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. 12023
ORDER NO. R-8611-A

APPLICATION OF HANAGAN PETROLEUM CORPORATION FOR AMENDMENT OF DIVISION ORDER NO. R-8611 TO AUTHORIZE A 40-ACRE FIVE SPOT INJECTION PATTERN IN ITS TWIN LAKES SAN ANDRES UNIT WATERFLOOD PROJECT AREA, AND QUALIFICATION FOR THE RECOVERED OIL TAX CREDIT PURSUANT TO THE "NEW MEXICO ENHANCED OIL RECOVERY ACT," LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on August 6, 1998 at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 8th day of September, 1998 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-8557 dated December 2, 1987, the Division approved the application of Pelto Oil Company ("Pelto") for unitization of the following described 4,863.82 acres, more or less, of State and Fee lands in the Twin Lakes-San Andres Associated Pool, Chaves County, New Mexico, also known as the Twin Lakes San Andres Unit Area:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM

Section 25: SE/4 NW/4, NE/4 SW/4, S/2 SW/4, and SE/4
Section 26: SE/4 SE/4
Section 35: E/2 E/2
Section 36: All

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM

Section 30: Lots 3 and 4, E/2 SW/4, and SW/4 SE/4
Section 31: All
Section 32: W/2 SW/4

TOWNSHIP 9 SOUTH, RANGE 28 EAST, NMPM

Section 1: Lots 1 through 4, S/2 N/2, SE/4, and E/2 SW/4
Section 2: Lot 1
Section 12: NE/4, E/2 SE/4, and NW/4 SE/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM

Section 5: Lots 3 and 4, S/2 NW/4, and SW/4
Section 6 and 7: All
Section 8: N/2 NW/4 and SW/4 NW/4
Section 18: Lot 1, E/2 NW/4, and W/2 NE/4.

(3) By Order No. R-8611 dated March 11, 1988, the Division authorized Pelto to institute a waterflood project (designated the Twin Lakes-San Andres Waterflood Project) in its Twin Lakes San Andres Unit Area, by the injection of water in an 80-acre five spot pattern into the San Andres formation, Twin Lakes-San Andres Associated Pool, Chaves County, New Mexico, through 57 initial injection wells within the Unit.

(4) By Order No. WFX-582 dated May 24, 1989, the Division authorized Pelto to expand its waterflood project in the Twin Lakes San Andres Unit Area by injection of water into the San Andres formation, Twin Lakes-San Andres Associated Pool in Chaves County, New Mexico in the following described wells:

WELLS AND LOCATIONS

Twin Lakes San Andres Unit Well No. 74 **(API NO. 30-005-60248)**
1980' FSL & 1980' FWL (Unit K)
Section 1, Township 9 South, Range 28 East, NMPM;

Twin Lakes San Andres Unit Well No. 1 **(API NO. 30-005-62070)**
2310' FNL & 2310' FWL (Unit F)
Section 25, Township 8 South, Range 28 East, NMPM;

Kuchemann Well No. 2 **(API NO. 30-005-60580)**
2310' FNL & 660' FWL (Unit E)
Section 30, Township 8 South, Range 29 East, NMPM.

(5) The applicant, Hanagan Petroleum Corporation ("Hanagan"), is the current operator of the Twin Lakes San Andres Waterflood Project and seeks approval to amend Division Order R-8611 to permit the implementation of a 40-acre five spot injection pattern within the Twin Lakes-San Andres Unit as described in Finding (2) above, and the qualification of this project for the recovered oil tax rate pursuant to Division Order R-9708 and the provisions of the New Mexico Enhanced Oil Recovery Act (Sections 7-29A-1 through 7-29A-5, NMSA 1978).

(6) According to Hanagan's evidence and testimony, active waterflood operations commenced within the Twin Lakes San Andres Unit in 1988.

(7) Hanagan's evidence and testimony further indicate that currently within the Twin Lakes San Andres Unit there are 66 producing wells and 59 injection wells.

(8) Hanagan testified that additional future development within the Twin Lakes San Andres Unit will bring the total number of wells to 79 producing wells (47 of which will be new wells) and 93 injection wells (34 of which are conversions of existing producing wells, as further described in the attached Exhibit "A").

