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

5-24-88

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

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

Swd-341

RE: Proposed:
MC_____
DHC_____
NSL_____
NSP_____
SWD X
WFX_____
PMX_____

Gentlemen:

I have examined the application for the:

Flag Redfern Oil Co. Hahn Fed. #5-K 27-7-31
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton

Jerry Sexton
Supervisor, District 1

/ed

ARTHUR R. BROWN
PETROLEUM ADMINISTRATIVE SERVICES

101 E. Marland, Suite 105
Hobbs, New Mexico 88240

Office Phone (505) 397-2767
Home Phone (505) 392-5642

May 23, 1988

OCD
Hobbs

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

Gentlemen:

Enclosed are three copies of Flag-Redfern Oil Company's Application for Authorization to Inject.

Flag-Redfern's proposal is to use its Hahn Federal well No. 5, Tom Tom San Andres pool, for subsurface disposal into the San Andres formation of produced water from wells on its leases in the pool.

Also enclosed is a copy of Flag-Redfern's agreement with the surface owners concerning the proposed disposal well and necessary pipelines to move produced water to the proposed disposal well. The Hahn Federal leasehold is mineral reserved land. The land is privately owned but the minerals are reserved to the United States.

Western Reserves Oil Company, the only leasehold operator other than Flag-Redfern within one-half mile of the proposed disposal well, and the two surface owners, Margie S. Grimes and Faye S. Booher, are being furnished copies of this application by certified mail. Copies of return receipts will be furnished as soon as received.

Legal advertisement of this proposed salt water disposal well in the Roswell Daily Record is arranged for and proof of publication will be furnished.

If there are any questions concerning this application, or if any other information is needed, please let me know.

Sincerely,

Arthur R. Brown

Arthur R. Brown, Agent for
Flag-Redfern Oil Company

cc: NMOCD, Hobbs, w/ a complete copy of this application.

RECEIVED
MAY 23 1988
OCD
HOBBS OFFICE

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

II. Operator: FLAG-REDFERN OIL COMPANY

Address: P. O. BOX 11050, MIDLAND, TEXAS 79702

Contact party: Arthur R. Brown, Agent Phone: 505-397-2767

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: Arthur R. Brown Title Agent

Signature: Arthur R. Brown Date: May 20, 1988

* 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 district office.

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.

APPLICATION FOR AUTHORITY TO INJECT

SUPPLEMENTAL INFORMATION

FLAG-REDFERN OIL COMPANY
WELL NO. 5 HAHN FEDERAL
CHAVES COUNTY, NEW MEXICO

ITEM:

III. WELL DATA - PROPOSED INJECTION WELL:

A. (1) Well Name: Flag-Redfern Well No. 5 Hahn Federal.

Location: 1980' FSL and 1980' FWL of Section 27, T.7 S., R.31 E., Chaves County, New Mexico.

Spudded: 5-15-76. Total Depth: 4100'.

Initial Completion: Perforated San Andres interval 3952'- 4004' with 40 holes. Acidized through perforations with 10,000 gallons. Well completed 6-9-76 pumping 21 bbl. oil, 4 bbl. water, and 8 MCF of gas in 24 hours.

Present Status: Pumping.

(2) Casing Data: (Also see well bore schematics - Exhibits "C" and "D")

Surface Casing:

8-5/8" 24# K-55 casing set at 407' in 12-1/4" hole. Cemented with 250 sacks of Class "C" cement with 2% CaCl. Cement circulated.

Production Casing:

4-1/2" 10.5# and 11.6# K-55 ST&C casing set at 4100' in 7-7/8" hole. Cemented with 250 sacks of Class "C" Posmix with 2% gel, 3/4% CFR-2, and 8# salt per sack. Estimated top of cement at 3340'. Cement top calculated using caliper log to determine hole size and assuming 85% fillup.

(3) Injection Tubing: (Also see Exhibit "D")

Size: 2-3/8" O.D.

Lining Material: Plastic.

Setting Depth: Within 100 feet of top perforation.

(4) Injection Packer:

Baker Model AD-1 Tension Packer to be set within 100 feet of top perforation.

B. (1) Injection Formation: San Andres formation. The proposed injection well is in the Tom Tom San Andres pool.

(2) Injection Interval: Initially, injection is to be into existing perforations as follows:

4 holes 3952'- 3954'
2 holes 3958'- 3959'
4 holes 3962'- 3964'
4 holes 3967'- 3969'
6 holes 3973'- 3976'
8 holes 3980'- 3984'
4 holes 3989'- 3991'
4 holes 3997'- 3999'
4 holes 4002'- 4004'
(Also see Exhibits "D" and "E")

If at a future date, well performance indicates that additional perforations are in order, the lower interval 4065'- 4072', as shown on Exhibits "D" and "E", will be perforated.

(3) Original Purpose of Well: This well was drilled originally as a San Andres test, and was completed for San Andres production in the Tom Tom San Andres pool.

(4) Other Perforated Intervals: There are no perforated intervals other those listed above.

(5) Overlying and/or Underlying Oil and Gas Zones: There are no upper or lower oil and gas zones in the area of the proposed injection well.

V. MAP: Exhibit "A" is a land plat showing the proposed injection well with a 2-mile radius circle and a 1/2-mile radius circle drawn around the well. The 1/2-mile radius circle identifies the wells' "area of review".

