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-1
Revised 7-1-81

SWD 2/22/99

APPLICATION FOR AUTHORIZATION TO INJECT

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

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.

RECEIVED
FEB 5 1999
OIL CONSERVATION DIV.

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: John T. Kloosterman for K.W. Tatarzyn Title Indian Basin Asset Manager

Signature: John T. Kloosterman for KWT Date: 1/29/99

* 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.

Rocky Hills Well No. 2
Proposed Injection Well
Attachments to C-108

Part III

Well Data

See attached proposed completion for Rocky Hills Well No. 2 SWD. Also attached is a copy of the Application for Permit to Drill (Form 3160-3) for this well.

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.

See attached data.

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.

The appropriate forms, along with an inclination survey and logs will be filed on this well when it is completed.

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.

See attachment.

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 W. Tatarzyn
Indian Basin Asset Team Manager

Part XIII

Proof of Notice

See attachments.

Rocky Hills Well No. 2
Proposed Injection Well
Attachments to C-108
(Part III)

Proposed Completion for:

Rocky Hills No. 2 SWD
UL "L", 1400' FSL, 800' FWL
Sec. 20, T-21-S, R-24-E
Eddy County, New Mexico

17-1/2" hole to 1,200'. Set 13-3/8" casing cemented to surface w/1,600 sacks.

12-1/4" hole to 10,300', top of Devonian. Set 9-5/8" casing cemented to surface w/2,900 sacks.

8-1/2" open hole 10,300' - 11,300'.

7" N-80, coated tubing set at 10,300'.

Baker Model 91 FAB 52 Retainer Production Packer set @ 10,200'

Proposed injection zone: Devonian

Injection Interval: 10,300' - 11,300' open hole

This well will be drilled for the purpose of injection/disposal of produced water from offsetting leases.

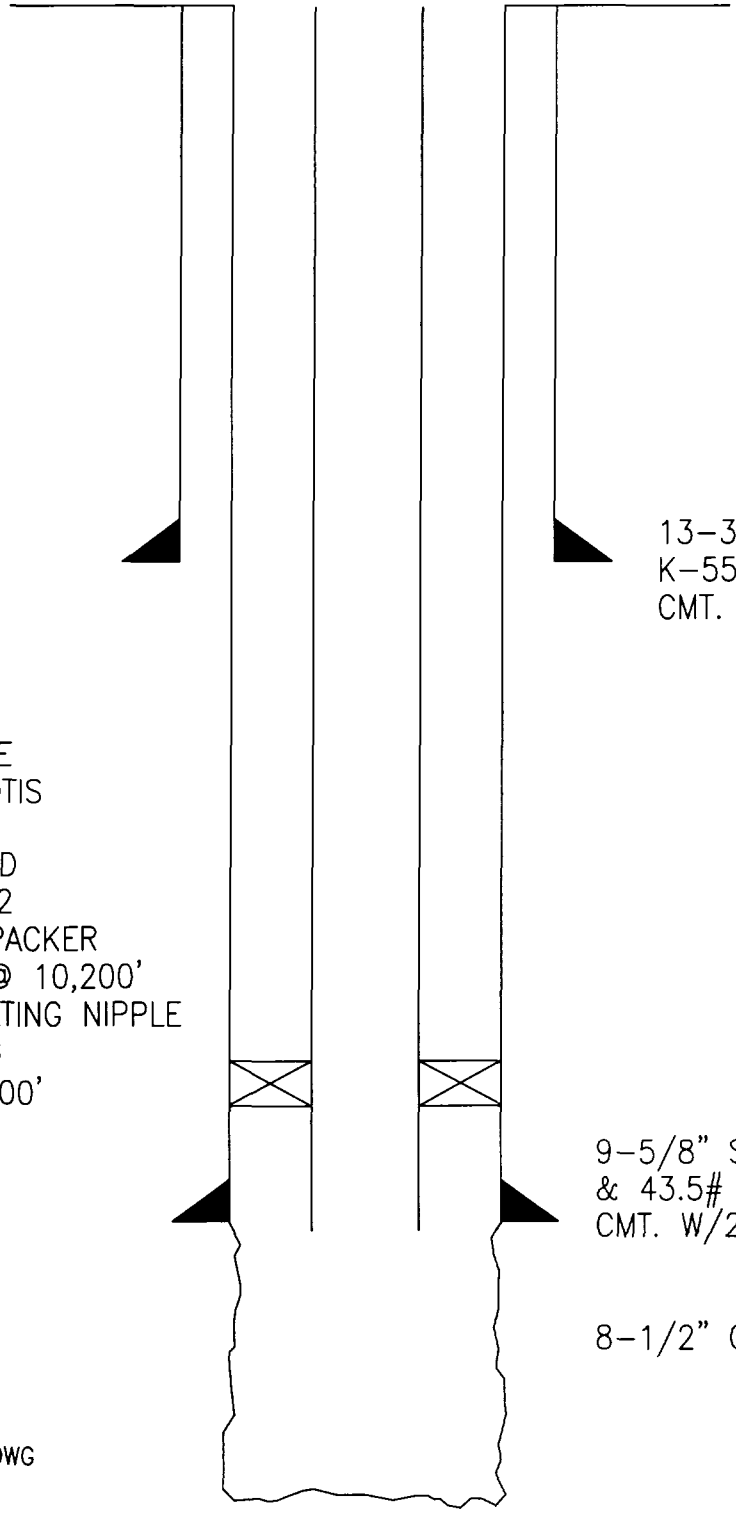
The next higher oil or gas zone is the Morrow at a depth of 9,500'.

