

CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: Baiser Francis Oil Co. Well: Muse Federal No. 1

Contact: T. Bellahin Title: _____ Phone: _____

DATE IN 10-21-94 RELEASE DATE 11-4-94 DATE OUT 11-28-94

Proposed Injection Application is for: ☐ WATERFLOOD ☐ Expansion ☐ Initial

Original Order: R- _____ ☐ Secondary Recovery ☐ Pressure Maintenance

SENSITIVE AREAS ☒ SALT WATER DISPOSAL

☐ WIPP ☐ Capitan Reef ☐ Commercial Operation

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

AREA of REVIEW WELLS

0 Total # of AOR 0 # of Plugged Wells

NA Tabulation Complete NA Schematics of P & A's

NA Cement Tops Adequate NA AOR Repair Required

INJECTION INFORMATION

Injection Formation(s) Delaware

Source of Water Delaware Compatible ☒

PROOF OF NOTICE

☒ Copy of Legal Notice ☐ Information Printed Correctly
☐ Correct Operators ☐ Copies of Certified Mail Receipts
☐ Objection Received ☐ Set to Hearing _____ Date

NOTES: _____

APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL ☒

COMMUNICATION WITH CONTACT PERSON:

1st Contact:	<input type="checkbox"/> Telephoned	<input type="checkbox"/> Letter	_____	Date	_____	Nature of Discussion	_____
2nd Contact:	<input type="checkbox"/> Telephoned	<input type="checkbox"/> Letter	_____	Date	_____	Nature of Discussion	_____
3rd Contact:	<input type="checkbox"/> Telephoned	<input type="checkbox"/> Letter	_____	Date	_____	Nature of Discussion	_____

KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

117 NORTH GUADALUPE

POST OFFICE BOX 2265

SANTA FE, NEW MEXICO 87504-2265

TELEPHONE (505) 982-4285

TELEFAX (505) 982-2047

W. THOMAS KELLAHIN*

*NEW MEXICO BOARD OF LEGAL SPECIALIZATION
RECOGNIZED SPECIALIST IN THE AREA OF
NATURAL RESOURCES-OIL AND GAS LAW

JASON KELLAHIN (RETIRED 1991)

October 21, 1994

HAND DELIVERED

Mr. David R. Catanach
Underground Injection Control
Oil Conservation Division
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

Re: Administrative Application for
Salt Water Disposal Approval
Kaiser-Francis Oil Company's
Muse Federal Well No. 1
SE/4NW/4 Sec 21, T23S, R31E, NMPM
Eddy County, New Mexico

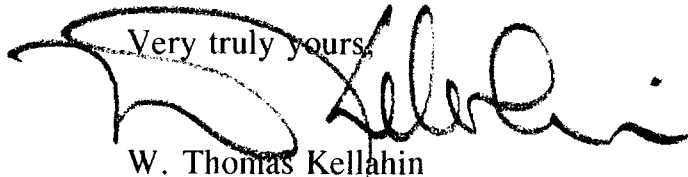
OCT 21 1994

Dear Mr. Catanach:

On behalf of Kaiser-Francis Oil Company and in accordance with Division Rule 701, we are enclosing an original and one copy of the completed and signed Application for Authorization to Inject (Division Form C-108 with attachments) for the referenced well.

Copies of the application have been sent to the surface owner and offsetting operator. In addition, we have had newspaper notification by newspaper published and that certification is enclosed.

Please call me if you need anything else in order to process this request.

Very truly yours,

W. Thomas Kellahin

cc: OCD-Artesia (w/ encl.)
cc: Kaiser-Francis Oil Company
Attn: Jim Wakefield

OFFSET OPERATOR NOTICE LIST

Devon Energy Corporation
20 North Broadway Suite 1500
Oklahoma City, OK, 73102

Pogo Producing Co.
Box 10340
Midland, Texas 79702-7340

Yates Petroleum Corporation
105 Fourth Street
Artesia, New Mexico 88210

Enron Oil & Gas Company
Box 1188
Houston, Texas 77251-1188

APPLICATION FOR AUTHORIZATION TO INJECT

2100

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ Yes ☐ No

II. Operator: Kaiser-Francis Oil Company

Address: P. O. Box 21468

Contact party: Milt Griffin Phone: 918-494-0000

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 _____.