VI. WELLS IN AREA OF REVIEW: Exhibit "B" is a tabulation of data on all wells in the area of review. There are no plugged wells in the area of review.

VII. PROPOSED OPERATIONS DATA:

(1) Proposed Average Daily Injection Rate: 400 bbls.
Proposed Maximum Daily Injection Rate: 800 bbls.

(2) Type of System: Open.

(3) Expected Average Injection Pressure: 400 psi.
Expected Maximum Injection Pressure: 800 psi.

(4) Sources of Injection Water: The water to be disposed of is produced San Andres water from Flag-Redfern's producing leases in the Tom Tom pool. These producing leases are identified on Exhibit "A". An analysis of this produced water is presented as Exhibit "F". Since the water to be disposed of will be reinjected produced water there should be no compatibility problem.

VIII. INJECTION FORMATION:

(1) The proposed injection formation is the San Andres, which in this area, has a gross thickness of about 1400 feet and consists mainly of of alternate beds of dolomite and anhydrite. The top of the San Andres in this proposed injection well was picked at a depth of 3161 feet. The proposed injection zone, at depth interval 3952'- 4072', is at about the middle of the San Andres section and is a tan to brown, finely crystalline, sucrosic dolomite.

(2) Fresh water wells in this area produce from sandy zones in the Chinle (Triassic) red beds at depths of approximately 175 to 200 feet. There are no fresh water zones below the proposed injection interval in the San Andres formation.

IX. STIMULATION PROGRAM:

If believed necessary, the proposed injection interval will be acidized with approximately 1500 gallons.

X. WELL LOG:

A copy of a portion of the well log, showing the proposed injection interval, is attached as Exhibit "E".

XI. FRESH WATER WELLS:

Locations of the four nearest water wells to the proposed injection well are shown on Exhibit "A". The windmill has been taken off the well in the NW¼ of Section 35 and the well appears temporarily abandoned. The well in the NW¼NW¼ of Section 27 still has a windmill but the rods are parted and the well appears to not have been used for quite a while.

Analyses of water taken from the operating windmills in Section 26 and in the NE¼ of Section 35 are attached as Exhibits "G" and "H".

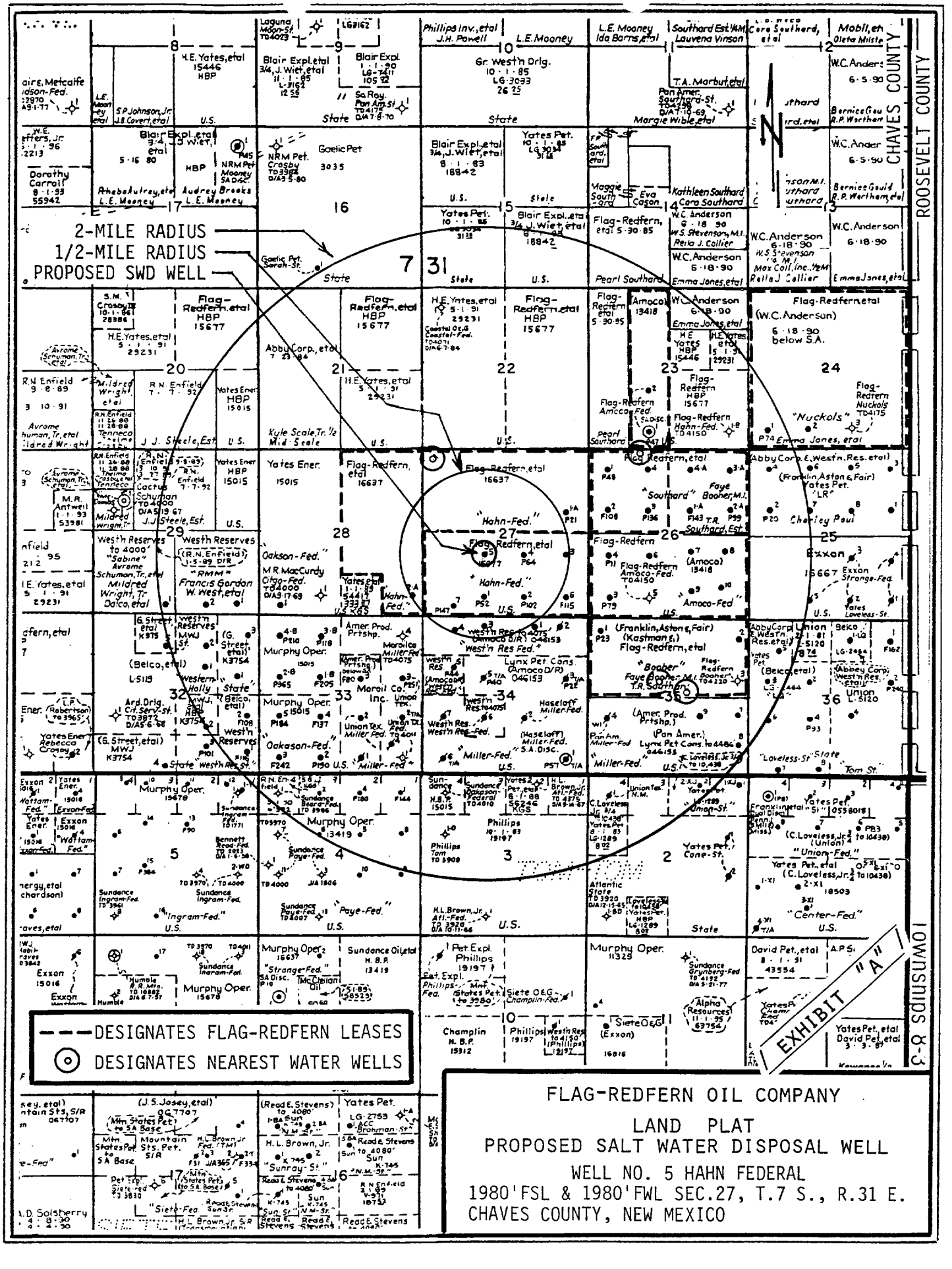
XII. AFFIRMATIVE STATEMENT:

