

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. 9211
ORDER NO. R-8611

APPLICATION OF PELTO OIL COMPANY
FOR A WATERFLOOD PROJECT, CHAVES
COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on September 9, 1987, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 11th day of March, 1988, 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) At the time of the hearing, this case was consolidated with Division Case No. 9210 for the purpose of testimony.

(3) By Division Order No. R-8557, dated December 2, 1987, statutory unitization was approved for the Twin Lakes San Andres Unit Area, Chaves County, New Mexico, as further described in Exhibit "A" attached hereto and made a part hereof.

(4) The applicant herein, Pelto Oil Company, seeks authority to institute a waterflood project in the aforesaid Twin Lakes San Andres Unit Area, located entirely within the Twin Lakes - San Andres Associated Pool, Chaves County, New Mexico, by the injection of water into the unitized interval which shall include the San Andres formation as found from a depth of 2708 feet (+ 1259 feet sub-sea) to a depth of 2798 feet (+ 1169 feet sub-sea) as recorded on the Dual Laterolog/Compensated Neutron Log dated December 23, 1984, in the Pelto Oil Company's O'Brien "L" Well No. 16 located 2310 feet from the North line and 1675 feet from the East line (Unit G) of Section 6, Township 9 South, Range 29 East, NMPM, Chaves County, New Mexico.

(5) The applicant proposes to implement an 80-acre five spot injection pattern within the proposed waterflood project utilizing 58 injection wells all as shown and identified on Exhibit "B", attached hereto and made a part hereof, 55 of which are planned conversions of existing producing wells and three to be newly drilled wells as noted in Exhibit "B."

(6) The wells in the project area are in an advanced state of depletion and the area is suitable for waterflooding.

(7) The proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(8) No interested party appeared and objected to the proposed waterflood project.

(9) 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 to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(10) By Division Order No. R-4497, dated March 21, 1973, authorization was given to complete the O'Brien "C" Well No. 3 (proposed Unit injection well No. 74) located 1980 feet from the South and West lines (Unit K) of Section 1, Township 9 South, Range 28 East, NMPM, Chaves County, New Mexico, as a dual-tubingless completion to permit the disposal of produced salt water into the Devonian formation (7272-7298 feet), later completed in the Pennsylvanian formation (6720-6730 feet), and the production of oil from the San Andres formation (2585-2600 feet), through parallel strings of 2 7/8-inch casing cemented in the wellbore.

(11) Within the approximate interval from 2718 feet to 5800 feet there is no cement behind the long string.

(12) Applicant proposes to convert said O'Brien "C" Well No. 3 (Well No. 74) to an injection well through 1.9-inch O.D. tubing run inside the short string and installed in a packer set at approximately 2483 feet, with injection into the perforated interval in the short string, as described above.

(13) The applicant failed to provide adequate technical data to show that the proposed injection method for this well would be sufficient to confine the injected fluids to the San Andres formation and would not allow the migration of such fluids to other formations.

(14) Injection into the O'Brien "C" Well No. 3 (Unit Well No. 74) is hereby denied until such time as remedial work is performed on this well adequate to assure that such injected fluids will be confined to the injection interval and upon proper application to the Division therefor.

(15) The following described wells are located within or adjacent to the proposed project which may not have been completed or cemented in such a manner which will assure that their wellbores will not serve as a conduit for movement of injected fluid out of the injection interval:

<u>WELL NAME AND NUMBER</u>	<u>FOOTAGE LOCATION</u>	<u>UNIT-SECTION- TOWNSHIP-RANGE</u>
Pelto Oil Company O'Brien "N" Well No. 4	560' FSL - 1650' FWL	N-32-8S-29E
Pelto Oil Company O'Brien "L" Well No. 14	330' FS and WL	M-6-9S-29E

(16) Prior to initiating injection within one-half mile thereof (see listing below), the applicant should be required to demonstrate that the O'Brien "N" Well No. 4 and the O'Brien "L" Well No. 14, as described above, have either been completed, temporarily abandoned or plugged and abandoned in such a manner 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 Artesia.

