

# MERIDIAN OIL

OIL CONSERVATION DIVISION  
RECEIVED  
'91 JUN 20 AM 9 18

June 18, 1991

Mr. William J. LeMay  
New Mexico Oil Conservation Division  
P.O. Box 2088  
Santa Fe, New Mexico 87504

RE: San Juan 32-9 Unit SWD #5  
Application of Meridian Oil Inc.  
For a Salt Water Disposal Permit  
San Juan County, New Mexico

A-18-32N-09W

RECEIVED  
JUN 20 1991  
OIL CON. DIV.  
DIST. 3

Dear Mr. LeMay:

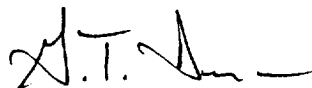
Meridian Oil Inc. requests approval of the attached permit for a salt water disposal well in the Morrison/Entrada formation.

It is intended to locate the San Juan 32-9 Unit SWD #5 at 15' from the north line and 240' from the east line of Section 18, T-31N, R-9-W, San Juan County, New Mexico.

A copy of this application is being submitted to offset operators within the area of review and surface landowners by certified mail, return receipt requested. They are being requested to furnish the NMOCD's Santa Fe office with a Waiver of Objection and return one executed copy to Meridian.

Attached is Form C-108, along with other required support data for this proposal.

Sincerely,



G. T. Dunn

Enclosures

## WAIVER

\_\_\_\_\_ hereby waives objection to Meridian Oil Inc.'s  
San Juan 32-9 Unit SWD #5 as proposed above.

By: \_\_\_\_\_ Date: \_\_\_\_\_

xc: Union Texas Petroleum - Offset Operator  
Bureau of Land Management - Surface Owner  
Aztec Division of NMOCD - Division District Office

## APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage  
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: Meridian Oil Inc.  
Address: P.O. Box 4289, Farmington, NM 87499  
Contact party: G. T. Dunn Phone: (505) 326-9837
- 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. ATTACHED
- \* 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. ATTACHED
- VII. Attach data on the proposed operation, including: ATTACHED
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. ATTACHED
- IX. Describe the proposed stimulation program, if any. ATTACHED
- \* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.) ATTACHED
- \* 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. ATTACHED
- 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. ATTACHED
- 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: G. T. Dunn Title: Regional Production Engineer  
Signature: [Signature] Date: 6/18/91
- \* 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. A. Proposed Disposal Well Data

- (1) Lease Name: San Juan 32-9 Unit SWD  
Well Number: 5

Location: 15' FNL, 240' FEL, Section 18, T31N-R9W  
San Juan County, New Mexico

(2) Wellbore Casing Configuration:

<u>Casing</u>	<u>Hole Size</u>	<u>Csq. Size</u>	<u>Depth Set</u>	<u>Cement</u>	<u>Top/Cement</u>
Surface	17 1/2"	13 3/8"	200'	350 cf	Surf-Calc.
Intermediate	12 1/4"	9 5/8"	3863'	1835 cf	Surf-Calc.
Injection	8 3/4"	7"	7863'	1180 cf	3000'-Calc.
Liner	6 1/4"	4 1/2"	7650-9388'	275 cf	Circ.-Calc.

(3) Injection Tubing:

4 1/2" O.D., 10.5 #/ft., K-55 plastic coated tubing  
to 7500' and tapered to 2 3/8" O.D., 4.7 #/ft.,  
J-55 plastic coated tubing.  
Setting Depth: 8100'

(4) Isolation Packer:

Size: 4 1/2" x 2 3/8"  
Type: Otis  
Model: "BWB"

Seal Assembly:  
Type: Otis  
Model: 212 Molded Seal

B. (1) Formation Name: Morrison/Entrada

(2) Injection Intervals:

Morrison: 8135-8700' Perforated  
Bluff: 8700-8860' Perforated  
Entrada: 9025-9335' Perforated

- (3) The purpose for drilling this well is to dispose of  
produced water.
- (4) There are to be no additional perforated intervals  
in the proposed well.
- (5) There are no lower producing zones. The next higher  
producing interval is the Dakota formation at  
7883-8138'.