Examination of available geologic and engineering data resulted in no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII. PROOF OF NOTICE:

Proof of publication will be furnished.

The owners of the surface on which the proposed disposal well is located, and Western Reserves Oil Company, the only leasehold operator, other than Flag-Redfern, within one-half mile of the well are being furnished copies of this application.


2-MILE RADIUS
1/2-MILE RADIUS
PROPOSED SWD WELL
DESIGNATES FLAG-REDFERN LEASES
DESIGNATES NEAREST WATER WELLS
ROOSEVELT COUNTY
CHAVES COUNTY
LOVINGTON "A"
EXHIBIT "A"
FLAG-REDFERN OIL COMPANY
LAND PLAT
PROPOSED SALT WATER DISPOSAL WELL
WELL NO. 5 HAHN FEDERAL
1980'FSL & 1980'FWL SEC.27, T.7 S., R.31 E.
CHAVES COUNTY, NEW MEXICO

WELL DATA

FOR

WELLS IN AREA OF REVIEW

WELL NAME AND NUMBER AND LOCATION BY UL, SEC., TWP., & RGE.	DATE COMPLETED	TOTAL DEPTH	SURFACE CASING					PRODUCTION CASING * *					PRODUCING INTERVAL	ACID TREATMENT	INITIAL 24-HR PROD. TEST			CURRENT STATUS
			SIZE	DEPTH SET	HOLE SIZE	AMOUNT CEMENT	CEMENT CIRCULATED	SIZE	DEPTH SET	HOLE SIZE	AMOUNT CEMENT	CALC. TOP OF CEMENT			BBL.OIL	MCF GAS	BBL.WTR.	
Flag-Redfern Oil Co.																		
Hahn Federal Lease																		
Well No. 1 N 27 7S 31E	4-15-75	4080'	8-5/8"	385'	12-1/4"	250 sx	Yes	4-1/2"	4080'	7-7/8"	250 sx	3060'	3919'- 3971'	5000 gals	52	21.1	35	Pumping
Well No. 2 O 27 7S 31E	9- 6-75	4110'	8-5/8"	403'	12-1/4"	250 sx	Yes	4-1/2"	4110'	7-7/8"	250 sx	3250'	3945'- 3988'	5000 gals	102	24	6	Pumping
Well No. 3 I 27 7S 31E	11-11-75	4106'	8-5/8"	426'	12-1/4"	250 sx	Yes	4-1/2"	4104'	7-7/8"	250 sx	3150'	3957'- 4017'	5000 gals	14	6.1	8	Pumping
Well No. 4 J 27 7S 31E	11-18-75	4100'	8-5/8"	428'	12-1/4"	250 sx	Yes	4-1/2"	4100'	7-7/8"	250 sx	3300'	3940'- 4008'	7500 gals	64	31	58	Pumping
Well No. 7 M 27 7S 31E	3-18-81	4105'	8-5/8"	1473'	12-1/4"	750 sx	Yes	4-1/2"	4105'	7-7/8"	250 sx	3150'	3893'- 3962'	6000 gals	147	45	2	Pumping
Hahn Federal "A" Lease																		
Well No. 2 P 28 7S 31E	8-24-81	4120'	8-5/8"	1442'	12-1/4"	800 sx	Yes	4-1/2"	4120'	7-7/8"	250 sx	3170'	3876'- 4014'	8500 gals	9	14	1	Pumping
Western Reserves Oil Company																		
Western Reserves 34 Fed. Lease																		
Well No. 1 B 34 7S 31E	11- 1-79	4130'	8-5/8"	1666'	12-1/4"	700 sx	Yes	4-1/2"	4128'	7-7/8"	300 sx	3150'	3922'- 3961'	4250 gals	34	15	10	Pumping
Well No. 3 C 34 7S 31E	7-11-80	3991'	8-5/8"	1601'	12-1/4"	650 sx	Yes	4-1/2"	3990'	7-7/8"	300 sx	3000'	3904'- 3950'	2000 gals	50	25	15	Pumping
Well No. 4 D 34 7S 31E	10-18-80	3975'	8-5/8"	1463'	12-1/4"	650 sx	-	4-1/2"	3974'	7-7/8"	300 sx	3000'	3877'- 3910'	1000 gals	82	55	5	Pumping

**FOR FLAG-REDFERN WELLS: TOP OF CEMENT BEHIND PRODUCTION CASING WAS CALCULATED USING CALIPER LOG TO DETERMINE HOLE SIZE AND ASSUMING 85% FILLUP. AVERAGE CALCULATED HOLE SIZE WAS 9-1/4".