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: Charlotte Van Valkenburg Title: Technical Coordinator

Signature: C. Van Valkenburg Date: 9/6/94

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

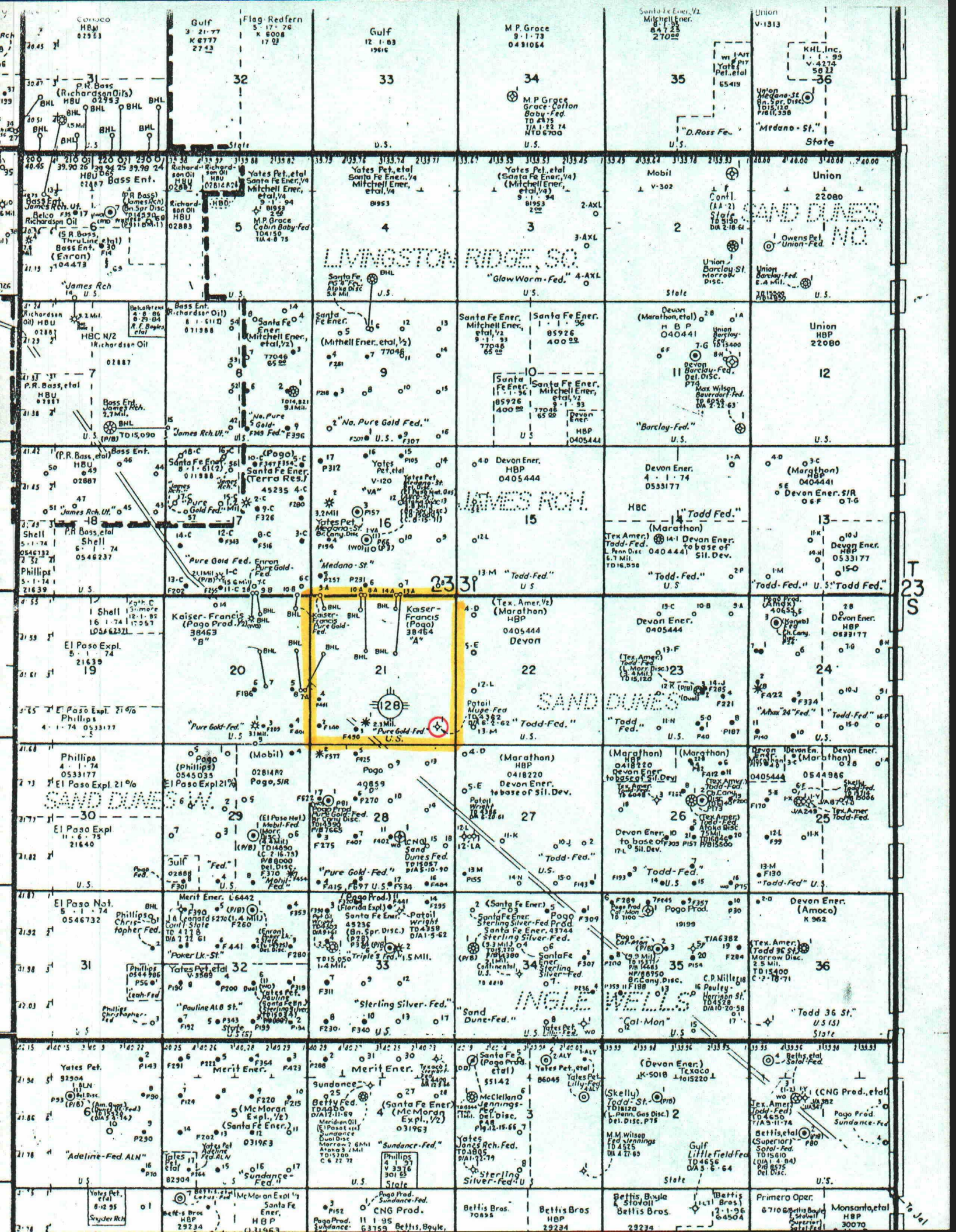
All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

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.

