

clsp

Form 3160-5
 (June 1990)

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT

FORM APPROVED
 Budget Bureau No 1004-0135
 Expires: March 31, 1993

5. Lease Designation and Serial No.
 NM10190

6. If Indian, Allottee or Tribe Name
 N/A

7. If Unit or CA, Agreement Designation
 N/A

8. Well Name and No.
 East Shugart Unit #41

9. API Well No.
 30-015-27676

10. Field and Pool, or Exploratory Area
 Shugart (Y, SR, Q, G)

11. County or Parish, State
 Eddy County, NM

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to deepen or reentry to a different reservoir.
 Use "APPLICATION FOR PERMIT—" for such proposals

SUBMIT IN TRIPLICATE RECEIVED

1. Type of Well
 Oil Well Gas Well Other

2. Name of Operator
 Devon Energy Corporation (Nevada)

3. Address and Telephone No.
 20 N. Broadway, Suite 1500, Oklahoma City, OK 73102

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)
 1650' FNL & 2210' FEL
 Sec. 34-T18S-R31E, Unit G

OCT 13 '94
 O. C. D.
 ARTESIA OFFICE
 (405) 234-3611

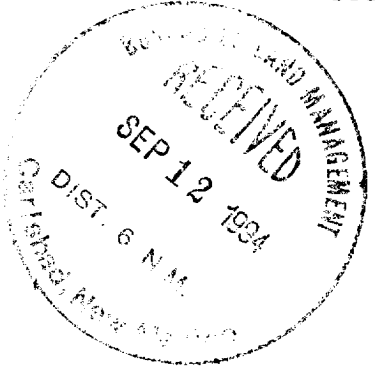
12. CHECK APPROPRIATE BOX(es) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Abandonment
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Recompletion
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Plugging Back
	<input type="checkbox"/> Casing Repair
	<input type="checkbox"/> Altering Casing
	<input checked="" type="checkbox"/> Other <u>apply to convert to injection well</u>
	<input type="checkbox"/> Change of Plans
	<input type="checkbox"/> New Construction
	<input type="checkbox"/> Non-Routine Fracturing
	<input type="checkbox"/> Water Shut-Off
	<input type="checkbox"/> Conversion to Injection
	<input type="checkbox"/> Dispose Water

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

13. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

See attached Application for Authorization to Inject.



Subject to
 Like Approval
 by State NMCCO

14. I hereby certify that the foregoing is true and correct

Signed E. L. Buttross, Jr. Title District Engineer Date 9/7/94

(This space for Federal or State office use)

Approved by (ORIG. SGD.) JOE G. LARA Title PETROLEUM ENGINEER Date 10/11/94

Conditions of approval, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

RECEIVED

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: Secondary Recovery Pressure Maintenance Disposal Storage
Application qualifies for administrative approval? yes no **OCT 13 '94**

II. Operator: Devon Energy Corporation (Nevada)

Address: 20 North Broadway, Suite 1500, Oklahoma City, OK 73102 **O. C. D. ARTESIA OFFICE**

Contact party: E. L. Buttross, Jr. (Ernie) Phone: (405) 552-4509

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? 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. 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. The perfs will be acidized with 15% HCl 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.) This information is already on file with the OCD.

* 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 fresh water wells in this area.

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: E. L. Buttross, Jr. Title District Engineer

Signature: E. L. Buttross Jr. Date: 9-7-94

* 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.

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.

