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**marbob**  
energy corporation

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November 23, 1998

New Mexico Energy, Minerals &  
Natural Resources Department  
Oil Conservation Division  
2040 South Pacheco Street  
Santa Fe, New Mexico 87505

NOV 25 1998

Attention: Mrs. Lori Wrotenbery  
Division Director

Dear Mrs. Wrotenbery:

Enclosed herewith, is amendments to Marbob Energy Corporation's Application for Authorization to Inject concerning the Arco "6" Federal No. 1 located at 1800' FSL and 1410' FWL in Section 6 of Township 17 South, Range 31 East in Eddy County, New Mexico. Application was made pursuant to Rule 701D of the Division Rules and Regulations for Administrative Approval for Disposal into the Devonian formation. Unfortunately, Marbob was unable to dispose into the Devonian formation.

Marbob Energy requests to amend the before mentioned application to dispose of produced waters from the Seven Rivers, Grayburg, San Andres and Yeso formations into the Arco "6" Federal No. 1 at a new injection interval of 9296' to 9464' which is the Canyon formation.

The Canyon formation is currently non productive of oil or gas within a radius of one half mile from the proposed disposal well. Copies of these amendments have been mailed to each leasehold operator

within one half mile, and publication of Marbob Energy's intent utilize the before mentioned well for water disposal into the Canyon formation has been made in the Artesia Daily Press.

Please do not hesitate to contact us should you require additional information or have any questions concerning these amendments.

Marbob Energy Corporation respectfully request your approval of the amendments to the previously submitted application at the expiration of the fifteen day waiting period.

Sincerely,

A handwritten signature in black ink, appearing to read "Dean Chumbley", written in a cursive style.

Dean Chumbley  
Land Department

DC/mm  
Enclosures

**APPLICATION FOR AUTHORIZATION TO INJECT**

- I. PURPOSE: Secondary Recovery Pressure Maintenance ☒ Disposal Storage  
Application qualifies for administrative approval? Yes No
- II. OPERATOR: Marbob Energy Corporation  
ADDRESS: Post Office Box 227, Artesia, New Mexico 88211-0227  
CONTACT PARTY: Raye Miller PHONE: (505) 748-3303
- 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 geologic data on the injection zone including appropriate lithologic detail, geologic 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 sources 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 sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- IV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Raye Miller TITLE: Attorney-in-Fact  
SIGNATURE: Raye Miller DATE: November 23, 1998

If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances 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 the 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, 2040 South Pacheco, Santa Fe, New Mexico 87505, within 15 days.

**NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.**

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**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.

**BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION  
APPLICATION FOR ADMINISTRATIVE APPROVAL  
MARBOB ENERGY CORPORATION  
AMENDMENTS TO THE  
APPLICATION FOR AUTHORIZATION TO INJECT  
THE  
ARCO "6" FEDERAL #1**

**TABLE OF CONTENTS**

<b>ITEM</b>	<b>ATTACHMENT</b>
<b>APPLICATION</b>	<b>FORM C-108</b>
<b>INJECTION WELL DATA</b>	<b>C-108 III</b>
<b>GEOLOGICAL DATA</b>	<b>C-108 VIII</b>
<b>STIMULATION PROGRAM</b>	<b>C-108 IX</b>
<b>LOGGING &amp; TEST DATA</b>	<b>C-108 X</b>
<b>FRESH WATER ANALYSIS</b>	<b>C-108 XI</b>
<b>AFFIRMATIVE STATEMENT</b>	<b>C-108 XII</b>
<b>PROOF OF OFFSET OPERATORS NOTIFICATION</b>	<b>C-108 XIII</b>
<b>PROOF OF PUBLIC NOTIFICATION</b>	<b>C-108 XIV</b>

**APPLICATION FOR AUTHORIZATION TO INJECT  
MARBOB ENERGY CORPORATION**

**APPLICATION FOR AUTHORIZATION TO INJECT  
MARBOB ENERGY CORPORATION  
ARCO "6" FEDERAL #1**

***III: Injection Well Data***

1. ***Proposed Rate of Injection:***
  - A. *Average daily rate of injection: 2,000 barrels*
  - B. *Maximum daily rate of injection: 10,000 barrels*
2. ***Type of System:***

