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. 12123
Order No. R-11151

APPLICATION OF TEXACO EXPLORATION AND PRODUCTION INC. FOR AMENDMENT OF DIVISION ORDER NO. R-9714 TO AMEND THE INJECTION PERMIT FOR THE VACUUM GLORIETA WEST UNIT WELL NO. 108 AND TO ESTABLISH AN ADMINISTRATIVE PROCEDURE WHEREBY ADDITIONAL WELLS WITHIN THE VACUUM GLORIETA WEST UNIT WATERFLOOD PROJECT MAY BE DRILLED AND COMPLETED AS HORIZONTAL INJECTION WELLS, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on February 4, 1999, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 16th day of March, 1999, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.

(2) By Order No. R-9714 dated September 3, 1992, the Division authorized Texaco Exploration and Production, Inc. (Texaco) to commence waterflood operations within its Vacuum Glorieta West Unit by the injection of water into the Glorieta and Paddock formations, Vacuum-Glorieta Pool, through sixty initial injection wells located within Townships 17 and 18 South, Ranges 34 and 35 East, NMPM, Lea County, New Mexico, including its Vacuum Glorieta West Unit Well No. 108 located 213 feet from the South line and 351 feet from the East line (Unit P) of Section 36, Township 17 South, Range 34 East.

(3) The applicant, Texaco Exploration and Production Inc., seeks to amend the injection permit for its Vacuum Glorieta West Unit Well No. 108 to authorize injection into the Glorieta and Paddock formations through dual horizontal laterals within this wellbore.

(4) In an effort to test for improved sweep efficiency within the Vacuum Glorieta West Unit Waterflood Project, Texaco has drilled dual horizontal laterals within its Vacuum Glorieta West Unit Well No. 108. The horizontal laterals were drilled generally in a southwest and northeast direction, are approximately 600 feet in length, and terminate at bottomhole locations 78 feet from the South line and 748 feet from the East line (Unit P) of Section 36, and 375 feet from the South line and 227 feet from the West line (Unit M) of Section 31, Township 17 South, Range 35 East.

(5) Texaco has identified and targeted the following described area within the Vacuum Glorieta West Unit in which the geologic properties within the Upper Paddock formation are favorable for utilizing horizontal drilling technology to improve sweep efficiency, thereby increasing ultimate oil recovery:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM

Section 35:	NE/4, N/2 SE/4, SE/4 SE/4
Section 36:	All

TOWNSHIP 17 SOUTH, RANGE 35 EAST, NMPM

Section 31:	W/2 W/2

TOWNSHIP 18 SOUTH, RANGE 34 EAST, NMPM

Section 1:	NE/4, N/2 NW/4
Section 2:	NE/4 NE/4

TOWNSHIP 18 SOUTH, RANGE 35 EAST, NMPM

Section 6:	N/2

(6) Texaco presented geologic evidence and testimony indicating that:

a) the primary producing intervals within the Vacuum Glorieta West Unit area are the Glorieta, Upper Paddock, and Lower Paddock formations;

b) the Paddock formation is predominantly dolomite with the exception of the southern portion of the unit where the Upper Paddock formation is predominantly limestone; and

c) the Upper Paddock limestone formation is the target zone in which Texaco proposes to conduct its horizontal production/injection drilling program.

(7) In addition to the Vacuum Glorieta West Unit Well No. 108, Texaco has already drilled ten horizontal producing wells within the proposed "horizontal area."

(8) Texaco presented engineering evidence and testimony indicating that:

a) there are approximately seventy-four (74) wells within the proposed "horizontal area." Of these, approximately twenty-four (24) wells are injection wells and the remainder are active or shut-in producing wells;

b) it plans to drill an extensive number of horizontal laterals within existing producing and injection wells in the "horizontal area";

c) water injection data for the Vacuum Glorieta West Unit Well No. 108 indicate that channeling of water may be occurring within the Lower Paddock formation. As a result, Texaco will focus its injection efforts predominantly on the Upper Paddock formation within the "horizontal area";

d) production data obtained from its Vacuum Glorieta West Unit Wells No. 103 and 115, producing wells which have been horizontally drilled and which directly offset the Vacuum Glorieta West Unit Well No. 108, show:

i) significant initial increases in production after completion of the lateral portion of the wellbore followed by a rapid decline and subsequent "leveling out" at a producing rate higher than that prior to horizontal drilling;

ii) the occurrence of a production response in the wells during the six-month period in which an injectivity test was conducted on the Vacuum Glorieta West Unit Well No. 108; and

iii) a subsequent "drop off" of production after injection into the Vacuum Glorieta West Unit Well No. 108 ceased.

(9) The evidence and testimony presented in this case demonstrates that the proposed horizontal injection well and horizontal production/injection technology will serve to sweep portions of the reservoir that were not swept or displaced by conventional vertical producing and injection wells.

(10) The evidence and testimony further indicate that the proposed horizontal injection well and horizontal injection technology will concentrate the injected fluids into productive zones more effectively than vertical injection wells, which should result in the recovery of otherwise unrecoverable reserves, thereby preventing waste.

(11) The Vacuum Glorieta West Unit Well No. 108 is currently cased and completed so as to preclude the migration of injected fluid from the proposed injection interval.

(12) Texaco requested the adoption of a procedure whereby the Division may administratively approve the drilling and completion of additional horizontal injection wells within the Vacuum Glorieta West Unit.

(13) The current administrative application and review process is adequate to address any future applications for horizontal injection wells within the Vacuum Glorieta West Unit, therefore any future applications to drill new wells or convert or recomplete existing wells as horizontal injection wells within the Vacuum Glorieta West Unit Waterflood Project should be submitted accordingly.

(14) Approval of the subject application will allow the recovery of additional oil from the Vacuum Glorieta West Unit Waterflood Project that may otherwise not be recovered, thereby preventing waste, and will not increase the risk of contaminating underground sources of drinking water.

(15) All other provisions of Division Order No. R-9714 should remain in full force and effect.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Texaco Exploration & Production Inc., is hereby authorized to utilize its Vacuum Glorieta West Unit Well No. 108, located 213 feet from the South line and 351 feet from the East line (Unit P) of Section 36, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico, as a horizontal injection well within the Vacuum Glorieta West Unit Waterflood Project.

(2) Injection into the Glorieta and/or Paddock formations within the Vacuum Glorieta West Unit Well No. 108 shall occur at a depth from approximately 5,844 feet to approximately 6,100 feet through two horizontal laterals, as further described in Finding No. (4) above.

(3) The Division Director shall have the authority to administratively approve any future applications to drill new wells or convert or recomplete existing wells as horizontal injection wells within the Vacuum Glorieta West Unit Waterflood Project, provided such applications are filed in accordance with Division Rule No. 701.

(4) All other provisions contained within Division Order No. R-9714 shall remain in full force and effect.

(5) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

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