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

ROCKY HILLS NO. 2 SWD
1400' FSL & 800' FWL
SECTION 20, T-21-S, R-24-E
EDDY COUNTY, NEW MEXICO



TUBING DETAIL:
1. 7" WIRELINE ENTRY GUIDE
2. 7" LTC, BOX & PIN W/OTIS PROFILE NIPPLE
3. 7" ONE JT. N-80 COATED
4. BAKER MODEL 91 FAB 52 RETAINER PRODUCTION PACKER (PLASTIC COATED) SET @ 10,200'
5. BAKER MODEL K-22 SEATING NIPPLE
6. 7" N-80 COATED TUBING FROM SURFACE TO 10,300'

DATE: 2/4/99
M:\ACADDWGS\ACADLTDWGS\RHSWD2.DWG

Form 3160-3
(July 1992)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0136
Expires: February 28, 1995

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

5 LEASE DESIGNATION AND SERIAL NO: LC-064391-B

6 IF INDIAN, ALLOTTEE OR TRIBE NAME:

7 UNIT AGREEMENT NAME: INDIAN HILLS UNIT

1a TYPE OF WORK: DRILL [X] DEEPEN [ ]

b TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER X - SWD SINGLE ZONE [X] MULTIPLE ZONE [ ]

8 FARM OR LEASE NAME, WELL NO: ROCKY HILLS SWD 2

2 NAME OF OPERATOR: Marathon Oil Company

9 API WELL NO:

3 ADDRESS AND TELEPHONE NO: P.O. Box 552 Midland, TX 79702 915/687-8356

10 FIELD AND POOL, OR WILDCAT: INDIAN BASIN - U. PENN

4 LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1400' FSL & 800' FWL
At proposed prod zone: 1400' FSL & 800' FWL

11 SEC., T., R., M., OR BLK AND SURVEY OR AREA: SEC. 20, T-21-S, R-24-E

14 DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 15 MILES NW OF CARLSBAD

12 COUNTY OR PARISH: EDDY

13 STATE: NM

15 DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT (Also to nearest drlg. unit line, if any)	16 NO OF ACRES IN LEASE	17 NO OF ACRES ASSIGNED TO THIS WELL
800'	640	N/A
18 DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT	**19 PROPOSED DEPTH**	**20 ROTARY OR CABLE TOOLS**
	11,000'	ROTARY

21 ELEVATIONS (Show whether DF, RT, GR, etc.): 3810' KB, 3794' GL

22 APPROX DATE WORK WILL START*: 3/25/99

23 PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	K-55, 13 3/8"	40.50	1200'	1600 - CIRCULATE
12 1/4"	J-55, N-80, 9 5/8"	40#, 43#	10,000'	2900 - CIRCULATE
8 3/4"			OPEN HOLE	→ 10,300

*WELL IS A PROPOSED DEVONIAN PRODUCED WATER DISPOSAL.

