State of New Mexico
ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT
Santa Fe, New Mexico 87505

OIL CONSERVATION DIVISION

AMENDED
ADMINISTRATIVE ORDER SWD-560

APPLICATION OF MERIDIAN OIL COMPANY FOR SALT WATER DISPOSAL, LEA COUNTY, NEW MEXICO.

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Under the provisions of Rule 701(B), Meridian Oil Company made application to the New Mexico Oil Conservation Division on May 4, 1994, for permission to complete for salt water disposal its Red Tank Federal Well No. 2 located 542 feet from the South line and 1958 feet from the West line (Unit N) of Section 14, Township 22 South, Range 32 East, NMPM, Lea County, New Mexico.

THE DIVISION DIRECTOR FINDS THAT:

(1) The application has been duly filed under the provisions of Rule 701(B) of the Division Rules and Regulations;

(2) Satisfactory information has been provided that all offset operators and surface owners have been duly notified;

(3) The applicant has presented satisfactory evidence that all requirements prescribed in Rule 701 will be met; and

(4) No objections have been received within the waiting period prescribed by said rule.

IT IS THEREFORE ORDERED THAT:

The applicant herein, Meridian Oil Company is hereby authorized to complete its Red Tank Fedceral Well No. 2 located 542 feet from the South line and 1958 feet from the West line (Unit N) of Section 14, Township 22 South, Range 32 East, NMPM, Lea County, New Mexico,

VILLAGRA BUILDING - 408 Galisteo
Forestry and Resources Conservation Division
P.O. Box 1948 87504-1948
827-5830
Park and Recreation Division
P.O. Box 1147 87504-1147
827-7465

2040 South Pacheco
Office of the Secretary
827-5950
Administrative Services
827-5925
Energy Conservation & Management
827-5900
Mining and Minerals
827-5970
Oil Conservation

in such manner as to permit the injection of salt water for disposal purposes into the Bell Canyon formation at approximately 4900 feet to 6080 feet through 2 7/8-inch plastic-lined tubing set in a packer located at approximately 4800 feet.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

Prior to commencing injection operations into the well, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection well to no more than 980 psi.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Bell Canyon formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of disposal equipment and of the mechanical integrity test so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Hobbs district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

PROVIDED FURTHER THAT, jurisdiction of this cause is hereby retained by the Division for the entry of such further order or orders as may be deemed necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of the operator to conduct operations in a manner which will ensure the protection of fresh water or in a manner inconsistent with the requirements set forth in this order, the Division may, after notice and hearing, terminate the injection authority granted herein.

The operator shall submit monthly reports of the disposal operations in accordance with

Rule Nos. 706 and 1120 of the Division Rules and Regulations.

The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

Approved at Santa Fe, New Mexico, on this 27th day of February, 1995.

WILLIAM J. LEMAY, Director

WJL/BS/kv

xc: Oil Conservation Division - Hobbs
NM State Land Office - Oil and Gas Division
US Bureau of Land Management - Carlsbad

2·23·95

MERIDIAN OIL

OIL CONSERVATION DIVISION
RECEIVED
'95 FEB 9 AM 8 52

February 6, 1995

Mr. David Catanach
Oil Conservation Division
2040 S. Pacheco Street
Santa Fe, New Mexico 87505

RE: Amending Disposal Intervals (SWD-560)
Red Tank Federal Well No. 2 SWD
Sec. 14, T22S, R32E
Lea County, New Mexico

Mr. Catanach:

As per our telephone conversation on Friday February 3, 1995, please find below the information requested.

Meridian Oil Inc. is respectfully requesting to amend the disposal intervals from 5750'-6080' to 4900'-6080'. As shown on the attached log, this requested interval is still in the Lower Bell Canyon formation. As also requested, this amendment is to be published in the newspaper and the offset operators notified. I will furnish proof of this notification upon receipt.

Should you have any questions, or need additional information, please do not hesitate to contact me at 915-688-6943.

Sincerely,

Donna J. Williams
Regulatory Assistant

P.O. Box 51810, Midland, Texas 79710-1810, Telephone 915-688-6800
3300 N. "A" St., Bldg. 6, 79705-5406

WELL FILE

HALLIBURTON

DUAL SPACED NEUTRON LOG

COMP. : MERIDIAN OIL
WELL : RED TANK NO. 2
FIELD : WEST RED TANK DEL/LBC
COUNTY: LEA ST. N.M.

COMPANY MERIDIAN OIL

WELL RED TANK NO. 2

FIELD WEST RED TANK DEL/LBC

COUNTY LEA STATE N.M.

API NO. NA

LOCATION :

542 FSL & 1958 FWL

SEC. 14 TWP. 22-S RGE. 32-E

OTHER SERVICES

CBL

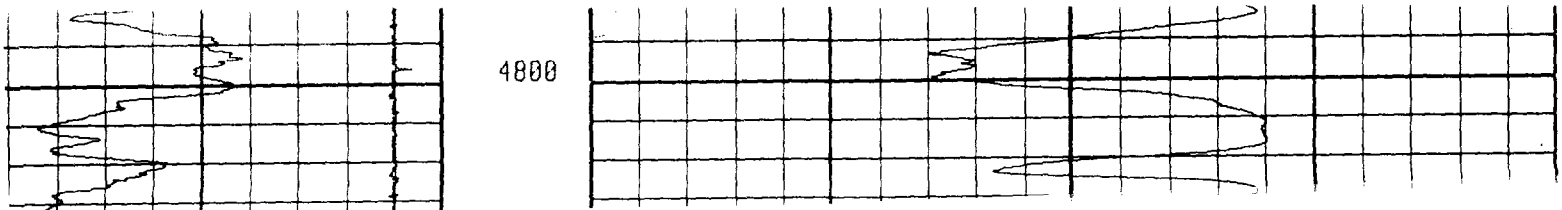
PERMANENT DATUM	G.L	ELEV. 3733
LOG MEASURED FROM	K.B. 10	FT. ABOVE PERM. DATUM
DRILLING MEAS FROM	K.B.	

ELEV.: K.B. 3743
D.F. NA
G.L. 3733

DATE @ TIME LOGGED	06/25/94 @ 00:00	TYPE OF FLUID IN HOLE	WATER
RUN No.	ONE	DENSITY OF FLUID	NA
DEPTH - DRILLER	6167'	FLUID LEVEL	SURF.
DEPTH - LOGGER	6148'	CEMENT TOP EST/LOGGED	920
BTM LOGGED INTERVAL	6148'	EQUIPMENT : LOCATION	51300:HOBBS
TOP LOGGED INTERVAL	100 '	RECORDED BY	MORGAN
MAX RECORDED TEMP.	NA	WITNESSED BY	PETE AND GARY

CEMENTING DATA	SURF. STRING	INT.STRING	PROD.STRING	LINER
DATE/TIME CEMENTED	/ .	/ .	/ .	/ .
PRIMARY/SQUEEZE				
COMPRESSIVE STR. EXPECTED @	: Hrs	: Hrs	: Hrs	: Hrs
CEMENT VOLUME				
CEMENT TYPE/WEIGHT				
MUD TYPE/MUD WGT.				
FORMULATION				

RUN	BOREHOLE RECORD			CASING AND TUBING RECORD			
No.	BIT SZ.	FROM	TO	SIZE	WGT.	FROM	TO
1				8.625	NA	330	SURF.
1				5.50	15.50#	6158	SURF.



