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

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 8741(
(505) 334-6178

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

Still pending
8-20-82

DATE Feb 2 1982

RE: Proposed MC_____
Proposed DHC_____
Proposed NSL_____
Proposed SWD_____
Proposed WFX ✓
Proposed PMX_____

Gentlemen:

I have examined the application dated Feb 1, 1982

for the Dome Petroleum : Santa Fe 20-2 : F-20-21N-8W
Operator : Lease and Well No. : Unit, S-T-R

and my recommendations are as follows:

Approve

Yours truly,

Jeff A. Edmister

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-

RECEIVED
FEB 1 1982
OIL CON. COM.
DIST. 3

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: Dome Petroleum Corp.

Address: 2900 Dome Tower, 1625 Broadway, Denver, Colorado 80202

Contact party: Murray Choran Phone: (303) 620-3341

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 SWD 188.

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: Murray Choran Title Senior Reservoir Engineer

Signature: Murray Choran Date: Jan 27, 1982

* 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. September 10, 1981 - Application for Salt Water Disposal, Snake Eyes

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:

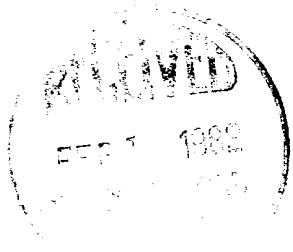
(3) the formation name and depth with expected maximum injection rates and pressures; and

(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.

TABLE OF CONTENTS



ITEM V

R9W

R8W

T 21 N

SAN JUAN CO.

McKINLEY CO.

0 1/4 1/2 1 2 MILES

1" : 2000'

DOME PETROLEUM CORP.
DENVER, COLORADO

SNAKE EYES PROSPECT

SAN JUAN CO., NEW MEXICO

MAP 1

SNAKE EYES LEASE & WELL LOCATION MAP

DATE: 12/81 | FILE NO. M-8-5

Dome Petroleum Corp.	Santa Fe			
OPERATOR	LEASE			
20-2	2150 FNL 1980 FWL	20	21N	8W
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic

Tabular Data

Surface Casing

Size 9 5/8" Cemented with 175 sx.

TOC Surface feet determined by Circulation

Hole size 13 1/4

Intermediate Casing

Size _____" Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 7" Cemented with 1200 sx.

TOC Surface feet determined by Circulation

Hole size 8 3/4

Total depth 5842

Injection interval

3346 feet to 3954 feet
(perforated or open-hole, indicate which)

PERFORATIONS

3346-3410

3448-3498

3546-3560

3612-3754

Tubing size 3 1/2 lined with Plastic (material) set in a

Baker Model FA (brand and model) packer at 3300 feet.

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Gallup

2. Name of Field or Pool (if applicable) Snake Eyes

3. Is this a new well drilled for injection? / / Yes /X/ No

If no, for what purpose was the well originally drilled? For Entrada oil production.

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) 5756-5790 will be used for water injection still, interval 5078-5110 will be cemented.

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Overlying oil is Mesa Verde, Underlying oil is Entrada

ITEM VII

1) Anticipated daily injection volume is 10,000 barrels per day, maximum injection volume is 15,000 barrels per day.

2) The system is closed.

3) The average injection pressure is 750 psig maximum pressure is 1000 psig.

4) Attached to initial request was water analysis of Santa Fe #20-1 and Dome Federal 15 well #1 in Section 15, T19N, R5W. This well is compatible to the zone to be injected in.

5) Water quality was determined by log interpretation, solid = 21,000 ppm as shown below.

From	Rw		Solids ppm
1. Rw from SP Dome Petroleum Santa Fe 20-1	.24		
2. Rw from Rwa Dome Petroleum Santa Fe 20-1	.20	.20	21,000
3. Rw from SP Dome Petroleum Santa Fe 20-2	.16		
4. Rw from Rwa Dome Petroleum Santa Fe 20-2	.21		

Solids ppm from Schlumberger log interpretation chart Gen. #9
Rw's from SP's were adjusted for shale & SSP effects
Rw's from Rwa's had porosity adjustment for shale effects.