FOR WESTERN RESERVES WELLS: TOP OF CEMENT WAS CALCULATED USING 9-1/4" HOLE SIZE AND 85% FILLUP.

EXHIBIT "B"

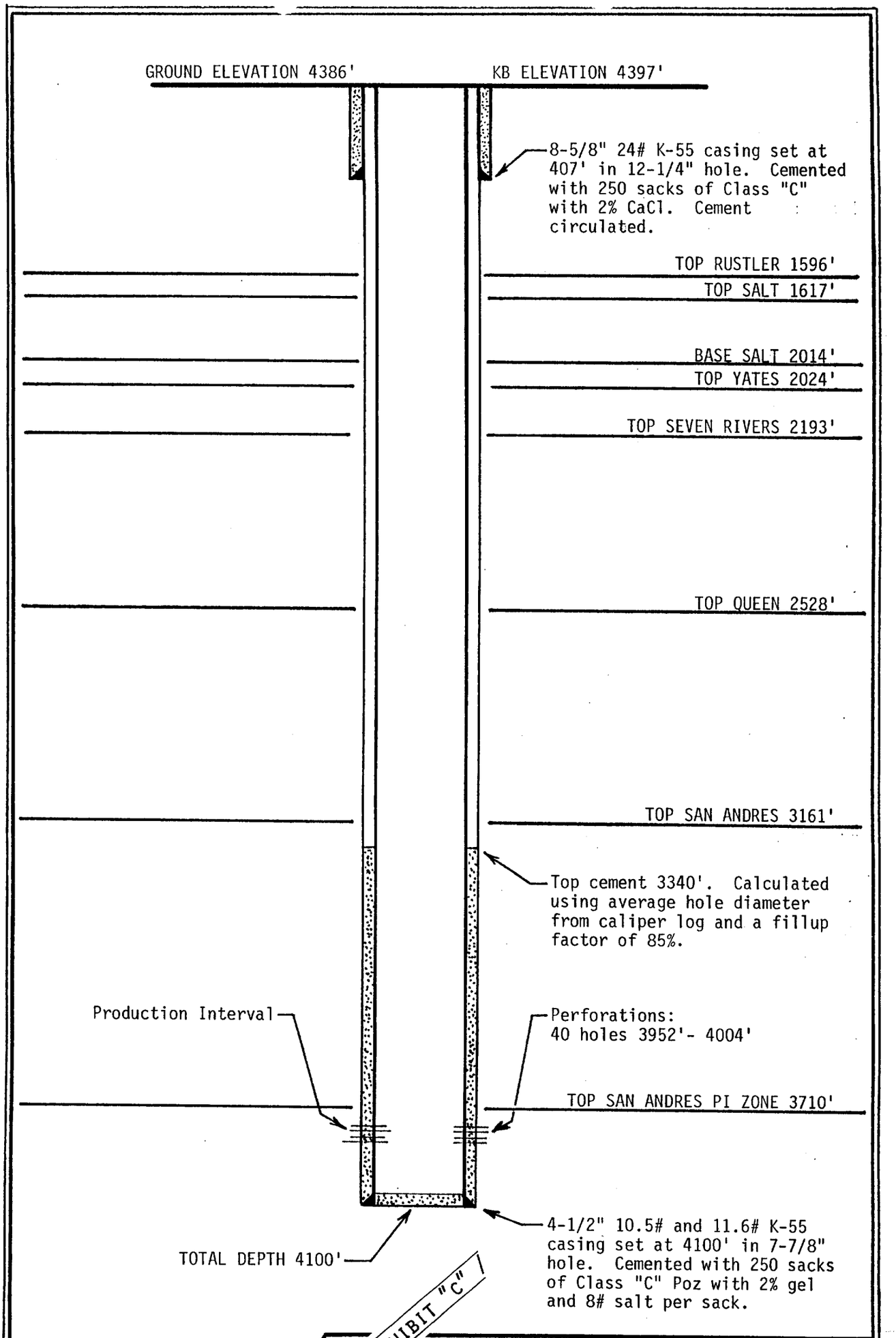


EXHIBIT "C"

