1/2" @ 5022' w/1222 sx cmt. Completed in Grayburg San Andres through perfs 3278'-3522'.
H. E. West "A" #14	720' FSL & 1980' FWL Sec. 4-17S-31E		12/88	Producer *Proposed injector	TD 3935' PBTD 3828'	8 5/8" @ 542' cmt'd w/350 sx, circ to surface. 5 1/2" @ 3935' w/1900 sx cmt, circ to surface. Completed in Grayburg San Andres as producer from 3214'-3467', 3492'-3678', and 3709'-3863'.
H. E. West "B" #33	1980' FSL & 660' FWL Sec. 3-17S-31E	3/2/88	8/20/88	Producing Oil	TD 4057' PBTD 4011'	8 5/8" @ 625' w/300 sx cmt, circ to surface. 5 1/2" @ 4057' w/1300 sx cmt. TOC 2262' (CBL). Completed as producer in Grayburg San Andres through perf 3367'-3994'.

ATTACHMENT VI

WELL NAME	LOCATION	SPUD DATE	COMPLETION DATE	TYPE OF WELL	DEPTH/PBTD	COMPLETION RECORD
H. E. West "B" #5	1980' FNL & 1980' FWL	8/11/50	10/50	Producing Oil	TD 3841' PBTD 3801'	10 3/4" @ 682' w/150 sx. 7" @ 3186' cmt'd w/150 sx. TOC @ 2100' (calc.) 4 1/2" liner set from 3105'-3794' w/500 sx. Completed as oil producer from open hole interval (Grayburg San Andres) 3186'-3487'. Deepened to 3841' and produced from open hole4 interval 3186'-3841'. Ran 4 1/2" liner and completed through perfs 3393'-3425', 3472'-3483', and 3548'-3558'.
H. E. West "A" #6	2005' FNL & 660' FEL Sec. 4-17S-31E	1/2/55	2/12/55	Producing Oil	TD 3370' PBTD 3369'	8 5/8" @ 740' cmt'd w/100 sx 7" @ 3220' cmt'd w/200 sx. TOC @ 1800' (calc). Completed as a producer in the Grayburg San Andres through open hole 3220'-3369'. Deepened to 3870' and produced through open hole interval 3220'-3870'.

ATTACHMENT VII

PROPOSED OPERATION

1. Average daily injection rate - 500 BWPD.
   Maximum daily injection rate - 600 BWPD.

2. Type of system - closed.

3. Average injection pressure - 1900 psi.
   Maximum injection pressure - 2500 psi.

4. Source of injection water - Produced water from the Keel West plus make up water from Keel West fresh water system.

5. N. A.

ATTACHMENT VIII

GEOLOGY AND LITHOLOGY

The proposed injection zone is in the Greyburg San Andres from 3196' to 4070'. The Greyburg formation consists primarily of quartz sand w/ cementation. The San Andres formation consists primarily of dolomite with intermingled stringers of quartz sand with dolomite cementation.

Surface formation is cretaceous and has no known source of drinking water. Also, there are no known sources of drinking water overlying or underlying the proposed injection zone.

ATTACHMENT XII

Upon examination of the available geologic and engineering data, no evidence of open faults or any other hydrologic connection between the injection zone and any underground source of drinking water was found.

ATTACHMENT XIV

PROOF OF NOTICE

Devon Energy Operating Corporation (applicant) is the operator of all wells within the area of review. The Bureau of Land Management is the surface owner. They have been notified by BLM Sundry Notice.

PROOF OF PUBLICATION

Proof of publication from the Carlsbad Current-Argus is enclosed.

Affidavit of Publication

№ 16137

State of New Mexico,
County of Eddy, ss.

Amy McKay,
being first duly sworn, on oath says:

That she is Business Manager of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the state wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

November 15, 1994
_____, 19____
_____, 19____
_____, 19____
_____, 19____
_____, 19____
_____, 19____

That the cost of publication is $25.70, and that payment thereof has been made and will be assessed as court costs.

Amy McKay

Subscribed and sworn to before me this
16th day of November, 1994

Donna Crump

My commission expires 8/01/98
Notary Public

November 15, 1994

Legal Advertisement

Notice is hereby given that Devon Energy Operating Corporation is applying to the New Mexico Oil Conservation Division to convert the following well to an injection well for secondary recovery purposes:

H.E. West "A" #5
1980' FSL & 1980' FEL
Section 4-T17S-R31E
Eddy County, NM

The intended purpose of this well is to inject produced waters into the Grayburg-San Andres formations to enhance oil production through secondary recovery. Maximum injection rates of 600 bwpd and a maximum pressure of 2500 psig are expected.

Interested parties must file objections or requests for hearing within 15 days to the following commission:

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87501

Randy Jackson
District Engineer
Devon Energy Operating Corporation
20 North Broadway, Suite 1500
Oklahoma City, OK
(405) 552-4560

WEST A 5, 14, 17 WEST B 16 + 33 AAI Package

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
- Write "Return Receipt Requested" on the mailpiece below the article number.
- The Return Receipt Fee will provide you the signature of the person delivered to and the date of delivery.

I also wish to receive the following services (for an extra fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:

Bureau of Land Management
P.O. Box 1778
Carlsbad, NM 88221-1778

4a. Article Number
P 080 276 170

4b. Service Type
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

7. Date of Delivery
11-21-94

5. Signature (Addressee)

8. Addressee's Address (Only if requested and fee is paid)

6. Signature (Agent)
Betty Hall

PS Form 3811, November 1990 *U.S. GPO: 1991—287-006 DOMESTIC RETURN RECEIPT

PS Form 3800

Postmark or Date
WEST A 5, 14, 17
B 16 + 33
AAI Package