I Rw from SP's - following Schlumberger precedures & nomographs & charts from Schlumberger log Interpretation charts 1977 Ed.

A. Inputs	20-2 Well	20-1 Well
Depth to disposal zone	3630 ft.	3625 ft.
Δ SP	-12 m.v.	-23 m.v.
BHT	142°F at 5845 ft.	132°F at 5815 ft.
Thickness of bed	15 ft.	10 ft.
Ri	6.5 Ω	5.5 Ω
Rm	.617Ω at 92°F	2.29Ω at 60°F
Rmf	.441Ω at 92°F	2.84Ω at 60°F

B. Intermediate Values		
Disposal zone temp.	111°F	112°F
Rm at 112°F	.50 Ω	1.25 Ω
Rmf	.36 Ω	1.6 Ω
SP correction factor	1.05	1.03
Corrected SP	-12.6 mv	-24.0 mv
SP adjusted for SSP & shale x (1.8)	-22.5 mv	-43.0 mv
Rmfeg/Rweg	2.00	3.90
Rmfeg	.28	.7
Rweg	.14	.20
Rw	.16	.24

II Rw from Rwa from Sw = 100% = $\left(\frac{.62\ Rw}{\phi^{2.15}\ Rt}\right)^{1/2}$

Where for Well 20-2 $\phi_{corr.}$ = 17.5%, Rt = 5.5 for Well 20-1 $\phi_{corr.}$ = 16%, Rt = 6.5

ITEM VIII

Attachment to New Mexico Oil Conservation Division Form C-108.

Data pertaining to injection at Snake Eyes Field Section 20, T21N, R8W. Lithologic Detail well sorted sandstone, angular, light to dark gray slightly calcitic.

Geologic Name: Gallup Sandstone

Thickness: 500 ft gross

Depth to top: 3346

Underground drinking water sources overlying the Gallup Sandstone.

Geologic Name: Point Lookout / Cliff House

Depth to bottom: 2680 ft / 600 ft

ITEM IX

COMPLETION PROGRAM

Will acidize if necessary with 5000 gal 15% HCL with corrision inhibitors.

ITEM X

Log and test data sent.

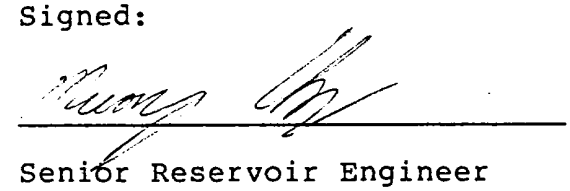
ITEM XI

No fresh water well within one mile.

ITEM XII

Dome personnel have examined available geological and engineering data and find no evidence of open fault or any hydrologic connection between the Gallup zone in Snake Eyes and any underground source of drinking.

Signed:



Senior Reservoir Engineer

X IV

FROM THE DESK OF

HAROLD HOLLINGSWORTH

Murry,

This is a copy of the legal ad we ran in the Farmington paper in regards to the disposal well at Snake Eyes Field.

Holly

ing, $15.

201 LEGALS

NOTICE

Dome Petroleum Corp. proposes to change zones in an injection well at Snake Eyes Field to lower injection pressure. The well is located 2150' FNL, 1980' FWL Section 20, T21N, R6W San Juan County, New Mexico. The change of zones will be from the Entrada Formation at a depth of 5756'-5790' to the Gallup Formation at a depth of 3290'-3750'. Maximum injection rate will be 15000 bbl. of water/day with a maximum injection pressure of 1000 psi.

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.

Legal No. 10551 published in the Farmington Daily Times, Farmington, New Mexico on Thursday, November 12, 1981.

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

AZTEC DISTRICT OFFICE

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 8741(
(505) 334-6178

OIL CONSERVATION DIVISION
BOX 2088
SANTA FE, NEW MEXICO 87501

atten.
Oscar Simpson

DATE Oct 13 1991

RE: Proposed MC _____
Proposed DHC _____
Proposed NSL _____
Proposed SWD ✓
Proposed WFX _____
Proposed PMX _____

Gentlemen:

I have examined the application dated Sept. 18, 1991

for the Dome Petroleum Corp (Operator) Santa Fe 20-2 (Lease and Well No.) F-20-21N-8W (Unit, S-T-R)

and my recommendations are as follows:

Approve

Yours truly,

Jeff A. Edmister

DOME PETROLEUM CORP.