FLAG-REDFERN OIL COMPANY

PROPOSED SALT WATER DISPOSAL WELL

SCHEMATIC
SHOWING PRESENT WELL DATA

WELL NO. 5 HAHN FEDERAL
1980'FSL & 1980'FWL SEC.27, T.7 S., R.31 E.
CHAVES COUNTY, NEW MEXICO

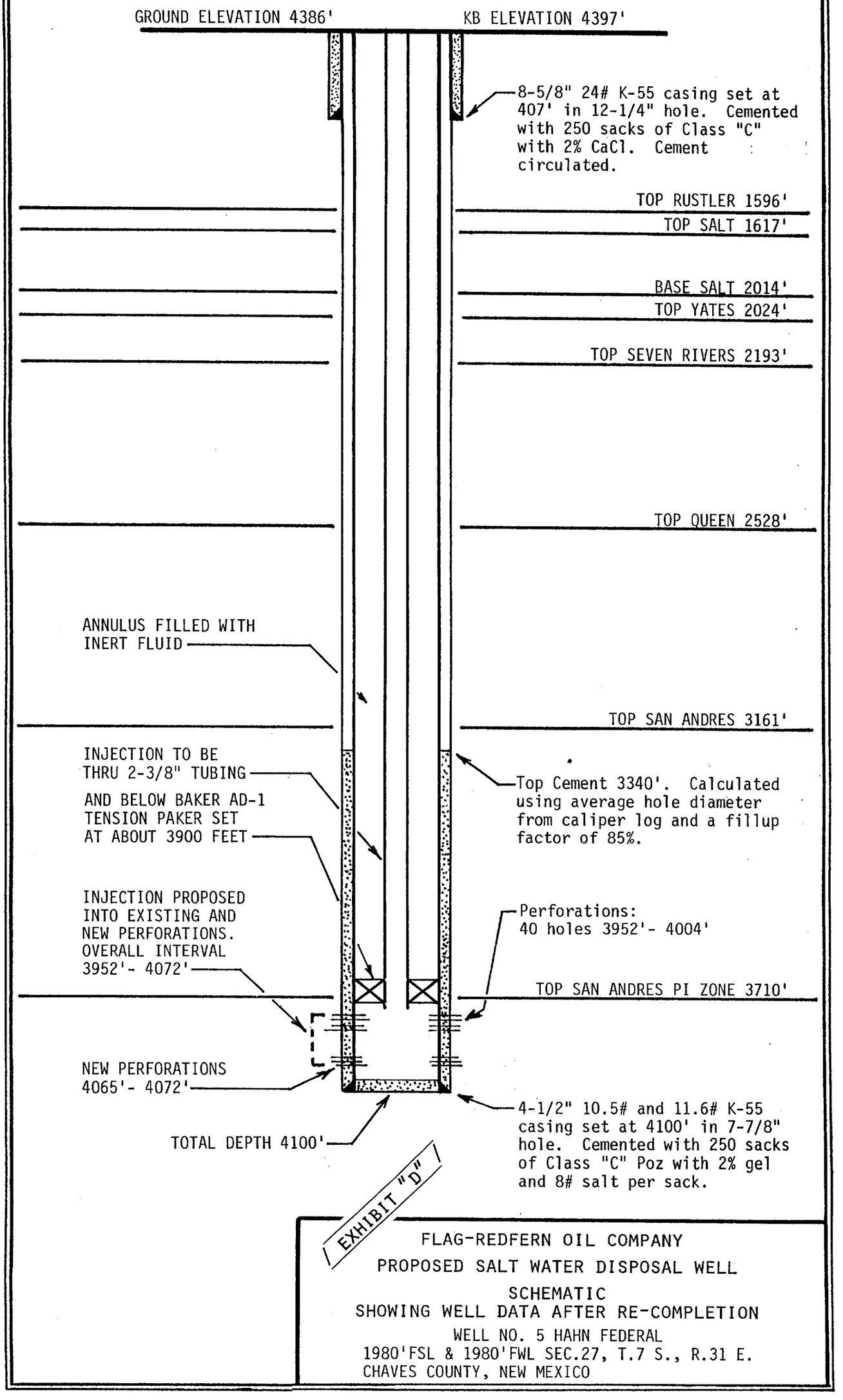


EXHIBIT "D"