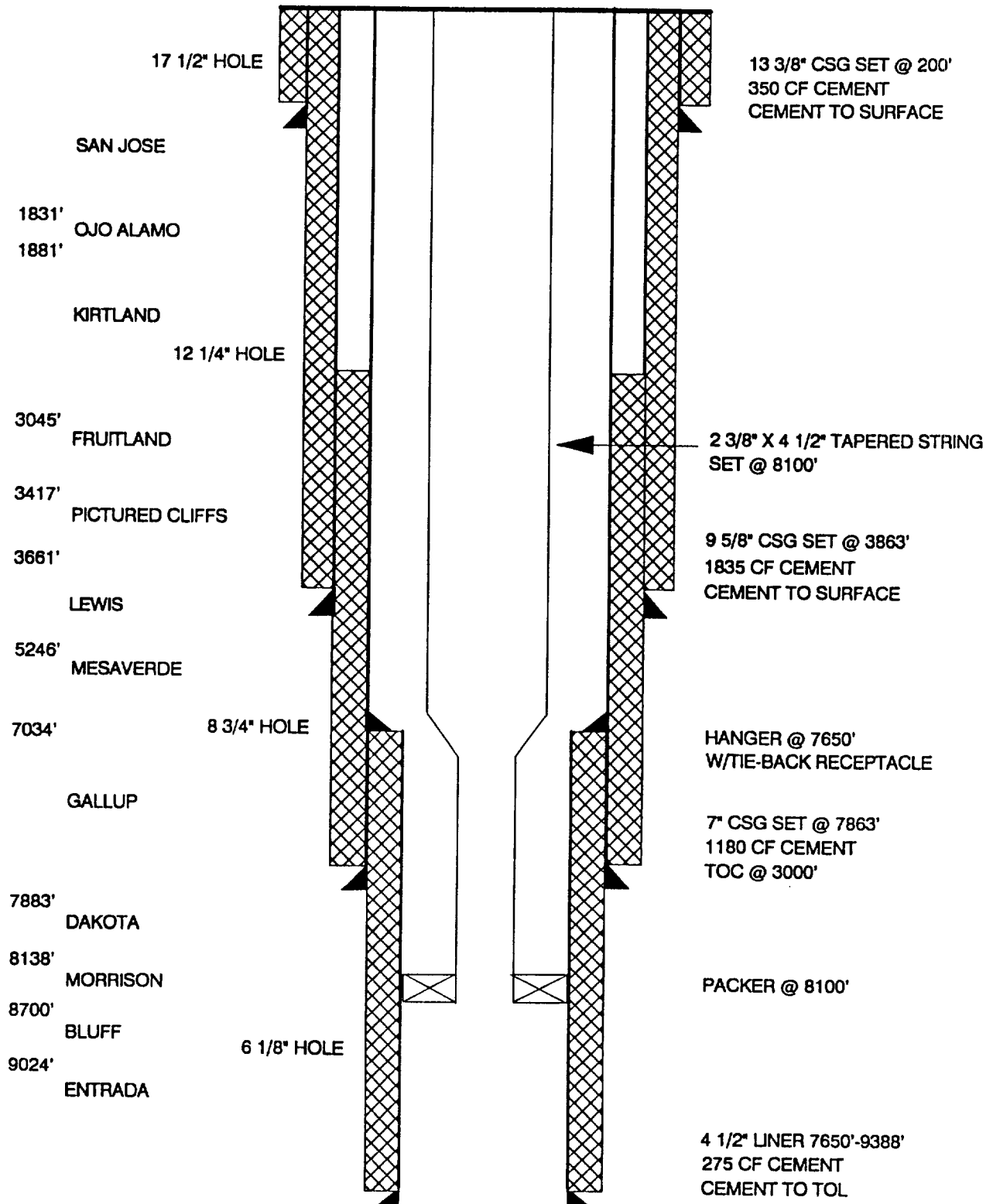
VI. There are no wells penetrating the proposed depth interval  
within the area of review.