I CERTIFY THAT A COPY OF THE REQUEST TO AMEND THE INTERVALS WAS MAILED TO THE FOLLOWING BY CERTIFIED/RETURN RECEIPT ON FEBRUARY 6, 1995:

OFFSET OPERATORS WITHIN 1/2 MILE

MARALO, INC.
223 WEST WALL
MIDLAND, TEXAS 79702

ENRON OIL AND GAS CO.
P.O. BOX 2267
MIDLAND, TEXAS 79702

MERCURY EXPLORATION INC.
1619 PENNSYLVANIA AVENUE
FT. WORTH, TEXAS 76104

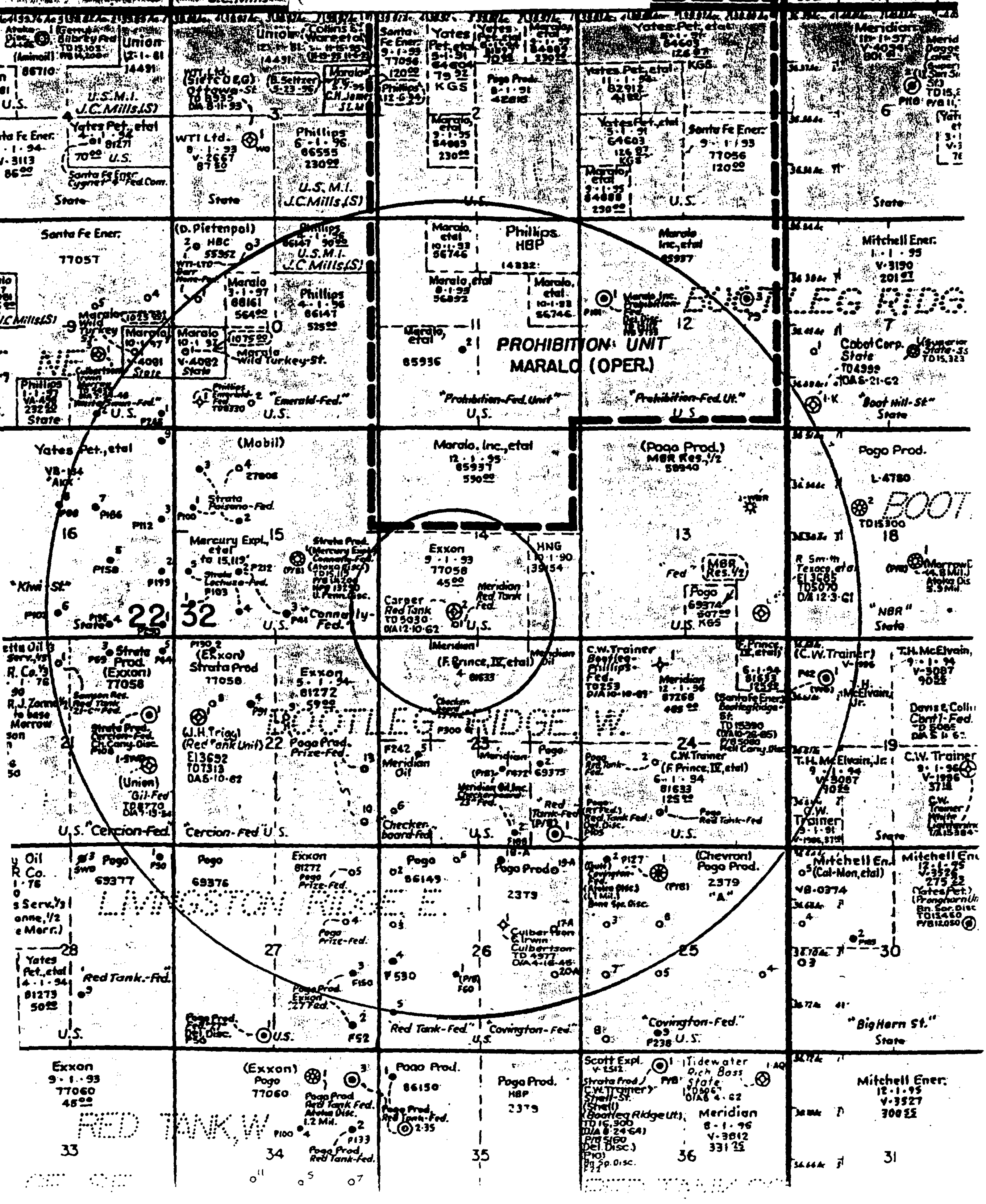
EXXON COMPANY USA
P.O. BOX 1600
MIDLAND, TEXAS 79702

NOTE: C.W. TRAINER WAS LISTED AS AN OFFSET WITH THE ORIGINAL APPLICATION. SINCE THAT TIME, MERIDIAN OIL INC. HAS PURCHASED THE ACREAGE INVOLVED IN THE 1/2 MILE RADIUS.

SURFACE OWNER

BUREAU OF LAND MANAGEMENT
P.O. BOX 1778
CARLSBAD, NEW MEXICO 88221-1778

EXHIBIT 'A'
AREA OF REVIEW



AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Kathi Bearden

General Manager

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period.

of

one weeks.
Beginning with the issue dated

February 15, 19 95
and ending with the issue dated

February 15, 19 95

Kathi Bearden
General Manager
Sword and subscribed to before

me this 21st day of

February, 1995

Marilyn D. Ruffin
Notary Public.

My Commission expires
March 24, 1998
(Seal)

This Newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for

LEGAL NOTICE
FEBRUARY 15, 1995

MERIDIAN OIL INC., P. O. BOX 51810, MIDLAND, TEXAS 79710, CONTACT PARTY: DONNA WILLIAMS (915-688-6943) IS MAKING APPLICATION WITH THE OIL CONSERVATION DIVISION IN SANTA FE, NEW MEXICO FOR AUTHORITY TO AMEND THE PREVIOUSLY APPROVED DISPOSAL PERMIT (SWD 560) REGARDING THE RED TANK FEDERAL WELL NO. 2 SWD IN SEC. 14, T22S, R32E, 542' FSL & 1959' FWL, LEA COUNTY, NEW MEXICO. MERIDIAN IS REQUESTING TO INCREASE THE DISPOSAL INTERVALS FROM 5750'-6080' TO 4900'-6080'. THIS INCREASE IS STILL IN THE LOWER BELL CANYON DELAWARE FORMATION WHICH IS NON PRODUCTIVE OF HYDROCARBONS. ANY INTERESTED PARTIES MUST FILE OBJECTIONS OR REQUEST FOR HEARING WITH THE OIL CONSERVATION DIVISION, 2040 PACHECO STREET, SANTA FE, NEW MEXICO 87505.

Should you have any questions, or need additional information, please do not hesitate to contact me at 915-688-6943.

Sincerely,
Donna J. Williams
Regulatory Assistant

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: Meridian Oil Inc.

Address: P.O. Box 51810 Midland, Texas 79710-1810

Contact party: Donna Williams Phone: 915-688-6943

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: Donna Williams Title Production Assistant

Signature: [signature] Date: 4/21/94

* 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.

MERIDIAN OIL

April 21, 1994

Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501-2088

RE: **Application for Authorization to Dispose**
Red Tank Federal No. 2 SWD
SE/SW, Sec. 14, T22S, R32E
542' FSL & 1958' FWL
Lea County, New Mexico
Federal Lease No: NM 35817

Gentlemen:

Meridian Oil Incorporated (MOI) is applying for authorization to re-enter and complete the above referenced well for the purpose of water disposal. Attached is an injection well data sheet showing the current and proposed mechanical configuration of this well. A map is also attached showing the one-half mile area of review around the well. The required information from 'Form C-108' follows.

The proposed injection well will dispose of water produced from Meridian Oil leases from the Delaware and Bone Spring formations in the West Red Tank Delaware and Red Tank Bone Spring fields. Our estimated initial injection rate will be 1000 BPD. The estimated maximum rate is 4000 BPD. We anticipate initial injection pressure to be +/-600 psi, and request an operating maximum pressure of 1500 psi. The closed injection facilities will be equipped with high and low level head switches and will not operate continuously. No deeper aquifers containing usable quality water are known in this area.