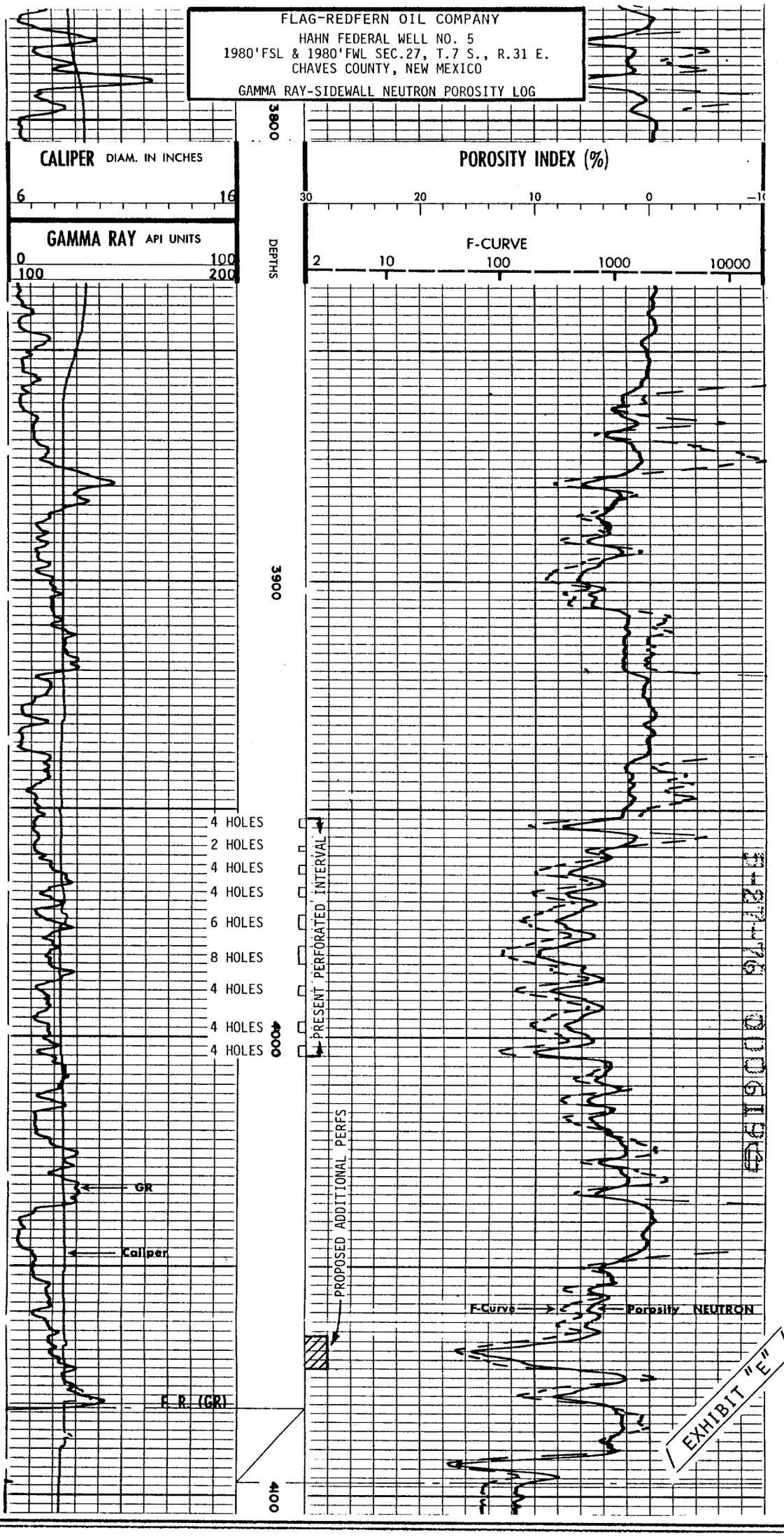
FLAG-REDFERN OIL COMPANY

PROPOSED SALT WATER DISPOSAL WELL

SCHEMATIC
SHOWING WELL DATA AFTER RE-COMPLETION

WELL NO. 5 HAHN FEDERAL
1980'FSL & 1980'FWL SEC.27, T.7 S., R.31 E.
CHAVES COUNTY, NEW MEXICO

FLAG-REDFERN OIL COMPANY
HAHN FEDERAL WELL NO. 5
1980'FSL & 1980'FWL SEC.27, T.7 S., R.31 E.
CHAVES COUNTY, NEW MEXICO
GAMMA RAY-SIDEWALL NEUTRON POROSITY LOG



WATER ANALYSIS REPORT
furnished by TRETOLITE CHEMICALS

COMPANY:	FLAG REDFERN OIL CO.
LEASE:	HAHN FED.
SAMPLE POINT:	HEATER TREATER
SAMPLE DATE:	4-15-88
SAMPLE TEMP.:	NA

pH:	4.9
H2S:	110
SPECIFIC GRAVITY:	1.19

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	61.00	1.00
Cl	170400.00	4800.00
SO4	125.00	2.60
Ca	36000.00	1800.00
Mg	10449.00	856.48
Na	49383.96	2147.13

IONIC STRENGTH = 6.13
TOTAL HARDNESS = 133000.0 mg/ltr.
TOTAL DISSOLVED SOLIDS = 266264.8 mg/ltr.
TOTAL IRON (Fe) = 2.0 ppm

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca(HCO3)2	1.00	81.04
CaSO4	2.60	177.27
CaCl2	1796.40	99699.96
Mg(HCO3)2	0.00	0.00
MgSO4	0.00	0.00
MgCl2	856.48	40785.36
NaHCO3	0.00	0.00
Na2SO4	0.00	0.00
NaCl	2147.13	125521.10

CALCULATED SCALING TENDENCIES

SCALING INDEX
CaCO3 @ 80 DEG F. = -0.3
CaCO3 @ 120 DEG F. = 0.4

SATURATION POINT
CaSO4 @ 70 DEG F. = 289.0 MG/LTR.
CaSO4 @ 110 DEG F. = 309.5 MG/LTR.

(THIS SAMPLE CONTAINED 177.3 MG/LTR. CaSO4)

EXHIBIT "F"

WATER ANALYSIS REPORT
furnished by TRETOLITE CHEMICALS

COMPANY:	FLAG REDFERN OIL CO.
LEASE:	SECTION 26
SAMPLE POINT:	WINDMILL
SAMPLE DATE:	4-15-88
SAMPLE TEMP.:	NA

pH:	7.8
H2S:	0
SPECIFIC GRAVITY:	1

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	366.00	6.00
Cl	852.00	24.00
SO4	125.00	2.60
Ca	40.00	2.00
Mg	24.30	1.99
Na	658.08	28.61

IONIC STRENGTH =	0.04
TOTAL HARDNESS =	200.0 mg/ltr.
TOTAL DISSOLVED SOLIDS =	2064.5 mg/ltr.

