STATE OF NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPPOSE OF CONSIDERING:

CASE No. 8398 Order No. R-7766

APPLICATION OF GULF OIL CORPORATION FOR A WATERFLOOD PROJECT, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 A.M. on November 7, 1984, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 27th day of December, 1984, the Commission, a quorum having been present, having considered the testimony and the record and being otherwise fully advised in the premises,

FINDS THAT:

- (1) Due public notice has been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) The applicant, Gulf Oil Corporation, in Commission Case 8398, seeks authority to institute a waterflood project in its Eunice Monument South Unit, by the injection of water into the unitized interval which shall include the formations which extend from an upper limit of 100 feet below mean sea level or the top of the Grayburg formation, whichever is higher, to a lower limit being the base of the San Andres formation in the proposed unitized area, all as shown on Exhibit "A" attached to this order.
- (3) The subject Commission Case 8398 was consolidated for hearing with Commission Cases 8397 and 8399.
- (4) Gulf proposes to utilize an 80-acre five spot injection pattern using a well number system and proposed

-2-Case No. 8398 Order No. R-7766

Unit injection wells all as shown and identified on Exhibit "B" attached hereto.

- (5) Said injection wells shall be conversions of existing wells or newly drilled wells as noted on said Exhibit "B".
- (6) The proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.
- (7) The producing formations in the proposed project area are in an advanced stage of depletion and the area is suitable for waterflooding.
- (8) There are five wells within or adjacent to the proposed project which may not have been completed or plugged in a manner which will assure that their wellbores will not serve as a conduit for movement of injected fluid out of the injection interval.
- (9) The five possible problem wells are identified and described on Exhibit "C" attached hereto.
- (10) Prior to instituting injection within one-half mile of any of the five possible "problem wells" Gulf shall first contact the Oil Conservation Division's District Supervisor at Hobbs to develop a plan acceptable to the Director of said Division for repairing or replugging such wells, for monitoring for determination of fluid movement from the injected interval, or for the drilling of replacement producing wells to lower reservoir pressure and fluid levels in order to protect neighboring properties and to protect other oil or gas zones or fresh water.
- (11) The operator should otherwise 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.
- (12) The injection wells or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 0.2 psi per foot of depth from the surface to the top injection perforation in any injection well, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

Case No. 8398 Order No. R-7766

(13) The subject application should be approved and the project should be governed by the provisions of Rule 701 through 708 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED THAT:

- (1) The applicant, Gulf Oil Corporation, is hereby authorized to institute a waterflood project in the Eunice Monument South Unit Area for the acreage described on Exhibit "A" attached hereto and made a part hereof, by the injection of water into the unitized interval which shall include the formations which extend from an upper limit described as 100 feet below mean sea level or at the top of the Grayburg formation, whichever is higher, to a lower limit being the base of the San Andres formation said geologic markers having been as found to occur at 3,666 feet to 5,283 feet, respectively, in the Continental Oil Company's Meyer B-4 Well No. 23 located 660 feet from the South line and 1980 feet from the East line of Section 4, Township 21 South, Range 36 East, Lea County, New Mexico.
- (2) Applicant, Gulf Oil Corporation, is hereby authorized to utilize for injection purposes the wells identified and described on Exhibit "B" attached hereto and made a part hereof.
- (3) 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 from the surface to the top injection perforation, provided however, the Division Director may authorize a higher surface injection pressure upon satisfactory showing that such pressure will not result in fracturing of the confining strata.
- (4) Injection into each of said wells shall be through plastic or cement-lined tubing, set in a packer which shall be located as near as practicable to the uppermost perforations, or, in the case of open-hole completions, as near as practicable to the casing-shoe; that the casing-tubing annulus shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention attracting leak detection device.
- (5) Prior to injection into any well located within one-half mile of any of the five wells listed on Exhibit "C" attached to this order, the applicant shall consult with the supervisor of the Oil Conservation Division's district office at Hobbs to develop a plan acceptable to

the Director of said Division, for the repairing, plugging, or replugging of said wells or for the monitoring for determination of fluid movement from the injected interval or for the drilling of producing wells to lower reservoir pressure and fluid levels in the vicinity of said wells in order to protect neighboring properties and to protect other oil or gas zones or fresh water.

