STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 8943
Order No. R-4875-B

APPLICATION OF WR OIL AND GAS COMPANY
FOR A WATER/STEAM INJECTION PILOT PROJECT,
MCKINLEY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on July 23, 1986, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 24th day of October, 1986, 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, WR Oil and Gas Company, seeks authority to institute a pilot steam and water flood project on its Santa Fe Pacific Railroad Lease (SFPRR) in Sections 20, 21, 28, and 29, Township 16 North, Range 6 West, NMPM, Upper Gallup formation, Miguel Creek Gallup Oil Pool, McKinley County, New Mexico, to allow the operator to utilize the eight existing wells as described in Exhibit "A", attached hereto and made a part hereof, as part time steam injection and oil producing wells and to utilize the five wells as described in Exhibit "B", attached hereto and made a part hereof, as water injection wells.

(3) The applicant further seeks authorization to inject into the above-described wells at a pressure that exceeds the 0.2 psi per foot of depth guideline set by the Division.

(4) The wells in the project area are incapable of commercial production due to the low viscosity of the oil found in the pay sand and the lack of any significant natural drive mechanism.

(5) The proposed project may result in the recovery of otherwise unrecoverable oil thereby preventing waste.

(6) This area was originally approved for water injection by Division Order No. R-4875 entered October 22, 1974 and such order should be superseded.

(7) Approval of this application would result in expansion of said waterflood project and initiation of the pilot steam project.

(8) The operator of the proposed project area should take all steps necessary to ensure that the injected fluid 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.

(9) The following wells are located within one-half mile of proposed injection wells within the project area:

Well Name and No.	Location	Section
Capital Oil & Gas Corporation Santa Fe Miguel Well No. 1	660' FS - EL (Unit P)	20
Northern Minerals, Inc. SFPRR Well No. 16	2930' FNL - 2310' FEL (Unit J)	29

both in Township 16 North, Range 6 West, NMPM, McKinley County, New Mexico.

(10) Prior to commencement of injection into said project the operator should demonstrate that the above described wells have either been re-plugged or shown to have been previously plugged and abandoned in such a manner or are otherwise maintained in a condition so as to ensure that they do not provide an avenue of escape for waters from the proposed injection zone and in accordance with a program that is satisfactory to the supervisor of the Division's district office at Aztec.

(11) The applicant proposes to operate the eight injection/producing wells, as described in Exhibit "A", in a "huff and puff" manner so as to periodically inject steam down the annulus for four days or more and thereafter to produce oil up the tubing.

(12) Prior to commencing steam injection operations, the casing to the subject wells should be pressure tested in a

manner which is satisfactory to the supervisor of the Aztec District Office of the Division.

(13) The injection of water into the proposed water injection wells as described in Exhibit "B" should be accomplished through plastic lined tubing installed in a packer set approximately 100 feet above the uppermost perforation; 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 leakage in the casing, tubing, or packer.

(14) Prior to commencing water injection operations, the casing in the subject wells should be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(15) The applicant failed to provide sufficient geological evidence to support its request for an increased injection pressure for the proposed project, therefore, the injection wells or system should be equipped with a pressure limiting switch or other acceptable device which will limit the wellhead pressure on all injection wells to no more than 0.2 psi per foot of depth to the uppermost perforation.

(16) 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 a higher pressure will not result in migration of the injected fluids from the formation.

(17) The operator should give advance notification to the supervisor of the Aztec 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.

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

IT IS THEREFORE ORDERED THAT:

(1) The applicant, WR Oil and Gas Company, is hereby authorized to institute a pilot combination steam project and reinstitute water injection in five existing injection wells on its Santa Fe Pacific Railroad Lease (SFPRR) in Sections 20, 21, 28, and 29, Township 16 North, Range 6 West, NMPM, Upper Gallup formation, Miguel Creek Gallup Oil Pool, McKinley County, New Mexico, and to utilize the eight existing wells as described in

Exhibit "A", attached hereto and made a part hereof, as part time steam injection and oil producing wells and to utilize the five wells as described in Exhibit "B", also attached, as water injection wells.

(2) That portion of this application seeking a variance in the Division's guideline of limiting the maximum injection pressure to 0.2 psi per foot of depth to the uppermost perforation is hereby denied.

(3) Water injection into the subject five water injection wells shall be through internally coated tubing installed in a packer set approximately 100 feet above the uppermost perforation; the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting detection device.

(4) Steam injection into each of the eight wells, as described in Exhibit "A", shall be through the casing-tubing annulus.

(5) Prior to commencing injection operations, the casing in each water and steam injection well shall be pressure-tested to assure the integrity of such casing in a manner that is satisfactory to the supervisor of the Division's district office in Aztec.

(6) The injection wells herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 0.2 psi per foot of depth to the uppermost perforation, may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(7) Injection into any of the proposed steam or water injection wells shall not commence until the following described wells have either been re-plugged or shown to have been previously plugged and abandoned in such a manner or have been shown to be maintained in such a condition as to ensure that they do not provide an avenue of escape of injected fluids from the proposed injection zone and in accordance with a program that is satisfactory to the supervisor of the Division's district office in Aztec:

Well Name and No.	Location	Section
Capital Oil & Gas Corporation Santa Fe Miguel Well No. 1	660' FS - EL (Unit P)	20

Northern Minerals, Inc.	2930' FNL - 2310' FEL	
SFPRR Well No. 16	(Unit J)	29

both in Township 16 North, Range 6 West, NMPM, McKinley County, New Mexico.

(8) The operator shall notify the supervisor of the Aztec District Office of the Division in advance 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.

(9) The operator shall immediately notify the supervisor of the Division's Aztec Office of the failure of tubing or packer in any of said injection wells, if equipped, the leakage of water or oil from or around any producing wells, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(10) Division Order No. R-4875 is hereby superseded and the subject combination steam/water flood pilot is hereby redesignated the Santa Fe Pacific Railroad Steam/Water Flood Pilot Project.

(11) Said project shall be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

(12) 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.

(13) 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

R. L. STAMETS,
Director

Pilot Project Area Combination Oil Producing/
Steam Injection Wells, S.F.P.R.R. Lease,
Upper Gallup Formation

TOWNSHIP 16 NORTH, RANGE 6 WEST, NMPM,
MIGUEL CREEK GALLUP OIL POOL
MCKINLEY COUNTY, NEW MEXICO

Well No.	Location
11	1660' FNL - 1650' FEL (Unit G) Section 29
31	330' FN & WL (Unit D) Section 28
36	330' FNL - 1650' FEL (Unit B) Section 29
37	1650' FSL - 330' FWL (Unit L) Section 21
38	990' FS & EL (Unit P) Section 20
49	1650' FSL - 990' FWL (Unit L) Section 21
54	2310' FS & WL (Unit K) Section 21
56	1980' FSL - 660' FWL (Unit L) Section 21

EXHIBIT "B"
CASE NO. 8943
Order No. R-4875-B

Pilot Project Area Water Injection
Wells, S,F.P.R.R. Lease,
Upper Gallup Formation

TOWNSHIP 16 NORTH, RANGE 6 WEST, NMPM
MIGUEL CREEK GALLUP OIL POOL
MCKINLEY COUNTY, NEW MEXICO

Well No.	Location
6Y	2013' FNL - 2003' FEL (Unit G) Section 29
79	1330' FSL - 10' FWL (Unit L) Section 21
80	1330' FSL - 660' FWL (Unit L) Section 21
82	1980' FSL - 1330' FWL (Unit K) Section 21
83	1980' FSL - 10' FWL (Unit L) Section 21