(9) As of June 30, 1998, cumulative production from the Twin Lakes San Andres Unit was approximately 4,831,000 barrels of oil and 405,800 cubic feet of gas.

(10) Hanagan expects to incur costs of $7.7 million for the proposed infill drilling and waterflood expansion project. Estimated total value of the additional production will be $49.5 million.

(11) The evidence and testimony presented in this case indicate that:

a) the 40-acre five spot injection pattern proposed to be utilized by Hanagan within the Twin Lakes San Andres Unit represents a more efficient injection pattern than that previously utilized;

b) the increased production and injection well density and the increased efficiency within the Twin Lakes San Andres Unit should result in the recovery of an additional 3.3 million barrels of oil which would otherwise not be recovered;

c) the Twin Lakes San Andres Unit has been so depleted that it is prudent to implement a 40-acre five spot injection well pattern and infill drilling program to maximize the ultimate recovery of crude oil from the area; and,

d) the proposed expansion is economically and technically feasible and has not been prematurely filed.

(12) The operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape into other formations or onto the surface from injection, production or plugged and abandoned wells.

(13) Injection into the 34 wells shown in Exhibit "A" should be accomplished through 2 3/8 or 2 7/8 inch internally plastic-lined tubing installed in a packer set no higher than 100 feet above the top of the upper most perforation; the casing-tubing annulus in each well 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 leaks in the casing, tubing or packer.

(14) The injection wells should be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure at the wellhead to a maximum of the limits shown in Exhibit "A".

(15) The Division Director should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected waters from the San Andres formation interval of the Twin Lakes-San Andres Associated Pool.

(16) Prior to commencing injection operations, the casing in each of the converted injection wells shown in Exhibit "A" should be pressure tested throughout the interval, from the surface down to the proposed packer-setting depth, to assure integrity of the casing.

(17) The operator should give advance notification to the supervisor of the Division's Artesia District Office of the date and time of the installation of injection equipment and of the mechanical integrity pressure test in order that these operations may be witnessed.

(18) The subject application should be approved and the project should be governed by the provisions of Division Rules 701 through 708.

(19) The applicant further requests that the subject waterflood project be approved by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Sections 7-29A-1 through 7-29A-5, NMSA 1978).

(20) The evidence presented indicates that the waterflood project meets all Division criteria for approval.

(21) The approved "project area" should initially comprise that area described in Paragraph (2) above.

(22) To be eligible for the EOR credit, prior to commencing injection operations under this order, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area as described above.

(23) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefiting from enhanced recovery operations and the specific wells 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.

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

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Hanagan Petroleum Corporation ("Hanagan"), is hereby authorized to implement a 40-acre five spot injection pattern within the Twin Lakes-San Andres Waterflood Project for the injection of water into the San Andres formation, Twin Lakes-San Andres Associated Pool in 34 wells to be converted from producing wells to water injectors utilizing the existing perforated intervals, as further described in the attached Exhibit "A".

(2) The lands covered by the Twin Lakes San Andres Unit Area shall comprise the following described acreage in Chaves County, New Mexico:

TOWNSHIP 8 SOUTH, RANGE 28 EAST, NMPM

Section 25: SE/4 NW/4, NE/4 SW/4, S/2 SW/4, and SE/4
Section 26: SE/4 SE/4
Section 35: E/2 E/2
Section 36: All

TOWNSHIP 8 SOUTH, RANGE 29 EAST, NMPM

Section 30: Lots 3 and 4, E/2 SW/4, and SW/4 SE/4
Section 31: All
Section 32: W/2 SW/4

TOWNSHIP 9 SOUTH, RANGE 28 EAST, NMPM

Section 1: Lots 1 through 4, S/2 N/2, SE/4, and E/2 SW/4
Section 2: Lot 1
Section 12: NE/4, E/2 SE/4, and NW/4 SE/4

TOWNSHIP 9 SOUTH, RANGE 29 EAST, NMPM

Section 5: Lots 3 and 4, S/2 NW/4, and SW/4
Section 6 and 7: All
Section 8: N/2 NW/4 and SW/4 NW/4
Section 18: Lot 1, E/2 NW/4, and W/2 NE/4.