2900 DOME TOWER
1625 BROADWAY
DENVER, COLORADO 80202

TELEPHONE
(303) 620-3000

September 10, 1981

Mr. Joe D. Ramey
Secretary Director
New Mexico Oil
Conservation Commission
P.O. Box 2088
Santa Fe, New Mexico 87501

Re: Application for
Salt Water Disposal
Snake Eyes,
Entrada Pool
Sec. 20, T20N, R8W
San Juan Co., New Mexico

File: WF

Gentlemen:

Attached for administrative approval is an application for disposal of salt water into a porous formation (Gallup). Dome Petroleum Corp., operator of the above mentioned well, is currently disposing of salt water into the Entrada formation. Our application requests approval for an additional disposal zone. The following required data is attached in support of this application.

1) A plat showing all wells within a 2 mile radius of the proposed disposal well.

2) The logs of Santa Fe #20-2 well

3) A diagrammatic sketch of the Santa Fe #20-2 well at present and its appearance if Gallup usage can be applied.

4) A copy of the water analysis performed on the Santa Fe #20-1 well representing water to be injected in the Gallup zone.

5) A copy of Form C-108 detailing significant well data; offset operations and information distribution.

Per instruction, three copies of this application are submitted hereto. In addition, by copy of this letter the New Mexico State Engineer, the Navajo Tribe (surface owner), and the offset operator within 1/2 mile are being notified of this application.

It is Dome's understanding that the Secretary Director, upon receiving no objection within 15 days of receipt of this application can give administrative approval. We hope this application is in order and much appreciate your cooperation in this matter.

Yours very truly,

DOME PETROLEUM CORP.