THIS WELL SHALL REQUIRE ADMINISTRATIVE APPROVAL FOR UNDERGROUND DISPOSAL FROM THE NMOCD.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM If proposal is to deepen, give data on present productive zone and proposed new productive zone If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any

24

SIGNED Walter J. Duncan TITLE DRILLING SUPERINTENDENT DATE 1/29/99

(This space for Federal or State office use)

PERMIT NO _____ APPROVAL DATE _____

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

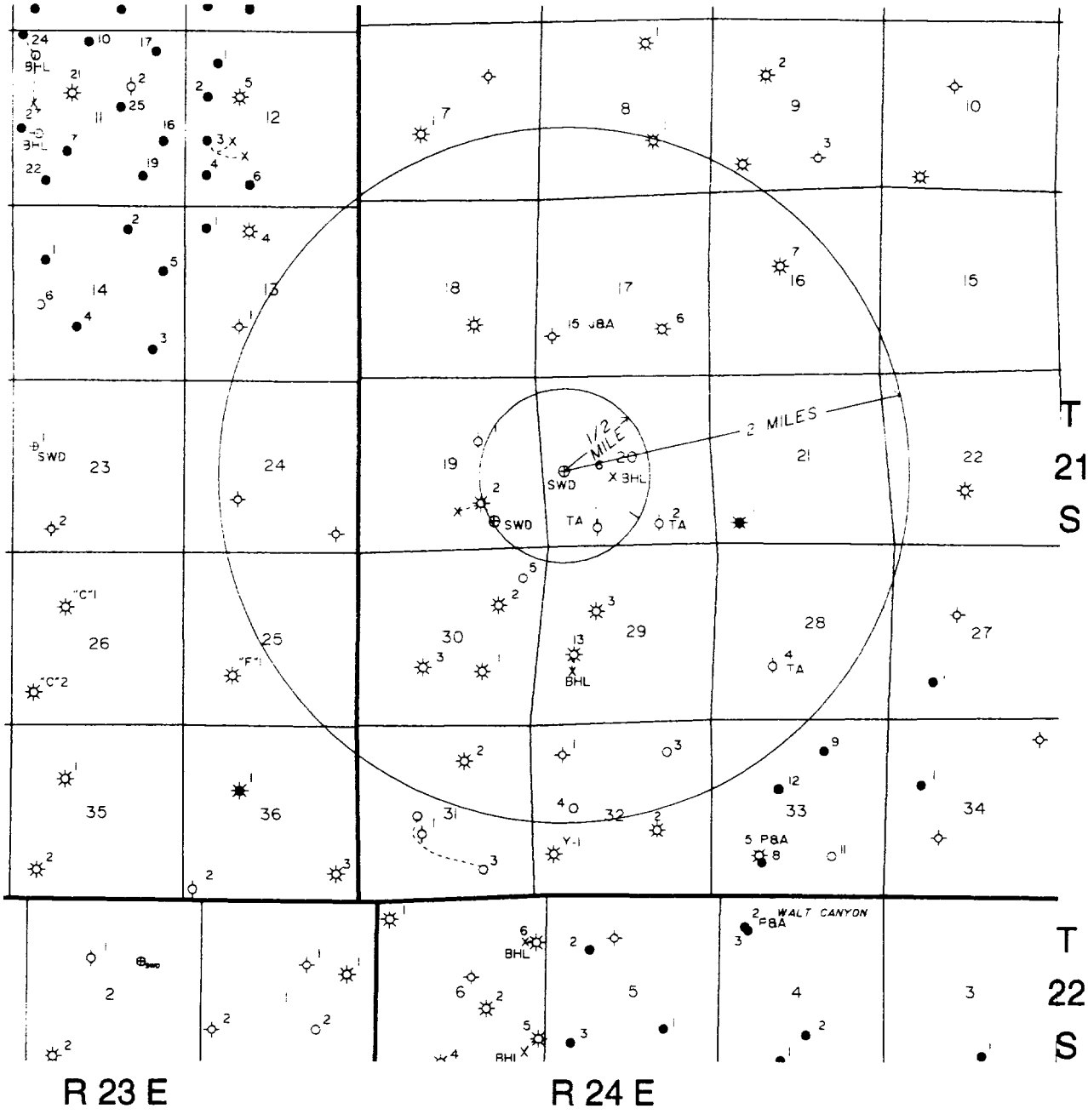
CONDITIONS OF APPROVAL, IF ANY

APPROVED BY _____ TITLE _____ DATE _____

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

Rocky Hills Well No. 2 SWD
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
ROCKY HILLS NO. 2 SWD
PROPOSED INJECTION WELL
2 MILES AND 1/2 MILE RADIUS

Rocky Hills Well No. 2 SWD
Proposed Injection Well
Attachment to Form C-108
(Part VI)

Wells within area of review which penetrate the proposed injection zone:

Rocky Hills Well No. 1 SWD

This well was drilled as a disposal well and was completed April 9, 1998.

TD is 10,900'

Disposal Zone is Devonian, 10,240' - 10,900' Open Hole.

See attached well completion report.

Form 3160-4
(July 1992)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN DUPLICATE (See other instructions on reverse side)

OPERATOR'S COPY

OMB NO. 1004-0137
Expires: February 28, 1995

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1. LEASE DESIGNATION AND SERIAL NO.: NM-0238436
6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☐ Other SALT WATER DISPOSAL
b. TYPE OF COMPLETION: NEW WELL ☒ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other
7. UNIT AGREEMENT NAME:

2. NAME OF OPERATOR: Marathon Oil Company
8. FARM OR LEASE NAME, WELL NO.: ROCKY HILLS SWD #1

