STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

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

Revised 7-1-81

SWD 739 2/11/99

APPLICATION FOR AUTHORIZATION TO INJECT

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

RECEIVED
JAN 27 1999
OIL CONSERVATION DIVISION

II. Operator: Marathon Oil Company

Address: P. O. Box 552 Midland, TX 79701

Contact party: Ken W. Tatarzyn Phone: 915/682-1626

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: Ken W. Tatarzyn Title Indian Basin Asset Team Mgr.

Signature: Ken W. Tatarzyn Date: 1-27-99

• 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.

MOC Federal No. 8
Proposed Injection Well
Attachments to C-108

Part III

Well Data

See attached proposed completion for MOC Federal #8 SWD.

Part 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.

See attached map.

Part 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 details.

There are **no** wells within the "area of review" which penetrate the proposed disposal interval.

Part VII

Attach data on proposed operation

See attachment.

Part VIII

See attachment.

Part IX

Describe the proposed stimulation program, if any.

The proposed injection well will be completed open hole. The proposed open hole interval will be stimulated using 15% HCl acid (10,000 gallons).

Part X

Attach appropriate logging and test data on the well.

This information was sent in when the well was completed in 1996.

Part 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.

There are no fresh water wells within one mile of this disposal well.

Part 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.

Marathon Oil Company, as Operator of the proposed injection well, has reviewed and examined available geologic and engineering data and finds no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

Ken Tatarzyn
Indian Basin Asset Team Manager

Part XIII

Proof of Notice

See attachments.

MOC FEDERAL NO. 8 SWD
Proposed Injection Well
Attachments to Form C-108
(Part III)

Proposed Completion for:

MOC Federal Well No. 8 SWD
API # 30-015-28823
UL "K", 2030' FSL & 1650' FWL
Section 1, T-21-S, R-24-E
Eddy County, New Mexico

14-3/4" hole to 16'. Set 13-3/8" casing cemented w/Redi-mix. TOC is surface, determined visually.

12-1/4" hole to 1210'. Set 9-5/8" casing cemented w/875 sacks. TOC is surface, determined visually.

8-3/4" hole to 9660'. Set 7" casing cemented w/1840 sacks & circulated 149 sacks. TOC is surface, determined by circulation.

61/8" open hole 9660'-11,200'.

4-1/2" FL4S liner from 7550'-10,200' cemented in place. (PROPOSED)

4-1/2" LT&C, PCID tubing set @ 7551'.

Baker (FAB-1) retainer production packer set @ 7550' w/Baker Model K-22 anchor seal assembly.

Proposed injection zone: Devonian

Injection interval: 10,200'-11,200' open hole.

This well was originally drilled as a producing oil well. There are currently open perforations @ 7682'-7866' and 9210'-9226', 9227'-9238', 9368'-9372', 9381'-9392', and 9442'-9447'. The perforations from 9210' -9447' are currently isolated by a CIBP set @ 9340' with 10' of cement on top, and a CIBP set @ 8990' with 10' of cement on top. It is proposed to cement squeeze these perforations before setting the 4-1/2" liner. There are also perforations from 7850'-7866' that were squeezed with 300 sacks of cement on 4/5/96.