- (a) Proposed injection wells within one-half mile of the O'Brien "N" Well No. 4 located in Unit N of Section 32, Township 8 South, Range 29 East.

<u>TLSAU WELL NO.</u>	<u>LOCATION(U-S-T-R)</u>
43	L-32-8S-29E
52	M-32-8S-29E
63	C-05-9S-29E
73	E-05-9S-29E

- (b) Proposed injection wells within one-half mile of the O'Brien "L" Well No. 14 located in Unit M of Section 6, Township 9 South, Range 29 East.

<u>TLSAU WELL NO.</u>	<u>LOCATION(U-S-T-R)</u>
76	I-01-9S-28E
78	K-06-9S-29E
86	P-01-9S-28E
93	C-07-9S-29E
100	E-07-9S-29E
105	H-12-9S-28E

(17) The injection of water into each of the injection wells in the project should be accomplished through internally plastic lined tubings and the casing-tubing annulus 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.

(18) Prior to commencing injection into any of the injection wells, the casing should be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(19) The injection wells or injection pressurization system should be so equipped as to limit the injection pressure at the wellhead to no more than 0.2 psi per foot of depth from the surface to the top injection perforation or open hole interval in any injection well, but the Division Director should have authority to increase said pressure limitation upon a proper showing that said pressure increase would not result in the fracturing of the injection formation or confining strata.

(20) The operator should give advance notification to the supervisor of the Artesia 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.

(21) At the time of the hearing the applicant requested that the following two wells, although outside of the unit area, be authorized to participate in the project as waterflood expansion injection wells and that they may be approved pursuant to Division General Rule 701.F.4 and with written consent of the lease owner where each well is located:

- (a) Sandco Well No. 2 located 2310 feet from the North line and 1650 feet from the East line (Unit G) of Section 25, Township 8 South, Range 28 East, NMPM; and

- (b) Kuchemann Well No. 2 located 2310 feet from the North line and 660 feet from the West Line (Unit E) of Section 30, Township 8 South, Range 29 East, NMPM.

(22) The applicant also requested a special procedure whereby the Director of the Oil Conservation Division shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations closer than 330 feet to the boundary of the Twin Lakes San Andres Unit Area when such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

(23) The subject application should be approved and the project should be governed by the provisions of Rules 701 through 708 and Rule 104 F.I. of the Division General Rules and Regulations.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Pelto Oil Company, is hereby authorized to institute a waterflood project in the Twin Lakes San Andres Unit Area as described in Exhibit "A" attached hereto and made a part hereof, located entirely in the Twin Lakes-San Andres Associated Pool, by the injection of water into the unitized interval which shall include the San Andres formation as found from a depth of 2708 feet (+ 1259 feet sub-sea) to a depth of 2798 feet (+ 1169 feet sub-sea) as recorded on Dual Laterolog/Compensated Neutron Log dated December 23, 1984, in Pelto Oil Company's O'Brien "L" Well No. 16 located 2310 feet from the North line and 1675 feet from the East line (Unit G) of Section 6, Township 9 South, Range 29 East, NMPM, Chaves County, New Mexico.

(2) Said waterflood project shall consist of 57 initial injection wells as shown on Exhibit "B" attached hereto and made a part hereof, with the exception of the proposed TLSAU Well No. 74 (O'Brien "C" Well No. 3) located 1980 feet from the South and West lines (Unit K) of Section 1, Township 9 South, Range 28 East, NMPM, Chaves County, New Mexico.

(3) Injection into the following described wells shall not commence until the Pelto Oil Company O'Brien "N" Well No. 4 located 560 feet from the South line and 1650 feet from the West line (Unit N) of Section 32, Township 8 South, Range 29 East, NMPM, Chaves County, New Mexico, has either been completed, temporarily abandoned or plugged and abandoned in such a manner 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 District Office at Artesia.