- (6) The operator shall immediately notify the supervisor of the Division's Hobbs District Office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from 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.
- (7) The authorized subject waterflood project is hereby designated the Eunice Monument South Unit Waterflood Project and shall be governed by the provisions of Rules 701 through 708 of the Commission Rules and Regulations.
- (8) Monthly progress reports of the waterflood projects herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.
- (9) Jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JIM BACA, Member

ED KELLEY, Member

R. L. STAMETS, Chairman and Secretary

SEAL

TOWNSHIP 20 SOUTH, RANGE 36 EAST, NMPM

Section 25: All Section 36: All

TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM Section 30: S/2, S/2 N/2, NE/4 NW/4 and NW/4 NE/4

Section 31: All Section 32: All

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM

Section 2: S/2 S/2

Section 3: Lots 3, 4, 5, 6, 11, 12, 13, and 14

and S/2

Sections 4 through 11: All

Section 12: W/2 SW/4

Section 13: NW/4 NW/4

Sections 14 through 18: All Section 21: N/2 and N/2 S/2

Section 22: N/2 and N/2 S/2

CASE NO. 8398 ORDER NO. R-7766 EXHIBIT "A"

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146	E	31	20	37	
148	G	31	20	37	
150	E	32	20	37	
152	G	32	20	37	N
154	I	32	20	37	
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CASE NO. 8398 ORDER NO. R-7766 EXHIBIT "B"

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CASE NO. 8398 ORDER NO. R-7766 EXHIBIT "B"

CASE NO. 8398 ORDER NO. R-7766 EXHIBIT "B"

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CASE NO. 8398 ORDER NO. R-7766 EXHIBIT "B" N

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440	D	21	21	36
442	F	21	21	36
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450	J	22	21	36
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452	L	22	21	36

CASE 8398 ORDER NO. R-8398 EXHIBIT "B"

- (1) Amoco Production Co. State "C" Tr. 11 Well No. 3 located 1980 feet from the South line and 1980 feet from the East line of Section 2, Township 21 South, Range 36 East;
- (2) Amoco Production Co. State "C" Tr. 11 Well No. 4 located 3300 feet from the South line and 1980 feet from the East line of Section 2, Township 21 South, Range 36 East;
- (3) Texas Crude Oil Co. Kincheloe 2 State Well No. 1 located 1980 feet from the South line and 1980 feet from the West line of Section 2, Township 21 South, Range 36 East;
- (4) El Paso Natural Gas Co. Coleman Well No. 1 located 2310 feet from the South line and 2310 feet from the East line of Section 17, Township 21 South, Range 36 East;
- (5) Texaco Inc. New Mexico "H" NCT-1 Well No. 28, a dry hole, located 990 feet from the South line and 660 feet from the East line of Section 31, Township 20 South, Range 37 East;
- all in Lea County, New Mexico.

CASE NO. 8398 Order No. R-7766 EXHIBIT "C"

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. 10060 Order No. R-7766-A

APPLICATION OF CHEVRON U.S.A. INC. FOR THE EXPANSION OF THE EUNICE MONUMENT SOUTH UNIT WATERFLOOD PROJECT AREA AND TO AMEND DIVISION ORDER NO. R-7766, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on August 22, 1990, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 19th day of October, 1990, 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) Division Case Nos. 10059, 10060 and 10061 were consolidated at the time of the hearing for the purpose of testimony.