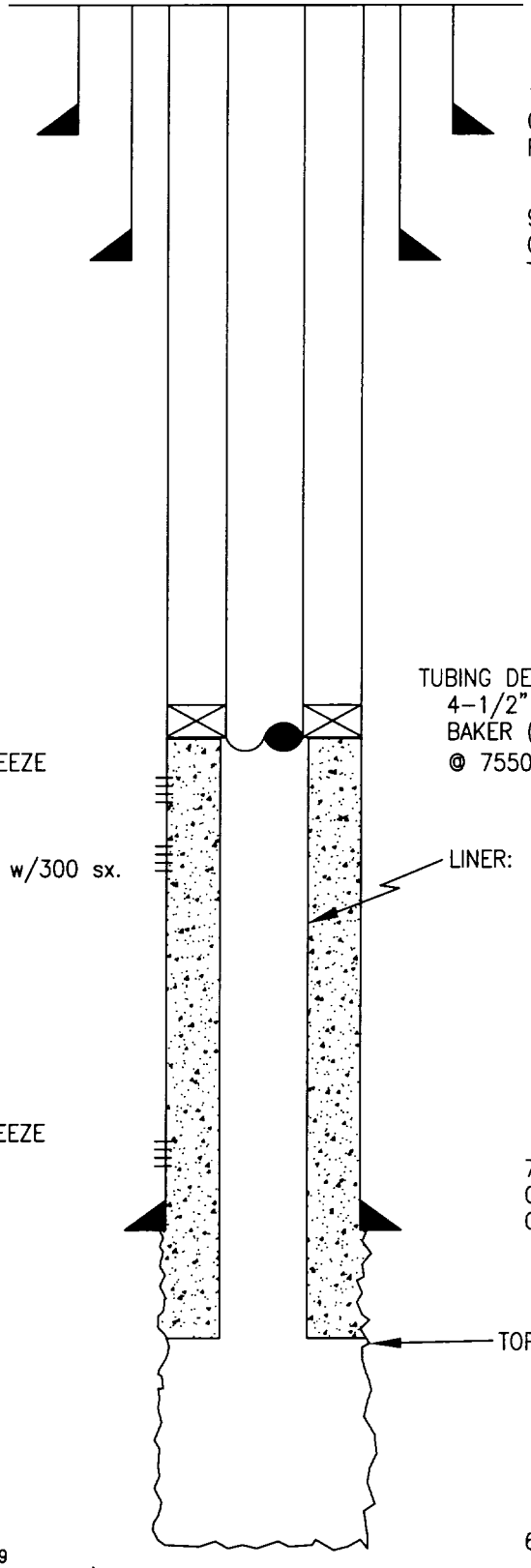
The next higher oil or gas producing zone is the Morrow, from 9058'-9450'.

There are no zones lower than the Devonian that have ever been produced in this area.

Attachments to Form C-108
(Part III)

PROPOSED COMPLETION

MOC FEDERAL NO. 8 SWD
UL "K", 2030' FSL & 1650' FWL
SECTION 20, T-21-S, R-24-E
EDDY COUNTY, NEW MEXICO



13-3/8" @ 16'
CONDUCTOR
REDI-MIX TO SURFACE

9-5/8" @ 1,210'
CMT. W/875 SX.
TO SURFACE

TUBING DETAIL:
4-1/2" LT&C, PCID SET @ 7551'
BAKER (FAB-1) RETAINER PRODUCTION PACKER SET
@ 7550' W/BAKER MODEL K-22 ANCHOR SEAL ASSEMBLY

UPPER PENN PERFS:
PROPOSED TO CEMENT SQUEEZE
7682'-7830'

UPPER PENN PERFS:
CEMENT SQUEEZED - 4/96 w/300 sx.
7850'-7866'

LINER: 4-1/2" FL4S
7550'-10,200' CEMENTED

MORROW PERFS:
PROPOSED TO CEMENT SQUEEZE
PERFED W/6 SPF
9210'-9226'
9227'-9238'
9368'-9372'
9381'-9392'
9442'-9447'

