

Southern U.S. Business Unit  
Domestic Production

Rec: 12-6-2004  
Susp: 12-27-2004



**Marathon  
Oil Company**

RECEIVED

P.O. Box 3487  
Houston, TX 77253-3487  
Telephone 713/629-6600

PMESD-436236639

DEC 06 2004

December 3, 2004

OIL CONSERVATION  
DIVISION

Request for Administrative Approval  
Of Unorthodox Oil Well Location

Mr. Michael E. Stogner  
New Mexico Oil Conservation Division  
1220 South St. Francis Drive  
Santa Fe, New Mexico 87505

Dear Mr. Stogner:

Marathon Oil Company respectfully requests administrative approval of an unorthodox oil well location for the following well:

**Dayton Hardy #5**  
1,800' FSL & 1,500' FEL, NW/4 OF SE/4  
Section 20, T21S, R37E, Unit Letter J  
Lea County, New Mexico

The proposed well will be as an infill producer in the Penrose Skelly; Grayburg Pool, which is an oil pool spaced on 40 acres. This well is a follow-up to recent similar infill drilling by Apache Corporation and ChevronTexaco in the same Pool in Section 20. Marathon Oil Company supports their contention that typical Grayburg wells cannot drain 40 acres.

This application is based on geological and engineering analysis. That analysis and justification for this request is attached as Exhibit 1, along with other supporting documentation.

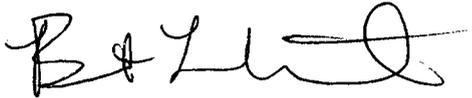
A land plat highlighting the proposed well's location is attached as Exhibit 2. The N/2 of SE/4 of Section 20 is covered by a single fee lease and has **common royalty and working interest ownership**. For that reason and the proposed location of the infill well, there are no adversely affected interest owners and no other party has been notified of this application.

Marathon Oil Company was planning to drill the proposed well at the legal location of 1,650' FSL and 1,650' FEL but had to move the proposed location to 1,800' FSL and 1,500' FEL to stay away from an existing pipeline.

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If you have any questions concerning this application or need additional information, please contact me by telephone at (713) 296-2224 or by e-mail at [bdlockhart@marathonoil.com](mailto:bdlockhart@marathonoil.com). Thank you for your consideration of this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Lockhart". The signature is fluid and cursive, with a long horizontal stroke at the end.

Brent Lockhart  
Reservoir Engineer

Attachments

cc: NMOCD District 1 – Hobbs, NM  
Well File

**EXHIBIT 1**

**ENGINEERING AND GEOLOGICAL JUSTIFICATION**

Application Of Marathon Oil Company For Administrative Approval Of An Unorthodox Oil Well Location:

**Dayton Hardy #5**

1,800' FSL & 1,500' FEL

Section 20, T21S, R37E, Unit Letter J

Lea County, New Mexico

**PRIMARY OBJECTIVE: GRAYBURG**

**SUPPORTING DATA:**

1. Marathon Oil Company is the operator of the proposed Dayton Hardy #5 well (Exhibit 3). The proposed total depth is 4,600'.
2. The completion will be in the Penrose Skelly; Grayburg Oil Pool . The following is a list of all other current and proposed wells on the Dayton Hardy Lease:

<b>Operator</b>	<b>Well</b>	<b>Location</b>	<b>Formation</b>	<b>Status</b>
Marathon	Dayton Hardy #1	20-I	Grayburg	Producer
Marathon	Dayton Hardy #4	20-J	Grayburg	Proposed New Drill
Marathon	Dayton Hardy #6	20-I	Grayburg	Proposed New Drill
Marathon	Dayton Hardy #7	20-I	Grayburg	Proposed New Drill

3. The proposed Dayton Hardy #5 unorthodox Grayburg location is based on the need to stay clear of an existing pipeline and drainage considerations:

a. Grayburg Reservoir

The Grayburg is a series of alternating subtidal and supratidal dolomites, with the subtidal rock having porosity and hydrocarbons and the supratidal rock being tight. The Grayburg depositional environments varied rapidly so that many porous and tight intervals are not continuous from well-to-well on 40-acre spacing. Tight dolomite and/or anhydrite intervals within the Grayburg create vertical and horizontal flow barriers between different zones of porosity. Additionally, average porosity of the Grayburg is less than 10%, and average permeability is less than 1 millidarcy. For all of these reasons, Grayburg wells are not usually capable of draining a 40-acre proration unit.

b. Drainage Area

As previously demonstrated by Apache Corporation and ChevronTexaco, the drainage area of a typical Grayburg completion usually range from 10 to 20 acres.

4. The N/2 of SE/4 of Section 20 is covered by a single fee lease which has common royalty and working interest ownership. Marathon is the operator and 100% working interest owner of the Grayburg wells toward which the proposed well will encroach. Therefore, there are no offset interest owners or adversely affected parties to notify of this application.
5. Approval of this application will allow for the recovery of oil and gas reserves which would not otherwise be recovered.







# NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

**BILL RICHARDSON**  
Governor  
**Joanna Prukop**  
Cabinet Secretary

**Mark E. Fesmire, P.E.**  
Director  
Oil Conservation Division

## RECEIVED

DEC 17 2004

Oil Conservation Division  
1220 S Francis Dr  
Santa Fe, NM 87505

Oil Conservation Division  
1220 S. Saint Francis Drive  
Santa Fe, NM 87505

RE: Proposed;  
MC \_\_\_\_\_  
DHC \_\_\_\_\_  
NSL   X   \_\_\_\_\_  
NSP \_\_\_\_\_  
SWD \_\_\_\_\_  
WFX \_\_\_\_\_  
PMX \_\_\_\_\_

Gentlemen:

I have examined the application for the:

Marathon Oil Co Dayton Hardy # 5-T-20-215-37e  
Operator Lease & Well No. Unit-S-T-R API #

And my recommendations are as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
*OK*

Yours very truly,

*Chris Williams*  
Chris Williams  
Supervisor, District I