

**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. 11694
Order No. R-10758**

**APPLICATION OF DEVON ENERGY
CORPORATION (NEVADA) FOR
WATERFLOOD EXPANSION AND
AUTHORIZATION TO INJECT, EDDY
COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on January 23, 1997, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 3rd day of February, 1997, 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, Devon Energy Corporation (Nevada),(Devon), is the current operator of the Keel-West Waterflood Project which was originally approved by Division Order No. R-2268, as amended, and which encompasses, in part, Sections 3 through 10, Township 17 South, Range 31 East, NMPM, Grayburg-Jackson Pool. Eddy County, New Mexico.

(3) By Division Administrative Order No. WFX-687, dated July 30, 1996, Devon was authorized to convert to injection its J.L. Keel "B" Well No. 34 located 1880 feet from the North line and 660 feet from the East line (Unit H) of Section 6, and its J.L. Keel "B" Well No. 37 located 1780 feet from the North line and 660 feet from the West line (Unit E) of Section 5, provided however, that prior to commencing injection operations into said wells, Devon was required to re-enter the Everts Grier Well No. 1 located 330 feet from the South and East lines (Unit P) of Section 31, Township 16 South, Range 31 East, NMPM, and plug and abandon the well in a manner satisfactory to the supervisor of the Division's Artesia District Office.

(4) By Division Administrative Order No. WFX-690, dated August 23, 1996, Devon was authorized to convert to injection its H.E. West "B" Well No. 48, located 2130 feet from the South line and 1980 feet from the East line (Unit J) of Section 10, provided however, that prior to commencing injection operations into said well, Devon was required to re-enter the Repollo Well No. 1 located 330 feet from the South and East lines (Unit P) of Section 10, Township 17 South, Range 31 East, NMPM, and plug and abandon the well in a manner satisfactory to the supervisor of the Division's Artesia District Office.

(5) By Division Administrative Order No. WFX-690, dated August 23, 1996, Devon was authorized to convert to injection its H.E. West "A" Well No. 11, located 1980 feet from the North and East lines (Unit G) of Section 3, provided however, that prior to commencing injection operations into said well, Devon was required to re-enter the H.E. West "A" (Repollo) Well No. 3 located 330 feet from the North and East lines (Unit A) of Section 3, Township 17 South, Range 31 East, NMPM, and plug and abandon the well in a manner satisfactory to the supervisor of the Division's Artesia District Office.

(6) It is the current policy of the Division not to allow injection within ½ mile of any well which is not adequately cased, cemented or plugged and abandoned so as to confine injection fluid to the injection interval.

(7) Division Order Nos. WFX-687 and WFX-690 contain re-entry and plugging stipulations inasmuch as plugging records for the Everts Grier Well No. 1, the Repollo Well No. 1 and the H.E. West "A" (Repollo) Well No. 3 are not available and there is uncertainty whether or not these wells are adequately plugged so as to confine injected fluid to the proposed injection interval.

(8) The applicant, Devon Energy Corporation (Nevada), seeks authorization to inject into the aforesaid J.L. Keel "B" Well Nos. 34 and 37, the H.E. West "B" Well No. 48 and the H.E. West "A" Well No. 11, without having to re-enter and re-plug the aforesaid Everts Grier Well No. 1, Repollo Well No. 1 and the H.E. West "A" (Repollo) Well No. 3.

(9) Applicant contends that re-entry and re-plugging of the subject wells will entail considerable risk and expense and further contends that the Division's objective of minimizing the risk of fluid migration from the injection zone into other formations through the subject wells can be accomplished by a production/monitoring program.