III. Well Data

A. 1 through 4, See two attached well data sheets; the first is the existing, plugging data; the second is the proposed recompletion data

1) The plugged well:
Red Tank Unit # 2
542' FSL & 1958' FWL
Sec. 14, T22S, R32E
Lea County, New Mexico

The proposed re-entry/injection well
Red Tank Federal No. 2
542' FSL & 1958' FWL
Sec. 14, T22S, R32E
Lea County, New Mexico

P.O. Box 51810, Midland, Texas 79710-1810, Telephone 915-688-6800
3300 N. "A" St., Bldg. 6, 79705-5406

2) Surface casing: 8 5/8", 32# @ 312' in unreported size hole (cable tool) cement with 150 sxs. TOC = surface

Injection casing: (Proposed) deepen from 5025' to 6100'
5 1/2" 15.5. @ 6100' in 7 7/8" hole
Cmt back to surface in 2 stages. Cement volume will be determined by caliper log.

3) Injection tubing: 2 7/8" 6.5# J-55 IPC tubing @ +/-5650'

4) Injection packer: Baker Lokset (coated) set @ +/-5650'

B. 1) Injection Formation: Lower Bell Canyon Delaware

2) Injection Interval: Perforated from 5750'-6080' (2 spf)

3) The well was originally drilled for production of oil and gas

4) There will be no other open intervals in this injection well. The original well was drilled and abandoned without a completion.

5) The next possible lower oil or gas zone is the Brushy Canyon Delaware located at approximately 7000'. No higher horizons produce within the area of review.

IV. This is <u>not</u> an expansion of an existing Meridian Oil project.

V. Area of Review: See Exhibit 'A' which identifies the well's area of review.

VI. Tabulation of data: Wells within area of review.

1.) Well Name: Red Tank Federal # 1
Location: 330' FSL & 1980' FWL, Sec. 14, T22S, R32E, Lea County, New Mexico
Operator: Meridian Oil Inc.
Well Type: Oil Total Depth: 10,140'
Date Drilled: Spud: March 21, 1994, Completed: April 23, 1994
Completion Data: Perforated 8446'-54', 8486'-8524' (2 JSPF)
Acidized with 2000 gal. 7 1/2% NeFe HCl acid.
Fracture Stimulated with 33,000 gal. X-Linked gel and 98,800 lbs 20/40 Mesh sand.
Top of Cement on Production String: 4,800' (TS)
Well Currently producing
See Exhibit 'B'

2.) Well Name: Checkerboard 23 Federal # 4
Location: 690' FNL & 1980' FWL, Sec. 23, T22S, R32E, Lea County, New Mexico
Operator: Meridian Oil Inc.
Well Type: Oil Total Depth: 10,100'
Date Drilled: Spud: Feb. 11, 1994, Completed: March 11, 1994
Completion Data: Perforated 8456-62', 8494'-8526' (2 JSPF)
Acidized with 2000 gal. 7 1/2% NeFe HCl acid
Fracture stimulated with 33,590 gal. X Linked gel and 97,000 lbs 20/40 mesh sand
Top of Cement on Production String: 4,700' (TS)
Well currently producing
See Exhibit 'C'

VII. Proposed Operation:

1). Estimated average initial injection rate is 1000 BWPD
Estimated maximum daily rate is 4000 BWPD

2). This will be a closed system

3). Estimated average injection pressure is 600 psi. Maximum estimated operating pressure is 1150 psi.

4). Produced water from the Brushy Canyon Delaware and the First Bone Spring Sand will be disposed of into the Lower Bell Canyon Delaware. Water analysis of produced water from the Delaware and Bone Spring are included. See Exhibit(s) 'D' and 'E'.

5). The injection interval is not productive of oil or gas within one (1) mile of the proposed well. For the injection zone water analysis, the data source is from the Dagger Lake '5' State No. 1 located in Sec. 5, T22S, R33E, Lea County, New Mexico. See attached water analysis. Exhibit 'F'.

VIII. Geological Data:

A. Injection Zone -
Lithological Description: Sandstone, light gray fine to very fine grained, poorly consolidated, silty, poor calc. cement.

Geological Name: Bell Canyon (Delaware)

Zone of Thickness: 1300'

Base of Zone At: 6091'

B. Fresh Water Sources -

Geological Name: Triassic

Depth at Bottom of Zone: 680'

Two water wells within area of review produce from 300' TD.

IX. Proposed Stimulation:

The proposed stimulation program is a 3000 gallon treatment of 7 1/2% NeFe HCl acid.

X. Log Data - The proposed disposal well was not originally drilled deep enough to penetrate the disposal zone, however; logs from the well to 5025' are included. See Exhibit 'G'. The Red Tank Federal No. 1 was recently drilled in the same unit letter as the proposed SWD well. The logs from this well with the disposal interval marked are included. See Exhibit 'H'.

XI. Fresh Water Analysis:

Analysis from two (2) fresh water wells in Unit K of Section 14, T22S, R32E are included. See Exhibit(s) 'I' and 'J'.

XII. Hydrologic Communication:

There is no known evidence of faulting or other hydrologic communication between potential fresh water aquifers and the desired injection zone.

XIII. Proof of Notice:

Proof of Notice is attached.
Exhibit 'K'

Notification of Offset Operators within a 1/2 mile radius:
Notification of Surface Owner:
Proof of Publication:

XIV. Certification:

Certification is on Form C-108

If you need additional information, or if you have any questions, please contact me at 915-688-6943.

Sincerely,

Donna J. Williams
Production Assistant
Meridian Oil Inc.

Enclosures:

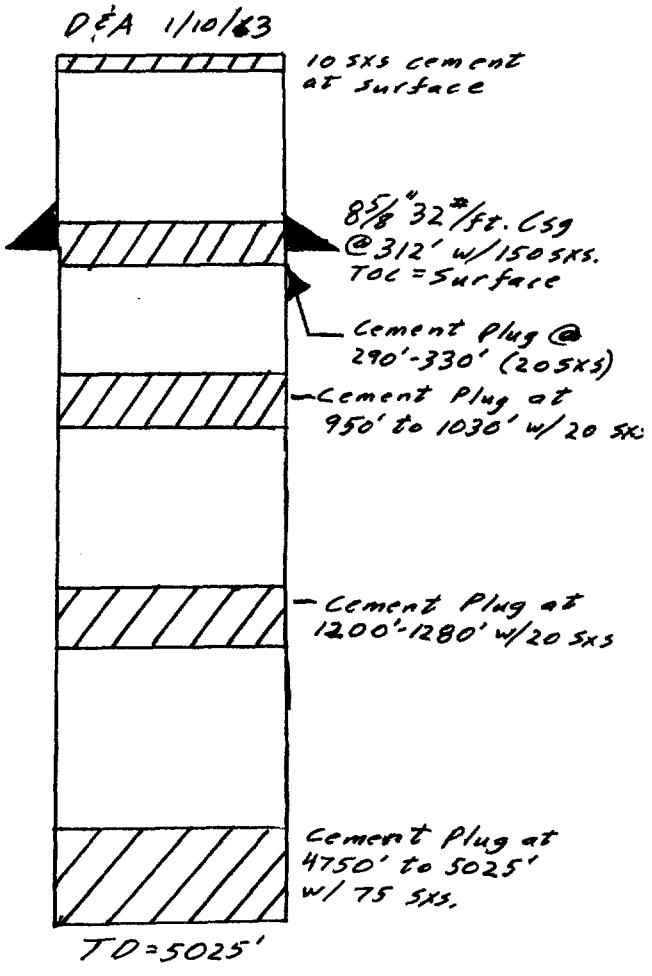
INJECTION WELL DATA SHEET

SIDE 1

Meridian Oil Inc.		Red Tank Federal		
OPERATOR		LEASE		
2	542' FSL & 1958' FWL	14	T22S	R32E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Lea County, NM