(3) The applicant shall take all steps necessary to ensure that the injected water enters and remains confined to 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.

(4) Injection into the 34 wells shown in Exhibit "A" shall be accomplished through 2 3/8 or 2 7/8 inch internally plastic-lined tubing installed in a packer set no higher than 100 feet above the top of the upper most perforation; the casing-tubing annulus in each well shall be filled with an inert fluid; and a pressure gauge or approved leak-detection device shall be attached to the annulus in order to determine leaks in the casing, tubing or packer.

(5) The injection wells shall be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection injection pressure at the wellhead to the limits shown on Exhibit "A".

(6) Prior to commencing injection operations, the casing in each of the injection wells shown in Exhibit "A" shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth to assure the integrity of such casing in a manner that is satisfactory to the supervisor of the Division's Artesia District Office.

(7) The Division Director shall have the authority to administratively authorize an increase in the injection pressure limitation placed upon any well upon a proper showing by the operator that such higher pressure will not result in the migration of the injected water from its respective interval or fracture the confining strata.

(8) The operator should give advance notification to the supervisor of the Division's Artesia District Office of the date and time of the installation of injection equipment and of the mechanical integrity pressure-test in order that these operations may be witnessed.

(9) The operator shall immediately notify the supervisor of the Division's Artesia District Office of the failure of the tubing, casing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from 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.

(10) The subject project shall be governed by Division Order Nos. R-8557, R-8611, WFX-582, R-9708, and Division Rules 701 through 708 and the operator shall submit monthly progress reports in accordance with Division Rules 706 and 1115.

IT IS FURTHER ORDERED THAT:

(11) The subject waterflood project is hereby approved as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Sections 7-29A-1 through 7-29A-5 NMSA, 1978).

(12) The approved "project area" shall initially comprise that area described in Ordering Paragraph (2) above.

(13) To be eligible for the EOR credit, prior to commencing injection operations under this order, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area described above.

(14) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefiting from enhanced recovery operations and the specific wells 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.

(15) The injection authority granted herein for the proposed injection wells shall terminate one year after the effective date of this order for any of the wells in which the operator has not commenced injection operations; provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

(16) 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.

SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Lori Wrotenbery

LORI WROTENBERY
Director

Exhibit "A"
Case No. 12023
Order No. R-8611-A

Hanagan Petroleum Corporation
Proposed Water Injection Wells
Twin Lakes San Andres Unit Waterflood Project Area
Twin Lakes-San Andres Associated Pool, Chaves County, New Mexico.

Well Name and Number	API Number	Footage Location	Unit	Section	Township	Range	Injection Interval	Maximum Injection Pressure	Type of Well
Twin Lakes San Andres Unit # 3	30-005-60601	1650 FSL & 1650 FEL	J	25	8S	28E	2573-2738	515	Conversion
Twin Lakes San Andres Unit # 5	30-005-60572	1650FSL & 330FWL	L	30	8S	29E	2625-2661	525	Conversion
Twin Lakes San Andres Unit # 10	30-005-60571	330 FSL & 2310 FWL	N	25	8S	28E	2565-2599	513	Conversion
Twin Lakes San Andres Unit # 12	30-005-60578	330 FSL & 330 FEL	P	25	8S	28E	2613-2633	523	Conversion
Twin Lakes San Andres Unit # 14	30-005-60597	330 FSL & 1650 FWL	N	30	8S	29E	2647-2698	529	Conversion
Twin Lakes San Andres Unit # 18	30-005-60536	990' FNL & 2310 FEL	B	36	8S	28E	2589-2632	518	Conversion
Twin Lakes San Andres Unit # 20	30-005-60570	990 FNL & 330 FWL	D	31	8S	29E	2645.5-2683.5	529	Conversion
Twin Lakes San Andres Unit # 22	30-005-60823	990 FNL & 2310 FEL	B	31	8S	29E	2708.5-2749.5	542	Conversion
Twin Lakes San Andres Unit # 26	30-005-60031	1980 FNL & 1980 FWL	F	36	8S	28E	2564-2608	513	Conversion
Twin Lakes San Andres Unit # 29	30-005-60569	2310 FNL & 990 FEL	H	36	8S	28E	2623.5-2664.5	525	Conversion
Twin Lakes San Andres Unit # 36	30-005-60329	1650 FSL & 2310 FEL	J	36	8S	28E	2586-2638	517	Conversion
Twin Lakes San Andres Unit # 39	30-005-60657	1650 FSL & 330 FWL	O	31	8S	29E	2656-2702.5	531	Conversion
Twin Lakes San Andres Unit # 41	30-005-60768	1650 FSL & 2310 FEL	J	31	8S	29E	2717-2796	543	Conversion
Twin Lakes San Andres Unit # 42	30-005-60802	1650 FSL & 990 FEL	I	31	8S	29E	2753-2834	551	Conversion
Twin Lakes San Andres Unit # 45	30-005-00342	660 FSL & 1980 FWL	N	36	8S	28E	2580-2616	516	Conversion