3. ADDRESS AND TELEPHONE NO: P.O. Box 552 Midland, TX 79702 915/682-1626
9. API WELL NO.: 30-015-30112

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 185' FSL & 1537 FEL
At top prod. interval reported below: 185' FSL & 1537 FEL
At total depth: 185' FSL & 1537' FEL
10. FIELD AND POOL, OR WILDCAT: SWD: DEVONIAN
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC. 19, T-21-S, R-24-E

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
SWD-692	2/11/98	EDDY	NM

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
2/14/98	3/17/98	4/9/98	GL: 3780' KB: 18'	

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
10,900'	10,900'		→	ALL	

24. PRODUCING INTERVAL(S), OF THIS COMPLETION - TOP, BOTTOM, NAME (MD AND TVD)*: DISPOSAL ZONE: 10,240' - 10,900', DEVONIAN
25. WAS DIRECTIONAL SURVEY MADE: NO

26. TYPE ELECTRIC AND OTHER LOGS RUN: DLL/MCFL/GR, CNL/LDT/GR
27. WAS WELL CORED: NO

28. CASING RECORD (Report all strings set in well)

CASING SIZE/GRADE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	TOP OF CEMENT, CEMENTING RECORD	AMOUNT PULLED
20"	CONDUCTOR	40'		SURFACE	
10-3/4" K-55	40.5	1214'	14-3/4	1980 SX TO SURFACE	
7-5/8" K-55/L-80	29.7 & 26.4	10,240'	9-7/8"	2000 SX, CIRC. 438 SX	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
5"	10,185'	10,137'

31. PERFORATION RECORD (Interval, size and number): 6-1/2" OPEN HOLE FROM 10,240' TO 10,900'

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
10,240'-10,900'	15,000 GALS. 15% HCl ACID

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (Flowing, gas lift, pumping - size and type of pump)	WELL STATUS (Producing or shut-in)

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL - BBL.	GAS - MCF.	WATER - BBL.	GAS - OIL RATIO

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL - BBL.	GAS - MCF.	WATER - BBL.	OIL GRAVITY - API (CORR.)