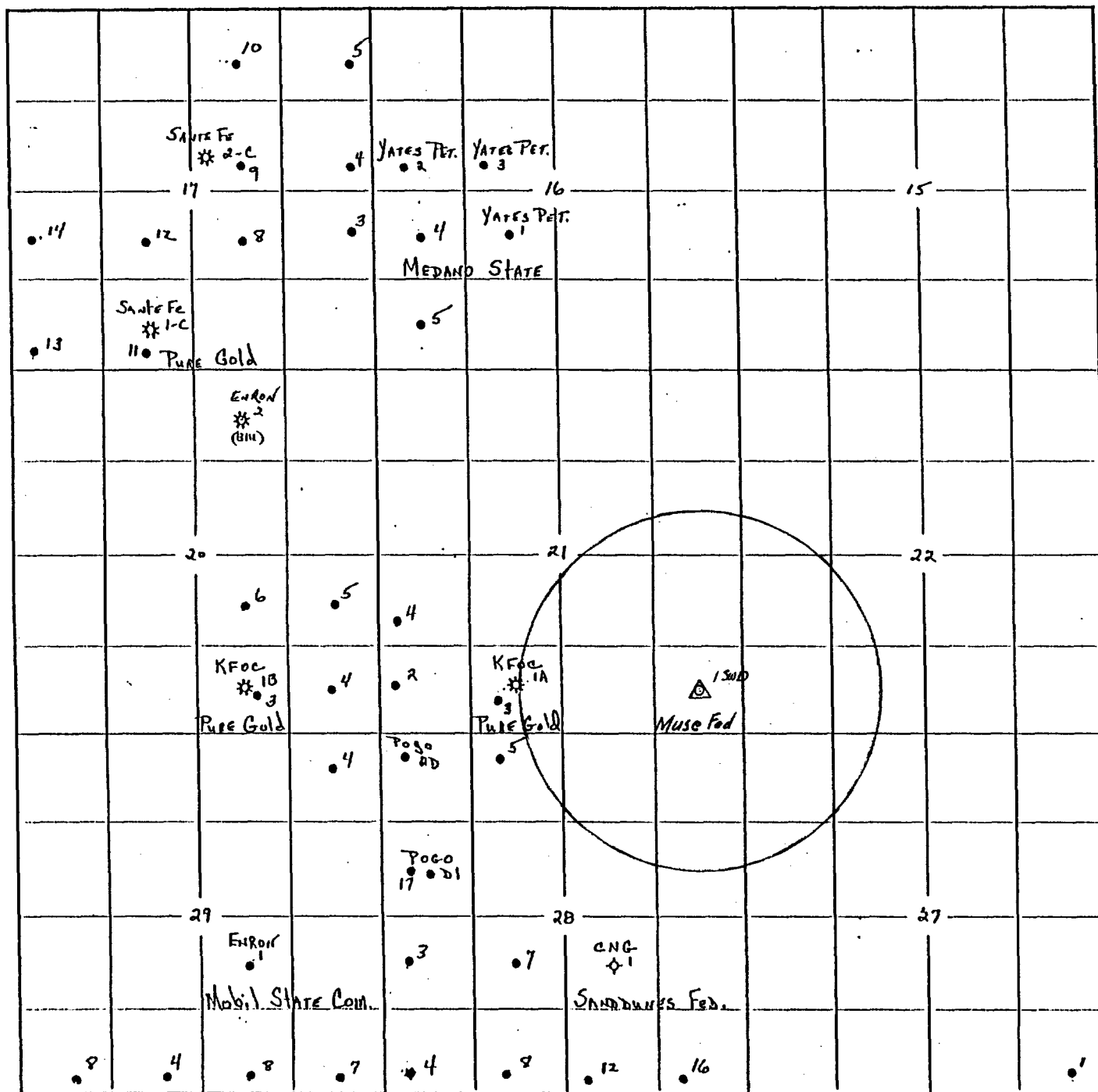
NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

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.



V.

TOWNSHIP 23S RANGE 31E COUNTY Eddy STATE N.M.