*System will be closed*
3. ***Anticipated Injection Pressure:***

*It is anticipated that the injection pressure will be nominal but in no event would the pressure exceed 0.2 psi per foot of depth to the top of the injection zone at 9,296 feet, or 1,859 psi.*
4. ***Source of Injection Water:***

*Source of disposal water is Seven Rivers, Grayburg, San Andres, and Yeso wells located in Sections 15, 22, and 23 of Township 17 South, Range 30 East and wells located in Sections 17, 18, 19, and 20 of Township 17 South, Range 31 East. See Attachment VII(a) for analysis of disposal water.*
5. ***Disposal Zone Water Analysis:***

*Disposal is to be into a zone not productive of oil or gas within one half mile of the proposed well. There is no available water analysis from this zone.*

**VIII. GEOLOGIC DATA**

**A. *Injection Zone***

1. ***Name: Canyon***
2. ***Lithology: Limestone***

3. *Thickness: + 900'*
4. *Depth: + 9,284'*

*B. Water Compatibility: No Data Available*

*C. Fresh Water Aquifers: None known in this area*

*D. This well was productive from this horizon when it was initially completed in March 1996. A copy of the complete production history is attached as Exhibit A. The interval completed was 9424' to 9464'. Total oil produced was 19,822 barrels and 36,348 mcf. By December 1986, production was less than 2 barrels of oil per day and 1 mcf of gas per day. No other wells have produced in that pool and no other Canyon production has been found in this area.*

***IX. PROPOSED CONVERSION/STIMULATION PROGRAM***

*Move in and rig up pulling unit, trip out of hole with 2 7/8" tubing and Halliburton RTTS packer. Trip in hole with cast iron bridge plug. Set cast iron bridge plug at 11,850'. Pump 40' of cement on top of cast iron bridge plug. Move in and rig up Halliburton Logging Service. Perforate proposed injection interval from 9296' to 9464'. Acidize with 5000 gallons of 20% HCL acid. Test the injectivity of injection interval. Trip out of hole. Trip in hole with cast iron bridge plug. Set cast iron bridge plug at 10,480'. Pump 40' of cement on top of cast iron bridge plug. Trip in hole with 2 7/8" plastic coated L-80 tubing and 5 1/2" perma latch packer. Set perma latch packer at 9250'. Load casing annulus with packer fluid. Pressure casing annulus to 500 psi and test for fifteen minutes. Begin disposing.*

***X. LOGGING DATA***

*Logs for these wells have been filed with the Division.*

***XI. FRESH WATER ANALYSIS***

*No fresh water wells produce within one mile of the proposed disposal well.*

# **Exhibit "A"**

C-108 VIII

## **Arco "6" Production History**

Square Lake Canyon Pool

<b>Mth/Yr</b>	<b>Oil</b>	<b>Water</b>	<b>Gas</b>
03/96	5215	109	3699
04/96	6775	72	7498
05/96	3715	21	8357
06/96	1648	15	2626
07/96	953	18	5387
08/96	649	50	2280
09/96	414	12	3098
10/96	248	38	2105
11/96	149	27	1283
12/96	56	43	15
01/97	0	0	0
Shut In			
<b>Totals:</b>	19822	405	36348



**XIII. PROOF OF NOTICE**

*A copy of this application has been furnished to the land owner of the land on which the proposed well is located and the leasehold operators within the Area of Review. Also, a notice has been published in the Artesia Daily Press, Artesia, New Mexico.*

**ARTESIA DAILY PRESS**  
**LEGAL NOTICES**

Marbob Energy Corporation, Post Office Box 227, Artesia, New Mexico 88211-0227 has filed an amended Form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for a salt water disposal well. The proposed well, the Arco "6" Federal No. 1 is located 1800' FSL and 1410' FWL, Section 6, Township 17 South, Range 31 East, Eddy County, New Mexico. Disposal water will be sourced from area wells producing from the Seven Rivers, Grayburg, San Andres, and Yeso formations. The disposal water will be injected into the Canyon formation at a depth 9296' - 9464'. A maximum surface pressure of 1859 psi, and a maximum rate of 10,000 BWPD. Any interested party who has an objection to this must give notice in writing to the Oil Conservation Division, 2040 South Pacheco Street, Santa Fe, New Mexico 87505 within fifteen (15) days of this notice. Any interested party with questions or comments may contact Raye Miller at Marbob Energy Corporation, Post Office Box 227, Artesia, New Mexico 88211-0227 or call 505/748-3303.