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.)

ACCEPTED FOR RECORD
David R. Glass
JUN 17 1998
BLM

35. LIST OF ATTACHMENTS: LOGS AND INCLINATION SURVEY

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED Ginny Lake TITLE ENGINEER TECHNICIAN DATE 5/11/98

Marathon Oil Company
JUN 22 1998
INDIAN BASIN ASSET TEAM
MID-CONTINENT REGION

*(See Instructions and Spaces for Additional Data on Reverse Side)

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

37. SUMMARY OF POROUS ZONES. (Show all important zones of porosity and contents thereof; cored intervals; and all drill-stem, tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures, and recoveries):

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
DEVONIAN	10230	NOT REACHED	DOLOMITE - WATER

38. GEOLOGIC MARKERS

NAME	TOP	
	MEAS. DEPTH	TRUE VERT DEPTH
SAN ANDRES	570'	
GLORIETA	2232'	
YESO	2392'	
BONE SPRING	4320'	
WOLFCAMP SHALE	6460'	
UPPER PENN	7360'	
STRAWN	8450'	
ATOKA CLASTICS	8800'	
MORROW LIME	9048'	
MORROW CLASTICS	9247'	
BARNETT SHALE	9520'	
MISSISSIPPIAN LIM	9862'	
WOODFORD SHALE	10158'	
DEVONIAN	10230'	

U.S. GOVERNMENT PRINTING OFFICE 1992 774-672

Rocky Hills Well No. 2
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: 40,000 BWPD

   Maximum Rate: 60,000 BWPD

2. ***Whether the system is 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: 1250 psi

   Maximum Pressure: 2040 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.

   Formations: Upper Penn
   Morrow

   See attached water analysis for each of the above zones.

Rocky Hills Well No. 2
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	16.00	0.00
Carbon Dioxide	(CO2)	0.00	22.00	0.00
Dissovled 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	1,043.40

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)	348.00	16.00	21.75
Carbon Dioxide	(CO2)	0.00	22.00	0.00
Dissovled Oxygen	(OZ)	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

Rocky Hills Well No. 2
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: ± 1,000 feet

Depth: 10,300 feet to top of 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

MITCHELL ANALYTICAL LABORATORY

2638 Faudree
Odessa, Texas 79765-8538
561-5579

Water Analysis

Company.... Nalco/Exxon Energy Chemicals
Well # .... FRESH WATER STATION
Lease..... MARATHON
Location... Sec. 29, T-21-S, R-24-E
Date Run... 05/07/1997
Lab Ref #.. 97-MAY-N00407

Sample Temp... 70.0
Date Sampled.. 05/06/1997
Sampled by.... Dan Sweatt
Employee # ...
Analyzed by... DANIEL

EDDY COUNTY, NM

Dissolved Gasses

		Mg/L	Eq. Wt.	MEq/L
Hydrogen Sulfide	(H2S)	0.00	16.00	0.00
Carbon Dioxide	(CO2)	0.00	22.00	0.00
Dissovled Oxygen	(O2)	0.00	8.00	0.00

Cations

Calcium	(Ca++)	100.50	20.10	5.00
Magnesium	(Mg++)	34.16	12.20	2.80
Sodium	(Na+)	196.61	23.00	8.55
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=)	550.00	48.80	11.27
Chloride	(Cl-)	24.33	35.50	0.69

Total Iron	(Fe)	0.14	18.60	0.01
Total Dissolved Solids		1,174.58		
Total Hardness As CaCO3		390.00		
Conductivity MICROMOHS/CM		1,200		

pH 7.220 Specific Gravity 60/60 F. 1.001

CaSO4 Solubility @ 80 F. 45.89 MEq/L, CaSO4 scale is unlikely

CaCO3 Scale Index	
70.0	0.264
80.0	0.304
90.0	0.544
100.0	0.544
110.0	0.664
120.0	0.664
130.0	0.864
140.0	0.864
150.0	0.984

Affidavit of Publication

№ 19550

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:

January 3, 19 99
January 10, 19 99
January 17, 19 99
, 19
, 19
, 19

That the cost of publication is $ 56.75, and that payment thereof has been made and will be assessed as court costs.