W. E. Babyak

W. E. Babyak
Manager, Reservoir Engineering

WEB:jp

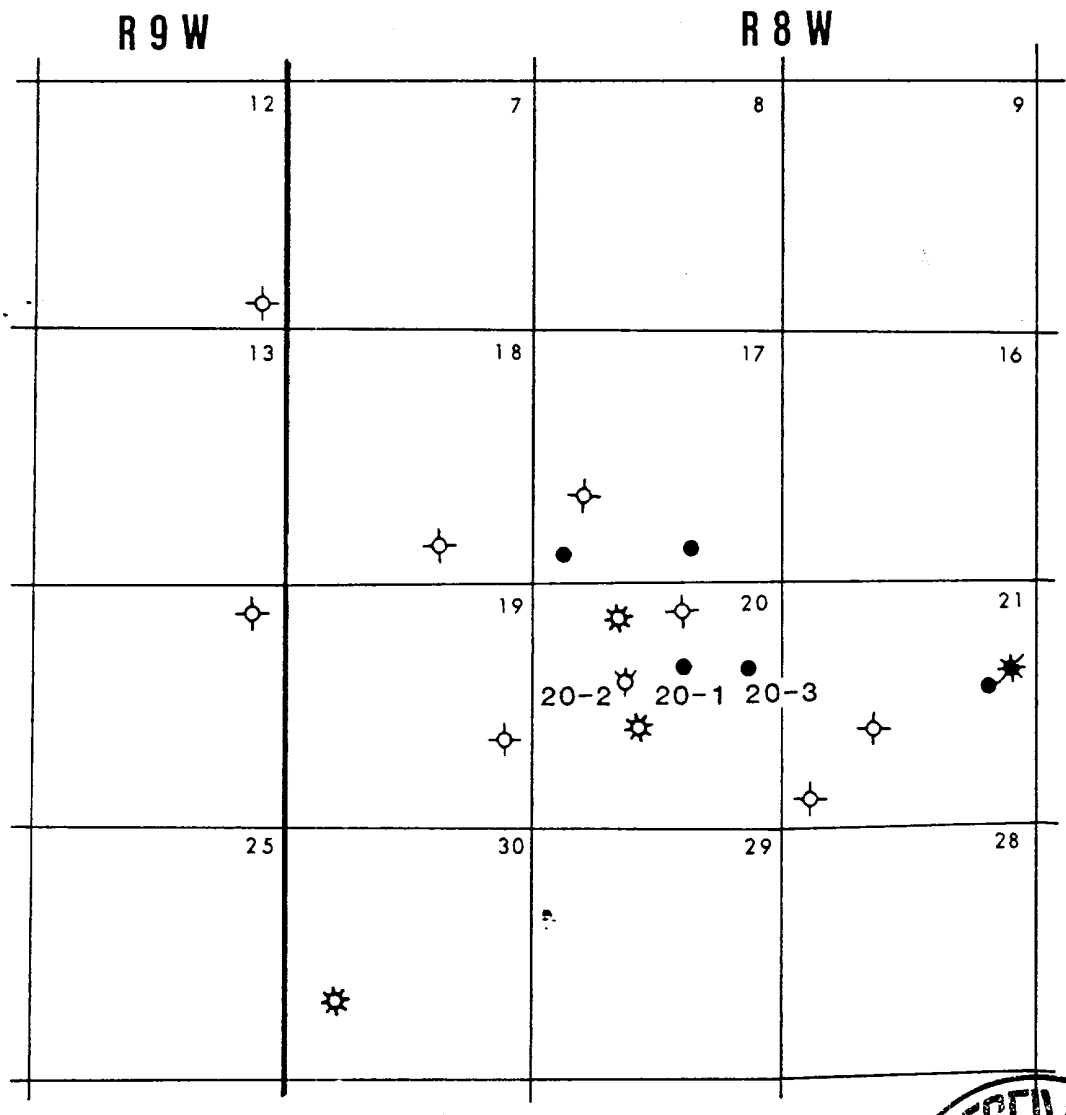
Encl.

cc: Southern Union Supply Co.
Dallas, Tx.

Bureau of Indian Affairs
Windowrock, Arizona

New Mexico State Engineer
Santa Fe, New Mexico

New Mexico Oil Commission
Aztec, New Mexico



Scale: 1" 4,000'

DOME PETROLEUM CORP.

SNAKE EYES
ENTRADA OIL POOLS

San Juan Co., New Mexico

Form C-108
Revised 3-1-68

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR	ADDRESS
Dome Petroleum Corp.	501-Airport Drive; Ste. 107 Farmington, N. M.

LEASE NAME	WELL NO.	FIELD	COUNTY
Santa Fe-20	2	Snake Eyes	San Juan

LOCATION

UNIT LETTER F ; WELL IS LOCATED 2150 FEET FROM THE North LINE AND 1980 FEET FROM THE West LINE, SECTION 20 TOWNSHIP 21N RANGE 8W NMPM.

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	9 5/8	213'	175	Surface	circulation
INTERMEDIATE					
LONG STRING	7"	5842'	1200	Surface	circulation
TUBING	3 1/2	5040'	NAME, MODEL AND DEPTH OF TUBING PACKER: Baker Model FA 5700'		

NAME OF PROPOSED INJECTION FORMATION	TOP OF FORMATION	BOTTOM OF FORMATION
Gallup	3343'	4021'

IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION
Tubing	Perforation	3346-3410, 3448-3498, 3546-3560, 3612-3754

IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?
No	Entrada Production	Yes

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

5756-5790 will be used as water injection still; interval 5078-5110 will be cemented off.

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA	DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
None	Mesa Verde	Entrada

ANTICIPATED DAILY INJECTION VOLUME (BBLS.) MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
10,000	15,000	Closed	Pressure	1500 psig

ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE —	WATER TO BE DISPOSED OF	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?
	Yes	Yes	for disposal water

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

Bureau of Indian Affairs, Window Rock Arizona 86515

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (½) MILE OF THIS INJECTION WELL

Southern Union Supply Company

Ste. 1200; First International Bldg.

