

**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:**

**APPLICATION OF VANCO OIL & GAS CORP.
AND ITS AFFILIATE, CBS OPERATING CORP.,
FOR AMENDMENT OF DIVISION ORDER NO.
R-11435 TO AUTHORIZE A PRESSURE
MAINTENANCE PROJECT IN THE NORTH
SQUARE LAKE UNIT AREA, ESTABLISH
PROCEDURES FOR APPROVAL OF
ADDITIONAL INJECTION WELLS, AND
FOR QUALIFICATION OF THE PROJECT
AREA FOR THE RECOVERED OIL TAX RATE
PURSUANT TO THE ENHANCED OIL RECOVERY
ACT, EDDY COUNTY, NEW MEXICO.**

**CASE NO. 12112 (Reopened)
ORDER NO. R-11435-A**

**PROPOSED ORDER OF THE DIVISION
VANCO OIL & GAS CORP. AND CBS OPERATING CORP.**

BY THE DIVISION:

This cause came on for hearing at 8:15 a. m. on March 7, 2002 at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this ____ day of April, 2002, 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) Vanco Oil & Gas Corp and its affiliate CBS Operating Corp. (hereinafter referred to as "Vanco") seek amendment of Division Order No. R-11435, dated August 10, 2000, to authorize the implementation of a pressure maintenance project in the North Square Lake Unit Area by water injection utilizing the 10 existing injection wells identified on Exhibit A to this order and additional producing wells which will be converted to injection and new injection wells as are subsequently permitted pursuant to the rules of the Division. Vanco also seeks amendment of Division Order No. R-11435 to permit it to commence additional injection in any new injection well once all remedial work, if any, has been completed in the one-half mile area of review for that well pursuant to Division rules. Vanco further seeks to qualify the proposed pressure maintenance project for the Recovered Oil Tax Rate pursuant to the New Mexico Enhanced Oil Recovery Act.

(3) By Division Order No. R-11207, issued in Case No. 12113 and dated June 17, 1999, the North Square Lake Unit was approved pursuant to the "Statutory Unitization Act," Sections 70-7-1 through 70-7-21 NMSA 1978, for the purpose of establishing a secondary recovery project. The unit area comprises 6,155.96 acres, more or less, of state and federal lands located in the following described acreage in Eddy County, New Mexico:

TOWNSHIP 16 SOUTH, RANGE 30 EAST, NMPM

Section 25: E/2

Section 36: N/2

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPM

Section 19: S/2

Section 20: S/2

Section 27: SW/4, W/2 SE/4, SE/4 SE/4, SW/4 NW/4,
S/2 NW/4, NW/4 NW/4

Section 28 through 34: All.

(4) Pursuant to Section 70-7-8 NMSA 1978, sufficient ratifications of the Division's statutory unitization order were obtained from the interest owners in the Unit Area and the unit became effective on January 1, 2000.

(5) The unitized formation is that interval underlying the Unit Area, the vertical extent of which extends from the top of the Grayburg formation to the base of the San Andres formation, at depths of 3,050 feet and 4,206 feet, respectively, as shown on the type log from the Zephyr "ZQ" State Well No. 1, located 330 feet from the North line and 2310 feet from the East line (Unit B) of Section 32, Township 16 South, Range 31 East, NMPM.

(6) Division Order No. R-11435 dated August 10, 2000, granted the application of GP II Energy, Inc. (GP Energy") for authority to institute a waterflood project in the North Square Lake Unit ("Unit Area") by injection of water into the Grayburg and San Andres formations, Square Lake-Grayburg-San Andres Pool, in Eddy County, New Mexico through 23 proposed injection wells. This order required the completion of remedial work on numerous wells throughout the Unit Area as a condition precedent to the implementation of waterflood operations.

(7) In early 2000 Vanco was formed and purchased working interests in the North Square Lake Unit Area (Testimony of Cotner, Tr. at 51-52).

(8) As part of its efforts to acquire interests in the Unit, Vanco conducted studies on the Grayburg and San Andres formations in the Unit Area and determined that there were the following significant problems with the plans to implement a waterflood project in the unit (Testimony of Cotner, Tr. at 55-56):

- (A) The generally disappointing results of other waterflood projects in the area and in particular the offsetting Devon Energy Corporation operated cooperative waterflood project offsetting and contiguous with the North Square Lake Unit to the South;
- (B) The regulatory approvals and remediation requirements in the existing Oil Conservation Division orders approving enhanced recovery operations in the Unit Area; and
- (C) Outstanding issues with wells which are not in compliance with the rules of the Division (Testimony of Cotner, Tr. at 52).

(9) The research of Vanco confirmed that the best enhanced oil recovery results in the Grayburg-San Andres trend were obtained by pressure maintenance operations and not by implementation of full scale waterflood projects (Testimony of Hall, Tr. at 13-15; Vanco Exhibit Nos. 1 and 3).