<u>TLSAU WELL NO.</u>	<u>LOCATION(U-S-T-R)</u>
43	L-32-8S-29E
52	M-32-8S-29E
63	C-05-9S-29E
73	E-05-9S-29E

(4) Also, injection into the following described wells shall not commence until the Pelto Oil Company's O'Brien "L" Well No. 14 located 330 feet from the South and West lines (Unit M) of Section 6, Township 9 South, Range 29 East, NMPM, Chaves County, New Mexico, has either been completed, temporarily abandoned or plugged and abandoned in such a manner 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 District Office at Artesia.

<u>TLSAU WELL NO.</u>	<u>LOCATION(U-S-T-R)</u>
76	I-01-9S-28E
78	K-06-9S-29E
86	P-01-9S-28E
93	C-07-9S-29E
100	E-07-9S-29E
105	H-12-9S-28E

(5) Prior to commencing injection operations, the casing in each of the proposed injection wells in the project 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 Artesia.

(6) Injection into each of said wells shall be through internally coated tubing, set in a packer which shall be located as near as practicable to 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 leak-detection device.

(7) 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 or open hole interval in any injection well; the Division Director may authorize a higher surface pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.

(8) The operator shall notify the supervisor of the Artesia 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 Artesia District Office of the failure of the tubing or packer in any of said 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 timely steps as may be necessary or required to correct such failure or leakage.

(10) The following two wells shall be authorized to participate in the subject waterflood project as injection wells after proper application pursuant to Division General Rule 701.F.4 and with written consent of the lease owner where each well is located:

- (a) Sandco Well No. 2 located 2310 feet from the North line and 1650 feet from the East line (Unit G) of Section 25, Township 8 South, Range 28 East, NMPM; and
- (b) Kuchemann Well No. 2 located 2310 feet from the North line and 660 feet from the West Line (Unit E) of Section 30, Township 8 South, Range 29 East, NMPM.

(11) The Division Director shall have authority to approve, without notice and hearing, the drilling of wells at unorthodox locations when closer than 330 feet to the outer boundary of the project when such well is covered by a lease-line agreement with the operator of the lands offsetting such well, and a copy of the lease-line agreement accompanies the application for such unorthodox location, or such offset operator has waived objection to the proposed unorthodox location in writing, and his waiver accompanies the application.

(12) The subject waterflood project is hereby designated the Twin Lakes - San Andres Waterflood Project and shall be governed by the provisions of Rules 701 through 708 and Rule 104 F.I. of the Division General Rules and Regulations.

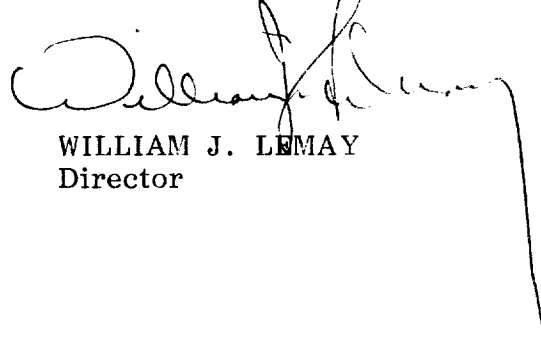
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(13) Monthly progress reports of the waterflood project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

(14) 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

A handwritten signature in dark ink, appearing to read 'William J. Lemay', is written over the typed name. A long, thin vertical line extends from the bottom of the signature down towards the bottom of the page.