Well Name and Number	API Number	Footage Location	Unit	Section	Township	Range	Injection Interval	Maximum Injection Pressure	Type of Well
Twin Lakes San Andres Unit # 47	30-005-60010	660 FSL & 660 FEL	P	36	8S	28E	2623-2660	525	Conversion
Twin Lakes San Andres Unit # 49	30-005-60767	560 FSL & 1650 FWL	N	31	8S	29E	2714-2731	543	Conversion
Twin Lakes San Andres Unit # 51	30-005-60810	560 FSL & 990 FEL	P	31	8S	29E	2783-2812	557	Conversion
Twin Lakes San Andres Unit # 58	30-005-61031	330 FNL & 330 FWL	D	6	9S	29E	2665-2743	533	Conversion
Twin Lakes San Andres Unit # 60	30-005-60824	330 FNL & 2310 FEL	B	6	9S	29E	2735-2824	547	Conversion
Twin Lakes San Andres Unit # 69	30-005-60984	1650 FNL & 1650 FWL	F	6	9S	29E	2689-2727	538	Conversion
Twin Lakes San Andres Unit # 72	30-005-60886	1650 FNL & 990 FEL	H	6	9S	29E	2729-2756	546	Conversion
Twin Lakes San Andres Unit # 77	30-005-61032	2310 FSL & 330 FWL	L	6	9S	29E	2648-2741	530	Conversion
Twin Lakes San Andres Unit # 79	30-005-60982	2310 FSL & 2310 FEL	J	6	9S	29E	2696-2736	539	Conversion
Twin Lakes San Andres Unit # 87	30-005-61030	990 FSL & 1650 FWL	N	6	9S	29E	2655-2679	531	Conversion
Twin Lakes San Andres Unit # 89	30-005-61022	990 FSL & 990 FEL	P	6	9S	29E	2701-2778	540	Conversion
Twin Lakes San Andres Unit # 94	30-005-61106	330 FNL & 2310 FEL	B	7	9S	29E	2683-2717	537	Conversion
Twin Lakes San Andres Unit # 102	30-005-60844	1980 FNL & 1980 FWL	F	7	9S	29E	2653-2672	531	Conversion
Twin Lakes San Andres Unit # 106	30-005-61332	2310 FSL & 330 FWL	L	7	9S	29E	2599-2640	520	Conversion
Twin Lakes San Andres Unit # 110	30-005-61556	1650 FSL & 330 FEL	I	12	9S	28E	2630-2667	526	Conversion
Twin Lakes San Andres Unit # 112	30-005-61333	990 FSL & 1650 FWL	N	7	9S	29E	2673-2728	535	Conversion

Well Name and Number	API Number	Footage Location	Unit	Section	Township	Range	Injection Interval	Maximum Injection Pressure	Type of Well
Twin Lakes San Andres Unit # 117	30-005-61454	330 FNL & 1650 FWL	C	18	9S	29E	2731-2747	546	Conversion
Twin Lakes San Andres Unit # 120	30-005-61624	1650 FNL & 2310 FEL	G	18	9S	29E	2732-2826	546	Conversion
Twin Lakes San Andres Unit # 123	30-005-62845	2237FNL & 1679 FWL	F	31	8S	29E	2684-2761	537	Conversion