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

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

WELL API NO.	30-015-05842
5. Indicate Type of Lease	STATE <input type="checkbox"/> FEE <input type="checkbox"/>
6. State Oil & Gas Lease No.	-
7. Lease Name or Unit Agreement Name	
Muse Federal	
8. Well No.	1
9. Pool name or Wildcat	West Sand Dunes
10. Elevation (Show whether DF, RKB, RT, GR, etc.)	
3369 GR	

SUNDRY NOTICES AND REPORTS ON WELLS
(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)

1. Type of Well: OIL WELL <input type="checkbox"/> GAS WELL <input type="checkbox"/> OTHER <input type="checkbox"/> SWD <input type="checkbox"/>	2. Name of Operator Kaiser-Francis Oil Company
3. Address of Operator P. O. Box 21468, Tulsa, OK 74121-1468	4. Well Location Unit Letter P : 659 Feet From The South Line and 660 Feet From The East Line Section 21 Township 23S Range 31E NMPM Eddy County

11. Check Appropriate Box to Indicate Nature of Notice, Report, or Other Data	
NOTICE OF INTENTION TO:	SUBSEQUENT REPORT OF:
PERFORM REMEDIAL WORK <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>
OTHER: Application for SWD <input checked="" type="checkbox"/>	PLUG AND ABANDONMENT <input type="checkbox"/>
	CASING TEST AND CEMENT JOB <input type="checkbox"/>
	OTHER: <input type="checkbox"/>

12. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

(Re-entry of D & A'd well)

1. Dig out cellar, cut off DH marker & weld on CH.
2. MIRU rotary.
3. Drill out surface cement plug & clean out 7" casing.
4. Install BOP & test casing to 600#.
5. Drill cement plugs set in 6 5/8" hole @ 380', 1050', 2750', & 4362'.
6. Drill new 6 1/8" hole from 4362' to 5050'. Run electric logs.
7. Run & set 4 1/2", 10.5# casing to TD w/stage tool @ 3000'. Cement 1st stage w/200 sxs & 2nd stage w/330 sxs.
8. RDMO rotary. Install wellhead. Run cement bond log.
9. Perf @ 4330' - 5000' & stimulate for salt water disposal.

Operations are scheduled to begin upon approval.

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

SIGNATURE C. Jan Valkenburg TITLE Technical Coordinator DATE 9/6/94
TYPE OR PRINT NAME Charlotte Van Valkenburg 918-491-4314 TELEPHONE NO.

(This space for State Use)

APPROVED BY _____ TITLE _____ DATE _____

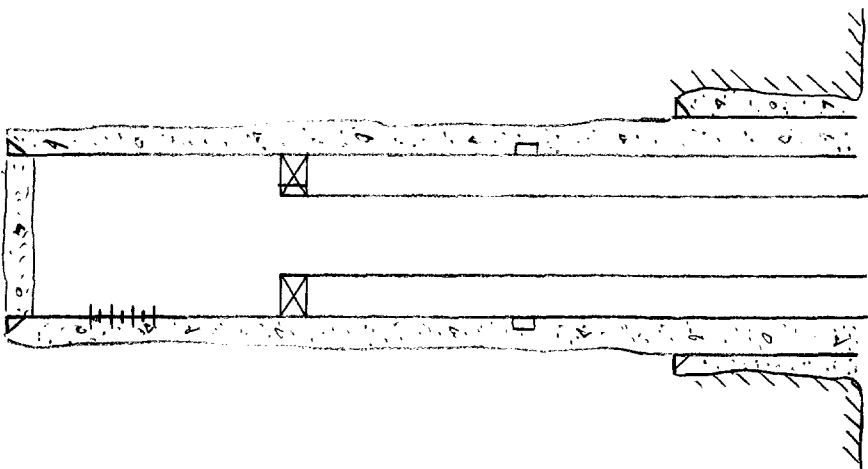
CONDITIONS OF APPROVAL, IF ANY:

Kaiser-Francis Oil Company

Muse Federal

OPERATION

LFASL

1 659' FSL & 660' FEL
WELL NO. FOOTAGE LOCATION21
SECTION23S
TOWNSHIP31E
RANGESchematicSurface CasingTabular Data

Size 7 " Cemented with 150 ft. SK.
 TOC Surface feet determined by circulating cmt.
 Hole size n/a