Dallas, Texas

RECEIVED
SEP 18 1981
OIL CON. COM.

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL
Yes	Yes

ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL
Yes	Yes	Yes

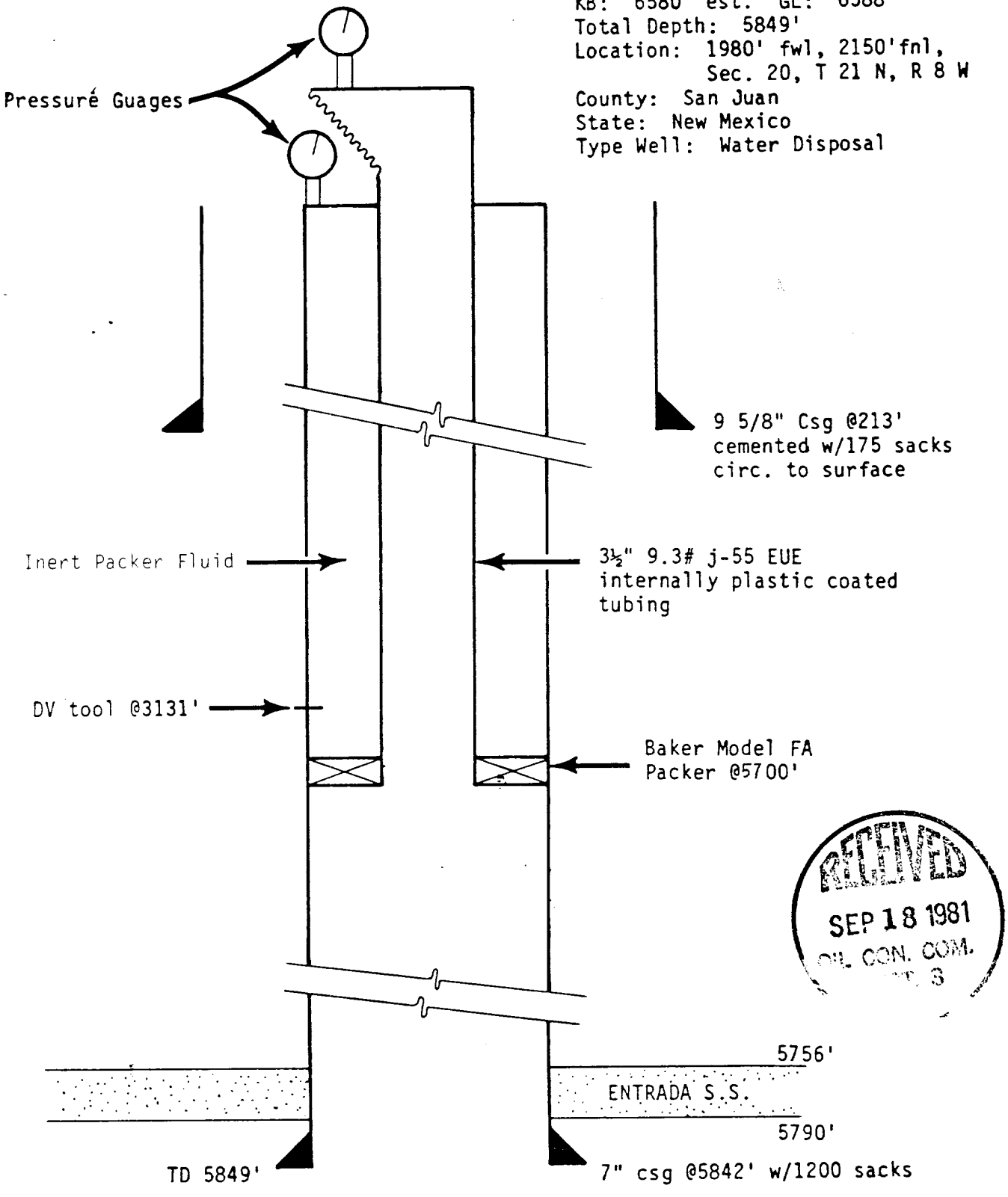
I hereby certify that the information above is true and complete to the best of my knowledge and belief.

