

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

*CASE NO. 10406
ORDER NO. R-9623*

**APPLICATION OF AMOCO PRODUCTION COMPANY
FOR A SECONDARY RECOVERY PROJECT, LEA
COUNTY, NEW MEXICO**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on October 31, 1991 at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 8th day of January, 1992 the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) The applicant in this matter, Amoco Production Company (Amoco), is the operator of the South Mattix Unit Area which was initially approved June 1, 1948 and comprises 1000 acres, more or less, of federally-controlled lands underlying all of Section 15 and the NE/4, E/2 NW/4, N/2 SE/4 and the SE/4 SE/4 of Section 22, all in Township 24 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) The area comprising said unit is encompassed within the boundary of the Fowler-Upper Yeso Pool with its vertical limits established by Division Order No. R-3987, dated July 7, 1970, as being from the base of the Fowler-Upper Paddock Gas Pool to the top of the Fowler-Tubb Gas Pool.

(4) Amoco seeks authority to initiate a secondary recovery project within its South Mattix Unit Area by the injection of water into the Fowler-Upper Yeso Pool through the perforated interval from approximately 5200 feet to 5600 feet in seven certain wells to either be drilled or converted from producing wells to injectors as further described in Exhibit "A" attached hereto and made a part hereof.

(5) The current production in the South Mattix Unit Area from the fifteen wells completed in the Fowler-Upper Yeso Pool is 100 barrels of oil per day, which averages less than seven barrels per day per well, thereby classifying them as "stripper wells". The proposed injection project should therefore be labeled a waterflood project.

(6) To initially complete a modified twenty-five acre spot pattern, Amoco is requesting to drill its South Mattix Unit Well No. 40 to be utilized as a production well at an unorthodox oil well location 2373 feet from the South line and 2200 feet from the West line (Unit K) of said Section 15. The NE/4 SW/4 of said Section 15 of which said Well No. 40 would be dedicated is well within the unit area and should therefore be authorized.

(7) At the time of the hearing, the applicant demonstrated that an incremental secondary recovery of 733,000 barrels of oil could be obtained from the initial project, thereby resulting in the recovery of additional oil which would not otherwise be recovered and the waste of hydrocarbon resources would thereby be prevented.

(8) The operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape into other formations or onto the surface from injection, production or plugged and abandoned wells.

(9) Evidence presented at the hearing indicates one of the existing wells to be converted from a producing Fowler-Upper Yeso oil producing well to an injection well, the South Mattix Unit Federal Well No. 21 located in Unit K of said Section 15, may not be completed in a manner that is sufficient to confine the injected fluids to the injection interval thereby possibly allowing the migration of such fluids to other formations.

(10) Injection into the proposed project area should be postponed until such time as a cement bond log is performed and evaluated on said South Mattix Unit Federal Well No. 21 and, if necessary, any needed remedial work is performed on this well to adequately assure that such injected fluids will be confined to the injection interval.

(11) The evidence presented at the time of the hearing also indicates that within the project's "area of review" there are two wells which may not be adequately cemented or plugged back in a manner adequate to confine the injected fluid to the proposed injection zone; these being Amoco's South Mattix Unit Federal Well Nos. 9 and 17 located, respectively, 660 feet from the North line and 1980 feet from the East line (Unit B), and 1980 feet from the North and East lines (Unit G), both in said Section 15.

(12) Prior to initiating injection within any of the seven proposed injection wells, Amoco should be required to demonstrate to the supervisor of the Division's Hobbs District Office that the South Mattix Unit Federal Well Nos. 9 and 17 have been completed and/or plugged back in such a manner as to ensure that they do not provide an avenue of escape for waters from the proposed injection zones.

(13) Also, should it be necessary, the applicant may be required to recomplete or plug-back said Well Nos. 9 and/or 17 in a manner which will assure that neither wellbore serves as a conduit for the migration of injected fluids and to the satisfaction of the supervisor of the Hobbs District Office of the Division.

(14) Once the supervisor of the Hobbs District Office of the Division is satisfied that all three of the aforementioned South Mattix Unit Federal Well Nos. 9, 17 and 21 are either shown to be currently completed or have undergone remedial work-over requirements to assure confinement of injection fluids, the applicant may then proceed with the proposed waterflood project as follows:

- a) Injection into each well should be accomplished through plastic tubing installed in a packer set at approximately 100 feet above the uppermost perforated interval; the casing-tubing annulus should be filled with an inert fluid; and a pressure gauge or approved leak-detection device should be attached to the annulus in order to determine leaks in the casing, tubing or packer.
- b) Prior to commencing injection operations, the casing of the subject well should be pressure-tested throughout the interval, from the surface down to the proposed packer-setting depth, to assure integrity of such casing.

- c) The injection wells or injection pressurization system for each well should be so equipped as to limit injection pressure at the wellhead to no more than 1040 psi.

(15) The Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected waters from the Fowler-Upper Yeso Pool.

(16) The operator should give advance notification to the supervisor of the Hobbs District Office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity pressure-test in order that the same may be witnessed.