Intermediate Casing

Size 4 1/2 " Cemented with 530 ft. SK.
 TOC Surface feet determined by circulating cmt.
 Hole size 6 1/4

Long string

Size 4 1/2 " Cemented with 530 ft. SK.
 TOC Surface feet determined by circulating cmt.
 Hole size 6 1/4
 Total depth 5050'
 Stage tool @ 3000'

Injection interval

4330 feet to 5000 feet (Perforated)
 (perforated or open-hole, indicate which)

INJECTION WELL DATA SHEET -- SIDE 2

Tubing size 2 7/8" lined with Plastic (Saltaline) set in a

Baker Lok-Set (Nickel plated) packer at 4280 feet
(brand and model) (material)

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Delaware Bell Canyon

2. Name of Field or Pool (if applicable) West Sand Dunes

3. Is this a new well drilled for injection? ☐ Yes ☒ No

If no, for what purpose was the well originally drilled? Drilled to 4362' to test the Delaware-
Olds Sand. The well was logged and abandoned without running production casing.

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals
and give plugging detail (sacks of cement or bridge plug(s) used) No

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in
this area. Delaware-Brushy Canyon underlies this zone. There are no oil or gas zones overlying this zone.

10-10-64

BJ SERVICES

WATER ANALYSIS

Date: 1/16/94
Company: Kaiser-Francis
Well Name: Pure Gold "A"
County: --
State: --
Station: Odessa

Report #: 13W-003
Sample #: 1 of 2
Formation: --
Depth: --
H₂O Type: Tank Battery
Requested By: Gerald Benton

pH: 5.55
Temperature (°F): 67
Specific Gravity: 1.190

Sulfide: Absent
Reducing Agents: Absent
S.G. 60°F: 1.191

CATIONS	mg/l	me/l	ppm
Sodium (calc)	98198	4269	82519
Calcium	29300	1465	24622
Magnesium	4920	410	4920
Iron (Fe++)	58.00	2.08	48.74
Iron (Fe+++)	12.00	0.43	10.08

ANIONS			
Chloride	218000	6141	183193
Sulfate	243	5	204
Bicarbonate	68	1	57
Phosphate	0.0		0.0

Total Dissolved Solids 350799 294789

Total Hardness as CaCO₃ 93750 78782

Calcium Carbonate Scale: PROBABLE

Calcium Sulfate Scale: POSSIBLE

Equivalent NaCl Concentration: 297488

Analyzed by: Gerald Benton



BJ SERVICES

WATER ANALYSIS

Date: 1/16/94
 Company: Kaiser-Francis
 Well Name: Pure Gold "B"
 County: --
 State: --
 Station: Odessa

Report #: 13W-004
 Sample #: 2 of 2
 Formation: --
 Depth: --
 H₂O Type: Tank Battery
 Requested By: Gerald Benton

pH: 5.60
 Temperature (°F): 67
 Specific Gravity: 1.190

Sulfide: Absent
 Reducing Agents: Absent
 S.G. 60°F: 1.191

CATIONS	mg/l	me/l	ppm
Sodium (calc)	85578	3721	71914
Calcium	29000	1450	24370
Magnesium	6240	520	6240
Iron (Fe++)	40.00	1.43	33.61
Iron (Fe+++)	50.00	1.79	42.02

ANIONS	mg/l	me/l	ppm
Chloride	202000	5690	169748
Sulfate	165	3	139
Bicarbonate	88	1	74
Phosphate	0.0		0.0