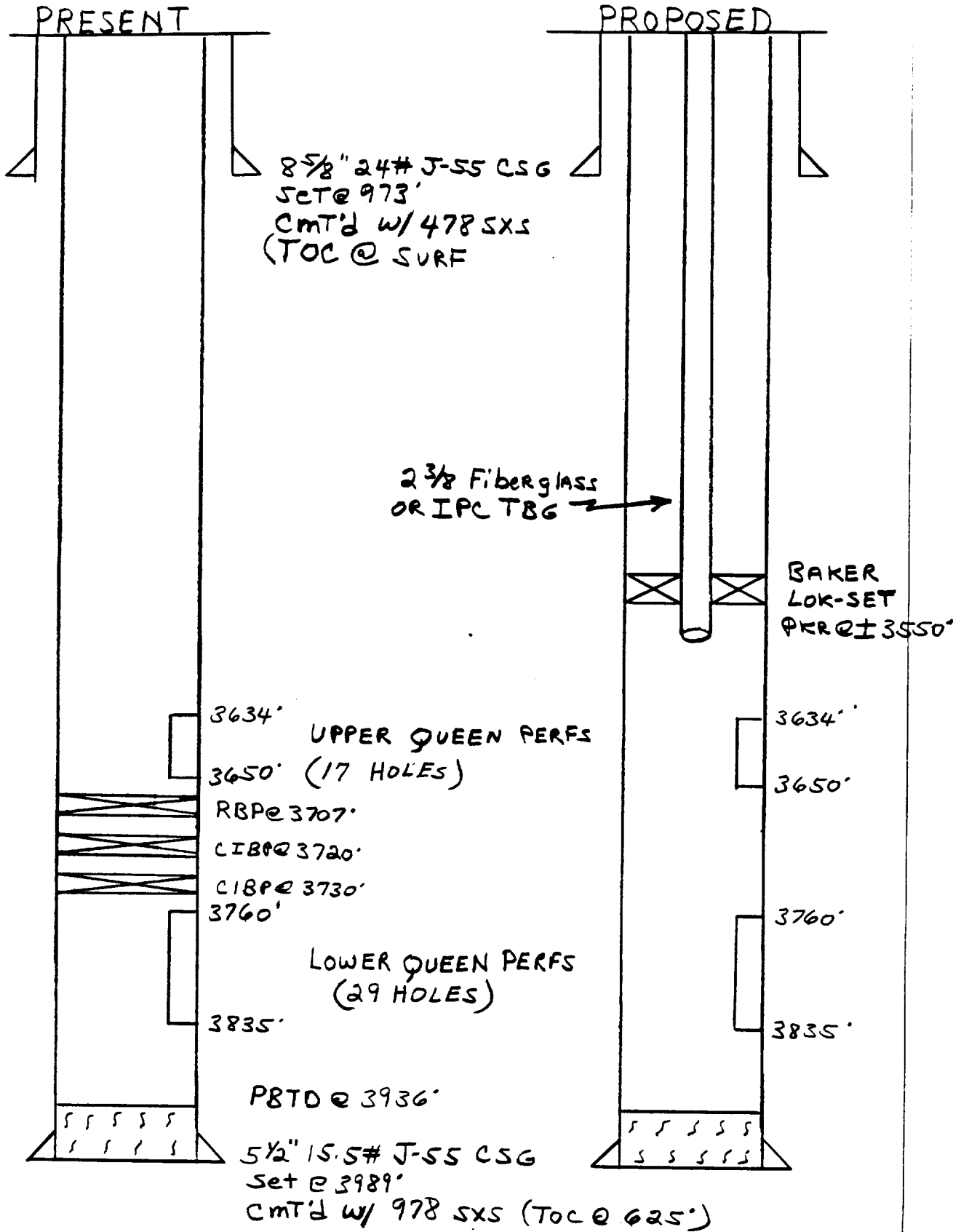
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

WELLBORE SCHEMATIC

EAST SHUGART UNIT #41

1650' FNL + 2210' FEL SEC 34-T18S-R31E

EDDY COUNTY, NM.



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ATTACHMENT VII-5



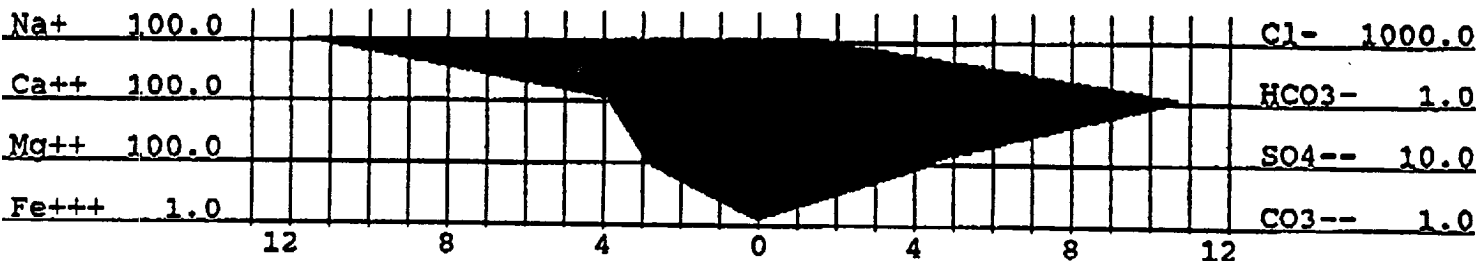
**BAKER PERFORMANCE
CHEMICALS**
A Division of Baker Performance Chemicals, Inc.

**WATER ANALYSIS
for
DEVON ENERGY**

Date of Analysis: FEBRUARY 26, 1993	Analysis #: 2080
Company: DEVON ENERGY	Company Address: ARTESIA
State: NEW MEXICO	Field: N/D
Lease: E.S.U.	Well #:
Oil (bbl/day): N/D	Water (bbl/day): N/D
Type of Water: PRODUCED	Temp., C: 20
Sample Source: AHEAD OF FILTER	Date of Sampling: FEBRUARY 26, 1993
Representative: STEVE STROUD	Analysis By: SUZANNE WILLIAMS

WATER ANALYSIS PATTERN

(number beside ion symbol indicates me/l scale unit)



DISSOLVED SOLIDS

CATIONS	me/l	mg/l
Total Hardness :	700.00	
Calcium, (Ca++) :	400.00	8019.25
Magnesium, (Mg++) :	300.00	3645.42
Iron, (Fe+++)	0.01	0.10
Barium, (Ba++) :	N/D	N/D
Sodium, Na+(calc) :	1188.81	27342.56
Manganese, (Mn++) :	0.00	0.00