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca(HCO3)2	2.00	162.08
CaSO4	0.00	0.00
CaCl2	0.00	0.00
Mg(HCO3)2	1.99	145.74
MgSO4	0.00	0.00
MgCl2	0.00	0.00
NaHCO3	2.01	168.69
Na2SO4	2.60	184.97
NaCl	24.00	1403.04

CALCULATED SCALING TENDENCIES

SCALING INDEX

CaCO3 @ 80 DEG F. =	0.5
CaCO3 @ 120 DEG F. =	0.8

SATURATION POINT

CaSO4 @ 70 DEG F. =	2436.8 MG/LTR.
CaSO4 @ 110 DEG F. =	2493.6 MG/LTR.

(THIS SAMPLE CONTAINED 0.0 MG/LTR. CaSO4)

EXHIBIT "G"

WATER ANALYSIS REPORT
furnished by TRETOLITE CHEMICALS

COMPANY:	FLAG REDFERN OIL CO.
LEASE:	SECTION 35
SAMPLE POINT:	WINDMILL
SAMPLE DATE:	4-15-88
SAMPLE TEMP.:	NA

pH:	7.8
H2S:	0
SPECIFIC GRAVITY:	1

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	366.00	6.00
Cl	746.00	21.01
SO4	125.00	2.60
Ca	40.00	2.00
Mg	24.30	1.99
Na	589.41	25.63

IONIC STRENGTH =	0.03
TOTAL HARDNESS =	200.0 mg/ltr.
TOTAL DISSOLVED SOLIDS =	1890.0 mg/ltr.

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca(HCO3)2	2.00	162.08
CaSO4	0.00	0.00
CaCl2	0.00	0.00
Mg(HCO3)2	1.99	145.74
MgSO4	0.00	0.00
MgCl2	0.00	0.00
NaHCO3	2.01	168.69
Na2SO4	2.60	184.97
NaCl	21.01	1228.48

CALCULATED SCALING TENDENCIES

SCALING INDEX
CaCO3 @ 80 DEG F. = 0.5
CaCO3 @ 120 DEG F. = 0.8

SATURATION POINT
CaSO4 @ 70 DEG F. = 2436.8 MG/LTR.
CaSO4 @ 110 DEG F. = 2493.6 MG/LTR.

(THIS SAMPLE CONTAINED 0.0 MG/LTR. CaSO4)

EXHIBIT "H"

SALTWATER DISPOSAL AGREEMENT

THE STATE OF NEW MEXICO *
* KNOW ALL MEN BY THESE PRESENTS
COUNTY OF CHAVES *

THIS AGREEMENT, made and entered into this 1st day of February, 1988 by and between MARGIE S. GRIMES, 11282 Via Carozza, San Diego, California 92124, and FAYE S. BOOHER, 300 Sycamore, Raceland, Louisiana 70394 hereinafter collectively called "Surface Owners", and FLAG-REDFERN OIL COMPANY hereinafter called "Flag-Redfern".

WITNESSETH:

THAT, WHEREAS, Surface Owners own the surface to the following described land in Chaves County, New Mexico, hereinafter referred to as "the Land" to-wit:

Township 7 South - Range 31 East
S/2 Section 26 - (Amoco Federal lease)
E/2 SW/4 Section 23 - (Amoco Federal lease)
NE/4 Section 26 - (Southard "A" lease)
NW/4 Section 26 - (Southard "26" lease)
N/2 Section 35 - (Booher "35" lease)

WHEREAS, Surface Owners also own the surface to the Hahn-Federal lease (S/2 Section 27-7S-31E) on which there is presently situated Flag-Redfern's - Hahn Federal No. 5 Well located 1980' FWL and 1980' FSL of Section 27-7S-31E, Chaves County, New Mexico hereinafter referred to as "the Well"; and,

WHEREAS, Flag-Redfern as Operator of the oil and gas wells located on the Land, the Hahn-Federal lease, the Nuckols lease covering Section 24-7S-31E, and the Hahn Federal "A" lease covering the N/2 Section 27-7S-31E (the surface of the Nuckols and Hahn-Federal "A" leases are not owned by the Surface Owners) desires to convert and equip the Well into a saltwater disposal well for the purpose of disposing of saltwater produced from the oil and gas leases covering the Land, the Nuckols lease, and the Hahn-Federal "A" lease, and the Hahn Federal lease.

WHEREAS, Surface Owners desire to allow Flag-Redfern to use the Well for the purposes herein described.

NOW, THEREFORE, for and in consideration of TEN DOLLARS ($10.00) cash in hand paid to Surface Owners, receipt of which is hereby acknowledged, it is STIPULATED and AGREED by and between Surface Owners and Flag-Redfern as follows:

1.

Surface Owners hereby GRANT to Flag-Redfern, its successors and assigns, the right to convert the Well located on the Hahn Federal lease into a saltwater disposal well for the purpose of disposing of saltwater injected therein into a non-fresh water bearing sand, and also GRANT to Flag-Redfern the right to use one (1) acre of the surface of the land around the Well for the Purpose of equipping, operating and maintaining thereon all necessary facilities for a saltwater disposal system, together with the right of ingress and egress to and from the Well across the Land. Flag-Redfern may dispose of saltwater into the Well, which is produced from oil and gas leases covering the Land, the Hahn-Federal lease, the Nuckols lease, and the Hahn-Federal "A" lease.

2.