Schematic



Tubular Data

Surface Casing

Size 8 5/8" Cemented with 150

TOC surface feet determined circulatio

Hole size Unreported (cable tool) by n

CURRENT CONFIGURATION

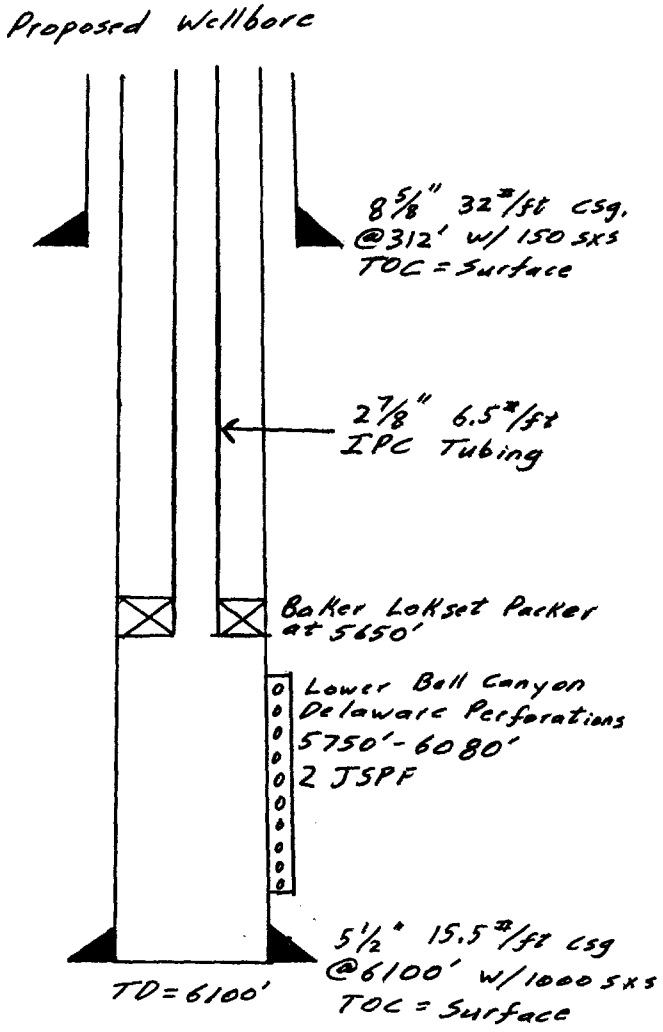
INJECTION WELL DATA SHEET

SIDE 1

Meridian Oil Inc.		Red Tank Federal		
OPERATOR		LEASE		
2	542' FSL & 1958' FWL	14	T22S	R32E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Lea County, NM

Schematic



Tubular Data

Surface Casing

Size 8 5/8" Cemented with 150 sx.

TOC surface feet determined by circulation

Hole size Unreported (cable tool)

Long String

Size 5½" Cemented with 1000 sx.

TOC surface feet determined by circulation

Hole size 7 7/8"

Total Depth 6100±

Injection Interval

5750 feet to 6080' feet

Perforated with 2 SPF

PROPOSED CONFIGURATION

INJECTION WELL DATA SHEET

SIDE 2

Tubing size 2 7/8" lined with plastic coated (material) set in a

Baker Lokset packer at 5650+/- feet
(brand and model)
(or describe any other casing-tubing seal).

OTHER DATA Non-productive of hydrocarbons

1. Name of the injection formation: Lower Bell Canyon Delaware

2. Name of Field or Pool (if applicable): for I.D. purposes - West Red Tank Delaware

3. Is this a new well drilled for injection? YES X NO

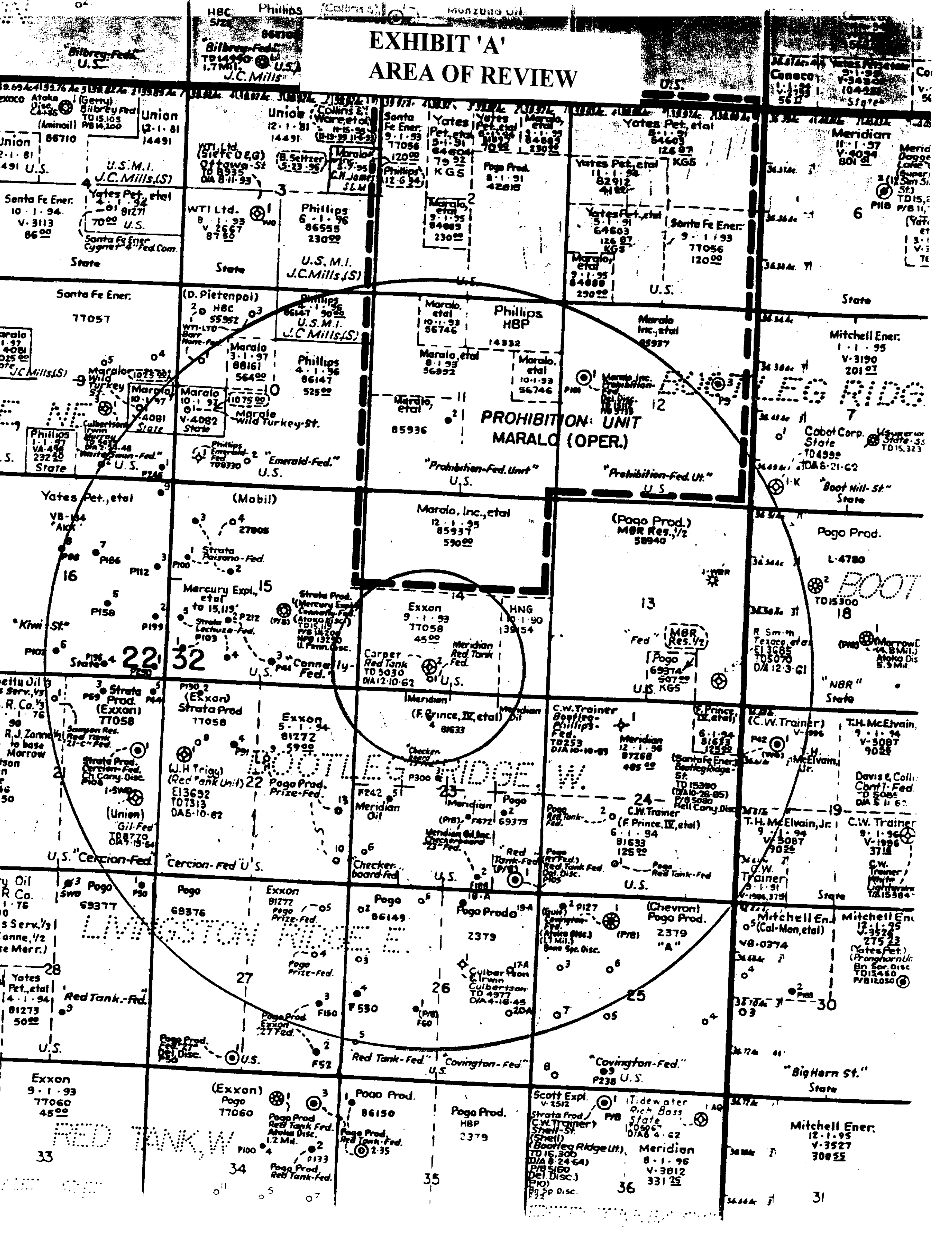
If no, for what purpose was the well originally drilled? re-entry of a P&A well formerly Carper Drilling Company Inc., Red Tank Unit # 2

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).
Well was drilled and abandoned without completion.
See wellbore sketches of current and proposed configuration of well.

5. Give the depth to and name of any overlying and/or gas zones (pools) in this area.

No higher productive intervals in area of review. The next possible lower oil and gas zone is the Brushy Canyon Delaware sandstone located at approximately 7000'.

EXHIBIT 'A'
AREA OF REVIEW



SCHLUMBERGER

SONIC LOG

COUNTY LEA
FIELD or LOCATION WILDCAT
WELL #2 ROUND TANK UNIT
COMPANY CARPER DRILLING CO.

COMPANY CARPER DRILLING CO.

