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. 10813
Order No. R-9984

APPLICATION OF ARCO OIL AND GAS COMPANY FOR APPROVAL OF THE CONVERSION OF SIXTEEN WELLS IN THE EMPIRE ABO UNIT TO INJECTION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on September 9, 1993, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 5th day of October, 1993, 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) By Order No. R-4549 issued in Case No. 4953 on June 15, 1973, the Division authorized Arco Oil and Gas Company to institute a pressure maintenance project in its Empire Abo Unit Area located in portions of Townships 17 and 18 South, Ranges 27, 28 and 29 East, NMPM, Eddy County, New Mexico, by the injection of gas into the Abo formation through eight initial injection wells located within the unit.

(3) The applicant, Arco Oil and Gas Company, seeks approval to convert sixteen wells, all as shown on Exhibit "A" attached hereto, to injection in the Empire Abo Unit Pressure Maintenance Project, by the injection of gas into the Abo formation through the gross interval from approximately 5,250 feet to 6,369 feet.

(4) Approval of the proposed expansion will allow the applicant to inject gas into portions of the Empire Abo Unit Area not previously subject to gas injection, thereby improving sweep efficiency.

(5) Approval of the proposed expansion will also allow the applicant to recover additional oil from the Empire Abo Unit Area which may not otherwise be recovered, thereby preventing waste, and will not violate correlative rights.

(6) No offset operator and/or interest owner appeared at the hearing in opposition to the application.

(7) The applicant should take all steps necessary to ensure that the injected gas 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.

(8) The injection of gas into each of the wells shown on Exhibit "A" should be accomplished through 2 3/8-inch internally plastic-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation; 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.

(9) According to applicant's evidence and testimony, there are five wells within the "area of review", described as follows, which may not be cemented adequately so as to confine the injected fluid to the proposed injection zone:

OPERATOR, WELL NAME	WELL LOCATION
Arco-Empire Abo Ut. No. M-10	Unit O, Section 10-18S-27E
Arco-Empire Abo Ut. No. M-12	Unit A, Section 10-18S-27E
Arco-Empire Abo Ut. No. M-15	Unit B, Section 11-18S-27E
Arco-Empire Abo Ut. No. N-12	Unit A, Section 10-18S-27E
Rhonda Operating-Federal "EA" No. 1	Unit D, Section 12-18S-27E

(10) Prior to commencing injection operations into any injection well located within one-half mile of the above-described wells, the applicant should be required to cement above, across and below the proposed injection interval in a manner acceptable to the supervisor of the Division's Artesia District Office, or in the alternative, demonstrate by means of cement bond logs, temperature surveys or other appropriate data that the wells are adequately cemented so as to confine the injected gas to the injection formation.

(11) According to further evidence, there are five wells within the "area of review", described as follows, which may not be plugged and abandoned in a manner so as to confine the injected fluid to the proposed injection zone:

OPERATOR, WELL NAME	WELL LOCATION
Pan American-State "BL" No. 1	Unit B, Section 4-18S-28E
Exxon-Chalk Bluff Draw Ut. No. 18	Unit M, Section 16-18S-27E
Exxon-Chalk Bluff Draw Ut. No. 12	Unit A, Section 17-18S-27E
Exxon-Chalk Bluff Draw Ut. No. 20	Unit N, Section 17-18S-27E
James P. Dunigan-State No. 1	Unit D, Section 3-18S-28E

(12) Prior to commencing injection operations into any injection well located within one-half mile of the above-described wells, the applicant should be required to re-plug the wells in a manner acceptable to the supervisor of the Division's Artesia District Office, or in the alternative, demonstrate by other means that the wells are adequately plugged and abandoned so as to confine the injected gas to the injection formation.

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

(14) The injection wells or pressurization system should be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 2,000 psi.

(15) The Division Director should have the authority to administratively authorize a pressure limitation in excess of the pressure limitation described in Finding No. (14) above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(16) The operator should give advance notification to the supervisor of the Artesia District Office of the Division of the date and time of the conductance of remedial cement operations, re-plugging operations, the installation of injection equipment and of the mechanical integrity pressure tests in order that the same may be witnessed.

(17) The expansion of the Empire Abo Unit Pressure Maintenance Project should be approved and the project should be governed by the provisions of Division Order No. R-4549, as amended, and Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(18) 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.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Arco Oil and Gas Company, is hereby authorized to expand its Empire Abo Unit Pressure Maintenance Project by injecting gas into the Abo formation, Empire-Abo Pool, Eddy County, New Mexico, through the gross interval from approximately 5,250 feet to 6,369 feet in the sixteen wells shown on Exhibit "A" attached hereto.

(2) The applicant shall take all steps necessary to ensure that the injected gas 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.

(3) Injection into the wells shown on Exhibit "A" shall be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set approximately within 100 feet of the uppermost injection perforation; the casing-tubing annulus in each well shall be filled with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(4) The injection wells or pressurization system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 2,000 psi.