- VII. (1) The proposed average injection rate is estimated at 5000 bwpd. The estimated maximum is 7500 bwpd.
- (2) The system will be closed.
- (3) The estimated maximum surface injection pressure is 1870 psig. A step rate test will be conducted after stimulation to determine the maximum allowable injection pressure.
- (4) The source of injected fluid will be produced water from the Fruitland Coal formation.
- (5) Injection is for disposal purposes into a zone not productive of oil and gas. The distance to the nearest well penetrating the proposed zone is Amoco's Pritchard SWD well at approximately 4 1/2 miles to the southeast in 34-31-09. The nearest Meridian SWD well is the Cedar Hill SWD #1 at approximately 6 1/2 miles to the northwest in 29-32-10. A chemical analysis of the candidate's formation water will be supplied when available.
- VIII. The proposed injection zones are the Morrison, Bluff and Entrada. All are sandstones. From ground level (6605'), the Morrison interval is estimated at 8138-8700', having a thickness of 562'. The Bluff interval is estimated at 8700-8862', having a thickness of 162'. The Entrada interval is estimated at 9024-9339', having a thickness of 315'.
- The only overlying fresh water aquifer is the Ojo Alamo, having an estimated base depth of 1881' from ground level. There is no fresh water zone known below the injection zone.
- IX. The proposed stimulation program will consist of sand water fracturing each interval using 2500 pounds of 20/40 sand per net foot of formation interval. Proppant concentration will be from 1 to 8 ppg. The fracturing fluid will be a 40 ppg cross-linked gel.
- X. No logs or test data are available at present but will be filed when run and processed.
- XI. There are no water wells within a 1 mile radius of the candidate well.
- XII. An examination of geologic and engineering data indicates no evidence of open faults or any other hydrologic connection between the disposal zone and any source of drinking water. This conclusion is based on proof of isolation between upper gas and oil bearing zones within the area of review.

# ***SAN JUAN 32-9 UNIT SWD #5***

NE - 18 - 31N - 09W  
SAN JUAN COUNTY, NEW MEXICO

## LITHOLOGY



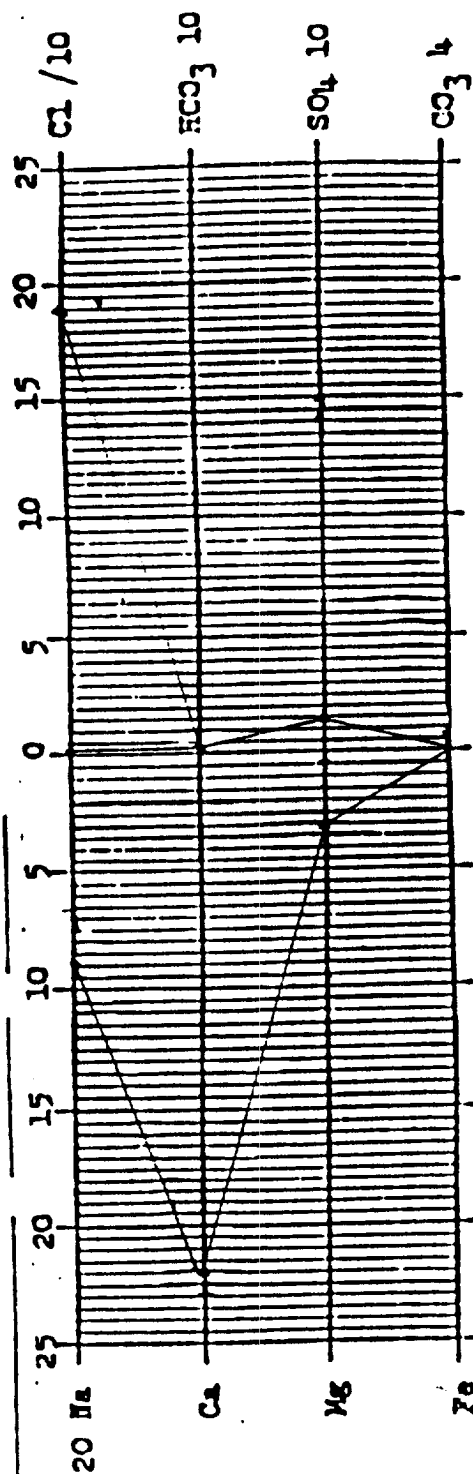
Company	MERIDIAN OIL COMPANY		Sample No.	#1	Date Sampled	7/11/88
Field	Legal Description	County or Parish		State		
	NE 29-32-10	SJ				
Lease or Unit	Well	Depth	Formation	Water, B/D		
Cedar Hill	BWD #1		Shallow Sandstone			
Type of Water (Produced, Supply, etc.)	Sampling Point		Sampled By			
			M. M. M. M.			

