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. 12321

APPLICATION OF CHEVRON USA PRODUCTION COMPANY FOR APPROVAL TO CONVERT THE EMSU WELLS NO. 210, 212, 222, 252 AND 258 TO INJECTION IN THE EUNICE MONUMENT SOUTH UNIT, LEA COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on March 2, 2000 at Santa Fe, New Mexico before Examiner Mark Ashley.

NOW, on this ___ day of _____, 2000, 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) Applicant Chevron USA Inc. ("Chevron") is the operator of the Eunice Monument South Unit Waterflood ("EMSU") operating in Lea County, New Mexico. The waterflood unit was initially established by Division Order No. R-7766, which was amended by Order No. R-7766-A issued October 19, 1990 in Case No. 10060.

(3) Chevron seeks approval to convert its EMSU wells Nos. 210, 212, 222, 252, and 258 to injection for the unit. Water will be injected through the wells into the unitized interval of the Eunice Monument Grayburg-San Andres Pool, which has an upper limit of 100 feet below mean sea level or the top of the Grayburg formation, whichever is higher, to a lower limit of the base of the San Andres formation. Injection will occur at an expected maximum pressure rate of 1500 barrels of water per day and an expected maximum pressure of 750 pounds per square inch.

(4) Testimony taken at the hearing indicated that the wells at issue in this application were drilled during the 1930s, and were open hole completions. Several of the wells are not cemented to the surface. Chevron has not run cement bond logs on any of the wells to insure the integrity of the cement in these wells.

(5) Prior to commencing injection operations in these wells, the applicant should run cement bond logs, and install cement liners in the wells in a manner which would insure that said wells will not serve as a conduit for movement of injected fluid out of the injection interval and in a manner satisfactory to the supervisor of the Division's Hobbs District Office. The bond logs shall be filed with the District Office and work on the wells reported on Sundry Notices.

(6) Waterflood operators are required by existing Division Rules, 701 through 708, to take all steps necessary to insure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(7) Testimony was given by applicant that there is presently communication between the EMSU injection interval and the Eumont Gas Pool, where a number of gas operators are producing volumes of water from their gas wells. Testimony provided by applicant to the Division indicates that the produced water from the Eumont Gas wells is water from the waterflood unit, which has escaped to formations other than the approved injection interval.

(8) While applicant testified at the hearing that the communication causing production of injected water from the waterflood unit through Eumont Gas wells was caused by the gas operators during their fraccing jobs, no backup data or fracture simulation modeling was produced at the hearing in support of this contention.

(9) Doyle Hartman Oil Operator ("Hartman) who appeared in opposition to the Chevron application, operates two of the gas wells which Chevron identified as wells which had been fracced so as to cause communication with the EMSU injection interval has moved to supplement the record in this case with the Affidavit of John Allred, petroleum engineer, well file data, data concerning the frac jobs performed on Hartman wells State "A" Nos. 4 and 5 in Sections 5 and 8, Township 21 South, Range 36 East, Lea County, New Mexico. This evidence indicates that the frac stimulations Hartman performed on those gas wells did not cause communication with the unitized interval. The Hartman wells did not begin to produce water until six months and twelve months after the frac jobs.

(10) In light of evidence presented at the Division hearing that water from the waterflood unit is already out of zone, before action on this application Chevron should appear before the Division to demonstrate, based upon unit-wide injection withdrawal ratios and volumes, temperature surveys, injection profiles, injection pressure histories of the injection wells within the unit, well file data and other engineering evidence, that Chevron is not the cause of the water out of zone. Chevron should further provide the

Division with evidence, if any, to demonstrate specifically which gas wells in the area have caused any communication with the unitized interval, and steps Chevron plans to take to insure that any problems with the integrity of those wells are addressed so as to prevent the migration of injected waters to other formations.

(11) Injection into the proposed injection wells should be accomplished through 2 3/8-inch internally plastic-lined tubing installed in a packer set approximately within 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus in each well should be filled with an inert fluid and a gauge or approved leak detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(12) Chevron presented evidence that it intends to utilize a manual choke system in order to limit the surface injection pressure to no more than 0.2 psi per foot of depth from the surface to the top of the injection perforation. The proposed manual system, which is dependent upon the plant operator recognizing increases in injection pressure and taking steps to manually choke back injection pressures on the wells, will not reliably prevent surface injection pressures in increasing to more than 0.2 psi per foot of depth from the surface to the top of the injection perforation. Chevron should employ an automatic choke system for these purposes.

(13) The injection wells or injection pressurization system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth from the surface to the top injection perforation.

(14) The Division Director should have the authority to administratively authorize a pressure limitation in excess of 750 psi at the surface only upon a showing by the operator that such higher pressure will not result in migration of waters from the Eunice Monument Grayburg-San Andres Pool.

(15) Prior to commencing injection operations into the proposed injection wells, the casing in each well should be pressure tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(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, of the mechanical integrity pressure tests, and of the conductance of any remedial cement or plugging operations in order that the same may be witnesses.

(17) In the event the application is subsequently approved, the project should be governed by the provisions of Rules 701 through 708 of the Oil Conservation Division Rules and Regulations.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Chevron USA Inc., shall not convert wells Nos. 210, 212, 222, 252, and 258 to injection for the EMSU until such time as Chevron has satisfied the Division as to the integrity of the cement jobs on the proposed injection wells, until such time as Chevron has demonstrated to the satisfaction of the Division that it is not responsible for water out of zone through its past injection practices, and, if Chevron meets that showing, until such time as Chevron presents the Division with a suitable plan for addressing problems caused by any gas wells in the area which Chevron can establish through sound engineering principles are responsible for communication between gas zones in the area and the injection interval.

(2) In the event Chevron makes an adequate showing as required by the Division in paragraph 1, above, Chevron will then be authorized to convert wells 210, 212, 222, 252, and 258 to injection subject to the provisions of paragraphs (3) – (11), below.

(3) Prior to commencing injection operations in the wells which are the subject of this application, the applicant shall run cement bond logs in the wells and provide the results to the Division. The applicant shall cement and/or replug said wells in a manner which will ensure that said wells will not serve as a conduit for movement of injected fluid out of the injection interval and in a manner satisfactory to the supervisor of the Division's Hobbs district office.

(4) The operator 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.

(5) Injection into the proposed injection wells shall be accomplished through 2 3/8-inch internally plastic-lined tubing installed in a packer set approximately within 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus in each well shall be filled with an inert fluid and a gauge or approved leak detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(6) The injection wells or injection pressurization system shall be equipped with an automatic pressure control device which will limit the surface injection pressure to no more than 0.2 psi per foot of depth from the surface to the top injection perforation.

(7) The Division Director shall administratively authorize a surface pressure limitation in excess of 750 psi only upon a showing by the operator that such higher pressure will not result in out of zone fractures and migration of waters from the Eunice Monument Grayburg-San Andres Pool.

(8) Prior to commencing injection operations into the proposed injection wells, the casing in each well shall be pressure tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(9) The operator shall 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, of the mechanical integrity pressure tests, and of the conductance of any remedial cement or plugging operations in order that the same may be witnessed.

(10) The operator shall immediately notify the supervisor of the Division's Hobbs district office of the failure of the tubing, casing, or packer in any injection well, the leakage of water or oil from or around any producing well, or the leakage of water or oil from or around any plugged and abandoned well within the project area and shall take such steps as may be timely and necessary to correct such failure or leakage.

(11) The applicant shall conduct injection operations in accordance with Division Rule Nos. 701 through 708 and shall submit monthly progress reports in accordance with Division Rule Nos. 706 and 1115.

(12) 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

LORI WROTENBERY
Director