(5) The Division Director shall have the authority to administratively authorize a pressure limitation in excess of the above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(6) Prior to commencing injection operations into the wells shown on Exhibit "A", the casing in each well shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(7) Prior to commencing injection operations into any injection well located within one-half mile of the following described wells, the applicant shall cement the wells above, across and below the proposed injection interval in a manner acceptable to the supervisor of the Division's Artesia District Office, or in the alternative, demonstrate by means of cement bond logs, temperature surveys or other appropriate data that the wells are adequately cemented so as to confine the injected gas to the injection formation:

OPERATOR, WELL NAME	WELL LOCATION
Arco-Empire Abo Ut. No. M-10	Unit O, Section 10-18S-27E
Arco-Empire Abo Ut. No. M-12	Unit A, Section 10-18S-27E
Arco-Empire Abo Ut. No. M-15	Unit B, Section 11-18S-27E
Arco-Empire Abo Ut. No. N-12	Unit A, Section 10-18S-27E
Rhonda Operating-Federal "EA" No. 1	Unit D, Section 12-18S-27E

(8) Prior to commencing injection operations into any injection well located within one-half mile of the following described wells, the applicant shall re-plug the wells in a manner acceptable to the supervisor of the Division's Artesia District Office, or in the alternative, demonstrate by other means that the wells are adequately plugged and abandoned so as to confine the injected gas to the injection formation:

OPERATOR, WELL NAME	WELL LOCATION
Pan American-State "BL" No. 1	Unit B, Section 4-18S-28E
Exxon-Chalk Bluff Draw Ut. No. 18	Unit M, Section 16-18S-27E
Exxon-Chalk Bluff Draw Ut. No. 12	Unit A, Section 17-18S-27E
Exxon-Chalk Bluff Draw Ut. No. 20	Unit N, Section 17-18S-27E
James P. Dunigan-State No. 1	Unit D, Section 3-18S-28E

(9) The operator shall give advance notification to the supervisor of the Artesia District Office of the Division of the date and time of the conductance of remedial cement operations, re-plugging operations, the installation of injection equipment and of the mechanical integrity pressure tests in order that the same may be witnessed.

(10) The applicant shall immediately notify the supervisor of the Artesia District Office of the Division of the failure of the tubing, casing or packer in any of the injection wells shown on Exhibit "A", the leakage of water, gas 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.

(11) The applicant shall conduct injection operations in accordance with the provisions of Division Order No. R-4549, as amended, and Division Rule Nos. 701 through 708. The applicant shall submit monthly progress reports in accordance with Division Rule Nos. 706 and 1115.

(12) The injection authority granted herein shall 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.

(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

WILLIAM J. LeMAY
Director

S E A L

EXHIBIT "A"
CASE NO. 10813
ORDER NO. R-9984
EMPIRE ABO UNIT
APPROVED INJECTION WELLS

Well Number	Location	Unit	S-T-R	Injection Perforations	Packer Depth	Tubing Size
Unit G No. 321	1520' FSL - 250' FEL	I	33-17S-28E	5800' - 6350'	5750'	2 3/8"
Unit F No. 343	2300' FNL - 1675' FWL	F	34-17S-28E	5650' - 6188'	5600'	2 3/8"
Unit H No. 261	150' FSL - 1400' FWL	N	32-17S-28E	5650' - 6220'	5600'	2 3/8"
Unit H No. 302	1250' FSL - 1925' FWL	N	33-17S-28E	5750' - 6280'	5700'	2 3/8"
Unit I No. 23	470' FNL - 2170' FEL	B	6-18S-28E	5700' - 6190'	5650'	2 3/8"
Unit I No. 283	175' FNL - 300' FEL	A	5-18S-28E	5900' - 6260'	5850'	2 3/8"
Unit J No. 202	2490' FNL - 1299' FEL	H	1-18S-27E	5600' - 6268'	5550'	2 3/8"
Unit J No. 223	2630' FNL - 1930' FWL	F	6-18S-28E	5550' - 6245'	5500'	2 3/8"
Unit K No. 182	1533' FSL - 2370' FWL	K	1-18S-27E	5850' - 6369'	5800'	2 3/8"
Unit L No. 111	20' FSL - 2485' FEL	O	3-18S-27E	5320' - 6020'	5270'	2 3/8"
Unit L No. 131	100' FSL - 100' FWL	M	2-18S-27E	5590' - 6185'	5540'	2 3/8"
Unit L No. 141	1050' FSL - 1360' FWL	N	2-18S-27E	5580' - 6125'	5530'	2 3/8"
Unit L No. 153	90' FSL - 1456' FEL	O	2-18S-27E	5950' - 6300'	6300'	2 3/8"
Unit M No. 901	1300' FNL - 1220' FWL	D	10-18S-27E	5350' - 6100'	5300'	2 3/8"
Unit P No. 5	330' FSL - 990' FWL	M	9-18S-27E	5250' - 5760'	5200'	2 3/8"
Unit R No. 5	1980' FNL - 660' FWL	E	16-18S-27E	5300' - 5694'	5250'	2 3/8"