WELL #2 RED TANK UNIT

FIELD WILDCAT

LOCATION SEC. 14-T22S-R32E

COUNTY LEA

STATE NEW MEXICO

Other Surveys
NONE

Location of Well
660' FSL
1980' FWL

Elevation: K.B.: 3731
D.F.: 3730
G.L.: 3720

Log Depths Measured From KB 11 Ft. above GL

RUN No.	ONE		
Date	12-10-62		
First Reading	5020		
Last Reading	0		
Feet Measured	5020		
Cas. Schlum.			
Cas. Driller	313		
Depth Reached	5025		
Bottom Driller	5030		
Mud Not.	SALT STARCH		
Dens. | Visc.	10.2 | 33		
Mud Resist.	.045 @ 70 °F	@ °F	@ °F
" Res. BHT	.034 @ 97 °F	@ °F	@ °F
" pH	5.5 @ °F	@ °F	@ °F
" Wtr. Loss	4.8 CC 30 min	CC 30 min	CC 30 min
" Rmf	.045 @ 70 °F	@ °F	@ °F
Bit Size	6 3/4"		
Spacing:			
T 1 R 1 Rx	4440 To 5020	To	To
T 2 R 1 Rx	CSG To 4440	To	To
Opr. Rig Time	2 HOURS		
Truck No.	2524 ARTESIA		
Recorded By	VANN		
Witness	FOSTER		

FIELD PRINT

Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE W2660C

ELSI

COMPLETION RECORD

SPUD DATE

COMP DATE

DST RECORD

EXHIBIT 'G'
LOGS FROM ORIGINAL WELLBORE

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 194218
SAMPLE RECEIVED 1-29-94
RESULTS REPORTED 2-2-94

TO: Mr. Kevin Midkiff
3300 North "A", Bldg. 6, Midland, TX 79705

COMPANY Meridian Oil Company LEASE Red Tank Federal
FIELD OR POOL
SECTION 14 BLOCK SURVEY T22&R32 COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:
NO. 1 Raw water - taken from west water well. 1-27-94
NO. 2 Raw water - taken from east water well. 1-27-94
NO. 3
NO. 4
REMARKS: Triasic 300'

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0015	1.0013		
pH When Sampled				
pH When Received	7.09	7.10		
Bicarbonate as HCO_3	244	239		
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	192	188		
Calcium as Ca	41	38		
Magnesium as Mg	22	22		
Sodium and/or Potassium	108	79		
Sulfate as SO_4	178	123		
Chloride as Cl	30	26		
Iron as Fe	0.12	0.12		
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	623	528		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 77° F.	13.25	16.02		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Nitrate, as N	2.5	2.9		
Total Dissolved Solids @ 180°C.	544	468		

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

EXHIBIT 'I'
WATER ANALYSIS - FRESH WATER WELL

Form No. 3

By Waylan C. Martin, M.A.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

TO: Mr. Kevin Midkiff
3300 North "A", Bldg. 6, Midland, TX 79705

LABORATORY NO. 194218
SAMPLE RECEIVED 1-29-94
RESULTS REPORTED 2-2-94

COMPANY Meridian Oil Company LEASE Red Tank Federal
FIELD OR POOL
SECTION 14 BLOCK SURVEY T22&R32 COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:
NO. 1 Raw water - taken from west water well. 1-27-94
NO. 2 Raw water - taken from east water well. 1-27-94
NO. 3
NO. 4
REMARKS: Triasic 300'

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0015	1.0013		
pH When Sampled				
pH When Received	7.09	7.10		
Bicarbonate as HCO_3	244	239		
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	192	188		
Calcium as Ca	41	38		
Magnesium as Mg	22	22		
Sodium and/or Potassium	108	79		
Sulfate as SO_4	178	123		
Chloride as Cl	30	26		
Iron as Fe	0.12	0.12		
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	623	528		
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0	0.0		
Resistivity, ohms/m at 77° F.	13.25	16.02		
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Nitrate, as N	2.5	2.9		
Total Dissolved Solids @ 180°C.	544	468		

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

EXHIBIT 'J'
WATER ANALYSIS - FRESH WATER WELL

Form No. 3

By Waylan C. Martin, M.A.

EXHIBIT 'K'
PROOF OF NOTIFICATION

I CERTIFY THAT A COPY OF THE DISPOSAL APPLICATION WAS MAILED TO THE FOLLOWING.

OFFSET OPERATORS WITHIN 1/2 MILE

MARALO, INC.
223 WEST WALL
MIDLAND, TEXAS 79702

ENRON OIL AND GAS CO.
P.O. BOX 2267
MIDLAND, TEXAS 79702

MERCURY EXPLORATION INC.
1619 PENNSYLVANIA AVENUE
FT. WORTH, TEXAS 76104

C.W. TRAINER
8090 E. KALIL DRIVE
SCOTTSDALE, AZ 85260

EXXON COMPANY USA
P.O. BOX 1600
MIDLAND, TEXAS 79702

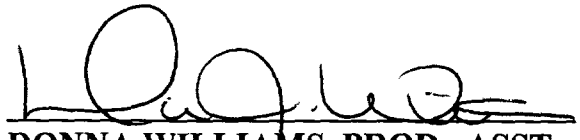
SURFACE OWNER

BUREAU OF LAND MANAGEMENT
P.O. BOX 1778
CARLSBAD, NEW MEXICO 88221-1778

NEWSPAPER

HOBBS NEWS SUN
201 N. THORP
HOBBS, NEW MEXICO 88240

BY CERTIFIED/RETURN RECEIPT MAIL ON THIS DATE.



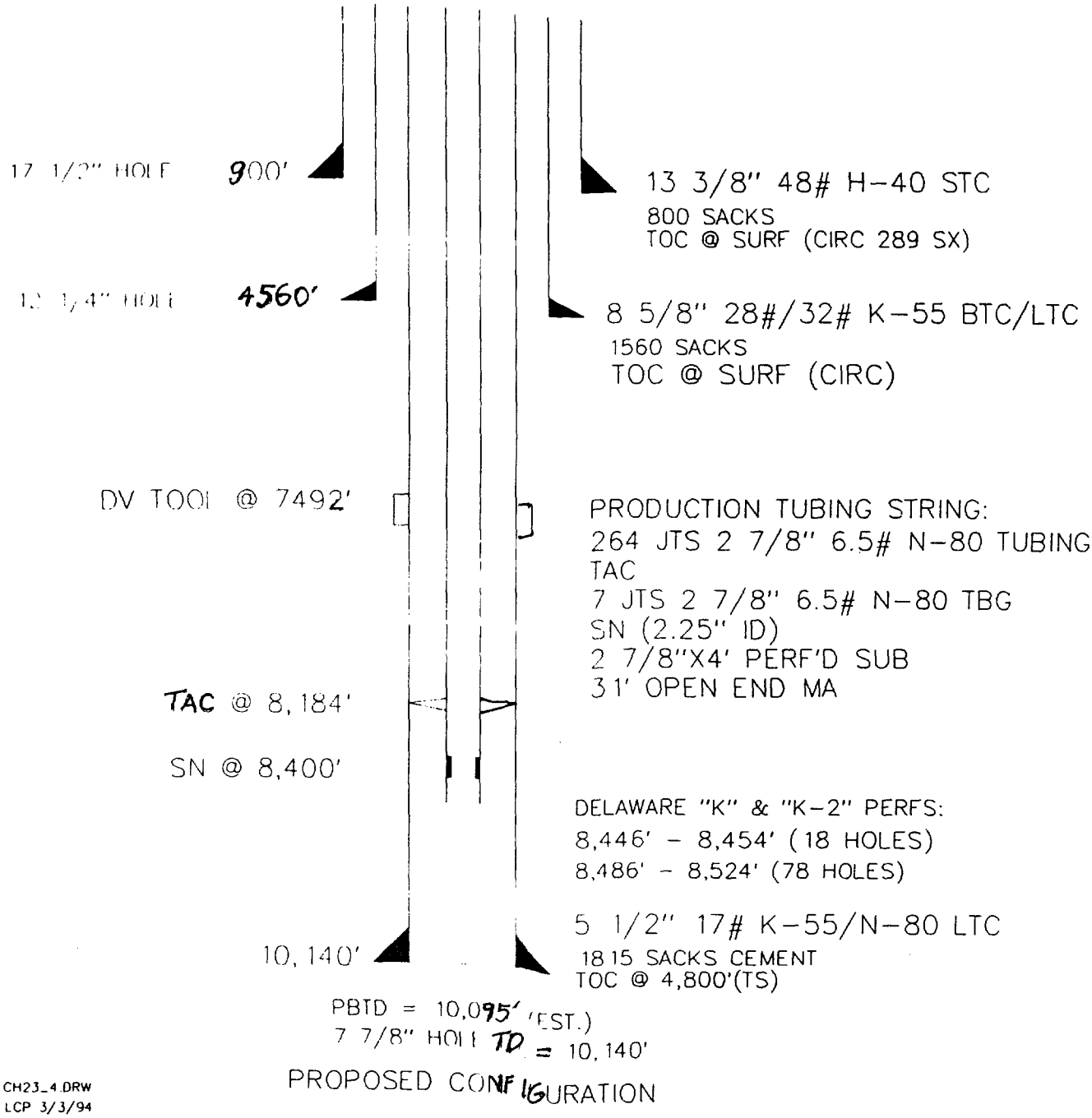
DONNA WILLIAMS, PROD. ASST.