## OTHER PROPERTIES

CATIONS	mg/l	me/l
Sodium, Na (calc.)	4086	178.4
Calcium, Ca	441	22.0
Magnesium, Mg	37	3.0
Barium, Ba		

	6743	190.0
	673	12.76
	0	0
	41	0.67

**Total Dissolved Solids (calc.)** 12,000

REMARKS & RECOMMENDATIONS:  
2503-1617



API WATER ANALYSIS REPORT FORM

Company	MERIDIAN OIL COMPANY	Sample No.	21	Date Sampled	
Field	Legal Description NE 29-32-10	County or Parish	Sj	State	
Lease or Unit	Well Cedar Hill SWD #1	Depth	Formation Cretaceous	Water, B/D	
Type of Water (Produced, Supply, etc.)	Sampling Point	Sampled By M. M. M. M.			

DISSOLVED SOLIDS

CATIONS	mg/l	meq/l
Sodium, Na (calc.)	6246	22.7
Calcium, Ca	24	1.2
Magnesium, Mg	13	1.2
Barium, Ba		

OTHER PROPERTIES

pH 8.37  
Specific Gravity, 60/60 F. 71.1 F. 1.006  
Resistivity (ohm-meters) 1.32  $\mu$ mho  
Conductivity

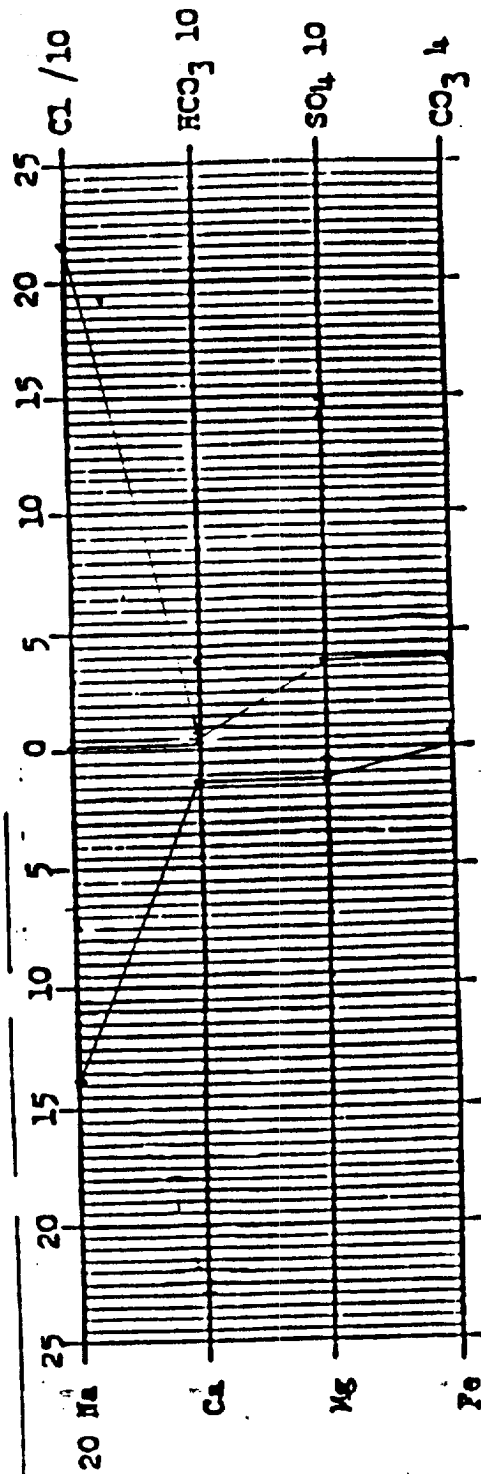
Total Dissolved Solids (calc.) 14,680

ANIONS

Chloride, Cl	7633	213.0
Sulfate, SO <sub>4</sub>	1400	34.6
Carbonate, CO <sub>3</sub>	450	13.9