W. E. Babyak — Mgr., Reservoir Engineering — 9-15-81

(Signature) (Title) (Date)

NOTE: Should waivers from the surface owner and all operators within one-half mile of the proposed injection well not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

Well & No.: Santa Fe 20-2
Date Spudded: May 22, 1977
KB: 6580' est. GL: 6588'
Total Depth: 5849'
Location: 1980' fwl, 2150'fnl,
Sec. 20, T 21 N, R 8 W
County: San Juan
State: New Mexico
Type Well: Water Disposal

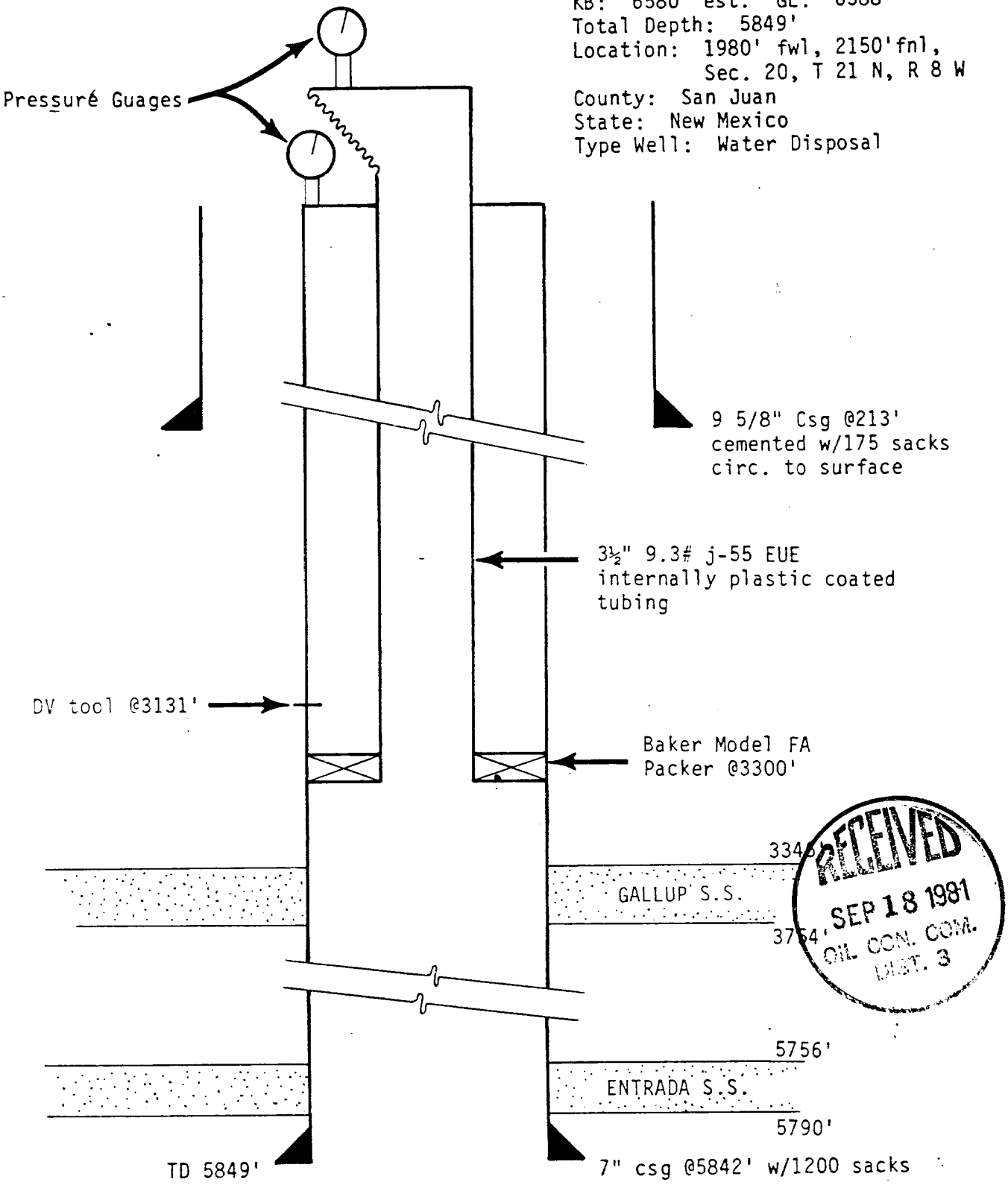


DOME PETROLEUM CORP.