4/22/94

DATE

MERIDIAN OIL

RED TANK FEDERAL #1
WEST RED TANK (DELAWARE) FIELD
LEA COUNTY, NEW MEXICO



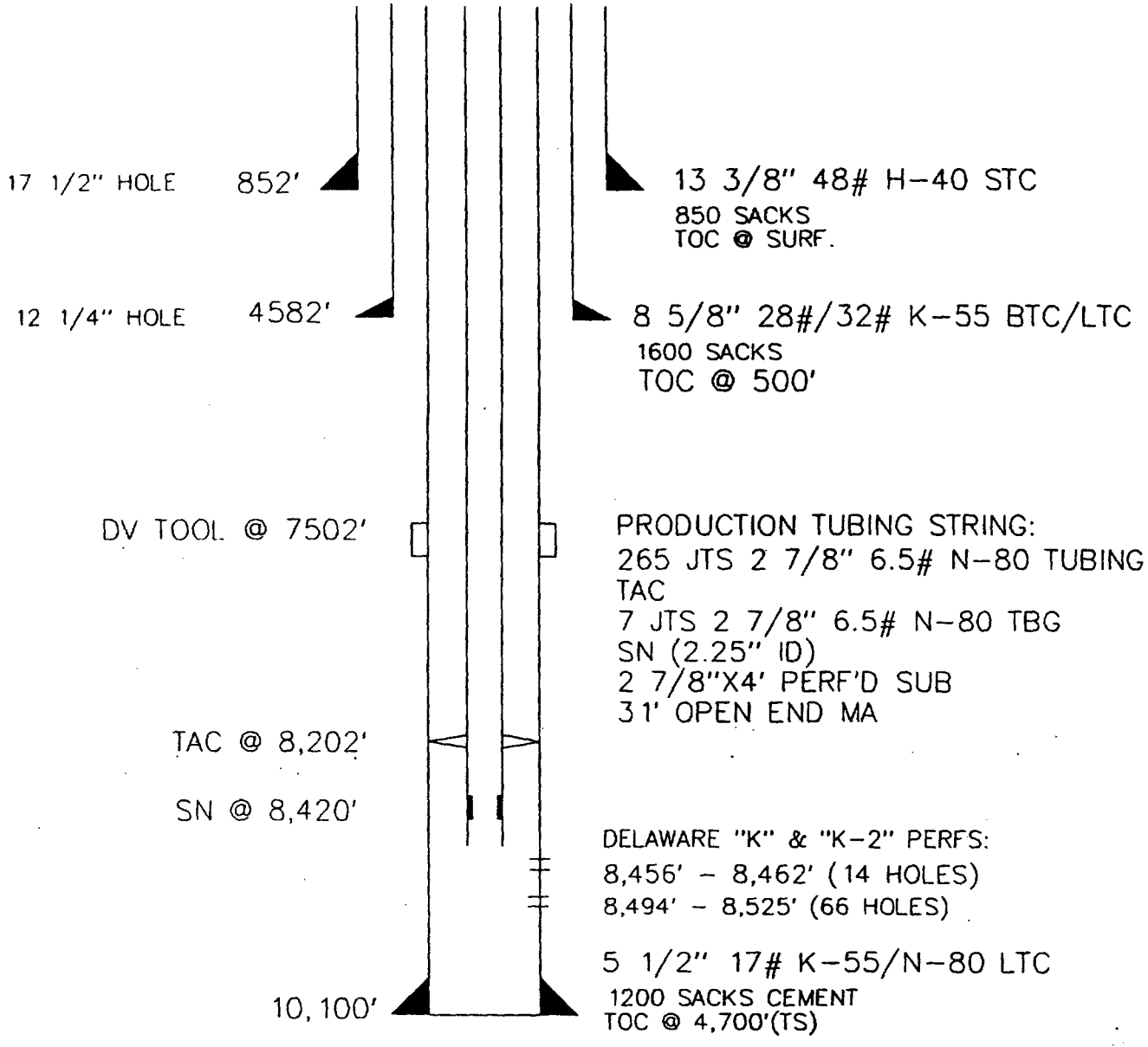
PROPOSED CONFIGURATION

CH23_4.DRW
LCP 3/3/94

EXHIBIT 'B'
DATA OF WELL WITHIN AREA OF REVIEW

MERIDIAN OIL

CHECKERBOARD 23 FED. #4
WEST RED TANK (DELAWARE) FIELD
LEA COUNTY, NEW MEXICO



PROPOSED CONFIGURATION

CH23_4.DRW
LCP 3/3/94

EXHIBIT 'C'
DATA OF WELL WITHIN AREA OF REVIEW

Petrolite Corporation
510 West Texas
Artesia, NM 88210-2041

(505) 746-3588
Fax (505) 746-3580

Reply to:
P.O. Box FF
Artesia, NM
88211-7531

TRETOLITE DIVISION

EXHIBIT 'D'
WATER ANALYSIS - PRODUCED WATER

WATER ANALYSIS REPORT

Company : MERIDIAN OIL INC
Address : ARTESIA, NEW MEXICO
Lease : CHECKERBOARD 23 FED.
Well : #1
Sample Pt. : WELLHEAD

Date : 02/25/94
Date Sampled : 02/25/94
Analysis No. : 1140

	ANALYSIS		mg/L		* meq/L
1.	pH	6.9			
2.	H2S	<1 PPM			
3.	Specific Gravity	1.170			
4.	Total Dissolved Solids		278090.9		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		400 PPM		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)		70.0		
11.	Bicarbonate	HCO3	85.4	HCO3	1.4
12.	Chloride	Cl	171419.5	Cl	4835.5
13.	Sulfate	SO4	200.0	SO4	4.2
14.	Calcium	Ca	14725.4	Ca	734.8
15.	Magnesium	Mg	3131.1	Mg	257.6
16.	Sodium (calculated)	Na	88481.5	Na	3848.7
17.	Iron	Fe	48.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		49664.7		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

735	*Ca <----- *HCO3	1
	/------->	
258	*Mg -----> *SO4	4
	<---------/	
3849	*Na -----> *Cl	4836

Saturation Values Dist. Water 20 C
CaCO3 13 mg/L
CaSO4 * 2H2O 2090 mg/L
BaSO4 2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	1.4	113
CaSO4	68.1	4.2	283
CaCl2	55.5	729.2	40465
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	257.6	12263
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	3848.7	224918