(17) The subject application should be approved and the project should be governed by the provisions of Rules 702 through 708 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Amoco Production Company, is hereby authorized to institute a waterflood project on its South Mattix Unit by the injection of water into the Fowler-Upper Yeso Pool through the perforated interval from approximately 5200 feet to 5600 feet in seven certain wells to either be drilled or converted from producing oil wells to injectors, as further described in Exhibit "A" attached hereto and made a part hereof.

(2) The waterflood project, hereby designated the South Mattix (Federal) Unit Waterflood Project, shall be comprised of the following described area:

**SOUTH MATTIX (FEDERAL) UNIT WATERFLOOD PROJECT AREA
LEA COUNTY, NEW MEXICO**

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM

Section 15:All

Section 22:NE/4, E/2 NW/4, N/2 SE/4 and SE/4 SE/4

(3) The applicant 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 from injection, production or plugged and abandoned wells.

IT IS FURTHER ORDERED HOWEVER THAT:

(4) Injection of water into said project area shall not commence until:

- a) such time as a "cement bond log" is conducted and an evaluation is made on Amoco's South Mattix Unit (Federal) Well No. 21 located in Unit K of said Section 15 and, if needed, remedial work is performed, to adequately assure that injected fluids will be confined to the injection interval;
- b) it shall be demonstrated by the applicant that both the South Mattix Unit Federal Well Nos. 9 and 17, (located, respectively, 660 feet from the North line and 1980 feet from the East line (Unit B), and 1980 feet from the North and East lines (Unit G), both in said Section 15) have been previously completed and/or plugged back in such a manner as to ensure that they do not provide an avenue for escape for waters from the injection interval; and,
- c) should it be necessary, Well Nos. 9 and/or 17 shall be recompleted or plugged back in a manner which will assure that the respective wellbore serves as a conduit for the migration of injected fluids.

(5) All of the above-mentioned testing requirements, completion evaluations, remedial work-over operations and recompletions shall be to the satisfaction and/or recommendation of the supervisor of the Hobbs District Office of the Division.

IT IS FURTHER ORDERED THAT:

(6) Prior to commencing injection operations, the casing in the subject wells shall be pressure-tested to assure the integrity of such casing in a manner that is satisfactory to the supervisor of the Division's Hobbs District Office.

(7) Injection into each of said wells shall be accomplished through plastic-lined tubing installed in a packer set at approximately 100 feet above the uppermost perforated interval; the casing-tubing annulus of each well shall be filled with an inert fluid; and a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved leak-detection device in order to determine leakage in the casing, tubing or packer on each well.

(8) The injection wells herein authorized and/or the injection pressurization system shall be equipped with a pressure-limiting switch or other acceptable device which will limit the wellhead pressure on the injection well to no more than 1040 psi.

(9) 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 Fowler-Upper Yeso Pool.

(10) The operator shall notify the supervisor of the Hobbs District Office of the Division in advance of the date and time of the installation of said injection equipment and of the mechanical integrity pressure-test in order that the same may be witnessed.

(11) The operator shall immediately notify the supervisor of the Division's Hobbs District Office of the failure of the tubing, casing or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

(12) The subject waterflood project is hereby designated the Eumont Federal "D" Lease Pilot Waterflood Project and shall be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

IT IS FURTHER ORDERED THAT:

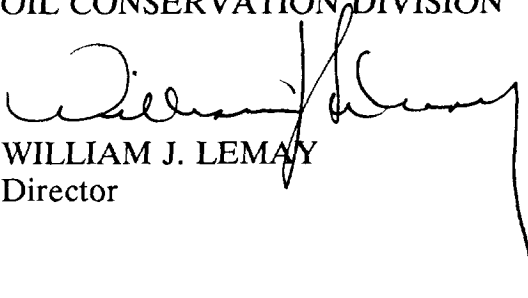
(13) Amoco is hereby authorized to drill its South Mattix Unit (Federal) Well No. 40 to be utilized as a producing oil well in the Fowler-Upper Yeso Pool at an unorthodox oil well location 2373 feet from the South line and 2200 feet from the West line (Unit K) of said Section 15, the 40-acre tract comprising the NE/4 SW/4 of said Section 15 shall be dedicated to said well.

(14) Monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

(15) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director

S E A L

EXHIBIT "A"

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AMOCO PRODUCTION COMPANY
Proposed Injection Well Locations
South Mattix Unit
All in Section 15, Township 24 South, Range 37 East, NMPM,
Lea County, New Mexico

<i>Well No.</i>	<i>Footage Location (Initially Planned)</i>	<i>Unit Letter</i>	<i>Classification</i>
21	1873' FSL - 2087' FWL	K	Conversion
33	1650' FNL - 1650' FEL	G	Conversion
35	1650' FNL - 1650' FWL	F	Conversion
41	1650' FNL - 2524' FEL	G	New Drill
42	2450' FNL - 1600' FWL	F	New Drill
43	2500' FNL - 2524' FEL	G	New Drill
44	2500' FNL - 1650' FEL	G	New Drill