ANIONS	me/l	mg/l
Chloride, Cl-	1830.99	64997.87
Sulfate, SO4-- :	46.82	2250.00
Carbonate, CO3-- :	0.00	0.00
Bicarbonate, HCO3- :	11.00	671.14
Hydroxyl, OH-	0.00	0.00
Sulfide, S-- :	0.00	0.00
TOTAL SOLIDS (quant.) :		106926.30

DISSOLVED GASES

Hydrogen sulfide:	100.00	mg/l
Carbon dioxide :	118.80	mg/l
Oxygen :	0.30	mg/l

PHYSICAL PROPERTIES

pH :	6.25
Spec Grav. :	1.070
TDS (calc.) :	106937.34

SCALE STABILITIES

Temp., C	CaCO3	CaSO4	BaSO4
20.0	0.27	2525	0
30.0	0.45	2679	0
40.0	0.68	2919	0
Max entity, (calc.)	3293		0

RESIDUAL HYDROCARBONS: N/D

N/D = not determined

@20'C...CALCIUM SULFATE SCALING IS LIKELY.
@20'C...SLIGHTLY CORROSIVE, AND SLIGHT CARBONATE SCALING.

ATTACHMENT III (tabular)

WELL DATA

- A. (1) East Shugart Unit #41
1650' FNL & 2210' FEL
Section 34-T18S-R31E
Eddy County, NM
- (2) Please refer to the wellbore schematic labeled Attachment III-(schematic).
Cement was circulated back to surface on the surface string and the production string.
- (3) We will be using 2 3/8" fiberglass or internally coated tubing. The tubing will be set at 3550' (±).
- (4) We will use a 5 1/2" x 2 3/8" Loc-set packer (internally coated) set at 3550' (±).
- B. (1) The injection formations will be the Queen sands in the Shugart (Y-SR-Q-G) Field.
- (2) The injection interval will be selectively perforated. The proposed perforated intervals are as follows:
- | | |
|--------------------------|-------------------------|
| 3634' - 3650' (17 holes) | |
| 3760' - 3761' (4 holes) | |
| 3763' - 3765' (10 holes) | <u>Total perfs = 46</u> |
| 3816' - 3820' (5 holes) | |
| 3826' - 3835' (10 holes) | |
- (3) This well was drilled as a Yates-Queen oil well. It was completed in the Queen through perforations 3634' - 3650'.
- (4) Please refer to the wellbore schematic labeled Attachment III (schematic). The RBP @ 3707' will be pulled and the CIBP's @ 3720' and 3730' will be drilled out..
- (5) There are no lower oil or gas zones in the area of this well.

ATTACHMENT VII

PROPOSED OPERATION

1. Plans are to inject 500 - 700 bbls of produced water per day.
2. The injection system will be a closed system.
3. The proposed injection pressure is 1250 psig. Maximum pressure will be 1500 psig.
4. The injection fluid will be reinjected produced water.
5. A sample of produced water from the East Shugart Unit battery was analyzed by Baker Performance Chemicals' lab. Please refer to Attachment VII-5 for a copy of the analysis.

ATTACHMENT VIII

GEOLOGY AND LITHOLOGY

Injection zones are sand lenses within the Queen formation at an average depth of 3,600 feet. Specifically they are:

- Lower Queen 1 - 3634'-3650' (16')
- Lower Queen 2 - 3760'-3765' (5')
- Lower Queen 3 & 4 - 3816'-3835' (19')

Fresh Water Zones

- Base of near surface aquifer - 950 feet
- No fresh water zones exist below the proposed injection intervals

ATTACHMENT XII

No evidence of fault communication between the shallow aquifers and the proposed injection zones has been encountered as the result of detailed studies of formations in the East Shugart Unit.

ATTACHMENT XIV

PROOF OF NOTICE

Devon Energy Corporation (Nevada) operates the East Shugart Unit in Section 34. Amoco and Westall operate wells within the area of review. Each of these operators were provided a copy of our application by certified mail. Proof of notice is enclosed. 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

No 16461

State of New Mexico,
County of Eddy, ss.

August 17, 1994

Legal Advertisement

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

East Shurgart Unit #41
1650' FNL & 2210' FEL
Section 34-T18S-R31E
Eddy County, NM

The intended purpose of this well is to inject produced waters into the Queen Sand to enhance oil production through secondary recovery. Maximum injection rates of 500-700 bwpd and a maximum pressure of 1500 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

E. L. Buttross, Jr.
District Engineer
Devon Energy Corporation
(Nevada)
20 North Broadway,
Suite 1500
Oklahoma City, OK
(405) 552-4500

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:

- August 17, 1994
- _____, 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

23 day of August, 1994

Keith L. Farn

My commission expires 01/18/98

Notary Public