WILLIAM J. LEMAY
Director

S E A L

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EXHIBIT "A"
CASE NO. 9211
ORDER NO. R-8611
TWIN LAKES SAN ANDRES UNIT AREA
CHAVES COUNTY, NEW MEXICO
(As Approved by Division Order No. R-8557,
dated December 2, 1987)

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

Sections 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

EXHIBIT "B"
CASE NO. 9211
ORDER NO. R-8611
TWIN LAKES SAN ANDRES UNIT
TABLE OF PROPOSED INJECTION WELLS

<u>TWIN LAKES SAN ANDRES UNIT WELL NO.</u>	<u>FORMER WELL NAME AND NUMBER</u>	<u>FOOTAGE LOCATION</u>	<u>UNIT-SECTION TOWNSHIP-RANGE</u>	<u>PROPOSED TBG/PKR DEPTH(FT)</u>	<u>PROPOSED * INJECTION INTERVAL(FT)</u>
2	O'Brien "F" No. 4	1650' FSL-2310' FWL	K-25-8S-28E	2477	2552-2645
4	O'Brien Fee "25" No. 3	1650' FSL- 330' FEL	I-25-8S-28E	2524	2599-2700
6	O'Brien "K" No. 3	1650' FS & WL	K-30-8S-29E	2566	2641-2744
9	O'Brien "F" No. 3	330' FSL- 990' FWL	M-25-8S-28E	2452	2527-2586
11	O'Brien Fee "25" No. 1	330' FSL-1650' FEL	O-25-8S-28E	2502	2577-2638
13	O'Brien "K" No. 1	330' FS & WL	M-30-8S-29E	2548	2623-2728
15+	INJECTOR TO BE DRILLED (O'Brien "O" No. 15)	330' FSL-2139' FEL	O-30-8S-29E	2584	2659-2769
17	Citgo "A" State No. 5	990' FNL-1650' FWL	C-36-8S-28E	2473	2548-2646
19	Citgo "A" State No. 7	990' FN & EL	A-36-8S-28E	2528	2603-2705
21	O'Brien "I" No. 4	990' FNL-1650' FWL	C-31-8S-29E	2594	2669-2772
23	O'Brien "J" No. 9	990' FN & EL	A-31-8S-29E	2638	2713-2814
25	State "CH" Com No. 2	1850' FNL- 990' FWL	E-36-8S-28E	2426	2501-2600
27	Citgo State No. 4	2310' FN & EL	G-36-8S-28E	2493	2568-2668
30	O'Brien "I" No. 2	2310' FNL- 330' FWL	E-31-8S-29E	2573	2648-2748

32	O'Brien "J" No. 3	2310' FN & EL	G-31-8S-29E	2623	2698-2801
34	State "CH" Com No. 1	1980' FSL- 660' FWL	L-36-8S-28E	2452	2527-2627
35	Citgo "A" State No. 3	1980' FS & WL	K-36-8S-28E	2473	2548-2650
38	Citgo State No. 5	1650' FSL- 990' FEL	I-36-8S-28E	2523	2598-2700
40	O'Brien "I" No. 6	1650' FS & WL	K-31-8S-29E	2609	2684-2785
42	O'Brien "J" No. 5	1650' FSL- 990' FEL	I-31-8S-29E	2671	2746-2845
43	O'Brien "N" No. 1	1650' FSL- 430' FWL	L-32-8S-29E	2717	2792-2892
46	Citgo "A" State No. 1	330' FSL-2310' FEL	O-36-8S-28E	2496	2571-2677
48	O'Brien "I" No. 7	570' FSL- 330' FWL	M-31-8S-29E	2573	2648-2748
50	O'Brien "J" No. 4	560' FSL-2310' FEL	O-31-8S-29E	2660	2735-2836
52	O'Brien "N" No. 2-Y	540' FSL- 480' FWL	M-32-8S-29E	2718	2793-2894
54	O'Brien "C" No. 2	660' FN & WL	D-01-9S-28E	2459	2534-2636
55	O'Brien "C" No. 6	672' FNL-2285' FWL	C-01-9S-28E	2480	2555-2660
57	O'Brien "E" No. 7	330' FNL- 990' FEL	A-01-9S-28E	2526	2601-2703
59	O'Brien "L" No. 1	330' FNL-1750' FWL	C-06-9S-29E	2613	2688-2789
61	O'Brien "L" No. 3	330' FNL- 990' FEL	A-06-9S-29E	2666	2741-2839
63+	INJECTOR TO BE DRILLED (O'Brien "C" No. 63)	330' FNL-1650' FWL	C-05-9S-29E	2729	2804-2901
66	O'Brien "E" No. 1	1650' FNL-2310' FEL	G-01-9S-28E	2503	2578-2680 (open hole)
68	O'Brien "L" No. 10	1650' FNL- 330' FWL	E-06-9S-29E	2585	2660-2758
70	O'Brien "L" No. 4	1650' FNL-2310' FEL	G-06-9S-29E	2616	2691-2789