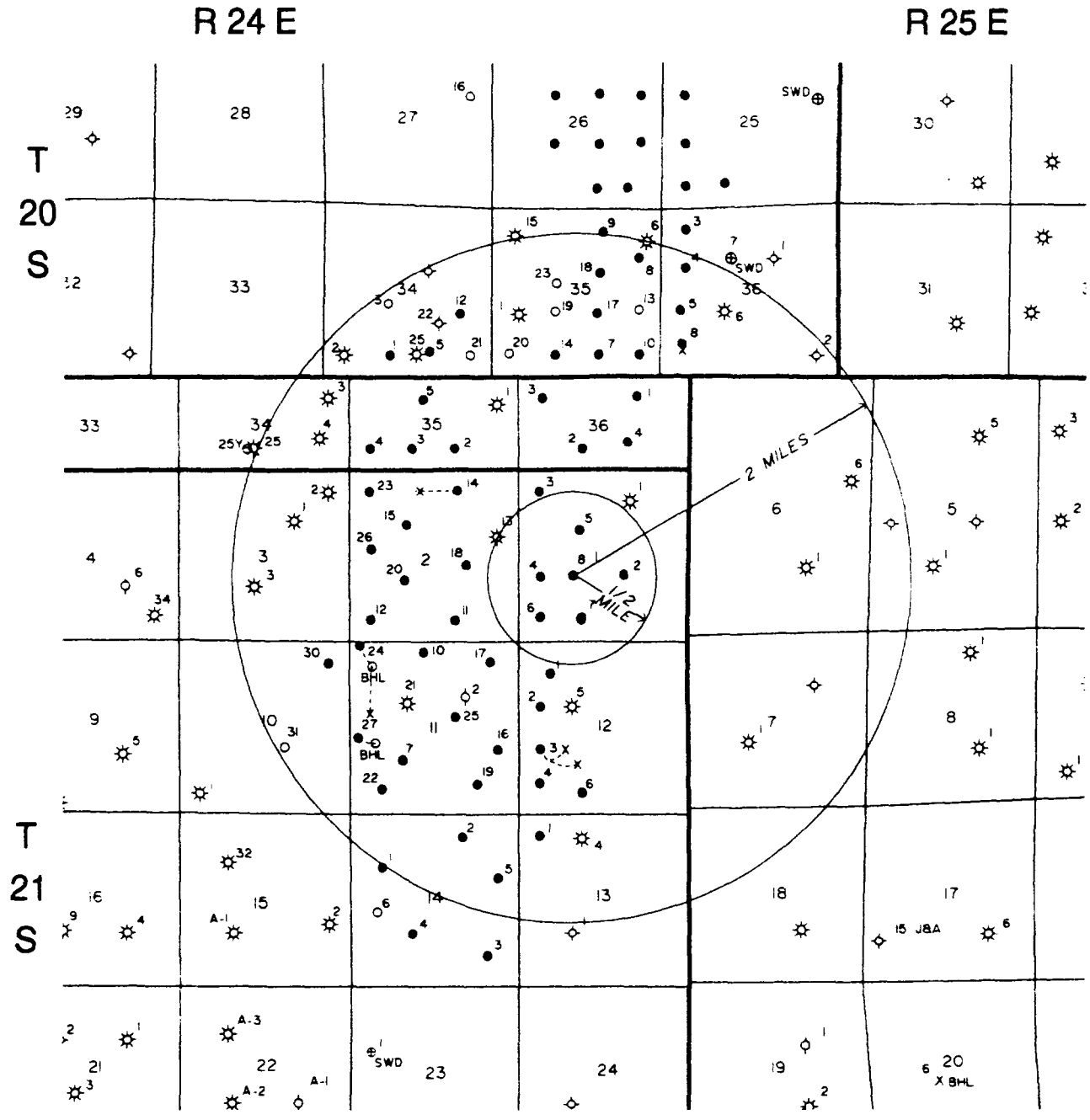
7" @ 9,660'
CMT. W/1,840 SX.
CIRC. 149 SX.

TOP OF DEVONIAN @ 10,200'

6-1/8" OPEN HOLE TO 11,200'

DATE: 1/18/99
M:\ACADDWGS\ACADLTDWGS\MOCFED8.DWG

MOC Federal Well No. 8
Proposed Injection Well
Attachment to Form C-108
(Part V)



MARATHON OIL COMPANY
MID-CONTINENT REGION

INDIAN BASIN FIELD AREA

EDDY COUNTY, NEW MEXICO

ATTACHMENT TO FORM C-108
MOC FEDERAL NO.8
PROPOSED INJECTION WELL
2 MILES AND 1/2 MILE RADIUS
OF PROPOSED INJECTION WELL

MOC Federal Well No. 8
Proposed Injection Well
Attachment to C-108
(Part VII)

Proposed Operations

1. ***Proposed average and maximum daily rate and volume of fluids to be injected.***

   Fluid: Produced Water

   Average Rate: 25,000 BWPD

   Maximum Rate: 35,000 BWPD

2. ***Will the system be open or closed.***

   The proposed disposal system will be a closed system. Produced water will be gathered to a central location into closed top fiberglass tanks, with thief hatches. These tanks will be hooked up to a Vapor Recovery Unit. The water will then be pumped to the proposed injection well.

3. ***Proposed average and maximum injection pressure.***

   Average Pressure: 1850 psi

   Maximum Pressure: 2060 psi

4. ***Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water.***

   The source of the injection fluid will be produced water from offsetting leases, from the Upper Penn and Morrow formations.

   See attached water analysis for each of the above zones.