Surface Owners hereby GRANT to Flag-Redfern a right-of-way and easement for the laying of all necessary pipelines across the Land and the Hahn-Federal lease in consideration for the payment of damages at the rate of $4 per rod for the purpose of transporting saltwater to the disposal system and the Well. Flag-Redfern agrees to operate the salt water disposal system in a prudent manner consistent with industry standards. Flag-Redfern shall have the right at any time to remove from the Well and from the Land or the Hahn-Federal lease any and all casing, pipelines, material, equipment and other personal property placed thereon or therein by Flag-Redfern.

Flag-Redfern also agrees to pay as rental on a monthly basis 10 cents for each barrel of all fluids produced from the Lands, the Nuchols lease and the Hahn-Federal "A" lease injected into the Well to Surface Owners.

4.

Flag-Redfern shall not permit other Operators of leases in which Flag-Redfern owns no interest to inject saltwater into the Well without the written consent of Surface Owners.

5.

The term of this agreement is for Seven (7) years from the date hereof, unless terminated by Flag-Redfern prior to the end of said seven (7) years and by mutual agreement of the parties on a year to year basis thereafter until terminated in writing by the party wishing to terminate this agreement by giving 30 days notice prior to the anniversary of the next succeeding year. No change in the surface ownership of the Land or the Hahn-Federal lease during the term hereof shall be binding upon Flag-Redfern until it shall receive a certified copy of such change of ownership.

6.

In the event of default in performance or any obligation of the terms of this agreement, and if obligations have not been complied with after receiving thirty (30) days written notice, you shall have the right to terminate this agreement.

7.

All payments to Surface Owners provided for herein shall be divided equally between said Surface Owners.

This Agreement shall be binding upon the parties hereto

their heirs, representatives, successors and assigns.

This Agreement may be signed in multiple counterparts, each of which shall be considered an original for all purposes.

IN WITNESS WHEREOF, the parties hereto have executed this agreement, effective the date and year first above written.

WITNESS:

Patricia L. Harrison

SURFACE OWNERS

Margie S. Grimes

Margie S. Grimes

Faye S. Booher

OPERATOR

FLAG-REDFERN OIL COMPANY

ATTEST:

Dale Stice
Assistant Secretary

Glenn S. Brant
President

STATE OF ~~NEW MEXICO~~ CALIFORNIA *
*
COUNTY OF SAN DIEGO *

On this the 8th day of March, 1988, before me personally appeared MARGIE S. GRIMES know to be the person described in and who executed the foregoing instrument, and acknowledged that she executed the same as her free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal on the day and year in this certificate first above written.

Donna Borowik Janzen
Notary Public

My Commission Expires:
August 1, 1989

OFFICIAL SEAL
DONNA BOROWIK JANZEN
NOTARY PUBLIC - CALIFORNIA
Principal Office in San Diego County
My Commission Expires Aug. 1, 1989

STATE OF NEW MEXICO *
*
COUNTY OF _____ *

On this the _____ day of _____, 1988, before me personally appeared FAYE S. BOOHER know to be the person described in and who executed the foregoing instrument, and acknowledged that she executed the same as her free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal on the day and year in this certificate first above written.

_____
Notary Public

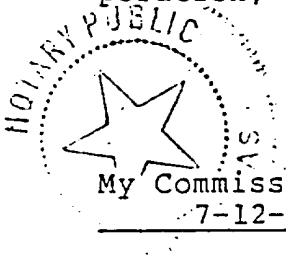
My Commission Expires:

_____

STATE OF TEXAS *
*
COUNTY OF MIDLAND *

The foregoing instrument was acknowledged before me this 19th day of February, 1988, by GLENN S. BRANT, President of Flag-Redfern Oil Company, a Delaware corporation, on behalf of said corporation.

Penny Vachal
Notary Public
Penny Vachal



My Commission Expires:
7-12-89

their heirs, representatives, successors and assigns.

This Agreement may be signed in multiple counterparts, each of which shall be considered an original for all purposes.

IN WITNESS WHEREOF, the parties hereto have executed this agreement, effective the date and year first above written.

WITNESS:

SURFACE OWNERS

Margie S. Grimes

Faye S. Booher

OPERATOR

FLAG-REDFERN OIL COMPANY

ATTEST:

Dale Stice
Assistant Secretary

Glenn S. Brant
President

STATE OF NEW MEXICO *
*
COUNTY OF _____*

On this the _____ day of _____, 1988, before me personally appeared MARGIE S. GRIMES know to be the person described in and who executed the foregoing instrument, and acknowledged that she executed the same as her free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal on the day and year in this certificate first above written.

Notary Public

My Commission Expires:

_____

STATE OF ~~NEW MEXICO~~ Louisiana *
COUNTY OF ~~COUNTY~~ Parish Lafourche *

On this the 15th day of March, 1988, before me personally appeared FAYE S. BOOHER know to be the person described in and who executed the foregoing instrument, and acknowledged that she executed the same as her free act and deed.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal on the day and year in this certificate first above written.

Susan G. Mathews
Notary Public

My Commission Expires:
At death

STATE OF TEXAS *
*
COUNTY OF MIDLAND *

The foregoing instrument was acknowledged before me this 19th day of February, 1988, by GLENN S. BRANT, President of Flag-Redfern Oil Company, a Delaware corporation, on behalf of said corporation.

Penny Vachal
Notary Public
Penny Vachal

NOTARY PUBLIC STATE OF TEXAS

My Commission Expires:
7-12-89