73	O'Brien "L" No. 7	1650' FNL- 330' FWL	E-05-9S-29E	2689	2764-2867
74	O'Brien "C" No. 3	1980' FS & WL	K-01-9S-28E	<u>Denied</u>	See Finding Paragraphs Nos. (13) and (14) of the Order
76	O'Brien "E" No. 5	2310' FSL- 990' FEL	I-01-9S-28E	2533	2608-2702
78	O'Brien "L" No. 9	2310' FSL-1650' FWL	K-06-9S-29E	2595	2670-2764
81	O'Brien "FF" No. 2	2310' FSL- 990' FEL	I-06-9S-29E	2623	2698-2794
83+	INJECTOR TO BE DRILLED (O'Brien "K" No. 83)	2300' FSL-1700' FWL	K-05-9S-29E	2713	2788-2881
86	O'Brien "E" No. 4	990' FS & EL	P-01-9S-28E	2526	2601-2700
88	O'Brien "FF" No. 4	990' FSL-2310' FEL	O-06-9S-29E	2596	2671-2764
90	O'Brien "FF" No. 6	990' FSL- 330' FWL	M-05-9S-29E	2661	2736-2833
91	O'Brien "D" No. 2	330' FNL-2310' FEL	B-12-9S-28E	2501	2576-2675
93	Moonshine "7" Battery "2" No. 12	330' FNL-1650' FWL	C-07-9S-29E	2557	2632-2733
95	Moonshine "7" Battery "2" No. 6	330' FNL- 990' FEL	A-07-9S-29E	2605	2680-2781
97	O'Brien "GG" No. 2	330' FNL-1650' FWL	C-08-9S-29E	2729	2804-2902
100	Moonshine "7" Battery "2" No. 4	1650' FNL- 330' FWL	E-07-9S-29E	2520	2595-2691
103	Moonshine "7" Battery "2" No. 2	1650' FNL-2310' FEL	G-07-9S-29E	2576	2651-2748
104	O'Brien "GG" No. 3	1650' FNL- 330' FWL	E-08-9S-29E	2642	2717-2824
105	O'Brien "D" No. 6	2310' FNL- 330' FEL	H-12-9S-28E	2501	2576-2674
107	Moonshine "7" Battery "2" No. 3	2310' FSL-1650' FWL	K-07-9S-29E	2566	2641-2741
109	O'Brien "DB" No. 3	1650' FS & EL	J-12-9S-28E	2541	2616-2713
111	Moonshine "7" Battery "2" No. 11	990' FSL- 330' FWL	M-07-9S-29E	2557	2632-2730

113	Moonshine "7" Battery "2" No. 13	990' FSL-2310' FEL	0-07-9S-29E	2622	2697-2782
116	Moonshine "18" No. 4	330' FN & WL	D-18-9S-29E	2607	2682-2765
118	Moonshine "18" No. 5	330' FNL-2310' FEL	B-18-9S-29E	2673	2748-2829
119	Moonshine "18" No. 2	1650' FN & WL	F-18-9S-29E	2635	2710-2809

* THE PROPOSED INJECTION ZONES AS SHOWN ABOVE ARE APPROXIMATES ONLY AND SUCH CHANGES SHALL BE RESTRICTED TO THE SAN ANDRES FORMATION ONLY

+ INJECTION WELL LOCATIONS SUBJECT TO CHANGE BY APPROVAL OF THE SUPERVISOR OF THE DIVISION'S ARTESIA OFFICE