(10) Pursuant to the Unit Operating Agreement for the North Square Lake Unit, Vanco obtained written authorization from GP II Energy, Inc., the current unit operator, the owners of 96% of the working interest in the Unit Area to appear before the Oil Conservation Division and represent their interests in any and all matters pertaining to the operation of the North Square Lake Unit (Testimony of Cotner, Tr. at 54; Vanco Exhibit No. 5).

(11) The North Square Lake Unit currently contains 91 wells, 48 of which are producers, 33 are inactive and 10 are approved injection wells. The a total daily production rate from the unit is approximately 109 barrels of oil per day and 400 barrels of water per day. There is no natural gas production from the Unit area (Testimony of Cotner, Tr. at p.55-56; Vanco Exhibit No. 6).

(12) Vanco's engineering evidence showed:

- (A) The pay zones in the Grayburg and San Andres formations in the North Square Lake Unit are continuous across this area and the results of waterflood operations in the Unit Area should be similar to the response obtained in offsetting projects (Testimony of Hall, Tr. at 16-18; Vanco Exhibit No. 2).
- (B) Although initially thought to be the most effective type of enhanced oil recovery technique in this area, full scale waterflood operations have not performed as well as projected (Testimony of Hall, Tr. at 13-19).
- (C) Pressure maintenance projects which are designed to meet the technical characteristics of the reservoirs are producing at individual well rates which are as much as three times greater than individual well performance in the more mechanical full-scale waterflood

projects in the Grayburg-San Andres trend. (Testimony of Hall, Tr. at 28; *See*, Vanco Exhibit No. 3).

- (D) Proper pressure maintenance operations permit water to be injected where it will provide the maximum recovery benefit and therefore effective enhanced oil recovery operations in the Unit Area require pressure maintenance operations (Testimony of Hall, Tr. at 24, 30; *See*, Vanco Exhibit No. 3).

(13) Vanco testified that if it can obtain Division approval to implement pressure maintenance operations and reach an agreement with the Division on a schedule for bringing wells in the unit area into full compliance with Division rules, GP II Energy, Inc. will resign as unit operator and Vanco will become unit operator and post additional bonds to assure performance of the well compliance schedule (Testimony of Cotner, Tr. at 54-55).

(14) Vanco's proposes to implement pressure maintenance operations as follows:

- (A) Infill Drilling: Vanco plans to drill 12 new infill wells in 2002 and 12 additional infill wells in 2003 (Testimony of Hall at 26; Testimony of Cotner at 65). Modern logs will be run on each of these wells to obtain reliable geological and reservoir data (Testimony of Hall, Tr. at 28-29, 43). These wells will be located in close proximity to injection wells and possibly at other locations based on new reservoir information obtained from the development of the unit (Testimony of Hall at 27; Testimony of Cotner at 58). Additional infill wells will be drilled in 2003 and later but the determination of well locations and numbers will be based on the information obtained from the first two drilling programs and the associated response to the pressure maintenance operations (Testimony of Cotner, Tr. at 60, 64, Vanco Exhibits 4 and 7).
- (B) Additional Injection Wells: Vanco will use some of the existing injection wells in 2002 and proposes to drill four additional injection wells in 2003 (Testimony of Cotner, Tr. At 63-67, 75; Vanco Exhibit No. 7). Additional wells will be converted to injection or new wells

drilled as injection wells and initially it is believed that one injection well will ultimately be needed for every three producing wells. (Testimony of Cotner, Tr. at 61).

- (C) Facility Work: Vanco will upgrade the existing injection facilities to handle required rates for pressure maintenance operations and will upgrade surface facilities within the Unit Area including the installation of three central batteries with LACT units and crude oil pipeline connections (Testimony of Cotner, Tr. at 61-62). Vanco also will re-route existing pipelines to enable it to move necessary volumes of water to the injection wells in the project area (Testimony of Cotner, Tr. at 67).
- (D) Remedial and Non-compliance Work: Once an agreement is reached with the Division on a schedule for performing remedial work on wells to bring them into compliance with Division rules, Vanco will post additional plugging bonds, and remediate non-compliant wells (Testimony of Cotner at 67).
- (E) Engineering Study: Vanco will conduct an engineering study to determine its development plans for 2004 and thereafter anticipating that eventually 50 additional infill wells will be drilled and appropriate injection wells drilled or re-completed. (Testimony of Cotner, Tr. at 64).

(15) Vanco further requests that the subject pressure maintenance project be approved by the Division as a qualified Enhanced Oil Recovery Project ("EOR") pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5) (See, Testimony of Cotner, Tr. at 68-70; Vanco Exhibit No. 8).

(16) The evidence presented indicates that the subject pressure maintenance project meets all criteria for approval.

(17) The project area should be approved in two phases with Phase I comprised of all unitized lands in Sections 25 and 36 of Township 16 South, Range 30 East and in Sections 19, 20, 29, 30 31 and 32 of Township 16 South, Range 31 East and Phase II comprised of all unitized lands in Sections 27, 28 33 and 34 of Township 16 South,

Range 31 East, NMPM. (Testimony of Cotner, Tr. at 69, *See*, Vanco Exhibit No. 8, Exhibit A).