MOC Federal Well No. 8
Proposed Injection Well
Attachment to C-108
(Part VII)

Proposed Operations Continued

5. ***If injection is for disposal purpose 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.***

Marathon Oil Company ran a DST on North Indian Basin Well No. 1 (Section 9, T-21-S, R-23-E, Eddy County New Mexico) in 1963. The DST tested the interval 10,009 ft to 10,100 ft. Based on the DST, the following analysis was reported:

Specific Gravity	1.109
pH	6.8
Resistivity	.285 @ 94° F
Chlorides (Cl)	11,000
Sulfates (SO_4)	1,500
Alkalinity (HCO_3)	610
Calcium (Ca)	1,080
Magnesium (Mg)	775
Iron (Fe)	20
Sodium (Na)	5,359
Sulfides (H_2S)	Negligible

MITCHELL ANALYTICAL LABORATORY

2638 Faudree
Odessa, Texas 79765-8538
561-5579

Morrow

Water Analysis

Company.... Nalco/Exxon Energy Chemicals
Well # .... BONE FLATS 12-5
Lease..... MARATHON
Location... Sec. 12, T-21-S, R-23-E
Date Run... 10/13/1997
Lab Ref #.. 97-OCT-N00768

Sample Temp... 70.0
Date Sampled.. 10/10/1997
Sampled by.... Mark Hermann
Employee # ... 27-011
Analyzed by... DANIEL

Eddy County, NM

Dissolved Gasses

		Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide	(H2S)	0.00	17.00	0.00
Carbon Dioxide	(CO2)	0.00	22.00	0.00
Dissolved Oxygen	(O2)	0.00	8.00	0.00

Cations

Calcium	(Ca++)	1,125.60	20.10	56.00
Magnesium	(Mg++)	170.80	12.20	14.00
Sodium	(Na+)	22,472.93	23.00	977.08
Barium	(Ba++)	<.50	68.70	0.00
Manganese	(Mn++)	0.00	27.50	0.00

Anions

Hydroxyl	(OH-)	0.00	17.00	0.00
Carbonate	(CO3=)	0.00	30.00	0.00
Bicarbonate	(HCO3-)	268.84	61.10	4.40
Sulfate	(SO4=)	9.00	48.80	0.18
Chloride	(Cl-)	37,040.70	35.50	1,043.48

Total Iron	(Fe)	16.75	18.60	0.90
Total Dissolved Solids		61,104.62		
Total Hardness As CaCO3		3,500.00		
Conductivity MICROMHOS/CM		95,000		

pH 6.650 Specific Gravity 60/60 F. 1.042

CaSO4 Solubility @ 80 F. 68.63 MEq/L, CaSO4 scale is not likely

CaCO3 Scale Index	
70.0	-0.706
80.0	-0.586
90.0	-0.386
100.0	-0.386
110.0	-0.126
120.0	-0.126
130.0	0.234
140.0	0.234
150.0	0.564

MITCHELL ANALYTICAL LABORATORY

2638 Faudree
Odessa, Texas 79765-8538
561-5579

Water Analysis

Upper Penn.

Company.... Nalco/Exxon Energy Chemicals
Well # .... IHSC #7
Lease..... MARATHON
Location... Sec. 36, T-20-S, R-24-E
Date Run... 10/13/1997
Lab Ref #.. 97-OCT-N00769

Sample Temp... 70.0
Date Sampled.. 10/13/1997
Sampled by.... Mark Hermann
Employee # ... 27-011
Analyzed by... DANIEL

Eddy County, NM

Dissolved Gasses

		Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide	(H2S)	340.00	16.08	21.14
Carbon Dioxide	(CO2)	0.00	22.00	0.00
Dissovled Oxygen	(O2)	0.00	8.00	0.00

Cations

Calcium	(Ca++)	341.70	20.10	17.00
Magnesium	(Mg++)	85.40	12.20	7.00
Sodium	(Na+)	3,714.25	23.00	161.49
Barium	(Ba++)	< .50	68.70	0.00
Manganese	(Mn++)	0.00	27.50	0.00

Anions

Hydroxyl	(OH-)	0.00	17.00	0.00
Carbonate	(CO3=)	12.00	30.00	0.40
Bicarbonate	(HCO3-)	928.72	61.10	15.20
Sulfate	(SO4=)	1,750.00	48.80	35.86
Chloride	(Cl-)	4,004.40	35.50	112.84

Total Iron	(Fe)	0.40	18.60	0.02
Total Dissolved Solids		11,176.87		
Total Hardness As CaCO3		1,200.00		
Conductivity MICROMHOS/CM		13,500		

pH 7.600 Specific Gravity 60/60 F. 1.008

CaSO4 Solubility @ 80 F. 40.28 MEq/L, CaSO4 scale is not likely

CaCO3 Scale Index

70.0	0.930
80.0	1.060
90.0	1.280
100.0	1.280
110.0	1.520
120.0	1.520
130.0	1.790
140.0	1.790
150.0	2.020

Nalco/Exxon Energy Chemicals

MOC Federal Well No. 8
Proposed Injection Well
Attachment to C-108
(Part VIII)

Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the goelogic name and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solid 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.