(10) Division records and evidence and testimony presented by the applicant indicates that:

the Everts Grier Well No. 1 was drilled in 1939 to a total depth of 3854 feet. 8-1/4 inch surface casing was set at 563 feet and cemented with 50 sacks. 7.0 inch casing was set at 2750 feet and cemented with 25 sacks. The well was open-hole completed from 2750 feet to 3854 feet. The well was plugged and abandoned June 16, 1940;

the Repollo Well No.1 was drilled in 1926 to a total depth of 3872 feet. 12-1/2 inch casing was set at 680 feet, 10 inch casing was set at 1823 feet, 8-1/4 inch casing was set at 2953 feet and 6-5/8 inch casing was set at 3380 feet. Records do not indicate amount of cement used to set casing. The well was open-hole completed from 3389 feet to 3872 feet. The well was plugged and abandoned May 1, 1927; and,

the H.E. West "A" (Repollo) Well No. 3 was drilled in 1939 to a total depth of 4483 feet. 8-5/8 inch surface casing was set at 887 feet and cemented with 50 sacks. 7.0 inch casing was set at 3670 feet and cemented with 200 sacks. The well was open-hole completed from 3670 feet to 4483 feet. The well was plugged and abandoned on July 5, 1939.

(11) The applicant has searched the well records at the offices of the Bureau of Land Management (BLM) and the Oil Conservation Division in its attempt to locate plugging records for the above-described wells. Applicant testified that it has been unable thus far to locate these plugging records.

(12) In support of its request, the applicant presented engineering evidence and testimony which indicates that:

- a) there are no underground sources of fresh water in the vicinity of the Keel-West Waterflood Project;
- b) active injection has occurred for several years within the vicinity of the Everts Grier Well No. 1, the Repollo Well No. 1 and the H.E. West "A" (Repollo) No. 3 and there are no indications that such injection has resulted in fluid migration from the injection interval;

- c) there are five producing wells located between the J.L. Keel "B" Well Nos. 34 and 37 and the Everts Grier Well No. 1. These producing wells, being the J.L. Keel "B" Well Nos. 33, 49, 61, 79 and 80, will be utilized continually as producing/monitor wells within the subject waterflood project;
- d) there are four producing wells located between the H.E. West "A" Well No. 11 and the H.E. West "A" (Repollo) Well No. 3. These producing wells, being the H.E. West "A" Well Nos. 15, 18, 28 and 31 will be utilized continually as producing/monitor wells within the subject waterflood project;
- e) there are three producing wells located between the H.E. West "B" Well No. 48 and the Repollo Well No. 1. These producing wells, being the H.E. West "B" Well Nos. 31, 34 and 68 will be utilized continually as producing/monitor wells within the subject waterflood project.

(13) Applicant's evidence indicates that continually monitoring and producing the J.L. Keel "B" Well Nos. 33, 49, 61, 79 and 80, the H.E. West "A" Well Nos. 15, 18, 28 and 31 and the H.E. West "B" Well Nos. 31, 34 and 68 should serve to effectively control the reservoir pressure in the Grayburg and San Andres formations within this area of the project and should serve to minimize the risk of injected fluid reaching or otherwise migrating into other formations through the Everts Grier Well No. 1, Repollo Well No. 1 and the H.E. West "A" (Repollo) Well No. 3.

(14) Applicant testified that if injection occurs into the four subject injection wells, approximately 320,000 barrels of oil will be recovered from this portion of the field, thereby preventing waste.

(15) The re-entry and plugging stipulations contained within Division Order Nos. WFX-687 and WFX-690 should be suspended.

(16) The applicant should be authorized to commence injection operations into the J.L. Keel "B" Well Nos. 34 and 37, the H.E. West "A" Well No. 11 and the H.E. West "B" Well No. 48 subject to the following conditions:

- a) injection into the J.L. Keel "B" Well Nos. 34 and 37 should only occur at such times as the J.L. Keel "B" Well Nos. 33, 49, 61 79 and 80 are utilized as producing/monitor wells. If production and/or monitoring operations cease within any of these producing wells, injection into the J.L. Keel "B" Well Nos. 34 and 37 should cease as well;
- b) injection into the H.E. West "A" Well No. 11 should only occur at such times as the H.E. West "A" Well Nos. 15, 18, 28 and 31 are utilized as producing/monitor wells. If production and/or monitoring operations cease within any of these producing wells, injection into the H.E. West "A" Well No. 11 should cease as well;
- c) injection into the H.E. West "B" Well No. 48 should only occur at such times as the H.E. West "B" Well Nos. 31, 34, and 68 are utilized as producing/monitor wells. If production and/or monitoring operations cease within any of these producing wells, injection into the H.E. West "B" Well No. 48 should cease as well;
- d) the applicant should be required to advise the Division any time the J.L. Keel "B" Well Nos. 33, 49, 61, 79 and 80, the H.E. West "A" Well Nos. 15, 18, 28 and 31 or the H.E. West "B" Well Nos. 31, 34 and 68 are shut-in for any reason and should further be required to submit a plan for bringing the well(s) back on production.

(17) The Division Director should have the authority to allow continued injection into the J.L. Keel "B" Well Nos. 34 and 37, the H.E. West "A" Well No. 11 and the H.E. West "B" Well No. 48 in the event the applicant submits an acceptable plan for modifying its producing/monitoring program approved herein.

(18) All other provisions contained within Division Administrative Order Nos. WFX-687 and WFX-690 should remain in full force and effect.

IT IS THEREFORE ORDERED THAT:

(1) Pursuant to the application of Devon Energy Corporation (Nevada) the re-entry and plugging stipulations contained within Division Administrative Order Nos. WFX-687 and WFX-690 are hereby suspended.

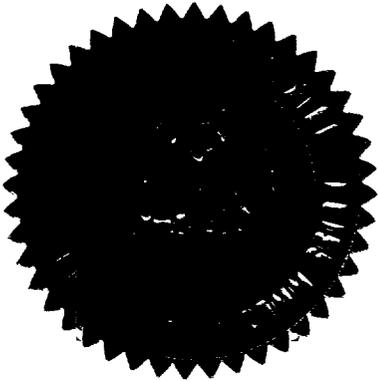
(2) The applicant is hereby authorized to commence injection operations into the J.L. Keel "B" Well Nos. 34 and 37, the H.E. West "A" Well No. 11 and the H.E. West "B" Well No. 48 subject to the following conditions:

- a) injection into the J.L. Keel "B" Well Nos. 34 and 37 shall only occur at such times as the J.L. Keel "B" Well Nos. 33, 49, 61 79 and 80 are utilized as producing/monitor wells. If production and/or monitoring operations cease within any of these producing wells, injection into the J.L. Keel "B" Well Nos. 34 and 37 shall cease as well;
- b) injection into the H.E. West "A" Well No. 11 shall only occur at such times as the H.E. West "A" Well Nos. 15, 18, 28 and 31 are utilized as producing/monitor wells. If production and/or monitoring operations cease within any of these producing wells, injection into the H.E. West "A" Well No. 11 shall cease as well;
- c) injection into the H.E. West "B" Well No. 48 shall only occur at such times as the H.E. West "B" Well Nos. 31, 34, and 68 are utilized as producing/monitor wells. If production and/or monitoring operations cease within any of these producing wells, injection into the H.E. West "B" Well No. 48 shall cease as well;
- d) the applicant shall advise the Division any time the J.L. Keel "B" Well Nos. 33, 49, 61, 79 and 80, the H.E. West "A" Well Nos. 15, 18, 28 and 31 or the H.E. West "B" Well Nos. 31, 34 and 68 are shut-in for any reason and shall further submit a plan for bringing the well(s) back on production.

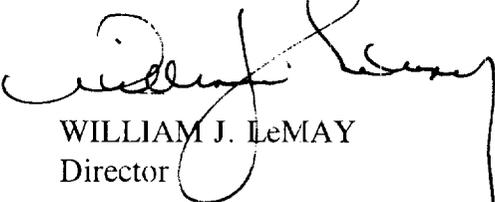
(3) The Division Director shall have the authority to allow continued injection into the J.L. Keel "B" Well Nos. 34 and 37, the H.E. West "A" Well No. 11 and the H.E. West "B" Well No. 48 in the event the applicant submits an acceptable plan for modifying its producing/monitoring program approved herein.

(4) 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