CASE NO. 10060 Order No. R-7766-A Page -2-

- (3) The applicant, Chevron U.S.A. Inc., seeks to expand its Eunice Monument South Unit Waterflood Project Area, as defined and authorized by Division Order No. R-7766, dated December 27, 1984, to include that area comprising its Eunice Monument South Unit Expansion Area B (being the subject of companion Case No. 10059), as fully described in Exhibit "A" attached hereto, by the injection of water into the unitized interval which includes the formations which extend from an upper limit of 100 feet below mean sea level or at the top of the Grayburg formation, whichever is higher, to a lower limit being the base of the San Andres formation, all within the Eunice Monument Grayburg-San Andres Pool, Lea County, New Mexico, through 35 existing wells and 3 wells to be drilled as injectors as shown on Exhibit "B" attached hereto.
- (4) The applicant proposes to commence waterflood operations within Expansion Area B utilizing an 80-acre five spot injection pattern using the well numbering system and proposed unit injection wells as identified on Exhibit "B" attached hereto.
- (5) The producing formations in the proposed expansion area are in an advanced state of depletion and the area is suitable for waterflooding.
- (6) The proposed waterflood expansion should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.
- (7) There are three wells within or adjacent to Expansion Area B which may not have been completed or plugged in a manner which will assure that their wellbores will not serve as a conduit for movement of injected fluid out of the injection interval.
- (8) Prior to commencing injection operations within one-half mile of the three wells described above and shown on Exhibit "C" attached hereto, the applicant should cement and/or replug said wells in a manner which will ensure that said wells will not serve as a conduit for movement of injected fluid out of the injection interval and in a manner satisfactory to the supervisor of the Division's Hobbs district office.

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- (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.
- (10) Injection into the proposed injection wells should be accomplished through 2 3/8-inch internally plastic-lined tubing installed in a packer set approximately within 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus in each well 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.
- (11) The injection wells or injection pressurization system should be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth from the surface to the top injection perforation.
- (12) The Division Director should 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 migration of waters from the Eunice Monument Grayburg-San Andres Pool.
- (13) Prior to commencing injection operations into the proposed injection wells, 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 operator should give advance notification to the supervisor of the Hobbs district office of the Division of the date and time of the installation of injection equipment, of the mechanical integrity pressure tests, and of the conductance of any remedial cement or plugging operations in order that the same may be witnessed.
- (15) The project should be designated the Eunice Monument South Unit Expansion Area B Waterflood Project.
- (16) The application should be approved and the project should be governed by the provisions of Rules 701 through 708 of the Oil Conservation Division Rules and Regulations.

CASE NO. 10060 Order No. R-7766-A Page -4-

IT IS THEREFORE ORDERED THAT:

- (1) The applicant, Chevron U.S.A. Inc., is hereby authorized to expand its Eunice Monument South Unit Waterflood Project Area, as defined and authorized by Division Order No. R-7766, dated December 27, 1984, to include that area comprising its Eunice Monument South Unit Expansion Area B, as fully described in Exhibit "A" attached hereto, by the injection of water into the unitized interval which includes the formations which extend from an upper limit of 100 feet below mean sea level or at the top of the Grayburg formation, whichever is higher, to a lower limit being the base of the San Andres formation, all within the Eunice Monument Grayburg-San Andres Pool, Lea County, New Mexico, through 35 existing wells and 3 wells to be drilled as injectors as shown on Exhibit "B" attached hereto.
- (2) The project is hereby designated the Eunice Monument South Unit Expansion Area B Waterflood Project.
- (3) Prior to commencing injection operations within one-half mile of the three wells described on Exhibit "C" attached hereto, the applicant shall cement and/or replug said wells in a manner which will ensure that said wells will not serve as a conduit for movement of injected fluid out of the injection interval and in a manner satisfactory to the supervisor of the Division's Hobbs district office.
- (4) The operator shall 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.
- (5) Injection into the proposed injection wells shall be accomplished through 2 3/8-inch internally plastic-lined tubing installed in a packer set approximately within 100 feet of the uppermost injection perforation or casing shoe; the casing-tubing annulus in each well shall be filled with an inert fluid and a gauge or approved leak detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