Bicarbonate, HCO <sub>3</sub>	336	3.3

Iron, Fe (total)  
Sulfide, as H<sub>2</sub>S

REMARKS & RECOMMENDATIONS:  
2503-1615







# OIL CONSERVATION DIVISION

DISTRICT I  
P.O. Box 1980, Hobbs, NM 88240

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

DISTRICT II  
P.O. Drawer DD, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

## WELL LOCATION AND ACREAGE DEDICATION PLAT

All Distances must be from the outer boundaries of the section

Operator Meridian Oil Inc.			Lease San Juan 32-9 Unit SWD (SF-078438)		Well No. 5
Unit Letter A	Section 18	Township 31 North	Range 9 West	County San Juan	
Actual Footage Location of Well: 15 feet from the North line and 240 feet from the East line					
Ground level Elev. 6605'	Producing Formation Morrison/Entrada		Pool	Dedicated Acreage: n/a Acres	

1. Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.

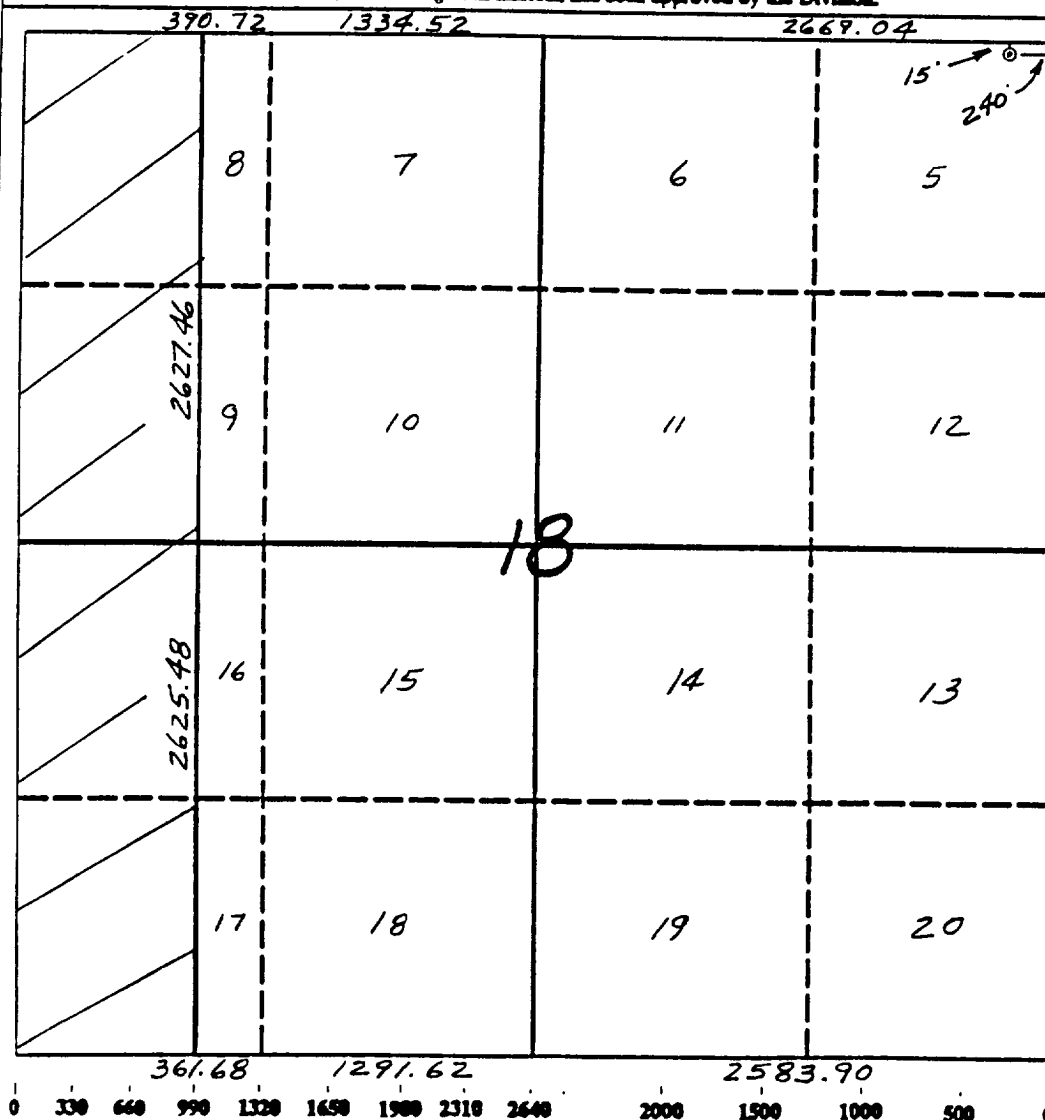
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