WELL BORE SCHEMATIC

SCALE: None
DRAWN BY: MIC

Well & No.: Santa Fe 20-2
Date Spudded: May 22, 1977
KB: 6580' est. GL: 6588'
Total Depth: 5849'
Location: 1980' fwl, 2150'fnl,
Sec. 20, T 21 N, R 8 W
County: San Juan
State: New Mexico
Type Well: Water Disposal



DOME PETROLEUM CORP.

WELL BORE SCHEMATIC

SCALE: None

DRAWN BY: MIC

CORE LABORATORIES, INC.
Petroleum Reservoir Engineering
DALLAS, TEXAS

WATER ANALYSIS

RECEIVED
MAR 25 1977
Minerals Management Inc.

File WA - 5

Company Dome Petroleum Corp. Well Name Sante Fe 20 No. 1 Sample No. SS-2

Formation _____ Depth _____ Sampled From _____

Location Sec 20 T 21N R 8W Field _____ County San Juan State N.M.

Date Sampled 3-9-77 Date Analyzed 3-13-77 Engineer RGC

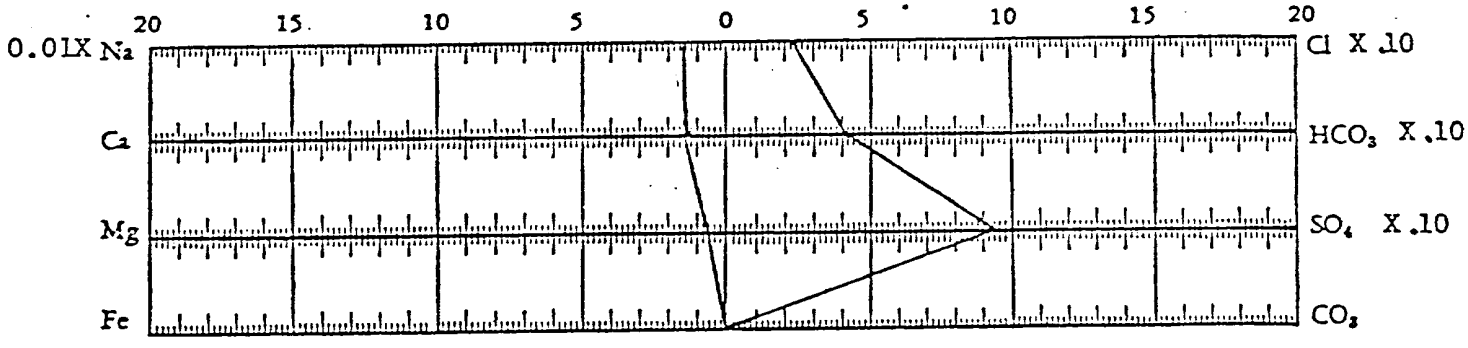
Total Dissolved Solids 11,114.5 mg/L _____ Sp. Gr. 1.009 @ 70 °F.

Resistivity 1.0 ohm-meters @ 70 °F. _____ Hydrogen Sulfide Present

pH 7.73

Constituents	meq/L	mg/L	Constituents	meq/L	mg/L
Sodium	140.44	3228.7	Chloride	25.47	903.0
Calcium	1.35	27.0	Bicarbonate	41.73	2546.0
Magnesium	0.73	8.9	Sulfate	91.61	4400.0
Iron	0.03	0.9	Carbonate	ND	ND*
Barium	ND	ND	Hydroxide	ND	ND

*ND = Less than 0.1 mg/L



Scale: meq/L

All analyses except iron determination performed on a filtered sample.