CASE NO. 10060 Order No. R-7766-A Page -5-

- (6) The injection wells or injection pressurization system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 0.2 psi per foot of depth from the surface to the top injection perforation.
- (7) 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 migration of waters from the Eunice Monument Grayburg-San Andres Pool.
- (8) Prior to commencing injection operations into the proposed injection wells, 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.
- (9) The operator shall give advance notification to the supervisor of the Hobbs district office of the Division of the date and time of the installation of injection equipment, of the mechanical integrity pressure tests, and of the conductance of any remedial cement or plugging operations in order that the same may be witnessed.
- (10) The operator shall immediately notify the supervisor of the Division's Hobbs district office of the failure of the tubing, casing, or packer in any injection well, the leakage of water or oil from or around any producing well, or the leakage of water or oil from or around 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 Division Rule Nos. 701 through 708 and shall submit monthly progress reports in accordance with Division Rule Nos. 706 and 1115.
- (12) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

CASE NO. 10060 Order No. R-7766-A Page -6-

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

STATE OF NEW MEXICO OIL CONSERVATION DIVISION

WILLIAM J. LEWAY

Director

S E A L

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CASE NO. 10060 DIVISION ORDER NO. R-7766-A EXHIBIT "A" EUNICE MONUMENT SOUTH UNIT EXPANSION AREA B

TOWNSHIP 20 SOUTH, RANGE 36 EAST, NMPM

Section 10: E/2 E/2

Section 11: W/2 NE/4, W/2, SE/4

Section 13: W/2, S/2 SE/4

Section 14: All

Section 15: NE/4 NE/4

Section 23: All

Section 24: N/2, SW/4, W/2 SE/4

ALL IN LEA COUNTY, NEW MEXICO

EXHIBIT "B"

CASE NO. 10060

ORDER NO. R-7766-A

EUNICE MONUMENT SOUTH UNIT EXPANSION AREA B

UNIT INJECTION WELLS

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	EXISTING WELLS	STT	
PREVIOUS OPERATOR	PREVIOUS WELL NAME AND NUMBER	UNIT WELL DESIGNATION	WELL LOCATION
	SECTION 10	0	
Conoco Inc.	Sanderson "B-1" No. 1	EMSU No. 853	660' FNL & 330' FEL (Unit A)
Conoco Inc.	Sanderson "B-1" No. 3	EMSU No. 862	2310' FSL & 330' FEL (Unit I)
	SECTION 11		
ARCO Oil and Gas	William P. Byrd No. 1	EMSU No. 851	330' FNL & 2310' FWL (Unit C)
ARCO Oil and Gas	Byrd Gas Com No. 5	EMSU No. 855	1650' FNL & 330' FWL (Unit E)
ARCO Oil and Gas	Mary J. Byrd No. 3	EMSU No. 857	2310' FNL & 2310' FEL (Unit G)
Conoco Inc.	Sanderson "A" No. 1	EMSU No. 858	1980' FSL & 660' FEL (Unit I)
ARCO Oil and Gas	William P. Byrd No. 3	EMSU No. 860	1650' FSL & 2310' FWL (Unit K)
Conoco Inc.	Sanderson "A" No. 6	EMSU No. 864	990' FSL & 990' FWL (Unit M)
Conoco Inc.	Sanderson "A" No. 4	EMSU No. 866	990' FSL & 1650' FEL (Unit O)
	SECTION 13	3	
Shell Western	State "E" No. 1	EMSU No. 868	660' FNL & 1980' FWL (Unit C)
Shell Western	State "E" No. 4	EMSU No. 879	1980' FNL & 680' FWL (Unit E)
Chevron USA, Inc.	Graham State NCT-H No. 2	EMSU No. 891	660' FSL & 660' FWL (Unit M)
Chevron USA, Inc.	R. R. Bell NCT-G No. 2	EMSU No. 893	660' FSL & 1980' FEL (Unit O)