Injection Zone

Geological Name: Devonian

Lithology: Dolomite

Thickness: ± 900 feet

Depth: 10,200 feet to Devonian

Drinking Water - Overlying

Geological Name: Grayburg
Depth to Bottom: 650'

Above data is based on Geological data obtained from Ken Fresquez, Geologist, of the State Engineer's Office in Roswell, NM

Drinking Water - Underlying

NONE

Mid-Continent Region
Production United States

Marathon Oil Company

P.O. Box 552
Midland, TX 79702-0552
Telephone 915/682-1626

January 25, 1999

Yates Petroleum
105 South Fourth Street
Artesia, New Mexico 88210

Offset Operator
MOC Federal Well No. 8 SWD
Section 1, T-21-S, R-23-E
Eddy County, New Mexico

Re: Application for Authorization to Inject (C-108)

Gentlemen:

Marathon Oil Company is in the process of making application to the State of New Mexico, Energy and Minerals Department, Oil Conservation Division for authorization to dispose of produced water into the MOC Federal Well No. 8. In accordance with the application process, Marathon is submitting the application to offset operators in the "area of review" of the proposed injection well.

Sincerely,

Ken W. Tatarzyn
Indian Basin Asset Team Manager

Enclosures

Mid-Continent Region
Production United States

Marathon Oil Company

P.O. Box 552
Midland, TX 79702-0552
Telephone 915/682-1626

January 25, 1999

Bureau of Land Management
2909 West Second Street
Roswell, New Mexico 88201

Surface Owner
MOC Federal Well No. 8 SWD
Section 1, T-21-S, R-23-E
Eddy County, New Mexico

Re: Application for Authorization to Inject (C-108)

Gentlemen:

Marathon Oil Company is in the process of making application to the State of New Mexico, Energy and Minerals Department, Oil Conservation Division for authorization to dispose of produced water into the MOC Federal Well No. 8. In accordance with the application process, Marathon is submitting the application to the land owner of the proposed injection well.

Sincerely,

Ken W. Tatarzyn
Indian Basin Asset Team Manager

Enclosures

Z 137 406 554

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Yates Petroleum	
Street & Number 105 S. Fourth St.	
Post Office, State, & ZIP Code Artesia, NM	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

Z 137 406 553

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to BLM	
Street & Number 2909 W. 2nd. St.	
Post Office, State, & ZIP Code Roswell N.M. 88201	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

Affidavit of Publication

№ 19535

State of New Mexico,
County of Eddy, ss.

Amy McKay,

being first duly sworn, on oath says:

That she is Business Manager of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the state wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

December 20, 19 98
December 27, 19 98
January 3, 19 99
, 19
, 19
, 19

That the cost of publication is $ 120.59, and that payment thereof has been made and will be assessed as court costs.

Amy McKay

Subscribed and sworn to before me this 4th day of January, 19 99

Donna M. Crump

My commission expires 8-1-02

Notary Public

December 20, 27, 1998
January 3, 1999

Proposed Injection Well

Marathon Oil Company, as operator, plans to deepen and recomplete a well for salt water disposal service. The location of the well is Unit letter K, 2030' FSL and 1650' FWL, Section 1, Township 21 South, Range 23 East, Eddy County, New Mexico. The zone to be injected into is the Devonian from 10,300 ft. to 11,200 ft. with a maximum expected injection rate of 35,000 BWPD and a maximum expected injection pressure of 2060 psig. Any interested party with an objection or request of hearing should notify the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501, within 15 days of this notice. Any questions should be directed to Ken Tatarzyn of Marathon Oil Company at P.O. Box 552, Midland, Texas 79701, or telephone (915) 682-1626.

Proposed Injection Well

Marathon Oil Company, as operator, plans to drill and complete a well using downhole salt water disposal equipment. The location of the well is Unit Letter J, 2300' FSL and 2000' FEL, Section 29, Township 21 South, Range 24 East, Eddy County, New Mexico. The zone to be used for water disposal is the Devonian from approximately 10,200' to 11,100' with a maximum injection rate of 17,000 BWPD. The expected maximum injection pressure at the disposal zone (10,200') is 6,450 psig, with a maximum equivalent surface pressure of 2,040 psig. Any interested party with an objection or request of hearing should notify the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501, within 15 days of this notice. Any questions should be directed to Ken Tatarzyn of Marathon Oil Company at P.O. Box 552, Midland, Texas 79701, or telephone (915) 682-1626.