REMARKS:
S. HOLLINGER / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
TOM WILTON

Petrolite Corporation
810 West Texas
Artesia, NM 88210-2041

TRETOLITE DIVISION

(505) 746-3588
Fax (505) 746-3580

Reply to:
P.O. Box FF
Artesia, NM
88211-7531

EXHIBIT 'E'
WATER ANALYSIS - PRODUCED WATER

WATER ANALYSIS REPORT

Company	: MERIDIAN OIL INC	Date	: 02/25/94
Address	: ARTESIA, NEW MEXICO	Date Sampled	: 02/25/94
Lease	: CHECKERBOARD 23 FED.	Analysis No.	: 1139
Well	: #2		
Sample Pt.	: WELLHEAD		

	ANALYSIS		mg/L		* meq/L
1.	pH	7.1			
2.	H2S	<1 PPM			
3.	Specific Gravity	1.115			
4.	Total Dissolved Solids		195790.8		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		320 PPM		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)		1290.0		
11.	Bicarbonate	HCO3	1573.8	HCO3	25.8
12.	Chloride	Cl	116651.6	Cl	3290.6
13.	Sulfate	SO4	1150.0	SO4	23.9
14.	Calcium	Ca	665.3	Ca	33.2
15.	Magnesium	Mg	379.2	Mg	31.2
16.	Sodium (calculated)	Na	75313.8	Na	3275.9
17.	Iron	Fe	57.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		3222.9		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

33	*Ca <------ *HCO3	26
	/------->	
31	*Mg ------> *SO4	24
	<----------/	
3276	*Na ------> *Cl	3291

Saturation Values Dist. Water 20 C

CaCO3	13	mg/L
CaSO4 * 2H2O	2090	mg/L
BaSO4	2.4	mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	25.8	2091
CaSO4	68.1	7.4	504
CaCl2	55.5		
Mg(HCO3)2	73.2		
MgSO4	60.2	16.5	996
MgCl2	47.6	14.7	698
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	3275.9	191446

REMARKS:
S. HOLLINGER / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
TOM WILTON

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 99293

TO: Mr. Joe Small
P. O. Box 51810, Midland, TX 79710

SAMPLE RECEIVED 9-16-92
RESULTS REPORTED 9-18-92

COMPANY Meridian Oil Company LEASE Dagger Lake #1
FIELD OR POOL Wildcat
SECTION ____ BLOCK ____ SURVEY ____ COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Recovered water - taken from Dagger Lake #1. 9-9-92
NO. 2 ____
NO. 3 ____
NO. 4 ____

EXHIBIT 'F'
WATER ANALYSIS - INJECTION ZONE

REMARKS: Delaware

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.1462			
pH When Sampled				
pH When Received	6.26			
Bicarbonate as HCO_3	146			
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	50,500			
Calcium as Ca	18,000			
Magnesium as Mg	1,336			
Sodium and/or Potassium	68,483			
Sulfate as SO_4	947			
Chloride as Cl	140,618			
Iron as Fe	90.0			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	229,531			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen,				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	0.053			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Total Dissolved Solids @ 180°C.	184,361			

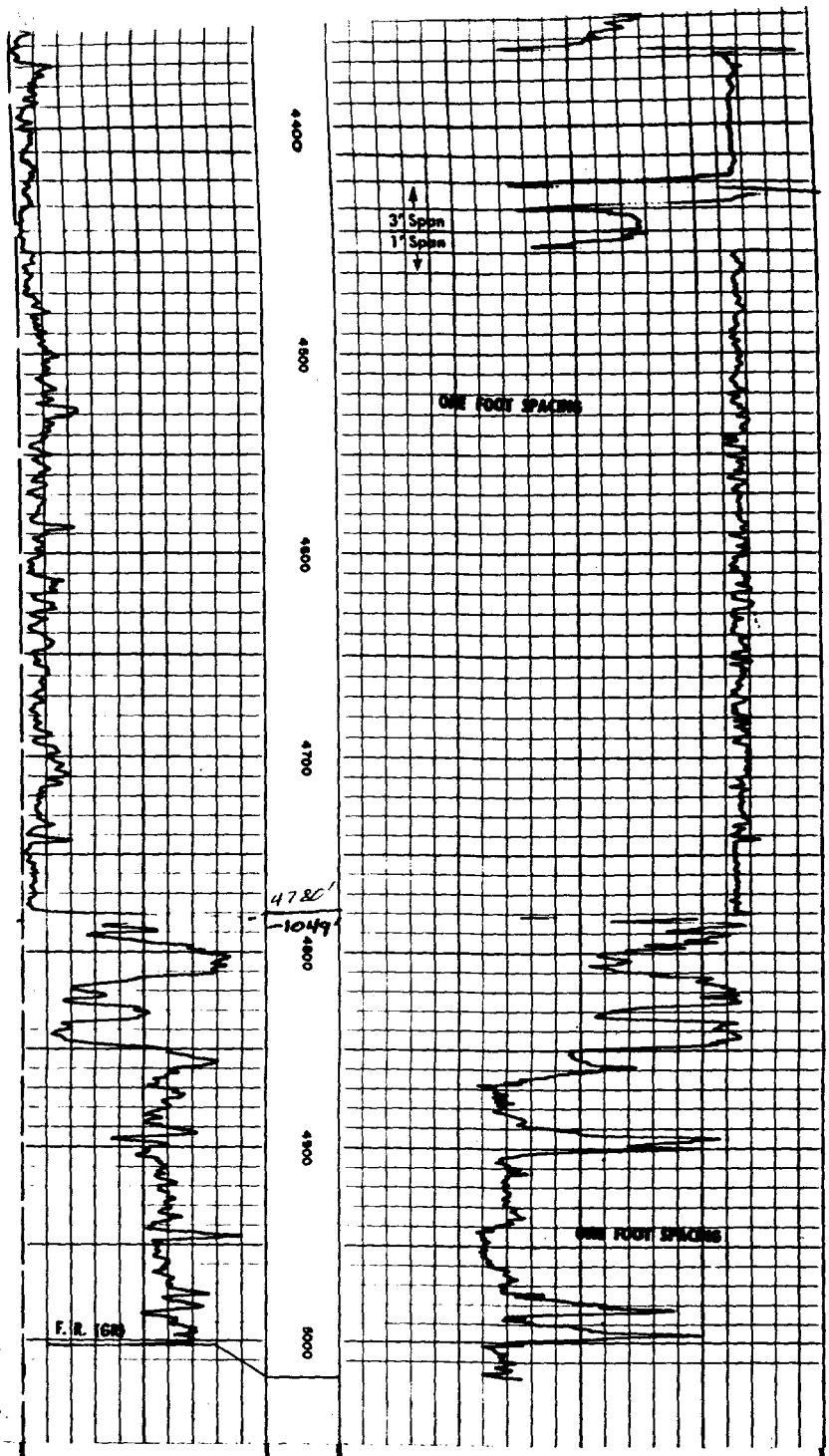
Results Reported As Milligrams Per Liter

Additional Determinations And Remarks: We see a substantial change in the characteristics of water being recovered from this well as compared to the sample taken 9-2-92 and reported on laboratory #99210. Based on a comparison with our Delaware records in the general area of this well, the above water is indicated to be predominantly Delaware.

Form No. 3

By ____
Waylan C. Martin, M.A.

EXHIBIT 'G'
LOGS FROM ORIGINAL WELLBORE



0 100
100 200
GAMMA RAY
API UNITS

– |◂▸| +
SPONTANEOUS-POTENTIAL
millivolts

DEPTHS

100 70 40
INTERVAL TRANSIT TIME
microseconds per foot
← increases
T 3 R. 1 E.