	EXISTING WELLS	ST	
PREVIOUS OPERATOR	PREVIOUS WELL NAME AND NUMBER	UNIT WELL DESIGNATION	WELL LOCATION
	SECTION 14		
Conoco Inc.	Sanderson "A" No. 7	EMSU No. 870	660' FNL & 660' FEL (Unit A)
Conoco Inc.	Sanderson "A" No. 11	EMSU No. 872	330' FNL & 2310' FWL (Unit C)
Conoco Inc.	Sanderson "B14" No. 4	EMSU No. 875	1650' FNL & 990' FWL (Unit E)
Conoco Inc.	Sanderson "A" No. 13	EMSU No. 877	1650' FNL & 1650' FEL (Unit G)
Conoco Inc.	Sanderson "A" No. 10	EMSU No. 883	1980' FSL & 660' FEL (Unit I)
Conoco Inc.	Sanderson "B14" No. 2	EMSU No. 885	2310' FSL & 2310' FWL (Unit K)
Conoco Inc.	Sanderson "B14" No. 1	EMSU No. 889	990' FSL & 1650' FEL (Unit O)
	SECTION 15		
Conoco Inc.	Sanderson "B-1" No. 8	EMSU No. 874	330' FNL & 330' FEL (Unit A)
	SECTION 23		
Conoco Inc.	Reed "B" No. 1	EMSU No. 899	330' FNL & 330' FEL (Unit A)
Amerada Hess	H. W. Andrews No. 7	EMSU No. 901	660' FNL & 2310' FWL (Unit C)
Amerada Hess	H. W. Andrews No. 10	EMSU No. 903	1980' FNL & 660' FWL (Unit E)
Conoco Inc.	Reed "B" No. 8	EMSU No. 905	1980' FNL & 1650' FEL (Unit G)
Сопосо Іпс.	Reed "B" No. 5	EMSU No. 914	1980' FSL & 330' FEL (Unit I)
Amerada Hess	H. W. Andrews No. 9	EMSU No. 916	1980' FSL & 1980' FWL (Unit K)
Conoco Inc.	Reed "B" No. 9	EMSU No. 918	660' FSL & 660' FWL (Unit M)
Сопосо Іпс.	Reed "B" No. 6	EMSU No. 920	990' FSL & 1650' FEL (Unit O)

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<i>5773</i>	R UNIT WELL DESIGNATION WELL LOCATION	24	EMSU No. 895 660' FNL & 660' FEL (Unit A)	EMSU No. 897 660' FNL & 1980' FWL (Unit C)	EMSU No. 907 1980' FNL & 660' FWL (Unit E)	EMSU No. 909 1980' FNL & 1980' FEL (Unit G)	EMSU No. 912 1980' FSL & 1980' FWL (Unit K)	EMSU No. 922 660' FSL & 990' FWL (Unit M)) BE DRILLED	TENTATIVE WELL LOCATION	13	1935' FSL & 705' FWL (Unit L)	14	660' FSL & 660' FWL (Unit M)	24	705' FSL & 2025' FEL (Unit O)
EXISTING WELLS	PREVIOUS WELL NAME AND NUMBER	SECTION 24	Gillully "A" Federal No. 2	Gillully "A" Federal No. 9	Gillully "A" Federal No. 14	Gillully "A" Federal No. 11	Reed "B" No. 12	Reed "B" No. 13	INJECTION WELLS TO BE DRILLED	UNIT WELL DESIGNATION	SECTION 13	EMSU No. 881	SECTION 14	EMSU No. 887	SECTION 24	EMSU No. 924
	PREVIOUS OPERATOR		Amoco Production Company	Amoco Production Company	Amoco Production Company	Amoco Production Company	Conoco Inc.	Conoco Inc.		UNIT WELL		EMSI		EMSI		EMSI

(All in Township 20 South, Range 36 East, NMPM, Lea County, New Mexico.)

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> CASE NO. 10060 DIVISION ORDER NO. R-7766-A EXHIBIT "C"

OPERATOR WELL & LOCATION

Warrior, Inc. Federal "D" No. 8 1980'FNL & 1980'FWL (Unit F) Section 26, T-20 South, R-36 East

Elliot Oil Co. Schafer State No. 1 660'FNL & 1650'FEL (Unit B) Section 26
T-20 South, R-36 East

Chevron USA Graham State NCT-H 660'FSL & 660'FWL
No. 2 (Unit M) Section 13
T-20 South, R-36 East

ALL IN LEA COUNTY, NEW MEXICO