Total Dissolved Solids 323161 271564

Total Hardness as CaCO₃ 98500 82773

Calcium Carbonate Scale: PROBABLE

Calcium Sulfate Scale: REMOTE

Equivalent NaCl Concentration: 275391

Analyzed by: Gerald Benton



REACTION CHEMICAL ENTERPRISES, INC.
P.O. BOX 3868 ODESSA, TEXAS 79760-3868
915/332-4324

Bell Canyon

WATER ANALYSIS

COMPANY: ROY E. KIMSEY
LEASE: KRISTEN STATE
WELL: # 1
SAMPLE: ****

DATE OF RUN: 01-03-94
SAMPLE DATE: ****
RUN #
3678

	Mg. /L.	Meq. /L.
TOTAL HARDNESS - CaCO ₃	45,000	
TOTAL ALKALINITY - CaCO ₃	-	
TOTAL DISSOLVED SOLIDS	242,195	
CALCIUM - Ca	12,000	600
MAGNESIUM - Mg	3,645	299
SODIUM - Na	76,521	3,327
BARIUM - Ba	4	
BICARBONATE - HCO ₃	24	0
CARBONATE - CO ₃	0	
SULFATE - SO ₄	0	0
CHLORIDE - Cl	150,000	4,225
CARBON DIOXIDE - CO ₂	176	
HYDROGEN SULFIDE - H ₂ S	0	
TEMPERATURE	72.0	
pH	6.300	
SPECIFIC GRAVITY	1.155	
LBS/GAL	9.6	

STABILITY INDEX (Stiff-Davis)

SI = pH - pCa - pAlk - K

DEGREES F.	S. I.
77	-0.07
100	0.21
180	2.19

	CaSO ₄	Mg. /L.
SOLUBILITY	:	44,522
ACTUAL	:	0
SATURATION %	:	0

ANALYZED BY:

M. ROBESON

- VI. There are no wells within the area of review which penetrated the proposed injection zone.
- VII. Data on the Proposed Operation
1. Avg. daily rate - 1000 BWPD
Maximum daily rate - 2500 BWPD
Volume - 60,000 BWPM
 2. System is open
 3. Avg. injection pressure - 500 psi
Maximum injection pressure - 1500 psi
 4. Analysis is attached
 5. Injection is for disposal purposes into a zone not productive of oil or gas within 1 mile of this well. A water analysis typical for this zone is attached.
- VIII.
1. Geological data on injection zone
Geological name - Delaware Bell Canyon Sand
Thickness - 837'
Depth - 4255' to 5092'
Lithology - sand and shale
 2. Geological data on fresh water zone:
Geological name - Dewey Lake Red Beds
Bottom of zone - 400'
- IX. Acidize w/ 5000 gal 7-1/2% HCl
- X. Electric log is not available
- XI. There are no producing fresh water within 1 mile of the proposed injection well
- XII. An examination of available geological and engineering data has been made, and no evidence of open faults or other hydrological connection between the disposal zone and any underground source of drinking water was found.

Affidavit of Publication

No 16215

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:

September 14, 1994
September 21, 1994
September 28, 1994
_____, 19____
_____, 19____
_____, 19____

That the cost of publication is \$ 55.96,
and that payment thereof has been made and will
be assessed as court costs.

Amy McKay

Subscribed and sworn to before me this

29th day of September, 1994

Donna Crump

My commission expires 8/01/98
Notary Public

September 14, 21, 28, 1994

Notice of Application for Authorization to Inject SW

Kaiser-Francis Oil Company,
P.O. Box 21468, Tulsa, OK
74121-1468, (918) 494-0000
(Contact: Milt Griffin) is making application to the NMOCB for authorization to inject salt water.

The applicant proposes to dispose of salt water into the Delaware Bell Canyon Sand formation of the Muse Federal #1 well. The proposed well is located 659' FSL & 660' FEL of Sec. 21-23S-31E, Eddy Co., NM. The waste water will be injected into the strata in the interval from 4330' to 5000' with an expected maximum injection rate of 2500 bwpd and a maximum injection pressure of 1500#.

Interested parties with an objection or request for a hearing must file with the Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87501 within 15 days.

P 565 771 765

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

U.S.G.P.O. 1989-234-555

Sent to Bureau of Land Management	
Street and No. P. O. Box 1778	
P.O., State and ZIP Code Carlsbad, NM 88220	
Postage	\$.29
Certified Fee	1.00
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	1.00
Return Receipt showing to whom Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 2.29
Postmark or Date	

Muse Federal #1

PS Form 3800, June 1985

Surface
owner
notification

Muse Federal #1

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. ☐ Restricted Delivery
↑ (Extra charge) ↑

3. Article Addressed to:
Bureau of Land Management
P. O. Box 1778
Carlsbad, NM 88220

4. Article Number
P 565-771-765

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Always obtain signature of addressee
DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X *L. Selva*

7. Date of Delivery

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