3. If more than one lease of different ownership is dedicated to the well, have the interest of all owners been consolidated by communitization, unitization, force-pooling, etc.?

☒ Yes ☐ No If answer is "yes" type of consolidation unitization

If answer is "no" list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interest, has been approved by the Division.



### OPERATOR CERTIFICATION

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

Signature

Peggy Bradfield

Printed Name

Regulatory Affairs

Position

Meridian Oil Inc.

Company

Date

### SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

5-2-91

Date Surveyed

Signature

Professional Surveyor



Certificate No.

Neale C. Edwards

**STRICKCO**  
*Water Analysis Laboratories*  
**FARMINGTON, NEW MEXICO 87401**

= SAMPLE OF INJECTED= FLUID INTO  
CEDAR HILL SWD #1

CEDAR HILL

File WA/0210/90

Company MERIDIAN OIL INC. Well Name SWD #1 Sample No. 2

Formation Fruitland Coal Depth N/A Sampled From After Filters

Location Cedar Hill Field Basin Fruitland County San Juan State NM

Date Sampled 10/29/90 Date Analyzed 10/30/90 Engineer WDS

Total Dissolved Solids 10,365 mg/L Calculated

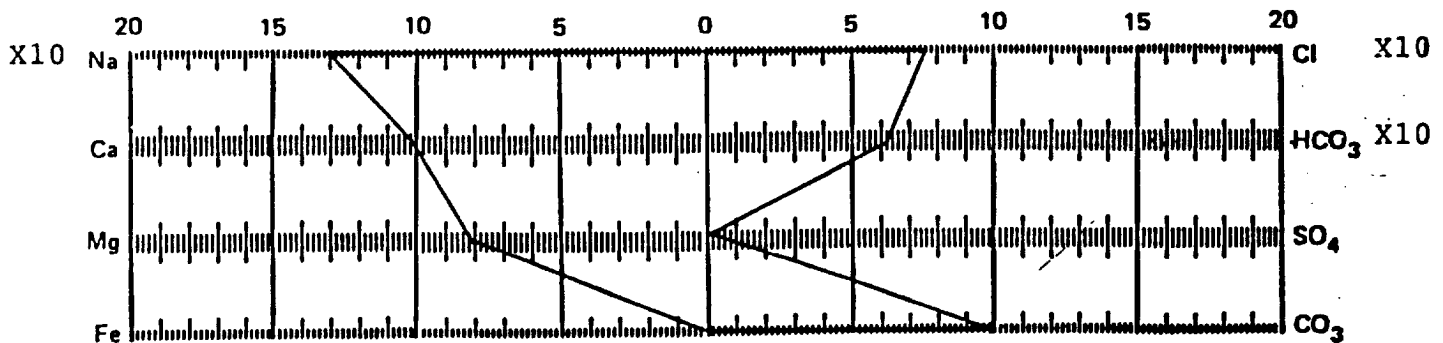
Sp. Gr. 1.010 @ 68 °F.