Amy McKay

Subscribed and sworn to before me this 25th day of January, 1999

Donna M. Crump

My commission expires 8-1-02
Notary Public

January 3, 10, 17, 1999

PROPOSED INJECTION WELL

Marathon Oil Company, as operator, proposes to drill and complete a well for salt water disposal service. The location of the well is 1400' FSL and 800' FWL of Section 20, Township 21 South, Range 24 East, Eddy County, New Mexico. The zone of injection will be the Devonian from 10,200 ft. to 11,100 ft. with a maximum expected injection rate of 40,000 bwpd and a maximum expected injection pressure of 2,040 psig. Any interested party with an objection or request of hearing should notify the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505, within 15 days of this notice. Any questions should be directed to Ken Tartazyn of Marathon Oil Company at P.O. Box 552, Midland, Texas 79701 or telephone (915) 682-1626

Mid-Continent Region
Production United States

Marathon Oil Company

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

January 29, 1999

Devon Energy Corp.
20 N. Broadway, Suite 1500
Oklahoma City, OK 73102

Offset Operator
Rocky Hills Well No. 2 SWD
Section 20, T-21-S, R-24-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 a proposed well, the Rocky Hills Well No. 2. 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,

John T. Kloosterman for 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 29, 1999

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

Surface Owner
Rocky Hills Well No. 2 SWD
Section 20, T-21-S, R-24-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 drill a disposal well located 1400' FSL & 800' FWL of Section 20, T-21-S, R-24-E, in Eddy County. In accordance with the application process, Marathon is submitting the application to the surface owner of the property on which the proposed injection well will be drilled.

Sincerely,

John T. Kloosterman for Ken W. Tatarzyn
Indian Basin Asset Team Manager

Enclosures

CHECKLIST for ADMINISTRATIVE INJECTION APPLICATIONS

Operator: MARATHON Well: ROCKY HILLS WELL NO. 2

Contact: KEN TATARZYN Title: TEAM MANAGER Phone (915) 682-1626

DATE IN ~~2-22-99~~ 2-5-99 RELEASE DATE 2-22-98 DATE OUT 3-3-99

Proposed Injection Application is for: ___ **WATERFLOOD** ___ Expansion ___ Initial

Original Order: R- _____ ___ Secondary Recovery ___ Pressure Maintenance

SENSITIVE AREAS ✓ **SALT WATER DISPOSAL** ___ Commercial Well

___ WIPP ___ Capitan Reef

Data is complete for proposed well(s)? ✓ Additional Data Req'd _____

AREA of REVIEW WELLS

1 Total # of AOR

Y Tabulation Complete

Y Cement Tops Adequate

1 # of Plugged Wells

___ Schematics of P & A's

___ AOR Repair Required

INJECTION FORMATION

Injection Formation(s) DELAWARE Compatible Analysis Y

Source of Water or Injectate UPPER PENN + MORROW

PROOF of NOTICE

Y Copy of Legal Notice

Y Correct Operators

N Objection Received

Y Information Printed Correctly

Y Copies of Certified Mail Receipts

___ Set to Hearing _____ Date

NOTES: _____

APPLICATION QUALIFIES FOR ADMINISTRATIVE APPROVAL? Y

COMMUNICATION WITH CONTACT PERSON:

1st Contact: ___ Telephoned ___ Letter _____ Date Nature of Discussion _____

2nd Contact: ___ Telephoned ___ Letter _____ Date Nature of Discussion _____

3rd Contact: ___ Telephoned ___ Letter _____ Date Nature of Discussion _____