Published in the Artesia Daily Press, Artesia, New Mexico  
Nov. 24, 25, & 27, 1998.

# INJECTION WELL DATA SHEET

OPERATOR: Marbob Energy Corporation

WELL NAME & NUMBER: Arco "6" Federal #1

WELL LOCATION: 1800' FSL and 1410' FWL

FOOTAGE LOCATION

UNIT LETTER K SECTION 6 TOWNSHIP 17S RANGE 31E

## WELBORE SCHEMATIC

**Marbob Energy**  
ARCO "6" Fed. 1  
1800 FSL 1410FWL  
Sec 6 - 17S - 31E  
Eddy Co., NM

TOC - circulated  
20" @ 97'  
Cmtd w/ 520sxs

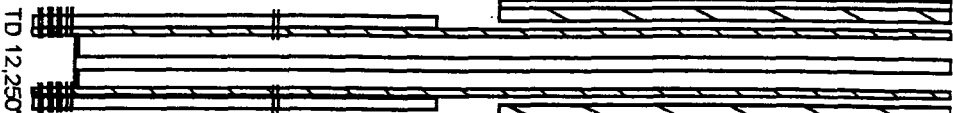
TOC - circulated  
13 3/8" @ 634'  
Cmtd w/ 600sxs

TOC - circulated  
9 5/8" @ 4553'  
Cmtd w/ 1490sxs

TOC 5900'  
CBL  
5.5" @ 12,250'  
Cmtd w/ 1900sxs  
in 2 stages

Perfs 9424 - 9464  
SQZD twice w/  
500sxs

2 7/8" Tbg  
At 11,850'  
Halliburton RTTS  
P.C. Pkr  
Set @ 11,850'  
Devonian Perfs  
11,900-11,950  
12,025-075  
12,098-106  
12,118-126  
12,158-12,162  
11/12/98



## WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 26" Casing Size: 13 3/8" - 634'

Cemented with: 320 sx lite + 200 sx Class C + 2% Cact ft<sup>3</sup>

Top of Cement: Surf Method Determined: Circ

## Intermediate Casing

Hole Size: 12 1/4" Casing Size: 9 5/8" - 36# @4553'

Cemented with: 1290 sx Plite + 10# + 1 Celloseal + 200sx "C"ft<sup>3</sup>

Top of Cement: Surf Method Determined: Calc +1%Ca

## Production Casing

Hole Size: 8 3/4" Casing Size: 5 1/2" 17# @ 12,250'

Cemented with: 1st Stage - 400sx Super C ft<sup>3</sup>

2nd Stage - 1500 sxSuper C

Top of Cement: 5900' Method Determined: CBL

Total Depth: 12,250'

## Injection Interval

9296' feet to 9464'

(Perforated or Open Hole; indicate which)

## INJECTION WELL DATA SHEET

Tubing Size: 2 7/8 P.C. Lining Material: Plastic coatedType of Packer: Perma-LatchPacker Setting Depth: 9250' ±

Other Type of Tubing/Casing Seal (if applicable): \_\_\_\_\_

## Additional Data

1. Is this a new well drilled for injection? Yes ☐ No ☒

If no, for what purpose was the well originally drilled? \_\_\_\_\_

## Devonian Test

2. Name of the Injection Formation: Canyon

3. Name of Field or Pool (if applicable): Square Lake

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. Perfed Canyon

@ 9424 - 9464, squeezed twice with 500 sx cement. Perfed Devonian

5. Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area: Morrow @ 10,890

Atoka @ 10,480

Cisco @ 8,790

**APPLICATION FOR AUTHORIZATION TO INJECT  
MARBOB ENERGY CORPORATION  
ARCO "6" FEDERAL #1  
C-108 XII**

**AFFIRMATIVE STATEMENT**

***I have examined all geologic and engineering data available for the Burns field and find no evidence of open faults and other hydrologic connection between the disposal zone and any underground drinking water sources.***

**Name:** Martin Joyce

**Date:** November 23, 1998

**Signature:** 

**Title:** Geologist