Resistivity 0.79 ohm-meters @ 68 °F. Measured

pH 8.46 @ 68 °F. Measured

Constituents	meq/L	mg/L	Constituents	meq/L	mg/L
Sodium	<u>130.1</u>	<u>2,991</u>	Chloride	<u>76.1</u>	<u>2,698</u>
Calcium	<u>10.0</u>	<u>200</u>	Bicarbonate	<u>62.0</u>	<u>3,782</u>
Magnesium	<u>8.0</u>	<u>97</u>	Sulfate	<u>-0-</u>	<u>-0-</u> (Grav.)
Iron	<u>-0-</u>	<u>-0-</u>	Carbonate	<u>10.0</u>	<u>300</u>
Hydrogen Sulfide	<u>Absent</u>		Hydroxide	<u>-0-</u>	<u>-0-</u>

Scale: meq/L



All analyses except iron determination performed on a filtered sample.

AFFIDAVIT OF PUBLICATION

COPY OF PUBLICAT

STATE OF NEW MEXICO,  
County of San Juan:

No. 27859

CHRISTINE HILL being duly  
sworn, says: "That she is the  
NATIONAL AD MANAGER of  
The Farmington Daily Times, a daily  
newspaper of general circulation  
published in English in Farmington,  
said county and state, and that the  
hereto attached LEGAL NOTICE

was published in a regular and entire  
issue of the said Farmington Daily  
Times, a daily newspaper duly quali-  
fied for the purpose within the  
meaning of Chapter 167 of the 1937  
Session Laws of the State of New  
Mexico for THREE consecutive  
(days) (//////) on the same day as  
follows:

First Publication TUESDAY, JUNE 11, 1991

Second Publication WEDNESDAY, JUNE 12, 1991

Third Publication THURSDAY, JUNE 13, 1991

Fourth Publication \_\_\_\_\_

and that payment therefore in the  
amount of \$ 34.53 has been made.

Christine Hill

Subscribed and sworn to before me  
this 14th day of  
JUNE, 1991.

Connie Andrae

Notary Public, San Juan County,  
New Mexico

My Comm expires: JULY 3, 1993

**LEGAL NOTICE**  
**INTENT TO**  
**DISPOSE OF**  
**WATER IN**  
**THE SUBSURFACE**

Meridian Oil Inc., as  
Operator, of the San Juan  
32-9 Unit proposes to dis-  
pose of water in the Mor-  
rison and Entrada for-  
mations. The injection  
well will be the San Juan  
32-9 Unit SWD # 5 located  
15' FNL, 240' FEL, Sec-  
tion 18, T-31-N, R-09-W,  
N.M.P.M., San Juan  
county, New Mexico.  
Depth of injection is  
proposed at 8135' -  
9335'. Maximum anti-  
cipated injection rate is  
7500 BWP/D at a max-  
imum surface injection  
pressure of 1870 psig.

Questions should be ad-  
dressed to Meridian Oil  
Inc., Attention G.T.  
Dunn, P.O. Box 4289,  
Farmington, New Mexico  
87499, or call (505)  
326-9837. Objections to  
this proposal or request  
for hearing by interested  
parties must be filed with  
the New Mexico Oil Con-  
servation Division, P.O.  
Box 2088, Santa Fe, New  
Mexico 87501 within 15  
days.

Legal No 27859 pub-  
lished in the Farmington  
Daily Times, Farmington,  
New Mexico on Tuesday,  
Wednesday, and Thurs-  
day, June 11, 12, and 13,  
1991.