(18) To be eligible for the EOR credit, prior to commencing pressure maintenance operations in each phase, the operator must request from the Division a Certificate of Qualification, which Certificate will specify the area in the proposed project phase area as described above.

(19) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the operator must apply to the Division for certification of a positive production response, which application shall identify the area actually benefiting from enhanced recovery operations, and identify the specific wells which the operator believes are eligible for the credit. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the Department of Taxation and Revenue those lands and wells which are eligible for the credit.

(20) The injection authority granted herein for the proposed injection wells should terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject wells, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

(21) The application of Vanco for amendment of Division Order No. R-11435 and the implementation of pressure maintenance operations as proposed should result in the production of oil which otherwise will be left in the ground and wasted, will protect correlative rights, will be in the best interest of conservation and should be **granted**.

IT IS THEREFORE ORDERED THAT:

(1) The application of Vanco Oil & Gas Corp. and its affiliate CBS Operating Corp. for amendment of Division Order No. R-11435, dated August 10, 2000, is hereby **granted**:

- (A) authorizing the implementation of a pressure maintenance project in the North Square Lake Unit Area by water injection utilizing the 10 existing injection wells identified on Exhibit A to this order and

additional producing wells which will be converted to injection and new injection wells as are subsequently permitted pursuant to the rules of the Division,

- (B) rescinding the provisions of Finding Nos. 15 through 28, 31 and 37 and Order Paragraphs 5, 6, 8, 9, 10 and 12 of Order No. R-11435, and
- (C) authorizing Vanco to commence additional injection in any new injection well once all remedial work, if any, has been completed in the one-half mile area of review for that well pursuant to Division rules remedial work

(2) All other provision of Order No. R-10986 shall remain in force and effect.

(3) The subject pressure maintenance project is hereby designated the North Square Lake Unit Pressure Maintenance Project, and the applicant shall conduct injection operations in accordance with Division Rule Nos. 701 and 708 and shall submit monthly progress reports in accordance with Division Rules Nos. 706 and 1115.

(4) The Subject pressure maintenance project is hereby qualified as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(5) The certified "project area" shall initially comprise the area approved for statutory unitization by Division Order No. R-11207, and described as follows, provided however, the Phase I and Phase II areas within the project may be independently certified by the Division to the New Mexico of Taxation and Revenue Department:

TOWNSHIP 16 SOUTH, RANGE 30 EAST, NMPPM

Section 25: E/2

Section 36: N/2

TOWNSHIP 16 SOUTH, RANGE 31 EAST, NMPPM

Section 19: S/2

Section 20: S/2

Section 27: SW/4, W/2 SE/4, SE/4 SE/4, SW/4 NW/4,
S/2 NW/4, NW/4 NW/4

Section 28 through 34: All.

(6) To be eligible for the EOR tax rate, the operator shall advise the Division of the date and time water injection commences within the pressure maintenance project. At such time the Division will certify the project to the New Mexico Taxation and Revenue Department.

(7) At such time as a positive production response occurs and within five years from the date the project was certified to the New Mexico Taxation and Revenue Department, the applicant must apply to the Division for certification of a positive production response. This application shall identify the area actually benefiting from enhanced oil recovery operations and shall identify the specific wells eligible for the tax credit. The Division may review the application administratively or set it for hearing. Based upon the evidence presented, the Division will certify to the New Mexico Taxation and Revenue Department those wells that are eligible for the EOR tax rate.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY,
Director

S E A L

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**EXHIBIT A
CASE NO. 12112 REOPENED
ORDER NO. R-11435-A**

**Vanco Oil & Gas Corp.
Injection Wells
North Square Lake Unit Pressure Maintenance Project Area**

Township 16 South, Ranges 30 East, NMPM,

<u>Well Name and Number</u>	<u>Footage Location</u>	<u>Section</u>	<u>Unit</u>
NSLU 51 Etz E Well No. 3	1980' FSL & 1980' FEL	25	J
NSLU 69 Etz E Well No. 2	660' FSL & 1980' FEL	25	O
NSLU 97 State H well No. 4	10' FNL & 10' FEL	36	A

Township 16 South, Range 31 East, NMPM

<u>Well Name and Number</u>	<u>Footage Location</u>	<u>Section</u>	<u>Unit</u>
NSLU 4 Etz Well No. 3	1650 ' FSL & 990' FEL	19	I
NSLU 8 Grier Well No. 14	1980' FSL & 660' FEL	20	I
NSLU 59 Texas Trading "A"	1880' FSL & 1980' FWL	29	K
NSLU 102 Grier Well No. 17	330' FNL & 660' FEL	31	A
NSLU 101 Grier Well No. 11	660' FNL & 1980' FEL	31	B
NSLU 125 Grier Well No. 7X	1980' FNL & 660' FEL	31	H
NSLU 127 Grier Well No. 6	1980' FSL & 1980' FEL	31	J