COMPANY CARPER DRILLING COMPANY
WELL #2 RED TANK UNIT
FIELD WILDCAT
COUNTY LEA STATE NEW MEXICO

Rm .045 @ 70 °F
Rmf .045 @ 70 °F
Rmc NO @ CAKE °F
BHT 97 °F

SWSC FR 5020
SWSC TD 5025
DRLR TD 5030
Elevs. est: KB 3731
DF 3730
GL 3720

DETAIL LOG
5" = 100'

SPONTANEOUS-POTENTIAL
millivolts
– |◂▸| +

GAMMA RAY

DEPTHS

INTERVAL TRANSIT TIME
microseconds per foot
← increases
T 3 R. 1 E.
100 70 40

COMPANY: MERIDIAN OIL INC.

WELL: RED TANK FEDERAL # 1

FIELD: WEST RED TANK

COUNTY: LEA STATE: NEW MEXICO

COUNTY: LEA
Field: WEST RED TANK
Location: 330' FSL & 1980' FWL
Well: RED TANK FEDERAL # 1
Company: MERIDIAN OIL INC.

Schlumberger

COMPENSATED NEUTRON
LITHO-DENSITY
GAMMA RAY

LOCATION: 330' FSL & 1980' FWL

Elev.: K.B. 3756 F; G.L. 3738 F; D.F. 3755 F

Permanent Datum: GROUND LEVEL Elev.: 3738 F
Log Measured From: KELLY BUSHING 18.0 F above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	SECTION	TOWNSHIP	RANGE
N/A	14	22-S	32-E

FINAL PRINT

Logging Date	5-APR-1994			
Run Number	ONE			
Depth Driller	10140 F			
Schlumberger Depth	10134 F			
Bottom Log Interval	10055 F			
Top Log Interval	300 F			
Casing Driller Size @ Depth	8.625 IN	@ 4560 F	@	
Casing Schlumberger	4556 F			
Bit Size	7.875 IN			
Type Fluid In Hole	FWGEL-PACR-PAPA			
MUD Density / Viscosity	8.5 LB/G	30 S		
MUD Fluid Loss / PH	20 C3	10		
MUD Source Of Sample	MUD PIT			
RM @ Measured Temperature	2.370 OHMM	@ 70 DEGF	@	
RMF @ Measured Temperature	2.100 OHMM	@ 70 DEGF	@	
RMC @ Measured Temperature		@	@	
Source RMF / RMC	PRESS	N/A		
RM @ BHT / RMF @ BHT	1.274 @ 136	1.129 @ 136	@	@
Maximum Recorded BHT	136 DEGF			
Circulation Stopped Time	5-APR-1994	00:15		
Logger On Bottom Time	5-APR-1994	09:03		
Unit Number / Location	2033	HOBBS		
Recorded By	GERALD HOLT			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@		@	
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
MUD Density / Viscosity				
MUD Fluid Loss / PH				
MUD Source Of Sample				
RM @ Measured Temperature	@		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF / RMC				
RM @ BHT / RMF @ BHT	@	@	@	@
Maximum Recorded BHT				
Circulation Stopped Time				
Logger On Bottom Time				
Unit Number / Location				
Recorded By				

EXHIBIT 'H'
LOGS FROM OFFSETTING WELL

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER

EXHIBIT 'H'
LOGS FROM OFFSETTING WELL

Input DLIS Files

DEFAULT	LDTD .037	FIELD	5-APR-1994 18:13	10146.0 FT	300.5 FT

Output DLIS Files

DEFAULT	LDTD .042	FIELD	5-APR-1994 18:38	10145.5 FT	300.5 FT

Integrated Hole/Cement Volume Summary

Hole Volume = 3127.18 F3

Cement Volume = 2206.51 F3 (assuming 5.50 IN casing O.D.)

Computed from 10140.0 FT to 4560.0 FT using data channel(s) CALI

OP System Version: 5C0-423

0T-D 5S423K-190 CNT-H 5S423K-190
CC-B 5S423K-190

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 10.0 F3
- Integrated Hole Volume Major Pip Every 100.0 F3
- Integrated Cement Volume Minor Pip Every 10.0 F3
- Integrated Cement Volume Major Pip Every 100.0 F3

Time Mark Every 60.0 S

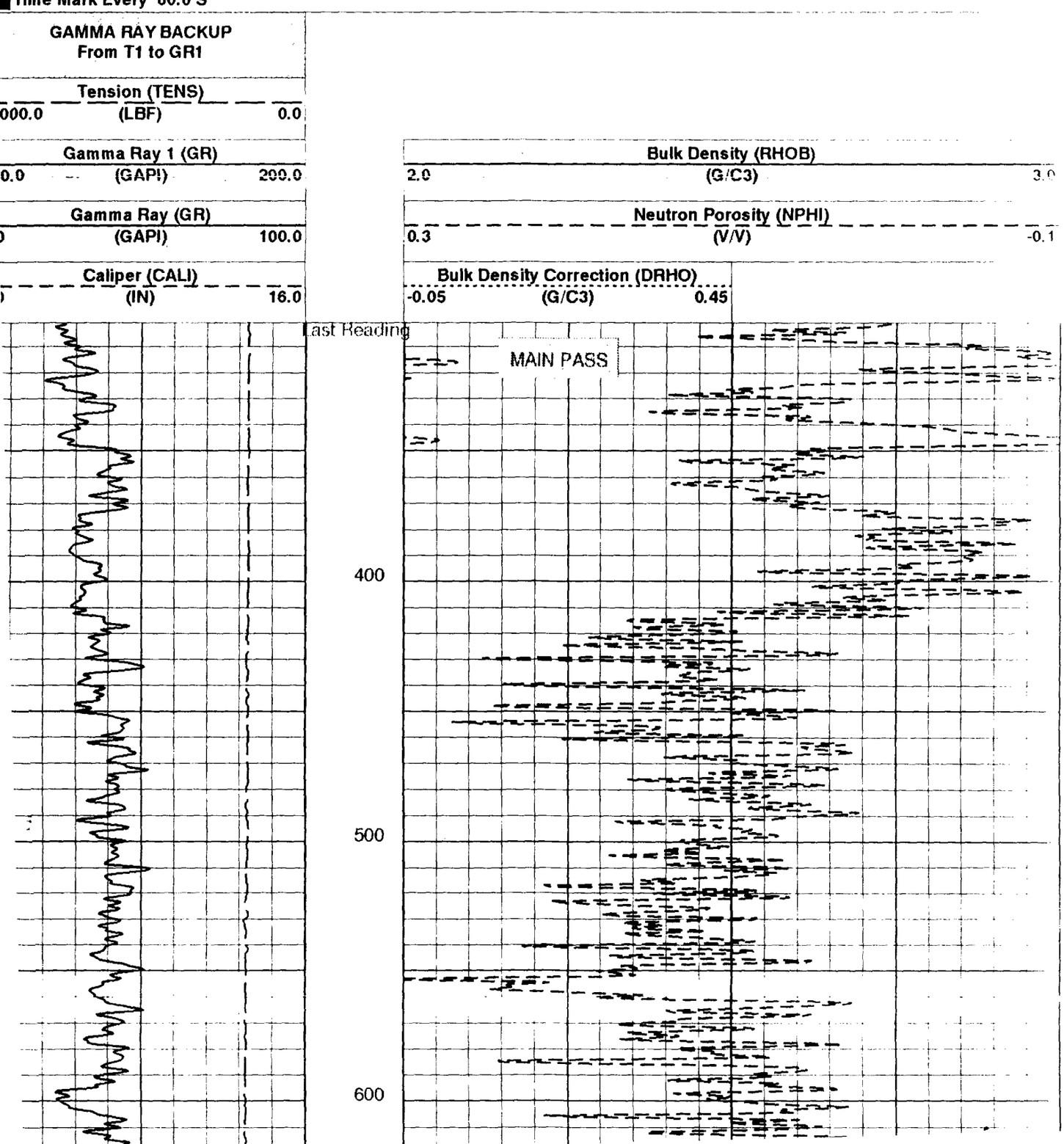


EXHIBIT 'H'
LOGS FROM OFFSETTING WELL